



**Franciscan Health Crown Point  
Emergency Medical Services System**



EMERGENCY MEDICAL RESPONDER

EMT

PARAMEDIC

## **Table of Contents**

INTRODUCTION FROM THE EMS MEDICAL DIRECTOR AND EMS DIRECTOR .....	v
1.0 CARDIAC EMERGENCIES.....	1
1.1 Cardiac Arrest: Termination of Resuscitation .....	2
1.2 Cardiac Arrest: PEA and Asystole.....	3
1.3 Cardiac Arrest: V-Fib / Pulseless V-Tach .....	4
1.4 Cardiac: Acute Coronary Syndrome .....	5
1.5 Cardiac: Cardiogenic Shock .....	6
1.6 Cardiac: Wide Complex Tachycardia with a Pulse .....	7
1.7 Cardiac: Narrow Complex Tachycardia .....	8
1.8 Cardiac: Symptomatic Bradycardia / Heart Blocks .....	9
1.9 Cardiac: Return of Spontaneous Circulation (ROSC) .....	10
2.0 MEDICAL EMERGENCIES .....	11
2.1 Medical: Acute Abdominal Pain, Nausea/Vomiting .....	12
2.2 Medical: Combative Patient / Excited Delirium Syndrome .....	13
2.3 Medical: Allergic Reaction / Anaphylaxis.....	14
2.4 Medical: Diabetic Emergencies .....	15
2.5 Medical: Overdose or Toxic Exposure .....	16
2.6 Medical: Seizures.....	17
2.7 Medical: Sepsis .....	18
2.8 Medical: Heat Related Illness .....	19
2.9 Medical: Cold Related Illness .....	20
2.10 Medical: Suspected Stroke.....	21
3.0 RESPIRATORY EMERGENCIES .....	22
3.1 Respiratory: Acute Asthma and Status Asthmaticus .....	23
3.2 Respiratory: Acute Pulmonary Edema .....	24
3.3 Respiratory: COPD Exacerbation.....	25
3.4 Respiratory: Rapid Sequence Airway .....	26-27
4.0 TRAUMA EMERGENCIES .....	28
4.1 Trauma: Trauma Transport Guidelines.....	29
4.2 Trauma: Field Triage Guidelines of Injured Patients .....	30
4.3 Trauma: Routine Trauma Care .....	31
4.4 Trauma: Spinal and Head Injury .....	32

4.5 Trauma: Spinal Clearance .....	33
4.6 Trauma: Burns .....	34
4.7 Trauma: Burn Rule of Nines.....	35
4.8 Trauma: Hemorrhagic Shock .....	36
4.9 Trauma: Musculoskeletal Injuries .....	37
4.10 Trauma: Chest Trauma .....	38
4.11 Trauma: Crush Injuries .....	39
4.12 Trauma: Pregnancy and Trauma .....	40
5.0 OB/GYN EMERGENCIES .....	41
5.1 OB/GYN Maternal Care .....	42
5.2 OB/GYN Childbirth .....	43
5.3 OB/GYN Care of the Neonate.....	44
5.4 OB/GYN Vaginal Bleeding .....	45
5.5 OB/GYN Eclampsia .....	46
6.0 PEDIATRIC EMERGENCIES.....	47
6.1 Pediatric: Routine Pediatric Care.....	48
6.2 Pediatric: Cardiac Arrest: Asystole or PEA.....	49
6.3 Pediatric: Cardiac Arrest: V-Fib / Pulseless V-Tach.....	50
6.4 Pediatric: Bradycardia.....	51
6.5 Pediatric: Tachycardia .....	52
6.6 Pediatric: Acute Asthma .....	53
6.7 Pediatric: Anaphylaxis / Allergic Reaction.....	54
6.8 Pediatric: Diabetic Emergencies .....	55
6.9 Pediatric: Hypoperfusion / Sepsis.....	56
6.10 Pediatric: Nausea and/or Vomiting .....	57
6.11 Pediatric: Overdose or Toxic Exposure .....	58
6.12 Pediatric: Pain Management .....	59
6.13 Pediatric: Seizures.....	60
6.14 Pediatric: Pediatric Trauma: Hypoperfusion / Hypovolemia .....	61
6.15 Pediatric: Pediatric Trauma: Burns .....	62
6.16 Pediatric Trauma: Burn Rule of Nines.....	63
7.0 SPECIAL SITUATIONS.....	64
7.1 Special: Ventricular Assist Device .....	65

7.2 Special: Medical Device Dependent Transport .....	66
7.3 Special: Mass Casualty Incidents .....	67
7.4 Special: Ambulance Diversion .....	68
7.5 Special: Patient Refusal of Treatment, Transport or Procedure .....	69
7.6 Special: ALS Assist/Intercept.....	70
8.0 PROCEDURES .....	71
8.1 Procedure: Airway Management .....	72
8.2 Procedure: CPAP .....	73
8.3 Procedure: King Airway LTS-D .....	74-75
8.4 Procedure: Endotracheal Intubation:.....	76
8.5 Procedure: Rapid Sequence Airway:.....	77-78
8.6 Procedure: Cricothyrotomy .....	79
8.7 Procedure: Pediatric Needle Cricothyrotomy.....	80
8.8 Procedure: Nasotracheal Intubation.....	81
8.9 Procedure: Digital Intubation .....	82
8.10 Procedure: Pertrach Cricothyrotomy .....	83
8.11 Procedure: Needle Chest Decompression.....	84
8.12 Procedure: Intraosseous Access.....	85-86
8.13 Procedure: External Jugular Access .....	87
8.14 Procedure: Intranasal Medication Administration.....	88
8.15 Procedure: Intramuscular Injection .....	89-91
8.16 Procedure: Subcutaneous Injection .....	92
8.17 Procedure: Intranasal Narcan Administration .....	93
8.18 Procedure: 12 Lead EKG Acquisition.....	94-95
8.19 Procedure: Glucose Administration .....	96
9.0 MEDICATION FORMULARY .....	97
9.1 Approved Mediations (page numbers on chart) .....	98-131
10.0 FHCP SYSTEM POLICIES.....	132
10.1 Policy: Documentation .....	133
10.2 Policy: System Entry Requirements.....	134
10.3 Policy: EMT Continuing Education Requirements.....	135
10.4 Policy: Paramedic Continuing Education Requirements.....	136
10.5 Policy: Corrective Action .....	137

## INTRODUCTION FROM THE EMS MEDICAL DIRECTOR AND EMS PROGRAM DIRECTOR

Franciscan Health Crown Point is proud to provide these evidence-based protocols for all affiliated Emergency Medical Service providers. The protocols have been developed after an extensive review of the most recent American Heart Association Guidelines, other regional protocols, relevant medical research, and input from individual field providers. The following evidence based treatment guidelines are designed to serve as the minimum expected standard of care required for improved patient outcomes while decreasing any potential risk to the patient and maximizing the interventions appropriate for each level of care.

No protocol can account for every clinical scenario encountered. The EMS provider must act with the best interest of the patient in mind using competent clinical reasoning and judgement to address these situations if medical control cannot be contacted for guidance.

The color-coded format of the protocols allows all EMS professionals to easily follow the potential interventions and treatment available for each specific patient complaint. All provider levels are highlighted, with level appropriate care below, while the corresponding protocol **STOP** line is clearly delineated.

### EMERGENCY MEDICAL RESPONDER

- EMERGENCY MEDICAL RESPONDER, EMT and PARAMEDIC protocols

### EMERGENCY MEDICAL RESPONDER STOP

### EMT

- EMT and PARAMEDIC protocols

### EMT STOP

### PARAMEDIC

- PARAMEDIC protocols

### Key Points/Considerations

- Additional points specific to patients that fall within the protocol

These protocols are designed to serve the community as a whole and include all levels of field providers. BLS should be completed before ALS. Advanced providers are responsible for all appropriate BLS interventions as well as those indicated for their scope of practice.

Medical Control/Direction for all levels of EMS providers is defined as:

- System Medical Director, when present at the scene and in physical contact with the patient.
- Base physician at the receiving hospital, by radio, landline, or cellular telephone

*[When transport is to another facility, and communication is not possible with the physician at the receiving facility, use Base physician at Franciscan Health Crown Point Hospital]*

## **STATEMENT REGARDING PHYSICIAN(S) ON SCENE**

Medical Direction, from a Physician intervener present at the scene and in physical contact with the patient may be accepted **ONLY** after **ALL** of the following criteria have been met:

- Intervener provides appropriate identification
- Confirmation has been received from the base physician
- Communication between intervener and base physician has taken place by radio, land line, or cellular telephone
- Intervener agrees to accompany patient in the ambulance to the hospital

The Base physician may resume control at any time. The EMS provider will not serve as a mediator between intervener and base physician.

## **Our Commitment to EMS**

Franciscan Health Crown Point Hospital EMS Staff will continue to evaluate current EMS and Medical literature to update the protocols to optimize the outcomes of our patients. We will continue to perform CQI audits of patient care to develop training programs that will improve care as a whole throughout the region. We hope that these protocols make your job easier, and assist you in the care of your patients.

We would like to thank everyone who provided input that contributed to the 2018 protocols



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EMS Medical Director



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EMS Director

# **MEDICAL EMERGENCIES**

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## **1.0 CARDIAC EMERGENCIES**

## 1.1 Cardiac Arrest: Termination of Resuscitation

### EMERGENCY MEDICAL RESPONDER

### EMT

### PARAMEDIC

- Resuscitative efforts for patients in cardiac arrest should **NOT** be initiated if:
  - Patient presents with significant dependent lividity, rigor mortis, decomposition and/or injuries incompatible with life such as
    - Decapitation
    - Evidence of massive blunt head, chest and or abdominal trauma
    - Third degree burns over 90% of the total body surface area.
  - Family presents a signed Out of Hospital DNR (Do Not Resuscitate)
  - Family presents a signed Physician Orders for Scope of Treatment (POST)
  - Health care facility Staff presents a signed DNR (Do not Resuscitate) order.
- For all other patients in cardiac arrest, in whom appropriateness of resuscitation is questionable, the EMS provider MUST start BLS care, including defibrillation while awaiting arrival of a paramedic unit.

### **EMERGENCY MEDICAL RESPONDER / EMT STOP**

- Consider Field termination of resuscitation **ONLY** if patient meets **ALL** of the following:
  - **Completed protocol appropriate for presenting rhythm with NO response to interventions**
  - Non-hypothermic
  - Older than 18 years old
  - No communication failure with family
    - Family is capable of understanding what termination of resuscitation means.
  - Scene is appropriate for termination order
- Consider “2 minute” warning to give family time to prepare for termination
- If at any time during ALS care, appropriateness of resuscitation is questionable, consult MEDICAL CONTROL physician for assistance.

### Key Points/Considerations

- Assign an EMS provider to the family in order to provide an update on patient condition if able. Otherwise use law enforcement.
- Once pronouncement has been made do not alter the condition in any way ( removing tubes, IV lines etc.) as this is now a coroners case and local law enforcement should be on scene to contact the coroner and support family.



## 1.2 Cardiac Arrest: PEA and Asystole

### EMERGENCY MEDICAL RESPONDER

- Recognize absence of responsiveness and pulses. Call for ALS Assist.
- CPR and AED
- Insert OPA or NPA, provide ventilations via BVM with 100% oxygen at 2 breaths per 30 compressions. Do not over ventilate.
- Check for DNR
- Perform 2 minute cycles of high quality CPR (hard and fast) Rate should be at least 100-120 beats per minute. Should feel carotid pulses to correspond with compressions if adequate.
- Rotate compressor at least every two minutes



### EMERGENCY MEDICAL RESPONDER STOP

### EMT

- Secure airway with medically approved advanced non-visualized airway
- Ventilate at 1 breath every six seconds. No need to stop compressions for ventilations



### EMT STOP

### PARAMEDIC

- Cardiac Monitor
- Vascular Access
- Consider and treat Reversible Causes (H's and T's)
- Epinephrine 1:10,000 dose 1 mg IV/IO; repeat every 3 - 5 minutes
- Place advanced airway as appropriate after a minimum of 4 minutes (2 cycles) of CPR.
- Consider Sodium Bicarb. 1meq/kg IV/IO in cases of prolonged down time or renal patents only
- Consider Calcium Chloride: 10ml IV/IO in patients with renal failure only
- Refer to the *Cardiac: Termination of Resuscitation* Protocol as needed

### Key Points/Considerations

- IO access should be considered and may be established as initial access for patients in cardiac arrest.
- Do not allow IV/IO access, drug delivery, or advanced airway placement to cause delay **> 10 sec.** in chest compressions or defibrillation
- Consider and possibly treat contributing factors including: Hypoxia, Hypovolemia, Hypothermia, Hyper-/Hypokalemia, Hydrogen Ion (Acidosis), Tension Pneumothorax, Cardiac Tamponade, Toxins, Thrombosis Coronary and/or Pulmonary
- Waveform Capnography/End-Tidal CO<sub>2</sub> must be used for assessment of chest compression effectiveness( >10mmHg), advanced airway placement, and ROSC (abrupt increase in PET CO<sub>2</sub> >40mmHg). Should feel carotid pulses to correspond with compressions.
- Epinephrine needs to given as soon as possible as ROSC is reduced by 4% for every minute you delay in administering it.
- DO NOT administer Bicarb and Calcium chloride in the same site without flushing the line with 20cc of saline first.

## 1.3 Cardiac Arrest: V-Fib / Pulseless V-Tach

### EMERGENCY MEDICAL RESPONDER

- Recognize absence of responsiveness and pulses. Call for ALS Assist.
- CPR and AED
- Insert OPA or NPA, provide ventilations via BVM with 100% oxygen at 2 breaths per 30 compressions. Do not over ventilate.
- Check for DNR
- Perform 2 minute cycles of high quality CPR (hard and fast) Rate should be at least 100-120 beats per minute
- Rotate compressor at least every two minutes

### EMERGENCY MEDICAL RESPONDER STOP

#### EMT

- Secure airway with medically approved advanced non-visualized airway
- Ventilate at 1 breath every six seconds. No need to stop compressions for ventilations

### EMT STOP

#### PARAMEDIC

- Cardiac Monitor
- Vascular Access IV/IO
- Consider and treat Reversible Causes (H's and T's)
- Epinephrine 1:10,000 dose 1mg IV/IO; repeat every 3-5 minutes,
- Administer Amiodarone 300 mg bolus IV/IO, Second dose 150 mg bolus.
- Place advanced airway as appropriate after first 4 minutes (2 cycles) of CPR
- Consider Sodium Bicarb. 1meq/kg IV/IO in cases of prolonged down time or renal patents only
- Consider Calcium Chloride: 10ml IV/IO in patients with renal failure only
- Consider: Magnesium sulfate 2 gram IV bolus for torsade's de points.

### Key Points/Considerations

- IO access should be considered and may be established as initial access for patients in cardiac arrest.
- Defibrillate at 200j biphasic, subsequent doses should be equivalent and higher doses should be considered. Continue compressions while device is charging. Follow shock, drug, shock drug regimen.
- Medications must be administered during 2 minute interval of compressions with 10cc NS Flush.
- Consider and possibly treat contributing factors including: Hypoxia, Hypovolemia, Hypothermia, Hyper-/Hypokalemia, Hydrogen Ion (Acidosis), Tension Pneumothorax, Cardiac Tamponade, Toxins, Thrombosis Coronary and Thrombosis Pulmonary
- Do not allow IV/IO access, drug delivery, or advanced airway placement to cause significant delay in chest compressions or defibrillation
- Waveform Capnography/End-Tidal CO<sub>2</sub> must be used for assessment of chest compression effectiveness( >10mmHg), advanced airway placement, and ROSC (abrupt increase in PET CO<sub>2</sub> >40mmHg) Should feel carotid pulses to correspond with compressions.
- DO NOT administer Bicarb and Calcium Chloride in same site without 20cc flush between doses.

## 1.4 Cardiac: Acute Coronary Syndrome

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy
- Vital signs
- Have AED available



### EMERGENCY MEDICAL RESPONDER STOP

### EMT

- Acquire and send 12 lead EKG ASAP if available.
- Aspirin 324 mg (4 x 81 mg tabs)
  - May withhold aspirin administration if patient has true allergy to ASA
- Assist patient with their own prescribed Nitroglycerin (up to 3 dose maximum), if systolic BP is greater than 90 mmHg prior to each administration.
- Obtain Blood Glucose
- Maintain SPO2 greater than 90%



### EMT STOP

### PARAMEDIC

- Cardiac Monitor with 12 lead in 5-10 min of patient contact and transmit
  - Notify MEDICAL CONTROL physician AS SOON AS POSSIBLE if STEMI identified
  - If elevation in Leads II, III, aVF check for more than 1mm of ST elevation V1 and or V2. If present, DO NOT give nitroglycerin.
- Vascular access, with troponin blood draw, (green and Lavendar) .9NS with 1000cc bag hanging.
  - If systolic BP less than 90 mmHg;
    - Normal Saline 500 cc fluid bolus except in presence of pulmonary edema
    - If pulmonary edema present refer to cardiogenic shock protocol
  - If systolic BP greater than 90 mmHg
    - Nitroglycerin 0.4 mg SL; repeat every 5 minutes to max 3 doses
    - Must have IV with fluids hanging first. Check BP prior to each dose.
- ONLY IF severe chest pain (> 8 on Pain Scale) administer the following
  - Fentanyl 25 - 100 mcg slow IV
  - Additional IV access as needed while enroute if time permits
  - Contact medical control for treatment of pain that is not severe, less than 8/10

### Key Points/Considerations

- Focus on maintaining ABC, pain relief, rapid identification, rapid notification and rapid transport
- Stabilize patient, begin ALS interventions as found on scene prior to transitioning to the ambulance provided that the scene is safe.
- Vitals, including 12 Lead ECG, should be monitored frequently during transport
- Monitor lung sounds every 5 minutes for rales, if present, discontinue fluid bolus.
- Do not administer nitroglycerin if the patient has taken Sildenafil (Viagra) or Vardenafil (Levitra) within the last 6 hours or Tadalafil (Cialis) within the last 48 hours
- Inferior= II, III, AVF, Lateral= I, AVL, V 5, V6, Anterior/septal= V1-V4

## 1.5 Cardiac: Cardiogenic Shock

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- Vital signs
- Place patient supine unless dyspnea is present
- Call for ALS assist.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Maintain SPO2 of 94% to 99%,
  - Consider CPAP, ventilate with BVM in order to maintain SPO2 of at least 94%.
  - Consider intubation if patient is not benefitting from CPAP and or level of consciousness does not improve.
- Cardiac Monitor
  - 12 lead ECG and transmit
  - Notify Medical Control ASAP if STEMI present
- Vascular access, with troponin blood draw, .9NS 1000cc bag hanging slow KVO.
  - If BP is less than 90 systolic and no signs of pulmonary edema administer Normal Saline 500 mL IV bolus
  - If patient remains unstable following fluid bolus or the patient has pulmonary edema
    - Dopamine infusion 5 mcg/kg/min, titrate to effect, not to exceed 20 mcg/kg/min.
- Maintain Systolic BP of 90mmHg.

### Key Points/Considerations

- UNSTABLE in relation to cardiogenic shock is defined as systolic BP less than 90 mmHg and/or decreased level of consciousness.
- CPAP reduces Blood Pressure by increasing intrathoracic blood pressure and impairing blood return. Consider using lower pressures if effective.
- Refer to appropriate Dysrhythmia protocol as needed
- Monitor lung sounds for every 5 minutes for rales if present hold fluid bolus
- Stabilize patient, begin ALS interventions as found on scene prior to transitioning to the ambulance provided that the scene is safe.

## 1.6 Cardiac: Wide Complex Tachycardia with a Pulse

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- Vital signs, recognize HR of 150 BPM or greater, Request ALS Assist.
- Have AED available



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Cardiac Monitor
  - Obtain 12 lead EKG and transmit
- Vascular access, .9NS with 1000cc bag hanging, KVO rate.
- **UNSTABLE**
  - Consider Versed (Midazolam) 2.5 mg IVP if time permits for sedation
  - **Synchronized** cardioversion at 100J; repeat to max X3 attempts.
    - If cardioversion fails follow drug regiment for STABLE patient
- **STABLE**
  - Primary Treatment :
    - Amiodarone 150 mg in 100cc NS infusion over 10 minutes (10cc per minute).
    - If rhythm is converted, Amiodarone 1-4 mg/min infusion.
  - Secondary Treatment:
    - Procainamide 1gm in 50cc NS via 60gtt set. 1gtt per second until arrhythmia is suppressed, hypotension ensues, QRS widens by 50% or 17mg/kg adm.
- Magnesium Sulfate 2 grams diluted in 10mL NS over 5-10 minutes IV for Torsade de Pointes

#### Key Points/Considerations

- UNSTABLE is defined as ventricular rate greater than 150 bpm with symptoms of chest pain, dyspnea, altered mental status, pulmonary edema, or hypotension (systolic BP less than 90 mmHg)
- Wide Complex is defined as a QRS complex greater than 0.12 seconds
- Cardioversion should be increased in a stepwise fashion at 100, 150 and 200 joules
- Initially may consider Adenosine **only** if regular and monomorphic – Initial dose 6mg, 2<sup>nd</sup> dose 12mg if unable to differentiate between narrow and wide complex.
- Procainamide infusion should be started once arrhythmia converts. Refer to chart for clarification.
- Consider 1-2 amps Sodium Bicarb. In persistent VT with renal patients.
- Stabilize patient, begin ALS interventions as found on scene prior to transitioning to the ambulance provided that the scene is safe.
- Primary treatment is preferred, Secondary treatment is indicated in case of hypersensitivity, allergy or drug shortage.

## 1.7 Cardiac: Narrow Complex Tachycardia

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy, maintain SPO2 94-99%
- Vital signs, Recognize HR of 150BPM or greater and call for ALS intercept.
- Have AED available



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Cardiac Monitor
  - Obtain 12 lead EKG and transmit
- Vascular access to antecubital fossa. .9NS 1000cc bag hanging KVO.
- Valsalva Maneuvers X3 attempts
- **IF UNSTABLE** and symptomatic
  - Consider Versed 2.5mg IVP if time permits for sedation.
  - Synchronized cardioversion; 50 J regular, 120 J irregular, repeat to max 3 times
    - If cardioversion fails, follow rhythm appropriate drug regimen for STABLE patient
- **IF STABLE** and symptomatic
  - REGULAR Rhythm:
    - Adenosine 6 mg rapid IV push followed by 20ml NaCl bolus
    - Adenosine 12 mg rapid IV push; followed by 20ml NaCl bolus
  - IRREGULAR Rhythm: (Atrial Flutter or Atrial Fibrillation)
    - Ventricular rate greater than 150 bpm
      - Cardizem (Diltiazem HCL) 15-20mg IV slow over 2 minutes
      - Verapamil 5mg in 10cc , IV slow over 3 minutes (Drug shortage only)
    - Ventricular rate less than 150 bpm
      - Consult MEDICAL CONTROL
- **Consider Wolff-Parkinson-White (WPW) if HR over 220 and young age**
  - AVOID Adenosine and Cardizem
  - Primary Treatment:
    - Amiodarone 150 mg diluted in 15 mL NS IV over 10 min
  - Secondary Treatment:
    - Procainamide 20 mg/min; max 17 mg/kg

#### Key Points/Considerations

- UNSTABLE is defined as a ventricular rate at or above 150 bpm with symptoms of any of the following: chest pain, dyspnea, AMS, pulmonary edema or hypotension (systolic BP less than 90 mmHg).
- Cardioversion should be administered at increasing doses of 50 to 100 joules increments.
- Treatment is indicated in acute presentations of Afib/Flutter only. CONTACT MEDICAL CONTROL rhythm onset is within 48 hours or greater.
- Often Afib with RVR is the result of an underlying medical condition such as sepsis. Failure to identify and treat the underlying cause first will result in patient decompensation.

## 1.8 Cardiac: Symptomatic Bradycardia / Heart Blocks

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- Vital signs, Recognize if patient is symptomatic and call for ALS Assist.
- Have AED available



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Cardiac Monitor
  - Obtain 12 lead EKG and transmit
- Vascular access, with troponin blood draw, .9NS with 1000cc bag hanging KVO.
- Consider and treat Reversible Causes (H's and T's)
- IF **UNSTABLE** and symptomatic
  - Begin external transcutaneous pacing beginning at 0 mA and 70 BPM increasing mA to effect. Maintain Systolic BP of 90 mmHg.
  - Consider Versed (Midazolam) 2.5 mg IVP for sedation if time permits
  - Consider Fentanyl 25-50mcg slow IVP for pain management
- IF **STABLE** and symptomatic
  - Administer atropine 0.5 mg every 3-5 minutes max 3mg/kg
- If Hypotensive
  - Primary Treatment :
    - Dopamine infusion 5 mcg/kg/min, titrate to effect, not to exceed 20 mcg/kg/min
  - Secondary Treatment:
    - Epinephrine Infusion, start at 2mcg/min titrate to effect, max 10mcg/min.
    - 1mg epi 1:10,000 in 250cc NS with 60gtt set. Start at 30gtt/min (2mcg/min)
- Consider immediate pacing for second degree Type II or third degree Heart Blocks for patients that are symptomatic and or unstable.

#### Key Points/Considerations

- Bradycardia is rate less than 60 bpm, but symptomatic is generally less than 50 bpm accompanied by chest pain, dyspnea, generalized weakness.
- UNSTABLE is defined as altered mental status and or Systolic BP less than 90 mmHg.
- Use atropine with caution in ACS. Atropine may not be effective in second degree II and third degree AV blocks. It is acceptable to administer atropine while preparing to pace.
- Consider and possibly treat contributing factors including: Hypoxia, Hypovolemia, Hypothermia, Hyper-/Hypokalemia, Hydrogen Ion (Acidosis), Tension Pneumothorax, Cardiac Tamponade, Toxins, Thrombosis- Coronary and Pulmonary
- Hypotension is the result of bradycardia and bradycardia is not the result of hypotension. Refrain from providing a fluid bolus until the rate is resolved.

## 1.9 Cardiac: Return of Spontaneous Circulation (ROSC)

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Recognize return of central pulses at two minute rhythm check, Call for ALS assist
- Stop CPR
- Manage ABC, continue ventilations via rescue breaths if no spontaneous respirations.
- Maintain oxygen saturation greater than 94%
- Vital Signs every 5 minutes
- Elevate Head 30 degrees
- Remove clothing to patient undergarments, preserve dignity of the patient, cover with sheet.



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Cardiac Monitor
  - Obtain 12 lead and transmit
- Vascular Access with troponin blood draw, .9NS with 1000cc bag hanging KVO
  - Consider additional IV access
- Place advanced airway if not already performed, do not hyperventilate.
  - Maintain ETCO<sub>2</sub> of 35-40mmHg
  - Provide one ventilation every 6 seconds.
- Maintain systolic BP greater than 90mmHg. If hypotensive:
  - IV fluid bolus of 1-2L NS, monitor for pulmonary edema
  - Consider Epinephrine IV infusion start at 2mcg/min titrate to effect to a max of 10mcg/min. (1mg epi 1:10,000 in 250cc NS with 60gtt set, start at 30gtt/min)
  - Consider Dopamine IV infusion 5-10 mcg/min. (check concentration)
- Address presence of shock or arrhythmia and reference appropriate protocol.

### Key Points/Considerations

- Following ROSC several simultaneous and stepwise interventions must be performed to ensure positive outcome for the patient.
- Survival and neurological outcome depend on management of hypoxia, hyper/hypocapnia, hypotension and fever.
- Therapeutic Hypothermia or Targeted Temperature management has not shown to be a benefit in the pre-hospital setting. CONTACT MEDICAL CONTROL for guidance
- Stabilize patient and initiate ALS interventions where patient is found and transfer to the ambulance provided that the scene is safe.



# **MEDICAL EMERGENCIES**

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## **2.0 GENERAL MEDICAL EMERGENCIES**

## 2.1 General Medical: *Acute Abdominal Pain, Nausea/Vomiting*

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Determine symptoms are not the result of a traumatic origin, Otherwise refer to appropriate protocol.
- Maintain ABC
- Apply oxygen therapy as appropriate, maintain SPO2 94-99%
- Identify life threatening causes and treat accordingly, ALS Assist
- Provide suction as necessary
- Do not allow patient to eat or drink.
- Vital signs
- Transport in position of comfort



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Cardiac Monitor
  - Obtain 12 lead EKG, If STEMI present refer to appropriate protocol and notify medical control ASAP.
- Obtain Vascular access. .9 NS with 1000 cc bag hanging KVO.
  - Administer NS 500cc IV bolus if life threatening causes have been ruled out.
- Pain management:
  - For acute presentations only. Patient shows signs of significant discomfort. Pain >8.
  - Fentanyl 25-50 mcg slow IVP, monitor for respiratory depression.
- Nausea, vomiting, non productive vomiting (dry heaves): Ondansetron (Zofran) 4 mg IV. May repeat once in 10 minutes. Use with caution with overdoses and suspected overdoses.
  - Consider IM or IN administration if unable to obtain IV access.

#### Key Points/Considerations

- Life threatening causes of abdominal pain and vomiting include cardiac ischemia, GI Bleed, ectopic pregnancy and AAA dissection.
- Pay close attention to cardiac etiologies especially in diabetics and the elderly.
- Fluid bolus is contraindicated in the presence of AAA dissection or pulmonary edema. . Suspect AAA in patients over 50 unless confidently ruled out. Document presence of pedal pulses.
- Ectopic pregnancy should be considered as primary cause in women of childbearing years unless confidently ruled out.
- Zofran is contraindicated in patients with known allergies and patients with known history of prolonged Q-T syndrome.
- Consider underlying causes of vomiting and rationale to provide an anti-emetic.

## 2.2 General Medical: Combative Patient/Excited Delirium Syndrome

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Maintain situational awareness and scene safety, involve and coordinate with Law Enforcement.
- Verbal de-escalation tactics, attempt to reasonably resolve concerns
- Consider underlying medical causes and treat accordingly once safe to do so.
- If verbal de escalation tactics fail and patient is determined to be a danger to his or herself involve law enforcement.
- Consider soft restraints, ensuring safety of patient and EMS personnel.
- If there is a concern involving safe transport of the patient or patient exhibits signs of excited delirium, contact ALS.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Cardiac Monitor and transmit 12 lead when safe to do so
- IV Access, and blood glucose when safe to do so.
- Assess for excited delirium, continue de-escalation
- If de-escalation tactics fail, administer the following:
  - Midazolam (Versed) 2 mg IV or 5 mg IM
    - May repeat in 5 minutes for a max dose of 10mg.
  - Haldol 5mg IV, IM
  - Benadryl 50mg IM, for extra pyramidal side effects of haldol
- Reassess and maintain ABC post sedation, apply oxygen, maintain SPO2 94-99%.

### Key Points/Considerations

- Medical causes for combativeness may include but will not be limited to hypoxia, hypoglycemia and head injury.
- If the patient is in police custody and/or has handcuffs on, they may be transported by EMS without officer if handcuff keys are present in ambulance
- Patient must NOT be transported in a face-down position
- For patients at risk of causing physical harm to emergency responders, the public and/or themselves
- Excited Delirium is a serious medical emergency. Patients will present with hallucinations, paranoia, hyper aggressiveness, tachycardia and hyperthermia,
- EMS personnel may only apply “soft restraints” such as towels, cravats or commercially available soft medical restraints

## 2.3 General Medical: Allergic Reaction / Anaphylaxis

### EMERGENCY MEDICAL RESPONDER

- ABC Vital signs
- Apply appropriate oxygen therapy



### EMERGENCY MEDICAL RESPONDER STOP

### EMT

- Identify symptoms as Mild, Moderate or Severe, Call for ALS Assist
- Moderate to Severe Symptoms
  - Administer Epinephrine 1:1000, 0.3mg IM. Monitor vital signs



### EMT STOP

### PARAMEDIC

- Cardiac Monitor
- Vascular access, .9NS with 1000cc bag hanging KVO
  - Maintain BP of 90mmHg systolic, consider .9NS 500cc Fluid bolus if hypotensive.
- **Asymptomatic**
  - Supportive care
- **Mild symptoms:** Urticaria, itching, nasal congestion, watery eyes, etc.
  - Diphenhydramine (Benadryl) 25- 50 mg IV or IM
- **Moderate symptoms:** Wheezing, nausea, vomiting, diarrhea, flushing, swelling face, neck, tongue
  - Albuterol 2.5mg via nebulizer, repeat once
  - Epinephrine 1:1000, 0.3 - 0.5mg SQ or IM
  - Methylprednisolone (Solu-Medrol) 125 mg IV, IM if no IV access
- **Severe reaction:** not relieved by initial treatment or patient presenting with Stridor, hypotension (systolic BP less than 90 mmHg), and/or Altered Mental Status
  - Be prepared to manage airway. Especially if patient has history of previous intubations.
  - Administer 500-1000cc NS fluid bolus, reassess vitals.
  - Primary Treatment:
    - If patient remains hypotensive: Administer Epinephrine 1:10,000 dose 0.01 mg/kg (0.3 mg max) IV. If no other epi is given.
  - Secondary Treatment:
    - If patient remains hypotensive after fluid bolus and Epi, consider dopamine 5mcg/kg/min, titrate dose every 5 minutes to maintain SBP 90mmHg. (check concentration)

### Key Points/Considerations

- High risk patients that suffer adverse outcomes from epinephrine are patients with known cardiovascular, cerebrovascular disease and the elderly.
- Stabilize patient and initiate ALS interventions where found then transition to ambulance provided scene is safe..

## 2.4 General Medical: Diabetic Emergencies

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy, manage airway as needed.
- Vital signs



#### EMR STOP

### EMT

- Check blood glucose level
- If blood glucose is known or suspected to be low and patient is able to swallow on command, give oral glucose one unit dose.
- If blood glucose is over 250 and patient presents with AMS request ALS assist.
- Reassess blood glucose level and vital signs. Maintain blood glucose to 80-120 range with normal LOC for patient



#### EMT STOP

### PARAMEDIC

- Cardiac Monitor
  - Obtain and transmit 12 lead EKG.
- Vascular access, .9NS with 1000cc bag hanging KVO.
- Blood glucose level below 60 mg/dL and signs and symptoms of hypoglycemia
  - Primary Treatment:
    - Dextrose 50% 25 grams IV; repeat 10 minutes
  - Secondary Treatment in case of drug shortage only:
    - Dextrose 10% 15 grams IV; titrate to effect not to exceed 25 grams
  - Unable to obtain vascular access, Glucagon 1 mg IM
- Blood glucose level above 250 mg/dL, with signs and symptoms of hyperglycemia
  - Normal Saline 500 mL IV bolus
- Monitor blood glucose level and vital signs.

### Key Points/Considerations

- Avoid excess fluids in the presence of pulmonary edema, be cautious concerning CHF patients.
- All patients that receive glucagon should be transported. Note that glucagon may not be effective in patients with a history of liver disease.
- Do not wait on scene for patient to respond to glucagon as patients respond differently based on their own metabolic rate.
- Stabilize and initiate ALS interventions where found then move to the ambulance unless scene is unsafe.
- Do not give oral glucose to patients with diminished gag reflex or unresponsiveness.
- Primary treatment is preferred. Secondary treatment is for drug shortage.

## 2.5 General Medical: Overdose or Toxic Exposure

### EMERGENCY MEDICAL RESPONDER

- Opiate OD: Naloxone 2mg IN give 1ml to each nares; for respiratory depression only
- Decontaminate as needed
- ABC,
- apply appropriate oxygen therapy, ventilate via BVM if needed and vital signs
- Attempt to determine what was taken, when, and how much, bring containers to ED
- Contact Poison Control **1-800-222-1222** for additional information and treatment

### EMT

- Check blood glucose level if abnormal refer to Diabetic Protocol.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Cardiac Monitor
  - Obtain 12 lead EKG
- Vascular access, with blood draw, .9NS with 1000cc bag hanging.
- For symptomatic patients with known:
  - Opiate OD: Naloxone (Narcan) 0.5 mg IV, IM, IN; repeat to max 2 mg for respiratory depression ONLY (avoid if intubated)
  - Organophosphate poisoning: Atropine 2 – 5 mg IV; repeat every 3-5 minutes
  - Calcium channel blocker OD: Glucagon 1 mg IM, SQ
  - Beta blocker OD: Glucagon 1 mg IM, SQ
  - Tricyclic antidepressant OD: Sodium Bicarbonate 1 mEq/kg IV
  - Sympathomimetic OD (cocaine/amphetamines): Midazolam (Versed) 2 - 5 mg IV, IM

### Key Points/Considerations

- Includes patients who are unconscious/unresponsive without suspected trauma or other causes
- Use caution with cancer patients, may be on large amounts of narcotics due to chronic pain.
- Dystonic reaction is uncontrolled muscle contractions of face, neck or tongue. Dystonic reactions may result from an allergic reaction to: Phenergan, Compazine, Haldol
- Be prepared to restrain patient after administration of Naloxone (Narcan)
- Medics should be called for any OD
- Signs and symptoms of organophosphate poisoning consider SLUDGE
  - **S**alivation, **L**acrimation, **U**rination, **D**iarrhea, **G**astric cramps, **E**mesis

## 2.6 General Medical: Seizures

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy
- Suction as needed, protect patient from harm.
- Vital signs

### EMT

- Check blood glucose level, if abnormal refer to Diabetic Protocol
- Place post ictal patient in lateral recumbent position
- Call for ALS assist



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Cardiac Monitor, Obtain 12 lead EKG
- Vascular access, .9NS with 1000cc bag hanging if giving IV meds.
- If patient is actively having a seizure
  - Primary
    - Midazolam (Versed) 2-4mg IVP slow over one minute, may repeat every 5 minutes as needed to a max dose of 10mg.
  - Secondary
    - If vascular access cannot be obtained may give Midazolam (Versed) 5 mg IM or IN

### Key Points/Considerations

- Most seizures are brief and require no treatment.
- IN administration of Versed is more appropriate for pediatrics however may be considered for adults.
- Consider any patient that sustains 30 minutes of recurrent seizures to be in status epilepticus.
- Protect patient from injury during the seizure.
- Consider underlying causes and treat accordingly.
- Monitor and manage respiratory status.

## 2.7 General Medical: Sepsis

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy, maintain SPO2 of 94-99%
- Vital signs, Blood Glucose,
- Obtain temperature
- Recognize symptoms of sepsis
  - Temperature greater than 100.4 F or less than 96.8 F.
  - Respiratory Rate greater than 20 breaths per minute
  - Heart Rate greater than 90.
- ALS Assist



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Monitor for decreased ETCO2 levels.
- Manage airway to maintain Capnography of 35-40mmHg.
- Cardiac Monitor
  - Obtain 12 lead EKG
- Vascular access, .9NS with 1000cc bag hanging
  - If no pulmonary edema (rales): Normal Saline 500 cc fluid bolus.
  - Maintain systolic BP of 90mmHg
  - IVF should not exceed 1000cc .9NS or 2000cc .9NS for transport time greater than 20 minutes
- Dopamine infusion 5 mcg/kg/min, titrate to effect, not to exceed 20 mcg/kg/min
- SEPSIS ALERT, patient meets following 3 criteria.
  - Suspected infection
  - ETCO2 less than or equal to 25mmHg.
  - AND at least two of the following
    - Temperature greater than 100.4 F or less than 96.8 F.
    - Respiratory rate greater than 20 breaths per minute
    - Heart rate greater than 90 BPM

#### Key Points/Considerations

- Sepsis is a rapidly progressing, life threatening condition due to systemic infection which must be recognized early and treated aggressively.
- Severe sepsis may cause hypoxia and inadequate organ perfusion. This result in elevated blood lactate levels and decreased ETCO2 levels.
- Monitor for signs and symptoms of pulmonary edema
- Consider causes of hypoperfusion, including anaphylaxis, toxic ingestions, cardiac rhythm disturbances, myocardial infarction, sepsis, ruptured AAA, ectopic pregnancy, trauma, or others



## 2.8 General Medical: Heat Related Illness

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC, Manage airway as appropriate, Maintain SPO2 94-99%.
- Remove from the environment into a temperature controlled area.
- Vital Signs
- Remove clothing to undergarments.
- Identify heat cramps, heat exhaustion, and heat stroke.
  - Heat cramps- generalized weakness, normal to cool skin, diffuse cramping
    - Encourage intake of commercial electrolyte beverage.
    - Continue to passively cool.
  - Heat Exhaustion- profuse sweating, elevated temp, headache, tachypnea
    - Cover with wet sheet
    - Passively cool, avoid shivering
  - Heat stroke – Hot dry skin, increased temp, decreased LOC
    - Cover with wet sheet, passively cool
    - Consider cold packs to torso and axilla, prevent shivering
- ALS assist for decreased LOC and or Heat stroke.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Manage airway as appropriate, maintain SPO2 of 94-99%.
- Cardiac Monitor, Obtain and transmit 12 lead EKG
- IV Access, .9NS with 1000cc bag hanging at KVO
  - Maintain systolic BP of 90mmHg
- Administer 500cc NS fluid bolus x2. Assess vitals and lung fields between boluses.
  - May consider chilled fluids in presence of heat stroke.

#### Key Points/Considerations

- This protocol is not intended for the treatment of fever.
- Remember that certain medications or drugs may produce heat illness
- If patient in cardiac arrest, follow AHA guidelines
- Monitor for signs and symptoms of pulmonary edema.
- If chilled fluids are not available, wrap IV tubing around cold pack.

## 2.9 General Medical: Cold Related Illness

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC, maintain SPO2 between 94-99%, Apply appropriate oxygen therapy.
- Remove from cold environment, move to heated area, avoid aggressive movement.
- Remove all wet clothing, cover with blankets, preserve heat.
- Recognize Localized vs. Systemic Hypothermia
  - Localized Hypothermia includes frost bite and frost nip
    - Apply dressings to affected areas. Do not break blisters, do not rub the area or allow refreezing.
  - Systemic Hypothermia includes Moderate and Severe Hypothermia. ALS Assist
    - Moderate Hypothermia- Core Temp 83-96F, Patient may be conscious or altered. Apply hot packs wrapped in towels to torso and axilla
    - Severe Hypothermia- Core Temp 86 F, Patient will be lethargic or unconscious, Apply Hot packs as above.
    - If cardiac arrest occurs, Begin CPR, attach AED and provide only 1 shock if indicated.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Manage airway as appropriate, maintain SPO2 94-99%.
- Cardiac Monitor
- IV Access, .9NS with 1000cc bag hanging KVO, Obtain Blood Glucose.
  - Provide warmed fluids, wrap tubing around hot pack.
  - Maintain Systolic BP greater than 90 mmHg.
- If cardiac arrest occurs
  - Begin CPR
  - Defibrillate x1 and withhold meds unless core temp greater than 86. Otherwise continue CPR, insert advanced airway and transport.

#### Key Points/Considerations

- These patients are not deceased until normal core temperature has returned to normal limits.
- All patients in cardiac arrest with a core temp of 95 F or less must be transported to the ED unless decomposition is present or patient is frozen solid.
- V-Fib will result if patient is handled aggressively with low core temp at or near 88F
- Bradycardia should not be treated in these patients unless temp of 95 F or greater. Patient should be warmed first.

## 2.10 General Medical: Suspected Stroke

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy,
- Vital signs
- Assess Cincinnati Stroke Scale
- Determine the exact time of symptom onset and/or last time seen without symptoms by interviewing patient, family, and bystanders

### EMT

- Maintain SPO2 of 94-99%
- Elevate head 30 degrees
- Check blood glucose level, if low refer to diabetic protocol
- Protect paralyzed extremities



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Maintain airway as appropriate.
- Cardiac Monitor
  - 12 lead ECG and transmit
- Vascular access, .9NS with blood draw
- Document improvement or deterioration of symptoms.
- Notify stroke center of last known well and advise of Stroke Alert.

### Key Points/Considerations

- Hypoglycemia. Bells Palsy, Post Ictal Paralysis, Complex Migraine, Overdose and Trauma will often mimic stroke.
- Cincinnati Pre-Hospital Stroke Scale:
  1. Have the patient repeat “You can’t teach an old dog new tricks”. Assess for correct use of words, without slurring
  2. Have the patient smile, assess for facial droop
  3. Have the patient close eyes and hold arms straight out for 10 seconds. Assess for arm drift or unequal movement of one side

# MEDICAL EMERGENCIES

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## 3.0 RESPIRATORY EMERGENCIES

### 3.1 Respiratory: Acute Asthma and Status Asthmaticus

#### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy
- Vital signs
- Place patient in fowlers to high fowlers position.



#### EMERGENCY MEDICAL RESPONDER STOP

#### EMT

- Assist patient with their own meter dose inhalation medications as appropriate
- Recognize Moderate and Severe Asthma symptoms
  - Moderate- Dyspnea, Wheezing, Cough
  - Severe- above symptoms to include speaking in one to two word sentences, agitation, cyanosis.
- Maintain SPO2 of 94-99%
- Call for ALS Assist



#### EMT STOP

#### PARAMEDIC

- Albuterol 2.5 mg via nebulizer; may repeat once
- Consider CPAP and inline nebulizer.
- Cardiac Monitor, 12 Lead ECG and transmit
- Vascular access, .9NS with 1000cc bag hanging
- Methylprednisolone (Solu-Medrol) 125 mg IV, IM if no IV access
- If **SEVERE (Status Asthmaticus)**
  - Epinephrine 1:1000 dose 0.3 –0.5 mg IM, if severe distress with systolic BP greater than 90 mmHg.
  - If systolic BP less than 90mmHg Epinephrine 1cc of 1:10,000 in 9cc NS IVP slow.
  - Magnesium Sulfate 2 grams IV infusion over 20 minutes.
    - 2 grams Mag in 50cc NS at 30gtts/min with 15gtt set.

#### Key Points/Considerations

- Remember, “All that wheezes is not asthma!” Consider allergic reaction, airway obstruction, Congestive Heart Failure, pulmonary edema, COPD exacerbation, Acute Pulmonary Hypertension
- Caution in using Epinephrine for patients with history of CAD.
- Management goal is to correct hypoxia, reverse bronchospasm and reduce inflammation.
- Use extreme caution when intubating asthma patients. Ventilate at 8-10 BPM, do not over ventilate.

## 3.2 Respiratory: Acute Pulmonary Edema

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy
- Vital signs
- Sit patient upright, if possible

### EMT

- Maintain SPO2 of 94% or greater
- Consider starting CPAP for moderate to severe disease
- Call for ALS Assist



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- DuoNeb (Albuterol 2.5 mg + Atrovent 0.5 mg in 2.5 mL mixed together), via nebulizer, consider inline with CPAP if needed.
- Monitor ETCO2, Consider intubation if unable to maintain SPO2 greater than 94% with CPAP.
- Cardiac Monitor, 12 Lead ECG and transmit
- Vascular access, with blood draw, IV .9NS 1000cc bag hanging, slow KVO
- May administer Midazolam (Versed) 1-2mg IVP if anxiety present and patient unable to tolerate CPAP.
- Nitroglycerin 0.4 mg; repeat every 3 - 5 minutes, if systolic BP greater than 90 mmHg. If BP less than 90mmHg refer to cardiogenic shock protocol
- Administer Aspirin 324mg PO if patient able to swallow and not contraindicated.
- Administer Lasix 40mg IVP, 80mg IVP if currently taking Lasix.

### Key Points/Considerations

- Remember, "All that wheezes is not asthma!" Consider allergic reaction, airway obstruction, Congestive Heart Failure, pulmonary edema, COPD exacerbation, Acute Pulmonary Hypertension
- Do not administer nitroglycerin if the patient has taken medications such as Viagra or Levitra within 6 hours or Cialis within the last 48 hours
- May give 3 nitro, 1.2 mg SL if systolic BP is greater than 160 mmHg.
- Nitro and CPAP are the most beneficial treatments. Focus on lowering BP and improving Hypoxia.
- Every effort must be made to rule out pneumonia and or sepsis as patients receiving lasix will have poor outcomes.
- DO NOT administer Lasix if there is suspicion of or evidence of fever.

### 3.3 Respiratory: COPD Exacerbation

#### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy, Never withhold oxygen from a patient in respiratory distress
- Vital signs

#### EMERGENCY MEDICAL RESPONDER STOP

#### EMT

- Assist patient with their own meter dose inhalation medications as appropriate
- Maintain SPO2 greater than 92% in COPD patients
- Consider starting CPAP for moderate to severe disease
- Call for ALS Assist.

#### EMT STOP

#### PARAMEDIC

- Monitor ETCO2,
- DuoNeb(Albuterol 2.5mg + Atrovent 0.5mg in 2.5cc mixed together), via nebulizer. May administer inline with CPAP.
- Cardiac Monitor, 12 Lead ECG and transmit
- Vascular access, IV .9NS with 1000cc bag hanging.
- Methylprednisolone (Solu-Medrol) 125 mg IV, IM if no IV access

#### Key Points/Considerations

- Remember, “All that wheezes is not asthma!” Consider allergic reaction, airway obstruction, Congestive Heart Failure, pulmonary edema, COPD exacerbation, Acute Pulmonary Hypertension
- Caution in using Epinephrine for patients with history of CAD.
- COPD is particularly responsive to CPAP. This should be considered early in treatment if the patient shows signs of distress.
- Monitor pulse rate before during and after Albuterol neb. If pulse rate increases 30 BPM then discontinue treatment.
- PEEP at 5 cmH2O is recommended if patient requires assisted ventilations.

### 3.4 Respiratory: Rapid Sequence Airway

#### PARAMEDIC

- PARAMEDIC ONLY

#### INDICATIONS

- To facilitate intubation of the patient with a compromised airway when standard methods have failed and further attempts to control airway would delay care.
- Respiratory failure with failure to protect and or maintain airway (GCS less than 9)
- Must be performed with Video assisted device, ETCO2 and waveform capnometry.

#### DRUG ASSISTED INTUBATION

- Provide high flow O2 via NRB at 15Lpm and NC at 3LPM for no less than 3 minutes pre sedation
- Safe pre oxygenation level is pulse Oximetry greater than 94 percent
- Cardiac Monitor, Pulse Oximetry, Prepare ETCO2 and waveform capnometry,
- IV Access, .9NS, 1000cc bag hanging, consider additional IV access.
- Prepare medications and backup airway devices
- **INDUCTION**
  - Administer Etomidate (Amidate) 0.3mg/kg (30mg max) rapid IV push, Increase NC to 15Lpm
    - Onset 15-45 seconds, Duration 3-12 minutes
- **PARALYSIS**
  - Administer Succinylcholine 2mg/kg (150 mg max) IV push
    - Onset 10-60 seconds, Duration 4-12 minutes
    - **Contraindicated** in malignant hyperthermia history and known or suspected hyperkalemia (new renal patients)
  - If Succinylcholine is contraindicated
    - Administer Ketamine 2mg/kg IVP up to 200mg
    - Administer Fentanyl 2mcg/kg IVP (max 200mcg)
- **INTUBATION**
  - Must be performed with video assisted device and bougie
  - Successful attempt
    - Attach ETCO2, waveform capnometry, confirm placement via at least three methods and document.
    - Secure with commercial device and apply c-collar
  - Unsuccessful attempt
    - Insert King Airway, ventilate accordingly and attach ETCO2 and capnometry
  - If unable to adequately ventilate the patient, perform Cricothyrotomy **only as a last resort when all other Airway interventions have failed.**
- **POST INTUBATION**
  - Administer Ketamine 2mg/Kg IV up to 200mg
    - Onset less than 30 seconds, Duration 5-15 minutes
    - Administer additional 50mg if needed for continued sedation.
  - Consider Versed administration up to 10mg IV for continued sedation if needed.



### 3.4 Respiratory: Rapid Sequence Airway Continued

#### PARAMEDIC

##### Key Points

- Be cautious with the use of Succinylcholine in patients with eye injuries, long standing crush injuries and skeletal muscle myopathy, most frequently Duchene's muscular dystrophy.
- It is mandatory to adequately pre oxygenate and monitor patient for changes
- Assess Vitals every 5 minutes and confirm ET placement whenever patient is moved.
- ET placement must be confirmed via visualization, ETCO<sub>2</sub>, Waveform Capnometry as well as bilateral auscultation of the chest and gastric area. Document tube placement at the lip and reconfirm whenever patient is moved.
- Consider Atropine 0.5 IV for Bradycardia post intubation.
- Ventilate patient with 100% oxygen via BVM, ventilate once every six seconds. Use PEEP at 5 cmH<sub>2</sub>O. Increase as needed.
- **Contact medical control ASAP especially if initial attempt has failed or there is a need to request additional sedation.**

	<b>Etomidate</b> .3 mg/Kg Max = 30 mg	<b>Succinylcholine</b> 2 mg/Kg Max = 150 mg	<b>Ketamine</b> 2mg/Kg Max = 250 mg	<b>Fentanyl</b> 2 mcg/Kg Max = 100 mcg
WT #/Kg				
<b>120# / 55 Kg</b>	17 mg	110 mg	110 mg	100 mcg
<b>140# / 64 Kg</b>	19 mg	128 mg	128 mg	100 mcg
<b>160# / 73 Kg</b>	22 mg	146 mg	146 mg	100 mcg
<b>180# / 82 Kg</b>	25 mg	150 mg	164 mg	100 mcg
<b>200# / 91 Kg</b>	27 mg	150 mg	182 mg	100 mcg
<b>220# / 100 Kg</b>	30 mg	150 mg	200 mg	100 mcg
<b>240# / 109 Kg</b>	30 mg	150 mg	218 mg	100 mcg
<b>260# / 118 Kg</b>	30 mg	150 mg	236 mg	100 mcg
<b>280# / 127 Kg</b>	30 mg	150 mg	250 mg	100 mcg
<b>300# / 136 Kg</b>	30 mg	150 mg	250 mg	100 mcg

# **TRAUMA EMERGENCIES**

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## **4.0 TRAUMA**

## 4.1 Trauma: Transport Guidelines

### EMERGENCY MEDICAL RESPONDER

### EMT

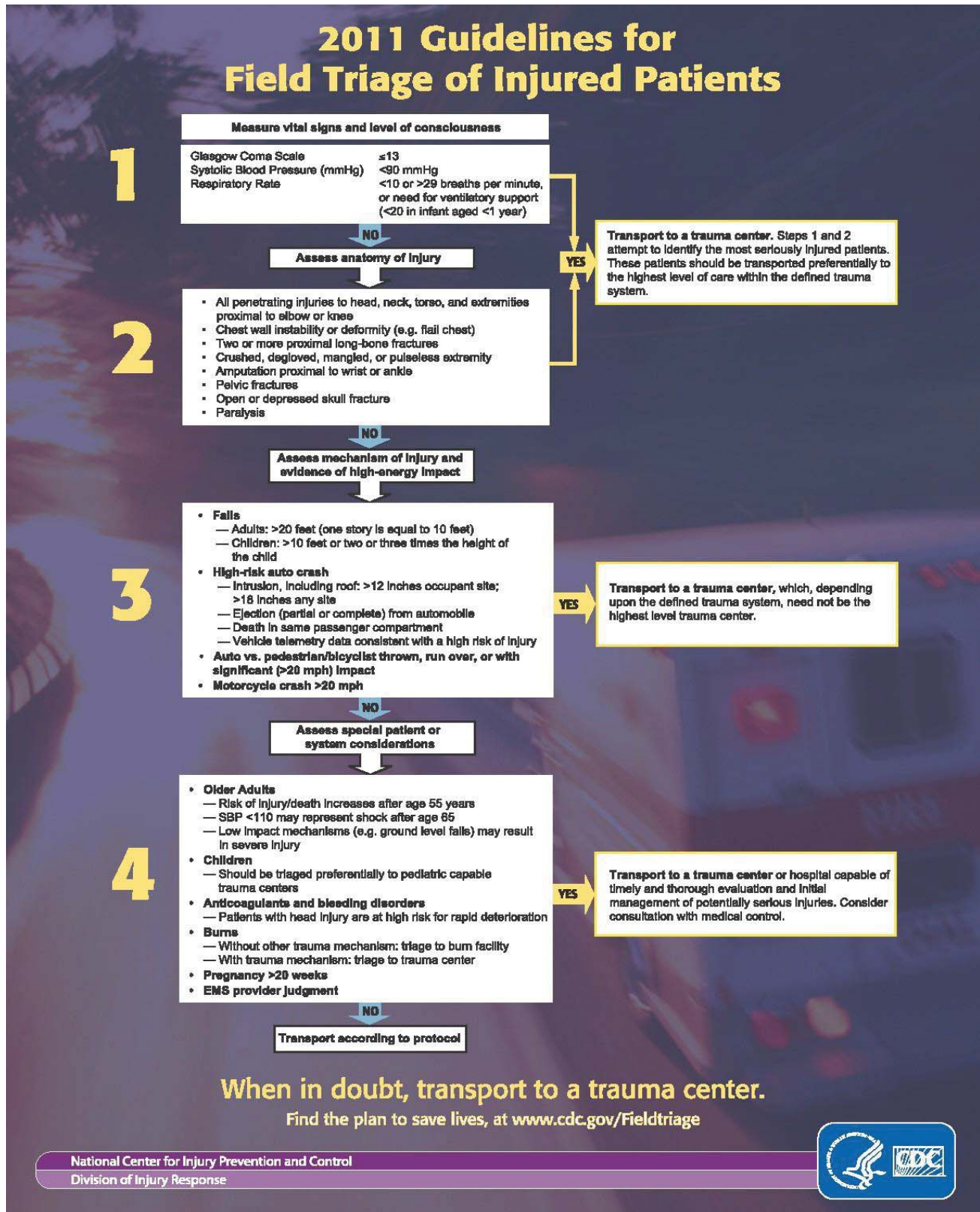
### PARAMEDIC

- Assess patient according to the *Field Triage Guidelines of Injured Patients*
- Airway or ventilation concerns that cannot be adequately stabilized by available EMS providers for the anticipated transport time to a Trauma Center should be transported to the closest appropriate acute care facility.
- Patients meeting Steps 1 or 2 should be transported to nearest Trauma Center
  - Via Ground Transport if less than 30 minute transport time, 45 minutes in inclement weather:
  - Via Aeromedical Transport if ground transport time more than 30 minutes and air transport time less than 45 minutes:
- Exceptions in which patient should be transported via ground to the closest appropriate facility:
  - Air transport time greater than 45 minutes
  - Weather or other local conditions prohibit air travel to the scene or to the closest Trauma Center
  - Scene wait time for aeromedical transport provider would exceed time required to transport the patient to the closest appropriate acute care facility by ground. In this situation the air medical provider may be diverted to the receiving acute care facility.
  - Patients in cardiac arrest at the scene after blunt trauma should not be transported via aeromedical transport.
  - Patients meeting Step 3 and 4 criteria

#### Key Points

- This is a guideline and is not intended to specifically define every condition in which transport decisions concerning ground transport vs. air medical services may be needed. Good clinical judgment should be used at all times.
- The helicopter can be requested to respond to the scene when:
  - ALS personnel request the helicopter
  - BLS personnel request the helicopter, when ALS is delayed or unavailable.
- When EMS arrives, they must assess the situation. If it is determined by the most highly trained EMS provider ON THE SCENE that the helicopter is not needed, it should be cancelled as soon as possible.
- NEVER delay transport to wait for the helicopter. Especially if the patient is packaged, ready for transport and the helicopter ETA is greater than the transport time to the hospital.

## 4.2 Field Triage Guidelines of Injured Patients



### 4.3 Trauma: Routine Trauma Care

#### EMERGENCY MEDICAL RESPONDER

##### EMT

- Spinal precautions
- Maintain ABCDE with special attention to airway and spinal precautions
- Obtain and reassess GCS.
- High Flow Oxygen 12-15 lpm via NRB, maintain SpO2 of 94-99%
- Conduct complete trauma assessment and manage critical hemorrhage
- Vital signs every 5 minutes unstable and 15 minutes stable patients
- Keep patient warm, avoid hypothermia
- Reduce scene time to 10 minutes or less
- Request ALS to scene concerning prolonged extrication or in matters where transport time to hospital BLS is greater than waiting for ALS .
- Consider ALS intercept if time to hospital is greater than time to meet ALS.



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

##### PARAMEDIC

- Obtain IV access, maintain systolic BP of 90 mmHg.
- Cardiac Monitor; obtain 12 lead ECG and transmit
- Manage pain as appropriate
- Complete thorough ALS trauma assessment, manage life threats.

#### Key Points/Considerations

- Treatment priorities should focus on spinal precautions, managing ABCDE, controlling hemorrhage and preventing hypothermia.
- Manage airway and maintain spinal precautions
- Control exsanguination with direct pressure, pressure dressings, packing wounds with combat gauze and application of tourniquet for life threatening uncontrolled hemorrhage.
- Assess breathing with direct auscultation and palpation of the chest. Manage flail chest segments with bulky dressings, tension pneumothorax with needle decompression and sucking chest wounds with partial occlusive dressings
- When assessing circulatory status note skin temperature, presence of peripheral pulses and capillary refill.
- Determine mentation using the AVPU method and note any sensory motor deficits
- Expose injuries, preserve dignity, prevent hypothermia.

## 4.4 Trauma: Spinal and Head injury

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine Trauma Care
- Spinal Precautions and manage ABCDE
- Determine LOC and document initial GCS, Monitor for changes
  - GCS less than 8, prepare to manage airway.
- Determine level of spinal injury through focused head to toe exam
- Call for ALS intercept



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Complete thorough trauma assessment, GCS less than 8, prepare to intubate.
- Ventilate at 20 breaths per minute in the presence of Cushing's Triad
- Vascular access x2 with 1000cc bags of NaCl hanging, Maintain systolic BP of 90 mmHg.
  - Provide 500cc NaCl bolus to maintain systolic BP of 90 mmHg, may repeat x1, be cautious in presence of pulmonary edema.
  - Fluid administration should be avoided or provided very slow KVO in the presence of hypertension.
- Cardiac Monitor; obtain 12 lead ECG and transmit
- Transport Safely

#### Key Points/Considerations

- Cervical Spine Injuries above the level of C4 result in Quadriplegia and will require assisted ventilations.
- Cervical Spine Injuries at the level of C6 result in upper extremity deficit. C6=can't make a six shooter.
- Deficit at below the nipple line suggests a T4 injury and deficit below the level of the umbilicus suggests injury to T10.
- Indications for spinal immobilization include mechanism of injury, spinal tenderness, neurological deficit, altered mental status. When in doubt, immobilize.
- Cushing's Triad is a sign of increasing intracranial pressure in the presence of a head injury and presents as increasing systolic BP, irregular or slow respiratory patterns and bradycardia
- Bradycardia is managed in the presence of a head injury with ventilatory assistance. Do not give atropine to a patient with bradycardia and hypertension.

## 4.5 Trauma: Spinal Clearance

### PARAMEDIC

- Routine Trauma Care
- Maintain manual C-spine while conducting assessment
- Patient does not require immobilization if the following are met.
- Patient must be:
  - Involved in a low risk mechanism of injury
  - Alert and oriented
  - Not legally intoxicated
  - Able to speak English or able to actively participate in the spinal clearance exam
- Physical Exam:
  - No pain on palpation of cervical vertebra
  - No neurological deficits at time of exam or at any time since the injury
  - No pain with axial load of c-spine
  - Active ROM without pain
  - Intact motor function and sensation in all extremities
- Documentation
  - Absence of exclusionary criteria
  - Examination of the c-spine
  - No neurological deficits

### Key Points/Considerations

- Exam must be conducted by a paramedic
- Exclusionary Criteria
  - Ejection,
  - Roll over,
  - Extrication from vehicle,
  - Falls greater than 3 feet,
  - Pedestrian vs. vehicle,
  - Mechanism of injury to suggest spinal trauma,
  - MVC of 60mph or greater
  - Car vs. motorcycle
  - Fatality on scene
- When in doubt immobilize.



## 4.6 Trauma: Burns

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Stop the burning process. Remove any clothing, jewelry, etc.
- ABC
- High Flow Oxygen 12-15 lpm via NRB, maintain SpO2 of 94-99%
- Vital signs
- Consult MEDICAL CONTROL physician for direct transport to a Burn Center via aeromedical transport service if needed
- Use dry sterile dressings or appropriate specialized burn dressings
- Avoid wetting the patient due to the danger of hypothermia
- Burns to the eye require copious irrigation with Normal Saline — do not delay irrigation



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access x2 ASAP with 1000cc bags of NaCl hanging, Maintain systolic BP of 90 mmHg. (IV, IO,)
- Cardiac Monitor; obtain 12 lead ECG and transmit
- If patient has signs of airway involvement be prepared to intubate
- Consider Fentanyl 25mcg slow IVP to 100mcg. May be repeated x1 for total dose of 200mcg. Monitor for respiratory depression
- May start parkland formula if time allows

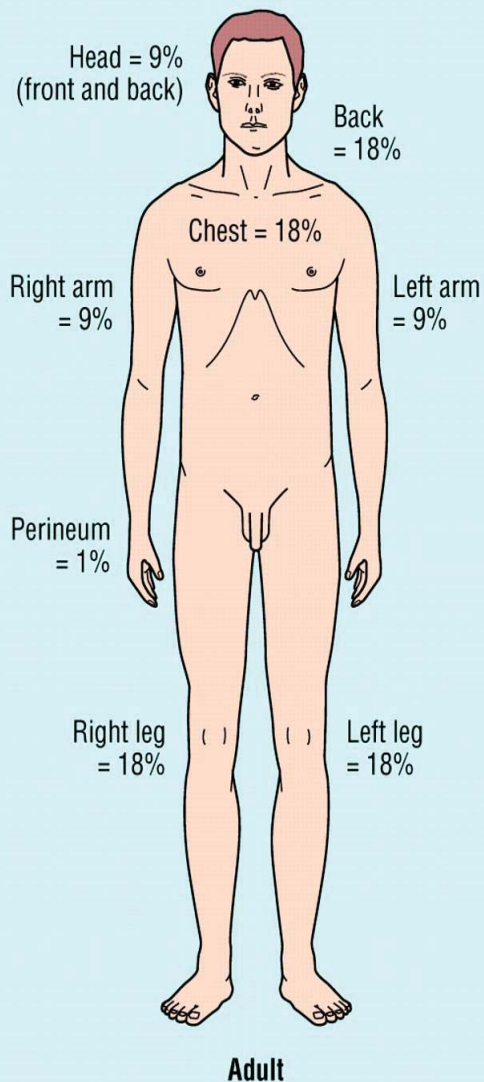
#### Key Points/Considerations

- Be alert for other injuries, including cardiac dysrhythmias
- Be alert for smoke inhalation.
- Assure 100% oxygen. Oxygen saturation readings may be falsely elevated.
- If hazardous materials involved, notify the destination hospital immediately to allow for decontamination
- When considering total area of a burn, DO NOT count first degree burns
- Burns are only to be dressed with simple sterile dressings once burning process has been stopped
- Consider Cyanide Toxicity and Carbon Monoxide poisoning
- Parkland Formula, 4ml x %BSA x weight KG : Half given in first 8 hrs



## 4.7 Trauma: *Burn Rule of Nines*

### Key Points/Considerations



## 4.8 Trauma: Hemorrhagic Shock

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine Trauma Care
- Treat all life threatening injuries as soon as possible: seal sucking chest wound, stabilize flail chest segments, stabilize impaled or protruding objects from the head, neck eye chest or abdomen and initiate rapid transport.
- Elevate the legs, maintain systolic BP of 90mmHg or greater.
- Consider application of second tourniquet proximal to first tourniquet if unable to manage external hemorrhage. Pack wounds with combat gauze.
- Do not delay transport waiting for ALS.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Manage airway appropriately, maintain SpO2 of 94-99%
- Vascular access x2 with 1000cc bags of NaCl hanging
  - Do not delay transport to obtain IV access, perform venipuncture while enroute to the trauma center.
  - Maintain systolic BP of 90 mmHg by providing 250cc boluses to a max of 2000cc.
- Cardiac Monitor; obtain 12 lead ECG and transmit
- Hemorrhagic shock from trauma with a suspected need for massive blood transfusion due to marked internal or external blood loss.
  - Administer TXA (age 15 or older) 1gm infusion. Mix 1gm in 100cc NaCl and infuse over 10 minutes.
  - Secure TXA vial to infusion set and alert staff.
- Notify receiving facility ASAP
- Monitor for change in patient condition, prevent hypothermia.

#### Key Points/Considerations

- TXA criteria must be met prior to administration
  - Must have obvious bleeding external wounds neck to mid-thigh or suspected internal injuries from blunt or penetrating trauma
  - Trauma must have occurred within the last 3 hours
  - Must have sustained tachycardia of 110 beats per minute or greater and or sustained hypotension with systolic blood pressure 90 mmHg or less.
- TXA must be infused slow over ten minutes. Complications of rapid infusion include but are not limited to hypotension and vomiting.
- Avoid providing excessive amounts of IV fluids..

## 4.9 Trauma: Musculoskeletal Injuries

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine Trauma Care
- Wound Care
  - Use appropriate PPE as needed
  - Control hemorrhage with direct pressure, elevation
  - Gentle irrigation with saline to remove gross debris only
  - Cover open wounds with saline soaked gauze, wrap with dry sterile dressings
- Splinting of Fractures
  - Immobilize joint above and below fracture
  - Check PMS before and after immobilization
  - Straighten severely angulated fractures if distal extremity has signs of decreased perfusion.
- Amputation Care
  - Clean amputated part with saline, wrap in in saline moistened gauze
  - Place part in air tight container and place on ice
  - Cover stump with saline moistened gauze then cover with dry dressing



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Continued routine trauma care
- Vascular access with 1000cc bag of NaCl hanging, Maintain systolic BP of 90 mmHg.
- Cardiac Monitor; obtain 12 lead ECG and transmit
- Manage Pain as appropriate
  - Preferred: Consider Fentanyl 25-50 mcg slow IV/IO/IN every 5 minutes to 100mcg. Prior to splinting. May be repeated x1 for total dose of 200mcg after splint is applied. Monitor for respiratory depression.
  - Alternate: Ketamine 0.2 mg/kg IV/IO/IM administered over one minute. May repeat once in five minutes as needed.

#### Key Points/Considerations

- Use caution when irrigating wounds as not to wash away clotting factors
- Apply hemostatic agent in the presence of uncontrolled hemorrhage and use tourniquet if needed.
  - Note time of placement, Apply as close to the injury as possible and DO NOT Remove once applied.
- Patient must show signs of intolerance to pain. Not all injuries require pain management
- Ketamine is only to be used to manage pain associated with long bone fractures.
- Do not manage chronic pain such as low back pain without consulting medical control.

## 4.10 Trauma: Chest Trauma

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy, maintain SpO<sub>2</sub> of 94-99%
- Vital signs
- Keep patient warm.
- If sucking chest wound, cover with gloved hand then partial occlusive dressing; if dyspnea increases release the dressing momentarily during exhalation
- Manage flail chest segments with blanket or pillow to affected area and secure
- ALS Intercept



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access x2 via .9 NaCl with 1000cc bags hanging, obtain blood draw; use the side opposite the injury if possible
- Maintain Systolic BP of at 90 mmHg via 250cc NaCl boluses.
- Cardiac Monitor; obtain 12 lead ECG and transmit
- Manage Tension Pneumothorax with Needle decompression if patient has signs and symptoms consistent with Tension Pneumothorax AND hemodynamic compromise
  - Prepare 14 gauge. 3.25 inch catheter, alcohol prep/Betadine
  - Locate 2nd intercostal space midclavicular line, insert over the third rib
    - Alternate site 5<sup>th</sup> intercostal space mid-axillary line insert over the 4<sup>th</sup> rib.

#### Key Points/Considerations

- Begin transportation as soon as possible, avoid prolonged scene times.
- Signs and symptoms of a Tension Pneumothorax: Absent lung sounds on one side, extreme dyspnea, jugular vein distention (JVD), cyanosis (even with 100% oxygen), tracheal deviation AND hypotension
- Hemodynamic compromise is defined: hypotension, narrowed pulse pressures and tachycardia
- Thoracic decompression is a serious medical intervention that requires a chest tube in the hospital
- Consider aeromedical transport for severe multi-system trauma if transport time is greater than 20 minutes

## 4.11 Trauma: Crush Injuries

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy, maintain SpO<sub>2</sub> of 94-99%
- Vital signs every 5 minutes
- Maintain body heat, keep patient warm
- Apply a tourniquet above the site of the injury if extremity is deemed unsalvageable or significant blood loss is suspected upon extrication. .
- Contact ALS for intercept immediately



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Obtain Vascular x2 via NaCl with 1000cc bags hanging, maintain systolic BP of 90 mmHg. Administer 1 liter .9 NS for those <65 y/o to prevent hypokalemia.
- Cardiac Monitor; obtain 12 lead and transmit
- 12 Lead ECG; repeat at 30 minute intervals
- Pain Management if hemodynamically stable
  - Preferred: Fentanyl, 25 mcg IVP slow to 100mcg. May repeat x1 to max of 200mcg.
  - Alternate: Ketamine 0.2mg/kg IVP slow over 1 minute.
- If one complete extremity is crushed more than 2 hours or two extremities crushed more than 1 hour:
  - Sodium Bicarbonate 50 mEq IV administered 1 minute prior to extrication via dedicated IV line.
  - Consider Calcium Chloride 1gm slow IVP if patient develops ventricular ectopy post extrication. DO NOT use same IV line as bicarb.

#### Key Points/Considerations

- Contact the aeromedical transport at scene if anticipated prolonged extrication.
- Use one dedicated IV for Sodium Bicarbonate, the other IV for all other medications
- After extrication immobilize the extremity and apply cold therapy. Do not elevate the extremity.
- If patient needs Rapid Sequence Intubation (RSI), use caution with Succinylcholine
- If Paramedics will be on scene in a reasonable amount of time, wait for extrication
- Hyperkalemia will manifest itself as peaked T waves and widened QRS on the EKG.

## 4.12 Trauma: Pregnancy and Trauma

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine Patient Care
- Routine Trauma Care
- Remember to treating the mother is treating the infant
- Estimate Gestational Age (EGA)
  - Note fundal height by palpating the abdomen, if uterus is at the umbilicus the EGA is at least 22 weeks.
  - Fundal height below the umbilicus (less than 22 weeks)
    - Priority is the mother
    - Transport all patients with any thoracic, abdominal, pelvic injury or complaint.
  - Fundal height at or above the umbilicus (22 weeks or older)
    - Priority is the Mother although you need to consider that you have two patients.
    - Transport in left lateral recumbent position or elevate the LSB 15-30 degrees to the left side if patient is immobilized.
    - Notify receiving facility of EGA
- Treat for shock as appropriate, maintain BP of 90mmHg minimum
- Assess for abdominal contractions and vaginal bleeding



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Continued routine trauma care
- Vascular access, Maintain systolic BP of 90 mmHg via 250cc boluses of NaCl.
- Cardiac Monitor
  - Obtain and transmit 12 lead if suspected blunt chest trauma.

#### Key Points/Considerations

- Transport all immobilized patients with 22 weeks EGA in left lateral recumbent position.
- Liberal use of oxygen is indicated as the fetus is susceptible to hypoxia.
- Normal maternal vital signs are not an indicator of fetal well being.
- Interpret vitals with caution as pregnant patients have increased heart rate, decreased blood pressure and increased blood volume.
- Patients with any thoracic, abdominal or pelvic complaint may require prolonged fetal monitoring in hospital even if asymptomatic at time of evaluation and for seemingly minor mechanism.
- Will need to manually displace abdomen to the left if performing CPR.

# **OB/GYN**

# **EMERGENCIES**

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## **5.0 OB/GYN**

## 5.1 OB/Gyn: Maternal Care

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy, Maintain SpO<sub>2</sub> of 99%
- Vital signs
- Obtain history
- Determine delivery status (crowning vs not crowning)
  - Crowning Present
    - Place patient on flat surface and prepare for delivery
    - Assemble Equipment
    - Reference emergency delivery protocol
  - Patient not crowning
    - Monitor closely for changes and transport in position of comfort



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Cardiac Monitor
- IV access .9 NaCl.

#### Key Points/Considerations

- Determine the estimated date of expected birth, the number of previous pregnancies and number of live births, difficulties with previous births/pregnancies.
- Determine if the amniotic sac (bag of waters) has broken, if there is vaginal bleeding or mucous discharge, or the urge to bear down.
- Determine the duration and frequency of uterine contractions
- Examine the patient for crowning. If delivery is not imminent, transport as soon as possible. If delivery is imminent, prepare for an on-scene delivery.
- If multiple births are anticipated but the subsequent births do not occur within 10 minutes of the previous delivery transport immediately.
- Every attempt should be made not to separate expectant or newly delivered moms and their family. Even when transporting.



## 5.2 OB/Gyn: *Childbirth*

### EMERGENCY MEDICAL RESPONDER

### EMT

### PARAMEDIC

#### Management of a Normal Delivery

- Support the baby's head over the perineum.
- If the membranes cover the head after it emerges, tear the sac with your fingers or forceps to permit escape of the amniotic fluid. Suction meconium in amniotic fluid if baby is in respiratory distress. Suction oropharynx then nostrils with a bulb syringe. Depress the bulb syringe before placing in the baby's mouth or nose.
- Gently guide the head downward until the shoulder appears. The other shoulder is delivered by gentle upward motion. The infant's face should be upward at this point.
- If the cord is around the neck and cannot be easily removed, clamp it with two clamps, cut the cord between the clamps, and unwrap the cord from around the neck. This is an emergency, as the baby is no longer getting any oxygen either through the cord or by breathing.
- Clamp the umbilical cord once pulsation stops, >60 seconds after birth, with a clamp at 4 inches and one at 6 inches from umbilicus and cut the cord between them.

#### Management of a Breech Delivery

- Support the buttocks or extremities until the back appears.
- Grasp the baby's **ILIAC WINGS** and apply gentle downward motion. **DO NOT** pull on the legs or back, as this may cause spine injury or adrenal hemorrhage.
- Gently move the infant's body in the direction of least resistance. By moving anteriorly and posteriorly, both shoulders should deliver posteriorly.
- Splint the humerus bones with your two fingers and apply gentle traction with your fingers.
- Gentle downward compression of the uterus will assist in head delivery. Swing the legs upward until the body is in a vertical position. This will permit delivery of the head.

#### Management of Prolapsed Cord or Limb Presentation

- Place the mother in a face-up position with hips elevated
- Place a gloved hand in the vagina and attempt to hold the baby's head away from the cord.
- Keep the cord moist using a sterile dressing and sterile water
- Transport immediately as this is a critical life threatening event

#### Key Points/Considerations

- Cutting the cord is not an emergency but must be done with sterile technique.
- Delivery of the entire placenta is vital post birth and occurs within 30 minutes. Upon delivery of the afterbirth ensure that it is completely intact and transport with baby.

### 5.3 OB/Gyn: Care of the Neonate

#### EMERGENCY MEDICAL RESPONDER

##### EMT

- Place infant on a dry blanket, cover the head and stimulate. Replace towels/blankets as they become wet. Once complete, wrap in warm blanket. If stable, place on mother skin to skin to preserve warmth. Put baby to breast.
- Evaluate Respirations and Pulse ( within 30 seconds post delivery)
  - If Breathing, Pulse is greater than 100, color is pink, Observe and transport
  - If Breathing, Pulse is greater than 100, color is cyanotic, provide O2 via blow by method
  - If Apneic or pulse less than 100, suction and provide bag mask ventilations at a rate of 40-60 breaths per minute.
  - If HR is less than 60 begin compressions with ventilations using a ratio of 3 compressions to 1 ventilation
- Obtain APGAR Score at 1 and 5 minutes after birth.



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

##### PARAMEDIC

- Cardiac Monitor
- If pulse remains less than 60 after treatments as above
  - IV/IO access .9 NaCl, administer 10ml/kg bolus.
  - Intubate if no improvement after 3 minutes of CPR
  - Administer epinephrine .01 mg/kg (1:10:000)IV, IO
  - Administer epinephrine .1mg/kg (1:1000) via ETT if no IV access
  - Consider Narcan .1mg/kg and or Dextrose 10% **ON BASE STATION ORDER**

SIGN	0	1	2
<b>A</b> - Appearance	Blue, pale	Body pink, extremities blue	Completely pink
<b>P</b> – Pulse	Absent	Below 100 bpm	Above 100 bpm
<b>G</b> - Grimace (flick soles of feet)	No response	Grimace	Vigorous cry
<b>A</b> - Activity (muscle tone)	Limp	Some flexion	Active motion
<b>R</b> - Respirations	No effort	Weak, irregular	Strong cry

#### Key Points/Considerations

- Notify destination hospital ASAP, and support the mother.
- Drugs are rarely indicated in the resuscitation of the newborn, Bradycardia is usually the result of hypoxia
- Do not withhold resuscitative efforts to obtain APGAR score.

## 5.4 OB/Gyn: Vaginal Bleeding

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Use appropriate PPE
- ABC
- Apply appropriate oxygen therapy, maintain SPO2 of 99%
- Place patient in left lateral recumbent if in the third trimester of pregnancy. If not in the third trimester and exhibits signs of shock place in trendelenburg position.
- Vital signs, maintain systolic BP greater than 90 mmHg.
- In the event of post partum hemorrhage from the vagina, apply a firm uterine massage starting from the pubis toward the umbilicus in a clockwise motion.
- Premature Delivery less than 20 weeks
  - Ensure that the fetus is pulseless and apneic if so resuscitative measures are not indicated. Cut the cord, provide supportive care to mother
  - If there is a question as to the approximate gestation of the fetus provide resuscitative measures.
  - If the fetus presents with spontaneous respirations and pulses provide resuscitative measures and transport.
- Premature Delivery greater than 20 weeks
  - Provide resuscitative measures and transport.
- Request ALS intercept.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access, .9 NaCl with 1000cc bag hanging. If signs of shock provide fluid bolus in the amount of 250cc increments to maintain systolic BP of 90mmHg to a max of 2000cc.
- Cardiac Monitor

### Key Points/Considerations

- Placenta previa (painless vaginal bleeding), Placental abruption (severe abdominal pain with minimal dark blood)
- In reference to miscarriage of a non viable fetus of less than 20 weeks it is necessary to provide emotional support to the mother. It is perfectly ethical to dry the fetus and ask if the mother would like to hold it during transport.
- Notify the receiving hospital ASAP.
- Obtain gestational age, prenatal care, number of pregnancies and live births, difficulties with previous pregnancies.

## 5.5 OB/Gyn: Eclampsia

### EMERGENCY MEDICAL RESPONDER

- ABC
- Avoid overstimulation such as bright lighting, loud noises etc.
- Apply oxygen to maintain SPO2 of 94-99%
- Obtain history to include due date, number of pregnancies and live births, prenatal care and problems associated with previous pregnancies.
- Vital signs, Specifically BP, Check for peripheral edema.

### EMT

- Check blood glucose level, if level is abnormal refer to Adult Diabetic Protocol
- Call for ALS Assist



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Vascular access .9 NaCl.
- Cardiac Monitor
- If Seizure Activity
  - Administer Versed 2-5mg IV/IO, 5mg IM, 10mg IN (5mg each nostril) to control seizure.
  - Follow up with administration of Magnesium Sulfate 4gm over 2 minutes IV infusion if eclampsia is suspected.
- Transport and monitor for respiratory depression.

### Key Points/Considerations

- Pre-eclampsia is defined as BP greater than 140/90 in a pregnant patient (or one who has recently given birth) with severe headache, confusion, light sensitivity and pedal edema.
- Eclampsia includes the above information and includes seizure activity
- Commonly occurs in non white first time mothers between 16-24 years of age and 35 and over or previous history of eclampsia.

# **PEDIATRIC EMERGENCIES**

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## **6.0 PEDS**

## 6.1 Pediatric: Routine Pediatric Care

### EMERGENCY MEDICAL RESPONDER

- Obtain an initial impression (visual assessment) observing appearance, breathing circulation.
  - Appearance- assess for reactivity to parents or environment. abnormal cry, presence of tears, floppy extremities, poor muscle tone.
  - Breathing,- assess for nasal flaring, grunting, abdominal breathing noisy breathing
  - Circulation- assess for paleness, mottling, cyanosis
- Primary Assessment to include ABCDE. Treat life threats
- Support airway, ventilation, and perfusion.
- Provide oxygen to maintain SpO2 of 94-99%
- Obtain vital signs, every 5 minutes for unstable and 15 minutes for stable patients.
  - Pulse less than 60 with poor perfusion despite adequate oxygenation and ventilation will require CPR, 30:2 if alone, 15:2 with a partner.

### EMT

- Blood Glucose if indicated. (Altered LOC, Shock)
- Complete toe to head assessment
- Obtain Broselow tape color and relay to ED phone or radio report.



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Vascular access (only if you intend to use it) 0.9 NaCl KVO.
- Cardiac monitor
- Continuous assessment and reassessment. Evaluate, Identify Intervene

Age	Respirations	Pulse	Systolic BP
Newborn	30 – 60	100 - 180	>60
Infant (< 1 year)	30 – 60	100 - 160	>60
Toddler (1 – 3 years)	24 – 40	90 - 150	>70
Preschooler (3 – 5 years)	22 – 34	80 - 140	>75
School-aged (6 – 8 years)	18 – 30	70 - 120	>80

### Key Points/Considerations

- Pediatric patients will not have visible hair in males or breasts in females. If visible treat as an adult.
- Pediatric patients can decompensate quickly. Aggressive management of ABCDE is essential.
- Keep them pink, warm, dry. Cover their bodies especially the head and remember to obtain a finger/heel stick BG.

## 6.2 Pediatric Cardiac Arrest: Asystole or PEA

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine pediatric care
- Begin compressions and ventilations if pulseless and apneic per AHA guidelines
- Apply AED and follow prompts. If no shock advised and no pulses continue CPR
- Perform 2 minute cycles of high quality CPR, push hard and fast.
- Obtain Blood glucose and Broselow color.
- Insert advanced airway if appropriate for age, (King or Combi tube)
- Call for ALS



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV/IO bolus as needed. Up to 2 boluses.
- Cardiac Monitor
- Consider and treat Reversible Causes (H's and T's) as appropriate
- Epinephrine 1:10,000 dose 0.01 mg/kg IV,IO; repeat every 3-5 minutes
- Place advanced airway within first 4 minutes of CPR as appropriate

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician and begin transport to the closest hospital as soon as possible
- Confirm asystole in more than 1 lead
- Secure airway ASAP
- Consider and possibly treat contributing factors including: Hypoxia, Hypovolemia, Hypothermia, Hyper-/Hypokalemia, Hydrogen Ion (Acidosis), Tension Pneumothorax, Cardiac Tamponade, Toxins,
- Follow pediatric ABDCE model: A=airway, B=BVM, C=Compressions, D=Drill, E=Epi.

### 6.3 Pediatric Cardiac Arrest: V-Fib / Pulseless V-Tach

#### EMERGENCY MEDICAL RESPONDER

##### EMT

- Routine pediatric care
- CPR per AHA guidelines
- Attach AED ASAP and follow prompts
- Perform 2 minute cycles of high quality CPR (hard and fast)



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

##### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV/IO bolus, as needed. Up to 3 boluses.
- Cardiac Monitor
- Consider and treat Reversible Causes (H's and T's) as appropriate
- Initial defibrillation at 2 J/kg, then 4J/kg, 6J/kg, 8J/kg max 10J/kg prn.
- Epinephrine 1:10,000 dose 0.01 mg/kg IV/IO; (0.1cc/Kg) repeat every 3 – 5 minutes prn.
- Administer Amiodarone (Cordarone) 5 mg/kg IV/IO. Max 300mg
- Place advanced airway within first 4 minutes of CPR as appropriate

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician and begin transport to the closest hospital as soon as possible
- Do not interrupt compressions for placement of an advanced airway during the first 8 minutes of CPR
- Use the small (pediatric) pads for patients less than 10 kg
- V-fib cardiac arrest is rare in children. Consider toxic ingestions including tricyclic antidepressants or long QT syndromes.



## 6.4 Pediatric Cardiac: Bradycardia

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine Pediatric Care
- Provide appropriate oxygen therapy.
- Vital signs.
- If heart rate is less than 60 bpm and patient's mental status and respiratory rate are decreased, ventilate with BVM
- Start CPR (if no improvement with ventilations)



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV bolus, as needed
- Cardiac Monitor
- Consider and treat Reversible Causes (H's and T's) as appropriate
- Epinephrine 1:10,000 dose 0.01 mg/kg IV/IO; (0.1cc/Kg) repeat every 3-5 minutes
- If bradycardia is due to increased vagal tone or primary AV block give atropine before giving epinephrine
  - Atropine 0.02 mg/kg (0.1 mg min dose) IV/IO; repeat 5 minutes to max 0.04 mg/kg
- Transcutaneous pacing,
  - Use peds pads if less than 10kg. May use adult pads if the pads do not touch. Otherwise anterior/posterior pad placement is preferred.
  - Set PPM to 60, mA to 0 and increase in increments of 5 mA until electromechanical capture is achieved.
- Place advanced airway as appropriate

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible
- Newborn/Infant bradycardia -- pulse less than 60- 80 bpm; child over 1 year of age bradycardia -- pulse less than 60 bpm
- Symptomatic includes poor systemic perfusion, hypotension, respiratory difficulty or altered level of consciousness
- Do not treat asymptomatic bradycardia. Consult MEDICAL CONTROL physician.
- Bradycardia in kids is almost always respiratory in nature. Always treat airway first.

## 6.5 Pediatric: Tachycardia

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine Pediatric Care
- ABC
- Apply appropriate oxygen therapy
- Vital signs
- Identify critical tachycardia as below
- ALS assist



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access, Normal Saline 20 mL/kg IV, IO bolus, as needed up to 3 boluses
- Cardiac Monitor; obtain 12 lead and transmit when appropriate
- **UNSTABLE**
  - Synchronized cardioversion 0.5 – 1.0 J/kg; repeat once at 2J/kg if unsuccessful
    - Sedation: Versed .05mg/kg IV/IO/IM/IN do not delay cardioversion
    - If unsuccessful post 2J/kg, transport and contact medical control.
- **STABLE Wide QRS:**
  - Administer Amiodarone (Cordarone) 5 mg/kg IV over 30 minutes
  - If not successful move to cardioversion
- **STABLE Narrow QRS:**
  - Valsalva Maneuvers (ice to face, blow through occluded tubing)
  - Adenosine (Adenocard) 0.1 mg/kg IV, IO follow by 10cc NS flush
    - May repeat in 1-2 minutes at 0.2 mg/kg IV, IO follow by 10cc NS flush
    - If unsuccessful move to cardioversion

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible
- Newborn/Infant SVT = pulse greater than 220 bpm;
- child over 1 year of age SVT = pulse greater than 180 bpm, no discernable p-waves
- UNSTABLE includes cardio-respiratory compromise, hypotension, or altered level of consciousness
- The most common causes of Sinus Tachycardia in children are fever, pain and dehydration. Treat for these first.
- Do not treat asymptomatic tachycardia. Consult MEDICAL CONTROL physician.

## 6.6 Pediatric: Acute Asthma

### EMERGENCY MEDICAL RESPONDER

- Routine pediatric care.
- Determine if patient has been given his/her own asthma medications



### EMERGENCY MEDICAL RESPONDER STOP

### EMT

- Assist with patient prescribed metered dose inhaler x1
- ALS Assist



### EMT STOP

### PARAMEDIC

- Cardiac Monitor
- Albuterol 2.5 mg via nebulizer, May repeat x1
- If patient not improving, obtain vascular access
- Epinephrine 1:1000 dose 0.01 mg/kg IM (0.5 mg max), if in severe distress
- Methylprednisolone (Solu-Medrol) 1-2 mg/kg IV/IO, IM if no IV access
- If patient presents with signs and symptoms of Croup
  - Nebulized Epinephrine
    - Less than one year of age: .5 mg/kg Epinephrine 1:1000 concentration via nebulizer at 6-8 LPM to create a fine mist and administer over 15 minutes. X1 only.
    - Greater than one year of age: 3mg Epinephrine 1:1000 concentration via nebulizer at 6-8 LPM to create a fine mist and administer over 15 minutes. X1 only.

### Key Points/Considerations

- Symptoms of croup include barking cough, hoarseness, runny nose and fever
- Signs of severe respiratory distress with impending respiratory failure include but are not limited to the following
  - Agitation
  - Tripod positioning
  - Accessory muscle use
  - Grunting, head bobbing, seesaw breathing
  - Decreased respiratory effort.
- Treat and address hypoxia in children aggressively.
- No Need to dilute epinephrine.

## 6.7 Pediatric: Anaphylaxis / Allergic Reaction

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine pediatric care
- Determine if patient has been given his/her own Epi Pen
- Administer .15mg Epi 1:1000 IM for moderate to severe reaction.
- Call for ALS Assist.



#### EMT STOP

#### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV/IO bolus as needed (up to 3 boluses)
- Cardiac Monitor
- Asymptomatic
  - Supportive care
- Mild symptoms: Urticaria, itching, nasal congestion, watery eye
  - Diphenhydramine (Benadryl) 1 – 2 mg/kg (25 mg max) IV/IO or IM
- Moderate symptoms: Wheezing, nausea, vomiting, diarrhea, flushing, swelling face, neck, tongue
  - Albuterol 2.5 mg via nebulizer
  - Diphenhydramine (Benadryl) 1 – 2 mg/kg (25 mg max) IV/IO or IM
  - Epinephrine 1:1000 concentration dose 0.01 mg/kg (0.5 mg max)
    - If not already administered by BLS crew.
  - Methylprednisolone (Solu-Medrol) 1 - 2 mg/kg IV
- Severe reaction: Stridor, hypotension with poor perfusion and/or Altered Mental Status
  - Cardiovascular collapse: Epinephrine 1:10,000 dose 0.01 mg/kg (0.5 mg max) IV/IO
  - Prepare for intubation, Perform Cricothyrotomy if unable to intubate as a last resort
- **Consult MEDICAL CONTROL physician as soon as possible**

## Key Points/Considerations

- A patient cannot refuse treatment once an epi pen has been administered
- Absence of breath sounds, AKA “silent chest” can be indicative of status asthmaticus. Be prepared for imminent respiratory arrest.
- DO NOT administer epinephrine if epi pen has been administered by BLS unless unsure it was administered properly.
- Use extreme caution in consideration to second dose of albuterol as this can cause increased HR resulting and worsening hypoxia.
- Be aggressive in managing hypoxia in pediatric patients.

## 6.8 Pediatric: Diabetic Emergencies

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy
- Vital signs



### EMERGENCY MEDICAL RESPONDER STOP

### EMT

- Check finger or heel stick Blood Glucose level
- If blood glucose is known or suspected to be low (<60) and patient is able to swallow saliva on command, give oral glucose one unit dose
- Call for ALS Intercept if patient is unable to swallow saliva on command, or mental status is altered.



### EMT STOP

### PARAMEDIC

- If blood glucose below normal range 60-80 and patient is showing signs and symptoms of hypoglycemia:

Patient's Age	Amount of Dextrose
Less than 1 year old	D10 – 0.5 gm/kg IV/IO
1 – Puberty	D25 – 0.5 gm/kg IV?IO

- Glucagon 1 mg IM (if unable to establish IV/IO access)
- If blood glucose if above 400 and if signs of dehydration are present, fluid bolus:
  - 0 - 1 years old, 10 mL/kg .9 NS, may repeat x1
  - 1 year old – Puberty, 20 mL/kg .9 NS , may repeat on BSO

### **Key Points/Considerations**

- Consult MEDICAL CONTROL physician as soon as possible
- To make D10, add 12cc of D50 into 50ml NS if shortage of medication
- Be cautious with fluid boluses in DKA as excess fluids may cause cerebral edema.

## 6.9 Pediatric: Hypoperfusion/Sepsis

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Routine pediatric care
- Apply appropriate oxygen therapy
- Vital signs
- Call for ALS assist ASAP



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV/IO bolus, as needed (up to 3 boluses)
- Cardiac Monitor

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible
- Indicated for patients with hypovolemia due to bleeding, vomiting, diarrhea or septic shock.
- Consult MEDICAL CONTROL physician if you suspect cardiogenic shock.
- Diagnostic criteria for hypotension includes: capillary refill time greater than 2 seconds, cool, clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP less than 70 mmHg (2 years and older) or systolic BP less than 60 mmHg (less than 2 years old).

## 6.10 Pediatric: Nausea and/or Vomiting

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- Vital signs



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV/IO bolus, as needed
- Cardiac Monitor
- Ondansetron (Zofran) 0.1 mg/kg IV/IM
  - Patient age should be greater than 6 months of age

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible



## 6.11 Pediatric: Overdose or Toxic Exposure

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Decontamination as needed
- ABC
- Apply appropriate oxygen therapy
- Vital signs
- Check blood glucose level. If level is abnormal refer to Pediatric: Diabetic Emergencies protocol
- Determine what was taken, when and how much, if possible
- Consider contacting Poison Control **1-800-222-1222** for additional information and treatment options



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access
- Cardiac Monitor; obtain 12 lead ECG and transmit
  - Opiate overdose: Naloxone (Narcan) 0.1 mg/kg IV,IO,IN; Repeat to max 2 mg
- For symptomatic patient with:
  - Opiate overdose: Naloxone (Narcan) 0.1 mg/kg IV,IO,IN; Repeat to max 2 mg
  - Organophosphate poisoning: Atropine 1 mg IV; repeat every 3 – 5 minutes until secretions dry and patient able to handle their oral secretions
  - Dystonic reaction: Diphenhydramine (Benadryl) 1 mg/kg (25 mg max) IV,IO or IM
  - Beta blocker OD: Glucagon 1 - 2 mg IM
  - Sympathomimetic ingestion (cocaine/amphetamine): Midazolam (Versed) 0.1 mg/kg IV,IO or IM
  - Calcium channel blocker OD: Glucagon 1 - 2 mg IM (if hypotensive, 20 mL/kg NS bolus) ON BSO ONLY
  - Tricyclic Antidepressants: Sodium Bicarb 1 mEq/kg if wide complex arrhythmia and prolonged QRS duration (if hypotensive, 20 mL/kg NS bolus)

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible
- Dystonic reaction is uncontrolled contractions of face, neck or tongue
- Cocaine/Methamphetamine signs and symptoms Seizures, hypertension, tachycardia
- Signs and symptoms of organophosphate poisoning consider SLUDGE
  - **S**alivation, **L**acrimation, **U**rination, **D**iarrhea, **G**astric cramps, **E**mesis

## 6.12 Pediatric: Pain Management

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- Vital signs



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access
- Cardiac Monitor
- Administer **ONE** of the following narcotic analgesics
  - Fentanyl 0.5 – 1 mcg/kg Slow IV, IM, or Intra-Nasal (IN)
- Ondansetron (Zofran) 0.1 mg/kg IV/IO, if patient becomes nauseous

#### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible
- ONLY for patients with:
  - Severe burns without hemodynamic compromise
  - Suspected isolated extremity injuries, fractures or dislocations with severe pain
- For all other painful conditions, providers must consult MEDICAL CONTROL physician for orders
- Contraindications to pain management protocol: altered mental status, hypoventilation, hypotension, other traumatic injuries
- Consult MEDICAL CONTROL physician for additional Fentanyl, or Zofran,

## 6.13 Pediatric: Seizures

### EMERGENCY MEDICAL RESPONDER

- ABC
- Apply appropriate oxygen therapy
- Vital signs
- If child is warm, remove blanket or loosen clothing
- Check temp. if able.

### EMT

- Check blood glucose level, if level is abnormal refer to *Pediatric: Diabetic* protocol  
\*\*\*\* **DO NOT DELAY TREATMENT OF SEIZURE TO OBTAIN BGL** \*\*\*\*



### EMERGENCY MEDICAL RESPONDER / EMT STOP

### PARAMEDIC

- Vascular access
- Cardiac Monitor
- Midazolam (Versed) 0.05 mg/kg IV, IM, IN (max .1mg/kg)
- Place advanced airway as appropriate

### Key Points/Considerations

- Consult MEDICAL CONTROL physician as soon as possible
- Protect the patient and EMS crew from injury during the seizure
- Paramedic may assist the patient's family or caregivers with administration of seizure medications rectally
- IN administration of benzodiazepines is as effective as IV

## 6.14 Pediatric Trauma: Hypoperfusion / Hypovolemia

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- Vital signs



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access; Normal Saline 20 mL/kg IV bolus, may repeat x2 prn
- Cardiac monitor

#### Key Points/Considerations

- Diagnostic criteria for UNSTABLE includes: capillary refill time greater than 2 seconds, cool, clammy or mottled skin, inability to recognize parents, restlessness, listlessness, tachycardia, tachypnea, systolic BP less than 70 mmHg (2 years and older) or systolic BP less than 60 mmHg (less than 2 years old).
- A falling BP is a LATE sign of shock

## 6.15 Pediatric Trauma: Burns

### EMERGENCY MEDICAL RESPONDER

#### EMT

- Stop the burning. Remove any clothing, jewelry, etc.
- ABC
- High Flow Oxygen 12-15 lpm via NRB
- Vital signs
- Use dry sterile dressings or appropriate specialized burn dressing.
- Avoid wetting the patient due to the danger of hypothermia
- Burns to the eye require copious irrigation with Normal Saline — do not delay irrigation



#### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

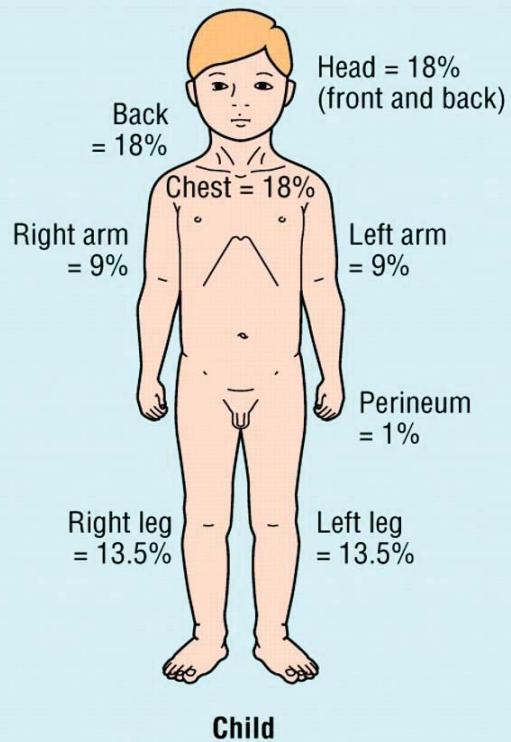
- Vascular access at 2 sites; Normal saline 20 mL/kg IV bolus, may repeat once
  - May consider IV/IO through burned tissue as last resort only
- Cardiac Monitor
- If patient has signs of airway involvement be prepared to intubate

#### Key Points/Considerations

- Be alert for other injuries, including cardiac dysrhythmias
- Be alert for smoke inhalation.
- Assure 100% oxygen. Oxygen saturation readings may be falsely elevated.
- If hazardous materials, notify the destination hospital immediately to allow for decontamination
- When considering total area of a burn, DO NOT count first degree burns
- Burns are only to be dressed with simple sterile dressings.
- Consider Cyanide Toxicity and Carbon Monoxide poisoning
- Keep patient warm avoid hypothermia

## ***Pediatric Trauma: Burn Rule of Nines***

### **Key Points/Considerations**



# **SPECIAL SITUATIONS**

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## **7.0 SPECIAL**

## 7.1 Special: Ventricular Assist Device Failure

### EMERGENCY MEDICAL RESPONDER

#### EMT

- ABC
- Apply appropriate oxygen therapy
- **LVAD Functioning?**
  - Auscultate left upper abdominal quadrant. Continuous Humming sound = pump IS working
- Have AED available
- If the pump has stopped for 5 minutes or more, assess patient:
  - If patient hemodynamically unstable, re-establish power and contact the VAD coordinator or ED physician immediately.
  - If patient is hemodynamically stable, DO NOT re-establish power (a clot may have formed in the pump) and contact the VAD coordinator or ED physician immediately. Continue to monitor.
- **Transport emergently to Emergency Department**



### EMERGENCY MEDICAL RESPONDER / EMT STOP

#### PARAMEDIC

- Vascular access, with blood draw
- Cardiac Monitor ; obtain 12 lead ECG and transmit
- Controller Alarming (red heart)
  - Treat for cardiogenic shock per *Cardiac: Cardiogenic Shock* protocol
- 12 Lead ECG
- Go to appropriate protocol as needed
  - Patient may be defibrillated/cardioverted and/or paced safely
- Contact Medical Control as soon as possible so they are aware of this *special patient*
- If the pump has stopped and will not re-start after re-establishing a power source, rapid transport to the nearest facility is indicated
  - Compressions will likely result in dislodgement of the pump and are considered intervention of last resort

#### Key Points/Considerations

- Turning the LVAD back on after it has stopped for 5 minutes can increase the possibility of clot formations being pushed around the system
- Most patients are already on Coumadin and ASA
- The LVAD is a continuous flow device and you may or may not feel pulse
- The patient needs to have their caregiver and all their equipment transported with them. (The caregiver is the expert on the device)
- This device is used as a bridge to transplant or may be destination therapy



## 7.2 Special: Medical Device Dependent Transport

### EMERGENCY MEDICAL RESPONDER



#### EMERGENCY MEDICAL RESPONDER STOP

#### EMT

#### PARAMEDIC

The Emergency Medical Services Commission recognizes the increasing numbers of medical-device-dependent patients. EMTs may transport these patients. The following represents the EMS Commission's ***"Non Rule Policy"***

Long-term care providers should stop central venous and enteral on-going infusions prior to transport by the EMT. EMTs shall not manipulate these devices unless directed to do so by medical control.

EMTs may transport any of the following under control of the provider organization's medical director:

- PCA Pump with any medication or fluid infusing through a peripheral IV
- Medication infusing through a peripheral IV or continuous subcutaneous catheter via a closed, locked system
- A central catheter that is clamped off (subclavian, Hickman, PICC, and Passport)
- A patient with a feeding tube that is clamped off
- A patient with a Holter monitor
- A patient with a peripheral IV infusing vitamins
- IV fluids infusing through a peripheral IV via gravity or an infusing system that allows the technician to change the rate of infusion are limited to NS, Lactated Ringers, Sodium Chloride (0.9% or less), Potassium Chloride (20mEq or less for EMTs)

The following are determined by the Emergency Medical Services Commission to require Paramedic level transportation:

- Medication infusing through a peripheral or central IV or fluid infusing through a central IV via gravity or an infusing system that allows the operator or assistant to change the rate of infusion
- A patient with a chest tube
- A patient with a continuous feeding tube
- A vent dependent patient

## 7.3 Special: Mass Casualty Incidents

### EMERGENCY MEDICAL RESPONDER

#### EMT

#### PARAMEDIC

- Purpose:
  - The purpose of this protocol is to provide structure to the triage and treatment of persons involved in multiple or mass casualty incidents or multiple patient scenes. EMS personnel must contact the closest receiving facility as soon as possible for reasons of early notification and preparation of resources.
- Definitions:
  - A mass casualty incident is defined as an incident that involves more victims than the initial EMS providers arriving on scene.
  - Incident Commander
    - Responsible for the overall incident and personnel on scene.
  - Medical Command
    - Responsible for the patients, highest scope of practice on scene.
    - Assigns treatment officers to secondary triage tarps
    - Contacts local hospitals and disseminates patients.
  - Triage is the process of sorting and categorizing patients based on the severity of their symptoms. Patients will be categorized into the four following groups. Each group has a color designation to assist in the rapid sorting of triaged patients.
    - Red- critically injured patients who must be transported as soon as resources allow
    - Yellow-Severely injured patients who must be evaluated and treated yet may not need immediate treatment.
    - Green- Those patients who need minor treatment
    - Black- Patients who are or will be deceased with or without appropriate treatment.
- Procedure:
  - Patients will be triaged according to the SMART and JUMP START triage criteria during every MCI
  - The first providers on scene will begin the triage tag process spending no more than 30 seconds with each patient. Initial treatment is BLS. (Primary Triage)
  - Additional providers will assist with primary triage, the incident commander and medical commander will be designated, secondary triage will be set up. (Colored Tarps)
  - Once primary triage has been completed on all victims, patients will be moved to designated colored tarps in order of criticality. (Secondary Triage)
  - Medical Command will designate a treatment officer for each tarp who will direct the treatment of patients assigned to each tarp.
  - Secondary triage will take place once as patients arrive at their designated tarps. The patients will be evaluated based on secondary triage assessment findings.
  - Medical command or his/her designee will be responsible for contacting local hospitals to determine the number of patients each hospital can accommodate.
  - Patients will be transported in order of severity of symptoms.

## 7.4 Special: Ambulance Diversion

### EMERGENCY MEDICAL RESPONDER

### EMT

### PARAMEDIC

- Purpose:
  - To provide safe, appropriate and timely care of patients who continue to enter the EMS system during periods of diversion.
- Definitions:
  - Ambulance Diversion:
    - An alert from an overwhelmed hospital to EMS Providers to divert patients that would normally be transported to that hospital to the next closest hospital due to concerns of patient safety.
- Procedure:
  - Hospitals will notify the dispatch center that the facility is on Ambulance diversion
  - Dispatch center will provide diversion status notification to EMS Providers.
  - EMS providers will divert non critical patients to the next closest facility.
  - The hospital staff will update dispatch every four hours concerning diversion status.
- Transporting against diversion
  - EMS providers may transport against diversion in the following instances
    - Unable to maintain airway or properly ventilate the patient
    - Unremitting Shock
    - Severe critical nature of the patient determines that the patient must be transported against diversion.
    - Patient meets STEMI, Stroke or Trauma criteria.
    - Patient refuses to be transported to an alternate facility.
      - Patient must be informed that their treatment will be delayed as well as impact the timeliness of necessary hospital admittance.
      - EMS staff will obtain a refusal form to show that the patient is making an informed consent to be transported against diversion.
  - The patients condition is paramount in honoring diversion
  - Any incident involving a receiving hospitals ED staff member or physician should be reported to the EMS director immediately.
  - EMS refusal to honor diversion will be submitted for audit and review for CQI purposes as with other protocol deviations.

## 7.5 Special: Patient Refusal of Treatment and or Transport

<b>EMERGENCY MEDICAL RESPONDER</b>
<b>EMT</b>
<b>PARAMEDIC</b>

- Purpose
  - To establish guidelines for the management and documentation of situations where patients refuse treatment, procedure, transportation or insist on transportation to a destination other than that recommended by the EMS provider.
- Refusal Criteria:
  - Patients must be 18 years of age or older and meet the following criteria in order for the EMS provider to accept a refusal. The patient:
    - Must understand the nature of the illness/injury or risk of injury or illness
    - Must understand the possible consequences of delaying treatment, refusing transport or refusing procedure. .
    - Given the risks and options, the patient voluntarily refuses treatment, transport or procedure.
- Procedures:
  - If patient refuses care, or insists on being transported to a facility that is on diversion or a facility other than the destination recommended by EMS personnel, have the patient or designee review and sign the refusal form.
  - Conduct a thorough patient assessment to include vital signs and blood glucose level.
  - Inform the patient that units responded to the scene for the purpose of providing emergency medical care and with the expectation that the patient would accept transport to the hospital for further evaluation and treatment.
  - Review the refusal form with patient or designee. If required the body of the text shall be read aloud to the patient.
  - Provide detailed explanation of possible risks and danger signs to patient or other designee.
  - Inform the patient to call 911, call their doctor or go to an emergency department if symptoms persist or get worse or any of the danger signs you inform them of appear.
  - Obtain the signature of the patient or designee. If the patient refuses to sign, document this fact on the patient care report and refusal form. .
  - Have the patient or designee date the refusal form. .
  - Obtain signature of a witness; preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient, and who watched the patient sign the form. Witnesses must be 18 years of age or older and meet the same criteria required for the refusal.

### Key Points/Considerations

- Patient must be alert and oriented to time, place, person and event, GCS 15, without evidence of alcohol or drug intoxication or suicidal ideations.
- Document confirmation of decision making capacity, EMS assistance was offered yet declined, Risks that were explained to the patient and that the patient understands risks of refusal. Also include vitals, glucose reading as above.
- Contact medical control with questions or concerns.
- Utilize law enforcement for assistance with combative patients.

## 7.6 Special: ALS Assist / Intercept

<b>EMERGENCY MEDICAL RESPONDER</b>
<b>EMT</b>
<b>PARAMEDIC</b>

- Introduction:
  - It is imperative that advanced life support is provided in a timely fashion to patients that will benefit from it. This advanced level of care is readily available throughout our area. ALS should be requested as soon as possible to ensure the patient receives the maximum benefit from the ALS provider.
- Criteria:
  - The following type of calls will benefit from rapid ALS response while BLS initiates care:
    - Cardiac Arrest
    - Unresponsiveness
    - Cardiac Chest Pain / STEMI
    - Difficulty Breathing
    - Anaphylaxis
    - Severe Pain
    - Major Burns
    - Major Trauma
    - Drowning or Near Drowning
    - Drug Overdose
    - Severe Hypothermia
    - Multiple or Ongoing Seizures
- Procedure:
  - Once dispatched, ALS should initiate contact with requesting agency and give an ETA.
  - Additional communications should occur to give patient updates, and routes of travel if transport is initiated prior to ALS arrival and the intent is to intercept enroute.
  - DO NOT delay transport waiting for ALS. Arrange intercept if ready to transport.
  - Once ALS unit arrives the paramedic will be provided a verbal report to include vital signs and patient assessment findings. BLS staff will assist ALS crew with ongoing patient care as requested.
  - If after a thorough assessment, it is determined that ALS care is not needed, then ALS can be cancelled. It is encouraged for our agencies to utilize the responding ALS crew or medical control to assist with assessment questions.
  - All downgrades/cancellations need to be documented and will be reviewed by the medical director. Cancellation of EMD activated ALS can only be made after an on scene assessment of the patient by an EMS provider.

# PROCEDURES

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## 8.0 PROCEDURES

## 8.1 Procedure: Airway Management

### FIRST RESPONDER

- Oxygen therapy: The goal of oxygen therapy is to achieve adequate tissue oxygenation using the lowest possible FiO<sub>2</sub>
  - Non-rebreather mask 12 - 15 lpm, NRB
  - Nasal cannula, 2 - 6 lpm
  - Nasopharyngeal and/or Oropharyngeal airways
  - BVM assisted ventilation



#### FIRST RESPONDER STOP

### EMT

- Medically approved non-visualized airway
  - Combi-Tube to be phased out by 12/31/16
  - LMA
  - King Airway



#### EMT STOP

### PARAMEDIC

- Continuous Positive Airway Pressure (CPAP) or Bi-Level Positive Airway
- Oral endotracheal intubation in unresponsive Adults and Pediatric patients
  - Waveform and Quantitative Capnography must be used and documented with all intubated patients
- RSA
- Surgical airway procedure: (older than 8 yo)
  - Prepare (scalpel, size 6 ET tube or smaller, alcohol preps, and hemostat)
  - Cleanse site, make a vertical ½ inch incision through skin and cricothyroid membrane
  - Insert knife handle and rotate 90 degrees, insert hemostat, spread the opening
  - Insert a size 6 ET tube and inflate cuff
  - Attached BVM and ventilate
  - Observe for signs of subcutaneous emphysema, severe hemorrhage, and poor oxygenation
- Pediatric Needle cricothyrotomy (Less than 8 yo)
  - Prepare (alcohol preps, 14 ga IV catheters, 22mm connector, 3 cc syringe)
  - Extend head and place towel under shoulders
  - Locate spot by marking location with fingernail, cleanse side, insert 14 ga IV catheter, remove needle
  - Attach 22mm connector from a small ET tube or 3 cc syringe to normal ET tube
  - Secure catheter and reassess patient

### Key Points/Considerations

- The goal of oxygen therapy is to achieve adequate tissue oxygenation using the lowest FIO<sub>2</sub> with consideration for other respiratory function effectors (CO<sub>2</sub> levels, Hypoxic Drive, etc.)
- Intubation must be attempted x1 only and if unsuccessful a medically approved non visualized airway must be utilized with a BVM
- The use of a C-Collar should be considered for all intubated patients
- Tube placement should be confirmed via three methods at a minimum.

## 8.2 Procedure: CPAP

### PARAMEDIC

#### Indications:

Symptomatic patients with moderate-to-severe respiratory distress as evidenced by at least two (2) of the following:

- o Rales (crackles)
- o Dyspnea with hypoxia (SpO<sub>2</sub> less than 90% despite O<sub>2</sub>)
- o Dyspnea with verbal impairment – i.e. cannot speak in full sentences
- o Accessory muscle use
- o Respiratory rate greater than 24/minute despite O<sub>2</sub>
- o Diminished tidal volume

#### Contraindications:

- ☐ Respiratory or cardiac arrest
- ☐ Systolic BP less than 90mmHg
- ☐ Lack of airway protective reflexes
- ☐ Significant altered level of consciousness such that unable to follow verbal instructions
- ☐ Vomiting or active upper GI bleed
- ☐ Suspected pneumothorax
- ☐ Trauma
- ☐ Patient size or anatomy prevents adequate mask seal

#### Technique:

1. Place patient in a seated position and explain the procedure to him or her
2. Assess vital signs (BP, HR, RR, SpO<sub>2</sub>, and ETCO<sub>2</sub>)
3. Apply the CPAP mask and secure with provided straps, progressively tightening as tolerated to minimize leaks
4. Operate CPAP device according to manufacturer specifications
5. Start with the lowest continuous pressure that appears to be effective. Adjust pressure following manufacturer instructions to achieve the most stable respiratory status
6. Monitor patient continuously, record vital signs every 5 minutes.
7. Assess patient for improvement as evidenced by the following:
  - a. Reduced dyspnea
  - b. Reduced verbal impairment, respiratory rate and heart rate
  - c. Increased SpO<sub>2</sub>
  - d. Stabilized blood pressure
  - e. Appropriate ETCO<sub>2</sub> values and waveforms
  - f. Increased tidal volume
8. Observe for signs of deterioration or failure of response to CPAP:
  - a. Decrease in level of consciousness
  - b. Sustained or increased heart rate, respiratory rate or decreased blood pressure
  - c. Sustained low or decreasing SpO<sub>2</sub> readings
  - d. Rising ETCO<sub>2</sub> levels or other ETCO<sub>2</sub> evidence of ventilatory failure
  - e. Diminished or no improvement in tidal volume

#### Precautions:

- ☐ Should patient deteriorate on CPAP:
  - o Troubleshoot equipment
  - o Consider endotracheal intubation
  - o Assess need for possible chest decompression due to pneumothorax
  - o Assess for possibility of hypotension due to significantly reduced preload from positive pressure ventilation
- ☐ In-line nebulized medications may be given during CPAP as indicated and in accordance with manufacturer guidelines
- ☐ Some fixed pressure CPAP devices do not have FiO<sub>2</sub> adjustment and will only administer up to 30% oxygen. If no improvement in oxygenation with a fixed pressure CPAP device, consider adding supplemental oxygen



### 8.3 Procedure: King Airway LTS-D

<b>EMERGENCY MEDICAL RESPONDER</b>
<b>EMT</b>
<b>PARAMEDIC</b>

The Esophageal Airway, or King LTS-D, is a single-use device intended for airway management. It can be used as a rescue airway device when other airway management techniques have failed or as a primary device when advanced airway management is required in order to provide adequate ventilation. The esophageal airway does not require direct visualization of the airway or significant manipulation of the neck.

- Indications
  - Cardiac arrest (of any cause)
  - Inability to ventilate non-arrest patient (with BLS airway maneuvers) in a setting in which
  - endotracheal intubation is not successful or unable to be done
- Contraindications
  - Presence of gag reflex
  - Caustic ingestion
  - Known esophageal disease (e.g. cancer, varices, stricture, others)
  - Laryngectomy with stoma (can place ET tube in stoma)
  - Height less than 4 feet
- Procedure
  - Assure an adequate BLS airway (if possible) and select appropriately sized esophageal airway.
  - Test cuff inflation by injecting recommended amount of air for tube size into the cuffs.
  - Remove all air from cuffs prior to insertion. Apply water-based lubricant to the beveled distal tip and posterior aspect of tube, taking care to avoid introduction of lubricant in or near ventilatory openings.
  - Have a spare esophageal airway available for immediate use. Oxygenate with 100% oxygen.
  - Position the head. The ideal head position for insertion is the “sniffing position.” A neutral position can also be used (e.g. spinal injury concerns).
  - Hold mouth open and apply chin lift unless contraindicated by cervical spine injury or patient position.
  - With tube rotated laterally 45-90 degrees such that the blue orientation stripe is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue.

### 8.3 Procedure: King Airway LTS-D (Continued)

<b>EMERGENCY MEDICAL RESPONDER</b>
<b>EMT</b>
<b>PARAMEDIC</b>

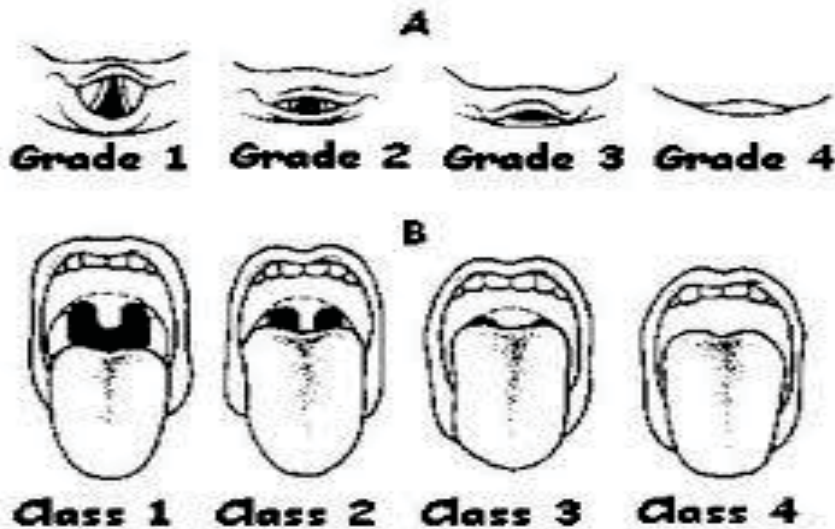
- Never force the tube into position
- As the tube tip passes under tongue, rotate tube back to midline (blue orientation stripe faces chin).
- Without exerting excessive force, advance tube until base of connector aligns with teeth or gums.
- Inflate cuff to required volume. Attach bag-valve to airway. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing.
- Confirm proper position by auscultation, chest movement, and verification of CO<sub>2</sub> by capnography. Do not use esophageal detector device with esophageal airway.
- Secure the tube. Note depth marking on tube.
- Continue to monitor the patient for proper tube placement throughout prehospital treatment and transport.
- Capnography should be done in all cases if available.
- Document airway placement and results of monitoring throughout treatment and transport.

King LT Inflation Volumes					
Size	#2	#2.5	#3	#4	#5
COLOUR	Green	Orange	Yellow	Red	Purple
CUFF VOLUME	25-35 ml	30-40 ml	45-60 ml	60-80 mL	70-90 mL
HEIGHT	35-45 in 90-115 cm	41-51 in 105-130 cm	4-5 ft 122-155 cm	5-6 ft 155-180 cm	> 6 ft > 180 cm

## 8.4 Procedure: Endotracheal Intubation

### PARAMEDIC

- Airway control for unresponsive adults and pediatric patients.
- Confirm endotracheal tube placement with at least two assessment techniques.
- Capnography must be used and placed within 1 minute of Intubation.
- Cervical collar placement should be used to assist in secure tube placement if necessary.
- If unsuccessful after two (2) attempts, place a non-visualized airway for airway control.



### LEMON Airway Assessment

The score with a maximum of 10 points is calculated by assigning 1 point for each of the following LEMON criteria:

**L** = Look externally (facial trauma, large incisors, beard or moustache, large tongue)

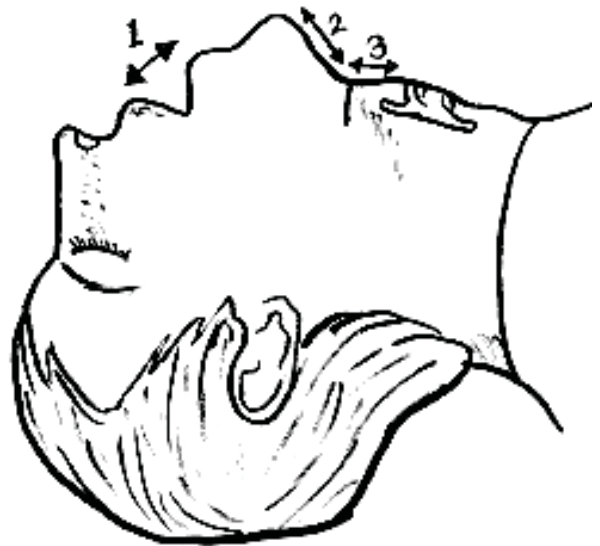
**E** = Evaluate the 3-3-2 rule (incisor distance-3 finger breadths, hyoid-mental distance-3 finger breadths, thyroid-to-mouth distance-2 finger breadths)

**M** = Mallampati (Mallampati score > 3).

**O** = Obstruction (presence of any condition like epiglottitis, peritonsillar abscess, trauma).

**N** = Neck mobility (limited neck mobility)

**Patients in the difficult intubation group have higher LEMON scores.**



**LEMON airway assessment method ;**  
**1 = Inter-incisor distance in fingers, 2**  
**= Hyoid mental distance in fingers, 3**  
**= Thyroid to floor of mouth in fingers**

## **8.5 Procedure: Rapid Sequence Airway Checklist**

### **PARAMEDIC**

#### **PLAN**

- RSA Indicated - Pre-Ox started - Team Briefed - Assessed for the Difficult Airway - Back-up Plan

#### **POSITION**

- Ear-to-sternal - Head of Cot Elevated (C-spine) - DO NOT LAY PATIENT FLAT

#### **PREOXYGENATION**

- Two O2 sources (main turned on) - NC @ 6L to 15L - NRM or BVM @ 15 L
- PEEP and CO2 on BVM - Safe Preox level is > 94% for 3 minuets

#### **PREPARE**

- IV/IO access x 2 - B/P cuff opposite IV - Oximetry secured/operating/opposite B/P cuff
- Medications Drawn / Taped to proper vile - Suction tested and ready
- King Vision present/working/preloaded with an ET and Bougie - Thomas Tube Holder
- DL set present as a back-up - Nasal / oral airways - King Tubes / Syringe ready

#### **PAUSE**

- Is Preox effective (correct) - Is patient hypotensive (correct) - Medic/Team ready

#### **PARALYZE**

- Push Medications ( Etomidate then Sux) - Record Med Times - Asses for Med Effect
- Turn cannula up to 15L - Team watching monitor - Intubate ( record start / finish times)

#### **POST INTUBATION**

- Confirm placement - Secure with Thomas Tube Holder / C-Collar - CONTINUOUS ASSESSMENT FOR SEDATION - ASSESS VITALS EVERY 5 MINUETS - REASSESS TUBE POSITION

WT #/Kg	<b>Etomidate</b> .3 mg/Kg Max = 30 mg	<b>Succinylcholine</b> 2 mg/Kg Max = 150 mg	<b>Ketamine</b> 2mg/Kg Max = 250 mg	<b>Fentanyl</b> 2 mcg/Kg Max = 100 mcg
<b>120# / 55 Kg</b>	17 mg	110 mg	110 mg	100 mcg
<b>140# / 64 Kg</b>	19 mg	128 mg	128 mg	100 mcg
<b>160# / 73 Kg</b>	22 mg	146 mg	146 mg	100 mcg
<b>180# / 82 Kg</b>	25 mg	150 mg	164 mg	100 mcg
<b>200# / 91 Kg</b>	27 mg	150 mg	182 mg	100 mcg
<b>220# / 100 Kg</b>	30 mg	150 mg	200 mg	100 mcg
<b>240# / 109 Kg</b>	30 mg	150 mg	218 mg	100 mcg
<b>260# / 118 Kg</b>	30 mg	150 mg	236 mg	100 mcg
<b>280# / 127 Kg</b>	30 mg	150 mg	250 mg	100 mcg
<b>300# / 136 Kg</b>	30 mg	150 mg	250 mg	100 mcg

<b>Glasgow Coma Score</b>		
<b>Eye Opening (E)</b>	<b>Verbal Response (V)</b>	<b>Motor Response (M)</b>
4=Spontaneous 3=To voice 2=To pain 1=None	5=Normal conversation 4=Disoriented conversation 3=Words, but not coherent 2=No words.....only sounds 1=None	6=Normal 5=Localizes to pain 4=Withdraws to pain 3=Decorticate posture 2= <del>Decerebrate</del> 1=None
		<b>Total = E+V+M</b>

## 8.6 Procedure: Cricothyrotomy

### PARAMEDIC

#### INDICATIONS

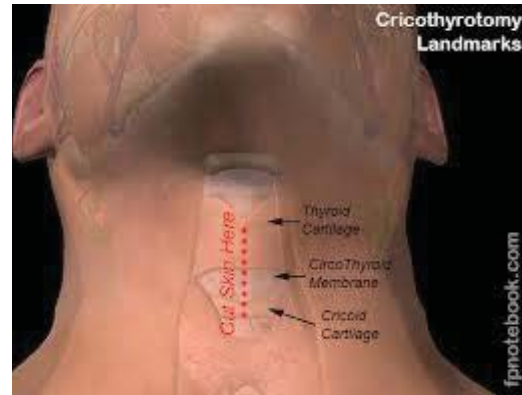
- Severe Respiratory Distress in which oropharyngeal and nasopharyngeal intubation attempts have failed.
- Can not intubate, can not ventilate **and ALL OTHER RESCUE AIRWAY DEVICES FAIL**

#### ABSOLUTE CONTRAINDICATIONS

- Patient can safely be orotracheally or nasotracheally intubated
- Child less than 8 years of age

#### CONTRAINDICATIONS

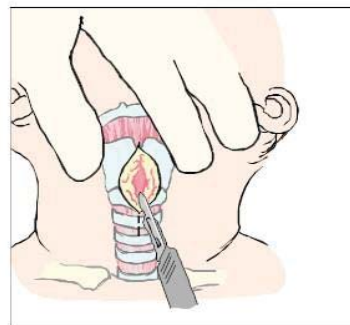
- Fracture of larynx



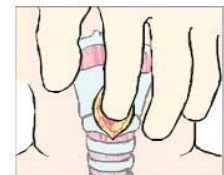
#### PROCEDURE

1. Gather Equipment
  - Scalpel
  - Size 6 ET tube or smaller
  - Alcohol prep pads
  - Hemostat
2. Locate incision site
3. Cleanse site
4. Make a vertical ½ inch incision through skin
5. Make small horizontal incision through cricoid membrane
6. Insert hemostats and spread opening
7. Insert ETT and inflate cuff
8. Attach BVM and ventilate
9. Assess:
  - a. Breath sounds
  - b. Signs of subcutaneous emphysema
  - c. Hemorrhage
  - d. Poor Oxygenation

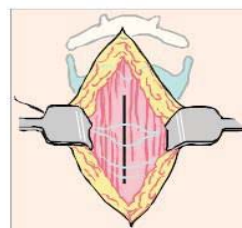
#### Cricothyrotomy Incisions



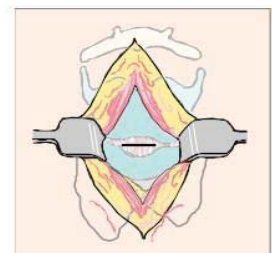
Initial Incision



Membranous Incisions



Subcutaneous Incision



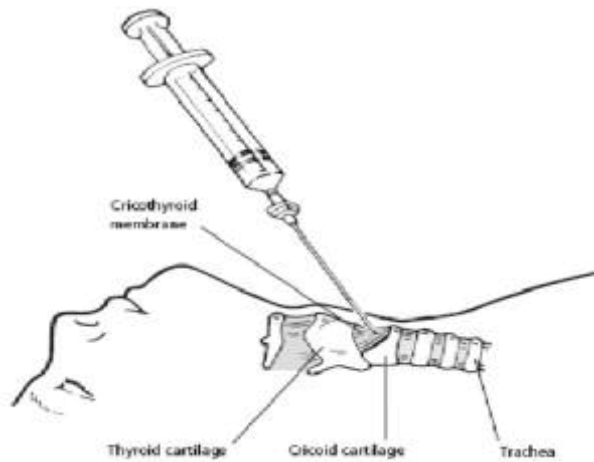
Horizontal Incision

Illustrations showing initial, subcutaneous and membranous incisions (dashed lines) for a surgical cricothyrotomy

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## 8.7 Procedure: Pediatric Needle Cricothyrotomy

### PARAMEDIC



1. Prepare equipment
  - a. Alcohol prep pads
  - b. 14g IV catheter
  - c. 22mm connector
  - d. 3cc syringe
2. Extend head
3. Place towel under shoulders
4. Locate spot, mark with fingernail
5. Cleanse site
6. Insert 14g catheter, remove needle
7. Attach 22mm connector from small ETT
8. Ventilate
9. Secure catheter and reassess



## 8.8 Procedure: Nasotracheal Intubation

### PARAMEDIC

#### INDICATIONS

- a. A patient who needs endotracheal intubation but who has a possible cervical spine injury
- b. A patient who needs endotracheal intubation but who has clenched jaws
- c. A patient who needs endotracheal intubation but who has a gag reflex still present (respiratory distress secondary to large flail chest, open chest wound, blunt trauma to the neck, etc.)
- d. A patient who needs endotracheal intubation but who is trapped and you are unable to get into a position to use a laryngoscope

#### CONTRAINDICATIONS

- a. Apnea
- b. Trauma to the face or nose with possible basilar skull fracture (blood or fluid draining from the nose, facial fractures, raccoon eyes) *There is danger of inserting the tube into the cranial vault in this instance*
- c. Patients taking anticoagulant medication
- d. Children under the age of ten years
- e. Combative patients

#### COMPLICATIONS

- a. Trauma to the nose or airway resulting in hemorrhage and possible aspiration
- b. Esophageal intubation, leading to hypoxia and death
- c. Induction of vomiting, leading to aspiration, hypoxia, and death
- d. Right main-stem bronchus intubation
- e. Inability to intubate, leading to hypoxia and death
- f. Trauma to the vocal cords

#### PROCEDURE

- a. Perform routine preparation procedures as described in endotracheal intubation.
- b. Following lubrication of its cuff and distal end, a 6.0 or 6.5mm endotracheal tube with the bevel against the floor or septum of the nasal cavity is slipped distally through the larger nare. Do not force tube at any time.
- c. When the tube tip reaches the posterior pharyngeal wall, great care must be taken on “rounding the bend” and the directing the tube toward the glottic opening.
- d. When just above the cords, time respirations and gently advance tube as the patient inhales. The tube will be advanced almost to the end at the level of the nose. DO NOT FORCE!
- e. By watching the neck at the laryngeal prominence, the intubator can judge the approximate placement of the tube; tenting of the skin on either side of the prominence indicates catching up of the tube in the pyriform fossae, a problem solved by slight withdrawal and rotation of the tube to the midline. Bulging and anterior displacement of the laryngeal prominence usually indicates that the tube has entered the glottic opening and has been correctly placed. At this point the patient, especially if not deeply comatose, will cough, strain, or both. This may be alarming to the novice intubator who might interpret this as laryngospasm or misplacement of the tube. The temptation may be to pull the tube and ventilate, since the patient may not breathe immediately. Holding the end of the stethoscope tubing, hand, or ear over the opening of the tube to detect air flow may reassure the intubator that the tube is correctly placed, and the cuff may be inflated and ventilation started.
- f. Confirm placement by the confirmation protocol. The tube usually needs to be placed deeply with only the adaptor tip showing from the nostril.



## 8.9 Procedure: *Digital Intubation*

### PARAMEDIC

The original method of endotracheal intubation, quite widely known in the eighteenth century, was the “tactile” or “digital” technique. The intubator merely felt the epiglottis with the fingers and slipped the endotracheal tube distally through the glottic opening. Recently the technique has been refined and demonstrated to be of use in the field for a wide variety of patients.

### PROCEDURE

- a. Perform routine preparation procedures as described for endotracheal intubation
- b. The tube is prepared by inserting the lubricated stylet and bending the tube into an “open J” configuration. The stylet should not protrude beyond the tip of the tube, but it should come to at least the level of the side hole.
- c. A water-soluble lubricant is used liberally on the tip and cuff of the tube.
- d. Gloves are used for protection.
- e. The intubator kneels at the patient’s left shoulder, facing the patient, and places a dental prod or mouth gag between the patient’s molars.
- f. The intubator then “walks” the index and middle fingers of his left hand down the midline of the tongue, all the while pulling forward on the tongue and jaw. **THIS IS A MOST IMPORTANT MANEUVER AND SERVES TO LIFT THE EPIGLOTTIS UP WITHIN REACH OF THE PROBING FINGERS.**
- g. The middle finger palpates the epiglottis; it feels much like the tragus of the ear.
- h. The epiglottis is pressed forward and the tube is slipped into the mouth at the left labial angle anterior to the palpating fingers. The index finger is used to keep the tube tip against the side of the middle finger (that is still palpating the epiglottis). This guides the tip to the epiglottis. The side hole of the tube can also be used as a landmark to ensure that the intubator is always aware of the position of the tip of the endotracheal tube. **THIS IS A CRUCIAL PRINCIPLE OF THIS TECHNIQUE.**
- i. The middle and index fingers guide the tube tip to lie against the epiglottis in front and the fingers behind. The right hand then advances the tube distally through the cords as the index and middle fingers of the left palpating hand press forward to prevent the tube from slipping toward the esophagus.

**NOTE:** At this point the tube/stylet combination may encounter resistance, especially if the distal curve of the tube is sharp. This usually means that the tube tip is impinging on the anterior wall of the thyroid cartilage. Pulling back slightly on the stylet will allow the tube to conform to the anatomy, and the tube should slip distally

- j. Confirm placement by the confirmation protocol as described for routine endotracheal intubation

## 8.10 Procedure: Pertrach Cricothyrotomy

### PARAMEDIC

#### INDICATIONS

- a. Acute upper airway obstruction due to trauma.
- b. A foreign body resulting in respiratory arrest or near arrest.
- c. Facial or head trauma where nasal and or oral intubation are unsuccessful or contraindicated.
- d. All other airway maneuvers must have proven unsuccessful (this includes all methods of ventilation and obstructed airway maneuvers).

#### COMPLICATIONS

Bleeding:

Control with direct pressure.

False Passage:

Confirm correct placement of needle by aspirating air from the airway with a syringe.

Wiggle needle back and forth to confirm that tip is in airway prior to advancing guide wire/dilator.

#### PROCEDURE

- a. Stabilize the neck, and identify the cricothyroid membrane.
- b. Cleanse the area, and using the scalpel, make a small (less than 1cm) vertical incision in the skin overlying the cricothyroid membrane.
- c. Insert the special No. 14 ga needle vertically through the cricothyroid membrane. Placement is confirmed by drawing air into the syringe. Incline the needle acutely towards the foot after insertion. Make horizontal puncture next to the needle through membrane.
- d. Remove the syringe from the needle. Insert the guide wire portion into the needle up to the dilator. Applying pressure to the wings, split the needle and have an assistant strip and remove it. **Do not advance the dilator until the needle has been split and removed, or cuff will be damaged.**
- e. Insert the device into the trachea. Place your thumb on the blue knob of the dilator curling your fingers under the faceplate, and advancing the tube and dilator together.
- f. Remove the dilator, inflate the cuff and secure the tube. Attach the BVM and confirm placement by auscultating the lung fields.

## 8.11 Procedure: Needle Chest Decompression

### PARAMEDIC

#### INDICATIONS

The conservative management of tension pneumothorax is oxygen, ventilatory assistance, and rapid transport. The indication for performing emergency field decompression is the presence of a tension pneumothorax and any one of the following:

- a. Respiratory distress and cyanosis
- b. Loss of radial pulse
- c. Loss of consciousness

#### COMPLICATIONS

- a. Laceration of intercostal vessel with resultant hemorrhage:  
*The intercostal artery and vein run around the inferior margin of each rib. Poor placement of the needle can lacerate one of these vessels.*
- b. Creation of a pneumothorax if not already present:  
*If your assessment was not correct, you may give the patient a pneumothorax when you insert the needle into the chest.*
- c. Laceration of the lung.  
*Poor technique or inappropriate insertion (no pneumothorax present) can cause laceration of the lung, causing bleeding and more air to leak.*
- b. Infection:  
*Adequate skin prep with an antiseptic will usually prevent this.*

#### PROCEDURE

- a. Assess the patient to be sure his condition is due to a tension pneumothorax:
  - i. Poor ventilation in spite of an open airway
  - ii. Neck vein distention (may not be present if there is associated severe hemorrhage)
  - iii. Tracheal deviation away from the side of the injury (may not always be present)
  - iv. Absent or decreased breath sounds on the affected side
  - v. Tympany (hyperresonance) to percussion on the affected side.
  - vi. Shock
- b. Give the patient high-flow oxygen and ventilatory assistance.
- c. Determine that the indications for emergency decompression are present.
- d. Identify the fourth or fifth intercostal space in the mid-axillary line (the nipple is usually over the fifth rib) on the same side as the pneumothorax. OR use the second intercostal space in the mid-clavicular line on the same side as the pneumothorax.
- e. Quickly prepare the area with a Betadine swab. Cleanse area minimum of three times.
- f. Insert a 14g needle into the skin over the fourth or fifth rib and direct it just over the top of the rib (superior border) into the interspace. An alternate method is to insert the needle over the third rib into the second intercostal space in the mid-clavicular line.
- g. Insert the needle through the parietal pleura until air escapes. It should exit under pressure. It does not require depth of the needle to enter the pleural space. Remove needle after procedure.
- h. Watch for reoccurring signs of tension pneumothorax. Repeat steps 3-8 if indicated.

## 8.12 Procedure: Intraosseous Access

### PARAMEDIC

#### Indications

1. Immediate venous access for delivery of fluids, drugs or blood products
2. Reliable access site for emergent or resuscitative situations where peripheral venous access is unobtainable

#### Contraindications

1. Open fracture at proposed insertion site
2. Skin infection at proposed insertion site
3. Previous attempt in same extremity.

#### Materials

1. Gloves
2. Prep solution
3. IV solution and tubing
4. Disposable intraosseous needle
5. Drill
6. Gauze, tape

#### Pre-procedure patient education

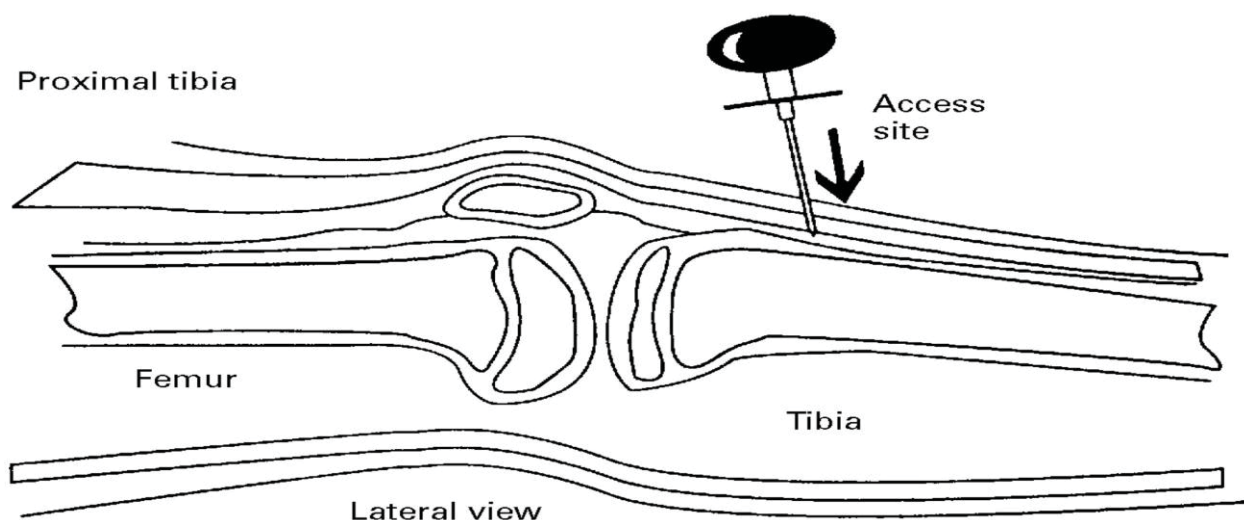
1. Obtain informed consent
2. Inform patient (or parent/guardian) of the possibility of major complications and their treatment
3. Explain the major steps of the procedure

#### Procedure

1. Assess need for placement of an intraosseous line, and obtain consent if appropriate.
2. Identify landmarks: don gloves; prepare IV tubing and fluid
3. Use prep solution to cleanse the skin over the insertion site
4. Attach appropriate needle to drill
5. Insert the needle through the skin at the selected insertion site, and advance until you reach the bone.
6. Start the drill and advance the needle through the periosteum into the bone. A sudden “give” is felt when you enter the marrow cavity
7. Withdraw needle stylet, Flush with 10cc of NS and attach IV tubing; open up IV flow
8. Attach pressure bag and flow fluids and needed.

**If IV fluid is seen extravasating from around the needle, it is not in the marrow cavity. Remove the needle and reposition it in the marrow cavity.**

9. Secure the needle with gauze and tape



### **Proximal Tibia**

- The proximal tibia insertion site is approximately 2 cm below the patella and approximately 2 cm medial to the tibial tuberosity (depending on patient Anatomy).

### **Proximal Humerus**

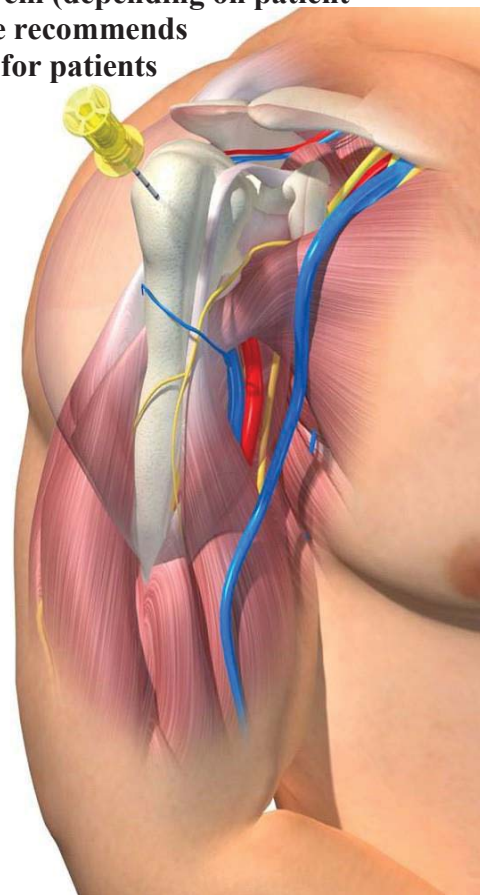
- The proximal humerus insertion site is located directly on the most prominent aspect of the greater tubercle. Ensure that the patient's hand is resting on the abdomen and that the elbow is adducted (close to the body). Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site. Vidacare recommends the 45 mm needle on patients >40 kg. This is the preferred site for patients who are responsive to pain. Once the insertion is completed, secure the arm in place to prevent movement and accidental dislodgement of the IO catheter.

### **Complications, Prevention, and Management**

- Local hematoma or cellulitis. Apply pressure dressing for bleeding.
- RARELY osteomyelitis; requires IV antibiotics.

### **Documentation in the medical record**

- Consent if obtained, and who it was obtained from
- Indications and contraindications for the procedure on this patient
- The procedure used including prep, and size of intraosseous needle
- Any complications, or "none"
- Who was notified about any complication (family, attending physician)



## **8.13 Procedure: External Jugular Access**

### **PARAMEDIC**

#### **SURFACE ANATOMY**

The external jugular vein runs in a line from the angle of the jaw to the junction of the medial and middle third of the clavicle. This vein is usually easily visible through the skin and can be made more prominent by pressing on it just above the clavicle. It runs into the subclavian vein.

#### **PROCEDURE**

1. The patient must be in the supine position, preferably head down, to distend the vein and prevent air embolism.
2. If there is no danger of cervical spine injury, you should turn the patient's head to the opposite side. If there is a danger of cervical spine injury, the head must not be turned but rather must be stabilized by one rescuer while the IV is started.
3. Quickly prepare the skin with an antiseptic and then align the cannula with the vein. The needle will be pointing at the clavicle at about the junction of the middle and medial thirds.
4. With one finger, press on the vein just above the clavicle. This should make the vein more prominent.
5. Insert the needle into the vein at about the mid-portion and cannulate in the usual way.
6. Tape down the line securely. If there is a danger of a cervical spine injury, a cervical collar can be applied over the IV site.



## 8.14 Intranasal Medication Administration

### PARAMEDIC

#### ***Intranasal (IN)***



#### General Information:

- The Mucosal Atomization Device (MAD) can be used for the administration of Fentanyl, Midazolam and Naloxone in the event an IV has not or cannot be initiated.
- Prior to using the intranasal route of administration, inspect the patient's nostrils for significant amounts of blood or mucous discharge. The presence of these will limit the medication absorption. Suctioning the nasal passage prior to delivery and/or alternative delivery options should be considered.
- ***Always*** deliver half of the medication dose up each nostril.
- ***Do not use*** more than 1 ml of medication per nostril. If a higher volume is required, apply it in two separate doses allowing a few minutes for the initial amount to absorb.
- Be aware that there is approximately 0.1 ml of dead space in the MAD. It is important to make allowances for this dead space when calculating the volume to be administered.

#### Procedure:

1. Using a 1 ml or 3 ml syringe and needle, draw the appropriate amount of medication into the syringe.
2. Remove the needle and place the MAD tip onto the syringe. The MAD is a Luer lock device and twists into place.
3. Use your free hand to hold the crown of the head stable. Place the tip of the atomizer snugly against the nostril aiming slightly up and outward (toward the top of the ipsilateral ear).
4. Briskly compress the syringe plunger and deliver approximately half of the medication.
5. Move the device over to the opposite nostril and administer the remainder of the medication as before.
6. If an amount greater than 1 ml per nostril is needed, wait 2 – 3 minutes and administer the remaining medication.

## 8.15 Procedure: Intramuscular Injection

### PARAMEDIC

Injection is the most commonly used route of parenteral medication administration. The drug is injected into the muscle tissue, from which it is absorbed into the bloodstream. This method has a predictable rate of absorption, but its onset of action is considerably slower than IV.

#### INDICATIONS

- When the rate of absorption needs to be slower and/or prolonged in action.
- When other administration routes are unsuccessful or unavailable (i.e. IV).

#### CONTRAINDICATIONS

- Severe bleeding disorders (i.e. hemophilia) or recent thrombolytic therapy.
- States of severe hypoperfusion or shock (exception: Epi-auto-injector for anaphylaxis).
- When rapid absorption and action of a medication is required (i.e., when IV is preferred)

#### PROCEDURE

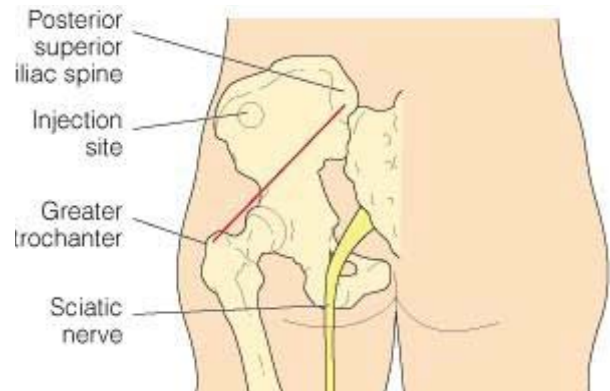
- Utilize Universal Precautions
- Prepare your equipment.
  - **Appropriate needle length:** 5/8 to 1 inch for deltoid and 1 to 1.5 inch for larger muscles.
  - **Appropriate needle gauge:** 22 to 25 gauge needles for aqueous and 21 gauge for oily or thicker medications.
  - 3 or 5 ml syringe
  - Medication
  - Alcohol swabs
  - Band-Aids.
- Check the label, date, and appearance of the medication to be administered.
- Locate the appropriate site for the injection. **Use only the following sites:**
  - **Posterior Deltoid** for injections of 2 mL or less (preferred site) in adults
    - Identify the landmarks of the upper arm. Find the bony portion of the shoulder where the clavicle and scapula meet (the acromioclavicular joint), then measure 3 to 4 fingers-width down the arm from the AC joint. Then slide one to two fingers-width posteriorly on the arm.



- Cleanse skin with alcohol and allow drying.
- **Do not** inject large volumes of irritating medications into this muscle (i.e. steroids, etc.).

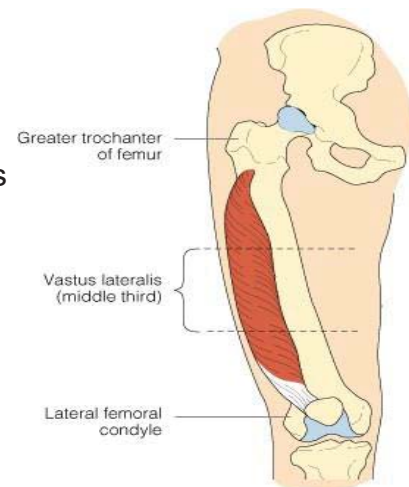
- **Dorso-gluteal site** for injections of 2 to 5 ml in adults or 2 ml or less in children greater than age 3. •

- Identify the posterior superior iliac spine. Draw an imaginary line to the head of the trochanter (have the patient lie prone and point his/her toes inward to help relax the muscles); the injection is given lateral and superior to this line.

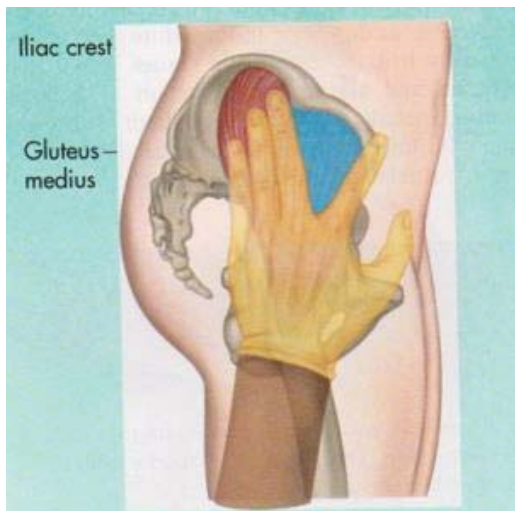


- **Vastus Lateralis** for injections of 2 mL or less in children and adults. •

- Sites are located on the anterior and lateral aspects of the thigh. Divide the area into thirds between the greater trochanter of the femur and the lateral femoral condyle. The injection should be given into the middle third (**preferred site for epi-pen injections**).



- **Ventrogluteal site** for injections of 2 to 5 ml in adults or 2 ml or less in children.

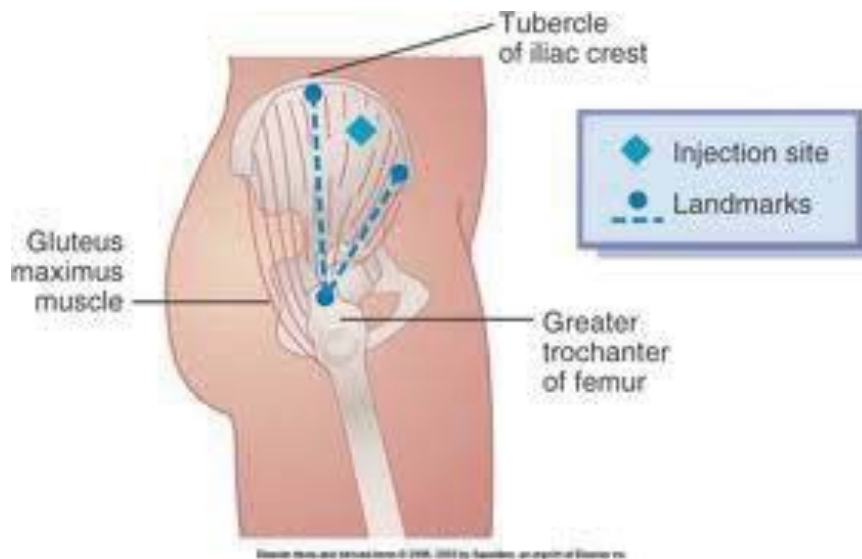


1. Place the heel of your right palm on your patient's greater trochanter of the femur. Place your **index finger** on the anterior superior iliac spine and spread your other fingers posteriorly. This injection is **given in the V formed** between the index finger and the second finger.

2. With one hand, stretch or flatten the skin overlying the selected site (this allows for a smoother entry of the needle). Hold the syringe like a dart in the other hand and quickly thrust the needle into the tissue and muscle at a 90-degree angle.

3. Aspirate the syringe to ensure that an inadvertent venous administration is avoided. If any blood is aspirated into the syringe, withdraw the syringe and needle and dispose of the medication. Begin again at a new site. **DO NOT administer any medication mixed with blood.**

4. If no blood is aspirated, slowly inject the medication. After all of the medication is injected, quickly withdraw the syringe, dispose of the sharps in approved container, and gently massage over the injection site to increase absorption and medication distribution. Apply firm pressure and place a Band-Aid over the injection site.



## **8.16 Procedure: Subcutaneous Injection**

### **PARAMEDIC**

Suggested sites for Sub Q injection include any fleshy area of the body. A single dose injected into one site should not exceed 1cc.

#### **PROCEDURE**

1. Check the label on the medication container, compute the dosage, and draw up the desired volume into a 1cc syringe. For Sub Q injection, the syringe should be equipped with a 25-gauge needle.
2. Select a site for injection.
3. Cleanse the site with iodine or alcohol swabs.
4. Remove the protective cap from the needle, and evacuate any air from the syringe.
5. Gently accumulate a well-defined roll of skin without pinching.
6. Insert the needle at a 45-degree angle into the subcutaneous tissue.
7. Pull back slightly on the plunger to ascertain that the needle has not inadvertently entered a blood vessel. If there is blood return into the syringe, withdraw the needle without injecting the medication and discard the contents of the syringe.
8. Repeat the procedure, if there is no blood return, inject the contents of the syringe at a slowly to prevent hemorrhage or tissue damage.
9. Remove the needle smoothly at the same angle in which it was inserted, and apply direct pressure over the injection site with a sterile wipe.
10. Dispose of contaminated equipment.

#### **DOCUMENTATION**

1. Record date and time of injection and indicate the site used in the patients report.
2. Indicate the patient's response and tolerance.
3. The condition of the patient, the presence of ecchymosis or hematoma should be noted in the patient's record.

## 8.17 Procedure: Intranasal Narcan Administration

### EMERGENCY MEDICAL RESPONDER

### EMT

### PARAMEDIC

- Indications: Patients that present with an opiate overdose AND have respiratory compromise.
- Procedure
  - Attach atomizer to the syringe and screw the narcan vial into the syringe
  - Inject half of medication into each nostril
  - May consider ventilating the patient to properly disperse medication
  - Patient should respond in 2-3 minutes
  - No response may be due to large amount of opiate or OD of not opiate derivative.
  - Contact ALS if no response
- Patients may not refuse transport once narcan is administered. Advise patient that the medication will wear off resulting in recurrence of respiratory arrest.
- Law enforcement may have given narcan prior to arrival. Be sure to confirm prior to administration. May replace narcan used by law enforcement.



## 8.18 Procedure: 12 Lead EKG Acquisition

<b>EMERGENCY MEDICAL RESPONDER</b>
<b>EMT</b>
<b>PARAMEDIC</b>

### INDICATIONS

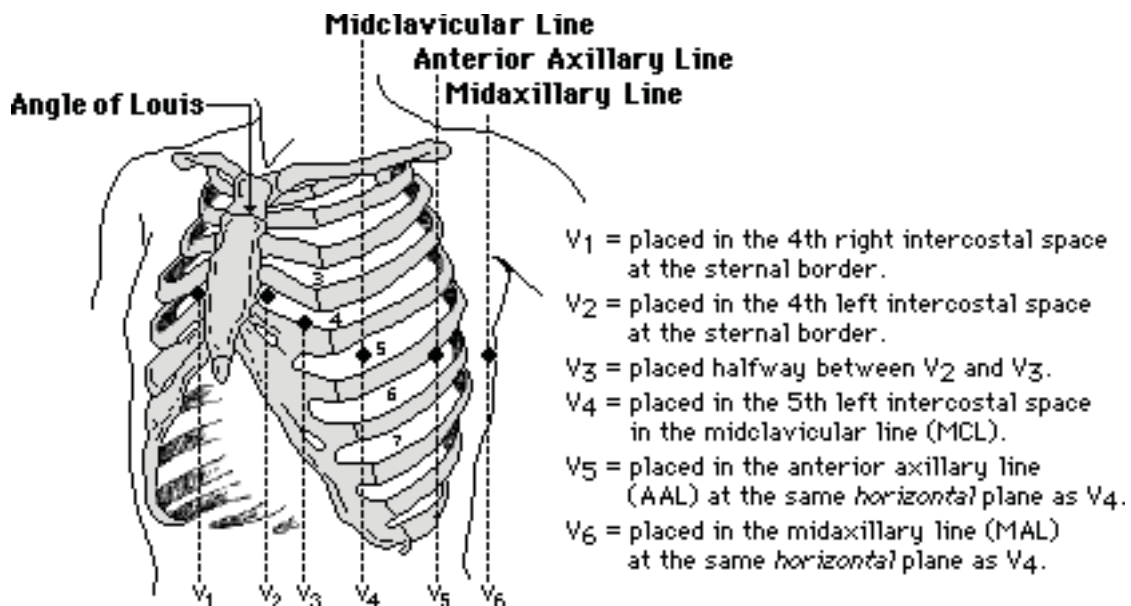
The purpose of this procedure is to allow for the monitoring, detection and recording of an acute myocardial infarction and/or cardiac dysrhythmias using 12 lead capabilities.

### CONTRAINDICATIONS

None indicated

### PROCEDURES

1. Explain what you are going to do to the patient. Reassure him or her that the machine will not “shock you.”
2. Prepare all of the equipment and assure the cable is in good repair. Check to make sure there are adequate leads and materials for prepping the skin.
3. Prep the skin. (Dirt, oil, sweat, and other materials on the skin can interfere with obtaining a quality tracing. The skin should be cleansed with an appropriate substance. If the patient is diaphoretic, dry the skin with a towel. On very hot days, or in situations where the patient is very diaphoretic, tincture of Benzoin can be applied to the skin before attaching the electrode. Occasionally, it may be necessary to slightly abrade the skin to obtain a good interface. Patients with a lot of body hair may need to have the area immediately over the electrode site shaved to assure good skin/electrode interface.
4. Place the four limb leads according to the diagram listed below. Avoid placing electrodes over or directly next to implanted devices.
5. Following placement of the limb leads, prepare for placement of the precordial leads.
6. First, place Lead V1 by attaching the positive electrode to the right of the sternum at the fourth intercostal space.
7. Next, place V2 by attaching the positive electrode to the left of the sternum at the fourth intercostal space.
8. Next, place Lead V4 by attaching the positive electrode at the mid-clavicular line at the fifth intercostal space.
9. Next, place lead V3 by attaching the positive electrode in a line midway between Lead V2 and Lead V4.
10. Next, place Lead V5 by attaching the positive electrode at the anterior axillary line at the same level as V4.
11. Finally, place V6 by attaching the positive electrode to the mid-axillary line at the same level as V4.
12. Assure that all leads are attached.
13. Turn on the machine.
14. Check to assure all leads are properly attached and a good tracing is being received from each channel.
15. Record the tracing.
16. Examine the tracing. Do not completely rely on the machine interpretation of the tracing. If necessary, confirm with medical control.
17. Provide the tracing to the receiving hospital within 5 minutes of patient contact.



I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

ems12lead.blogspot.com

## 8.19 Procedure: Buccal Administration of Glucose

### EMERGENCY MEDICAL RESPONDER

### EMT

### PARAMEDIC

#### INDICATION:

1. Suspected or known hypoglycemia and patient is fully responsive.

#### PRECAUTION:

1. Airway must be carefully maintained.

#### ADMINISTRATION:

1. Perform blood glucose measurement.
2. Log-roll patient to prevent aspiration.
3. Administer 1 tube (15-25g/tube) in small increments between cheek and gum of conscious patient.
4. Administer slowly, monitoring absorption. Maintain adequate airway.
5. Repeat blood glucose measurement in 5 minutes.

5

#### Key Points/Considerations

- Contact medical control for guidance if considering non transport after oral glucose administration for BLS providers.
- Patient must be awake and able to protect airway (cough reflex present)

# MEDICATION FORMULARY

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## 9.0 MEDICATIONS



## 9.1 Medications

### PARAMEDIC

MEDICATION	PAGE	SPECIAL INFO.	EMT - MEDIC	Concentration
Adenosine	99		MEDIC	6mg/2ml
Albuterol (Proventil)	100		MEDIC	2.5 mg/ 3ml
Amiodarone	101	Loading dose, inf.	MEDIC	150mg
Anectine (Succinylcholine)	102	Keep cool, 8 weeks	MEDIC	250mg
Atropine Sulfate	103		MEDIC	1mg/10ml
Atrovent	104		MEDIC	0.5mg/3ml
Baby Aspirin	105		EMT -MEDIC	81 mg Tablet
Calan (Verapamil)	105	Cardizem Shortage	MEDIC	5mg/2cc.
Ca Chloride	106		MEDIC	10ml (10%)
Dextrose	107		MEDIC	25g/50cc
Diltiazem	108	Replaced Monthly	MEDIC	25mg
Diphenhydramine (Benadryl)	109		MEDIC	50mg/2ml
Dopamine (Intropin)	110	Concentration!!!!!!	MEDIC	800mg/ 250ml
Epinephrine (Adrenalin) 1:10,000	111	Bolus and infusion	MEDIC	1mg/ml
Epinephrine (Adrenalin) 1:1000	112		MEDIC	1mg/10ml
Etomidate	113		MEDIC	20mg
Fentanyl	114		MEDIC	100mcg/2ml
Flurosemide (Lasix)	115		MEDIC	40mg
Glucagon	116		MEDIC	1mg
Glucose	116		EMT - MEDIC	25 g
Haldol	117		MEDIC	5mg/ml
Hemostatic Agents	118		EMT - MEDIC	
Ketamine	119		MEDIC	500mg/ml
Midazolam (Versed)	120		MEDIC	5mg/1ml
Magnesium Sulfate	121	Infusion	MEDIC	1gm/2ml
Naloxone (Narcan)	122		EMT - MEDIC	2mg/2ml
Nitroglycerine Tablets	123		EMT-MEDIC	0.4mg/dose
Oxygen	124		MEDIC	94-99%
Procainamide	125	Loading dose, Inf.	MEDIC	100mg/ml
Racemic Epinephrine	126	Not Pre Mixed	MEDIC	NA
Sodium Bicarbonate 8.4%	127		MEDIC	50ml
Solu Medrol	128		MEDIC	125mg
TXA	129	Infusion	MEDIC	1gram
Vasopressors	130		MEDIC	
Zofran	131		MEDIC	4mg

## **ADENOSINE (ADENOCARD)**

### **Description**

Adenosine transiently blocks conduction through the AV node thereby terminating reentrant tachycardias involving the AV node. It is the drug of choice for AV nodal reentrant tachycardia (AVNRT, often referred to as “PSVT”). It will not terminate dysrhythmias that do not involve the AV node as a reentrant limb (e.g. atrial fibrillation).

### **Onset & Duration**

- Onset: almost immediate
- Duration: 10 sec

### **Indications**

- Narrow-complex supraventricular tachyarrhythmia after obtaining 12 lead ECG (This may be the only documented copy of the AVRNT rhythm)
- Pediatric administration requires call in for direct verbal order

### **Contraindications**

- Any irregular tachycardia. Specifically never administer to an irregular wide-complex tachycardia, which may be lethal
- Heart transplant

### **Adverse Reactions**

- Chest pain
- Shortness of breath
- Diaphoresis
- Palpitations
- Lightheadedness

### **Drug Interactions**

- Methylxanthines (e.g. caffeine) antagonize adenosine, a higher dose may be required
- Dipyridamole (persantine) potentiates the effect of adenosine; reduction of adenosine dose may be required
- Carbamazepine may potentiate the AV-nodal blocking effect of adenosine

### **Special Considerations**

- Reliably causes short lived but very unpleasant brief chest discomfort. Always warn your patient of this before giving medication and explain that it will be a very brief sensation
- May produce bronchospasm in patients with asthma
- Transient asystole and AV blocks are common at the time of administration
- Adenosine is not effective in atrial flutter or fibrillation
- Adenosine is safe in patients with a history of Wolff-Parkinson-White syndrome if the rhythm is regular and QRS complex is **narrow**
- A 12-lead EKG should be performed and documented, accompanied by continuous cardiac monitoring

## **ALBUTEROL SULFATE (PROVENTIL, VENTOLIN)**

### **Description**

- ☐ Albuterol is a selective  $\beta$ -2 adrenergic receptor agonist. It is a bronchodilator and positive chronotrope.
- ☐ Because of its  $\beta$  agonist properties, it causes potassium to move across cell membranes inside cells. This lowers serum potassium concentration and makes albuterol an effective temporizing treatment for unstable patients with hyperkalemia.

### **Onset & Duration**

- ☐ Onset: 5-15 minutes after inhalation
- ☐ Duration: 3-4 hours after inhalation

### **Indications**

- ☐ Bronchospasm
- ☐ Known or suspected hyperkalemia with ECG changes (i.e.: peaked T waves, QRS widening)

### **Contraindications**

- ☐ Severe tachycardia is a relative contraindication

### **Adverse Reactions**

- ☐ Tachycardia
- ☐ Palpitations
- ☐ Dysrhythmias

### **Drug Interactions**

- ☐ Sympathomimetics may exacerbate adverse cardiovascular effects.
- ☐  $\beta$ -blockers may antagonize albuterol.

### **Special Considerations**

- ☐ Consider inline nebs for patients requiring endotracheal intubation or CPAP.
- ☐ May precipitate angina pectoris and dysrhythmias
- ☐ Should be used with caution in patients with suspected or known coronary disease, diabetes mellitus, hyperthyroidism, prostatic hypertrophy, or seizure disorder
- ☐ Wheezing associated with anaphylaxis should first be treated with epinephrine IM.

## **AMIODARONE (CORDARONE)**

### **Description**

Amiodarone has multiple effects showing Vaughn-Williams Class I, II, III and IV actions with a quick onset. The dominant effect is prolongation of the action potential duration and the refractory period.

### **Indications**

- Pulseless arrest in patients with shock-refractory or recurrent VF/VT
- Wide complex tachycardia not requiring immediate cardioversion due to hemodynamic instability

### **Precautions**

- Wide complex irregular tachycardia
- Sympathomimetic toxidromes, i.e. cocaine or amphetamine overdose
- NOT to be used to treat ventricular escape beats or accelerated idioventricular rhythms

### **Contraindications**

- 2nd or 3rd degree AV block
- Cardiogenic shock

### **Adverse Reactions**

- Hypotension
- Bradycardia

### **Special Considerations**

- A 12-lead EKG should be performed and documented, when available.
- Amiodarone is preferred to adenosine for treatment of undifferentiated WCT with a pulse.

#### **Amiodarone - Adult**

##### **Tachycardia Loading**

##### **Dose:**

150 mg in 100 mL (1.5 mg/mL)

Give over 10 min (100 gtts/min with 10 gtts/mL tubing)

##### **Maintenance Infusion:**

150 mg in 100 mL (1.5 mg/mL) - 1 mg/min (40 gtts/min with 60 gtt set is (2) gtt every 3 seconds)

150 mg in 50 mL (3 mg/mL) - 1 mg/min (20 gtts/min with 60 gtt set is (1) gtt every 3 seconds)

## ***Anectine (Succinylcholine)***

### **DESCRIPTION:**

Its medical uses are limited to short-term muscle relaxation in anesthesia and intensive care, usually for facilitation of endotracheal intubation. It is perennially popular in emergency medicine because it has the fastest onset and shortest duration of action of all muscle relaxants. The former is a major point of consideration in the context of trauma care, where endotracheal intubation may need to be completed very quickly. The latter means that, should attempts at endotracheal intubation fail and the person cannot be ventilated, there is a prospect for neuromuscular recovery and the onset of spontaneous breathing before low blood oxygen levels occurs. It is better than rocuronium in making it easy to intubate.

### **INDICATION:**

1. Facilitation of ET intubation.
2. Skeletal muscle relaxation.

### **CONTRAINDICATIONS:**

1. Hypersensitivity
2. Malignant hyperthermia
3. Penetrating eye injury

### **PRECAUTIONS:**

1. Pregnancy
2. Cardiac and respiratory disease
3. Burns greater than 24hrs
4. Glaucoma, eye surgery
5. Elderly or debilitated patients
6. Hyperkalemia

### **SPECIAL NOTES:**

1. Needs to be refrigerated.
2. Should not be given to children less than two years of age.
3. Expect possible muscle fasciculations.
4. Depolarizing neuromuscular blockade.

# **ATROPINE SULFATE**

## **Description**

Atropine is a naturally occurring antimuscarinic, anticholinergic substance. It is the prototypical anticholinergic medication with the following effects:

- ☐ Increased heart rate and AV node conduction
- ☐ Decreased GI motility
- ☐ Urinary retention
- ☐ Pupillary dilation (mydriasis)
- ☐ Decreased sweat, tear and saliva production (dry skin, dry eyes, dry mouth)

## **Indications**

- ☐ Symptomatic bradycardia
- ☐ 2nd and 3rd degree heart block
  
- ☐ Organophosphate poisoning

## **Precautions**

- ☐ Should not be used without medical control direction for stable bradycardias
- ☐ Closed angle glaucoma

## **Adverse Reactions**

- ☐ Anticholinergic toxidrome in overdose, think “blind as a bat, mad as a hatter, dry as a bone, red as a beet”

## **Special Considerations**

- ☐ Atropine causes pupil dilation, even in cardiac arrest settings

## ***IPRATROPIUM BROMIDE (ATROVENT)***

### **Description**

Ipratropium is an anticholinergic bronchodilator chemically related to atropine.

### **Onset & Duration**

- ☐ Onset: 5-15 minutes.
- ☐ Duration: 6-8 hours.

### **Indications**

- ☐ Bronchospasm

### **Contraindications**

- ☐ Do not administer to children < 2 years
- ☐ Soy or peanut allergy is a contraindication to the use of Atrovent metered dose inhaler, not the nebulized solution, which does not have the allergen contained in propellant.

### **Adverse Reactions**

- ☐ Palpitations
- ☐ Tremors
- ☐ Dry mouth

## ***ASPIRIN (ASA)***

### **Description**

Aspirin inhibits platelet aggregation and blood clotting and is indicated for treatment of acute coronary syndrome in which platelet aggregation is a major component of the pathophysiology. It is also an analgesic and antipyretic.

### **Indications**

- ☐ Suspected acute coronary syndrome

### **Contraindications**

- ☐ **Active** gastrointestinal bleeding
- ☐ Aspirin allergy

### **Special Considerations**

- ☐ Patients with suspected acute coronary syndrome taking warfarin (Coumadin), clopidogrel (Plavix) or novel oral anticoagulants may still be given aspirin.

## ***Calan (Verapamil)***

### **Description:**

Blocks calcium dependent contractions in cardiac and peripheral smooth muscle leading to vasodilation, Slows cardiac conduction through the SA node

### **Indications**

Symptomatic, stable Atrial Fibrillation

### **Contraindications**

Severe LV, dysfunction, Hypotension (SBP less than 90), Cardiogenic shock, Sick sinus syndrome without pacemaker, second or third degree AV blocks, Wolff-Parkinson-White.

### **Special Considerations:**

May cause hypotension, heart block, heart failure.

### **Administration:**

Expell 2cc from a 10cc flush. Draw up 2cc (5mg verapamil).Administer Slow over 3 minutes until therapeutic effect is achieved. Discontinue immediately if patient experiences hypotension.



## **CALCIUM**

### **Description**

- Cardioprotective agent in hyperkalemia.
- Calcium chloride contains 3 times the amount of elemental calcium contained in the same volume of calcium gluconate. Therefore, 1 g (10 mL) vial of calcium chloride 10% solution contain 273 mg of elemental calcium, whereas 1 g (10 mL) of 10% calcium gluconate contains 90 mg of elemental calcium. For this reason, larger doses of calcium gluconate are required.
- Doses below refer to dose of calcium solution, not elemental calcium.

### **Indications**

- Adult pulseless arrest associated with any of the following clinical conditions:
  - o Known hyperkalemia
  - o Renal failure with or without hemodialysis history
  - o Calcium channel blocker overdose
- **Not indicated for routine treatment of pulseless arrest**
- Calcium channel blocker overdose with hypotension and bradycardia

### **Contraindications**

- Known hypercalcemia
- Suspected digoxin toxicity (i.e. digoxin overdose)

### **Side Effects/Notes**

- Extravasation of calcium chloride solution may cause tissue necrosis.
- Because of the risk of medication error, if calcium chloride is stocked, consider limiting to 1 amp per medication kit to avoid accidental overdose. Calcium gluconate solution will require 3 amp supply for equivalent dose.
- Must give in separate line from IV sodium bicarb to prevent precipitation/formation of calcium carbonate.
- In setting of digoxin toxicity, may worsen cardiovascular function.

## ***DEXTROSE***

### **Description**

Glucose is the body's basic fuel and is required for cellular metabolism. A sudden drop in blood sugar level will result in disturbances of normal metabolism, manifested clinically as a decrease in mental status, sweating and tachycardia. Further decreases in blood sugar may result in coma, seizures, and cardiac arrhythmias. Serum glucose is regulated by insulin, which stimulates storage of excess glucose from the blood stream, and glucagon, which mobilizes stored glucose into the blood stream.

### **Indications**

- Hypoglycemia
- The unconscious or altered mental status patient with an unknown etiology.

### **Precautions**

- None

### **Special Considerations**

- The risk to the patient with ongoing hypoglycemia is enormous. With profound hypoglycemia and no IV access consider IO insertion.
- Draw blood sample before administration, if possible.
- Use glucometer before administration, if possible.
- Extravasation may cause tissue necrosis; use a large vein and aspirate occasionally to ensure route patency.
- Dextrose can be irritable to the vein and the vein should be flushed after administration.

## ***Diltiazem (Cardizem)***

### **INDICATION:**

1. Atrial fibrillation or atrial flutter: Temporary control of rapid ventricular rate in atrial fibrillation or atrial flutter. It should **not** be used in patients with atrial fibrillation or atrial flutter associated with an accessory bypass tract such as in Wolf-Parkinson-White (WPW). [See Amiodarone for WPW]

### **PRECAUTIONS:**

1. Symptomatic hypotension may result.
2. PVCs may be present on conversion of PSVT to sinus rhythm. They are transient and typically benign.
3. Can cause hypotension, push slowly over 2-3 minutes.

### **CONTRAINDICATIONS:**

1. Patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker.
2. Patients with second or third degree AV block except in the presence of a functioning ventricular pacemaker.
3. Patients with severe hypotension or cardiogenic shock.
4. Patients who have demonstrated hypersensitivity to the drug.
5. Patients with Wolf-Parkinson-White (WPW) syndrome.
6. Patients with ventricular tachycardia. Administration of calcium channel blockers to patients with wide complex tachycardia (QRS > 0.12 seconds) has resulted in hemodynamic deterioration and ventricular fibrillation.

## ***DIPHENHYDRAMINE (BENADRYL)***

### **Description**

Antihistamine for treating histamine-mediated symptoms of allergic reaction. Also anticholinergic and antiparkinsonian effects used for treating dystonic reactions caused by antipsychotic and antiemetic medications (e.g.: haloperidol, droperidol, reglan, compazine, etc).

### **Indications**

- ☐ Allergic reaction
- ☐ Dystonic medication reactions or akathisia (agitation or restlessness)

### **Precautions**

- ☐ Asthma or COPD, thickens bronchial secretions
- ☐ Narrow-angle glaucoma

### **Side effects**

- ☐ Drowsiness
- ☐ Dilated pupils
- ☐ Dry mouth and throat
- ☐ Flushing

### **Drug Interactions**

- ☐ CNS depressants and alcohol may have additive effects.
- ☐ MAO inhibitors may prolong and intensify anticholinergic effects of antihistamines.

## ***Dopamine (Inotropin)***

### **DESCRIPTION**

Dopamine as a manufactured medication is sold under the trade names Intropin, Dopastat, and Revimine, among others. It is on the World Health Organization's List of Essential Medicines.[64] It is most commonly used as a stimulant drug in the treatment of severe low blood pressure, slow heart rate, and cardiac arrest. It is especially important in treating these in newborn infants.[65] It is given intravenously. Since the half-life of dopamine in plasma is very short—approximately one minute in adults, two minutes in newborn infants and up to five minutes in preterm infants—it is usually given in a continuous intravenous drip rather than a single injection

### **INDICATION:**

1. Symptomatic hypotension in the absence of hypovolemia.

### **PRECAUTIONS:**

1. May increase heart rate and induce supraventricular or ventricular tachycardia.
2. May compromise cardiac output.
3. May produce tissue necrosis if infusion infiltrates.

### **ADMINISTRATION:**

1. Comes prepared in various size bags. Most common concentration is 1.6mg/ml.
2. Start infusion at 5 mcg/kg/min titrated to satisfactory hemodynamic performance. (See Drip Rate Chart on following page for 400mg in 250 D5W or 800 mg in 500 D5W concentrations.)
3. Pediatric dose is the same as adult.
4. Titrate to effect for blood pressure or heart rate

### **SPECIAL NOTES:**

1. When administering a dopamine infusion, the appropriate drip rate should be monitored closely. Some sort of drip control should be used.
2. 5mcg/kg/min (renal dose) is not used to start correcting for hypotension, however these smaller doses may be titrated to in order to maintain appropriate blood pressure.
4. Protect medication from exposure to light.

	Weight in kilograms											
Infusion Rate (micrograms)	50	55	60	65	70	75	80	85	90	95	100	105
5	9	10	11	12	13	14	15	16	17	18	19	20
10	18	20	22	24	26	28	30	32	34	36	38	39
15	28	31	34	37	39	42	45	48	51	53	56	59
20	38	41	45	49	53	56	60	64	68	71	75	79

\*\*\*\*\* chart depicts 400mg in 250cc concentration (1600mcg/ml) for concentration of 800mg in 250cc(3200mcg/ml) cut the drip rate in half\*\*\*\*\*

## **EPINEPHRINE (ADRENALIN) 1:10,000**

### **Description**

Endogenous catecholamine alpha, beta-1, and beta-2 adrenergic receptor agonist. Causes dose related increase in heart rate, myocardial contractility and oxygen demand, peripheral vasoconstriction and bronchodilation.

### **Indications**

- Pulseless Arrest
- Anaphylaxis
- Asthma
- Bradycardia with poor perfusion

### **Adverse Reactions**

- Tachycardia and tachydysrhythmia
- Hypertension
- Anxiety
- May precipitate angina pectoris

### **Drug Interactions**

- Should not be added to sodium bicarbonate or other alkaloids as epinephrine will be inactivated at higher pH.

### **Special Considerations**

- May increase myocardial oxygen demand and angina pectoris. Use with caution in patients with known or suspected CAD

• Epinephrine Infusion, 2-10 mcg/min, titrate to effect.

• 1mg epi 1:10,000 in 250cc NS using 60gtt tubing.

mcg/min	gtt/min (mL/hr)		mcg/min	gtt/min (mL/hr)		mcg/min	gtt/min (mL/hr)
1	15 gtt/min		5	75 gtt/min		9	135 gtt/min
2	30 gtt/min		6	90 gtt/min		10	150 gtt/min
3	45 gtt/min		7	105 gtt/min			
4	60 gtt/min		8	120 gtt/min			

## ***EPINEPHRINE 1:1000***

### **Description**

Endogenous catecholamine alpha, beta-1, and beta-2 adrenergic receptor agonist. Causes dose related increase in heart rate, myocardial contractility and oxygen demand, peripheral vasoconstriction and bronchodilation.

### **INDICATION:**

1. Severe allergic reaction from stings, and ingested, inhaled, injected, or absorbed allergens.
2. Anaphylaxis with evidence of severe respiratory distress, increased heart rate, hives, and/or decreased blood pressure.
3. Severe asthma.

### **PRECAUTIONS:**

1. Do not use in patients with asthma exacerbation over the age of 55 or with known cardiac disease without physician order.

## ***Etomidate (Amidate)***

### ***Description***

short-acting intravenous anaesthetic agent used for the induction of general anaesthesia and sedation for short procedures such as reduction of dislocated joints, tracheal intubation, and cardioversion.

### ***Indications***

To induce general anesthesia to facilitate intubation or conscious sedation.

### ***Contraindications***

Suspected sepsis, Etomidate should not be used

### ***Special Considerations***

Supportive airway control must be monitored and under direct observation at all times. Etomidate can decrease the adrenal gland's production and steroid hormones in trauma patients. Monitoring of vital signs is important of conscious.



## **FENTANYL**

### **Description**

Opioid analgesics with desired effects of analgesia, euphoria and sedation as well as undesired effects of respiratory depression and hypotension. A synthetic opioid, fentanyl is 100 times more potent than morphine, and is less likely to cause histamine release.

### **Indications**

- Treatment of hemodynamically stable patients with moderate to severe pain due to traumatic or medical conditions, including cardiac conditions, abdominal pain, back pain, etc.
- Treatment of shivering with Targeted Temperature Management (TTM).

### **Contraindications**

- Hypotension, hemodynamic instability or shock
- Respiratory depression

### **Caution/Comments:**

- Opioids should only be given to hemodynamically stable patients and titrated slowly to effect.
- The objective of pain management is not the removal of all pain, but rather, to make the patient's pain tolerable enough to allow for adequate assessment, treatment and transport
- Respiratory depression, including apnea, may occur suddenly and without warning, and is more common in children and the elderly. **Start with ½ traditional dose in the elderly.**
- Coadministration of opioids and benzodiazepines is discouraged and may only be done with direct physician verbal order.
- Chest wall rigidity has been reported with rapid administration of fentanyl

NOTE: IV route is preferred for all opioid administration because of more accurate titration and maximal clinical effect. IO/IN/IM are acceptable alternatives when IV access is not readily available. Repeat doses of IN Fentanyl can be given if IV access cannot be established. However greater volumes and repeat IN administration are associated with greater drug run off and may therefore be less effective. Continuous pulse oximetry monitoring is mandatory. Frequent evaluation of the patient's vital signs is also indicated. Emergency resuscitation equipment and naloxone must be immediately available

## ***Furosemide (Lasix)***

### **Description**

Furosemide is a potent diuretic that inhibits the reabsorption of sodium and chloride in the proximal tubule, distal tubule, and the loop of Henle.

Rapid acting, potent diuretic; inhibits reabsorption of Sodium Chloride. It is also a venous dilator that decreases preload.

### **Indications**

Pulmonary Edema

### **Contraindications**

Pregnancy

Known hypersensitivity

Dehydration or shock

Anuria

Hypersensitivity

Sulfa allergy

Fever with evidence of pneumonia

### **Special Considerations**

Rapid administration may cause auditory problems including tinnitus and hearing loss.

## ***GLUCAGON***

### **Description**

Increases blood sugar concentration by converting liver glycogen to glucose. Glucagon also causes relaxation of smooth muscle of the stomach, duodenum, small bowel, and colon.

### **Onset & Duration**

- Onset: variable

### **Indications**

- Altered level of consciousness where hypoglycemia is suspected and IV access is unavailable.
- Hypotension, bradycardia from beta-blocker or calcium channel overdose.

### **Side Effects**

- Tachycardia
- Headache
- Nausea and vomiting

## ***ORAL GLUCOSE (GLUTOSE, INSTA-GLUCOSE)***

### **Description**

Glucose is the body's basic fuel and is required for cellular metabolism

### **Indications**

- ☐ Known or suspected hypoglycemia and able to take PO

### **Contraindications**

- ☐ Inability to swallow or protect airway
- ☐ Unable to take PO meds for another reason

## **HALOPERIDOL (HALDOL)**

### **Description**

Haloperidol is a butyrophenone antipsychotic medication. Haloperidol produces a dopaminergic blockade, a mild alpha-adrenergic blockade, and causes peripheral vasodilation. Its major actions are sedation and tranquilization.

### **Onset & Duration**

- ☐ Onset: Within 10 minutes after IM administration. Peak effect within 30 minutes
- ☐ Duration: 2-4 hours (may be longer in some individuals)

### **Indications**

- ☐ Sedation of a severely agitated and/or combative patient

### **Contraindications**

- ☐ Suspected myocardial infarction
- ☐ Hypotension
- ☐ Respiratory or CNS depression
- ☐ Pregnancy
- ☐ Children < 8 years old

### **Precautions**

- ☐ Haldol may cause hypotension, tachycardia, and prolongation of the QT interval. Use with caution in severe cardiovascular disease.
- ☐ Cardiac monitor and establish an IV as soon as possible with all administrations.
- ☐ Some patients may experience unpleasant sensations manifested as restlessness, hyperactivity, or anxiety following haloperidol administration.
- ☐ Rare instances of neuroleptic malignant syndrome (very high fever, muscular rigidity) have been known to occur after the use of haloperidol.

### **Special Considerations**

- ☐ Extra-pyramidal reactions have been noted hours to days after treatment, usually presenting as spasm of the muscles of the tongue, face, neck, and back. This may be treated with diphenhydramine.
- ☐ Hypotension and tachycardia secondary to haloperidol are usually self-limiting and should be treated with IV fluid bolus.
- ☐ Use one half dose in patients age  $\geq 65$  who are at increased risk of complications

## **HEMOSTATIC AGENT (QuickClot)**

### **Description**

QuickClot Combat Gauze is a standard roller or Z-fold gauze impregnated with a clotting agent such as kaolin (a clay containing the active ingredient aluminum silicate) which works on contact with blood to initiate the clotting process (intrinsic pathway) by activating factor XII. This reaction leads to the transformation of factor XII to its' activated form XIIa, which triggers the clotting cascade.

Mucoadhesive agents such as HemCon, ChitoGauze and Celox utilize a granular chitosan salt derived from the shells of marine arthropods (which are positively charged) to react with and bind to negatively charged red blood cells rapidly forming a crosslinked barrier clot to seal the injured vessels.

Used in conjunction with direct pressure and wound packing these products lead to hemostasis.

### **Onset and Duration**

- Onset of action is 3-5 minutes after wound exposure and clotting action remains unless the dressing and/or the clot is disturbed.

### **Indications**

- Active bleeding from open wounds with that cannot be controlled with direct pressure. Most often involving wounds to the scalp, face, neck, axilla, groin or buttocks.

### **Contraindications**

- Not to be used to treat internal bleeding such as intra-abdominal, intra-thoracic or vaginal bleeding.
- Not to be used for minor bleeding that can be controlled by direct pressure.

### **Precautions**

- Bleeding control is achieved via combination of direct pressure and hemostatic gauze packing for a minimum of 3-5 minutes.
- Stabilize patient per General Trauma Care Protocol.
- If a tourniquet is indicated (refer to Tourniquet Protocol), it should be applied first, before application of hemostatic agent.
- **DO NOT USE LOOSE GRANULAR OR POWDERED HEMOSTATIC AGENTS.** These are out date and will produce exothermic reactions that may cause burns and additional tissue damage.

## ***KETAMINE***

### **DESCRIPTION::**

Mainly used for starting and maintaining anesthesia. It induces a trance-like state while providing pain relief, sedation, and memory loss. Other uses include for chronic pain and for sedation in intensive care. Heart function, breathing, and airway reflexes generally remain functional during its effects. Effects typically begin within five minutes when given by injection with the main effects lasting up to 25 minutes.

### **INDICATION:**

1. Sedation for RSA
2. Sedation for excited delirium
3. Pain control for extrication & severe burns

### **PRECAUTIONS:**

1. Can cause respiratory depression
2. Can cause extra secretions in the airway
3. Can cause emergence reactions
4. Short acting effects

### **CONTRAINDICATIONS:**

1. Cardiac decomposition
2. Congestive heart failure

### **SPECIAL NOTES:**

1. For emergence reactions administer Versed 5 mg IVP

## ***BENZODIAZEPINES (MIDAZOLAM)***

### **Description**

- ☐ Benzodiazepines are sedative-hypnotics that act by increasing GABA activity in the brain. GABA

is the major inhibitory neurotransmitter, so increased GABA activity *inhibits* cellular excitation. Benzodiazepine effects include anticonvulsant, anxiolytic, sedative, amnestic and muscle relaxant properties. Each individual benzodiazepine has unique pharmacokinetics related to its relative lipid or water solubility.

- ☐ Selection of specific agent as preferred benzodiazepine is at individual agency Medical Director discretion.

### **Onset & Duration**

- ☐ Any agent given IV will have the fastest onset of action, typical time of onset 2-3 minutes
- ☐ Intranasal administration has slower onset and is less predictable compared to IV administration, however, it may still be preferred if an IV cannot be safely or rapidly obtained. Intranasal route has faster onset compared to intramuscular route.
- ☐ IM administration has the slowest time of onset.

### **Indications**

- ☐ Status epilepticus
- ☐ Sedation of the severely agitated/combatative patient
- ☐ Sedation for cardioversion or transcutaneous pacing (TCP)
- ☐ Adjunctive agent for treatment of severe pain (e.g. back spasms) in adults that is uncontrolled by maximum opioid dose –

### **Contraindications**

- ☐ Hypotension
- ☐ Respiratory depression

### **Adverse Reactions**

- ☐ Respiratory depression, including apnea
- ☐ Hypotension
- ☐ Consider ½ dosing in the elderly for all benzodiazepines

### **Special Considerations**

- ☐ All patients receiving benzodiazepines must have cardiac, pulse oximetry monitoring during transport. Continuous waveform capnography recommended.
- ☐ Sedative effects of benzodiazepines are increased in combination with opioids, alcohol, or other CNS depressants.
- ☐ Coadministration of opioids and benzodiazepines is discouraged and may only be done with direct physician verbal order.
- ☐ In elderly patients > 65 years old or small adults < 50kg, lower doses may be sufficient and effective. Consider ½ dosing in these patients

## ***MAGNESIUM SULFATE***

### **Description**

Magnesium sulfate reduces striated muscle contractions and blocks peripheral neuromuscular transmission by reducing acetylcholine release at the myoneural junction. In cardiac patients, it stabilizes the potassium pump, correcting repolarization. It also shortens the Q-T interval in the presence of ventricular arrhythmias due to drug toxicity or electrolyte imbalance. In respiratory patients, it may act as a bronchodilator in acute bronchospasm due to asthma or other bronchospastic diseases. In patients suffering from eclampsia, it controls seizures by blocking neuromuscular transmission and lowers blood pressure as well as decreases cerebral vasospasm.

### **Indications**

#### **Antiarrhythmic**

- ☐ Torsade de pointes associated with prolonged QT interval

#### **Respiratory**

- ☐ Severe bronchospasm unresponsive to continuous albuterol, ipratropium, and IM epinephrine.

#### **Obstetrics**

- ☐ Eclampsia: Pregnancy > 20 weeks gestational age or post partum with seizures

### **Precautions**

- ☐ Bradycardia
- ☐ Hypotension
- ☐ Respiratory depression

### **Adverse Reactions**

- ☐ Bradycardia
- ☐ Hypotension
- ☐ Respiratory depression



## **NALOXONE (NARCAN)**

### **Description**

Naloxone is a competitive opioid receptor antagonist

### **Onset & Duration**

Onset: Within 5 minutes

Duration: 1-4 hours

### **Indications**

- For reversal of suspected opioid-induced CNS and respiratory depression
- Coma of unknown origin with impaired airway reflexes or respiratory depression

### **Adverse Reactions**

- Tachycardia
- Nausea and vomiting
- Pulmonary Edema

### **Special Considerations**

- Not intended for use unless respiratory depression or impaired airway reflexes are present. Reversal of suspected mild-moderate opioid toxicity is not indicated in the field as it may greatly complicate treatment and transport as narcotic-dependent patients may experience violent withdrawal symptoms
- Patients receiving EMS administered naloxone **should** be transported to a hospital. There are significant concomitant inherent risks in patients who have received naloxone, including:
  - o Recurrent respiratory/CNS depression given short half-life of naloxone
  - o Co-existing intoxication from alcohol or other recreational or prescription drugs
  - o Acetaminophen toxicity from combination opioid/acetaminophen prescriptions
  - o Non-cardiogenic pulmonary edema associated with naloxone use
  - o Acute psychiatric decompensating, overdose, SI/HI or psychosis requiring ED evaluation
  - o Sudden abrupt violent withdrawal symptoms which may limit decision making capacity
- Given the above risks, it is strongly preferred that patients who have received naloxone be transported and evaluated by a physician. However, if the patient clearly has decision-making capacity he/she does have the right to refuse transport. If adamantly refusing, patients must be warned of the multiple risks of refusing transport.
- If the patient is refusing transport contact base. If any concerns or doubts about decision-making capacity exist, err on the side of transport.

## ***NITROGLYCERIN (NITROSTAT, NITROQUICK, etc)***

### **Description**

Short-acting peripheral venodilator decreasing cardiac preload and afterload

### **Onset & Duration**

Onset: 1-3 min.

Duration: 20-30 min.

### **Indications**

- Pain or discomfort due to suspected Acute Coronary Syndrome
- Pulmonary edema due to congestive heart failure

### **Contraindications**

- Suspected right ventricular ST-segment elevation MI (Inferior STEMI pattern plus ST elevation in right sided-precordial leads)
- Hypotension SBP < 100
- Recent use of erectile dysfunction (ED) medication (e.g. Viagra, Cialis)

### **Adverse Reactions**

- Hypotension
- Headache
- Syncope

# **OXYGEN**

## **Description**

Oxygen added to the inspired air increases the amount of oxygen in the blood, and thereby increases the amount delivered to the tissue. Tissue hypoxia causes cell damage and death. Breathing, in most people, is regulated by small changes in the acid-base balance and CO<sub>2</sub> levels. It takes relatively large decreases in oxygen concentration to stimulate respiration.

## **Indications**

- Suspected hypoxemia or respiratory distress from any cause
- Acute chest or abdominal pain
- Hypotension/shock states from any cause
- Trauma
- Suspected carbon monoxide poisoning
- Obstetrical complications, childbirth

## **Precautions**

- If the patient is not breathing adequately, the treatment of choice is assisted ventilation, not just oxygen.
- When pulse oximetry is available, titrate SpO<sub>2</sub> to  $\geq 90\%$ . This may take some time.
- Do not withhold oxygen from a COPD patient out of concerns for loss of hypoxic respiratory drive.

This is never a concern in the prehospital setting with short transport times

## **Special Notes**

- Do not use permanently mounted humidifiers. If the patient warrants humidified oxygen, use a single patient use device.
- Adequate oxygenation is assessed clinically and with the SpO<sub>2</sub> while adequate ventilation is assessed clinically and with waveform capnography.

## **PROCAINAMIDE**

### **DESCRIPTION**

Antiarrhythmic medication that slows conduction through the myocardium and elevates the ventricular fibrillation threshold and suppresses ventricular ectopic activity.

### **INDICATIONS**

- Refractory Ventricular fibrillation, tachycardia and PVC's

### **CONTRAINDICATIONS**

- High degree blocks
- PVC's associated with bradycardia

### **SPECIAL CONSIDERATIONS**

- Monitor for CNS toxicity

### **SIDE EFFECTS**

- Anxiety
- Nausea
- Convulsions
- Widening QRS

### **Procainamide Loading Dose**

Dilute 1 g Procainamide in 50 mL NS (concentration 20 mg/mL). Using a 60 gtts set, infuse at a rate of one (1) gtt every second Continue until:

arrhythmia suppressed

Hypotension ensues

QRS widens by > 50% OR 17mg/kg is adm.

### **Procainamide Infusion:**

Infusion Rate	Admin Set: 60 drops/mL
1 mg/min	15 drops/min
2 mg/min	30 drops/min
3 mg/min	45 drops/min
4 mg/min	60 drops/min

2g in 500 mL Normal Saline = 4 mg/mL

## ***RACEMIC EPINEPHRINE / NEBULIZED EPINEPHRINE***

### **Description**

Racemic epinephrine 2.25% is an aqueous solution that delivers 11.25 mg of racemic epinephrine per 0.5mL for use by **inhalation only**. Inhalation causes local effects on the upper airway as well as systemic effects from absorption. Vasoconstriction may reduce swelling in the upper airway, and  $\beta$  effects on bronchial smooth muscle may relieve bronchospasm.

### **Onset & Duration**

- ☐ Onset: 1-5 minutes
- ☐ Duration: 1-3 hours

### **Indications**

- ☐ Stridor at rest and croup

### **Side Effects**

- ☐ Tachycardia
- ☐ Palpitations
- ☐ Muscle tremors

### **Special Considerations**

- ☐ Racemic epi is heat and photo-sensitive
- ☐ Once removed from the refrigerator, the unopened package is stable at room temperature until the expiration date stated on the package.
- ☐ Do not confuse the side effects with respiratory failure or imminent respiratory arrest.

\*\*\*\*\*If racemic epinephrine is unavailable:

- Consider 3 mL of 1:1,000 epinephrine x 1 via nebulizer at 6-8 LPM to create a fine mist and administer over 15 minutes if the patient is over the age of 1 year.
- Patients under the age of 1 year may receive .5 mg/kg 1:1000 epinephrine via nebulizer at 6-8 LPM to create a fine mist and administer over 15 minutes.
- There is no need to dilute epinephrine.

## ***SODIUM BICARBONATE***

### **Description**

Sodium bicarbonate is an alkalotic solution, which neutralizes acids found in the body. Acids are increased when body tissues become hypoxic due to cardiac or respiratory arrest.

### **Indications**

- ☐ Tricyclic overdose with arrhythmias, widened QRS complex or hypotension.
- ☐ Suspected hyperkalemic pulseless arrest: consider in patients with known renal failure/dialysis.

### **Contraindications**

- ☐ Metabolic and respiratory alkalosis
- ☐ Hypocalcemia
- ☐ Hypokalemia

### **Adverse Reactions**

- ☐ Metabolic alkalosis
- ☐ Paradoxical cerebral intracellular acidosis
- ☐ Sodium bolus can lead to volume overload

### **Drug Interactions**

- ☐ May precipitate in calcium solutions.
- ☐ Alkalization of urine may increase half-lives of certain drugs.
- ☐ Vasopressors may be deactivated.

### **Special Considerations**

- ☐ Sodium bicarbonate administration increases CO<sub>2</sub> which rapidly enters cells, causing a paradoxical intracellular acidosis.
- ☐ Sodium bicarb is no longer recommended for routine use in prolonged cardiac arrest. Its use in pulseless arrest should be limited to known or suspected hyperkalemia (e.g. dialysis patient), or arrest following tricyclic overdose

## ***METHYLPREDNISOLONE (SOLU-MEDROL)***

### **Description**

Methylprednisolone is a synthetic steroid that suppresses acute and chronic inflammation and may alter the immune response. In addition, it potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity.

### **Indications**

- ☐ Anaphylaxis
- ☐ Severe asthma
- ☐ COPD
- ☐ Suspected Addisonian crisis (cardiovascular collapse in patient at risk for adrenal insufficiency)

### **Contraindications**

- ☐ Evidence of active GI bleed

### **Adverse Reactions**

Most adverse reactions are a result of long-term therapy and include:

- ☐ Gastrointestinal bleeding
- ☐ Hypertension
- ☐ Hyperglycemia

### **Special Considerations**

- ☐ Must be reconstituted and used immediately
- ☐ The effect of methylprednisolone is generally delayed for several hours.
- ☐ Methylprednisolone is not considered a first line drug. Be sure to attend to the patient's primary treatment priorities (i.e. airway, ventilation, beta-agonist nebulization) first. If primary treatment priorities have been completed and there is time while in route to the hospital, then methylprednisolone can be administered. Do not delay transport to administer this drug

## ***TRANEXAMIC ACID (TXA)***

Class: Anti-Fibrinolytic

### **Description:**

Tranexamic acid is a synthetic analog of the amino acid lysine. It serves as an antifibrinolytic by reversibly binding four to five lysine receptor sites on plasminogen (a.k.a plasmin). This prevents plasmin (antiplasmin) from binding to and degrading fibrin and preserves the framework of fibrin's matrix structure.[18] Tranexamic acid has roughly eight times the antifibrinolytic activity of an older analogue,  $\epsilon$ -aminocaproic acid

### **Actions/Pharmacodynamics:**

Promotes clot formation in the setting of massive hemorrhage.

### **Indications:**

Hemostatic Agents

Patients in traumatic hemorrhagic shock with suspected need for massive blood transfusion (clinical evidence of marked blood loss – internal or external, sustained tachycardia and hypotension) within 3 hours of injury time.

### **Contraindications:**

Non-hemorrhagic shock (septic/spinal/cardiogenic)

### **Pharmacokinetics:**

Onset of action within 4 hours after IV administration, exact time of onset unclear and variable. Delayed effects up to 48 hours consistent with anti-inflammatory actions.

### **Side Effects:**

While a theoretical concern, TXA has not been shown to cause significant increase in deep venous thrombosis, pulmonary embolism, myocardial infarction, or stroke in published trials to date.



## ***VASOPRESSOR CONTINUOUS INFUSION – ADULT PATIENTS ONLY***

### **Description:**

**Epinephrine:** Preferred vasopressor for all indications.

☐ Endogenous catecholamine alpha, beta-1, and beta-2 adrenergic receptor agonist. Causes dose-related increase in heart rate, myocardial contractility and oxygen demand, peripheral vasoconstriction and bronchodilation

**Dopamine:** may be used as an alternative vasopressor for indications of hypotension or bradycardia, but not for anaphylaxis or status asthmaticus.

☐ Endogenous catecholamine chemically related to epinephrine and norepinephrine. Increases blood pressure through combination of dopamine, alpha and beta receptor effects leading to increased heart rate, contractility and peripheral vasoconstriction.

### **Indications:**

#### **Epinephrine:**

- ☐ Severe Allergic Reaction/Anaphylaxis
- ☐ Hypotension with poor perfusion refractory to adequate fluid resuscitation (typically 30 mL/kg crystalloid)
- ☐ Bradycardia with signs of poor perfusion

#### **Dopamine:**

- ☐ Hypotension with poor perfusion refractory to adequate fluid resuscitation (typically 30 mL/kg crystalloid)
- ☐ Bradycardia with signs of poor perfusion

### **Contraindications:**

- ☐ **Do not use vasopressor infusion in PEDIATRIC patients (age less than 12 years)**

### **Adverse Reactions**

- ☐ Dysrhythmia
- ☐ Hypertension
- ☐ Anxiety
- ☐ Angina

### **Drug Interactions**

- ☐ Do not add to sodium bicarbonate or other alkaloids as epinephrine will be inactivated at higher

pH.

## **ZOFRAN (ONDASTERON)**

### **DESCRIPTION:**

- Ondansetron is a selective serotonin 5-HT<sub>3</sub> receptor antagonist antiemetic. Ondansetron is the preferred antiemetic, if available.
- Promethazine is a non-selective central and peripheral H-1 type histamine antagonist with anticholinergic properties resulting in antiemetic and sedative effects.
- Metoclopramide is a dopamine antagonist that works by blocking the CNS vomiting chemoreceptor trigger zone (CRT).

### **INDICATION:**

1. Nausea and or vomiting.

### **PRECAUTIONS:**

1. May cause headache and dizziness.
2. May cause sedation/drowsiness.
3. May prolong QT

### **ADMINISTRATION:**

1. Supplied in vial containing 4mg/2ml.
2. Give adult patient 4mg IV slowly over 2 minutes into running IV may repeat every 5 minutes to a max dose of 12mg, pediatric patients <40kg 0.1mg/kg dose can be given and may repeat twice
3. Can be given IM or orally(ODT).

### **SPECIAL NOTES:**

1. Very few side effects noted. If rare extrapyramidal effects are observed, Benadryl can be given.
2. Don't repeat adult dose if they have impaired renal function.
3. Use cautiously in nursing mothers.

# EMS SYSTEM POLICIES

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## 10.0 POLICIES

## Policies: 10.1 DOCUMENTATION POLICY

### EMERGENCY MEDICAL RESPONDER

#### EMT

#### PARAMEDIC

**Standard procedure:** After completion of each patient transport, the following information needs to be documented. A copy of the completed PCR needs to be submitted to the receiving ED within 24 hours.

- **Chief complaint:** The patient's **major presenting problem**.
- **History of present illness or injury (HPI):** This should include events leading up to the chief complaint, a description of the onset of the problem, and further explanation of the chief complaint of presenting symptoms. This would include the; **O**nset, **P**rovocation or **P**alliation, **Q**uality, **R**adiation, **S**everity, and **T**ime.
- **Past pertinent medical history:** As it relates to the current problem, and any pre-existing conditions of the medical problem, current medications and known allergies. This is the; **S**ymptoms, **A**llergies, **M**edications, **P**ast medical history, **L**ast oral intake, and **E**vents leading up to the injury or illness. The events section could be included in the HPI.
- **Physical exam:** This would include the, Initial, Rapid, Focused, and Detailed assessment including, all vital signs and ECG interpretations if appropriate. This should be very complete and detailed to thoroughly describe the condition of the patient. All objective findings along with pertinent negatives need to be included.
- **Treatment and response:** All treatments must be documented, preferably chronologically. What treatment was provided, the time, who performed the treatment, if pertinent the number of attempts and successes, the patient response to the treatment and further assessment. If the treatment has specific documentation requirements, then those must be included as well. Documentation of non- treatments is also required.
- **Transportation:** The position in the mode of transportation. It is recommended that you document the patient was secured on a stretcher and how the patient was secured. When the hospital was contacted and how they were contacted. Any orders received or denied in the patient response to any orders. Make sure document all times with these orders. Any changes in the patient condition or changes would be included. Arrival at the hospital which room the patient was placed in and whom you released care to at the receiving facility.

## **Policies: 10.2 EMS SYSTEM ENTRY REQUIREMENTS**

### **EMT**

### **PARAMEDIC**

Each individual applying for employment as an EMT-B or Paramedic in the Franciscan Health Crown Point (FHCP) EMS System must complete the following criteria before functioning as an EMT-B or paramedic in the system:

1. Obtain a System Entrance Packet. Complete background check as provided. You must turn in the completed packet in order to take your protocol test.
2. Provide a Letter of Affiliation from an approved provider in the FHCP System.
3. For Paramedics, you must provide your transcripts from your EMT-P Training Institution or letter of good standing from the current System Medical Director or designee if already functioning as a paramedic.
4. Provide verification of the following credentials, if applicable:
  - a. State Certification
  - b. BLS-CPR
  - c. ACLS (paramedic only )
  - d. PALS, PEPP or EPC
  - e. PHTLS, BTLS or ITLS
5. Schedule a System Entrance Testing date with the EMS Academy. There is a \$25.00 fee for these examinations, non-refundable and payable in full on the testing date. You will be expected to:
  - a. Successfully complete a FHCP EMS Protocol Examination with a score of 80% or above.
  - b. Successfully complete a Cardiac and Trauma Practical Evaluation, if state or national testing date is greater than 1 year.
  - c. Direct Field Observation at the discretion of the EMS Director or Medical Director.
  - d. Attend the next EMS Education Day. Probationary status will be granted until completed. Failure to attend will result in revocation of probationary status until the next skills day is attended.
6. You will be allowed ONE (1) retake on the protocol test. . The retake must be done within THREE (3) months of the original examination. If a failure occurs on the second attempt, an interview evaluation will be scheduled with the Medical Director. The Medical Director will determine if additional testing will be required.

If another failure occurs following the interview with the Medical Director, the applicant must wait a minimum of THREE (3) months, prior to applying for affiliation again.

It is the responsibility of each individual to become familiar with and have an understanding of the FHCP EMS Policies & Procedures and Treatment Protocol

## **Policies: 10.3 CONTINUING EDUCATION REQUIREMENTS**

### **EMT**

#### **Purpose:**

The purpose of this policy is to outline the Continuing Education Requirements for all affiliates of Franciscan Crown Point System.

#### **Indiana Certification Requirements:**

- IAC 836 4-4-2 requires 34 hours of didactic and 6 hours of audit and review over a two year period in order to maintain State EMT certification.
  - Didactic Hours
    - May be achieved through the individual affiliated EMS Provider and signed off by the training officer and Chief officer.
  - Audit and Review
    - May be obtained through in house audit and review or by attending monthly CQI sponsored by FHCP.
  - Psychomotor Skills
    - May be obtained through affiliated EMS provider or assisting an IDHS Psychomotor Exam.
    - Mandatory Psychomotor Skills
      - Supine and Seated Spinal Immobilization
      - Patient Assessment Trauma and Medical
      - Long Bone, Joint and Traction Splint Immobilization.
      - Cardiac Arrest Management/AED
      - Airway Management.

#### **FHCP System Requirements:**

- CE book must be continually maintained and available for review at the discretion of the FHCP Medical Director or designee.
- Indiana State Requirements as above to include the following:
  - Didactic
    - PHTLS
    - BLS Healthcare Provider CPR
    - EPC or PEPP
  - Psychomotor
    - King Airway, IN Narcan, Glucometer, 12 lead EKG lead placement and acquisition,

#### **Recertification Requirements:**

- Completed CE documents with signatures must be presented to the department Training officer 30 days prior to the certification date of expiration.
- Training officer reviews CE documents for accuracy, provided documents are complete permission is provided to access IDHS portal and recertify. Recertification on the portal without permission will result in disciplinary action.
- Audited CE documents must be submitted to the FHCP EMS office for review prior to submission to IDHS.
- Recertification on the portal without permission will result in disciplinary action

## **Policies: 10. 4 CONTINUING EDUCATION REQUIREMENTS**

### **PARAMEDIC**

#### **Purpose:**

The purpose of this policy is to outline the Continuing Education Requirements for all affiliates of Franciscan Crown Point System. Recertification is an individual responsibility.

#### **Indiana Certification Requirements:**

- IAC 836 4-9-5 requires a total of 72 hours including 12 hours of audit and review over a two year period in order to maintain State of Indiana Paramedic Licensure as well as certification in CPR and ACLS.
  - Didactic Hours (60)
    - Must include 16 hours ABC, 8 hours Medical, 6 hours Trauma, and 16 hours OB/Peds and 2 hours of Operations. (48)
    - The 12 additional hours may be obtained through EMS Commission approved courses.
  - Audit and Review
    - 12 hours must be obtained through formal audit and review provided by the sponsoring hospital. (Three per year)
  - Psychomotor Skills
    - Must be supervised by either the medical director or educational staff of the supervising hospital.
    - Mandatory Psychomotor Skills
      - Trauma and Medical Patient Assessment
      - Ventilatory Management
      - Cardiac Arrest Management
      - Bandaging and Splinting
      - Medication Administration, IV/IO therapy and bolus.
      - Spinal Immobilization
      - OB/Gyn
      - Communication and Documentation

#### **FHCP System Requirements:**

- CE book must be continually maintained and available for review at the discretion of the FHCP Medical Director or designee.
- Indiana State Requirements as above to include the following:
  - Didactic
    - PHTLS
    - EPC, PEPP or PALS
    - AMLS (recommended)
    - No more than 20 hours of online CE will be accepted at the discretion of the medical director or designee.
  - Psychomotor
    - Annual attendance at FHCP system skills day.
    - Failure to attend will result in suspension from the system until the next skills day is attended.

#### **Recertification Requirements:**

- Completed IDHS CE documents with signatures and supporting documents must be presented to the FHCP EMS office no later than 30 days prior to the date of certification expiration.
- Documents received 25 days prior to the expiration date will result in a fine of \$50 and no guarantee that the document will be reviewed and signed within appropriate time.
- The paramedic may access the IDHS portal and recertify with permission from the FHCP EMS Director once documents have been received and reviewed. Failure to do so will result in disciplinary action to include immediate suspension from the FHCP EMS system.

## **Policies: 10.5 FORMAL CORRECTIVE ACTION**

### **EMT**

### **PARAMEDIC**

#### **Purpose**

The intent of the EMS Staff is to have as many “teachable moments” as possible in order to properly remediate and educate EMS providers in both the proper treatment of patients and policies and procedures required to function under the medical direction of FHCP. A point is reached when those moments have either been exhausted, or, an incident occurs that is so severe that immediate corrective action is necessary.

#### **Terms Defined:**

- Warning
  - A minor protocol or policy deviation has occurred that requires documentation.
  - Individual or individuals involved will be remediated.
- Probation
  - A serious protocol or policy deviation has occurred that requires documentation or affiliate has performed a protocol or policy deviation while on warning.
  - Individual or individuals involved will be remediated to include participation in clinical time depending on the type of infraction. .
  - May continue to function within the system under current certification or licensure.
  - Requires mandatory reporting of the incident to the state EMS office.
- Suspension
  - A severe protocol or policy deviation has occurred that requires documentation or affiliate has performed a protocol or policy violation while on probation.
  - Individuals may be remediated, participate in clinical time and or precept with an equally certified or licensed system affiliate depending on the type of infraction.
  - May not function within the system under current certification or licensure unless in a remedial role with a preceptor.

#### **Procedure:**

- The EMS affiliate will be notified along with their respective training officer when the EMS office is made aware of an infraction.
- Once the incident has been investigated and a final decision has been made the affiliate will be notified in writing.
- If the affiliate fails to meet the conditions of remediation further disciplinary action will be required.
- The state EMS office will be notified of probation and suspension decisions.
- The affiliate may request a system review in order appeal the disciplinary action. This must be performed in writing within 14 business days of the original decision and submitted to the EMS clinical coordinator for review.
  - System review committee is composed of one representative from each EMS provider under the FHCP EMS System and shall be chaired by the FHCP EMS Director. .
  - Decision of the review committee is final.

#### **Potential Causes for Corrective Action**

<b>Academic</b>	<b>Clinical</b>	<b>Professional</b>
Re-certification	Protocol Deviation	Discrimination
Continuing Education	Policy Deviation	Substance Abuse
Mandatory Classes	Skills Beyond Scope of Practice	Abandonment
Cheating on Written or Practical	Medical Misconduct	Falsifying Reports
	Skill Deficiencies	Unethical Conduct











