
# Emergency Medical Services
# **Protocols**

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**EMERGENCY MEDICAL SERVICES**
OhioHealthEMS.com

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# Adult Protocols

# Cardiac Protocols

# Pulseless Arrest – EMT – Basic/Intermediate

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Establish unresponsiveness, apnea, pulselessness |
| ALL | 3. | CPR – if no bystander CPR - 2 min CPR before AED application |
| EMT | 4. | Apply AED if available |
| EMT | 5. | Turn on AED & follow prompts. |
| EMT | 6. | Deliver Shock if indicated |
| EMT | 7. | Assist Ventilation |
| EMT | 8. | Manage Airway |
| EMT | 9. | Supplemental oxygen |
| AEMT | 10. | IV/IO access (Normal Saline) |
| EMT | 11. | Minimize CPR interruptions. |
| EMT | 12. | Transport |

Note: This protocol addresses the EMT-Basic/Intermediate crew without a Paramedic available

# Pulseless Ventricular Fibrillation/Tachycardia

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Establish unresponsiveness, apnea, pulselessness |
| ALL | 3. | CPR – if no bystander CPR – 2 min CPR before analyzing rhythm |
| P | 4. | Quick Look (monitor/patches) |
| P | 5. | Identify Rhythm |
| P | 6. | Defibrillate 200J |
| EMT | 7. | Manage airway |
| EMT | 8. | Oxygen |
| AEMT | 9. | IV/IO access (Normal Saline or Lactated Ringers) |
| P | 10. | Epinephrine 1mg IV/IO push |
| P | 11. | Defibrillate 360J 2 minutes after each drug administration<br>Consider Double Sequential Defibrillation for 3rd and subsequent shocks (Procedure 38) |
| P | 12. | Amiodarone 300mg IV/IO ( may give additional 150mg IV/IO in 5 min) |
| P | 13. | Epinephrine 1mg IV/IO push every 3-5 minutes |
| P | 14. | Lidocaine 1mg/kg IV/IO push (may repeat x 1 in 5 minutes) |
| P | 15. | Defibrillate 2 minutes after each drug administration |
| P | 16. | Consider: Magnesium 2grams IV/IO push<br>Sodium Bicarb 1 amp IV/IO push |
| P | 17. | If conversion after Lidocaine bolus:<br>Initiate Lidocaine drip 2mg/min IV/IO<br>(Mix 2 amps (200 mg) Lidocaine in a 250 bag NS and run at 150ml/hr with a dial a flow) |

# Pulseless Electrical Activity (PEA)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Establish unresponsiveness, apnea, pulselessness |
| ALL | 3. | CPR – if no bystander CPR - 2 min CPR before analyzing rhythm |
| P | 4. | Quick Look (monitor/patches) |
| P | 5. | Identify Rhythm |
| EMT | 6. | Manage airway |
| EMT | 7. | Oxygen |
| AEMT | 8. | IV/IO access (Normal Saline or Lactated Ringers) |
| P | 9. | Epinephrine 1mg IV/IO push every 3-5 minutes |
| P | 10. | Consider Pacing (Procedure 37) |

<u>Consider Field Correctable causes</u>

Hypovolemia - Normal Saline or Lactated Ringers 1 liter fluid bolus
Hypothermia – Re-Warming and spacing of meds
Hypoxia – Reverify airway and supplemental oxygen
Hypoglycemia – D50 as indicated
Hyperkalemia – Calcium Gluconate 1gram IV/IO
Tension Pneumothorax – Needle chest decompression
Toxins/Overdose – Pacing, Overdose Protocol
Trauma

# Asystole

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Establish unresponsiveness, apnea, pulselessness |
| ALL | 3. | CPR – if no bystander CPR - 2 min CPR before analyzing rhythm |
| P | 4. | Quick Look (monitor/patches) |
| P | 5. | Identify Rhythm |
| P | 6. | Consider early transcutaneous pacing (Procedure 37) |
| EMT | 7. | Manage airway |
| EMT | 8. | Oxygen |
| AEMT | 9. | IV/IO access (Normal Saline or Lactated Ringers) |
| P | 10. | Epinephrine 1mg IV/IO push (Repeat as needed every 5 min) |

Consider Field Correctable causes

Hypovolemia - Normal Saline or Lactated Ringers 1 liter fluid bolus
Hypothermia – Re-Warming and spacing of meds
Hypoxia – Reverify airway and supplemental oxygen
Hypoglycemia – D50 as indicated
Hyperkalemia –Calcium gluconate 1 gram IV/IO
Tension Pneumothorax – Needle chest decompression
Toxins/Overdose – Pacing, Overdose Protocol
Trauma

# Symptomatic Bradycardia

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| P | 5. | Identify rhythm |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 7. | Vitals, pulse oximetry |
| P | 8. | 12 Lead EKG if available |
| P | 9. | Atropine 0.5-1.0mg IV Push (may repeat to max dose of 3 mg) |
| P | 10. | Repeat vitals if no change and severely symptomatic consider Transcutaneous Pacing. (Procedure 37)<br>Consider Sedation Protocol (Adult 26) |
| P | 11. | Repeat vitals, if no change consider epinephrine drip (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). **If available use 60 gtts tubing for ease of titration.** |
| AEMT | 12. | Consider Glucagon 2mg IM/IN if suspected Beta Blocker ingestion/toxicity |
| P | 13 | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12) |

Symptomatic: A change in mentation, unstable vital signs, syncope or near syncope, evidence of poor perfusion

<u>Consider Field Correctable causes</u>

Hypovolemia - Normal Saline or Lactated Ringers 1 liter fluid bolus
Hypothermia – Re-Warming and spacing of meds
Hypoxia – Reverify airway and supplemental oxygen
Hypoglycemia – D50 as indicated
Tension Pneumothorax – Needle chest decompression
Toxins/Overdose – Pacing, Overdose Protocol
Trauma

# 2nd & 3rd Degree AV Block – (Unstable)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| P | 5. | Identify rhythm |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 7. | Vitals, pulse oximetry |
| P | 8. | 12 Lead EKG, if available |
| P | 9. | Repeat vitals if no change and severely symptomatic consider Transcutaneous Pacing. (Procedure 37)<br>Consider Sedation Protocol (Adult 26) |
| P | 10. | Repeat vitals, if no change consider epinephrine drip (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). **If available use 60 gtts tubing for ease of titration.** |

Symptomatic: A change in mentation, unstable vital signs, syncope or near syncope, evidence of poor perfusion

<u>Consider Field Correctable causes</u>

Hypovolemia - Normal Saline or Lactated Ringers 1 liter fluid bolus
Hypothermia – Re-Warming and spacing of meds
Hypoxia – Reverify airway and supplemental oxygen
Hypoglycemia – D50 as indicated
Tension Pneumothorax – Needle chest decompression
Toxins/Overdose – Cardiac Pacing, Overdose Protocol
Trauma

# Unstable Tachycardia

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| P | 5. | Identify rhythm |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 7. | Vitals, pulse oximetry |
| P | 8. | Consider Sedation Protocol (Adult 26) |
| P | 9. | Synchronized Cardioversion<br>125J, 200J, 300J, 360J |
| P | 10. | 12 Lead EKG if available, Repeat Vitals |

Unstable: A change in mentation, unstable vital signs, syncope or near syncope, evidence of poor perfusion, rapid ventricular rate.
Note patients seldom unstable with a rate of 150 or lower

# Narrow complex Tachycardia/PSVT
# (Stable or Borderline)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| P | 5. | Identify rhythm |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| B | 7. | Vitals, pulse oximetry |
| P | 8. | 12 Lead EKG, if available |
| P | 9. | Vagal maneuvers: Bearing down, coughing, breath holding |
| P | 10. | Consider Modified Valsalva Maneuver:<br>**With head of bed at 45 degrees, 15 seconds of "blowing" against resistance then immediately lay head flat and passively raise legs above head** |
| P | 11. | Adenosine 6-12mg rapid IV push, rapid saline flush |
| EMT | 12. | Repeat Vitals |
| P | 13. | Adenosine 12mg rapid IV push, rapid saline flush |
| EMT | 14. | Repeat Vitals |

# Monomorphic/Polymorphic V-Tach or Wide Complex Tachycardia of Uncertain Type (Stable or Borderline)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| P | 5. | Identify rhythm |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 7. | Vitals, pulse oximetry |
| P | 8. | 12 Lead EKG, if available |
| P | 9. | If Wide Regular Monomorphic and stable<br>Consider Adenosine 6-12mg rapid IV push, rapid saline flush |
| P | 10. | Amiodarone 150mg IV drip over 10 minutes<br>Or<br>Lidocaine 1 – 1.5mg/kg IV push |
| P | 11. | In torsades de pointes Magnesium 2 grams IV over 10 min |
| EMT | 12. | Vitals |
| P | 13. | Repeat Amiodarone 150 mg IV over 10 minutes<br>Or<br>Lidocaine 1 – 1.5 mg/kg IV push<br>If transport greater than 10 min: initiate Lidocaine drip 2-4 mg/min IV<br>(Mix 2 amps (200 mg) Lidocaine in a 250 bag NS<br>and run at 150 - 300 ml/hr with a dial a flow) |
| P | 14. | **Synchronized Cardioversion** :<br>125J, 200J, 300J, 360J<br>Consider Sedation Protocol (Adult 26) |

# A-Fib/Flutter (Symptomatic)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| P | 5. | Identify rhythm |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 7. | Vitals, pulse oximetry |
| P | 8. | 12 Lead EKG, if available |
| P | 9. | Cardizem 15-25mg IV slow push<br>Then consider Cardizem Drip<br>Mix 25mg in 250ml NS/LR and run at 10 mg per hour (100ml/hour) |
| P | 10. | **If unstable anticipate the following**<br>Synchronized cardioversion:<br>125J, 200J, 300J, 360J<br>Consider Sedation Protocol (Adult 26) |

Unstable: A change in mentation, unstable vital signs, syncope or near syncope, evidence of poor perfusion, rapid ventricular rate.
Note patients seldom unstable with a rate of 150 or lower

# Chest Pain/Discomfort
# (or Anginal Equivalent)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| AEMT | 4. | Cardiac monitor |
| EMT | 5. | 12 Lead set-up and transmission, if available |
| P | 6. | 12 Lead EKG, if available<br>STEMI patients to be transported to Cath lab capable facility |
| EMT | 7. | Aspirin 81mg x 4 chew |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 9. | Vitals, pulse oximetry |
| AEMT | 10. | IF SBP>100, Nitro Spray or Sublingual (may repeat to a total of 3 doses)<br>**prior IV access recommended for SBP <120 |
| P | 11. | For persistent pain not relieved by nitro and SBP>100<br>Morphine 4mg IV or Fentanyl 50mcg IV. (May be repeated) |
| P | 12. | IF SBP < 100. NS 250-500cc bolus IV |
| P | 13. | IF pain relieved Nitro Patch/ Paste (1/2 inch) may be placed if available |

# Acute Pulmonary Edema

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen, Consider CPAP (Procedure 34) |
| AEMT | 4. | Aspirin 81mg x 4 chew |
| AEMT | 5. | Cardiac monitor |
| P | 6. | Identify rhythm |
| AEMT | 7. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 8. | Vitals, pulse oximetry |
| P | 9. | 12 Lead EKG, if available |
| AEMT | 10. | If SBP>120 Nitro Spray or Sublingual (may repeat to a total 3 doses) |
| EMT | 11. | Vitals |
| P | 12. | IF SBP>120 Morphine 4mg IV push or Fentanyl 50mcg IV |
| EMT | 13. | Vitals |
| P | 14. | IF SBP<100 consider epinephrine drip (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). **If available use 60 gtts tubing for ease of titration.** |

# Left Ventricular Assist Device - LVAD

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Establish responsiveness |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | **Auscultate for "humming" in upper abdomen hum=working** |
| EMT | 5. | Vitals, pulse oximetry |
| AEMT/P | 6. | Cardiac Monitor, Identify rhythm, treat rhythm per protocol |
| P | 7. | 12 Lead EKG |
| EMT | 8. | Oxygen |
| AEMT | 9. | IV access (Normal Saline or Lactated Ringers)<br>Consider fluid bolus for preload NS or LR 250-500 ml IV/IO |
| EMT | 10. | Contact LVAD Coordinator per patient materials |
| EMT | 11. | IF LVAD alarms:<br>Coordinate with Specialist.<br>Check all connections<br>Consider battery swap out |
| EMT | 12. | If no Alarms: treat per applicable protocol(s) |
| EMT | 13. | Transport to:<br>OSU Main or Riverside if possible.<br>For cardiac arrest consider closest ER |

**Manual CPR if consultation with LVAD specialist only**
**Absolutely NO Mechanical CPR Devices**

Ohio State Wexner Medical Center: 614-293-3787 ask for LVAD coordinator on call
Riverside Methodist Hospital: 614-788-2823 VAD Team
Cleveland Clinic: 216-444-2200 pager number 23400

# Field Termination of Resuscitation

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | If pulse regained at any time no matter how brief - Transport |
| P | 4. | No return of pulse after 20 minutes of full, aggressive ACLS<br>may consider termination IF:<br>Meds delivered via IO/IV<br>Normothermic arrest<br>No hypoglycemia or hypoglycemia corrected<br>Adult patient<br>Never in V-Fib/V-Tach<br>End Tidal Waveform Capnography present, and less than 10 |
| EMT | 5. | Transport is an option at anytime |

**Must transport:**

Age less than 18
Arrest in a public place
Volatile Scene
Hypothermic arrest
****Witnessed PEA arrest
Any pulse at anytime in presence of EMS - no matter how brief
V-Fib/V-Tach present at anytime

Unless contact with Medical Control and Medical Control concurs with pronouncement.

# Medical Protocols

# Violence – Behavioral Emergency
# Altered Mental Status/Unconscious Unknown

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Consider C-Spine precautions |
| ALL | 3. | Establish responsiveness |
| EMT | 4. | ABC (airway, breathing, circulation) |
| EMT | 5. | Vitals, pulse oximetry |
| AEMT/P | 6. | Cardiac Monitor, Identify rhythm |
| EMT | 7. | Oxygen |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers)<br>If suspected volume depletion or heat injury – NS(LR) 1 liter bolus |
| AEMT | 9. | Blood glucose testing.<br>Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN |
| EMT | 10. | Blood glucose testing.<br>Glucose <80 and able to control swallowing:<br>Give oral glucose |
| EMT | 11. | Repeat vitals |
| A / EMT | 12. | For Respiratory Failure Consider Narcan 2mg IV/IO/IM/IN (may repeat x1) |
| P | 13. | For Violence/Psychosis that endangers the safety of the patient or transport team:<br>Refer to Sedation Protocol (Adult 26)<br>Consider Physical Restraint (Procedure 7) |
| P | 14. | Extensive muscle activity, elevated skin temp, inappropriate struggling:<br>Chilled NS/LR 500cc with Sodium Bicarb 25ml (1/2 amp) IV<br>(Mix 1 amp Sodium Bicarb in 1000cc chilled NS or LR and run a 500cc Bolus). |

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# Poisoning or Overdose

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | External Contamination<br>Remove contamination agents<br>Decontaminate patient and personnel |
| ALL | 3. | Establish responsiveness |
| EMT | 4. | ABC (airway, breathing, circulation) |
| EMT | 5. | Vitals, Pulse oximetry |
| AEMT/P | 6. | Cardiac monitor, Identify Rhythm |
| EMT | 7. | Oxygen |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 9. | Glucose testing |
| AEMT | 10. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN |
| EMT | 11. | IF Glucose <80 and able to control swallowing:<br>Give oral glucose |
| A / EMT | 12. | For Respiratory Failure Consider Narcan 2mg IV/IM/IN |
| AEMT | 13. | IF SBP<100<br>Fluid Bolus 250-500 cc NS or LR |
| P | 14. | Consider Calcium 1 gram IV/IO if suspected Calcium channel or Beta Blocker ingestion/toxicity |
| P | 15. | Consider Epi drip for suspected Calcium channel or Beta Blocker ingestion/toxicity (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). **If available use 60 gtts tubing for ease of titration.** |
| AEMT | 16. | Consider Glucagon 2mg IM/IN if suspected Calcium channel or Beta Blocker ingestion/toxicity |
| AEMT | 17. | Consider Benadryl 25mg IV/IM for Haldol Reaction |
| P | 18. | Consider Sodium Bicarb 1amp IV/IO:<br>if Tricyclic Antidepressant (TCA) Overdose<br>if unexplained wide complex tachycardia |
| ALL | 19. | Radio Contact with Poison Control (0700-2259 hours)<br>Phone 1-800-222-1222 (available 24 hours)<br>**Poison Control Orders are considered Medical Control Orders** |
| ALL | 20. | Consider Transport to Addiction Stabilization Center:<br>1430 South High Street<br>Columbus, Ohio 43207<br>**Procedure-46 must be satisfied** to transport to Addiction Stabilization Center |

# Seizures

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 3. | Establish responsiveness |
| EMT | 4. | ABC (airway, breathing, circulation) |
| EMT | 5. | Vitals, Pulse oximetry |
| AEMT/P | 6. | Cardiac monitor, Identify Rhythm |
| EMT | 7. | Oxygen |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 9. | Glucose testing |
| AEMT | 10. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN |
| EMT | 11. | IF Glucose <80 and able to control swallowing:<br>Give oral glucose |
| P | 12. | Actively seizing patient<br>Ativan 2mg IV/IO/IM/IN – if available- (may repeat to max dose 4 mg)<br>Or<br>Versed 5mg IV/IO/IM/IN (may repeat to max dose 10mg)<br><br>**After 1st drug max dose:<br>Consider use 2nd drug for repeated / continuing seizure |
| P | 14. | Consider Magnesium 4grams IV over 10 minutes<br>(in suspect pregnant or post partum patient actively seizing)<br>(mix 4 grams Mag sulfate in a 250cc bag of normal saline or lactated ringers and run wide open using 60 gtts tubing.) |

# Syncope

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Consider C-Spine precautions |
| ALL | 3. | Establish responsiveness |
| EMT | 4. | ABC (airway, breathing, circulation) |
| EMT | 5. | Vitals, Pulse oximetry |
| AEMT/P | 6. | Cardiac monitor, Identify Rhythm, 12 Lead EKG if available |
| EMT | 7. | Oxygen |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 9. | Glucose testing |
| AEMT | 10. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN |
| EMT | 11. | IF Glucose <80 and able to control swallowing:<br>Give oral glucose |
| AEMT | 12. | IF SBP<100<br>Fluid Bolus NS or LR 250-500cc IV (may repeat) |

# Asthma/COPD

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen, Consider CPAP with in-line treatment |
| EMT | 4. | Vitals, Pulse oximetry |
| AEMT | 5. | Albuterol 5.0mg mixed with Atrovent 0.5mg Nebulizer |
| EMT | 6. | Reassess |
| AEMT | 7. | Repeat Albuterol 5.0mg/Atrovent 0.5mg as needed |
| AEMT | 8. | IV Access (Normal Saline or Lactated Ringers), if more than 1 neb required |
| AEMT/P | 9. | Cardiac Monitor, Identify Rhythm, 12 Lead EKG if available |
| EMT | 10. | End-Tidal $CO_2$ monitoring if available |
| AEMT | 11. | For severe respiratory distress:<br>Consider Solu-medrol 62.5-125 mg IV/IO |
| AEMT | 12. | SBP<100 NS Fluid bolus 250-500cc IV |
| P | 13. | Magnesium 2grams IV over 10 minutes – for moderate to severe distress<br>(mix 2 grams Mag sulfate in a 250cc bag of normal saline and run wide open using 60gtt tubing) |
| AEMT | 14. | For severe respiratory distress:<br>Epinephrine 0.3mg IM (1:1000) Caution in age >35 |

Note: Patients in extremis may not be wheezing if they are unable to move an adequate volume of air to generate a wheeze.

# Allergic Reaction/Anaphylaxis

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen |
| EMT | 4. | Vitals, pulse oximetry |
| EMT | 5. | Assist ventilations as indicated |
| AEMT | 6. | Benadryl 25 - 50mg IV/IM |
| AEMT | 7. | Albuterol 5.0mg nebulizer repeat as needed |
| AEMT | 8. | Moderate to Severe:<br>Epinephrine 0.3mg /IM (1:1000)<br>If repeat dosing consider Epi drip (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). **If available use 60 gtts tubing for ease of titration.**<br>Cardiac monitor<br>Consider Solu-medrol 62.5-125 mg IV/IO |
| EMT | 9. | May assist patient with Epi-pen |
| AEMT | 10. | IV access (Normal Saline or Lactated Ringers) |
| AEMT | 11. | SBP<100 Normal Saline or Lactated Ringers bolus 1L IV |

# CVA/Stroke

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Establish responsiveness |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Vitals, Pulse oximetry |
| AEMT/P | 5. | Cardiac monitor, Identify Rhythm |
| EMT | 6. | Oxygen |
| AEMT | 7. | IV access (Normal Saline or Lactated Ringers) |
| AEMT | 8. | Glucose testing |
| AEMT | 9. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN |
| EMT | 10. | IF Glucose <80 and able to control swallowing:<br>Give oral glucose |
| EMT | 11. | Perform Los Angeles Motor Scale (LAMS) |
| ALL | 12 | LAMS 0-3: Transport to Closest Appropriate or<br>Primary (last known well < 3hrs)<br>or<br>Comprehensive Stroke Center (last known well 0-24 hours) if available and additional transport time not greater than 15 min |
| ALL | 13. | LAMS 4-5: Transport to Comprehensive Stoke Center<br>if available and additional transport time not greater than 15 min |
| ALL | 14 | Last known well > 24 hours<br>Transport to Closest, Primary or Comprehensive Stroke Center |

| Los Angeles Motor Scale (LAMS) | | | |
|---|---|---|---|
| Face Weak | Absent = 0 | Present =1 | |
| Arm Weak | Absent = 0 | Drift = 1 | Falls Rapidly = 2 |
| Grip Strength | Normal = 0 | Weak Grip = 1 | No Grip = 2 |

Comprehensive Stroke Centers:
RMH
MCE
OSU Main

Primary Stroke Centers:
Doctors Hospital
Grant
Mt Carmel St Ann's
OSU East
Mt Carmel Grove City

# Abdominal Pain

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| ALL | 3. | NPO |
| EMT | 4. | Vital signs, Pulse oximetry |
| AEMT | 5. | IV Access (Normal Saline or Lactated Ringers) |
| AEMT | 6. | SBP<100:<br>Normal Saline or Lactated Ringers Bolus 500cc IV<br>Oxygen |
| P | 7. | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12) |
| AEMT/P | 8. | Cardiac monitor |
| EMT | 9. | Repeat Vital signs |
| P | 10. | For severe Abdominal Pain refer to Acute Pain Protocol (Adult 32) |

# Medical Sedation

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| ALL | 3. | NPO |
| EMT | 4. | Vital signs, Pulse oximetry, Cardiac Monitor |
| EMT | 5. | Oxygen, end-tidal capnography |
| AEMT | 6. | IV Access (Normal Saline or Lactated Ringers) |
| P | 7. | For Violence/Psychosis that endangers the safety of the patient or transport team:<br>Versed** 0.3mg/kg IV/IO/IM/IN (max dose 10mg)<br>or<br>Ativan** 2mg IV/IO/IM/IN (if available) (may repeat x 1)<br>And / or<br>Ketamine 0.5-1.0 mg/kg IV or 2 mg/kg IM (may repeat x 1)<br>****Choose one benzo drug only**** |
| P | 8. | Extensive muscle activity, elevated skin temp, inappropriate struggling:<br>Chilled NS/LR 500cc with Sodium Bicarb 25ml (1/2 amp) IV<br>(Mix 1 amp Sodium Bicarb in 1000cc chilled NS/LR and run a 500cc Bolus) |
| P | 9. | For: Painful Cardioversion,<br>Etomidate 10mg slow IV push<br>Awake External Pacing,<br>Versed 0.2mg/kg IV/IO/IM/IN (max dose 10mg)<br>Or<br>Fentanyl 100 mcg IV/IO/IM/IN<br>Consider Pain Control Protocol As time permits (Adult 32) |
| P | 10. | For CPAP (Procedure 34)<br>Fentanyl 50 mcg IV/IO/IM/IN |
| AEMT | 11. | SBP<100:<br>Normal Saline or Lactated Ringers Bolus 500cc IV |
| P | 12. | IF Nausea or Vomiting<br>Zofran 4mg IV/IO/IM/PO (May repeat to a max dose 12 mg) |
| EMT | 13. | Repeat Vital signs |

# Shock (Medical or Non-Trauma)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vitals, Pulse oximetry |
| EMT | 4. | Oxygen |
| AEMT/P | 5. | Cardiac Monitor, 12 Lead EKG if available<br>Rhythm problems should access appropriate protocol |
| ALL | 6. | Protect from heat loss |
| AEMT | 7. | IV Access (Normal Saline or Lactated Ringers) |
| AEMT | 8. | SBP<100 and symptomatic:<br>NS/LR Fluid bolus 250-500cc IV may repeat as needed |
| P | 9. | SBP<100 and symptomatic despite fluid:<br>Consider epinephrine drip (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). **If available use 60 gtts tubing for ease of titration.** |
| AEMT | 10. | Consider correctable causes: treat accordingly:<br>anaphylaxis, overdose, cardiac arrhythmia, tension pneumothorax, sepsis |

# Vaginal Bleeding

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vitals |
| EMT | 4. | Oxygen |
| AEMT | 5. | SBP<100 and symptomatic:<br>IV access<br>Normal Saline or Lactated Ringers 500cc bolus IV |
| EMT | 6. | Obtain Menstrual history and pregnancy status |
| P | 7. | Cardiac Monitor for Unstable patients |
| EMT | 8. | Post Partum <48hrs:<br>Uterine massage<br>Consider allowing infant to breast feed |

# Active Labor

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vitals |
| EMT | 4. | Oxygen |
| EMT | 5. | Examine for Crowning<br>If not delivering transport in Left lateral decubitus position |
| EMT | 6. | Crowning Present:<br>Prepare for Delivery<br>May transport after delivery of infant prior to delivery of placenta |
| EMT | 7. | Umbilical cord prolapse:<br>Manually elevate infant off cord<br>Immediate transport<br>Hand must remain in place until ordered to stop by physician |
| EMT | 8. | Breach Delivery<br>Notify Receiving Hospital<br>Assist delivery<br>Maintain Airway<br>Check neck for wrapped cord<br>Clamp and cut cord<br>Dry, warm, stimulate baby<br>Transport<br>If placenta delivers, preserve for hospital |
| EMT | 9. | Unable to deliver body of infant (head already out)<br>Attempt supra pubic pressure, shoulder sweep, corkscrew maneuvers, repositions of mother.<br>Notify Receiving Hospital<br>Rapid Transport |
| AEMT | 10. | IV Access (Normal Saline or Lactated Ringers) |

# Vomiting and Diarrhea

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vitals |
| EMT | 4. | Oxygen |
| AEMT | 5. | SBP<100 and symptomatic:<br>IV access<br>Normal Saline or Lactated Ringers 500cc bolus IV |
| EMT | 6. | Actively Vomiting transport in Left lateral decubitus position |
| P | 7. | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12) |
| AEMT | 8. | **For AEMT only**For nausea/vomiting<br>Zofran 4 mg PO (age > 17 only) 1 dose only |

# SIRS/Sepsis

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vitals, Pulse oximetry |
| EMT | 4. | Oxygen |
| AEMT/P | 5. | Cardiac Monitor, 12 Lead EKG if available<br>Rhythm problems should access appropriate protocol |
| AEMT | 6. | IV Access (Normal Saline or Lactated Ringers) |
| AEMT | 7. | SBP<100 and symptomatic:<br>Trendelenberg positioning if tolerated<br>NS/LR Fluid bolus 500cc-1L IV may repeat max 2 Liters |
| P | 8. | SBP<100 and symptomatic despite fluid:<br>Consider epinephrine drip (1 mg epi in 1 liter NS/LR run wide open, titrate back to effect). goal SBP>100. **If available use 60 gtts tubing for ease of titration.** |
| EMT | 9. | Notify Hospital of "Suspected Sepsis/Sepsis Alert" |

**Sepsis:** 2 or more of the following with known or possible infection
- Core temp > 100.4 (38C) or < 96.8 (36C)
- Heart rate > 90 bpm
- Respiratory rate > 20
- SBP < 90
- End tidal CO2 < 25
- New onset confusion/altered mental status
- Sepsis most likely cause of symptoms

**Infection or Suspicion for Infection:**
- Pneumonia
- Urinary tract Infection
- Abdominal Pain/Distention/rigidity
- Meningitis
- Indwelling medical device or catheter
- Cellulitis, Septic Arthritis, abscess, infected wound
- Recent Chemotherapy
- Organ Transplant
- Age>65

# Acute Pain

| Level | | |
|---|---|---|
| All | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen as needed |
| EMT | 4. | Vitals, Pulse oximetry |
| AEMT | 5. | IV Access |
| AEMT | 6. | Normotensive or Hypertensive:<br>Morphine 4-10 mg IV/IM (pediatrics Morphine 0.1mg/kg IV)<br>Or<br>Fentanyl 50-100mcg IV/IM/IN (may repeat to max 200mcg)<br>Or<br>Dilaudid 0.5 – 1 mg IV/IM (may repeat to a max of 2 mg)<br>Contact Medical Control for additional doses |
| P | 7. | For extreme Pain<br>Ketamine 0.3-0.5 mg/kg IV |
| P | 8. | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12) |
| EMT | 9. | Consider positioning, splinting, ice packs as adjuncts for pain control |

Note: This protocol allows the treatment of pain at the Paramedic's discretion for pain not specifically addressed in other protocols

# Pediatric Protocols

# Respiratory Distress / Obstruction

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Position of comfort |
| EMT | 4. | Oxygen |
| EMT | 5. | Manage airway as indicated |
| EMT | 6. | Evaluate for foreign body obstruction<br>Initiate Heimlich, abdominal thrust, chest compressions as indicated |
| AEMT | 7. | For total obstruction unable to ventilate and unable to clear:<br>Laryngoscopy, may remove visualized foreign body<br>Consider Intubation |
| EMT | 7. | Vitals, pulse oximetry (Broselow Tape) |
| AEMT | 8. | Consider IV/IO access (Normal Saline or Lactated Ringers) |
| AEMT | 9. | Mild to moderate croup / stridor cool mist 0.9 % Saline nebulized |
| P | 10. | For Severe croup/ stridor consider:<br>Racemic epinephrine nebulized<br>or<br>1-2 ml epinephrine 1:1000 mixed with 3 ml NS nebulized<br>Consider: Solu-medrol 1 mg/kg IV/IO (max dose 125mg) |

# Pediatric Asthma/Lower Airway

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Position of comfort |
| EMT | 4. | Oxygen, Consider CPAP Age > 10 (Procedure 34) |
| EMT | 5. | Vitals, Pulse oximetry |
| EMT | 6. | Manage airway as indicated |
| AEMT | 7. | Albuterol 5.0mg/Atrovent 0.5mg nebulizer may repeat x 2 |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers) as needed (required if two or more nebulizers used) |
| EMT | 9. | Repeat Vitals, pulse oximetry |
| AEMT | 10. | For severe respiratory distress or change in mental status: Consider epinephrine (1:1000) 0.01mg/kg IM |
| P | 11. | Consider: Solu-medrol 1 mg/kg IV/IO (max dose 125mg) Consider: Magnesium 50mg/kg IV (max dose 2 grams) over 10 minutes Note: Volume |

Note: Patients in extremis may not be wheezing if they are unable to move an adequate volume of air to generate a wheeze.

# Pediatric Allergy/Anaphylaxis

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Position of comfort |
| EMT | 4. | Oxygen |
| EMT | 5. | Vitals, Pulse oximetry |
| EMT | 6. | Manage airway as indicated |
| AEMT | 7. | For severe reactions, respiratory distress or change in mental status:<br>Epinephrine (1:1000) 0.01mg/kg IM may repeat q 5min as needed<br>Consider: Solu-medrol 1 mg/kg IV/IO (max dose 125mg) |
| EMT | 8. | May assist patient with Epi-pen |
| AEMT | 9. | Benadryl 1mg/kg IM /IV/IO (max dose 50mg) |
| AEMT | 10. | IV Access (Normal Saline or Lactated Ringers) |
| AEMT | 11. | Albuterol 5mg nebulizer may repeat as needed |
| EMT | 12. | Repeat Vital signs, pulse oximetry |
| AEMT | 13. | For Shock:<br>Fluid bolus 20-40cc/kg NS or LR IV/IO |

# Pediatric V-fib/pulseless V-tach

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Establish unresponsiveness, apnea, pulselessness |
| EMT | 3. | CPR, prepare for rapid transport |
| EMT | 4. | Manage Airway/Ventilations |
| EMT | 5. | Oxygen |
| P | 6. | Quick look (monitor/patches), identify rhythm |
| P | 7. | Defibrillate 2 J/Kg |
| AEMT | 10. | IV/IO access (Normal Saline or Lactated Ringers) |
| AEMT | 11. | For Trauma NS 40cc/kg IV/IO |
| P | 12. | Epinephrine (1:10,000) 0.01mg/kg IV/IO |
| P | 13. | Defibrillate 4 J/Kg (2 minutes after each drug administration) |
| P | 14. | Amiodarone 5mg/kg IV/IO |
| P | 15. | Defibrillate 4 J/Kg (2 minutes after each drug administration) |
| P | 16. | Epinephrine (1:10,000) 0.01mg/kg IV/IO (may repeat every 3-5 min) |
| P | 17. | Defibrillate 4 J/Kg (2 minutes after each drug administration) |
| P | 18. | Lidocaine 1mg/kg IV/IO |
| P | 19. | Consider: Magnesium 50mg/kg IV/IO (max 2 grams)<br>Sodium Bicarb 1 meq/kg IV/IO (<1 year dilute by half)<br>Continue drug – shock sequence |

# Pediatric Pulseless Electrical Activity (PEA)/Asystole

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Establish unresponsiveness, apnea, pulselessness |
| EMT | 3. | CPR, prepare for rapid transport |
| EMT | 4. | Manage Airway/Ventilations |
| EMT | 5. | Oxygen |
| P | 6. | Quick look (monitor/patches), identify rhythm |
| AEMT | 7. | IV/IO access (Normal Saline or Lactated Ringers) |
| AEMT | 8. | For Trauma NS 40cc/kg IV/IO |
| P | 9. | Epinephrine (1:10,000) 0.01mg/kg IV/IO (may repeat every 3-5 min) |
| P | 10. | Consider: Sodium Bicarb 1 meq/kg IV/IO (<1 year dilute by half) |

**Consider Filed Correctable causes**

Hypovolemia - Normal Saline or Lactated Ringers 20-40cc/kg fluid bolus
Hypothermia – Hypothermia protocol
Hypoxia – Reverify airway and supplemental oxygen
Hypoglycemia – Glucose as indicated
Tension Pneumothorax – Needle chest decompression
Toxins/Overdose – Pacing, Overdose Protocol
Trauma

# Pediatric Bradycardia - Symptomatic

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | ABC (airway, breathing, circulation) |
| AEMT | 3. | IV access (Normal Saline or Lactated Ringers) |
| AEMT/P | 4. | Monitor/patches, identify rhythm |
| EMT | 5. | Vital signs, pulse oximetry |
| EMT | 6. | Oxygen |
| P | 6. | Epinephrine 0.01mg/kg (1:10,000) IV (may repeat 3-5 min) |
| P | 7. | Atropine 0.02 mg/kg IV/IO (min dose 0.1mg) may repeat x 1 |
| EMT | 8. | Repeat Vitals, Pulse Ox |
| P | 9. | Consider Transcutaneous Pacing (in conjunction with Medical Control) (Procedure 37) |

Symptomatic: A change in mentation, unstable vital signs, syncope or near syncope, evidence of poor perfusion

**Consider Filed Correctable causes**

Hypovolemia - Normal Saline or Lactated Ringers 20-40 cc/kg fluid bolus
Hypothermia – Hypothermia protocol
Hypoxia – Reverify airway and supplemental oxygen
Hypoglycemia – Glucose as indicated
Tension Pneumothorax – Needle chest decompression
Toxins/Overdose – Pacing, Overdose Protocol
Trauma

# Pediatric Tachycardia – Symptomatic

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen, ventilation |
| AEMT | 4. | IV/IO access (Normal Saline or Lactated Ringers) |
| AEMT/P | 5. | Monitor/patches, identify rhythm |
| EMT | 6. | Vitals, pulse oximetry |
| P | 7. | QRS < 0.08 with P waves – Sinus tachycardia<br>Treat underlying causes<br>Fluid bolus NS/LR 20cc/kg IV/IO bolus<br>Exit Protocol |
| P | 8. | QRS < 0.08 and no P waves<br>Adenosine 0.1-0.2 mg/kg (max 12 mg)<br>rapid IV/IO push, rapid saline flush<br>May repeat x 1<br>Go to Step 10 |
| P | 9. | QRS >0.08<br>Lidocaine 1mg/kg IV/IO<br>Go to Step 10 |
| P | 10. | Synchronized Cardioversion 0.5J/kg, 1J/kg, 2 J/kg<br>Consider Sedation Procedure (Pedi 15) |
| P | 11. | Consider transport to Pediatric Hospital |

Symptomatic: A change in mentation, unstable vital signs, syncope or near syncope, evidence of poor perfusion, chest pain

# Infant Delivery and Neonatal Resuscitation

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Oxygen to mother |
| EMT | 3. | Vital signs, pulse oximetry of mother |
| AEMT | 4. | IV access for mother (Normal Saline or Lactated Ringers) |
| EMT | 5. | Delivery not imminent: |
| | | Transport in left lateral decubitus position |
| EMT | 6. | Crowning or delivering |
| | | Oxygen |
| | | Maintain as sterile an area as possible |
| | | Assist delivery of infant, prevent explosive delivery |
| | | Suction infant on perineum only as needed |
| | | Check neck for wrapped cord |
| | | Delivery body |
| | | Clamp and cut cord |
| | | Dry, warm, stimulate baby |
| | | Transport |
| | | If placenta delivers, preserve for hospital |
| EMT | 7. | Infant with good color, cry, movement |
| | | Keep warm, dry, may place at mothers breast |
| EMT | 8. | Infant with poor color, weak cry, limp |
| | | Oxygen blow by near infant |
| | | Aggressive stimulation, drying |
| | | Poor respiratory effort or heart rate <100 assist ventilations |
| | | Heart rate < 60 begin chest compressions |
| AEMT P | | IV/IO access (umbilical vein may be used) |
| | | Epinephrine 0.01mg/kg IV/IO/ET |
| EMT | 9. | Breach Delivery |
| | | Notify Receiving Hospital |
| | | Assist delivery |
| | | Maintain Airway |
| | | Check neck for wrapped cord |
| | | Clamp and cut cord |
| | | Dry, warm, stimulate baby |
| | | Transport |
| | | If placenta delivers, preserve for hospital |
| EMT | 10. | Unable to deliver body of infant (head already out) |
| | | Attempt supra pubic pressure, shoulder sweep, corkscrew maneuvers |
| | | Notify Receiving Hospital |
| | | Rapid Transport |
| EMT | 11. | Record APGAR scores for 1 minute and 5 minutes age |
| | | See chart next page |

# APGAR Scoring of New Born infants

| | Score | | |
|---|---|---|---|
| **Sign** | **0** | **1** | **2** |
| Heart Rate | Absent | Less than 100 | Greater than 100 |
| Respiratory Effort | Absent | Slow irreg | Good Cry |
| Muscle Tone | Limp | Some Flexion | Active Motion |
| Reflex Irritability | No Response | Grimace | Cry |
| Color | Pale | Pink Body<br>Blue Ext. | All Pink |

An Apgar score should be document for the infant at 1 minute and 5 minutes of age. Highest possible score is 10, lowest possible score is 0.

# Pediatric Seizure

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen, ventilations |
| EMT | 4. | Vitals, pulse oximetry |
| AEMT | 5. | IV/IO access (Normal Saline or Lactated Ringers) |
| EMT | 6. | Glucose testing: |
| AEMT | 7. | If Glucose < 80:<br>administer 2-4cc/kg D10 **or** D12.5** IV/IO<br><br>** requires dilution of D50% (Procedure **35**)<br>IF no IV access: Glucagon 0.05 mg/kg IM/IN |
| EMT | 8. | IF Glucose < 80 and patient able to swallow<br>Give ½ tube oral glucose |
| P | 9. | Actively seizing<br>Ativan 0.1mg/kg IV/IO/IN –if available-(max 2mg) may repeat x 1<br>or<br>Versed 0.3mg/kg IV/IO/IM/IN (max dose 10mg) may repeat x 1<br>or<br>Valium 0.3 mg/kg IV/IO (max dose 5mg) may repeat x 1<br>**After 1st drug max dose:<br>use 2nd drug for repeated / continuing seizure |
| P | 10. | If Seizure Persists 5 min after above<br>Versed 0.2mg/kg IV/IM (max 10 mg)<br>or<br>Ativan 0.1mg/kg IV/IO/IN –if available-(max 2mg) |
| EMT | 11. | Consider Trauma, Poisoning |
| EMT | | Consider Tylenol for Febrile Seizure<br>Tylenol 15 mg/kg PO |

# Pediatric Poisoning/Overdose/Unconscious Unknown

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Consider C-Spine precautions |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Vital signs, pulse oximetry |
| AEMT/P | 5. | Cardiac monitor, identify rhythm (treat per appropriate protocol) |
| EMT | 6. | Oxygen, ventilation |
| AEMT | 7. | IV/IO access (Normal Saline or Lactated Ringers) |
| EMT | 8. | Glucose Testing |
| AEMT | 9. | If glucose < 80:<br>administer 2-4cc/kg D10 **or** D12.5** IV/IO<br><br>** requires dilution of D50% (Procedure 36) |
| EMT | 10. | IF Glucose < 80 and patient able to swallow:<br>Give ½ tube oral glucose |
| EMT | 11. | Vital signs |
| A /EMT | 12. | For Respiratory Failure Consider Narcan 0.1mg/kg IV/IO/IM/IN (max 2mg) |
| AEMT | | Consider Glucagon 0.05 mg/kg IM/IN for suspected Beta Blocker Overdose (max dose 2mg) |
| EMT | 13. | Consider Traumatic causes<br>Radio Contact with Poison Control (0700-2359 hours)<br>Phone 1-800-222-1222 (available 24 hours)<br>**Poison Control Orders are considered Medical Control Orders** |

# ALTE (Apparent Life Threatening Event)
# BRUE (Brief Resolved Unexplained Event)

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vital signs, pulse oximetry |
| P | 4. | Cardiac monitor, identify rhythm (treat per appropriate protocol) |
| EMT | 5. | Oxygen, ventilation |
| AEMT | 6. | IV access (Normal Saline or Lactated Ringers) |
| EMT | 7. | Glucose Testing |
| AEMT | 8. | If glucose < 80:<br>administer 2-4cc/kg D10 **or** D12.5** IV/IO<br><br>** requires dilution of D50% (Procedure 36) |
| EMT | 9. | IF Glucose < 80 and patient able to swallow:<br>Give ½ tube oral glucose |
| EMT | 10. | Vital signs |
| EMT | 11. | Consider Trauma |
| EMT | 12. | Mandatory to Transport<br>Consider Contact Medical Control for any patient/care giver who refuses transport for on line physician to care giver conference |

**ALTE** is defined as an event that is frightening to the care giver and involves a history of 1 or more of the following:

1. Color change (pale, cyanotic, mottling)
2. Loss of muscle tone (limp, lethargic, floppy)
3. Care givers may state a fear the child was dead
4. Care giver initiated rescue breaths, CPR

# Acute Pain

| Level | | |
|---|---|---|
| All | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen as needed |
| EMT | 4. | Vitals, Pulse oximetry |
| AEMT | 5. | IV Access |
| EMT | | Tylenol 15mg/kg PO |
| AEMT | 6. | Normotensive or Hypertensive:<br>Morphine 0.1mg/kg IV/IM (max dose 10mg)<br>Or<br>Fentanyl 1 mcg/kg IV/IM/IN(max dose 100mcg)<br>Or<br>Ketamine 0.3 mg/kg IV/IM<br>Contact Medical Control for additional doses |
| P | 7. | for nausea/vomiting<br>Zofran 0.1 mg/kg IV/IO/IM/PO (may repeat Max dose 12mg) |
| EMT | 8. | Consider positioning, splinting, ice packs as adjuncts for pain control |

Note: This protocol allows the treatment of pain at the Paramedic's discretion for pain not specifically addressed in other protocols

# Medical Sedation

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| ALL | 3. | NPO |
| EMT | 4. | Vital signs, Pulse oximetry, Cardiac Monitor |
| EMT | 5. | Oxygen, end-tidal capnography |
| AEMT | 6. | IV Access (Normal Saline or Lactated Ringers) |
| P | 7. | For Violence/Psychosis that endangers the safety of the patient or transport team:<br>Versed** 0.3mg/kg IV/IM/IN (max dose 10mg)<br>or<br>Ativan** 0.1mg/kg IV/IM/IN (if available) (may repeat x 1)<br>and/or<br>Ketamine 0.5 – 1.0 mg/kg IV or 2 mg/kg IM (may repeat x 1)<br><br>****Choose one benzo drug only**** |
| P | 8. | Extensive muscle activity, elevated skin temp, inappropriate struggling:<br>Chilled NS/LR 500cc with Sodium Bicarb 1meq/kg (max 1/2 amp) IV |
| P | 9. | For Painful Cardioversion,<br>Awake External Pacing,<br>Versed 0.2mg/kg IV/IO/IM/IN (max dose 10mg)<br>Consider Pain Control Protocol As time permits |
| P | 11. | IF Nausea or Vomiting<br>Zofran 4mg IV/IO/IM/PO (May repeat to a max dose 12 mg) |
| EMT | 12. | Repeat Vital signs |

# Vomiting and Diarrhea

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Vitals |
| EMT | 4. | Oxygen |
| AEMT | 5. | SBP<100 and symptomatic:<br>IV access<br>Normal Saline or Lactated Ringers 500cc bolus IV |
| EMT | 6. | Actively Vomiting transport in Left lateral decubitus position |
| P | 7. | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12) |
| AEMT | 8. | ** For AEMT Only** For nausea/vomiting<br>Zofran 4 mg PO (age > 17 or Age > 12 and Wt >40 KG) 1 dose only |

# Trauma
# and
# Environmental Injury
# Protocols

7/17/2019 Revised and Approved

# Minor Trauma

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | C-Spine Precautions as indicated |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Vitals, Pulse oximetry |
| EMT | 5. | Immobilization of injured extremities |
| EMT | 6. | Bandaging, packaging for transport |

# Major Blunt Trauma/Multi-system Trauma

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | C-Spine precautions as indicated |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Oxygen, ventilation |
| EMT | 5. | Vital signs, pulse oximetry |
| AEMT | 6. | IV access 2 or more large bore NS/LR<br>For blood loss/hypotension:<br>Adult 1-2 liters bolus<br>Pediatric: 20-40cc/kg bolus (watch fluids closely) |
| EMT | 7. | Spinal Motion Restriction (Procedure 40) |
| EMT | 8. | Immobilization of injured extremities |
| AEMT/P | 9. | Cardiac Monitor, identify rhythm |
| EMT | 10. | Consider Trauma Center transport |

Trauma Center Transport Criteria:
- Intubated
- GCS < 13
- Penetrating head, chest, abdomen, femur trauma
- Observed loss of consciousness by EMS or reported > 5 min
- Death of occupant in same vehicle
- Ejected or thrown from the vehicle
- Cabin intrusion of 1 or more feet
- Evidence of shock (HR> 120, SBP < 90, or absent radial pulse)
- Signs of Spinal Cord injury
- Suspected Skull Fx or pelvic fracture
- Abdomen tender/Distended or “seat belt sign”
- Amputation proximal to wrist or ankle
- Visible crush injury
- Auto versus pedestrian with injuries
- Motorcycle, ATV, bicycle accident with injuries
- Falls greater than 15 feet with injuries
- Condition likely to deteriorate
- Injury to more than one body system
- Eye/Globe Injury

Geriatric Trauma Heightened Considerations: Age 70 or greater
- GCS<15 with suspicion of head injury
- Evidence of shock (HR> 120, SBP < 100)
- Fracture of single long bone in MVC

# Injured / Fractured / Dislocated Extremity

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | C-Spine precautions as indicated |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Oxygen, ventilation |
| EMT | 5. | Vital signs, pulse oximetry |
| EMT | 6. | Asses pulse, gross motor, sensation in injured extremity |
| EMT | 7. | No Pulse in Injured Extremity:<br>Rapid Transport<br>Attempt repositioning/reduction |
| EMT | 8. | Immobilize in position of comfort |
| AEMT | 9. | IV access (Normal Saline or Lactated Ringers) |
| AEMT | 10. | Morphine 4-10 mg IV/IM<br>Or Fentanyl 50-100mcg IV/IN (may repeat in 10 min)<br>Or Dilaudid 1 mg IV/IM (may repeat to a max of 2 mg)<br>Or Ketamine 0.3-0.5 mg/kg IV/IM<br>Pediatrics: Morphine 0.1mg/kg IV/IM<br>Or Fentanyl 1mcg/kg IV/IM/IN (may repeat in 10 min)<br>Or Ketamine 0.3 mg/kg IV/IM<br>Contact Medical Control for additional doses |
| P | 11. | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12)<br>Pediatrics: Zofran 0.1mg/kg IV/IM/PO |

# Spinal Injury Protocol

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | C-Spine precautions |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Oxygen, ventilation |
| EMT | 5. | Vital signs, pulse oximetry |
| EMT | 6. | Asses pulse, gross motor, sensation in all extremities |
| EMT | 7. | Spinal Motion Restriction (Procedure 40) |
| AEMT | 8. | IV access (Normal Saline or Lactated Ringers) |
| P | 9. | For nausea/vomiting<br>Zofran 4 mg IV/IO/IM/PO (may repeat - max dose 12)Zofran<br>Pediatrics: Zofran 0.1 mg/kg IV/IM/IO/PO |
| EMT | 9. | Transport to a Trauma Center |

This protocol directly addresses spinal cord injury and should be simultaneously incorporated into other protocols

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# Amputated Parts

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Place part in water proof container |
| EMT | 3. | Cool the entire container.<br>Do not allow the coolant to contact the amputated part |
| EMT | 4. | Attempt to locate amputated part and keep with the patient<br>DO Not delay transport in unstable patients |
| P | 5. | Aspirin 81 mg x 1 chew |
| EMT | 6. | Hemorrhagic Control – Consider Tourniquet in Life Threatening/severe Bleeding |
| AEMT | 7. | Refer to Pain Control Protocol (Adult 32) (Pedi 14) |
| EMT | 8. | Consider Trauma Center transport<br>(Amputations proximal to the ankle or wrist)<br>Riverside, Grant, OSU Main |
| EMT | 9. | Adult Teeth may be replaced directly in the tooth socket of conscious patients not at risk for aspiration |
| EMT | 10. | Primary or infant teeth should not be replaced |

Note: This Protocol directs care of the amputated part only. The patient will be treated under a separate appropriate protocol

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# Snake Bites/ Stings/ Other Bites

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Oxygen, ventilation |
| EMT | 4. | Vital signs, pulse oximetry |
| AEMT | 5. | IV access 2 or more large bore NS/LR<br>(for any symptoms beyond local reaction i.e. shock or anaphylaxis)<br>Adult 1-2 liters bolus<br>Pediatric: 20-40cc/kg bolus (watch fluids closely) |
| EMT | 6. | Remove jewelry and any potentially constricting items |
| EMT | 7. | Remove Stinger or foreign material |
| EMT | 8. | Clean and protect injury |
| EMT | 7. | For Bronchospasm refer to allergic reaction protocol<br>(Adult 23) (Pedi 4) |
| EMT | 8. | Immobilize injured extremity below the level of the heart if possible |
| ALL | 9. | Consider Poison Control Notification |

# Burns

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Consider C-spine precautions (i.e. fall, blast, electrical) |
| EMT | 3. | ABC (airway, breathing, circulation)<br>Consider early intubation for significant inhalation injury. |
| ALL | 4. | Remove smoldering clothing that is not adhered<br>Remove all jewelry |
| EMT | 5. | Oxygen |
| EMT | 6. | Vitals |
| AEMT/P | 7. | Cardiac monitor for electrical burns, Identify Rhythm |
| EMT | 8. | Sterile dressings for greater than 20% 2nd degree |
| EMT | 9. | Wet (NS) gauze for less than 10% 2nd degree |
| AEMT | 10. | IV Access (Normal Saline or Lactated Ringers) |
| AEMT | 11. | Adult: NS/LR 500cc bolus<br>Pediatric: NS/LR 20-40cc/kg bolus |
| AEMT | 12. | Adults: Morphine 4-10mg IV for pain<br>Or Fentanyl 50-100mcg IV/IM.IO/IN (may repeat in 10 min)<br>Or Dilaudid 1 mg IV/IM (may repeat to a max of 2 mg)<br>Or Ketamine 0.3-0.5 mg/kg IV/IM<br><br>Pediatric: Morphine 0.1mg/kg IV for pain (max dose 10mg)<br>Or Fentanyl 1mcg/kg IV/IO/IM/IN (max dose 100mcg) (may repeat in 10 min)<br>Or Ketamine 0.3 mg/kg IV/IM |
| EMT | 13. | Repeat Vitals |
| EMT | 14. | Consider transport to Burn Center |

**Burn Center Transport Criteria:**

- Full-thickness burn greater than 5% body area.
- Partial- or full-thickness burns greater than 10% body area for ages less than 10 or greater than 50 years.
- Partial- or full-thickness burns greater than 20% body area.
- Partial- or full-thickness burns with threat of functional or cosmetic impairment involving face, hands, feet, genitalia, perineum, or major joints.
- Electrical Burns, including lighting injury.
- Chemical burns with threat of functional or cosmetic importance.
- Inhalation injury with burns.
- Circumferential burns of extremities or chest.
- Preexisting medical conditions.
- Burns with traumatic injuries.

**Note**: This protocol includes thermal, electrical, lighting strikes, inhalation, and chemical burns

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# Heat Exhaustion/Heat Stroke

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Establish responsiveness |
| EMT | 3. | ABC (airway, breathing, circulation) |
| ALL | 4. | Remove from environment |
| EMT | 5. | Cold Pack, water soaked sheets, cool air flow |
| EMT | 6. | Vitals, Pulse oximetry |
| AEMT/P | 7. | Cardiac monitor, Identify rhythm |
| EMT | 8. | Oxygen |
| AEMT | 9. | IV access (Normal Saline or Lactated Ringers) |
| AEMT | 10. | Adult: NS/LR bolus 500cc bolus<br>Pediatric: NS/LR 20-40cc/kg bolus |
| EMT | 11. | Glucose testing |
| AEMT | 12. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN<br>Pediatric: administer 2-4cc/kg D10 **or** D12.5** IV/IO<br><br>** requires dilution of D50% (Procedure 36) |
| EMT | 13. | If Glucose <80 and patient able to swallow:<br>Adult: give 1 tube oral glucose<br>Pediatric: give ½ tube oral glucose |

# Hypothermia/Frostbite

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | C-spine precautions as indicated |
| EMT | 3. | ABC (airway, breathing, circulation) |
| ALL | 4. | Remove from environment/ remove wet clothing |
| ALL | 5. | Protect from heat loss |
| EMT | 6. | Oxygen |
| AEMT/P | 7. | Cardiac Monitor, identify rhythm |
| EMT | 8. | Vitals, pulse oximetry |
| AEMT | 9. | IV Access (Normal Saline or Lactated Ringers) |
| EMT | 10. | Glucose testing |
| AEMT | 11. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN<br>Pediatric: administer 2-4cc/kg D10 **or** D12.5** IV/IO<br><br>** requires dilution of D50% (Procedure 36) |
| EMT | 12. | If Glucose <80 and patient able to swallow:<br>Adult: give 1 tube oral glucose<br>Pediatric: give ½ tube oral glucose |
| A / EMT | 13. | Respiratory Depression:<br>Consider Narcan 2mg IV/IO/IM/IN in adults<br>Extremity: |
| EMT | 14. | Do not thaw extremity if there is chance of refreezing |
| ALL | 15. | Dress lightly leave blisters intact |

# Drowning/Submersion

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | C-Spine precautions as indicated |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Oxygen, Manage Ventilation/Airway |
| ALL | 5. | Protect from heat loss |
| AEMT/P | 6. | Cardiac Monitor – treat arrhythmia via separate protocol |
| AEMT | 7. | IV/IO access (Normal Saline or Lactated Ringers) |
| EMT | 8. | Glucose testing |
| AEMT | 9. | Glucose <80: give D10 2-4ml/kg **or** 25-50ml of 50%Dextrose IV<br>**OR**<br>Glucagon 1mg IM/IN<br>Pediatric: administer 2-4cc/kg D10 **or** D12.5** IV/IO<br><br>** requires dilution of D50% (Procedure 36) |
| EMT | 10. | If Glucose <80 and patient able to swallow:<br>Adult: give 1 tube oral glucose<br>Pediatric: give ½ tube oral glucose |
| EMT | 11. | Protect for vomiting/aspiration |

# Pharmacologically Assisted Intubation

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| AEMT | 2. | IV Access (Normal Saline or Lactated Ringers) |
| P | 3. | Cardiac Monitor, Pulse oximetry |
| EMT | 4. | Pre-oxygenation 100% Oxygen |
| P | 5. | IF Head Injury Suspected<br>Lidocaine 100mg IV/IO<br>Pediatrics Lidocaine 1mg/kg IV/IO |
| P | 6. | Etomidate 0.3mg/kg IV over 1 minute **Age 10 or greater**<br>**And/OR**<br>Versed 5mg IV/IO<br>Pediatrics Versed 0.1 mg/kg IV/IO<br>**OR**<br>Fentanyl 0.5-1 mcg/kg IV/IO<br>**OR**<br>Ketamine 1.5 -2 mg/kg IV/IO |
| P | 7. | Pediatrics Age < 5<br>Atropine 0.01 mg/kg IVIO (minimum dose 0.1mg) |
| B | 8. | Consider BURP or Sellick Maneuver – release after intubation or for active retching |
| AEMT | 9. | Intubate under direct visualization |
| AEMT | 10. | Confirm airway placement |
| EMT | 11. | Oxygen |
| P | 12. | Post-intubation sedation as needed.<br>Versed 0.04mg/kg IV/IO<br>**OR**<br>Ketamine 1-2mg/kg IV/IO<br>**OR**<br>Fentanyl 0.5-1 mcg/kg IV/IO |

Note: This is a supplemental protocol meant to be incorporated into other protocols as indicated

# Evaluation of Patients after Taser Deployment

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | Evaluate and treat for secondary injuries/ altered level of consciousness |
| EMT | 3. | Vital Signs, pulse oximetry, temperature (if available) |
| EMT | 4. | Stabilize dart and transport patient for any dart embedded in the eyelid, globe, face, neck, or genitalia |
| EMT | 5. | Perform mental status and neurologic screening assessment |
| EMT | 6. | Dart Removal: Embedded in areas not previously noted<br>Stabilize surrounding structures<br>Quickly and forceful pull direct traction<br>Assure removed dart is intact and nothing remains in the skin<br>Clean and bandage wound<br>Treat as evidence, if directed to dispose treat as "sharp" |
| EMT | 7. | Assess for and advise patient and law enforcement of the need for Tetanus prophylaxis |
| EMT | 8. | Transport any patient with the following:<br>abnormal vital signs<br>change in mental status<br>continued aggressive or inappropriate behavior<br>history of amphetamine or hallucinogenic drug use<br>chest pain<br>shortness of breath<br>nausea<br>headache<br>evidence of significant traumatic injury<br>Treat per appropriate protocol |
| AEMT | 9. | IV access NS/LR TKO for transport |
| AEMT/P | 10. | Cardiac monitoring for transport, Identify Rhythm |
| EMT | 11. | Supplemental oxygen for transport |
| ALL | | Treat any injuries, arrhythmia or other complaints per applicable protocol |

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# Organophosphate/Nerve Agent Poisoning

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Decon procedures |
| EMT | 3. | Consider C-spine precautions (i.e. fall, blast, trauma) |
| EMT | 4. | ABC (airway, breathing, circulation) |
| EMT | 5. | Oxygen, ventilation |
| EMT | 6. | Vital signs, pulse oximetry |
| P* | 7. | Mild Exposure:<br>1 Atropine auto injector (2mg) IM.<br>or<br>Atropine 2mg IV/IM<br>No improvement after 4 min: 1 (one) 2-PAM auto injector IM.<br>or<br>1 DuoDote auto injector IM |
| P* | 8. | Moderate Exposure:<br>Administer 2 MARK 1 kits. (if available)<br>or<br>Atropine 2mg IV/IM may repeat x 2<br>2-PAM 600 mg IV/IM for Respiratory distress<br>or<br>2 DuoDote auto injector IM |
| P* | 9. | Severe Exposure:<br>Administer 3 MARK 1 kits in rapid succession<br>or<br>Atropine 2mg IM/IV every 3 – 5 minutes until improvement<br>or<br>3 DuoDote auto injector IM<br>Diazepam (valium) 5-10 mg IV/IM for seizure. |
| AEMT | 10. | IV/IO access NS/LR TKO |
| AEMT/P | 11. | Cardiac Monitoring, Identify rhythm |

Pediatric Dosing

Atropine: 0.02 mg/kg IV (max dose 2mg)
0.05 mg/kg IM (max dose 2mg)
2-PAM: 25-50 mg/kg IV/IM (max dose 1 gram or 1000 mg)
Diazepam (Valium): 0.2 mg/kg IV (max dose 5 mg)
0.5 mg/kg IM/Rectal (max dose 5 mg)

*** Adult DuoDote injector NOT used on age <15yr or Wt< 50kg**

Any patient receiving medication must be transported

* MARK I kits may be used as "assisting the patient with auto injector medication" if available at the site and not carried by EMS.

**A declaration of Emergency by IC or on-line physician orders allows all provider levels to administer auto-injector antidotes**

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# Carbon Monoxide Exposure/Poisoning

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| ALL | 2. | Remove from exposure environment |
| EMT | 3. | ABC (airway, breathing, circulation) |
| EMT | 4. | Oxygen, ventilation |
| EMT | 5. | Vital signs, pulse oximetry, CO determination |
| EMT | 6. | CO 4% or less and asymptomatic – no further treatment required<br>CO 9% or less and mild headache – high flow O2 up to 4 hours<br>CO 10-19% high flow O2 and transport<br>CO > 19% high flow O2 transport to hyperbaric capable facility |
| EMT | 7. | Assist ventilation as required |
| AEMT | 8. | Consider securing airway |
| AEMT | 9. | IV access for nausea or change in mental status |
| P | 10. | Treat arrhythmia per appropriate protocol |

Note: Smokers may have CO levels as high as 5-6% at baseline

# Penetrating Trauma - Isolated

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Load and Go with continued Treatments enroute |
| AEMT | 4. | IV Access |
| AEMT | 5. | **Adults Only**<br>IF Systolic BP<90<br>Absence of Radial Pulse<br>Or Change in mentation due to hypoperfusion<br>THEN<br>NS/LR 250cc IV/IO bolus (repeat until palpable radial pulse or max 2L) |
| EMT | 6. | Oxygen, ventilation |
| EMT | 7. | Vital signs, pulse oximetry, |
| EMT | 8. | Spinal Motion Restriction: (Procedure 40) **Only IF**:<br>Injuries crossing the midline or impacting the Spine<br>Neurological deficits on exam |
| AEMT | 9. | Refer to Pain Control Protocol (Adult 32) (Pedi 14) |

# Crush Injury**

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Manage Airway, Oxygen, ventilation |
| EMT | 4. | Vital signs, pulse oximetry, |
| All | 5. | Coordinate time of release with Rescue Personnel Prior to Extrication |
| AEMT | 6. | IV Access – large bore |
| AEMT | 7. | Sodium Bicarb 50 meq in 1 liter NS/LR IV/IO over 30 min |
| AEMT/P | 8. | Cardiac Monitor – anticipate arrhythmia or arrest in severe crush |
| | | After Extrication |
| AEMT | 9. | Additional NS/LR 1 Liter Bolus |
| AEMT | 10. | Treat arrhythmia or arrest per protocol |
| EMT | 11. | Consider Spinal Motion Restriction (Procedure 40) |
| AEMT | 12. | Refer to Pain Control Protocol (Adult 32) (Pedi 14) |
| EMT | 13. | Transport to Trauma Center |

****** **Trapped/pinned for greater than 30 minutes with significant impact/destruction of tissue (not just stuck)**

# Smoke Inhalation

| Level | | |
|---|---|---|
| ALL | 1. | Safe Scene, Universal Precautions |
| EMT | 2. | ABC (airway, breathing, circulation) |
| EMT | 3. | Manage Airway, Oxygen, ventilation |
| EMT | 4. | Vital signs, pulse oximetry, |
| EMT | 5. | CO determination – consider CO Poisoning Protocol Simultaneously |
| AEMT | 6. | IV Access – large bore |
| AEMT/P | 7. | Cardiac Monitor, Identify Rhythm |

# Procedures

## General discussion

This section is meant to clarify and define certain standards for medical procedures (more commonly called “skills”) delegated to the EMS crew. Unless specifically addressed in these written pages, all Medical procedures are defined by the standards to which the EMT is tested, i.e. state “skills” and National Registry “skills” tests. This includes, but is not limited to basic first aid, patient assessment, splinting, immobilization, IV access, IO insertion, assisted ventilations, intubation, CPR, medication administration, ACLS, scene management, and overall patient management.

# Procedures

## Patient Care Guidelines

All Patients will be assessed per Department Standard Operating Procedures and in accordance with State and National Standards. To include ABC's, primary and secondary surveys, vital signs, appropriate history taking, and diagnostic testing when indicated.

The results of the EMS assessment will be clearly explained to all patients, along with recommended treatment and transport options.

If after the assessment and explanation, the patient or the patients advocate requests transport, they will be transported to the appropriate hospital of their choosing.

Patients being assessed, cared for or transported by EMS Personnel remain in the care of EMS until an appropriate report is communicated directly to another health care provider of equal or higher capabability. **At the hospital the patient remains the responsibility of EMS until the hospital accepts a verbal report, and handoff.** In the transfer of care to a Flight Crew or Specialized EMS service, the patient remains the responsibility of EMS until a handoff report is given, the crew accepts responsibility, and the patient is transferred out of Departments's vehicle.

All patients receiving an assessment should have appropriate documentation generated.

All patients who refuse or decline treatment and/or transport should have appropriate documentation and should be asked to sign a refusal form in the presence of EMS when possible. All patients who decline or refuse transported should be encouraged to re-access the EMS system at any time for additional assistance.

# Procedures

## Cricothyrotomy

Cricothyrotomy is a traumatic emergency procedure and should only be utilized when total airway obstruction is present and other airway maneuvers have failed or are not feasible. This may be used on patients greater than age 10. Contact Medical Control (Children's Hospital) if considering Surgical Cricothyrotomy in age less than 10. Needle Cricothyrotomy is acceptable in age <10.

Surgical Cricothyrotomy (Traditional)

1. Scene safe, universal precautions, gloves (sterile if possible)
2. Try to establish an airway using less invasive maneuvers
3. Patient in supine position, c-spine control if indicated
4. Palpate the thyroid notch, sternal notch and cricoid interval for orientation
5. Use aseptic technique as time and conditions will allow.
6. Stabilize the thyroid cartilage with the left hand
7. Using a scalpel incise in a vertical incision the skin overly the cricothyroid membrane to a total distance of 1to1-1/2 inches.
8. Incise the membrane in a horizontal manner.
9. Use the handle to insert in the membrane, rotate 90 degrees
10. Insert a cuffed 6-0 endotracheal tube (a Shiley may also be used)
11. Inflate the cuff secure the tube and confirm placement as with any endotracheal intubation.

Modified Cricothyrotomy (quick kits)

1. Scene safe, universal precautions, gloves (sterile if possible)
2. Try to establish an airway using less invasive maneuvers
3. Patient in supine position, c-spine control if indicated
4. Palpate the thyroid notch, sternal notch and cricoid interval for orientation
5. Use aseptic technique as time and conditions will allow.
6. Stabilize the thyroid cartilage with the left hand
7. Using a scalpel incise in a vertical incision the skin overly the cricothyroid membrane to a total distance of 1to1-1/2 inches.
8. Insert the needle into the membrane, using the syringe to aspirate for confirmation.
9. Remove the syringe and pass the wire, dilator airway assembly through the needle, separating the needle as the assembly advances.
10. Remove the dilator and inner assemblies, leaving the airway shiley in place.
11. Secure the Shiley and confirm placement as with any endotracheal intubation.

Needle Cricothyrotomy or Percutaneous quick kit

1. Scene safe, universal precautions, gloves (sterile if possible)
2. Try to establish an airway using less invasive maneuvers
3. Patient in supine position, c-spine control if indicated
4. Palpate the thyroid notch, sternal notch and cricoid interval for orientation
5. Use aseptic technique as time and conditions will allow.
6. Stabilize the thyroid cartilage with the left hand.
7. Use a 1-1/4 inch needle (14-guage) with syringe attached to puncture directly through the skin and cricothyroid membrane. The needle should be directed at a 45-degree angle distally. Aspiration of air to confirm placement.
8. Remove the syringe and metal stylet, while advancing the catheter.
9. Attach an adapter removed from a non-rebreather facemask to connect to an ambu-bag.
10. Secure the needle, and confirm placement as with any endotracheal intubation.

Complications of Cricothyrotomy to consider:

1. Incorrect placement missing the airway.
2. Asphyxia
3. Aspiration
4. Creation of false passage into tissues
5. Subglottic stenosis or edema
6. Laryngeal stenosis or trauma
7. Hemorrhage
8. Laceration of esophagus
9. Laceration of trachea
10. Mediastinal emphysema
11. Vocal cord trauma or paralysis
12. Delayed soft tissue infection.

# Procedures

## Intraosseous lines - Traditional

Intraosseous access should be accomplished in life threatening situations when peripheral access cannot be quickly established. As a general tenet, IO should be considered if peripheral access has not been obtained in 90 seconds or after three attempts. It cannot be stressed enough that this is a painful procedure and as such should only be considered in true life-threatening situations, as always consideration as to rapid transport versus establishing access should be factored into the overall continuum of care of the patient.

Intraosseous access:

1. Scene safe, universal precautions, gloves (sterile if possible)
2. Try to establish vascular access using less invasive maneuvers
3. Patient in supine position, c-spine control if indicated
4. Use aseptic technique as time and conditions will allow.
5. Identify your site on the medial aspect of the tibia, one finger width below the tibial tuberosity. Do not use a fractured extremity.
6. Use a 15-guage or 18-guage Jamshidi needle, with a screwing motion until it penetrates bone marrow.
7. Remove stylet.
8. Attempt aspiration. Aspiration of bone marrow is indicative of proper placement. If no marrow is aspiration, infuse 10-30 ml NS. IF easily infused with no extravasation proper placement is confirmed.
9. Secure the needle.
10. Continue to monitor for proper placement.

Complications of IO needles to consider:

1. Fracture of bone
2. Subperiosteal infusion (improper placement)
3. Soft Tissue infusion (improper placement)
4. Compartment syndrome
5. Injury of growth plate.
6. Slow infusion from marrow clotting
7. Leakage out of marrow from fracture or multiple puncture sites
8. Soft tissue or bone infection.

For medication and fluid administration any protocol calling for administration via IV may also be administered via IO.

# Procedures

## Intraosseous lines – EZ-IO

**INDICATIONS:**

1. All Cardiac Arrest patients – preferred to peripheral IV

**IF** unable to establish a peripheral IV after three attempts consider EZ-IO if:

1. An altered mental status (GCS of 8 or less)
2. Respiratory compromise
3. Hemodynamic instability (Systolic BP of < 100).
4. Impending Cardiac Arrest.

**PROCEDURE:**

If the patient is conscious, advise them of the EMERGENT NEED for this procedure and obtain informed consent.

1. Scene safe, universal precautions, gloves (sterile if possible)
2. Locate insertion site.
3. Cleanse insertion site using aseptic technique
4. Prepare the EZ-IO™ driver and needle set
5. Stabilize leg and insert EZ-IO™ needle set
6. Remove EZ-IO™ Driver from needle set while stabilizing catheter hub
7. Remove stylet from needle set, place stylet in shuttle or sharps container
8. Confirm placement
9. Connect primed EZ-Connect™
10. Conscious patients should receive 20 mg 2% Lidocaine (Preservative Free) IO
11. Flush or bolus the EZ-IO™ catheter with 10 ml of normal saline using a syringe
12. Place a pressure bag on solution being infused where applicable
13. Begin infusion
14. Dress site, secure tubing and apply wristband
15. Monitor EZ-IO™ site and patient condition

**Approved Insertion sites:**

Proximal tibia inferior and medial to plateau
Distal tibia proximal to medial malleolus
Proximal Humerus

**CONTRAINDICATIONS:**

Fracture of the tibia or femur (consider alternate tibia)
Previous orthopedic procedures (IO within 24 hours, knee replacement) (consider alternate tibia)
Pre-Existing Medical Condition (tumor near site or peripheral vascular disease)
Infection at insertion site (consider alternate site)
Inability to locate landmarks (significant edema)
Excessive tissue at insertion site

# Procedures

## Physical Restraints

At times it is necessary to physically restrain individuals who are incompetent to refuse treatment or transport. These patients are combative, violent or otherwise out-of-control. The intent of physical restraint is to protect the patient, the emergency responders, and the public from dangerous actions of the patient. The approach to restraint must include provisions for the safety of all involved. Because of the dynamic nature of incidents requiring restraint, no procedure can be all-inclusive. The responder must use a common sense approach. In general, restraint must be addressed as a continuum of force concept. The level of restraint used must match the actual or potential level of threat the individual possess. Awareness of this potential and precautions to prevent morbidity and mortality must be ensured during and after application of restraint. **Nothing in this policy should be interpreted as to require the provider to put himself at undue risk or danger.**

There is a reason the individual is out-of control and in need of physical restraint. Consideration of the causes and attention to need for potential treatment is imperative. Some examples:

1. Acute rage or acute agitated state: Some of this class of patients may deteriorate into cardiac arrest after restraint. This may be exacerbated by the influence of drugs like cocaine or PCP. Extreme vigilance on the part of the emergency responder is necessary for early recognition and intervention.
2. Psychosis: Acute, or decompensated, chronic.
3. Medical: Hypoxia, shock, hypoglycemia, CNS illness or injury.

Certain individuals with altered mental states, mental disorders, or who are substance abusers may develop a highly agitated state referred to as excited delirium. In this state they may become tachycardic, tachypneic, hypertensive, or hypothermic. Exertion during restraint may also lead to a complicating hypoxia. Positioning of the patient may also complicate the state and lead to deterioration. Never restrain a patient in a prone or hog-tied position. Supplemental oxygen, cardiac monitoring, pulse ox monitoring and vigilant monitoring of airway and vital signs is essential in any restrained patient.

The concept of soft restraints involves the application of devices that are designed to be non-injurious and distribute the load over a large surface area. These devices should be employed when an individual needs to be restrained, but are not so violent as to be able to break the restraining device. Hard restraints are for the patient whose level of violence and behavior is such they would not be restrained by the soft restraints. Soft restraints may be applied by EMS. Hard restraints are to be applied by law enforcement only. If an officer applies hard restraints he must accompany the patient in the event the restraint must be expediently removed. Examples of hard and soft restraints follow.

Soft restraints (may be applied by EMS)
- Kling
- Posey vest
- Commercial extremity restraints
- Cloth or sheets
- Cravats

Hard restraints (applied by law enforcement only)
- Handcuffs
- Cable ties
- Leg shackles
- Wrist chains
- Hobble restraints
- Wrap device

Once a plan has been devised to restrain a patient and the equipment and personnel are in place, the following steps are recommended.

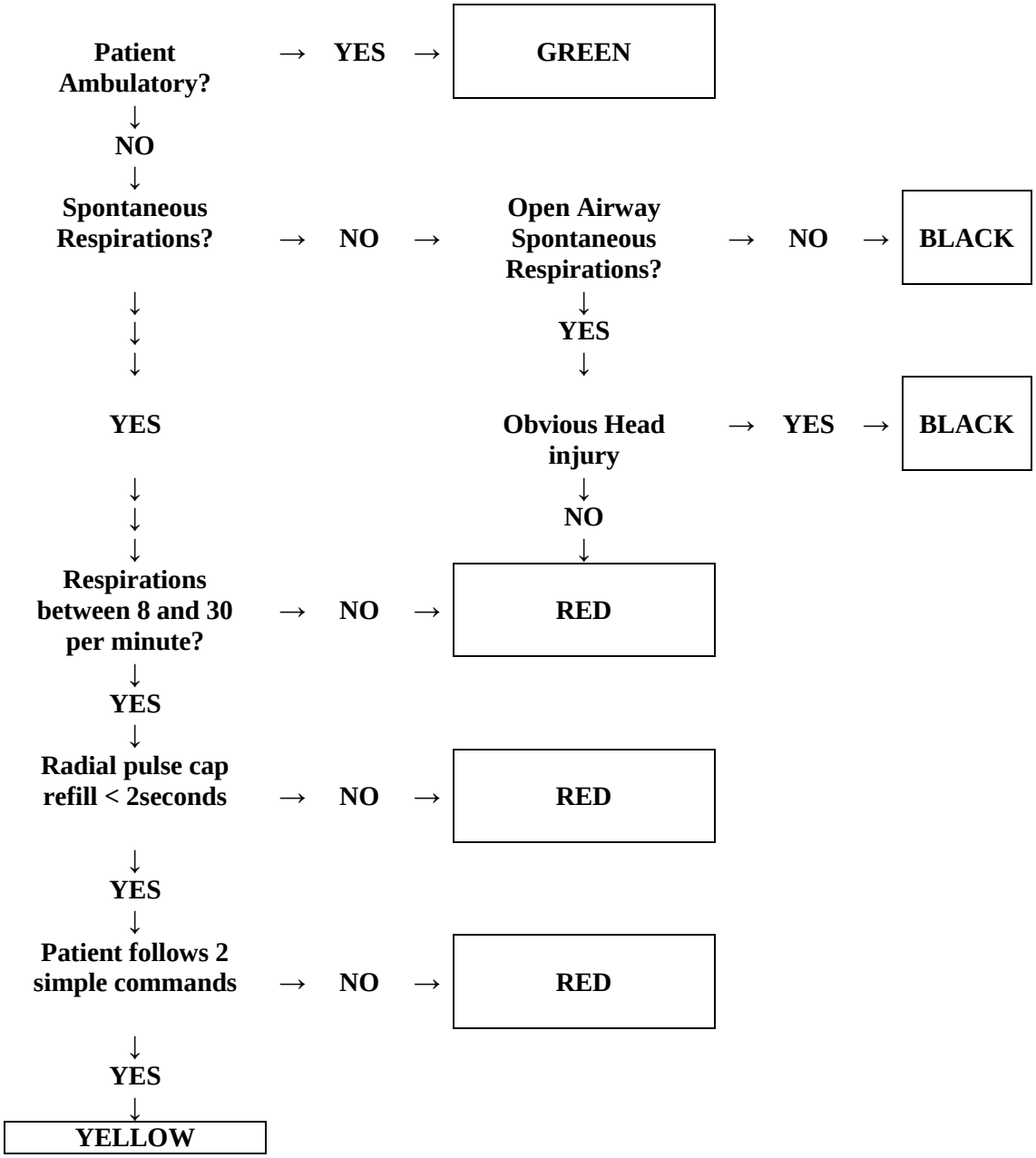
1. The medical officer in charge is the primary interface and the only one speaking to the patient
2. Offer the patient a final chance to cooperate
3. Universal precautions
4. Approach the patient swiftly from all sides
5. Continue to talk calmly to the patient
6. Take control of patient arms
7. Sweep the legs from under the patient
8. Continue to control the arms and legs at the biceps and thighs
9. Restrain the patient's arms behind the back until placed on the cot. Alternatively the patient may be placed supine on a backboard.
10. Place the patient supine on the cot and secure all extremities to the cot or backboard. Securing one hand at the side and one hand up over the head can reduce the effectiveness of the struggle.
11. Continually monitor the patient for signs and symptoms of hypoxia. Be prepared to loosen or remove the restraints as necessary. Document all observations.
12. If possible apply supplemental oxygen at 15 liters by non-rebreather. If not tolerate provide blow-by oxygen at 15 liters.
13. Apply cardiac monitor and pulse oximetry.
14. Begin appropriate medical treatment.
15. Maintain communication in a calm tone.
16. Monitor and document nuerovascular status of the restrained extremities every 15 minutes. Be prepared to adjust the device as necessary.

**At no time should restraints be initiated that would compromise the patients health.**

# Procedures

## Mass Casualty Triage

Mass casualty incidents exist anytime the number of patients exceeds the normal capacity of the EMS system. MCI conditions exist whenever an imbalance exists between resources and patient needs. During these times decisions must be made about care priorities and based on limitations of field intervention and resuscitation. We will use the S.T.A.R.T method (Simple Triage and Rapid Treatment).



# Procedures

## Confirmation of Endotracheal tube placement

The misplacement of an endotracheal tube in the esophagus can have devasting consequences on patient out come if not detected and left uncorrected. Placement of an endotracheal tube should be verified by as many techniques as possible after placement and during patient management. The following methods may be employed to assist in confirming tube placement.

1) Direct visualization of the tube passing between the vocal cords.
2) Symmetric chest rise with ventilation
3) Fogging of tube noted with exhalation
4) Auscultation of breath sounds over the lung fields
5) Absence of breath sounds over the epigastric area
6) End tidal CO2 detector color change with ventilation
7) Use of bulb syringe tube confirmation device
8) **Use of continuous end tidal CO2 monitoring is required**
9) Wave form capnography is preferred

Confirmation of placement should be reconfirmed each time the patient is moved and anytime the patient's condition is deteriorating.

# Procedures

## Patient Dead on Scene

Dead–on-scene (DOS) refers to those patients in which resuscitation is not attempted due to evidence of obvious clinical and biological death. As such transportation is not initiated. Resuscitation should not be initiated in a patient presenting with any of the following criteria.

**Signs of obvious death as evidenced by:**

Decomposition
Dependent Lividity
Decapitation
Rigor Mortis
Incineration
Obvious mortal wounds and no spontaneous pulse or respirations
(Severe traumatic wounds involving chest or brain contents).

Resuscitation should be initiated in any patient who does not meet the above criteria or if meeting the criteria is questionable.

Once a DOS has been declared, access to the scene should be limited as much as possible. Exercise care not to disturb the scene as much as possible. Every effort should be made to console the family, friends, and survivors without interfering with any ongoing patient duties or investigations.

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# Procedures

## DNR: Do Not Resuscitate Orders

Competent and informed patients have a legal right to consent to or refuse recommended medical procedures and treatments including CPR. The only accepted method for withholding CPR without direct on-scene physician intervention is the Ohio Do Not Resuscitate Order or the Medical Power of Attorney (presented by the authorized agent who is positively identified). Living wills are not recognized in the pre-hospital environment. Signed forms (original or facsimile), bracelets or necklaces are used to identify the existence of DNR orders.

If at any time during the EMS response a question should arise regarding the validity of a DNR order or in identifying the patient, EMS personnel must immediately begin resuscitative measures. Medical Control should be notified for further guidance.

**Resuscitation may be withheld in a pulseless and apneic patient ONLY if the following criteria have been met:**

- An official colored Ohio DNR identification bracelet or necklace is being worn by the patient or,
- An official or photocopied Ohio DNR is presented on patient contact with all the necessary patient information, signatures and boxes completed and present on the form or
- A valid Medical Power of Attorney (person with medical power of attorney positively identified requesting no resuscitative measures be taken) is presented on patient contact with all the necessary patient information, signatures and boxes completed and present on the form or
- The patient's private physician (properly identified) is present and directs the provider to withhold any resuscitative efforts.

**The Ohio DNR form is not to be honored and full resuscitative efforts are to be initiated if:**

- The patient destroys the form or removes the identification devices.
- The patient is known to have communicated his/her intent to revoke the order to any health care professional.
- The patient has directed someone else to destroy the form and remove the identification devices.
- The patient is known to be pregnant.
- Unusual or suspicious circumstances are involved.

**There are 2 DNR Protocols the patient may choose.**

**DNR Comfort Care:** A Patient who has a terminal illness may choose this protocol. The patient is electing no more aggressive therapy for their illness; However, interventions to maintain comfort are acceptable.

By law, health care workers will:

- Suction the airway
- Administer oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain medication
- Provide emotional support
- Contact other appropriate health care providers such as hospice, home health, attending physician/CNS/CNP

By law, health care workers will not

- Administer chest compressions
- Insert artificial airway
- Administer resuscitative drugs
- Debrillate or cardiovert
- Provide respiratory assistance (other than that listed above)
- Initiate resuscitative IV
- Initiate cardiac monitoring

**DNR Comfort Care Arrest:** The patient has an illness in which they have chosen to have all treatment up until the time of cardiac or respiratory arrest. This is defined as no palpable pulse, or agonal or absent respirations. Once an arrest has occurred, no CPR is performed. Prior to the arrest, any and all therapy will be provided.

# Procedures

## Medications per Endotracheal tube

The endotracheal tube may be utilized to deliver certain medications when IV/IO access is not available. The IV/IO route remains the preferred route of administration. Endotracheal administration is allowable for the following medications:
Narcan
Atropine
Epinephrine
Lidocaine

The mnemonic NAEL may serve as a useful memory device. Administration is accomplished by directly dispensing the medication down the endotracheal tube and followed by 3-5 rapid ventilations to dispense the medication to the level of the alveoli capillary beds for adsorption.

# Procedures

## Family Violence

**Designation of Condition:** The patient's injuries or symptoms will either be known to be caused or believed to be caused by family violence.

**Field Treatment:**

- Assess the patient's injuries and treat them according to the appropriate protocol.
- Document on the EMS run sheet the reason you believe that the patient's injuries were caused by family violence.
- Provide adult patients education in the resources available to victims of family violence.
- Child abuse or neglect (age less than 18) or Elder abuse or neglect (Age greater than 65) should be transported and you are required by law to report these cases. This may be done by reporting directly to law enforcement at the scene or by notifying Child Protective Services (CPS) or Adult Protective Services, or by ensuring the receiving staff will incorporate your concerns in their reporting to the authorities.

# Procedures

## Needle Chest Decompression

Tension pneumothorax is a life-threatening condition. The definitive prehospital treatment is rapid decompression of the effected side of the chest by needle decompression. Once the tension pneumothorax has been relieved (i.e. converted to a simple pneumothorax) close monitoring is necessary in case of redevelopment of the tension. Classic signs of tension pneumothorax include progressive shortness of breath, absence of breath sounds on the affected side, distended neck veins, cyanosis, hypotension, and tracheal deviation away from the affected side.

A Large angiocath, 14 gauge or greater, of sufficient length (2 ¼ inches) is to be used. A flutter valve, either commercially available or created from a cut glove fingertip may be used. Landmarks for insertion are the 2$^{nd}$ intercostals space in the midclavicular line or alternatively the 4$^{th}$ or 5$^{th}$ intercostals space in the midaxillary line. Insertion should be just over the top of the rib to avoid the neurovascular structures that run along the inferior margin of the rib. Care should be taken to use as sterile a technique as feasible in the prehospital setting realizing the urgency of the procedure.

# Procedures

## Sexual Assault

**Designation of Condition:** The patient's injuries or symptoms will either be known to be caused or believed to be caused by sexual assault.

**Field Treatment:**

- Assess the patient's injuries and treat them according to the appropriate protocol.
- Provide adult patients education in the resources available to victims of family violence.
- Document on the EMS run sheet the reason you believe that the patient's injuries were caused by sexual assault. Notify and document SAFE/SANE request in transfer of care at receiving facility.
- Transport to a facility with a SAFE/SANE (Sexual Assault Forensic Exam/Nurse Examiner) Program, unless the patient is unstable. Unstable patients should be transported to the nearest appropriate facility for their injuries and/or condition.
- Child abuse or neglect (age less than 18) or elder abuse or neglect (Age greater than 65) should be transported and you are required by law to report these cases. This may be done by reporting directly to law enforcement at the scene, by notifying Child Protective Services (CPS) or Adult Protective Services, or by ensuring the receiving staff will incorporate your concerns in their reporting to the authorities.

# Procedures

## Contacting On-Line Medical Control

When the need arises to contact on-line medical control two options exist.

If the patient is being transported to a hospital other than Doctors Hospital the destination hospital may be contacted and interaction with the ER Physician may be utilized as On-line Medical Control.

Doctors Hospital shall always be available as on-line Medical Control:
via the radio (DRW) or
**Main ED phone line 614-544-1047**. or
**Dr. Lowe Cell phone is 614-946-9743.**

In disaster situations where communications begin failing, all references to contact Medical Control will revert to standing orders.

# Procedures

## Refusal of Transport

Patients refusing treatment or transport should be made fully aware of the nature of the problem and possible consequences of their specific or as yet undiagnosed condition. The patient must be alert, oriented, and not under the influence of alcohol, drugs, or a medical condition that can impede his/her decision making ability. When diligent and repeated efforts to reason with the patient fail and the patient is fully informed of the possible consequences, and understands those consequences, then a refusal of care and/or transport shall be signed and witnessed, if possible. At all times the patient and or family should be encouraged to seek medical care, and encouraged to re-access the EMS system at anytime. A third party witness is preferable, however a family member may sign as a witness if the meet all the criteria outlined for the patient's ability to make the decision described above. If doubt regarding patient's competence to refuse arises by any on-scene personnel, transport should be initiated.

If the patient is under the influence of alcohol, drugs, or a medical condition that impedes his/her decision-making ability, neither the patient nor a family member can refuse treatment or transport. The patient must be treated and transported as medically appropriate. Law enforcements presence and assistance should be utilized and requested in all such cases. A patient must be competent to refuse treatment and / or transport. If the patient is not competent, they cannot refuse.

A patient who has attempted suicide or voiced suicidal ideation may not refuse transport. Law enforcement should be involved in all such cases.

Special Notes:

1. Be certain that the mentally competent patient understands not only the nature and consequences of his/her illness or injury, but also understand the nature and consequences of the proposed treatment and the consequences of refusing treatment.
2. It is an option to have on-line Medical Control talk directly with the patient or the patient's family to reinforce the need for treatment and transport in certain situations.
3. Always offer and encourage the patient and family to re-access the EMS system at anytime. Always encourage them to seek additional medical care when refusing EMS care.

# Procedures

## Evaluation of Patients after Taser Deployment

The use of the Taser as a less than lethal weapon is a not uncommon event. These patients will require medical evaluation for actual or potential injuries from the taser barb, as well as evaluation of the events that led to the use of the taser.

Simple taser implantation may be removed by EMS. A Taser protocol exists under the Trauma and Environmental section. Simple stabilization and quick, forceful removal of the dart is the technique of choice. Any dart imbedded greater than ½ inch, or embedded in the eyelid, globe, face, neck, or genitalia should be transported to the Emergency Department.

A growing concern and controversy exist regarding the use of taser and subsequent death in custody. A high index of suspicion must be maintained. There is a reason the individual is out-of control and the choice to deploy the taser occurred. Consideration of the causes and attention to need for potential treatment is imperative. Some examples:

1. Acute rage or acute agitated state: Some of this class of patients may deteriorate into cardiac arrest after restraint. This may be exacerbated by the influence of drugs like cocaine or PCP. Extreme vigilance on the part of the emergency responder is necessary for early recognition and intervention.
2. Psychosis: Acute, or decompensated, chronic.
3. Medical: Hypoxia, shock, hypoglycemia, CNS illness or injury.

Certain individuals with altered mental states, mental disorders, or who are substance abusers may develop a highly agitated state referred to as excited delirium. In this state they may become tachycardic, tachypneic, hypertensive, or hypothermic. Exertion during restraint or apprehension may also lead to a complicating hypoxia. Positioning of the patient may also complicate the state and lead to decompensation or arrest.

Any patient with abnormal vital signs, change in mental status, continued aggressive or inappropriate behavior, history of amphetamine or hallucinogenic drug use, complaints of chest pain, shortness of breath, nausea, headache or evidence of significant traumatic injury should be transported to the Emergency Department and treated according to applicable protocol. If Law Enforcement refuses, to allow transport of the patient, document the recommendation and have a refusal signed by the refusing officer.

# Procedures

## Helmet Removal

Helmet removal will require three rescuers.

Part I Non-Football Helmets

1. Perform a primary survey if possible. As time permits assess gross function and sensation of extremities. If unable to perform due to critical nature proceed directly to step 2.
2. Rescuer I designates a trained rescuer (Rescuer II) to manually control the cervical spine. Rescuer I kneels beside the patient and removes any chin strap or restraining devices. Rescuer III prepares padding of the same thickness as the helmet for placement to maintain neutral position once the helmet is removed.
3. Rescuer I now takes control of the c-spine from the side of the patient below and inside the helmet. Rescuer II begins removal of the helmet by spreading the sides, removing in a controlled manner while rotating the helmet to clear the occiput using caution to not impact the face or manipulate the cervical spine. Rescuer I must continually maintain the control of the cervical spine and the weight of the head. The padding should be placed to maintain the original neutral position of the head. Full spinal immobilization should then be accomplished.

Part II Football Helmets

1. Perform a primary survey if possible. As time permits assess gross function and sensation of extremities. If unable to perform due to critical nature proceed directly to step 2.
2. The football helmet and shoulder pads should be considered a unit. You may elect to initiate full spinal immobilization with the shoulder pads and helmet on (face mask should be removed). However removal of either the shoulder pads or helmet necessitates the removal of the other.
3. If the helmet does not fit properly or the airway is not maintainable then Rescuer I designates a trained rescuer (Rescuer II) to manually control the cervical spine. Rescuer I kneels beside the patient and removes any chin strap or restraining devices, removes the ear pads and the face mask. Rescuer III prepares padding of the same thickness as the helmet for placement to maintain neutral position once the helmet is removed.
4. Rescuer I now takes control of the c-spine from the side of the patient below and inside the helmet. Rescuer II begins removal of the helmet by spreading the sides, removing in a controlled manner while rotating the helmet to clear the occiput using caution to not impact the face or manipulate the cervical spine. Rescuer I

must continually maintain the control of the cervical spine and the weight of the head. The padding should be placed to maintain the original neutral position of the head.

5. Shoulder pads should be removed while maintaining cervical alignment. Once the pads are removed the shoulders may be padded or alternatively the cervical padding may be removed. At all times full alignment must be maintained as a unit. After removal full spinal immobilization should be accomplished.

# Procedures

## Use of MARK I or DuoDote kits

The MARK I kit will contain 2 auto injectors. Atropine 2mg and Pralidoxime (2-PAM) 600mg. The atropine should always be administered first. The Duodote has both meds in a single auto injector.

The MARK I or the Duodote kit, if not carried by EMS may be utilized as "assisting the patient with their auto injector medication." **Providers have completed the Ohio Department of Public safety training on CHEMPACK deployment, then any level may administer MARK 1 kits on Declaration of Emergency by the IC (Incident Commander) or under direction of Medical Control.**

The MARK I or Duodote kit is an antidote for nerve agent or organophosphate poisoning. It is not to be given prophalactically. The most common injection site is the outer thigh muscle. The injection must be in a large muscle mass area. In the very thin individual the upper outer quadrant of the buttock may be preferable. The injector may be administered through clothing. The green end is the needle end. Never hold or touch this end. Remove the auto injector from the clip with your dominant hand. This arms the injector. Apply the green end against the injection site with firm even pressure for 10 seconds to trigger the injection. After injection dispose of the injector as any sharp. Massaging the muscle may speed absorption. IV access should be obtained as prudently as possible. Patients should have cardiac monitoring as soon as practically possible.

| **Exposure** | **Signs and Symptoms** |
|---|---|
| **Mild** | Unexplained runny nose<br>Tightness in the chest<br>Difficulty breathing |
| **Moderate** | Bronchospasm<br>Pinpoint pupils, blurred vision<br>Drooling<br>Excessive sweating<br>Nausea and/or vomiting<br>Abdominal cramps |
| **Severe** | Involuntary urination and/or defecation<br>Jerking, twitching, staggering<br>Headache<br>Drowsiness<br>Convulsions<br>Apnea |

For Mild Exposure: Administer 1 DuoDote injector **OR** 1 atropine auto injector (2mg) IM. After 4 minutes if no improvement you may administer 1 2-PAM auto injector.

For Moderate Exposure: Administer 2 DuoDote/MARK 1 kits.

For Severe Exposure: Administer 3 DuoDote/MARK 1 kits in rapid succession. An additional 2mg atropine may be repeated every 3 – 5 minutes until symptoms improve. You may administer diazepam (valium) for seizure.

# Procedures

## Intranasal Atomizer

The use of a mucosal atomizer device (MAD) to deliver intranasal medication is a viable alternative approved for the use when IV access is not available or not desirable for the following medications:

Fentanyl/Sublimaze
Glucagon/GlucaGen
Lorazepam/Ativan
Midazolam/Versed
Naloxone/Narcan

Medication is drawn up in a luer lock syringe. The MAD (mucosal atomizer device) is attached. Medication is dispensed by placing the device in the nares, and giving a brisk brief compression of the plunger to the desired volume. Recommended maximum fluid is 1 ml per nares for optimal absorption.

# Procedures

## End Tidal Capnography

Indications:

1. Acute Dyspnea
2. Assisted ventilations
3. Sustained altered mental status
4. Confirmation of endotracheal tube placement

End Tidal Capnography is to be used on any intubated patient including oral, nasal, and cricothyrotomy. Proper placement in the airway is confirmed by observing the appropriate wave form displayed with respirations.

The numerical goal of end tidal CO2 for patients with a spontaneous circulation should be 35 and 45 mmHg. Varying the rate and depth of respiration will adjust the number. Less air exchange (slower rate and/or less volume) will increase the value; greater rate of exchange (greater rate and/or greater volume) will decrease the value.

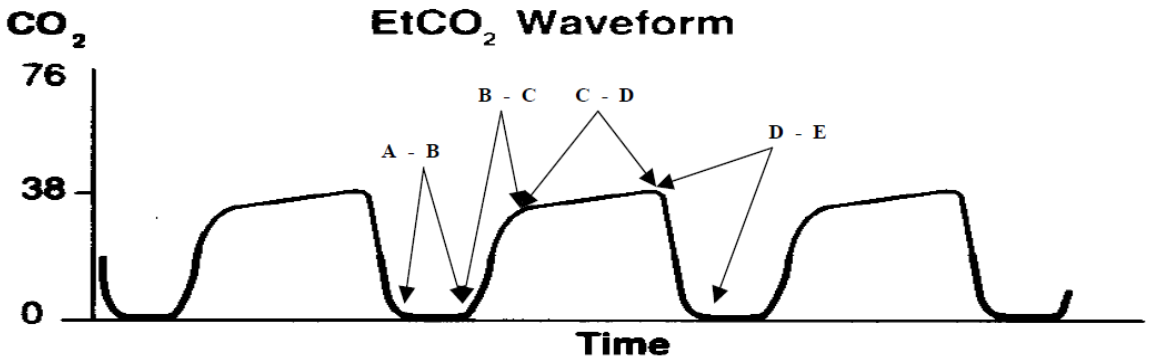
In cardiac arrest CO2 values will be altered due to lack of cellular metabolism with lower values having a poor prognosis. If during CPR a sudden increase in the CO2 value is seen you should immediate evaluate the patient for return of spontaneous circulation.

Wave form capnography should be included in all run reports involving intubation.

Interpreting Capnography:

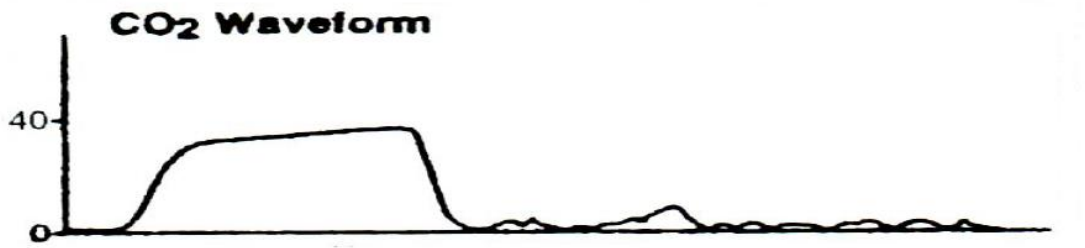
The figure below shows a normal capnography waveform display. There are 4 phases of the waveform that require analysis. The flat A – B baseline segment (Respiratory Baseline) represents the beginning of exhalation of CO2 – free gas that is contained in dead space from the conduction airways (trachea, bronchi). This value normally is zero. The B – C segment (Expiratory Upstroke), a sharp rise, represents exhalation of a mixture of dead space gases and alveolar gases. The C – D segment represents the alveolar plateau, characterized by exhalation of mostly alveolar gas. Point D is the end-tidal (EtCO2) value that is recorded and displayed by the monitor, (peak concentration of CO2 occurring at the end of expiration). The D – E segment (Inspiratory Downstroke), a sharp fall, reflects the inhalation of gases that are CO2 – free (room air or supplemental oxygen). Alterations of the normal capnograph or EtCO2 values are the result of changes in metabolism, circulation, ventilation, or equipment function. A normal range for EtCO2 is 35 – 45 mmHg, similar to the range of CO2 in arterial blood.

Normal Waveform




**Abnormal Waveforms and Possible Causes**

Sudden loss of $ETCO_2$ to zero or near zero:




Possible Causes:

1. Endotracheal tube in esophagus
2. King Airway being utilized for assisted ventilations
3. Apnea
4. Endotracheal tube or King Airway not connected to oxygen supply/capnography detector.
5. Total obstruction/mucus plugging
6. Capnography malfunction - if abnormal waveform persists with change in capnography adaptor, the endotracheal tube or King Airway MUST be withdrawn and intubation or King Airway placement reattempted

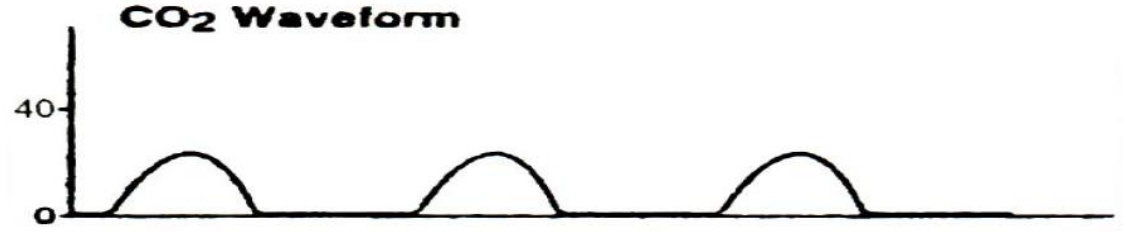
Abnormal Waveform Continued:

Sustained low $ETCO_2$ with good alveolar plateau:


Possible Causes:

1. Hyperventilation (due to underlying illness/injury or excessive assisted ventilations)
2. Hypothermia (Decrease in Metabolism)

Sustained low $ETCO_2$ without alveolar plateau:




Possible causes:

1. Bronchospasm of asthma or COPD exacerbation
2. Incomplete obstruction/mucus plugging

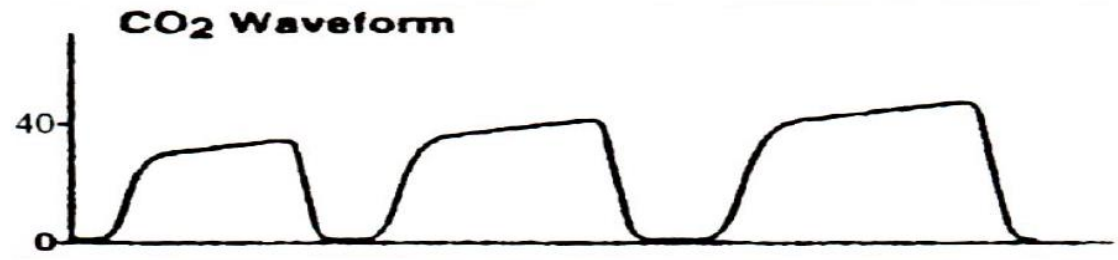
Abnormal Waveforms Continued

Elevated $ETCO_2$ with good alveolar plateau:


Possible causes:

1. Hypoventilation (due to underlying illness/injury or inadequate assisted ventilations)
2. Hyperthermia, pain, shivering (Increase in Metabolism)

Gradually increasing $ETCO_2$:




Possible causes:

1. Hypoventilation (due to underlying illness/injury or inadequate assisted ventilations)
2. Rising body temperature, increasing pain (Increasing Metabolism)

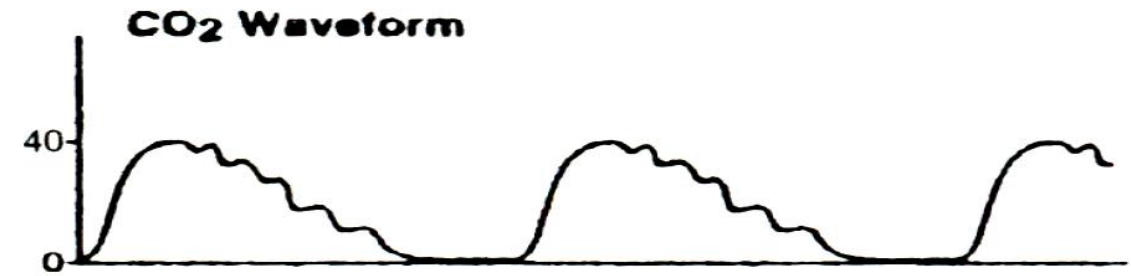
Abnormal Waveform Continued:

## Exponential decrease in $ETCO_2$:


Possible causes:

1. Cardiopulmonary arrest
2. Pulmonary embolism
3. Sudden hypotension, massive blood loss
4. Cardiopulmonary bypass

## Cardiogenic oscillations:

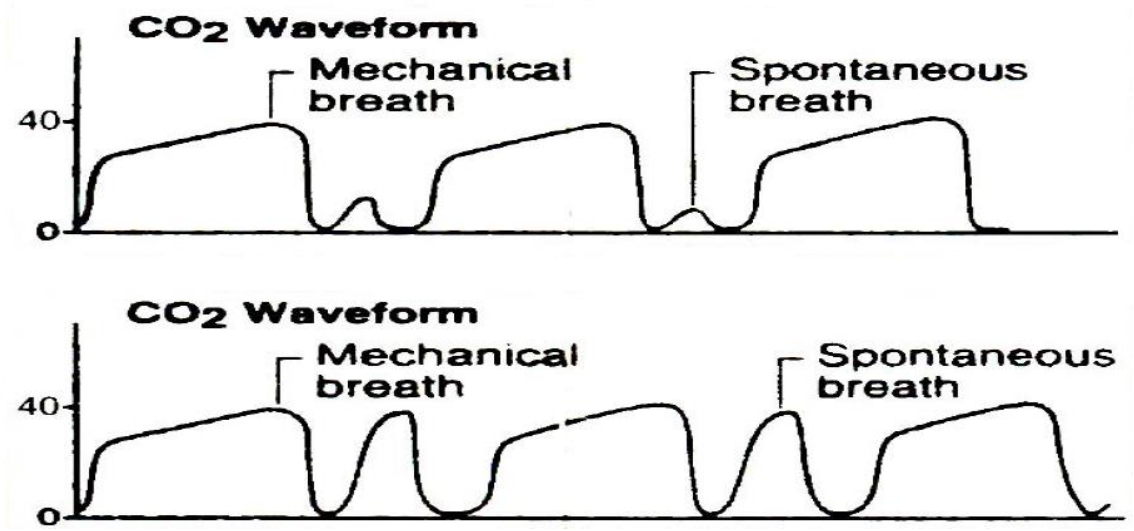



Possible cause:

1. Cardiogenic oscillations are caused by changes in thoracic volume secondary to expansion and contraction of the myocardium with each heartbeat. They are usually seen in patients with small tidal volumes and slow respiratory rates, and are of little physiologic consequence.

Abnormal Waveforms Continued:

Spontaneous breathing during mechanical ventilation:




Possible Cause:

1. Spontaneous breathing efforts may be evident on the CO2 waveform display. The patient on the top demonstrates poorer quality spontaneous breathing effort than the patient on the bottom.

Troubleshooting Tips for Capnography

| Observation | Possible Cause | Possible Solution |
|---|---|---|
| **ALARM APNEA** Message appears | No breath has been detected for 30 seconds | Check the patient, then check ventilation equipment for leaks |
| **C02 FILTERLINE OFF** Message appears | FilterLine or any other C02 accessories disconnected or not securely connected to LifePak | Connect FilterLine or any other accessories to input connector on LifePak or tighten connection |
| **C02 FILTERLINE BLOCKAGE** Message appears | Airway adapter may be clogged. FilterLine is twisted or clogged. The message appears after 30 seconds of unsuccessful purging | Check FilterLine and if necessary replace it. Check airway adapter and if necessary replace it. |
| **C02 FILTERLINE PURGING** Message appears | FilterLine tube is twisted or clogged with water | Check FilterLine and if necessary untwist and reconnect it |

| | | |
|---|---|---|
| **EtC02** values erratic | Leak in the tubing.<br>Assisting ventilations for patient and patient breaths spontaneously. | Check for connection leaks and tubing leaks from LifePak to patient. Replace if necessary. |
| **EtC02** values are consistently higher or lower than expected | Physiological cause<br>Assisted ventilation error | Check Patient<br>Check assisted ventilation rate |
| **XXX** appears in place ofEtC02 Value | C02 module not calibrated successfully<br>C02 module failed | Notify appropriate supervisor |

# Procedures

## CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

**Introduction**

Continuous Positive Airway Pressure (CPAP) works by "splinting" the airways with a constant pressure of air, which reduces the work of breathing. In CHF it forces the excess fluid out of the alveoli and interstitial space back into the vasculature as well as decreases venous return to the heart thereby lessening its workload. In asthma, it is thought to splint the constricted airways open allowing air exchange. CPAP can also be a palliative intervention for patients with DNR orders due to the noninvasive nature of pressure support verse ventilatory support.

**Indications**

1. Age > 10 years old.
2. Patient is awake and oriented.
3. Patient has the ability to maintain an open airway (GCS > 8).
4. Systolic blood pressure above 90 mmHg.

**Contraindications**

1. Respiratory arrest.
2. Suspected pneumothorax.
3. Patient has a tracheostomy.
4. Patient is at risk for aspiration i.e.: vomiting, foreign body airway occlusion.
5. The patient is intubated. (The CPAP device is not configured for use with ETT).

**Physical Findings**

1. Acute Respiratory Distress due to Congestive Heart Failure (CHF), pulmonary edema, Chronic Obstructive Pulmonary Disease (COPD), or asthma.

*2. INCLUSION CRITERIA (2 OR MORE OF THE FOLLOWING)*

A. Increased respiratory rate.
B. Increased work of breathing such as retractions, accessory muscle use, or fatigue.
C. Unable to maintain baseline SaO2 at any time.
D. Lung exam could have wheezing, rales, or diminished breath sounds depending on etiology of respiratory distress.
E. Respiratory Failure of any etiology if a valid DNR is present.

**Protocol**

The CPAP device should be applied as soon as it is discovered to be indicated.

1. Ensure that the patient is on continuous cardiac monitor and pulse oximetry.
2. Explain the procedure to the patient.
3. Ensure adequate oxygen supply and assemble CPAP mask, circuit, and device.
4. Have readily available required equipment and personnel for intubation in the event the patient deteriorates or is unable to tolerate CPAP.
5. Attach quick connect device to a portable or fixed oxygen source
6. Place the mask over the mouth and nose.
7. Secure the mask with straps, or allow the patient to hold the mask to decrease anxiety.
8. Check for air leaks and adjust mask as needed.
9. Minimize breaks in the mask seal to administer nitroglycerin (nitro-lingual) SL.
10. Continue to coach patient to keep mask in place, however if the patient is experiencing increasing anxiety Fentanyl 50 mcg IV/IO/IM/IN may be administered.

    The goal of versed is to decrease anxiety enough so that the patient tolerates CPAP.
11. Reassess patient's vital signs including ETCO2 and response to CPAP every 5 minutes.
12. If the patient's status improves continue CPAP until the patient is transferred to the care of the receiving hospital.
13. If patient's status deteriorates discontinue CPAP and assess the patient for the need to intubate.
14. Notify destination hospital that CPAP has been used.
15. CPAP is only to be removed at the receiving hospital under the following circumstances.
    A. Personnel are present to transfer the patient to their equipment, or
    B. The receiving ED PHYSICIAN is present and requests that CPAP be discontinued.

# Procedures

## Dilution of D50% to D25%, D12.5%, or D10%

D50 is a 50% solution of dextrose in water. It contains 25 grams of dextrose in 50 cc of fluid.

To prepare D25 to be used in pediatric patients, use the standard D50 syringe and mix 1 part D50 with one part NS. The most reliable method in the field is to waste 25 cc of D50 or have the syringe and draw up into the now half empty syringe 25 cc of NS. This will provide a dilute solution now D25. However only 12.5 grams of dextrose is contained in the solution, so additional D50 may be required when approaching the maximum pediatric dose of 25 grams.

D12.5 is the preferred solution in newborns up to one year of age. Two options exist. You may further dilute the D25 as created in the above paragraph by again wasting one half the syringe and refilling with NS to create 50 cc of D12.5. The syringe will now contain 6.25 grams of dextrose in 50 cc of fluid. Alternatively you may use the prepackaged D25 which is packaged as 2.5 gram in 10 cc fluid. Again waste one half of the syringe and draw up NS to replace the deficit. You will now have 1.25 grams in 10 cc of D12.5.

D10 may be created by added D50 (1 amp or 25 grams) to a 250 cc bag of Normal Saline (or Lactated Ringers).

# Procedures

## External Pacing

Transcutaneous pacing may be required in certain bradycardic or even arrest situations.

1. Clean and dry skin and ensure good contact between skin and electrodes.
2. Place Black (negative) electrode on left anterior chest, halfway between xiphoid and left nipple (cardiac apex).
3. Place Red (positive) electrode on posterior left chest below the scapula.
4. Alternatively an anterior-anterior placement may be utilized with black (neg) electrode at left lateral chest 4$^{th}$ intercostal space at mid axillary line and red (pos) electrode on right anterior chest.
5. Typical starting parameters will be 70 bpm at 40mA. Adjust settings upward to achieve adequate perfusion, maintain as low an energy setting as required.
6. Adjustments should be made in 5mA increments
7. Monitor patient for capture (palpable pulse, hemodynamic response, etc)
8. Sedation as required, refer to Sedation Protocol

# Procedures

## Double Sequential Defibrillation

Double Sequential defibrillation is a synchronous defibrillation using two separate cardiac monitor/defibrillators and should be considered when any adult patient has persisted in ventricular fibrillation or pulseless ventricular tachycardia despite at least 2 counter chocks or defibrillation attempts.

1. While Continuing High Quality CPR and ACLS measures
2. Apply 2nd set of defibrillation pads adjacent to, but not touching the first set of pads from a second cardiac monitor/defibrillator.
3. Again confirm the presence of ventricular fibrillation or pulseless ventricular tachycardia
4. Charge both units to maximum energy (360J on Lifepack 12 or 15)
5. Determine all providers are "clear" and not touching patient
6. In a rapid sequential fashion discharge both units in succession
7. Perform Rhythm check and print a rhythm strip
8. Continue care according to rhythm and appropriate protocol
9. Document Double Sequential defibrillation in Patient Care report
10. Be sure to inform ED of Double Sequential defibrillation

# Procedures

## Surgical Emergency Response Team - SERT

The Surgical Emergency Response Team is a Resource that can be utilized on patients who may need procedures that exceed the capabilities of the EMS providers and who cannot be extricated or transported in a reasonable amount of time from the scene to definitive care. Some examples might include trapped and requiring a field amputation, administration of blood products, or blood loss that cannot be controlled with conventional means.

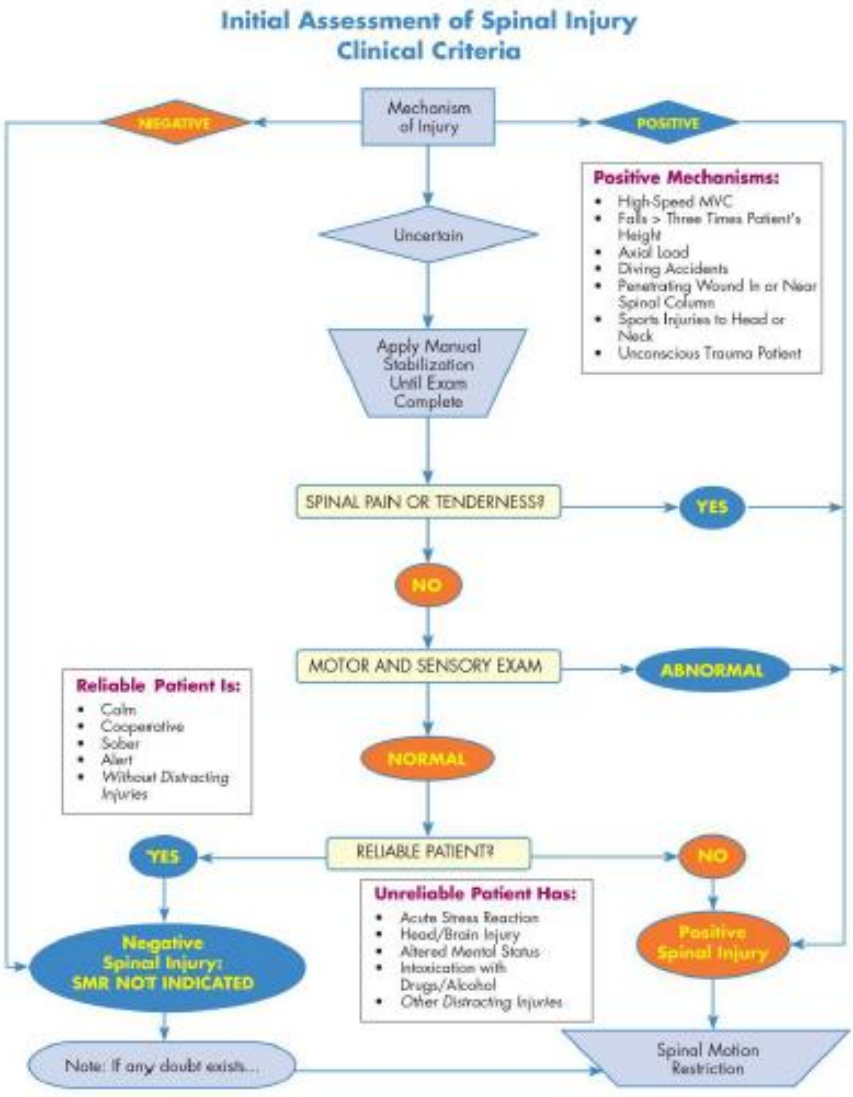
Both OSU and Grant will have SERTs available. Each month one will be designated first up and that list will be maintained by the FAO at Columbus Division of Fire.

Request for SERT activation should be made in consultation with the in-charge medic and senior medic or EMS supervisor providing patient care. Request for the SERT are then made to the FAO at Columbus Division of Fire. A Columbus Division of Fire Medic vehicle will transport the team and be responsible for the teams safety on scene.

The surgeon from the SERT will assume control of patient care at scene and may be assisted by EMS personnel but EMS cannot exceed scope of practice. The surgeon or team will accompany the patient in transport and will be responsible for determining appropriate destination for the patient.

# Procedures

## Spinal Motion Restriction




SMR includes taking steps to minimize head movement including the use of a cervical collar, padding, coaching, and positioning. Long Backboards, scoop stretchers, and other devices may be used for extrication purposes. They are not necessary for spinal motion restriction and should be removed as soon as practical and safe for the patient and crew and ideally prior to transport. Backboards and other devices are tools whose use may occasional be required for movement, restraint or extrication purposes, and may be considered in cases where the patient is unable to participate in the coaching or self-stabilization aspects spinal motion restriction.

# Procedures

## Priority Focused Cardiac Resuscitation

- Priority 1 = Chest Compressions
    - Delivers compressions for 2 minutes
    - Switches back and forth with Priority 5 Utility
- Priority 2 = Monitor/AED - Code Leader
    - Rhythm interpretation
    - Delivers defibrillation
    - Determines medications
    - Ensures other priorities are completed
    - This priority needs to be the critical thinker (minimal hands on)
- Priority 3 = Oxygenation and Ventilation
    - Assure airway patency
    - Apply NRB/NC as soon as possible
    - BVM Ventilation (30:2 ratio)
    - ET or King-LT
        - **Must be done during compressions or pulse check**
        - **Do not stop compressions for ET or King-LT insertion**
- Priority 4 = IV Access and Medications
    - Establish IV/IO access
    - Performs pulse check
    - Administers medications
    - **Do not stop compressions to obtain access**
- Priority 5 = Utility
    - Assists with airway/BVM
    - Retrieves equipment
    - Switches back and forth with Priority 1 Chest Compressions

****These priorities/positions shall be completed in this order upon arriving personnel**.

# Procedures

## KING LT-D Supraglottic Airway Insertion

1. Using the information provided, choose the correct KING LT-D size, based on patient height.

2. Test cuff inflation system by injecting the maximum recommended volume of air into the cuffs (size 3 - 60ml; size 4 - 80ml; size 5 - 90ml). Remove all air from both cuffs prior to insertion.

3. Apply a water-based lubricant to the beveled distal tip and posterior aspect of the tube, taking care to avoid introduction of lubricant in or near the ventilatory openings.

4. Have a spare KING LT-D ready and prepared for immediate use.

5. Pre-oxygenate.

6. Position the head. The ideal head position for insertion of the KING LT-D is the "sniffing position". However, the angle and shortness of the tube also allows it to be inserted with the head in a neutral position.

7. Hold the KING LT-D at the connector with dominant hand. With non-dominant hand, hold mouth open and apply chin lift.

8. With the KING LT-D rotated laterally 45-90 such that the blue orientation line is touching the corner of the mouth, introduce tip into mouth and advance behind base of tongue.

9. As tube tip passess under tongue, rotate tube back to midline (blue orientation line faces chin).

10. Without exerting excessive force, advance KING LT-D until base of connector is aligned with teeth or gums.

11. Holding the KLT 900 Cuff Pressure Gauge in non-dominant hand, inflate cuffs of the KING LT-D to the appropriate ml of air for the size of the KING airway.

12. Typical inflation volumes are as follows:

Size 3 at 45-60ml

Size 4 at 60-80ml

Size 5 at 70-90ml

13. Attach the breathing circuit to the 15 mm connector of the KING LT-D. While gently bagging the patient to assess ventilation, simultaneously withdraw the airway until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).

14. Depth markings are provided at the proximal end of the KING LT-D which refer to the distance from the distal ventilatory opening. When properly placed with the distal tip and cuff in the upper esophagus and the ventilatory openings aligned with the opening to the larynx, the depth markings give an indication of the distance, in cm, from the vocal cords to the upper teeth.

15. Confirm proper position by auscultation, chest movement and verification of ETCO2 by capnography.

16. Secure KING LT-D to patient using tape or other accepted means.

# Procedures

## i-gel Supraglottic Airway Insertion

1. Open the packaging and remove the inner tray, setting the support strap, suction tubing and lubricant to one side and within reach. Remove the i-gel.
2. Lubricate the i-gel with a thin layer of lubricant.
3. Grasping the i-gel by the bite block, place the patient in the sniffing position with the head extended and the neck flexed (unless clinically contraindicated).
4. Position i-gel so that the outlet is facing the patient. Introduce the leading soft tip into the mouth of the patient in the direction of the hard palate.
5. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt. The tip of the airway should be located in the upper esophageal opening, with the cuff located against laryngeal framework. The incisor should be resting on the bite block.
6. Secure the device by sliding the strap underneath the patient's neck and attaching to the hook ring.
7. Assess the adequacy of ventilation by auscultation and observing chest rise and fall. ETCO2 to assure adequate ventilation rate and document findings in the patient care report.

# Procedures

## Nasogastric Tube Insertion

Nasogastric tube insertion should only be performed on patients who are endotracheally intubated.

**Indications:**

Cardiopulmonary arrest with a distended stomach

**Contraindications:**

Suspected basilar skull fracture (Battle's sign, Raccoon eyes, bleeding from nose).

Significant facial fractures.

Ingestion of corrosive, acidic or other tissue destructive substance.

**Procedure:**

1. Measure the tube from tip of nose to earlobe, then earlobe to bottom of Xiphoid for approximate length, then mark with adhesive tape.

2. Lubricate first 6-8 inches with KY or Xylocaine jelly.

3. Look at the nose for deformity or obstruction and determine the best side, usually the right.

4. Pass the tube gently along the floor of the nose at a 90 degree angle (perpendicular) to the face.

5. Do not force the tube if increasing resistance is encountered.

6. Confirm placement by observing rapid return of gastric contents when tube is aspirated with a syringe and/or auscultate over the epigastrium for bubbling sounds as 20-60 ml of air is injected into the tube.

7. Secure the tube to nose and face and connect to suction as needed.

# Procedures

## Transport to Addiction Stabilization Center

### Applies to: Franklin County Agencies, Scioto Township and Jefferson Township

**If the patient has a known or suspected overdose from an opiate and has responded appropriately to Narcan with spontaneous respirations over 8/min consider transporting to an Addiction Stabilization Center**

The following are exclusion criteria:
If the patient has any of the following conditions transport to an appropriate ED:

**Complex medical care needs**

- Blood glucose >300
- P02< 92%
- Supplemental ventilation required
- Unable to swallow
- GCS < 13
- Cannot manage independently
- Had seizure activity
- Confirmed pregnancy
- Systolic BP >180 or <80
- Diastolic BP >120
- Pulse >120

**Infection contamination risk**

- Suspected head lice
- Suspected scabies
- Suspected MRSA
- Suspected active TB

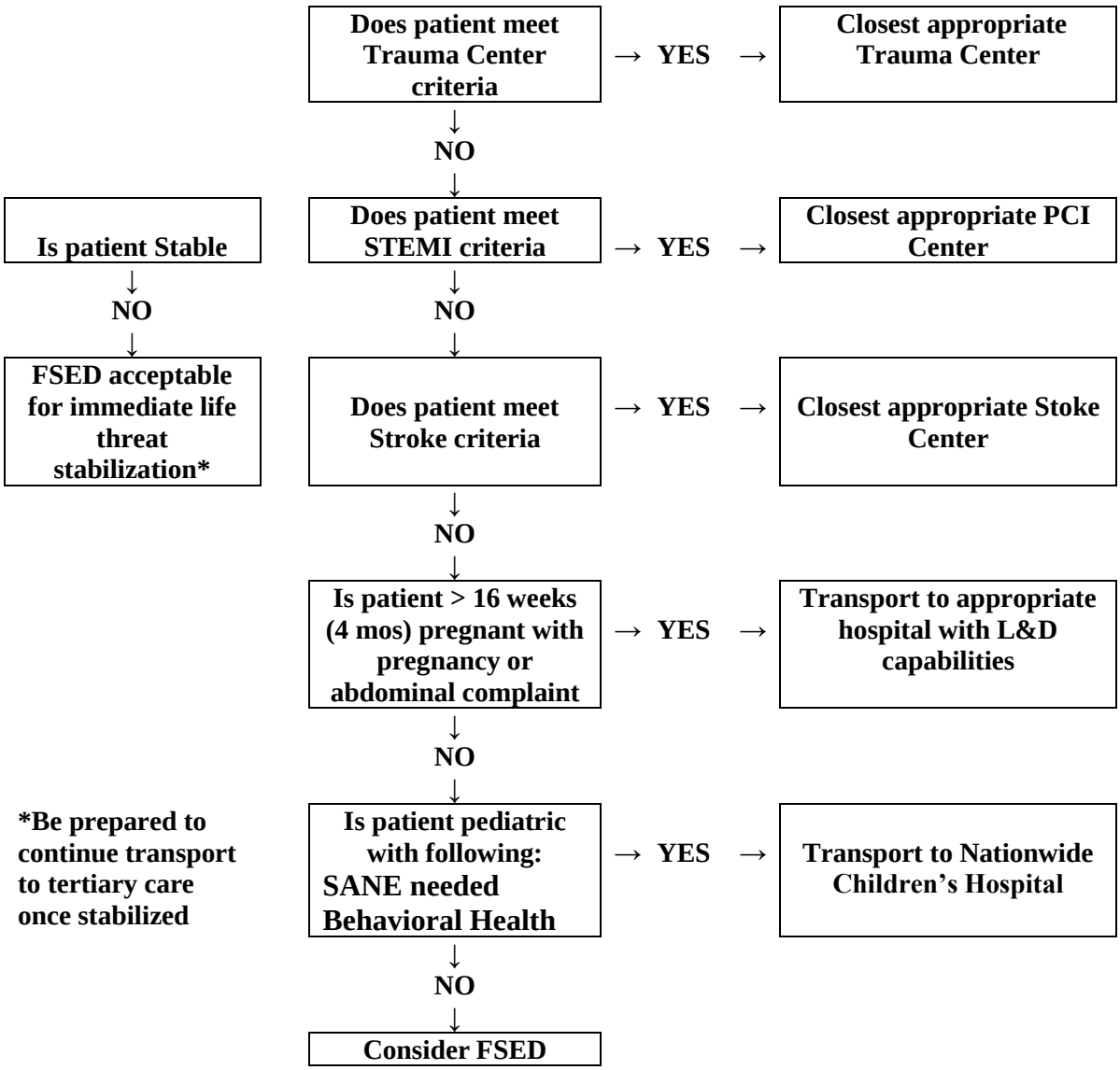
**Significant psychological issues**

- Patient is homicidal / suicidal
- Patient has excited delirium
- Patient has command hallucinations
- Patient refuses transport to the Addiction Stabilization Center

If none of the above conditions apply, the patient can be transported to an Addiction Stabilization Center.
**Consider Transport to Addiction Stabilization Center:
1430 South High Street
Columbus, Ohio 43207

# Procedures

## Criteria for Transport to Free Standing Emergency Departments



# OhioHealth EMS Protocols

The following protocols have been generated for use by system EMS personnel in the care of patients. The delegation to practice is made by the Medical Director to the individual EMS personnel and is outlined and detailed in the following pages. Protocol privileges are specifically delegated by the Medical Director in the accomplishing of assigned duties with OhioHealth EMS. These protocols are not delegating any practice authority outside of OhioHealth EMS assignments. These protocols are delegating practice anywhere within OhioHealth EMS's operating area during department assignments only. This is not meant to conflict with Good Samaritan interventions, and it is hoped that personnel would avail themselves to the protection provided by the Good Samaritan laws and participate when and as needed. Protocol privileges are granted separate from employment and are at the sole discretion of the Medical Director, however input from the employer and co-workers may be utilized.

The Following Updated Protocols are approved for use by approved employees beginning on the signature date. Each protocol will show a date of approval and dates of subsequent revisions allowing for interval changes.

_____

Robert Lowe, MD, FACEP, FAEMS

# Authority to Practice

The medic is granted authority to practice under the physician license of the Medical Director. While the Medical Director has no direct authority over assignment, hiring, or promotion criteria, the ability to perform EMS duties requires the granting of protocol privileges to the Medic.

# Generic Protocol Set-up

Protocols serve as standing orders from the physician to the medic in the field. For ease of use, protocols are ordered in a stepwise fashion. It is recognized and understood, even expected, that several steps will and are to be accomplished simultaneously on scene. However the administration of drugs is an ordered sequence that should be adhered to.

The generic Protocol set-up will list several drugs that may be considered optional while called out in protocol and potentially listed on Pharmacy Board license, these optional drugs are contained in protocol to allow 1) ease of substitution in times of shortage, 2) Place holding for potential future capability as all departments under the Medical Director begin unifying protocols, 3) Allow medics, properly credentialed by Medical Director to make use of potentially available resources (one example of many - valium administration from National stockpile or patient RX)

It is also recognized that providers of different certification level will be present and caring for the patient. The protocols attempt to recognize this by showing the minimum level required to perform the action. Any higher-level provider is by definition able to perform the tasks of all providers below his/her certification.

# Mandatory Notification of Medical Director

The Following are to be reported through the EMS Coordinator to the Medical Director in a timely fashion:

1) Surgical airway
2) Three or more intubation attempts
3) Pediatric intubations
4) Chest decompression
5) Termination of Resuscitations
6) Ketamine Administration

# On Scene Medical Control – The EMS Physician

On scene Medical Control, is the presence of the Medical Director, or assistant Medical Director(s) physically present and accepting Medical Control. When present and acting in this role these physicians become Medical Control for any issues or protocols that would involve notification of base station Medical Control. This person will commonly be referred to as the EMS Physician in protocols to avoid confusion with base station Medical Control. Their presence should be documented in the run sheet. The EMS physician may order deviation or specific care not covered in standing protocols. The EMS Physician is NOT required to accompany patient to the hospital, but rather may make that choice on a case by case basis. However, notification of the hospital of incoming patient and status is still the responsibility of the transporting crew.

The EMS physician can be requested on any scene where fire or EMS crews determine their presence may alter the medical outcome of the patient. Careful consideration should be given to time of transport to the hospital versus time enroute to the scene of the EMS physician.

# Physicians and Health Care Professionals on Scene

A physician on scene is any physician who presents to EMS and identifies him or herself as such. The presence of a physician on scene does not grant this physician Medical Control authority unless the all the following criteria are met. 1) Physician must be positively identified as a licensed Ohio physician either by Ohio ID or patient identification of a previous relationship with this physician. 2) Physician must be willing to accompany the crew to the hospital and sign the run sheet. At the Paramedics discretion the Physician can then be granted Medical Control or 3) the Paramedics may opt to contact Base Station Medical Control for agreement in allowing the physician to have on scene authority.

Various other health care professionals may be present on scene from time to time, while their presence may be helpful, they are **not** granted any medical direction authority over system personnel. The system EMS personnel retain protocol authority over these interveners. A physician on scene who has been granted medical control authority may direct these personnel to perform certain tasks on a case by case basis as dictated by the situation.

Alternatively the EMS physician, while physically present, may designate similar authority to an on scene physician in special circumstances (examples may include an orthopedic team physician at a sporting event, or other physicians in a disaster event).

The EMS Physician's presence is not subject to this Administrative protocol and instead is addressed in Admin-5.

# Quality Assurance & Performance Improvement

The granting of protocol privileges is at the sole discretion of the Medical Director, as outlined in the Ohio Revised Code. For the purpose of Quality Assurance and Performance Improvement the Medical Director may utilize any or all of the following: participation in and demonstrated proficiency of CE activities, direct observation in provision of medical care, review of cases and runs reports, and oral examination with the Medical Director or his assistant(s).

# Multiple Agency Scenes

Interoperability is a key component to response to prehospital events. As such in is expected that many scenes may involve personnel from numerous agencies. For purposes of EMS Departments operating under this protocol any department under Medical Direction by a Doctors Hospital Physician shall continue to operate under that protocol regardless of the actual apparatus they are providing care in. Alternatively the presence of EMS Supervisory personnel with additional skills and equipment from a department operating under Medical Direction of a Doctors Hospital Physician shall be available resources to any of the departments operating under the Medical Direction of Doctors Hospital Physicians.

Alternately The City of Columbus Division of Fire EMS Supervisors are granted special consideration with advanced care under their protocols and/or within this protocol to ensure definitive patient care through the automatic response agreements set forth by the governmental agencies regardless of jurisdictional boundaries.

# Pharmacology

# Adenosine / Adenocard

**Onset:** 30 seconds or less
**Duration:** 10 seconds
**Action:** Slows conduction through the A-V Node
**Indications:**
Conversion of narrow complex PSVT
Stable Wide Complex Monomorphic Tachycardia

**Contraindications:**
$2^{nd}$ or $3^{rd}$ degree AV Block
Sick Sinus Syndrome
Ventricular Tachycardia
Hypersensitivity to Adenosine
Avoid in patient taking digoxin and verapamil in combination

**Possible Side Effects:**
Apprehension
Facial flushing
Lightheadedness
Paresthesia
Headache
Diaphoresis
Palpitations
Chest pain
Hypotension
Shortness of breath
Nausea
Metallic Taste
Transient Asystole, Bradycardia, Ventricular ectopy
Angina
Bronchospasm

**Dosage:**
Adenosine should be given as a rapid IV bolus by the peripheral route. To be certain the solution reaches the systemic circulation; it should be injected into an IV line as close to the patient as possible and followed by a saline flush.

Initial Dose: 6-12 mg rapid IV bolus (over 1-2 seconds)
Repeat Dose: 12 mg rapid IV bolus, may be repeated if no response within 1 -2 minutes
Peds: weight must be greater than 5 kg initial 0.1mg/kg IV/IO, repeat 0.2 mg/kg IV/IO

# Albuterol / Ventolin / Proventil

**Onset:** 5-15 minutes
**Duration:** typically 3 to 6 hours
**Action:** predominately beta II receptor selective drug, causes relaxation of bronchial smooth muscle
**Indications:**
As an aerosol bronchodilator for the treatment of exacerbation of asthma and COPD
As an aerosol bronchodilator for airway spasm in allergic reaction or anaphylaxis

**Contraindications:**
Hypersensitivity to Albuterol
Extreme tachycardia

**Possible Side Effects:**
Tachycardia
Agitation
Tremors
Ectopy
Vasodilatation
Hypertension
Angina
Vomiting
Vertigo

**Dosage:**
5 mg in nebulized solution.
Child less than age 1 year use 2.5 mg

# Amiodarone / Cordarone

**Onset:** 15 minutes or less
**Duration:** half lives as long as 20 to 40 days have been reported
**Action:** Anti arrhythmic effects, can also decrease myocardial oxygen demand
**Indications:**
Treatment of V-fib or V-tach

**Contraindications:**
Hypersensitivity to Amiodarone
Marked bradycardia

**Possible Side Effects:**
CV: arrhythmia, hypotension
GI: nausea, vomiting, abdominal pain
Neuro: headache, ataxia, tremor, visual disturbances
Respiratory: Long term effects

**Dosage:**
Adult Cardiac Arrest: 300 mg IV, IO 150 mg IV, IO second dose
Wide Complex Tachycardia with a pulse: 150 mg IV, IO over 10 minutes. This may be accomplished by mixing in 250 cc NS and infusing, with 60 drop tubing wide open
Pediatric Cardiac Arrest: 5mg/kg IV, IO one dose only.

# Aspirin

**Onset:** Hours to days
**Duration:** antiplatelet effects can last for weeks to months, Analgesic and antipyretic effects about 3-6 hours
**Action:** impedes platelet aggregation, to prevent clot buildup and occlusion of artery
**Indications:**
Chest pain, acute MI, amputated extremity

**Contraindications:**
Hypersensitivity to Aspirin
Peptic ulcer disease
Do not give in altered consciousness

**Possible Side Effects:**
Bleeding

**Dosage:**
325 mg tablet or 81 mg tablets x 4
81 mg for amputation

# Atropine

**Onset:** Rapid
**Duration:** minutes - hours
**Action:** Suppress action of the parasympathetic nervous system, increases heart rate and electrical conduction speed in the heart. Also dries secretions.
**Indications:**
Symptomatic bradycardia
Antidote for anticholinesterace poisoning

**Contraindications:**
Hypersensitivity to Atropine
Pyloric stenosis
Prostatic hypertrophy – relative contraindication
Atrial fib/ atrial flutter

**Possible Side Effects:**
Ataxia
Dizziness
Agitation
Confusion
Tachycardia
Mydriasis
Photophobia
Dry mouth

**Dosage:**
Adults: 0.5-1.0 mg IV/IO every 5 min. Max dose 0.03 to 0.04 mg/kg
Child: 0.02 mg/kg IV/IO every 5 min. Max single dose 1mg, Min single dose0.1 mg
May be given IM and in higher doses for poisoning.
For RSI child dosing is "half dose" or 0.01mg/kg IV/IO. Max 1 mg, minimum 0.1 mg.

# Atrovent / Ipratropium bromide

**Onset:** 5-15 minutes
**Duration:** upwards of 4 hours
**Action:** inhibits vagally mediated reflexes by antagonizing acetylcholine. Prevents increased interaction of bronchial smooth muscle, preventing bronchospasm, promoting brocnhodilatation. Works synergistically with albuterol
**Indications:**
Relief of bronchospasm associated with Asthma, COPD (emphysema, bronchitis)

**Contraindications:**
Hypersensitivity to atrovent or atropine, or almonds
Caution in patients with acute angle closure glaucoma

**Possible Side Effects:**
Tachycardia
Nervousness
Dizziness
Headache
Palpitations
Dry mouth
Nausea
Blurred vision
Tremor

**Dosage:**
Adult: 500mcg (0.5mg) nebulized dose mixed with albuterol

Peds: Age < 1 year- 250 mcg (half unit dose vial)
Age > 1 year – 500 mcg (I unit dose vial)

# Ativan / Lorazepam(optional)

**Onset:** Minutes IV, 15 minutes IM
**Duration:** 6 – 8 hours  prolonged in the elderly
**Action:** a benzodiazepine anticonvulsant, sedative, anti-anxiety
**Indications:**
Major motor seizure
Premedication
Chemical restraint

**Contraindications:**
Hypersensitivity to ativan
Neonates
Airway precautions in drug or alcohol use.

**Possible Side Effects:**
Drowsiness
Hypotension
Respiratory depression

**Dosage:**
Adult: 1-2 mg IV/IO/IM/IN

Pediatric: 0.1 mg/kg IV/IO/IM/IN maximum dose 2 mg

# Bendaryl / Diphenhydramine

**Onset:** Rapid IV, 20-30 minutes IM
**Duration:** 4-8 hours
**Action:** An antihistamine, with anticholinergic and sedative effects
**Indications:**
Allergic reaction/ anaphylaxis, and motion sickness

**Contraindications:**
Hypersensitivity to Benadryl
Asthma
Pregnancy
Lactating Females
Premature infants

**Possible Side Effects:**
Drowsiness
Dizziness
Hypotension
Hyperactivity in some children

**Dosage:**
Adult: 25-50 mg IV/IO/IM – may repeat to max 100 mg
Peds: 1 mg/kg IV/IO/IM max dose 50 mg

# Calcium Gluconate

**Onset:** immediate
**Duration:** 30-120 minutes
**Action:** Stabilize cardiac membrane and reduce effects of hyperkalemia
**Indications:** Cardiac Arrest in suspected hyperkalemia, ie missed dialysis, burns greater than 4 hours old
Calcium channel and beta blocker overdose

**Contraindications:**
Known allergic reaction

**Possible Side Effects:**
Hypercalcemia, arrhythmia, bradycardia, hypotension, allergic reaction, syncope

**Dosage:**
Adult: 1 gram IV/IO
Peds: 20 mg/kg IV/IO

# Cardizem / Diltiazem

**Onset:** 2 – 7 minutes
**Duration:** 1 – 3 hours
**Action:** Calcium Channel blocker, used to slow A-V Conduction
**Indications:**
Atrial Fib/Flutter with rapid ventricular response

**Contraindications:**
Hypersensitivity to Cardizem
Sick Sinus Syndrome
2nd or 3rd degree heart block
WPW – Wolfe Parkinson White can lead to increase conduction thru aberrant pathway and lethal increase in heart rate
Wide complex tachycardia

**Possible Side Effects:**
Hypotension
Arrhythmia
Diaphoresis
Puritis

**Dosage:**
Adult: 15-25 mg IV/IO slow push over 1 minute.
Adult drip: Mix 25mg in 250ml NS/LR and run at 10 mg per hour (100ml/hour).

# Dilaudid / Hydromorphone

**Onset:** 10 to 15 minutes
**Duration:** 2 – 3 hr
**Action:** Binds to opioid receptors in spinal cord and CNS, altering perception or and response to painful stimuli.
**Indications:**
Moderate to severe pain (kidney stones, burns, fractures).
**Contraindications:**
Hypersensitivity to Dilaudid or Morphine allergy.
Acute or severe bronchial asthma or upper respiratory tract obstruction
**Side Effects:**
Confusion
Sedation
Nausea
Dyspnea
**Dosage:**
Adult 1 mg slow IV push over 2 minutes or IM. May repeat in 15 minutes to a maximum of 2 mg.
Geriatric Dosage: 0.5 mg slow IV push or IM. May repeat in 15 minutes to a maximum of 2 mg.
Pediatric Dosage: Not recommended for patients under 12 years of age.
**Note:** If a patient has an altered mental status or sedation occurs with the administration of Dilaudid, monitor EtC02 to maintain adequate ventilation.

# DuoDote Auto-injector

**Contents:** Atropine 2mg auto injector and 2-PAM (Pralidoxime) 600 mg in a single injector
**Onset:** rapid
**Duration:** variable
**Action:** Atropine is used for its property of drying secretions. 2-PAM reactivates cholinesterase inactivated by the poisoning. The destruction of the accumulated acetylcholine allows neuromuscular junctions to regain normal function.
**Indications:**
Nerve agent or organic phosphate poisoning

**Contraindications:**
Hypersensitivity to contents

**Possible Side Effects:**
Tachycardia
Seizure (some kits may contain a valium auto injector to be used after three doses of 2-PAM

**Dosage:**
Adult: Auto- injector IM. One, two or more rounds may be required depending on symptoms and exposure
Peds: Adult Duo-Dote Auto-injector Not indicated for Age < 15 years or Wt < 50kg

# Epinephrine

**Onset:** Rapid
**Duration:** 20-30 minutes
**Action:** Direct stimulation of cardiac muscle increasing the strength of ventricular contraction, increasing heart rate, constricts arterioles. It also acts on smooth muscle of the bronchi to achieve bronchial dilatation. It acts on both beta and alpha receptors.

**Indications:**
Cardiac arrest
Anaphylaxis
Severe Asthma or bronchospasm
Shock / hypotension

**Contraindications:**
None in Cardiac arrest.
Be cautious in age 35 or greater.
Use with caution in COPD

**Possible Side Effects:**
Tachydysrythmias
Cardiac Ischemia
Hypertension

**Dosage:**
Adult:
Asthma or Anaphylaxis = 1:1,000 0.3 mg IM repeat in 10 minutes max 3 doses
Cardiac Arrest = 1:10,000 1mg IV/IO/ET q 3-5 minutes.
Epi drip:1 mg (1:1000 or 1:10,000) epi in 1 liter NS/LR run wide open, titrate back to effect. **If available use 60 gtts tubing for ease of titration.**
Pediatric:
Asthma or Anaphylaxis = 1:1,000 0.01mg/kg IM to max dose 0.3 mg
Cardiac Arrest = 1:10,000 0.01mgkg IV/IO/ET q 3-5 minutes.
Croup or Stridor = 1 – 2 mg 1:1000 in 3ml saline nebulized

# Fentanyl

**Onset:** 1 minute (IV), 7-8 minutes (IM)
**Duration:** 0.5-1 hour (IV), 1-2 hours (IM)
**Action:** Binds to specific opioid receptors in CNS, inhibiting pain pathways, altering pain perception, and increasing pain threshold.

**Indications:**
Analgesia

**Contraindications:**
Hypersensitivity to Fentanyl
Myasthenia gravis

**Possible Side Effects:**
Respiratory depression or arrest
Bradycardia
Nausea/Vomiting
Muscle Rigidity
Dizziness, euphoria, sedation

**Dosage:**
Adult: 50-100 mcg IV/IO/IN/IM
Pediatric: 1 mcg/kg IV/IO/IM/IN (max single dose 100mcg)

# Glucagon

**Onset:** 5-15 minutes
**Duration:** 15minutes – 2 hours
**Action:** Converts liver glycogen stores to glucose. Also as antidote to calcium channel blocker and beta blocker overdose
**Indications:**
Severe hypoglycemic episode when able to give IV or PO glucose
Calcium Channel / Beta blocker overdose

**Contraindications:**
Hypersensitivity to Glucagon
Caution in patients with adrenal gland tumors

**Possible Side Effects:**
Nausea/ Vomiting
Hives
Diarrhea

**Dosage:**
Adult 1mg IM/IN
Pediatric 0.05 mg IM/IN

# Glucose / D50

**Onset:** Minutes
**Duration:** Variable highly dependent on metabolism and body stores
**Action:** solution of glucose readily available to the body
**Indications:**
Hypoglycemia

**Contraindications:**
Hypersensitivity to Dextrose preparation
Intracranial hemorrhage

**Possible Side Effects:**
Phlebitis
Hyperglycemia

**Dosage:**
Adult 12.5 – 25 grams (1/2-1 amp) IV/IO may be repeated for profound hypoglycemia
Peds 1 - Adult: Dilute to D25 give 2-4 cc/kg IV/IO. (Procedure 36)
Peds age 0 - 1: Dilute to D12.5 give 2-4 cc/kg IV/IO. (Procedure 36)

# Ketamine / Ketalar

**Onset:** 30 seconds (IV), 3-4 minutes (IM)
**Duration:** 10-20 minutes (IV), 15-30 minutes or more (IM)
**Action:** works in brain to inhibit painful sensations and as a dissociative agent
NMDA receptor blocker
**Indications:**
As an induction agent for RSI
As a dissociative agent in behavioral emergencies
As pain medication in extreme pain

**Contraindications:**
Uncontrolled Hypertension
Hypersensitivity to medication
Caution in Head Injury (increased ICP)

**Possible Side Effects:**
Hallucinations more commonly on emergence
Nausea, vomiting
Increased salivation
Hypertension

**Dosage:**
Adult: 0.3-2 mg/kg IV/IO, 1-2 mg/kg IM (may repeat x1)
Pediatric: 0.3-2 mg/kg IV/IO, 1-4 mg/kg IM (may repeat x1)

# Lidocaine

**Onset:** rapid
**Duration:** 10-20 minutes
**Action:** Anti-arrhythmic agent shortens the refractory period and suppresses ectopic foci.
**Indications:**
Cardiac: For ventricular dysrhythmias
Trauma: To blunt transient rise in intracranial pressure with laryngoscopy
Topical: as a local anesthetic

**Contraindications:**
Hypersensitivity to "caine" medications
AV Blocks
WPW
Shock

**Possible Side Effects:**
Arrhythmia – including cardiac arrest
Seizure
Hypotension
Unconsciousness
Bradycardia
Respiratory Distress
Nausea / Vomiting

**Dosage:**
Adult and Pediatric: 1 – 1.5 mg/kg IV/IO to max dose of 3.0 mg/kg
Lidocaine drip 2mg/min IV/IO: (Mix 2 amps (200 mg) Lidocaine in a 250 bag NS and run at 150ml/hr with a dial a flow)

Topically may apply to device being inserted (Endotracheal tube, Nasogastric tube)

# Magnesium

**Onset:** rapid
**Duration:** 30 minutes – 4 hours
**Action:** Central nervous depressant, suppressing seizure activity. Also reduces muscle contractions by interfering with acetylcholine. Promotes bronchodilatation by same method
**Indications:**
Torsades de Pointes
Severe Preeclampsia
Eclampsia
Severe Bronchospasm refractory to inhaled bronchodilators

**Contraindications:**
Hypersensitivity to Magnesium
Heart Block
Impaired kidney function

**Possible Side Effects:**
Hypotension
Flushing
Respiratory Paralysis – especially if pushed to fast
Depressed Reflexes
Heart Block

**Dosage:**
Adult: Cardiac: 2 grams IV/IO
Eclamptic Seizure: 4 grams IV/IO
Respiratory: 2 grams IV/IO over 10 minutes (2 grams in 250 cc NS/LR run wide open with 60 gtts tubing)
Peds: 50mg/kg IV/IO (max 2 grams)

# MARK 1 Kit (optional)

**Contents:** Atropine 2mg auto injector and 2-PAM (Pralidoxime) 600 mg
**Onset:** rapid
**Duration:** variable
**Action:** Atropine is used for its property of drying secretions. 2-PAM reactivates cholinesterase inactivated by the poisoning. The destruction of the accumulated acetylcholine allows neuromuscular junctions to regain normal function.
**Indications:**
Nerve agent or organic phosphate poisoning

**Contraindications:**
Hypersensitivity to contents

**Possible Side Effects:**
Tachycardia
Seizure (some kits may contain a valium auto injector to be used after three doses of 2-PAM

**Dosage:**
Adult: Auto injector atropine then 2-PAM. One, two or more rounds may be required depending on symptoms and exposure

# Morphine

**Onset:** 1-5 minutes IV, 10-30 minutes IM
**Duration:** 20 minutes – 4 hours
**Action:** an opiate derivative that is a potent centrally acting analgesic. A schedule II narcotic
**Indications:**
Severe or Acute Pain
Acute Pulmonary edema

**Contraindications:**
Hypersensitivity to Morphine
Respiratory depression or insufficiency
Head injuries or increased intracranial pressure

**Possible Side Effects:**
Respiratory depression or Apnea
Hypotension
Nausea and/or Vomiting
Sedation
Euphoria
Dizziness
Disorientation
Facial flushing
Venous irritation

**Dosage:**
Adult: 2-10 mg IV/IO/IM
Pediatric: 0.1 mg/kg IV/IO/ IM

# Naloxone / Narcan

**Onset:** 1-2 minutes IV, 2-5 minutes IM
**Duration:** 45 minutes
**Action:** A pure narcotic antagonist. It prevents or reverses the effects of opiates/narcotics by competing for the same receptor sites

**Indications:**
Reversal of known or suspected narcotic overdose

**Contraindications:**
Hypersensitivity to Narcan

**Possible Side Effects:**
May cause an abrupt withdrawal syndrome

**Dosage:**
Adult: 0.4-4 mg IV/IN/IO/IM/ET Repeat as needed to obtain adequate respiratory status
Pediatric: 0.1 mg/kg IV/IN/IO/IM/ET Repeat as needed for adequate respiratory status

# Nitroglycerine / Nitrostat

**Onset:** 1-3 minutes
**Duration:** 30-60 minutes
**Action:** Relax smooth muscle to create arterial and venous dilation
**Indications:**
Acute angina, chest pain, myocardial infarction
Congestive heart failure

**Contraindications:**
Hypersensitivity to nitro
Hypotension
Use of Viagra type medications in the last 72 hours

**Possible Side Effects:**
Headache
Hypotension
Skin Flushing

**Dosage:**
Adult: 0.4 mg SL repeated as needed q 5 minutes to max of three doses, hold for systolic BP<100.
Pediatric: Contact Medical Control

# Racemic Epinephrine

**Onset:** 1-5 minutes
**Duration:** 1-3 hours
**Action:** bronchodilator and vasoconstrictor
**Indications:**
Stridor of the upper airway as in severe Croup

**Contraindications:**
Hypersensitivity to racemic epi

**Possible Side Effects:**
Headache
Tachycardia
Agitation

**Dosage:** 2.25% unit dose vial of 0.5ml mixed with 3 ml NS
Administer unit dose vial via nebulizer.

**Note:** Alternatively a quick nebulized solution of 1-2 ml of epinephrine 1:1000 mixed with 3cc NS may be used when racemic epinephrine is not available

# Sodium Bicarbonate

**Onset:** Rapid
**Duration:** 1-3 hours
**Action:** Combines with excess acid to raise pH. Alkalizes urine in Tricyclic overdose
**Indications:**
Severe metabolic acidosis
Excited Delirium
Tricyclic antidepressant overdose
Crush Injury

**Contraindications:**
Hypersensitivity to Sodium Bicarbonate
Age < 3 months

**Possible Side Effects:**
Cerebral edema

**Dosage:**
Adult Cardiac arrest: 50 meq
Crush Injury: Sodium Bicarb 50 meq in 1 liter NS IV over 30 min
Excited Delirium: Chilled NS with 1 amp Sodium Bicarb in 1000ml NS run ½ bag bolus IV

Peds: 1meg/kg IV/IO (max dose 50 meq)

# Solu-Medrol/Methylprednisolone

**Onset:** 1-2 hours
**Duration**: 8-24 hours
**Action:** Immune suppression in a hyper-inflammatory state
**Indications:**
Moderate to Severe Respiratory Distress (COPD, Asthma, inflammatory processes)
Moderate to Severe Allergic Reaction

**Contraindications:**
Hypersensitivity to Solu-Medrol
Caution in hyperglycemia

**Possible Side Effects:**
Elevated Blood Glucose levels
Headache
Hypokalemia
Immunosuppression
Gastric Ulceration

**Dosage:**
Adult : 62.5-125mg IV/IO (max dose 125 mg)

Peds: 1mg/kg IV/IO (max dose 125 mg)

# Tylenol/Acetaminophen

**Onset:** 30 min
**Duration:** 4-6 hours
**Action:** An antipyretic or pain medication
**Indications:**
For fever in febrile seizure protocol
Pediatric Acute pain

**Contraindications:**
Liver Disease
Known allergy
Unable to take medications by mouth

**Possible Side Effects:**
Hypothermia
Nausea

**Dosage:**

Peds: 15 mg/kg PO

# Valium/Diazepam

**Onset:** 1-5 minutes IV
**Duration:** 15-60 min
**Action:** Anti epileptic (anti seizure)
Depresses the C.N.S.

**Indications:**
Seizure

**Contraindications:**
Known Allergy or hypersensitivity
Respiratory Depression in non seizure state

**Possible Side Effects:**
Drowsiness
Hypotension
Bradycardia
Nausea and/or Vomiting
Respiratory depression.

**Dose:**

Adult: (Not currently in protocol) 5-20 mg slow IV push in 5 mg increments.

Children: 0.3 mg/kg IV/IO (max dose 5 mg)
Rectal: Double the IV dose

# Versed / Midazolam

**Onset:** 2-5 minutes IV/IN, 5-15 minutes IM
**Duration:** 2-6 hours
**Action:** A benzodiazepine CNS depressant used in seizure control, sedation, chemical restraint, and for amnestic effects
**Indications:**
Major motor Seizure
Sedation
Induction

**Contraindications:**
Hypersensitivity to Versed
Pregnancy
Neonates
Airway precautions in drug or alcohol use.

**Possible Side Effects:**
Drowsiness
Hypotension
Respiratory depression

**Dosage:**
IntraNasal Device: Adult and pediatric dosage is 0.3 mg/kg to a max of 10 mg split evenly between each nostril.
For seizure: Adult 5-10 mg IV/IO/IM/IN (Max dose 10mg)
Peds 0.3 mg/kg IV/IO/IM/IN(max dose 10 mg)
Post intubation sedation: 0.04 mg/kg IV

# Zofran / Ondansetron

**Onset:** 5-30 minutes
**Duration:** 2-6 hours
**Action:** An antiemetic
**Indications:**
Nausea
Vomiting

**Contraindications:**
Hypersensitivity to Zofran/Ondansetron

**Possible Side Effects:**
Diarrhea
Anxiety
Fatigue
Cold sensation

**Dosage:**
4mg IV/IO/PO may be repeated in adult to maximum of 12 mg
Pediatric 0.1 mg/kg IV/IO/PO max dose 12 mg

*** for AEMT only ***
Zofran 4 mg PO (age > 17 or Age > 12 and Wt >40 KG) 1 dose only