

GRANT COUNTY, NEW MEXICO EMS CLINICAL PROTOCOLS



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TABLE OF CONTENTS

Introduction-----5

ENVIRONMENTAL PROTOCOLS

Bites, Non-Venomous -----8
Bites, Venomous-----9
Hyperthermia-----10
Hypothermia-----12
Near Drowning-----14

MEDICAL PROTOCOLS

Abdominal Pain-----16
Altered Mental Status -----17
Anaphylactic Reaction -----19
Airway Management -----21
Behavioral Emergencies -----23
Cerebrovascular Accident -----25
Dehydration -----26
Diabetic Emergencies -----27
Do Not Resuscitate Orders -----28
Hypertension -----30
Nausea/Vomiting -----31
Obvious Death Criteria -----32
Pain Management Guidelines -----34
Poisoning/Overdose -----36
Post-Intubation Sedation-----37
Refusal of Treatment/Transport -----38
Respiratory Distress (Asthma, COPD) -----39
Respiratory Distress (Pulmonary Edema, CHF) -----41
Restraint & Transport Involuntary -----42
Restraint Use -----44
Seizure (Adult)-----46
Sepsis-----47
Sexual Abuse/Assault -----48

Shock General-----	49
Syncope -----	51
Termination of Resuscitation -----	52

OB/GYN PROTOCOLS

Childbirth -----	54
Childbirth (Imminent Delivery) -----	55
Childbirth Complications-----	56
Newborn Care -----	58
Pre-Eclampsia -----	60

PEDIATRIC PROTOCOLS

Apparent Life-Threatening Event (ALTE) -----	62
Refusal of Treatment/Transport (Pediatric)-----	63
Respiratory Distress (Pediatric) -----	64
Respiratory Distress (Croup)-----	66
Respiratory Distress (Epiglottitis)-----	67
Seizure (Pediatric) -----	68
Trauma Assessment (Pediatric) -----	70
Trauma Treatment Field Management -----	72

TRAUMA PROTOCOLS

Amputations -----	75
Burns (Thermal Injuries) -----	76
Burns (Chemical Injuries) -----	78
Crush Injuries -----	79
External Hemorrhage Control -----	80
Eye Injuries -----	81
Head Injuries -----	82
Spinal Immobilization -----	83
Traumatic Brain Injury (TBI)-----	85
Trauma (Multi-system) -----	86
Trauma Cardiac Arrest-----	88
Trauma Designation-----	90

CARDIAC PROTOCOLS

Atrial Fibrillation with RVR/Atrial Flutter -----	92
Bradycardia -----	93
Chest Pain -----	94
Cardiac Arrest (Medical) -----	96
Cardiac Arrest (Asystole) -----	99
Cardiac Arrest (PEA) -----	100
Cardiac Arrest (V-fib, Pulseless VT) -----	101
Cardiogenic Shock -----	103
EKG Transmission -----	105
Tachycardia (Narrow) -----	106
Tachycardia (Wide) -----	108
Team CPR Guidelines -----	109

INTRODUCTION TO PROTOCOLS

From the Medical Director

Protocols are means of standardizing clinical care in the most common and most serious medical and traumatic cases. They are not exhaustive or all inclusive. Where no protocol exists it is incumbent on the EMT to utilize their training and experience within their Scope of Practice to make clinical decisions. On-line medical control is a resource that should be utilized when appropriate. Protocols provide detail where memory is likely to be inadequate to make decisions about interventions such as drug doses. In that regard they should be readily available for reference while on a medical or traumatic call.

These protocols carry the patient from initial encounter through transport and turnover to the next provider. An EMT's job is not simple and not easy. You are called upon to make assessments and treatment decisions often in hostile or troubled environments with patients sometimes similarly hostile or troubled. Impaired patients can be common.

It is incumbent on EMTs to establish the safety of a scene before entering it.

In-route to a call the EMTs should be assigning roles in the management of the patient and the scene. This is called 'Pit Crew' practice and it is especially important in manpower intensive cases such as 'CPR in progress'.

All patients should have a complete assessment to the degree that the patient will allow it and time allows. This assessment should include but not be limited to:

Dispatch information that was given prior to arrival.

The patient's Chief Complaint(s) and relevant immediate history.

An assessment of immediate life and limb threatening problems and appropriate interventions.

The patient's immediate and past medical history including allergies and medications. Here "SAMPLE" and "PQRST" are appropriate.

A secondary head to toe assessment of the patient for other occult problems.

A diagnostic summary of the clinical problems present.

Appropriate treatment decisions and their implementation.

Proper turnover of the patient with report and time. Proper radio reporting may be necessary with the receiving facility.

After initiation of interventions the patient needs to be monitored for response to care and possible deterioration of condition until turnover.

Details of medication administration are worth mention. The EMT should prepare and draw up their own medications to ensure that the proper medication is delivered to the correct patient at the appropriate time in the correct dose and by the proper route. The drug reference section contains more detail than the protocols do concerning medications and procedures. For example, IO Lidocaine is not specified in protocol, it is standard practice in conscious patients, but is detailed in the drug section.

All aspects of the patient encounter will be recorded in an organized fashion on an approved 'PCR' by the end of the EMT's shift. The DCHART method is preferred but the SOAP method is acceptable. This includes dispatch information; the mechanism of injury if appropriate, the patient's chief complaint(s) and immediate history, the detailed past medical history, the primary problems and interventions, the secondary survey, the overall treatment of the patient and transport decisions and the proper turnover of the patient. All times should be recorded.

Refusal of patient care requires the same level of documentation with clear documentation of efforts to encourage treatment especially where serious conditions may exist. Impaired patients may not sign refusal forms and a decision needs to be made if involuntary transport is necessary.

Controlled substances will be handled carefully and properly and use well documented. Proper reporting of use and wastage and restocking is essential.

Errors in care will be appropriately documented and reported along the proper chain of command within the appropriate department. No EMT is perfect and errors will occur.

I wish the best for each EMT in the practice of medicine in the streets.

Gregory Koury, M.D.
Grant County Medical Director

Environmental

BITES / NON-VENOMOUS ANIMAL, HUMAN

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: local pain, swelling, and lacerations.

EMPHASIS ON PATIENT CARE

1. Scene safety, control of bleeding, prevent further contamination
2. Remove patient to a safe area for assessment and treatment.
3. Primary Management - Assess airway, breathing and circulation and manage as indicated.
4. Secondary Management - History, physical exam, vital signs
5. Irrigate the wound with sterile solution.
6. Have someone attempt to find the animal and check vaccination history. If the bite was from a human, if possible, ascertain the identity and medical history of the person.
7. Do not attempt to secure animal. Leave it to Law Enforcement or Animal Control Officers. All animal bites must be reported. This will normally be done at the medical facility.
8. Transport the patient to an appropriate medical facility.
9. If patient exhibits signs and symptoms of shock, follow Shock Treatment Guidelines.

BITES / VENOMOUS

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any one or all of the following: pain, local swelling, puncture wounds, bleeding at site, tachycardia, tachypnea, vomiting, abdominal pain, numbness at extremities, and headache. Rapid onset of signs and symptoms indicate a major envenomation.

EMPHASIS ON PATIENT CARE

Scene safety, control of bleeding, prevent further contamination. Do not cut and attempt to remove poison. Do not use any type of cryotherapy on bite wound.

1. Assess the scene for safety. Remove patient to a safe area for assessment and treatment.
2. Primary Management - Assess airway, breathing and circulation and manage as indicated.
3. Manage bite wound and extremity:
 - A. Remove jewelry from affected limb.
 - B. Stabilize extremity and place at a level of the heart.
 - C. Immobilize the bitten extremity
 - D. Irrigate bite with sterile isotonic solution or sterile water.
 - E. Keep below the level of the heart
4. Initiate transport to an appropriate medical facility.
5. Consider calling poison control
6. Secondary Management - History, physical exam, vital signs
 - a. Obtain history of bite.
 - i. Try to safely identify type of animal.
 - ii. Ascertain time of bite and onset of signs and symptoms.
 - b. Keep patient calm and still.
7. If anaphylaxis develops, see **Anaphylactic Reaction Treatment Guidelines**

AEMT / PARAMEDIC

1. In route, initiate IV/IO access in an unaffected extremity; if necessary, titrate isotonic solution to end organ perfusion determined by patient condition.
2. Treat pain per Pain Management Protocol

HYPERTHERMIA

DESIGNATION OF CONDITION

Hyperthermia is considered a sustained core temperature of greater than 101° F (38.3° C), with thermoregulatory mechanisms failing around 105.8° F (41° C). This condition can result from environmental exposure, exertion, medications, or illness. Signs and symptoms include any or all of the following: muscle cramps, weakness, exhaustion, dizziness, fainting, altered level of consciousness, unresponsiveness, and rapid heart rate. Skin may be moist or dry, and normal, cool, or hot. The most severe sign of hyperthermia is an altered level of consciousness.

EMPHASIS ON PATIENT CARE

ALL LEVELS:

1. Primary Management - Assess ABC'S and manage as indicated. Use humidified O2.

2. Rapid cooling is essential. Techniques will vary depending on level of patient's condition: Heat Cramps, Heat Exhaustion, or Heat Stroke. Any heat related condition with an altered level of consciousness should be treated as Heat Stroke and transported.
 - a. Move patient to a cool, shaded area
 - b. Remove patient's clothing and cool patient with wet sheets; low-pressure water hoses may be used to continually re-wet patient
 - c. Manually fan patient to promote cooling by evaporation
 - d. Apply insulated cold packs to neck, axilla, and groin
 - e. DO NOT pack in ice. Dangerous reversal to hypothermia may occur
 - f. If able to take oral fluids carefully begin oral rehydration with carbohydrate/electrolyte drink mixes if patient is alert

3. Secondary Management - History, physical exam, vital signs

HYPERTHERMIA (Continued)

AEMT:

1. Establish an IV of NS or LR and fluid bolus to maintain adequate end organ perfusion, consider 1L fluid bolus and repeat as needed for dehydration or tachycardia. Establish a second IV at same rate if acute hyperthermia is present.
2. If nausea and vomiting present treat with Ondansetron (Zofran) 4 mg PO (ODT)/IV

PARAMEDIC:

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently

Extremes of age are more prone to heat emergencies. Obtain and document patient temperature if able. Predisposed by use of: TCA anti-depressants, phenothiazines, anticholinergic medications and alcohol. Cocaine, amphetamines, and salicylates may elevate body temperature. Sweating generally disappears as body temperature rises above 104 F (40C). Intense shivering may occur as patient is cooled. Heat cramps consists of benign muscle cramping, secondary to dehydration and is not associated with an elevated temperature.

Heat exhaustion consists of dehydration, salt depletion, dizziness, fever, AMS, headache, cramping, nausea and vomiting Vital signs usually consist of tachycardia, hypotension and elevated temperature. Heat stroke consists of dehydration, tachycardia, hypotension, temperature > 104 F (40 C) and AMS.

Symptoms			
Heat Exhaustion		Heat Stroke	
Normal mental status	Clammy skin	AMS	Dilated pupils
Thready pulse	Muscle cramps/ spasms	Hot, dry skin (<25% is moist)	Tachycardia
Slightly elevated temperature	Dizziness	Temperature often >104 F (40 C)	
Nausea / Vomiting	Muscle cramps / spasms	Arrhythmias	

HYPOTHERMIA

ALL LEVELS

DESIGNATION OF CONDITION

Mild hypothermia: core body temperature is between 94° and 97° F (34-36° C). *Moderate hypothermia:* core body temperature 86 and 94° F (30-34° C). Patients with mild to moderate hypothermia may exhibit signs and symptoms of shivering, tachycardia, tachypnea, decreasing LOC, lethargic (may be fully oriented), and loss of fine motor coordination. *Severe hypothermia:* core temperature < 86° F (30° C) with signs and symptoms of pupil dilation, bradycardia, bradypnea, coma, no shivering, arrhythmia, and joint stiffness.

To change Celsius to Fahrenheit: $1.8 \times C + 32$ (example: $30 \text{ c} * 1.8 + 32 = 86\text{oF}$)

EMPHASIS ON PATIENT CARE

Maintenance of body heat, airway management. LOC is the most reliable indicator of the severity of hypothermia.

1. Primary Management- Assess ABC's and manage as indicated.
2. Remove patient from the environment.
3. Remove all wet clothing.
4. Secondary Management - History, physical exam, vitals signs
5. Managing mild to moderate hypothermia.
 - a. Administer warmed, humidified oxygen titrated to patient condition.
 - b. If patient becomes hypoxic, administer oxygen and/or assist ventilations as needed.
6. Avoid rough handling when moving the patient.
7. Cover with blankets, preferably warmed.
8. Monitor the patient's vital signs and rhythm closely.
9. Transport the patient to appropriate medical facility.

AEMT

1. En-route, initiate a large bore IV/IO of warm/tepid isotonic solution and infuse at a rate to maintain adequate end organ. In severe hypothermia IV fluid administration should be done with caution to avoid after-drop effect of circulating acidotic/toxic peripheral blood to the heart and brain.

HYPOTHERMIA (CONTINUED)

PARAMEDIC

1. Airway management should be limited to basic manual procedures and slow ventilatory assistance. If unable to manage the airway by basic maneuvers, adjuncts may be used, however this may induce ventricular dysrhythmias and overzealous ventilatory assistance can induce hypocapnia, resulting in ventricular irritability.
2. If ventricular arrhythmia develops may attempt defibrillation once.
3. Subsequent defibrillations or additional cardiac life support medications should be avoided until the patient has been re-warmed in the emergency department. Warm the patient's core first to avoid after-drop effect. Ventilating patient via mouth to mask may be the most effective core warming device available pre-hospital.

NEAR DROWNING

ALL LEVELS

DESIGNATION OF CONDITION

Includes a history of being submerged under water for an excessive period of time resulting in potential cardiopulmonary compromise

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC's and manage as indicated.
2. Begin artificial respirations in the water, taking C-spine precautions. Stabilize C-spine prior to moving from water if any suspicion of a potential head or neck injury exists.
3. If hypothermia is present or suspected, refer to **Hypothermia Treatment Guidelines**.
4. If water temperature is < 6°C (43°F) and submerged;
 - a. <90 minutes: full resuscitation
 - b. >90 minutes: do not initiate resuscitation
5. If water temperature is >6°C (43°F) and submerged:
 - a. <30 minutes: initiate full resuscitation
 - b. >30 minutes: do not initiate resuscitation
6. Secondary Management - History, physical exam, vital signs
 - a. History of incident including:
 - How long was patient submerged?
 - Fresh, polluted or salt water
 - **Diving accident (suspect C-spine injury)**
 - Water temperature
 - Pre-existing medical conditions

AEMT

1. En-route, initiate a large bore IV/IO of an isotonic solution and infuse at a flow rate to maintain adequate end organ perfusion.
2. If cardiac arrest occurs, follow Medical Cardiac Arrest Treatment Guidelines.

PARAMEDIC

1. ECG monitor
2. Monitor patients' vital signs and continue to reassess
3. Transport to appropriate facility

Assess and document patient's mental status and vital signs prior to and post-medication administration.

Medical Protocols

ABDOMINAL PAIN

ALL LEVELS

DESIGNATION OF CONDITION

Includes a chief complaint of moderate to severe abdominal pain from either medical or traumatic causes

EMPHASIS ON PATIENT CARE

Airway management, adequate perfusion, and transport

1. Primary Management - Assess ABC's and manage as indicated.
2. Initiate transport to appropriate medical facility in position of comfort.
3. Secondary Management - History, physical exam, vital signs
4. Consider possible causes:
 - a. Gastrointestinal disorders
 - b. Blunt or penetrating trauma
 - c. DKA
 - d. Pancreatitis
 - e. Ruptured aneurysms or aortic dissection
 - f. Renal stones
 - g. Acute Myocardial Infarction
 - h. Sexually transmitted disease

Any female of **childbearing age** who presents with abdominal pain, and signs & symptoms of shock, is considered to have suffered a ruptured **ectopic pregnancy**.

AEMT / PARAMEDIC

1. En-route, initiate IV/IO access; if necessary, titrate isotonic solution to end organ perfusion; may use one or two large bore IV/IOs (determined by patient condition) of an isotonic fluid
2. Analgesics per pain management guidelines if stable vital signs
3. If nausea and/or vomiting is present administer:
 - a. **ONDANSETRON** (Zofran) 4mg IV/IO or PO (ODT) Max. 8 mg.
 - b. Peds > 6mo Ondansetron (Zofran) 0.15 mg/kg IV/IO or 2mg PO
 - i. >2yo Zofran 4mg PO
4. Apply cardiac monitor if > 50 y/o and upper abdominal pain

ALTERED MENTAL STATUS

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: limited or no response to verbal or painful stimuli, inappropriate responses, irrational behavior and unable to ascertain causation.

EMPHASIS ON PATIENT CARE

Airway management, adequate perfusion

1. Primary Management - Assess ABC's and manage as indicated. If occult trauma is possible, consider spinal restriction.
2. Secondary Management - History, physical exam, Vital Signs
3. **Perform glucometry**
 - a. If the glucose is < 60 mg/deciliter and associated signs and symptoms of hypoglycemia, follow **Diabetic Emergencies Treatment Guidelines**.
 - b. If the glucose is > 60 mg/deciliter and narcotic overdose suspected, follow: **Poisoning/ Overdose Treatment Guidelines**.
4. If narcotic overdose or hypoglycemia is not suspected, transport the patient without delay to an appropriate medical facility.
5. If no AEMT/ALS capability, radio for AEMT or ALS intercept.
6. If patient exhibits signs and symptoms of shock, follow **Shock Treatment Guidelines**.
7. Transport with head elevated 30-45 degrees
8. Evaluate AMS using Cincinnati Pre-hospital Stroke Scale (CPSS)
9. **NALOXONE** 0.4 mg IV/IM/IO/IN for suspected narcotic overdose with respiratory depression, may repeat x5. **Consider possible causes of AMS:**
 - A- Alcohol / Acidosis
 - E- Endocrine / Epilepsy / Electrolytes / Encephalopathy I-
 - Infection
 - O- Opiates / Overdose U- Uremia
 - T- Trauma I-
 - Insulin
 - P- Poisoning / Psychosis S-
 - Stroke

ALTERED MENTAL STATUS (Continued)

AEMT / PARAMEDIC

8. Initiate IV access; if necessary, titrate isotonic solution to end organ perfusion
9. Consider IO access if patient condition warrants and peripheral IV site is unobtainable.

Note: Dextrose administration may be harmful for patients with ischemic brain injury. However, dextrose should never be withheld in any patient suspected of hypoglycemia. When in doubt, treat for hypoglycemia if unable to perform glucometry.

- Titrate use of Naloxone in patients with respiratory depression to avoid transition to combative behavior by patient.
- Use appropriate discretion regarding immediate intubation of patients who may quickly regain consciousness, such as hypoglycemic after administration of dextrose or opiate overdoses cases after administration of Naloxone.

CINCINNATI PREHOSPITAL STROKE SCALE (CPSS)

Facial Droop

Normal: Both sides of face move equally

Abnormal: One side of face does not move at all

Arm Drift

Normal: Both arms move equally or not at all

Abnormal: One arm drifts compared to the other

Speech

Normal: Patient uses correct words with no slurring

Abnormal: Slurred or inappropriate words or mute

Interpretation: If any 1 of these 3 signs is abnormal, the probability of a stroke is 72%.

ANAPHYLACTIC REACTION

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any one or all of the following: wheezing associated with bronchoconstriction and/or stridor associated with upper airway edema, tachycardia, tachypnea, dyspnea, diminishing lung sounds, diaphoresis, tripod positioning, facial swelling, hives, shock and perhaps a history of severe allergies. Respiratory involvement may or may not occur in all cases of anaphylaxis. Be aware of “silent chest” presentation in cases of severe respiratory distress associated with poor air exchange.

EMPHASIS ON PATIENT CARE

Maintenance of airway, adequate oxygenation, adequate perfusion

1. Primary Management - Assess ABC's and manage as indicated.
2. Rapidly transport the patient to an appropriate medical facility. Consider AEMT or ALS intercept.
3. Secondary Management - History, physical exam, vital signs
4. Remove injection mechanism if still present and treat wound.
5. If patient exhibits respiratory distress:
 - a. Administer **EPINEPHRINE 1:1000** [0.3mg] IM from a pre-measured, pre-filled device or IM using 0.3 ml. syringe with 1”1/4 inch needle to anterolateral thigh. If needle length does not allow IM injection administer SQ.
 - b. If available, consider administration of pre-measured inhalation device.
 - c. Consider administration of **ALBUTEROL** [2.5 - 5 mg] by nebulizer

NOTE: EMT-Basics may not administer Epinephrine 1:1000 to PEDIATRIC patients weighing less than 10 kg **without medical direction**.

AEMT

Treatment should continue at the AEMT and PARAMEDIC as follows:

1. Adult - administer **EPINEPHRINE 1:1000** [0.3mg] IM anterolateral thigh. May be repeated once in 10 minutes if hypotension or severe SOB is still present.
 - a. **PEDIATRIC** - admin. **EPINEPHRINE 1:1000** [0.01 mg/kg] IM anterolateral thigh. Refer Respiratory Distress – PEDIATRIC SOB Guideline.
2. Adult - consider **DIPHENHYDRAMINE** [25-50 mg] slow IV/IO/IM.
 - a. **PEDIATRIC** - consider **DIPHENHYDRAMINE** [1mg/kg] slow IV/IO or deep IM with a max dose of 50 mg.

ANAPHYLACTIC REACTION (Continued)

3. Consider **METHYLPREDNISOLONE** [125 mg] for adults, for PEDIATRICS [1mg/kg] IV/IO infusion over 5 minutes. Refer Respiratory Distress – PEDIATRIC SOB Treatment Guidelines.
4. Keep in Mind that the administration of METHYLPREDNISOLONE in the field should NEVER delay transport as effects from this medication will not be apparent until hours after administration
5. Enroute, initiate a large bore IV/IO of an isotonic solution titrated to maintain end organ perfusion.

Age	Systolic Blood Pressure (mm Hg)
Term neonates (0 to 28 days)	< 60
Infants(1 to 12 months)	< 70
Children (1 to 10 years)	< 70 + (age in years x 2)
Children(> 10 years)	< 90

PARAMEDIC

1. If there is a marked decrease in blood pressure or the patient is displaying signs & symptoms of respiratory and/or cardiovascular collapse
 - a. Adult - administer **EPINEPHRINE 1:10,000** 0.3-0.5 mg slow IV/IO
 - a. PEDIATRIC - administer **EPINEPHRINE 1:10,000** 0.01 mg/kg slow IV/IO
 - b. Bolus at 10-20 mL/kg of an isotonic fluid
 - b. Repeat **EPINEPHRINE 1:10,000** 0.3 mg IV/IO every 10 minutes if condition persists
2. Push Dose Epinephrine – Two Options
 - a. Option 1 (When 100 mL bag of NS is available)
 1. In the patient with severe anaphylaxis who is not responding to Epinephrine and fluid resuscitation, IV Epinephrine should be administered.
 2. Inject 1 mg. (1 ml.) of 1:1,000 Epinephrine into a 100 ml. bag of NS and mix well. Draw out 10 ml. giving you a concentration of 1:100,000.
 3. Administer 1 mL (10mcg) each minute as needed until symptoms improve.
 - b. Option 2 (When 100 mL bag of NS is unavailable – uses Epi 1:10,000 abboject)
 1. Expel 9 mL of Epinephrine 1:10,000 out of abboject leaving 1 mL (0.1mg) in abboject
 2. Draw up 9 mL of Normal Saline making concentration of 100mcg in 10mL.
 3. Administer 0.5 – 1 mL (5-10 mcg) each minute as needed over 5 minutes or until symptoms improve.

AIRWAY MANAGEMENT

ALL LEVELS

DESIGNATION OF CONDITION

The patient is not breathing, not breathing adequately, or experiencing agonal respirations with inadequate rate and/or depth. See Foreign Body Airway Obstruction Protocol if obstruction suspected.

EMPHASIS ON PATIENT CARE

Maintain a patent airway and assist ventilations

1. Primary Management - Assess ABC's, manage as indicated.
2. If respirations are inadequate or absent, maintain **airway patency** by:
 - a. Positioning maneuvers as indicated by patient condition (jaw thrust, sniffing position, ramped if spine clear)
 - b. Suction as needed (oropharynx, nasopharynx, or stoma)
 - c. Place Nasopharyngeal airway (NPA), Oropharyngeal airway (OPA)
 - d. Oxygen
 - e. Continuous SpO₂ and EtCO₂
 - f. CPAP up to 10 cm PEEP
 - g. Assist respiration with BVM 10-12 bpm as needed
 - h. Place Supraglottic Airway SGA/EGA (extraglottic airway)
3. If available may consider Positive Pressure Ventilatory Devices (PPVD) and Automatic Transportable Ventilators (ATV).
4. Ensure that the ventilatory device is connected to a supplemental oxygen source, if available, using an adequate oxygen flow (8-12 LPM with an oxygen concentration $\geq 40\%$).

PARAMEDIC

1. Laryngoscopic visualization with oral endotracheal intubation
 - a. May attempt x 2
 - b. If you do not have confirmation of ETT placement with capnograph waveform or are unsure of ETT location remove tube and BLS airway or place SGA/EGA.
2. Nasotracheal intubation (blind or visualized if breathing)
 - a. If you do not have confirmation of NTT placement with capnograph waveform or are unsure of NTT location remove tube and BLS airway or place SGA/EGA.
3. Stoma intubation
4. Surgical cricothyrotomy

AIRWAY MANAGEMENT (Continued)

5. CPAP PPVD Operation:

- a. If the patient is not intubated, make sure the PPVD mask is properly sealed on the patient's mouth and nose. If the patient is intubated, connect the device to the tube.
- b. Ventilate the adult patient at a rate of 10-12 bpm, with inspiratory time of 1 - 2 seconds if supplemental oxygen is available. If supplemental oxygen is not available, use an inspiratory time of 2 seconds. Inspiratory/expiratory times should be at a 1:2 ratio.
- c. For infants, ventilate at 20-30 bpm, with an inspiratory time of 0.5 - 1.0 seconds and for children, 12 - 20 bpm at 1 - 1.5 seconds.
- d. Auscultate lung sounds and watch for symmetric chest rise.
- e. Avoid inspiratory pressures >20 cm H₂O in non-intubated patients which can lead to gastric distention or barotrauma. Cricoid pressure should be considered.
- f. Continuously monitor the ventilatory device to ensure there are no malfunctions of equipment or use.
- g. Airway adjuncts should be monitored for proper placement.
- h. Pulse oximetry (including room air SAO₂), end-tidal CO₂ detectors (ETCO₂) and capnometry/capnography is the standard for tube placement verification.

Note: For PEDIATRICS refer to the PEDIATRIC specific treatment guidelines

BEHAVIORAL EMERGENCIES

ALL LEVELS

DESIGNATION OF CONDITION

The patient will have an altered mental status with associated inappropriate actions. Signs and symptoms may include: threatened or attempted suicide, aggression, hallucinations, delirium, or any action that could cause harm to the patient or others. If the EMS provider makes a good faith judgment that the patient is incapable of making an informed decision about his/her own safety or the need for medical attention and is reasonably likely to suffer disability or death without medical intervention the patient should be transported to a medical facility

EMPHASIS ON PATIENT CARE

Provider safety, transport decisions

1. Primary Management - Assess airway, breathing and circulation and manage as indicated.
 - a. If evidence of immediate danger/severe agitation/delirium exists:
 - i. Protect yourself and others (leave the scene, if necessary).
 - ii. Request law enforcement.
 - iii. Show of force utilizing law enforcement should be considered if indicated by patient behavior and if necessary to render care.
 - iv. Special Skills Paramedic only for Ketamine.
 - v. KETAMINE 2-4 mg./kg. IM. Maximum dose 4 mg./kg. (100 mg./ml. vial) and is recommended for severely agitated patients.
 - vi. MIDAZOLAM 2-5 mg IM/IV/IN, may repeat x1. 10 mg. IM acceptable for large agitated patients.
 - vii. Pulse oximetry and capnography are mandatory during transport for any patient receiving medication for restraint.

BEHAVIORAL EMERGENCIES (Continued)

- b. If no evidence of immediate danger/severe agitation/delirium exists:
 - i. ONE EMT should be responsible for assessing, treating, and communicating with patient.
 - ii. The SAME EMT should remain with patient during transport.

- 2. Secondary Management - History, physical exam, vital signs
 - a. Pertinent medical history, if possible including:
 - i. Prescription and non-prescription drugs.
 - ii. Underlying organic cause, i.e. brain tumor, chemotherapy, closed head injury, hypoglycemia, hypoxia, shock, toxin consumption.
 - iii. Previous psychiatric problems

- 3. Transport
 - a. Transport the patient in position of comfort, if not contraindicated by injuries.
 - b. Keep environment as quiet as possible.
 - c. If Paramedic administers Ketamine he/she must accompany patient in ambulance unless a Ketamine Special Skills approved Paramedic available in the ambulance.

Note: Use physical/chemical restraint only if necessary for protection of EMS providers or the patient. Do not attempt to restrain until you have sufficient resources.

A minimum of four people is necessary to assure adequate protection to the rescuers and patient during the restraint process. If restraints have been applied, do not release until transfer at the hospital. A restrained patient will always have an EMT in attendance.

CEREBROVASCULAR ACCIDENT (CVA)

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: disorientation, weakness or paralysis to one side, excessive drooling, facial drooping, unequal pupils, difficulty in speaking, elevated BP, headache, and/or seizures. Pt. may have a past history of CVA or TIA.

EMPHASIS ON PATIENT CARE

Maintain adequate perfusion, adequate oxygenation, and transport quickly to the nearest stroke center. If the patient's choice of hospital is not a stroke center educate the patient in regards to the appropriate care that only the Stroke Center can offer. If the patient still insists on being transported to a Hospital that is not a stroke center then transport the patient to the hospital of the patient's choice and document reason.

1. Primary Management - Assess ABC's and manage as indicated.
2. Perform Cincinnati pre-hospital stroke assessment (see below)
3. Establish timeline of onset of symptoms. Establish and communicate to hospital the "Last Known Well Time" (LKWT).
4. **TRANSPORT** the patient to the closest **STROKE CENTER if onset is <6 hours.**
5. Obtain blood glucose level.
6. Obtain blood draw (labs)
7. Secondary Management - History, physical exam, vital signs
8. Notify the receiving facility that you are en route with a suspected stroke patient.

AEMT

1. IV or Saline Lock

PARAMEDIC

1. Cardiac Monitor and obtain 12 lead

The Cincinnati Prehospital Stroke Scale (CPSS)

Abnormal Speech: Have the patient say "you can't teach an old dog new tricks"

Normal – patient uses correct • words with no slurring

Abnormal – patient slurs words, • uses the wrong words, or is unable to speak

Facial Droop: (have patient show teeth or smile):

Normal – both sides of face • move equally

Abnormal – one side of face • does not move as well as the other side

Arm Drift: (patient closes eyes and extends both arms straight out for 10 seconds):

Normal – both arms move the • same or both arms do not move at all (other findings, such as pronator drift, may be helpful)

Abnormal – one arm does not • move or one arm drifts down compared with other.

If any 1 of the 3 assessments is abnormal, the probability of a stroke is **72%**

DEHYDRATION

ALL LEVELS

DESIGNATION OF CONDITION

The patient has experienced an abnormal loss of body fluids. Diarrhea, vomiting, profuse sweating, hyperthermia, or a decrease in fluid intake may cause this condition.

Signs and symptoms may include any or all of the following:

Lethargy, dry skin, mucous membranes, disoriented, weak, tachycardia, hypotension, weak or absent radial pulses, cool and clammy skin, diaphoresis, pallor, nausea and vomiting, rapid and shallow respiration. In the pediatric patient: sunken fontanel, fever, crying without tears, diminished number of wet diapers, recent history of diarrhea, lethargic.

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC's and manage as indicated. Use humidified O₂.
2. Transport the patient as soon as possible to the nearest medical facility.
3. Secondary Management - History, physical exam, vital signs
4. Treat underlying causes (**See applicable guidelines**).
5. Consider use of oral hydration fluids if the patient is conscious and able to self-protect the airway.

AEMT/PARAMEDIC

1. Enroute, initiate one or two large bore IV's of an isotonic solution. Bolus the patient with 20 mL/kg and infuse at a flow rate to maintain adequate end organ perfusion.
2. Utilize a Buretrol IV set on PEDIATRIC patients and bolus at 20 mL/kg repeating as necessary. Consider intraosseous (IO) access if the patient's condition warrants.

DIABETIC EMERGENCIES

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: Hypoglycemia altered mental state, seizures, unconscious, drooling, skin is pale and moist, confused, agitated, sudden onset, headache. Hyperglycemia – hot skin, acetone/fruity breath, Kussmaul respirations, polyuria, polydipsia, and polyphagia. There may be a history of recent injury, illness or unusual exertion. Though usually occurring in IDDM, this may also occur in NIDDM. Consider other causes of symptoms.

EMPHASIS ON PATIENT CARE

Maintain adequate perfusion, glucose replacement if hypoglycemic

1. Primary Management - Assess ABC's and manage as indicated.
2. Secondary Management - History, physical exam, vital signs

Perform glucometry, if available.

3. If Blood Glucose Level (BGL) < 60 mg/dL: or registers "LOW"
 - a. If the patient is conscious and able to self-protect the airway, administer 15gm oral glucose. Reassess BGL after administration.
 - b. If the patient is unconscious, initiate transport and consider AEMT/ALS intercept for intravenous glucose administration.

If BGL is > 200 mg/dL or registers "HIGH":

- a. Protect the patient's airway, administer oxygen, assist ventilations if indicated and consider AEMT/ALS intercept for IV fluids.
- b. If no change in mental status, transport as soon as possible to an appropriate medical facility.

AEMT / PARAMEDIC

1. If the patient has an altered mental state and glucose level is <60 mg/dl:
 - a. Initiate an IV / IO of an isotonic solution and bolus at 20 mL/kg. if associated dehydration or signs of poor perfusion are present
 - b. Administer 12.5 to 25 gm slow IV /IO push into patent line, if patient is unable to protect airway or tolerate oral fluids. May be repeated as needed. Be prepared to restrain. May be given rectally (paramedic only)
 - c. If unable to obtain IV access, consider GLUCAGON [0.5 - 1 mg], IM, or SQ.
 - d. Pediatric: Dilute 1:1 with sterile saline to make 25% solution (0.25 mg/ml) Give [0.5 - 1.0 g/kg] slow IV push. May be given rectally (paramedic only).
 - e. Neonates: Use a 10% Dextrose solution (dilute 50ml D50 in 500ml bag of D5W) at [0.2 gm/kg].

DO NOT RESUSCITATE ORDERS (DNR)

ALL LEVELS

DESIGNATION OF CONDITION

Resuscitation attempts should be initiated until the DNR order, POLST (Physician Ordered Life Sustaining Treatment) or bracelet/medallion and identification are presented. If a family member or other caregiver has "**DURABLE POWER OF ATTORNEY**" they should be consulted for instructions on patient care or withholding patient care.

These guidelines pertain only to patients with valid and verifiable "Advanced Directives".

EMPHASIS ON PATIENT CARE

Verification of documents, **Medical direction involvement**

1. EMS personnel shall follow EMS DNR Orders or Durable Powers of Attorney when encountering persons in pre-hospital settings in accordance with State Regulations and local EMS protocols.
2. EMS procedures for verifying EMS DNR Orders include:
 - a. Primary Assessment - Perform initial primary assessment: ABC's
 - b. Verify identification by:
 - i. Using a driver's license or other signed photo identification; or
 - ii. Identification by a family member; or
 - iii. Positive third-party identification by someone who knows the person
 - c. Verify the existence of an EMS DNR Order or POLST for the person, using the following indicators:
 - i. EMS DNR Order signed by patient and physician
 - ii. Intact DNR Necklace or bracelet
 - iii. POLST: physician order for life sustaining treatment
 - summarizes the patients' wishes in the form of medical order If
 - iv. If the patient has a hospital DNR or DNR status is documented in the patients chart and there is no objection from the family, EMS may honor the DNR after discussion with MCEP or the patients physician.
 - d. If there is any question about the validity of an EMS DNR Order, or there is any indication of an attempted homicide, initiate resuscitation until such time that the questions have been answered. **Contact medical direction** for consultation.

DO NOT RESUSCITATE ORDERS (CONTINUED)

ALL LEVELS

3. EMS procedures for implementing EMS DNR Orders include:
 - a. For all persons, the following procedures may be initiated for the comfort of the person **if they have not been refused by the person or by the authorized health care decision- maker**, by:
 - i. Administer oxygen by mask or cannula
 - ii. Suctioning
 - iii. BLS Airway management only
 - iv. Administering analgesics (EMT-A, EMT-P)
 - v. Controlling bleeding
 - vi. Making patient comfortable
 - vii. Comfort family
 - b. For persons in cardiac or respiratory arrest, resuscitative measures that may be **withheld** depending on DNR Orders or POLST could include:
 - c. External chest compression
 - d. Artificial ventilations, intubation or other advanced airway maneuvers
 - e. Defibrillation/external cardiac pacing
 - f. Administration of cardiac medications
 - g. Artificial respiration
4. EMS procedures for implementing Durable Powers of Attorney include:
 - a. Primary Assessment - Perform initial primary assessment ABC'.
 - b. Verify identification by:
 - i. Using a driver's license or other signed photo identification; or,
 - ii. Identification by a family member; or,
 - iii. Positive third-party identification by someone who knows the person
 - iv. Verify the identification of the person identified in the Durable Power of Attorney as the authorized health care decision-maker.
 - c. Follow that person's instructions as authorized by the Durable Power of Attorney.
 - d. If there is any question about the validity of a Durable Power of Attorney, or there is any indication of an attempted homicide, initiate resuscitation until such time that the questions have been answered. If possible, contact **medical direction** for consultation.

HYPERTENSION

ALL LEVELS

DESIGNATION OF CONDITION

The patient may be experiencing hypertension sufficient to produce clinical end organ dysfunction most commonly in the cardiovascular system, CNS, and kidneys. Diastolic pressure usually exceeds 110 mmHg. Systolic pressure exceeding 220 mmHg and showing symptomatic signs. Common presentations may include: chest pain, CHF, blurred vision, and confusion.

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC's and manage as indicated.
2. Initiate transport to appropriate medical facility.
3. Consider ALS intercept.
4. Secondary Management - History, physical exam, vital signs

AEMT / PARAMEDIC

1. En-route, initiate IV/IO access.
2. Treat other findings (chest pain, CHF) according to the appropriate guidelines.
3. Most hypertensive patients are asymptomatic and DO NOT require pre-hospital interventions to lower blood pressure.
4. If hypertensive patient is symptomatic contact Medical Control.

NAUSEA / VOMITING

ALL LEVELS

DESIGNATION OF CONDITION

Any patient who is complaining of nausea and/or actively vomiting

EMPHASIS ON PATIENT CARE

Airway management, adequate oxygenation, evaluation of underlying causes

1. Primary Management – ABC's and have suction available. If patient is in spinal protocol, turn patient to one side, maintain spinal restriction manually.
2. Secondary Management - History, physical exam, and vital signs:
 - a. Check orthostatic vital signs
 - b. CHECK BLOOD GLUCOSE.
 - c. SAMPLE history
 - d. Assess skin turgor and evaluate for dehydration

AEMT

1. Initiate an IV/IO of isotonic crystalloid
2. Consider fluid bolus (250-500mL) as dictated by patient condition
3. Consider an Antiemetic
 - a. **ONDANSETRON** (Zofran): 4 mg slow IV/IO/IM or PO (ODT) may repeat x1
 - b. PO Zofran may be followed by an IV dose of 4 mg. if not responding. Max 8 mg
 - Pediatric 0.1mg/kg IV/IO/IM or 2 mg PO if > 2 y/o 4 mg if >4 y/o
 - c. **PROMETHAZINE** (Phenergan) 12.5-25 mg IV/IO to be diluted in 100 ml of NS administered as a piggy back on a patent IV, or 25-50 mgs Deep IM

PARAMEDIC

1. ECG monitor
2. Monitor patients' vital signs and continue to reassess
3. Transport to appropriate facility

Be sure to assess and document patient's mental status and vital signs prior to and post medication administration.

OBVIOUS DEATH ON SCENE CRITERIA

ALL LEVELS

RESUSCITATION EFFORTS SHOULD BE WITHHELD UNDER THE FOLLOWING CIRCUMSTANCES:

1. Valid New Mexico Do Not Resuscitate Order present: Refer to Do Not Resuscitate (DNR) & Physicians Orders (POLST)
2. Scene Safety: The physical environment is not safe for providers to treat patient.
3. Pt is Dead on Arrival (DOA): A person is presumed dead on arrival when all five "Signs of Death" or at least one associated "Factor of Death" present.

MINIMUM SIGNS OF DEATH (All FIVE signs of death must be present)

1. Unresponsiveness.
2. Apnea.
3. Absence of palpable pulses at carotid artery.
4. Unresponsive pupils.
5. Asystole is recorded on the Cardiac monitor in all three (3) leads.

FACTORS OF OBVIOUS DEATH

1. Damage or destruction of the body incompatible with life, such as:
2. Decapitation
3. Decomposition
4. Deforming brain injury
5. Incineration or extensive full thickness burns
6. Lividity/Rigor mortis of any degree.
7. Major blunt or penetrating trauma.
8. Exanguination

Patients with ventricular assist devices (VAD) should not be pronounced dead at the scene.

SUDDEN UNEXPLAINED INFANT DEATH (SUID)

An infant <12 months who is apneic, asystolic (no heartbeat or umbilical cord pulse), and exhibiting lividity and/or rigor mortis may be presumed dead.

NEONATE

A neonate who is apneic, asystolic, and exhibits either neonatal maceration (softening or degeneration of the tissues after death in utero) or anencephaly (absence of a major portion of the brain, skull, and scalp) May be pronounced dead.

Contact MEDICAL CONTROL if gestational age is <24 weeks and the neonate shows signs of Immaturity (translucent and gelatinous skin, lack of fingernails, fused eyelids)

OBVIOUS DEATH ON SCENE CRITERIA

(Continued)

When efforts to resuscitate are not initiated or are terminated EMS providers shall:

1. Document time that efforts are stopped or when you decided not to start efforts.
2. Notify law enforcement, who will alert the Office of Medical Investigation.
3. Consider the possibility of a crime scene and restrict access.
4. Any decision to move the body must be made in collaboration with law enforcement and the medical examiner.
5. Leave any resuscitation adjuncts such as advanced airway devices, IV/IO access devices, electrode pads, etc., in place.
6. Inform family on scene of patient's condition and offer to contact family, friends, clergy, or other support systems.

DOCUMENTATION

1. Complete a patient care report in all cases. Include ECG rhythm strips and code summary with the patient care report.
2. Document special orders including DNR, on-line **MEDICAL CONTROL**, etc.
3. MCI conditions may require a triage tag in addition to a PCR.
4. Record any special circumstances or events that might impact patient care or forensic issues.
5. Document everything you observed and assessed during patient contact.
6. In adults prolonging resuscitation efforts, beyond 30 minutes without ROSC is usually futile unless cardiac arrests compounded by hypothermia or submersion in cold water.
7. EMS providers are not required to transport every victim in cardiac arrest to a hospital. Unless special circumstances are present, it is expected that most resuscitations will be performed on scene until ROSC or a decision to terminate resuscitation efforts is made based on the listed criteria. Transportation with continuing CPR is justified if hypothermia is present or suspected. Current AHA guidelines state: "termination of resuscitative efforts in the out of hospital setting...should be standard practice".
8. An ETCO₂ level of 30 mmHg or less measured 20 minutes after the initiation of advanced cardiac life support accurately predicts irreversible death in patients in cardiac arrest.

PAIN MANAGEMENT GUIDELINES

ALL LEVELS

Routine Patient Care. Consider all patients as candidates for pain control regardless of transport time. Assess pain severity. Have the patient rate his/her pain from 0 -10. Document value each time pain is assessed. Non-pharmacological control: Splint injury; apply ice pack.

Use distraction techniques: engage patient in conversation, etc. Call for Paramedic intercept, for moderate to severe acute pain (scale-4), if ALS is not available, call for AEMT intercept.

Listed below is the framework of intent for EMT-Intermediates and EMT-Paramedics to administer Ketamine (Paramedic Only Special Skill) or controlled substances within their Scope of Practice. **Fentanyl is preferred agent for pain control and morphine is listed for completeness and if fentanyl is unavailable.**

AEMT

USE OF CONTROLLED SUBSTANCES

1. In a poly-trauma patient if the patient is in severe enough distress that analgesia would provide a better assessment and allow overall improved patient management, then selective analgesia may be provided with vigilant hemodynamic monitoring. Contact medical control for specific orders.
2. Narcotic analgesics are generally given to a patient with isolated injuries and stable vital signs or an assessment consistent with kidney stones, gallstones, or isolated musculoskeletal etiology.
3. Antidote: For Hypoventilation from Opiate administration by EMS personnel, administer
 - a. NALOXONE 0.4-2.0 mg SQ/IV/IO/IM/IN
 - b. Pediatric: NALOXONE 0.01 mg/kg to 0.1 mg/kg IV/IO/IM/SQ/IN up to 2 mg total dose.
4. No narcotic analgesic should be given to any pregnant patient without first discussing the possible ramifications with on-line medical direction.
5. Any administration outside this realm should be done with on-line MEDICAL CONTROL

PAIN MANAGEMENT GUIDELINES CONTINUED

6. If the patient becomes nauseated in conjunction with administration of narcotic analgesics consider administration of an anti-emetic agent:
 - a. ONDANSETRON (Zofran) [4 mg] IV, PO (ODT) or deep IM for adults, or [0.1mg/kg] IV or deep IM for PEDIATRIC.
 - b. PROMETHAZINE (Phenergan) 12.5-25 mg IV/IO to be diluted in 50 ml of NS administered as a piggy back on a patent IV, or 25-50 mg Deep IM

7. The use of narcotics for pain control by AEMT must be done with the approval of medical control.

PARAMEDIC

No preference for analgesic (Ketamine versus Narcotics) is indicated by the order in this page.

ADMINISTRATION OF KETAMINE

1. Paramedic only Special Skill

Adult/Pediatric

0.20 mg./kg. slow IV/IO push over one to two minutes. (10 mg./ml. vial)

May repeat times one in 5 minutes.

0.20 mg./kg. IM. May repeat times one in 10 minutes. (10 mg./ml. vial)

ADMINISTRATION OF CONTROLLED SUBSTANCES

Adults

1. **FENTANYL** 50 – 100 mcg IV/IM/SQ/IN q 5 min until no longer tolerated or pain control achieved.
 - a. For severe pain may use weight-based dosing: Fentanyl 0.5-1mcg/kg
2. **MORPHINE** 4 mg IV/IM/SQ q 15 min to maximum of 10 mg.

Pediatric

1. **FENTANYL** 1 mcg/kg q 5 minutes until no longer tolerated or pain control achieved.
2. **MORPHINE** 0.1mg/kg q 15 min may repeat x2 for a total of 3 doses

NOTES:

Ketamine and opiate analgesics may be combined if patient is otherwise a candidate for opiate analgesics. Ketamine preferred as initial agent when support of vital signs (blood pressure and pulse) important such as in trauma patients. Ketamine is effective in controlling pain-associated anxiety when used as an analgesic. Any patient receiving Ketamine will be accompanied by the administering Paramedic in the ambulance unless a Ketamine Special Skills Paramedic is available in the ambulance.

POISONING / OVERDOSE

ALL LEVELS

DESIGNATION OF CONDITION

Evidence of inhalation, ingestion, or injection of a substance causing an untoward effect. Signs and symptoms may include any one or all of the following: respiratory depression, apnea, tachycardia, bradycardia, cardiac arrhythmia's, altered mental status, unconsciousness, nausea, vomiting, and cardiac arrest.

EMPHASIS ON PATIENT CARE

Airway management, adequate oxygenation and maintain adequate perfusion

1. Primary Management - Assess ABC's and manage as indicated.
2. Secondary Management - History, physical exam, vital signs
 - a. If medication overdose, ascertain:
 - i. Amount of and type
 - ii. Time taken
 - iii. Accidental vs. intentional
 - iv. Mixed OD
 - v. History of underlying illness, if appropriate
 - vi. Treatment prior to arrival
 - b. If poisoning: Identify the following
 - i. Substances and quantity taken and bring medications with you to the hospital.
 - ii. Method taken
 - iii. Underlying conditions
 - iv. Has the patient vomited?
3. Contact Poison Control [**1-800-222-1222**] and transport the patient to an appropriate medical facility. Consider ALS intercept.
4. If narcotic overdose is suspected with serious signs and symptoms:
 - i. Administer **NALOXONE** 0.4 mg IM, SQ or [2 mg (1 mg per nostril)] IN, may repeat every 2-5 min. [0.4 mg increments] until 2 mg has been administered. Contact Medical Control if more than 2 mg is needed.
5. If organophosphate overdose or symptomatic exposure with serious signs and symptoms:
 - i. Administer **ATROPINE** 1 mg IV q 5 min for bronchorrhea.
 - Pediatric **ATROPINE** 0.04 mg/kg IV q 5 min for bronchorrhea

POST INTUBATION SEDATION

DESIGNATION OF CONDITION

After endotracheal intubation of a patient, paramedic providers may use sedation to maintain and facilitate patient airway management while transporting to help avoid post intubation complications. Sedation plus analgesia may be used concomitantly. Monitor for hypotension and be prepared to bolus w/ NS if needed. SpO₂ EKG and EtCO₂ monitoring mandatory during sedation.

PARAMEDIC

Maintenance of sedation:

1. **MIDAZOLAM** (Versed): 5-10 mg IV/IO Q 10 min as needed
 - A. (pediatrics dose: 0.1 mg/kg/dose Q 30 min, max 0.2 mg/kg)

Analgesia

1. **FENTANYL**: 1 mcg/kg IV/IO Q 15 min;
 - A. (Peds dose: 2 mcg/kg/dose)

OR

2. **MORPHINE**: 5-10 mg IV/IO Q 30 min
 - A. (Peds dose: 0.1-0.2 mg/kg/dose Q 30 min).

REFUSAL OF TREATMENT / TRANSPORT (ADULT)

ALL LEVELS

DESIGNATION OF CONDITION

A competent adult (18 years or older) may refuse any or all treatment or transport at any time. If patient is not capable or lacks the capacity to make rational decisions, follow **Involuntary Restraint and Transport Guidelines**. All refusal patients must be evaluated, vital signs obtained (if possible), and informed of the situation and the potential life threat or disability.

EMS refusal of care represents one of the highest liability exposures that an

EMS Provider will ever face. All refusals should be carefully documented.

Consider having medical control speak directly with patient by cell phone or radio.

EMPHASIS ON PATIENT CARE

Provider safety, transport decisions

1. Primary Management - Assess airway, breathing and circulation and manage as indicated.
2. Perform Secondary Management including (if patient allows):
 - a. Inform patient of her/his medical condition, potential injury or illness and the potential ramifications if treatment and transport are refused.
 - b. Assure the patient fully understands what you are saying.
 - c. Attempts to inform should be done in the presence of a witness, i.e. family members, bystander, or Police Officer (preferably not a member of the EMS service).
 - d. Obtain the patient's signature on refusal and patient information for report.
 - e. Have a witness sign below in appropriate place.
 - f. Even though you have obtained a signature, take reasonable steps to protect patient by calling a friend or family member to attend to patient.
3. All agencies within Grant County have the ability to cancel response of another other agency. If a first response agency is giving GREMS the option to cancel consider the following:
 - a. As much patient information as possible should be reported to GREMS, to include patients chief complaint, pertinent assessment findings and full set of vitals (if obtainable).
 - b. GREMS may request the canceling agency's personnel identifiers (unit number, badge number, name, etc) for documentation purposes.
 - c. GREMS may choose to not cancel response and continue to scene if they so choose.

RESPIRATORY DISTRESS (ASTHMA, COPD)

ALL LEVELS

DESIGNATION OF CONDITION

Constriction of the small airways of the lungs resulting in bronchoconstriction, increased secretions and wheezing. The patient will almost always have a pertinent history and will be suffering from some degree of dyspnea. Wheezing may not be present and lack of wheezing with decreasing breath sounds is often a sign of impending respiratory arrest. Signs and symptoms may include any or all of the following: inspiratory wheezing, rapid and/or shallow respiratory rate, nasal flaring, and use of accessory muscles. Patient may complain of difficulty in breathing, and cyanosis may be present. LOC may be decreased, diminishing or silent bilateral lung sounds, wheezing, stridor, and/or sternal retractions. The patient may be tachycardic, diaphoretic, with tripod positioning. "See Saw" breathing may be present in children.

EMPHASIS ON PATIENT CARE

1. Airway maintenance, adequate oxygenation
 - a. COPD SpO₂ goal 88-92% all other conditions >94%
2. Primary Management - Assess ABC'S and manage as indicated.
3. Initiate transport to an appropriate medical facility.
4. Consider CPAP as an early intervention (Basic level).
5. Secondary Management - History, physical exam, vital signs
6. If patient is in moderate to severe respiratory distress and acute asthma or emphysema is suspected:
 - a. Adults - administer **ALBUTEROL** [2.5 - 5.0 mg] and **ATROVENT** [0.5mg], diluted in 2.5mL of a sterile isotonic solution, over a 5-15 minute period. Some patients may need continuous nebulizer treatment during the entire transport. Providers are encouraged to deliver nebulized **ALBUTEROL** and **ATROVENT** via bag valve mask for patients who are unable to provide effective respiratory exchange. Do not delay transportation waiting for the medication to take effect.
 - b. Children – Refer to the Respiratory Distress – Pediatric SOB Treatment Guidelines.
7. If no improvement and the patient is refractory to other treatments, administer **EPINEPHRINE** 1:1,000 [0.3mg] using a pre-measured, pre-filled device or 0.3mL TB syringe IM/SQ

RESPIRATORY DISTRESS (ASTHMA, COPD)

(Continued)

AEMT

1. Consider CPAP early.
2. En-route, initiate an IV/IO of isotonic solution at a TKO rate
3. Consider **METHYLPREDNISOLONE** [125mg] IV/IO for adults.

PARAMEDIC

1. **Consider CPAP early.**
2. If no relief is noted and the patient is unable to exchange oxygen due to bronchoconstriction:
 - a. Adult - administer **EPINEPHRINE 1:1,000** [0.3mg.] IM in lateral thigh
 - b. **PEDIATRIC - Respiratory Distress – PEDIATRIC SOB Treatment Guidelines.**
3. Consider **MAGNESIUM SULFATE** [2 grams/10 min] IV infusion in adults.
4. Consider **METHYLPREDNISOLONE** [125mg] IV/IO for adults.
5. Do not delay transport while administering Albuterol. You may continue treatment en-route to hospital. Monitor respiratory rate and depth closely. Avoid hyperinflation of the chest and lungs during positive pressure ventilation.
6. Do not delay transport to administer Methylprednisolone. Onset of action is several hours and effects will not be observed in the field.

CAUTION: Administration of Beta-agonists to patients with coronary artery disease. Obtain ECG and Contact **MEDICAL CONTROL** for medication orders if in doubt.

PEARLS:

RAD: Reactive Airway Disease.

- Beware of patients with a "silent chest" as this may indicate severe bronchospasm and impending respiratory failure.
- Remember that not all wheezing is caused by asthma and that not all asthmatics wheeze.
- Patients with congestive heart failure may present with lung sounds that mimic asthma ("cardiac wheeze").

RESPIRATORY DISTRESS PULMONARY EDEMA/CHF

ALL LEVELS

DESIGNATION OF CONDITION

Patient presenting with signs, symptoms, and history of moderate to severe dyspnea and or poor perfusion secondary to pulmonary edema. Emphasis will be placed on complete assessment of patient and history with treatment of the underlying cause if possible. Caution should be taken in getting a complete history since many of these patients are taking numerous medications for chronic conditions.

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC's and manage as indicated.
2. Titrate oxygen to SpO₂ >94%
3. SpO₂ and ETCO₂ monitoring
4. Initiate transport to an appropriate medical facility.
5. Secondary Management - History, physical exam, vital signs

AEMT

1. In-route, initiate an IV/IO of an isotonic solution and infuse at a flow rate to maintain adequate end organ perfusion.
2. Closely monitor IV drip rate. **DO NOT OVERHYDRATE** the patient.
3. Consider CPAP early.

PARAMEDIC

1. 12 lead EKG
2. Evaluate dysrhythmias and treat per appropriate guidelines.
 - a. May consider **LORAZEPAM** 0.05-0.1 mg/kg to a maximum 4 mg.
 - b. May consider **MIDAZOLAM** 2 mg IV/IN for anxiolysis for CPAP administration.
3. Consider **NITROGLYCERIN** [0.4mg] SL every 5 minutes, if patient is in severe distress, and BP >100 systolic, HR > 60. Must have IV/IO initiated.
4. Consider **MORPHINE SULFATE** 2-10 mg slow IV/IO push.
5. Consider **FUROSEMIDE** (Lasix) [20 mg./ml.]. Only for use in patients that have Furosemide prescribed for them. Dose is two times their prescribed amount. For example, if the patient takes 20 mg. daily administer 40 mg. IV. Maximum dose is 100 mg. IV.

RESTRAINT AND TRANSPORT / INVOLUNTARY

ALL LEVELS

DESIGNATION OF CONDITION

Emergency treatment applies to any age patient. Emergency treatment without consent implies that a **life threat** exists and patient is **mentally incapable** of making decisions on their own behalf. Reasonable force can be used, but only that force **necessary** to treat and transport the patient.

EMPHASIS ON PATIENT CARE

Provider safety, transport decisions

LAW ENFORCEMENT SHOULD NOT PLACE ANYONE IN PROTECTIVE CUSTODY
UNLESS THEY ARE EXPERIENCING A MENTAL HEALTH EMERGENCY

1. Several attempts to gain consent for treatment and transport must be made prior to any attempts to subdue the patient.
2. If the patient meets the following criteria, the EMT may use reasonable force or sedation to treat and transport.
 - a. The patient words or actions indicate that he/she is mentally incapable of making decisions on their own behalf. Such as:
 - i. Displays inappropriate and erratic behavior
 - ii. Patient has inappropriate responses to questions.
 - iii. Evidence of significant drug or alcohol impairment.
 - iv. Disoriented to time, person, place, or event
 - v. Suicide attempt, or talking about attempting suicide or homicide.
 - b. A life-threat is suspected or present.
3. Use the following guidelines to secure and treat the patient.
 - a. Call for law enforcement assistance,
 - b. Have enough personnel to safely secure patient and assure that all personnel are in- formed of plans and are involved.
 - c. Adequately restrain the patient to stretcher or other device, as needed.
 - d. At least two EMTs should be present at all times if the patient is or suspected of being combative.
 - e. Keep bystanders and onlookers away from the patient as they may agitate the patient.
 - f. All resuscitative measures to sustain life may be executed.
 - g. The crew must be in **voice contact** with **MEDICAL CONTROL**.
 - h. Transportation to an appropriate health care facility.

RESTRAINT AND TRANSPORT / INVOLUNTARY (Continued)

4. Document all actions, statements, and responses to your questions that support your decision to treat the patient without consent.

The Non-Patient

For the purposes of refusal of treatment and/or transport there is a subgroup of individuals that constitute the “non-patient”. This is a small group and care should be taken in making the determination that the individual in fact meets the criteria for a “non-patient”. Non-patients still need documentation of their situation that lead to an EMS request and any relevant information concerning potential illness or injury. All demographics should be included. Seriously consider obtaining a formal informed consent refusal when any question of the individual’s actual patient status is present.

A “non-patient” is one that declines all assessment and treatment and meets all of the following criteria:

1. Did not request EMS assistance or an ambulance
2. Presents with no current physical or psychological complaints
3. Has no symptoms, signs, or complaints of an active medical illness or a traumatic injury or evidence of the same
4. Is not impaired in anyway

RESTRAINT USE

ALL LEVELS

Indications:

To provide guidelines on the use of restraints in the field or during transport for patients who are violent or potentially violent or pose a danger to themselves or others. (e.g. to prevent the dislodgement of medical devices or to protect a patient who is confused or disoriented and unable to follow instructions for his/her safety).

Definitions:

Physical Restraint – means a device approved by this service that is used to limit mobility or immobilize a patient in order to protect the patient, crew or others.

Chemical restraint – Means a medication given with the intent to control behavior through sedation. – See Chemical Restraint Protocol

If the EMS provider makes a good faith judgment that the patient is incapable of making an informed decision about his/her own safety or the need for medical attention and is reasonably likely to suffer disability or death without medical intervention the patient should be transported to a medical facility

Precautions:

As a general rule, if a patient needs to be restrained, it should be the responsibility of law enforcement to do so. Use physical restraint only if necessary for protection of EMS providers or the patient. If restraint of the patient is necessary, do not attempt to restrain until you have sufficient resources. A minimum of four people is necessary to assure adequate protection to the rescuers and the patient during the restraint process. If restraints have been applied, do not release until transfer at the hospital.

Policy:

1. Physical restraint must be humane and used only as a last resort. Verbal de-escalation must be attempted first.
2. Restraints applied by law enforcement must allow EMS the ability to assess the patient and provide the patient sufficient slack to take full tidal volume breaths.
 1. If hand cuffs were applied by law enforcement, EMS must have the ability to remove them if needed in an emergent situation and **an officer must accompany the patient.**
3. Physical restraints applied by EMS personnel must be either the soft wrist restraints supplied by the department or transport agency or restraints fashioned out of sheets. Physical restraints must allow the patient to take full tidal volume breaths.
4. Justification of restraint use must be documented in the PCR
5. Any patient who is restrained should be placed on oxygen and monitored through pulse oximetry and end tidal CO₂ at a minimum, whenever possible.
6. Any restrained limb should be evaluated for adequate distal perfusion every 15 minutes
7. The need for the continued use of physical restraints should be re-evaluated every 15 minutes. If continuous physical restraints are necessary, consider consulting MEDICAL CONTROL for the use of chemical sedation.

RESTRAINT USE (CONTINUED)

ALL LEVELS

Consider Behavioral Emergency protocol.

Be prepared to control a patient's airway or provide respiratory support before administering a medication as a chemical restraint.

Any patient who has been given a medication to restrain/sedate must be placed on oxygen end tidal CO2 and the ECG monitor as well as pulse oximetry.

The following forms of restraints shall NOT be used by EMS personnel

1. Hard plastic ties or any commercial restraint
2. Sandwiching a patient between backboards.
3. Restraining patient's hands and feet behind the patient, i.e. hog-tying.

Documentation on the PCR must include the reasons that restraints were used and what type of restraint was used. It should also include who applied the restraints and whether or not they were effective. Information regarding the monitoring of circulation of restrained extremities and the patient's respiratory and hemodynamic status must also be documented on the PCR.

SEIZURE (ADULT)

ALL LEVELS

DESIGNATION OF CONDITION

Most seizures spontaneously end within 5 minutes with a postictal state of varying length, with unconsciousness or altered LOC. These seizures do not require advanced level intervention.

Status epilepticus exists when witnessed seizure activity continues for > 5 minutes or multiple seizures recur without a return to full mental capacity. These types of seizures do require PARAMEDIC intervention. Signs and symptoms may include any one or all of the following: may experience an aura, violent spasms of muscles lasting up to 3 - 5 minutes, incontinence, increased salivation, postictal phase, possible history of drug usage for seizures.

EMPHASIS ON PATIENT CARE

1. Maintain adequate airway, adequate oxygenation, protect patient from harm
2. Primary Management - Assess ABC's and manage as indicated.
3. Secondary Management - History, physical exam, vital signs
4. Initiate transport to an appropriate medical facility, request ALS intercept.
 - a. Determine **blood glucose level**
 - b. Cardiac monitoring
 - c. Monitor the patient's vital signs

AEMT

1. In route, initiate a large bore IV/IO of an isotonic solution at a TKO rate.

PARAMEDIC

1. For **ADULT** status epilepticus administer:
 - a. **MIDAZOLAM [2-4mg]** slow IM/IV/IO/IN. Repeat dose if needed to max of 10mg.
 - b. **DIAZEPAM VALIUM®**: [0.05 – 0.1 mg/kg] IV/IO
 - c. **LORAZEPAM**: [0.05-0.1 mg/kg to a maximum 4 mg].

Draw up medication, attach atomizer and spray into nostril with brisk push.

Initial seizure treatment medications should be given IM or IN do not attempt IV in seizing patient.

SEPSIS

ALL LEVELS

Designation of condition

Severe infectious/inflammatory process occurring generally in older patients but possible in all age groups including infants. Generalized symptoms and signs from an infection that started in a localized form but has spread to involve many organ systems and the body as a whole. Highly lethal.

Criteria for probable sepsis

18 years and older and not pregnant (appreciate that rarely occurs in much younger patients).

At least two of the SIRS (Systemic Inflammatory Response Syndrome) criteria below

Temperature: >38 C (100.4 F) or <36 C (96.8 F)

Heart Rate: >90 beats/min without other explanation. May be higher in small children.

Respiratory Rate: >20 breaths/min without other explanation. May be higher in small children.

And:

Suspected Infection

Systolic BP less than 90. May be lower in small children.

MAP < 65

End tidal CO2 levels equal to or lower than 25 correlated with high lactate levels and can indicate septic shock.

Procedure

Notify hospital of possible septic patient

Administer high flow O2

AEMT/PARAMEDIC

2 large bore IVs of isotonic solution

IV fluid boluses (20 ml./kg. repeated as necessary)

SEXUAL ABUSE / ASSAULT

ALL LEVELS

DESIGNATION OF CONDITION

The patient has been forcefully exploited by another person(s). The force used may be physical violence, threats, mental manipulation, or other forms of psychological force.

EMPHASIS ON PATIENT CARE

Supportive care, management of associated trauma

1. Primary Management - Assess ABC's and manage as indicated.
2. Secondary Management - History, physical exam, vital signs
3. Treat all life threats as indicated.
4. Protect the scene and preserve evidence in cooperation with law enforcement.
5. Encourage patient not to bathe, douche, or change clothes.
6. Do not allow more people than necessary for patient care in contact with the patient or on the scene.
7. This may be a highly emotional and volatile situation; be sure your physical examination and treatments are clearly documented on the PCR.
8. Obtain only information needed to treat the patient. **Do not attempt to investigate the crime.**
9. Transport decisions will be patient dependent.

SHOCK GENERAL

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: disoriented, weak, tachycardia, systolic < 90, weak or absent radial pulses, cool and clammy skin, diaphoresis, pallor, nausea and vomiting, rapid and shallow respirations. For traumatic shock refer to appropriate trauma sections.

EMPHASIS ON PATIENT CARE

Maintain adequate perfusion, oxygenation

1. Primary Management - Assess ABC's and manage as indicated.
 - a. Apply oxygen to keep SpO₂ >94%
 - b. Monitor EtCO₂
2. Transport the patient without delay to an appropriate medical facility.
3. Secondary Management - History, physical exam, vital signs
 - a. Obtain history of incident including:
 - i. Possible underlying medical causes
 - ii. Blunt or penetrating trauma refer to trauma section

NOTE: As much information about the injury should be obtained by EMS personnel to provide a thorough history to the receiving facility. Hospital staff are not able to see the mechanism of injury.

AEMT

1. In route, initiate two large bore IVs of an isotonic solution and infuse at a flow rate to maintain adequate end organ perfusion.
2. Consider treatment for possible underlying, reversible etiologies including volume depletion, tension pneumothorax, pericardial tamponade, spinal shock, and sepsis within appropriate scope of practice.

PARAMEDIC

1. Monitor cardiac rhythm and vital Signs closely
2. Obtain 12 lead ECG.

SHOCK GENERAL (CONTINUED)

3. **If no improvement with fluid bolus, or if fluids are contraindicated because of pulmonary edema administer a vasopressor.**

1. **DOPAMINE HYDROCHLORIDE IV infusion ONLY** – Standard mix 400 mg in 250 ml D5W or NS to produce a concentration of 1600 mcg/ml. Infusion rates [2.0-20.0 mcg/kg/min] titrated to desired effect. (Other concentrations are used, so know what you are using). Use microdrip chamber or an infusion pump

2. **EPINEPHRINE DRIP @ 2-10 mcg/min IV infusion**
 - a. Administer an **Epinephrine drip (2 mg of 1:1000 Epinephrine in 250 ml of NS) and start the drip of 2 ug/min (15 gtts/min). Titrate up to 10 ug/min** or until an acceptable perfusing heart rate and BP are achieved. A second IV line is desired, however, do not withhold medication if second IV is unobtainable.

3. **EPI PUSH-DOSE** – Two Options
 - Option 1 (When 100 mL bag of NS is available)
 1. In the patient with severe anaphylaxis who is not responding to Epinephrine and fluid resuscitation, IV Epinephrine should be administered.
 2. Inject 1 mg. (1 ml.) of 1:1,000 Epinephrine into a 100 ml. bag of NS and mix well. Draw out 10 ml. giving you a concentration of 1:100,000.
 3. Administer 1 mL (10mcg) each minute as needed until symptoms improve.

 - Option 2 (When 100 mL bag of NS is unavailable – uses Epi 1:10,000 abboject)
 1. Expel 9 mL of Epinephrine 1:10,000 out of abboject leaving 1 mL (0.1mg) in abboject
 2. Draw up 9 mL of Normal Saline making concentration of 100mcg in 10mL.
 3. Administer 0.5 – 1 mL (5-10 mcg) each minute as needed over 5 minutes or until symptoms improve.

SYNCOPE

ALL LEVELS

DESIGNATION OF CONDITION

Patient has experienced a temporary loss of consciousness - "Fainting"

EMPHASIS ON PATIENT CARE

1. Airway management, adequate oxygenation, evaluation for underlying cause
2. Primary Management - Assess ABC's and manage as indicated.
3. Secondary Management - History, physical exam, vital signs
 - a. Rule out (see specific guidelines):
 - b. Diabetic emergency (**check blood glucose**)
 - c. Overdose
 - d. CVA
 - e. AMI or arrhythmia
 - f. Head trauma
 - g. Dehydration

AEMT / PARAMEDIC

2. In route, initiate IV/IO access. If patient condition warrants, infuse an isotonic solution at a flow rate to maintain adequate end organ perfusion.
3. Provide constant ECG monitoring. Document findings as appropriate. Obtain 12-lead ECG to rule out cardiogenic etiology

TERMINATION OF RESUSCITATION (TOR)

See Criteria for obvious death on scene.

For Adult patients for whom resuscitation has been initiated EMS personnel may terminate resuscitation in the following circumstances:

BASIC/AEMT:

Medical cardiac arrest:

1. High quality CPR has been performed for 30 minutes
AND
2. AED advised "No shock advised"
AND
3. Paramedic care is > 20 additional minutes to arrival (total of 40 minutes down time).
4. Call medical direction for TOR order

PARAMEDIC:

Medical cardiac arrest:

1. 30 minutes of ACLS care have been provided

AND

All of the following are true

1. There has been no return of spontaneous circulation (ROSC)
2. The arrest was not witnessed by EMS personnel
3. No shockable rhythm was witnessed
4. The patient is in asystole for 10 consecutive minutes or PEA and/or asystole for at least 20 minutes

Traumatic cardiac arrest (blunt or penetrating):

1. Does patient meet dead on scene criteria?
2. Confirm patient is pulseless and apneic
3. Arrest unwitnessed by EMS personnel
4. If trauma is to torso then consider bilateral needle thoracostomy
5. Apply cardiac monitor to determine asystole prior to termination of efforts

Other post-termination procedures:

Contact medical direction for TOR order

Document time that resuscitation efforts were terminated

Contact Law Enforcement or Medical Examiner and do not disturb potential evidence

Remain with deceased until released by law enforcement or medical examiner

Assist surviving loved ones with contacting spiritual support, family or grief resources as needed

OB/GYN Protocols

CHILDBIRTH

ALL LEVELS

DESIGNATION OF CONDITION

Determining imminent birth may include: regular contractions lasting 45 - 60 seconds at 1-2 minutes intervals; crowning occurs; patient feels the urge to bear down or feels she needs to have a bowel movement.

EMPHASIS ON PATIENT CARE

Pre-delivery: Treat the child by treating the mother.

Post-delivery: Maintain warmth and adequate respirations for the baby.

- a. Primary Management - Assess ABC's and manage as indicated.
 - b. Secondary Management - History, physical exam, vital signs
 - c. If delivery is not imminent transport left lateral recumbent.
 - a. Normal childbirth is not an emergency and usually does not warrant emergent transport.
 - d. Obtain medical and obstetrical history including:
 - a. Due date (EDC)
 - b. When did contractions start, how close, bleeding, and does she feel the need to push.
 - c. Previous or present illness, cardiac problems, diabetes, etc.
 - d. Number of pregnancies, live births, and miscarriages (gravida, para, and abortions).
 - e. Patient's age
 - f. Last menstrual period (LMP)
 - g. Complications of prior pregnancies, deliveries, prior C-section.
 - h. Summary of prenatal care
 - i. Use of drugs
2. If birth is imminent and the following conditions present, contact medical control for delivery instructions:
 - a. Multiple births
 - b. Excessive bleeding
 - c. Breech presentation
 - d. Meconium
 3. Consider rapid transport and ALS intercept for the following (see Emergency Childbirth Complications):
 - a. Limb presentations
 - b. Transverse presentation
 - c. Unlikely to deliver vaginally

CHILDBIRTH (IMMINENT DELIVERY)

ALL LEVELS

1. If the birth is imminent in the pre-hospital setting:
 - a. Reassure mother - encourage to not bear down between contractions, but to “pant”.
 - b. Place slight pressure over the head with hand to prevent rapid delivery, but do not attempt to delay delivery.
 - c. Once head delivers, instruct mother to stop pushing.
 - d. Support body as delivery proceeds. Baby will be extremely slippery. DO NOT pull on baby.
 - e. Suction airway with bulb suction.
 - f. Dry and wrap in blanket, cover head. Stimulate the baby to breathe/cry. If baby does not breathe spontaneously, continue stimulation efforts, apply oxygen and prepare to ventilate with BVM.
 - g. If bleeding occurs post-delivery, provide fundal massage to mother’s abdomen/uterus.
 - h. Do not wait on scene for placenta delivery. Do not pull on the umbilical cord (deliver birth products to ED).
 - i. Place sterile pad over vaginal opening.
 - j. Cover mother with clean and dry bedding.
 - k. Record time of the birth.
 - l. **Do not let the neonate become hypothermic.**
2. Transport mother and baby to the nearest hospital. Bring all blood-soaked pads and passed tissue to hospital.
3. Monitor the mother and baby’s vital signs and APGAR at 1, 5 and 10 minutes after delivery.

AEMT

1. If the mother continues to bleed, initiate an IV of LR and infuse at a flow rate to maintain adequate end organ perfusion.

PARAMEDIC

1. If the placenta has delivered, and heavy vaginal bleeding continues, administer **OXYTOCIN** 20 USP units in 500ml Isotonic Solution infuse over 1 hour

CHILDBIRTH COMPLICATIONS

COMPLICATIONS– ALL LEVELS

1. Meconium
 - a. Suction the baby's mouth and pharynx extensively before the first breath, preferably on the perineum, prior to delivery. Use a bulb syringe or DeLee suction
 - b.
2. Nuchal cord (cord is wrapped around the baby's neck)
 - a. Gently pull and slip over the head or shoulders.
 - b. Place 2 fingers between cord and infants neck
 - c. If it will not slip over either, clamp cord twice, and cut between clamps and proceed with delivery.
3. Prolapsed cord
 - a. Place patient in knee-chest position and place 2 fingers in the vagina to support presenting part away from cord until it pulsates.
 - b. Place a moist sterile dressing over cord
 - c. Administer oxygen to mother
 - d. Transport immediately
4. Shoulder dystocia
 - a. Baby's shoulder impacts the anterior symphysis pubis and will not deliver. Turtle sign present
 - b. Position the mother on her left side in a dorsal-knee-chest position to increase the diameter of the pelvis.
 - c. Attempt to guide the infant's head downward to allow the anterior shoulder to slip under the symphysis pubis. Avoid excessive force or manipulation.
 - d. Gently rotate the fetal shoulder girdle into the wider oblique pelvic diameter. The posterior shoulder should deliver without resistance.
 - e. May need to apply posterior pressure just above symphysis pubis to allow shoulder to slip below bony prominence.
5. Vaginal bleeding
 - a. If just delivered perform fundal massage
 - i. Encourage baby to breast feed
 - ii. Transport to hospital
 - b. If not delivered
 - i. Transport in left lateral recumbent position
 - ii. If < 20 weeks or unsure if pregnant suspect miscarriage

CHILDBIRTH COMPLICATIONS (Continued)

AEMT

Establish IV access and provide NS bolus

PARAMEDIC

If the placenta has delivered, and heavy vaginal bleeding continues, administer **OXYTOCIN** 20 USP units in 500ml Isotonic Solution infuse over 1 hour. This is 83 drops per minute on a 10 drop/ml. IV line.

BREECH DELIVERY

1. Pregnant patient in active labor with arm, foot, or buttocks presenting first
 - a. Attempt to establish contact with MCEP or OB for delivery instructions
 - b. The appearance of feet through the vulva does not require immediate delivery. Allow the feet, legs, and buttocks to advance through the vagina before intervening.
 - c. If imminent delivery
 - i. Begin transport to hospital with NICU capability and notify hospital asap.
 - ii. Encourage mother to push hard
 - iii. Support infant's body until the upper back appears.
 - iv. Grasp the iliac wings and apply gentle downward traction
 - v. Guide the infant's body in the direction of least resistance and rotate infant "back up" and deliver scapulae
 - vi. Rotate 90° and deliver shoulder/arm
 - vii. Rotate 180° and deliver opposite shoulder/arm
 - viii. Gently rotate baby so face is down
 - ix. If unable to deliver place fingers on humerus and applying **gentle** traction with two fingers, the arms can be delivered.
 - x. Gentle abdominal compression of the mother's uterus will engage the infant's head. Swing the infant's head upwards until the body is in a vertical position.
 - xi. When the head delivers, suction and wrap the baby.
 - b. If non-imminent delivery
 - i. Apply gentle pressure to presenting part to prevent or slow delivery

NEW BORN CARE

All levels

1. Begin vigorously drying baby.
2. Using clamps or hemostats, clamp the cord, 6-10 inches from baby, 2 - 3 inches apart, then cut between clamps.
3. Immediately after birth if poor tone, slow/absent breathing, and not crying
 - a. Warm baby, suction airway with bulb suction, continue to dry and stimulate.
4. Take baby's pulse at the cord.
 - a. If >100 bpm, observe and continue drying, warming and stimulating. Place on mother's abdomen and encourage mother to nurse the baby.
 - b. Consider blow by oxygen
5. 30 seconds after birth
 - a. if HR < 100, gasping, or apnea begin BVM at 40-60/min
6. 60 seconds after birth
 - a. if HR <100 but > 60, continue BVM
 - b. if HR < 60 begin CPR, continue BVM
7. 90 seconds after birth
 - a. if HR <100 but > 60 continue BVM
 - b. if HR < 60 continue CPR and BVM
8. Do not let the neonate become hypothermic.
9. Once baby is vigorous and crying with good tone and HR >100 bpm
 - a. Wrap in warm blanket and plastic bag
 - b. Obtain Rectal Temperature
 - c. Apply blow-by oxygen if baby still has cyanosis
 - d. Place on mother's abdomen and allow to breast feed if condition permits
 - e. Continue evaluation of baby and mother
 - f. Transport to hospital with OB or NICU capability based on patient condition

AEMT

If newborn is in distress:

1. Establish IV/IO access
2. Glucose check

NEW BORN CARE (Continued)

PARAMEDIC

1. Initiate PALS resuscitation guidelines

Neonate Vital Signs			
Age	Respirations	Pulse	Systolic B/P
Newborn	30-60	100-160	50-70

APGAR				SCORE	
Sign	0	1	2	1	5
				min	min
Skin Color	Blue, pale	Body pink, extremities blue	Completely pink		
Heart Rate	Absent	< 100	>100		
Irritability	No Resp	Grimaces	Cries		
Muscle Tone	Limp	Some flexion of extremities	Active motion		
Resp. Effort	Absent	Slow & irregular	Strong cry		
			TOTAL SCORE		

PRE-ECCLAMPSIA

DESIGNATION OF CONDITION

Pregnant patient complicated by hypertension and characterized by proteinuria, extremity edema, headache, visual disturbances, RUQ abdominal pain and may progress to eclamptic seizures.

ALL LEVELS

1. Assess ABC's and address as appropriate
2. Blood pressure >140/90 or 20 mmHg rise systolic or 10 mmHg diastolic over baseline
3. Keep patient in a left lateral decubitus position and keep away from intense stimulus (i.e. bright lights, loud noises, etc.). Headache, visual problems, abdominal pain or BP > 160/100 indicate more severe disease.
4. Administer OXYGEN titrated to patient condition.
5. Anticipate seizures.
6. Unless delivery is imminent, transport immediately.
7. Eclamptic seizures can occur up to 2 months post-partum

AEMT

1. Establish IV/IO
2. Consider ALS intercept

PARAMEDIC

1. If patient is symptomatic and SBP >170 mmHg or DBP >110 mmHg consider **MAGNESIUM SULFATE** 4 gm./ 20 min
2. If seizure occurs
 - a. **MAGNESIUM SULFATE** 4 gms slow IV/IO
 - b. **MIDAZOLAM** 2-10 mg slow IV/IO/IN/IM
3. For Magnesium Sulfate toxicity, administer CALCIUM PREPERATION [5-10 ml] slow IV/IO. Do not exceed 2ml/min.
4. If patient has a seizure disorder initiate treatment with benzodiazepine initially. If eclamptic seizure suspected treat with magnesium.

Pediatrics

APPARENT LIFE THREATENING EVENT (PED ALTE)

DESIGNATION OF CONDITION

An ALTE is any event in which the infant has appeared to have had respiratory and/or cardiac arrest without seizure, trauma, or obvious other cause. The apnea is associated with color change (cyanosis, gray, or pallor), a loss of muscle tone, and choking or gagging. By definition, patient has recovered and appears well-If patient has not recovered fully, consider appropriate guideline based on patient's condition. All patients with ALTE need transport for evaluation to rule out serious cause. Many will be admitted. Refusals should generally involve online medical direction. ALTE is now referred to as a "BRUE" (Brief Resolved Unexplained Event).

ALL LEVELS

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC'S and manage as indicated.
2. Provide humidified oxygen if SpO₂ <95%
3. Transport to appropriate facility.

PARAMEDIC

1. Apply EKG and treat arrhythmias per appropriate protocol.

REFUSAL OF TREATMENT / TRANSPORT (PED)

ALL LEVELS

DESIGNATION OF CONDITION

Children are unable to refuse treatment and transport on their own behalf. A parent, or guardian, may refuse any part of or all treatment and/or transport on behalf of the patient. Remember this guideline is used only if **no** life threats exist. If a life threat is present, follow **Involuntary Restraint and Transport Guideline.**

EMPHASIS ON PATIENT CARE

Provider safety, transport decisions

2. Assess ABC's and ensure no immediate life threats.
3. Secondary Management - History, physical exam, vital signs (if patient allows):
 - a. Inform parent or legal guardian of patient's medical condition, potential injury or illness, potential ramifications if treatment and transport are refused.
 - b. Assure the parent or legal guardian fully understands what you are saying.
 - c. Attempts to inform must be done in the presence of a witness, i.e. family members, bystander, or police officer (preferably not a member of the EMS service).
 - d. Obtain the parent's or legal guardian's signature on refusal and information for report.
 - e. Have a witness sign the refusal.
 - f. Document all attempts to gain consent for treatment, advisement of potential injury or illnesses, and potential ramifications if treatment is not rendered.
4. If parents are not available, make all reasonable efforts to locate parents or legal guardians and have them come to the scene, otherwise transport the patient to the nearest appropriate facility. Consider contacting medical direction, speak directly with the parent or guardian.
5. **EMS refusal of care represents one of the highest liability exposures that an EMS Provider will ever face. All refusals should be carefully documented. Consider having MEDICAL CONTROL speak directly with the patient by cell phone or radio.**

RESPIRATORY DISTRESS (PED)

DESIGNATION OF CONDITION PEDIATRIC RESPIRATORY DISTRESS:

- Alert, irritable, anxious
- Stridor
- Audible wheezing/grunting
- Respiratory rate outside normal range for child's age
- Sniffing position
- Nasal flaring
- Head bobbing
- Neck muscle use
- Intercostal retractions
- Central cyanosis that resolves with oxygen administration

PEDIATRIC RESPIRATORY FAILURE:

- Sleepy, intermittently combative or agitated
- Respiratory rate < 10 breaths per minute
- Absent or shallow respirations with poor air movement
- Severe intercostal retractions
- Paradoxical breathing
- Limp muscle tone
- Inability to sit up
- Cyanosis and/or mottled skin
- Bradycardia

ALL LEVELS

EMPHASIS ON PATIENT CARE

Prevent agitation to the patient, airway management, and adequate oxygenation. Patients with stridor from airway infection can decompensate and quickly develop an airway disaster. Calm patient as much as possible and avoid airway manipulation and painful procedures as much as possible unless necessary due to critical condition.

4. Primary Management - Assess ABC'S and manage as indicated.
5. Provide humidified oxygen.
6. Consider underlying cause of respiratory distress and treat appropriately.
 - a. Anaphylaxis, allergic reaction, asthma, foreign body obstruction, infection.
7. Initiate transport to appropriate facility and consider AEMT/ALS intercept
8. Consider Nebulized Albuterol
9. Secondary Management - History, physical exam, vital signs
10. Continuous EtCO₂ SpO₂ monitoring
11. Consider CPAP (Basic level).

RESPIRATORY DISTRESS (PED) (Continued)

AEMT

1. Consider IV/IO access
 - a. Fluid bolus NS/LR at 20 ml /kg for hypotension or dehydration
2. Consider **ALBUTEROL** 1.25-2.5 mg in 3 ml NS may repeat x3
3. If patient will tolerate may use CPAP up to 10 cm H₂O PEEP
4. If respiratory failure develops consider placement of SGA/EGA

PARAMEDIC

1. Consider **MAGNESIUM SULFATE** 50 mg/kg IV if bronchospasm suspected.
2. Consider **EPINEPHRINE** 1:1,000 (0.01 mg/kg) IM in anterolateral thigh or SQ if severe allergic reaction or anaphylaxis suspected.
3. Consider **EPINEPHRINE** 1:1,000 3-5 mg. Nebulized if Croup suspected.
4. Do not attempt to intubate if there is adequate air exchange.
5. Intubate the patient only if the patient is 13 years or older and meets other intubation criteria. See Procedural Guidelines for Intubation

RESPIRATORY DISTRESS (PED-CROUP)

DESIGNATION OF CONDITION

The most common age group affected is 1 to 3 years but this process can develop in any age patient. The onset is slow. Signs and symptoms are: hoarse voice, harsh “seal bark” cough, stridor upon inhalation, and high-pitched squeaking sounds may be present. In addition, other signs of respiratory distress may be present. Always consider the possibility of foreign body aspiration.

BASIC / AEMT

EMPHASIS ON PATIENT CARE

1. Airway management, adequate oxygenation
2. Primary Management - Assess ABC's and manage as indicated.
3. Initiate transport to an appropriate medical facility. Consider ALS intercept.
4. Secondary Management - History, physical exam, vital signs

PARAMEDIC

1. Consider Nebulized **EPINEPHRINE** 1:1000 (0.5 mg.) Repeat as needed.
2. **DEXAMETHASONE** 0.6 mg./kg. PO/IV/IM to maximum of 16 mg. Oral dosing recommended. IV/IM not recommended in majority of croup patients. If liquid oral form of Dexamethasone not available use 4 mg. pills. These may be crushed and put into food if necessary.
3. Do not attempt to intubate if there is adequate air exchange. Intubation rarely needed
4. Intubate the patient only if the patient is 13 years or older and meets other intubation criteria.

RESPIRATORY DISTRESS (PED EPIGLOTTITIS)

DESIGNATION OF CONDITION

The most common age group affected is 3 to 7 years, but this process can develop in any age patient. The onset is usually rapid. Signs and symptoms are: Pain on swallowing, high fever (102 to 104) degrees F, drooling, mouth breathing, stridor upon inhalation, changes in voice quality, tripod positioning, chin and neck thrust forward. In addition, other signs of respiratory distress may be present. Since the development of Hemophilus B immunization, the incidence of epiglottitis has been reduced significantly, however it should still be considered for patients presenting with the usual signs and symptoms.

BASIC / AEMT

EMPHASIS ON PATIENT CARE

Prevent agitation to the patient, airway management, and adequate oxygenation

1. Primary Management - Assess ABC'S and manage as indicated.
2. Do not attempt to place anything, including airway adjuncts or fingers, in the patient's mouth. This may lead to complete airway block or bleeding into airway.

PARAMEDIC

1. Do not attempt to intubate if there is adequate air exchange.
2. Intubation may be very difficult due to swelling of the epiglottis and surrounding structures. Well-performed BVM ventilation can provide adequate oxygenation until arrival at the hospital.
3. Note: Assisted ventilation of any type can agitate the child causing complete airway obstruction. Judicious observation and intervention are best, reserving aggressive airway interventions for children who proceed to respiratory arrest.
4. Note: For pediatric patients, refer to the pediatric-specific treatment guidelines

SEIZURE (PED)

This protocol is intended for patients who are experiencing status epilepticus. To manage seizures in patients who are not experiencing status epilepticus, contact on-line **MEDICAL CONTROL** for instructions.

DESIGNATION OF CONDITION

Status epilepticus, the patient will be experiencing an active seizure when rescuers arrive, with a single episode of seizures lasting longer than 5 minutes, or 2 or more episodes of seizure activity between which the patient remains unconsciousness.

ALL LEVELS

1. Establish patient responsiveness/Assess mental status.
2. Protect the patient from injury during involuntary muscular movements.
3. Assess ABC's
4. Consider placing an OPA or NPA if the airway cannot be maintained with positioning **IF** the patient is unresponsive consider LMA.
5. Suction as necessary
6. Obtain pulse oximeter reading.
7. If breathing is inadequate
 - a. Assist ventilation using a BVM device with high-flow, 100% concentration oxygen.
8. If abdominal distention arises, consider placing a nasogastric tube to decompress the stomach.
9. If breathing is adequate, place the child in a position of comfort and administer high-flow, 100% concentration oxygen as necessary. Use a non-rebreather mask or blow-by as tolerated.
10. Determine blood glucose level.
11. Assess temperature.

AEMT

1. If the patient is found to be febrile, cool the patient without overcooling.
2. If scene and transport time is greater than 20 minutes administer **ACETAMINOPHEN** 15 mg/kg rectally.
3. En-route, initiate an IV/IO of an isotonic solution at a TKO rate.
4. Initiate cardiac monitoring.
5. If blood glucose level is **lower than 80 mg/dl** or cannot be determined, administer intravenous dextrose as follows:
 - a. NS at 5.0 ml/kg IV
 - b. May be repeated x1 if BGL remains < 80 mg/dl or if the BGL cannot be determined and the patient is still in status epilepticus.

SEIZURE (PED) (CONTINUED)

6. If vascular access is unavailable, difficulty in establishing IV anticipated, and time to administration of Dextrose will be delayed administer 0.5-1.0 mg **GLUCAGON** via intramuscular injection.
7. Repeat blood glucose level 1 to 2 minutes after **DEXTROSE** is administered.

PARAMEDIC

1. Administer **MIDAZOLAM** (0.2mg/kg) IN/IM to maximum of 10 mg.
(0.1 mg./kg.) IV/IO to maximum of 4 mg.
 - a. IN: attach atomizer, administer with brisk push to ensure atomization of medication
2. Administer **DIAZEPAM VALIUM** [0.05 – 0.1 mg/kg] IV/IO
 - a. Rectal dosage [0.5 mg/kg] may be warranted in seizure patients if no venous access is available. Onset of action by this route may be delayed
 - b. Apnea in children after diazepam administration may occur
3. Administer **LORAZEPAM**: [0.05-0.1 mg/kg to a maximum 4 mg]. Onset 2-3 minutes. Duration 12-24 hours.
4. Consider ETT placement if >12 y/o or SGA/EGA
 - a. Confirm placement with capnography
 - b. Maintain SpO₂ >94%

TRAUMA ASSESSMENT (PED)

On-scene time for a traumatic injury should be no more than 10 minutes, unless there are extenuating circumstances such as extrication, hazardous conditions, or multiple victims.

GOLDEN RULE: Life-threatening conditions should be corrected during the initial assessment.

Transport should not be delayed; Focused history and detailed physical should be done enroute.

Arrival On Scene

1. Ensure scene safety

2. General Impression (“Across the Room” Assessment)

3. Determine Life Threatening Condition

- a. **Airway** – complete or severe airway obstruction
- b. **Breathing** – apnea, significant work of breathing, bradypnea
- c. **Circulation** – absence of detectable pulses, poor perfusion, hypotension, bradycardia
- d. **Disability** – Unresponsiveness, decreased LOC
- e. **Exposure** – significant hypothermia, significant bleeding

4. AIRWAY

- a. Open airway using modified jaw thrust
- b. Suction as necessary
- c. Consider OPA, NPA if airway cannot be maintained with
 - NPA is contraindicated in the presence of facial trauma
 - If intubating refer to procedure guideline

5. BREATHING

- a. Assess for symmetry of chest expansion, breath sounds, chest rise and trauma
- b. Obtain SpO₂ and EtCO₂ reading.
- c. If breathing is **INADEQUATE**
 - Assist ventilation with BVM with high flow oxygen
 - If airway cannot be maintained place SGA/EGA.
- d. If breathing is **ADEQUATE**
 - Place the child in a position of comfort (consider spine stabilization) and administer high flow oxygen as necessary. Use a non-rebreather mask or blow-by oxygen as tolerated.
- e. **ABSENT/DIMINISHED BREATH SOUNDS/Severe Respiratory Distress**
 - Suspect hemothorax or pneumothorax
 - Perform needle decompression using an 18 ga catheter.
 - Insert the needle in the mid-clavicular line at the 2nd intercostal space, or 5th intercostal space anterior axillary line

6. CIRCULATION

- a. Control obvious bleeding using direct pressure, pressure dressing or wound packing
- b. Consider tourniquet use

TRAUMA ASSESSMENT (PED) (Continued)

- c. Check capillary refill
- d. Place on cardiac monitor
- e. Increased or decreased heart rate may be an indication of shock, head, or spinal trauma
- f. Obtain vascular access and administer NS TKO.
 - **Do not delay transport to obtain vascular access.**
- g. If there is evidence of shock, initiate vascular access in two sites. If IV access cannot be obtained in a child proceed with IO access.
 - Administer a fluid bolus of normal saline at 20 ml/kg

7. NEUROLOGICAL STATUS

- A. Assess Level of Consciousness
 - B. Pediatric Glasgow Coma Scale (GCS) and AVPU
 - C. Restlessness, agitation, and lethargy may be due to hypoxia and decreased cerebral perfusion.
 - D. Unresponsiveness and coma may be due to prolonged hypoxia, shock, head injury, metabolic disorders, or other causes.
 - E. Consider the H's and T's for reversible cause
 - F. Immobilize the patient as appropriate.
8. Expose the child only as necessary to perform assessments. Maintain the child's body temperature throughout the examination.
9. Splint obvious fractures of long bones.
10. Perform focused history and detailed physical examination **ENROUTE** elicit personal history
11. Vital Signs (See Addendum for Normal Ranges)
- A. Remember to use appropriate B/P cuff size for accuracy!
 - B. CAUTION: Children tend to compensate very well for blood loss and may have perfect vital signs in late stages of shock. Watch for other indicators of decompensation – such as pallor, delayed capillary refill and decreasing LOC

12. SECONDARY ASSESSMENT

13. Focused History

- A. SAMPLE:
 - Signs and Symptoms
 - Allergies
 - Medications
 - Past Medical History
 - Last meal
 - Event

14. Focused Physical Exam

- A. Medical or minor trauma – perform body check pertinent to chief complaint
Major trauma – perform total body check
- B. Complete Head-to-Toe Examination Note paralysis and paresthesia
- C. Full spinal immobilization with notation of circulation, motor, and sensory function before and after immobilization

TRAUMA TREATMENT FIELD MANAGEMENT (PED)

1. Head and Spinal Injuries

- a. Basic Life Support (BLS)
 - i. Spinal restriction/airway management
 - ii. Oxygen to keep SpO₂ >94%
 - iii. Hyperventilation with BVM for short periods of time if unresponsive and signs of brain herniation present to reduce cerebral edema. Otherwise maintain PetCO₂ levels in the 35 to 40 range.
 - iv. Elevation of head if possible to decrease cerebral edema
 - v. Assist with ALS management
- b. Advanced Life Support (ALS)
 - i. Rapid transport to PEDIATRIC Critical Care Center if significant mechanism of injury or suspected head or spinal injury
 - ii. Large bore venous access/Intraosseous access Cardiac Monitor
 - iii. Fluid bolus NS/LR at 20 ml /kg for hypotension or dehydration
 - iv. If hypotension and shock are present in a child with a head injury, consider another cause – suspect internal bleeding!

2. Torso Injuries

- a. Basic Life Support (BLS)
 - i. Spinal restriction/airway management
 - ii. Oxygen to keep SpO₂ >94%
 - iii. Assist with ALS management
- b. Advanced Life Support (ALS)
 - i. Rapid transport to PEDIATRIC Critical Care Center if significant mechanism of injury
 - ii. Large bore venous access/Intraosseous access
 - iii. Fluid bolus NS/LR at 20 ml /kg for hypotension or dehydration
 - iv. Cardiac Monitor
 - v. Needle decompression if suspected pneumothorax or hemothorax

3. Extremity Injuries

- a. Basic Life Support (BLS)
 - i. Spinal restriction/airway management if appropriate
 - ii. Oxygen to keep SpO₂ >94%
 - iii. Extremity immobilization, elevation, and ice
 - iv. Frequent check of distal circulation, sensation and motor function
 - v. Assist with ALS management
- b. Advanced Life Support (ALS)
 - i. Large bore venous/Intraosseous access
 - ii. Fluid bolus NS/LR at 20 ml /kg for hypotension or dehydration
 - iii. Pain management per pain protocol

VITAL SIGNS AND REFERENCE (PED)

Age	Awake Rate	Mean	Sleeping Rate
Newborn to 3 months	85 to 205	140	80 to 160
3 months to 2 years	100 to 190	130	75 to 160
2 years to 10 years	60 to 140	80	60 to 90
>10 years	60 to 100	75	50 to 90

Age	Systolic BP (mm Hg)		Diastolic BP (mm Hg)	
	Female	Male	Female	Male
Neonate (1 st day)	60 to 76	60 to 74	31 to 45	30 to 44
Neonate (4 th day)	67 to 83	68 to 84	37 to 53	35 to 53
Infant (1 month)	73 to 91	74 to 94	36 to 56	37 to 55
Infant (3 months)	78 to 100	81 to 103	44 to 64	45 to 65
Infant (6 months)	82 to 102	87 to 105	46 to 66	48 to 68
Infant (1 year)	68 to 104	67 to 103	22 to 60	20 to 58
Child (2 years)	71 to 105	70 to 106	27 to 65	25 to 63
Child (7 years)	79 to 113	79 to 115	39 to 77	38 to 78
Adolescent (15 years)	93 to 127	95 to 131	47 to 85	45 to 85

Age	Systolic Blood Pressure
Term neonates	< 60
Infants	< 70
Children	< 70 + (age in years x 2)
Children	< 90

Trauma Protocols

AMPUTATIONS

DESIGNATION OF CONDITION

Characterized by partial or complete dissection of body limbs or tissue

EMPHASIS ON PATIENT CARE

Control hemorrhage; maintain adequate perfusion and oxygenation; preserve severed body parts; expedite transport to definitive care

ALL LEVELS

1. Primary Management - Assess airway, breathing and circulation and manage as indicated.
 - a. Apply direct pressure and wound packing
 - b. Apply tourniquet for hemorrhage that is anatomically amenable to tourniquet application
2. Secondary Management - History, physical exam, vital signs
 - a. Cover remaining part with sterile dressings, saturate with saline, cover with dry dressings, and elevate the injured extremity.
 - b. Wrap severed part in sterile gauze, preserving all amputated material. Dampen gauze with sterile saline. Place in a watertight container, place container in ice water, if available. **DO NOT FREEZE OR USE DRY ICE.**
 - c. Partial amputations should be dressed and splinted in alignment with the extremity to assure optimum blood flow.
3. Rapidly transport the patient and readily available amputated tissue to appropriate medical facility. Consider the use of aeromedical evacuation early to expedite the transport process to definitive care.

AEMT / PARAMEDIC

1. In route, initiate IV/IO access, may use one or two large bore IV (determined by patient condition) of an isotonic fluid, infused at flow rate to maintain adequate end organ perfusion.
2. For use of narcotic analgesics, see **Pain Management Treatment Guidelines**.

BURNS - THERMAL INJURIES

DESIGNATION OF CONDITION

Signs and symptoms may include any one or all of the following: Partial thickness - burns involving the epidermal and dermal layers characterized by reddening or blistering skin. Full thickness - burns involving all skin layers, muscle fascia, and/or charred black or grayish skin, dry in appearance.

EMPHASIS ON PATIENT CARE

Airway management, fluid replacement, and transport to a burn center after stabilization. Stop the burning process and remove from source.

ALL LEVELS

1. Primary Management - Assess ABC's and manage as indicated.
 - a. Initiate transport to appropriate medical facility. Consider air evacuation and contact **MEDICAL CONTROL** for destination decisions.
2. Secondary Management - History, physical exam, vital signs
 - a. For partial or full thickness Burns, estimate percentage of body surface area (BSA) involved using the **Palm Principle (1 palm of patient = 1% BSA) or rule of 9's**
 - b. Remove jewelry and clothing unless adhered to skin.
 - c. Place **dry** sterile dressings over burns, with no two burned surfaces touching.
 - d. Maintain body temperature.
 - e. Flush eye burns continuously with Normal Saline
3. For burns <10% BSA
 - a. Apply sterile dressing, moisten with NS or sterile water, or water gel/aquacool
4. For burns >10% BSA
 - a. Apply DRY sterile dressing and DO NOT moisten

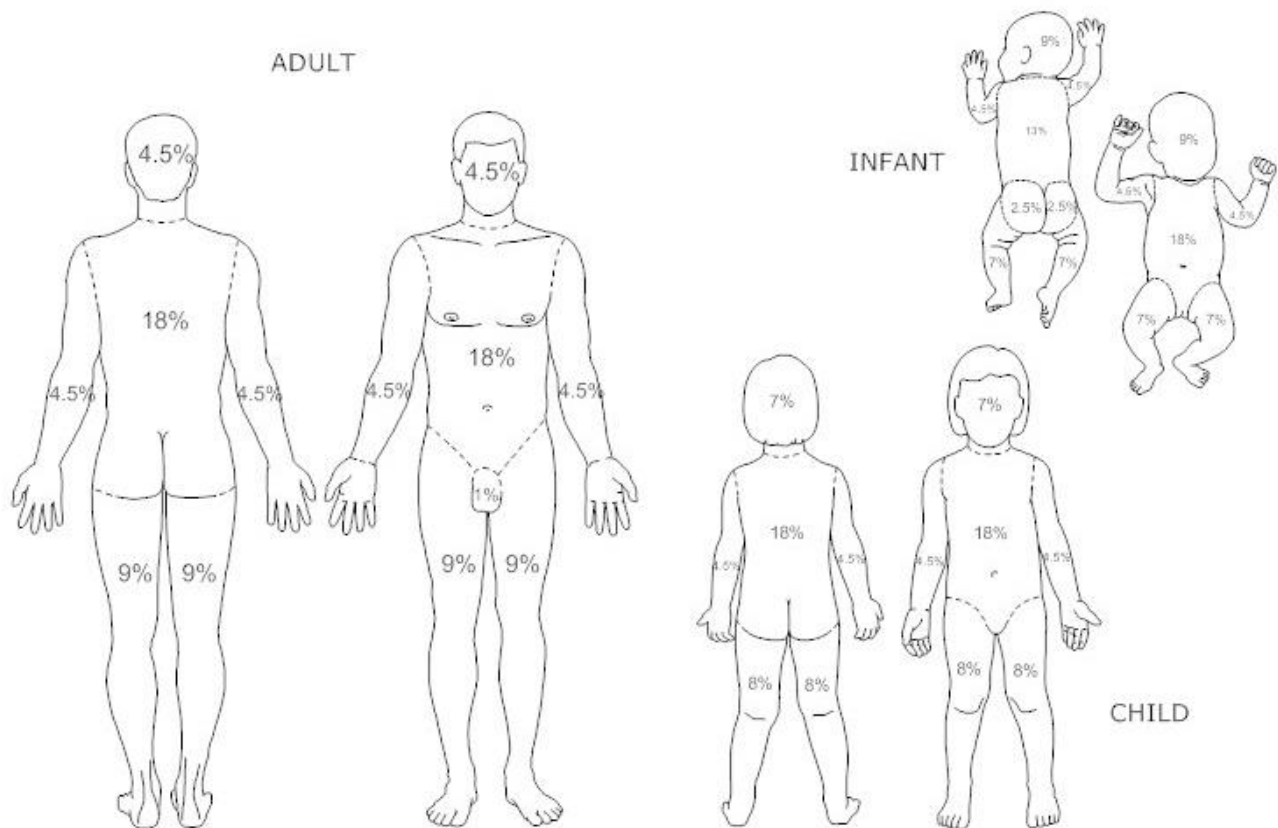
AEMT

1. In route, initiate a large bore IV of an isotonic solution and titrate it to end organ perfusion.
 - a. Initiate a second IV in an unburned area if possible and if patient condition warrants.
2. If > 20% BSA affected or patient is hypotensive, consider a 20 mL/kg fluid bolus. Repeat as needed.
3. IV fluid rate **PER HOUR** for first 8 hours based on Parkland Formula:
 - a. Weight Kg X 0.25 ml IV fluid X % total BSA burned
4. For use of narcotic analgesics, see **Pain Management Treatment Guidelines**.

BURNS - THERMAL INJURIES (Continued)

PARAMEDIC

1. With facial or airway involvement (singled nasal hair, soot inside nares, stridor etc.) early invasive airway management should be considered.
 - a. See Airway Management Procedure Guidelines and Pain Management Treatment Guidelines.
2. If SOB due to smoke/cyanide inhalation consider:
 - a. **HYDROXYCOBALAMIN** IV 5gm. administered IV/IO over 30 minutes.
3. Attempt not to apply electrodes to burned areas.
4. Unless the method of injury involved traumatic forces, transport should be to the closest facility, where airway and pain management, fluid replacement, and transfer to a burn center can be arranged.



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BURNS - CHEMICAL INJURY

DESIGNATION OF CONDITION

Signs and symptoms include the following: evidence of dry or liquid chemical contamination, and reddening and/or blistering of the skin.

EMPHASIS ON PATIENT CARE

Decontamination, prevention of further injury and exposure, safety of providers, substance identification if possible.

ALL LEVELS

1. Assess the scene for safety. Do not enter area until it has been determined safe for the EMT to have immediate contact with patient.
2. Primary Management - Assess ABC's and manage as indicated.
 - a. Decontaminate by irrigating with water.
 - i. Remove all contaminated clothing.
 - ii. Brush away dry chemical, prior to irrigating.
 - iii. Irrigate for minimum of 20 minutes.
3. Remove jewelry and clothing prior to transport.
4. Transport to appropriate medical facility.
5. Secondary Management - History, physical exam, vital signs
 - a. Estimate percentage of Body Surface Area (BSA).
 - b. Assess for additional associated trauma.

AEMT / PARAMEDIC

1. In route, initiate one or two large bore IV or IO (determined by patient condition) of an isotonic solution titrate to maintain adequate end organ perfusion.
2. For use of narcotic analgesics, see **Pain Management Treatment Guidelines**.
3. Maintain body warmth post irrigation.
4. Do not apply electrodes to burned skin areas.

CRUSH INJURIES

DESIGNATION OF CONDITION

Compression of extremities or other parts of the body for >1 hr that causes muscle swelling and/or neurological disturbances in the affected areas of the body. Crush syndrome is localized crush injury with systemic manifestations.

EMPHASIS ON PATIENT CARE

Crush injury is very painful, judicious use of pain medications should be utilized. EKG changes associated with hyperkalemia: peaked T waves, QRS > 0.12, loss of P wave, “bizarre” wide complex. Patients may easily become hypothermic.

ALL LEVELS

1. Assess the scene for safety. Do not enter area until it has been determined safe for the EMT to have immediate contact with patient.
2. Primary Management - Assess ABC's and manage as indicated.
3. Evaluate for spinal restriction
4. Treat for shock
5. Check distal pulses frequently
6. Control exsanguinating hemorrhage

AEMT:

1. Establish IV fluid therapy and provide bolus prior to releasing the crushed body part
 - a. 1-2 L NS bolus then titrate to hypotension.
2. Goal to maintain SBP greater than 90.

PARAMEDIC:

1. If patient is entrapped for longer than 60 min infuse NS at 1000ml/hr and give 50 mEq/50mL of Bicarbonate
2. Provide appropriate pain control.
3. May give **MIDAZOLAM** 1-5 mg IV/IO/IM/IN for anxiety.
4. Apply EKG and monitor for EKG changes and hyperkalemia.
 - A. If present may give **BICARBONATE** 50 mEq q 30 min
 - B. **ALBUTEROL** inhalation 5mg/6ml q 30 min

EXTERNAL HEMORRHAGE CONTROL

DESIGNATION OF CONDITION

Any wound that creates circulatory shock due to blood loss may need application of tourniquet. Symptoms include: pallor, AMS, hypotension, weak pulses, cool clammy skin or physical signs of severe uncontrollable hemorrhage, amputation or near amputation.

ALL LEVELS

1. Apply direct pressure to the injury
 - a. If this is effective dress the wound and elevate extremity
 - b. If this is ineffective proceed with protocol
2. If wound is amenable to tourniquet placement:
 - a. Apply tourniquet 3 inches above the wound
 - b. If first tourniquet does not control hemorrhage apply second tourniquet above first
 - c. Do not release tourniquet until definitive care is at bedside
3. If wound is not amenable to tourniquet placement
 - a. Apply hemostatic dressing into wound and apply direct pressure directly to bleeding source
4. Hemodialysis access sites may result in life threatening hemorrhage. Direct digital pressure with hemostatic dressing should be used first followed by tourniquet in the setting of life threatening hemorrhage when other means of hemorrhage control have been unsuccessful
5. Treat pain according to pain protocol. Tourniquets are rapidly very painful.
6. If significant hemorrhage continues consider **TXA** administration (Special Skills Paramedic Only within three hours of start of hemorrhage)

Adult Initial Bolus (16 years and older).

Mix 1 gram vial in 250 ml. of fluid.

Administer 1 gram (250 ml.) IV/IO over 10 minutes.

Adult Infusion in protracted scene times or extended transport times (16 years and older).

Mix 1 gram in 500 ml. of fluid

Administer over 8 hours IV/IO (approximately 10 drops per minute with a 10 drop/ml. IV set).

EYE INJURIES

ALL LEVELS:

1. Lacerations on or near the eyelid or eye:
 - a. Do not apply pressure to the eyeball.
 - b. Cover BOTH eyes with a loose dressing.
 - c. Preserve avulsed parts in a clean plastic bag.
2. Foreign bodies:
 - a. Non-impaled: Cover BOTH eyes with loose dressing.
 - b. Impaled: DO NOT REMOVE - stabilize with a paper cup and bulky dressing (donut). Cover unaffected eye.
3. Avulsed eye:
 - a. Cover with sterile moist dressings; use sterile saline, Ringer's Lactate, or sterile water. Cover unaffected eye.
1. Chemical burns:
 - a. Irrigate copiously with tap water, saline, or Ringer's Lactate as soon as possible, minimum of 2L.

PARAMEDIC:

1. Consider application of cardiac monitor due to potential involvement of cranial nerves with deep penetrating eye trauma. Treat lethal dysrhythmias concurrently.
2. Consider Pain Management Guidelines

HEAD INJURIES

DESIGNATION OF CONDITION

Traumatic brain injury (TBI) is a cerebral insult from an external mechanical force, possibly leading to permanent or temporary impairment of cognitive, physical, and psychosocial functions, with an associated diminished or altered state of consciousness. Concussions are periods of confusion or LOC associated with trauma which may have resolved by the time EMS arrives.

EMPHASIS ON PATIENT CARE

1. For patients with head injury *and* blood glucose less than 60 administer 12.5 gm D10 and reassess.
2. Increased ICP may cause HTN and bradycardia (Cushing's response), do not treat HTN
3. Hypotension usually indicates injury or shock unrelated to the head injury
4. Monitor and document a change in the level of consciousness
5. Limit IV fluids unless the patient is hypotensive
6. A single episode of hypoxia, defined as SpO₂ < 90% at any time, has been shown in numerous studies to increase death and disability in severe TBI.

ALL LEVELS:

1. Primary Management - Assess ABC's and manage as indicated.
2. Evaluate for Cervical Spine field clearance.
3. Administer oxygen; assist ventilations if needed

AEMT:

1. Establish an IV of LR or NS.
2. See chart below for fluid and ventilation guidelines.

PARAMEDIC:

1. Apply cardiac monitor; treat lethal dysrhythmias concurrently to injury treatments.

Titrate ventilation and IV fluids as follows:

Systolic BP	SpO ₂ %	Ventilation	IV fluid rate
>90	>95%	8-10 / min	TKO, 60 cc/hr
<90	<90%	12-16 / min	Maintain SBP of 120

SPINAL IMMOBILIZATION

ALL LEVELS

You may elect to withhold spinal restriction and discontinue all spinal stabilization efforts if your patient meets ALL of the following criteria. Criteria includes seated patients when considering use of KED. Proceed immediately with spinal stabilization if patient fails to meet ANY of the following:

1. **Patient Reliability:**

- a. Conscious, alert, and well oriented, not under suspicion or the influence of drugs, alcohol, or any other mind-altering substance.
- b. Legal adult or emancipated minor, and has no language or communication problems.
- c. No suspicion of other major distracting injury.
- d. No suspicion of head/brain injury.

2. **Assess Spinal Column:**

- a. No complaints of pain, tenderness, numbness, etc., upon thorough palpation of the entire spinal column.
- b. Spinal column has no visible or palpable abnormalities

3. **Assess Sensory and Motor Function:**

- a. No sensory deficit.
- b. No motor deficit

4. **If the patient fails the above criteria place a C-collar and:**

- a. If ambulatory assist to stretcher
- b. **If non-ambulatory** use rigid extrication device as needed to move patient to stretcher and then remove device if possible.

5. **Utilize C-collar if patient is >65 y/o.**

SPINAL IMMOBILIZATION CONTINUED

NOTES:

- Long spine boards (LSB) have not been shown to improve patient outcomes. The best use of the LSB is as an extrication device for the unconscious patient.
- Patients should not be immobilized on a LSB, however if unconscious and/or unresponsive maintain use of LSB to aid in patient extrication and transport to hospital by EMS.
- Patients with penetrating trauma and no evidence of spinal injury do not require spinal immobilization.
- Patients who are ambulatory at the scene of blunt trauma in general do not require immobilization via LSB, but may require C-collar and spinal precautions.
- Spinal precautions are very important in patients at risk for spinal injury. Adequate spinal precautions may be achieved by placement of a hard-cervical collar and safeguarding that the patient is secured to the stretcher, ensuring minimal movement. During patient transfers maintain manual in-line stabilization during any transfers.
- If a patient is ambulatory on scene or if they can safely self-extricate, apply a c-collar and allow them to do so.
- No patient should be left on a backboard during transport unless more harm may be done by removal of the board.
- If patient is unconscious or unresponsive may utilize back board and immobilization to facilitate patient transfer.

TRAUMATIC BRAIN INJURY (TBI)

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: slowing pulse rate, increasing blood pressure, increasingly irregular respiratory patterns, altered level of consciousness, unequal pupils, repeating speech patterns, seizures, presence of CSF, with a history of head trauma.

EMPHASIS ON PATIENT CARE

Airway management, adequate oxygenation, spinal precautions

Be aware of the potential for spinal, abdominal or chest trauma not apparent due to altered mental status.

1. Primary Management - Assess ABC's and manage as indicated. If the patient requires assisted ventilations, these should occur at 12-16 breaths per minutes with adequate tidal volume. Recommend use of capnography to maintain CO2 levels between 30-35 mmHg.
2. Transport the patient as soon as possible to an appropriate medical facility.
3. Secondary Management - History, physical exam, vital signs, and Glasgow Coma Scale.

AEMT

4. In route, initiate an IV/IO of an isotonic solution at a rate to maintain end organ perfusion. Consider second IV, if indicated.
5. Use a Buretrol IV set for PEDIATRICS. Consider intraosseous access, if peripheral venous access is not available and patient conditions warrants.

PARAMEDIC

- a. Consider ET intubation.
- b. **PEARLS:**

Prevention of hypoxia and hypotension are imperative to prevent secondary brain injury.

Intubation should be approached with extreme caution as it has been associated with worse outcomes when performed in the out-of-hospital environment for patients with traumatic brain injury.

Both hypoxia and hyperoxia have been associated with increased mortality and worse discharge GCS scores in TBI (traumatic brain injury) patients.

Hyperventilation causes a decrease in the cerebral blood flow by vasoconstriction as a result of decreased levels of CO2 (which is a vasodilator).

Hyperventilation should only be used for short periods of time when immediate control of increased ICP is necessary.

TRAUMA (MULTIPLE SYSTEMS)

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms may include any or all of the following: mechanism of injury suggestive of trauma to two or more body systems.

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC's and manage as indicated.
 - a. Stabilize airway if necessary: oral / nasal airway; SGA; suction
2. Control of hemorrhage, inspection of C-spine, minimize scene time
 - a. Apply pelvic binder if hypotensive and evidence of pelvic injury
 - b. Refer **Clinical assessment for spinal injury rule out**
 - c. Consider use of tourniquet as indicated
3. Initiate transport to appropriate medical facility. **Contact MEDICAL CONTROL.**
4. Secondary Management - History, physical exam, vital signs
5. Consider traction splint for mid-shaft femur fractures
6. Immobilize long bone fractures
7. Cover patient to prevent hypothermia
8. Cover suspected open chest wounds with an occlusive dressing. Stabilize fractured and/or flail segments.
 - a. Be vigilant for developing tension pneumothorax. If a tension pneumothorax is suspected, release the seal over the wound and allow any air under pressure to escape. Then reseal the wound and monitor the patient.

AEMT

1. En-route, initiate one or two large bore IVs of an isotonic solution and infuse at a flow rate to maintain adequate end organ perfusion.
2. Utilize a Buretrol in **PEDIATRICS** at rate of 20 ml./kg. administered as a bolus. Repeat as needed. If unable to initiate a peripheral IV, consider intraosseous access if patient condition warrants
3. For use of analgesics, see **Pain Management Treatment Guidelines.**

TRAUMA (MULTIPLE SYSTEMS) (CONTINUED)

PARAMEDIC

1. Consider airway management: ET intubation, SGA or surgical airway.
2. Consider chest decompression for suspected pneumothorax
3. See Pain Management Guidelines
4. See Airway Management Treatment Guidelines.
5. For significant suspected or overt hemorrhage consider **TXA** administration (Special Skills Paramedic Only within three hours of onset of hemorrhage):

Adult Initial Bolus (16 years and older)

Mix 1 gram vial in 250 ml. bag of fluid.
Administer 1 gram (250 ml.) IV/IO over 10 minutes.

Adult Infusion in protracted scene times or extended transport times (16 years and older)

Mix 1 gram vial in 500 ml. of fluid.
Administer over 8 hours IV/IO (approximately 10 drops per minute with
a 10 drop/ml. IV set).

TRAUMA CARDIAC ARREST

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms include an unresponsive patient with absent carotid pulses with a high suspicion of traumatic origin.

EMPHASIS ON PATIENT CARE

Effective CPR, ACLS intervention, possible decision to terminate resuscitation

Verify that the mechanism of injury is consistent with the patient presentation and the cause of arrest

1. Primary Management - Assess ABC's and manage as indicated.
 - a. C- spine precautions
 - b. Initiate CPR, ventilate with 100% **OXYGEN**.
2. Contact **MEDICAL CONTROL** if patient meets criteria for **Termination of Resuscitative Efforts Guidelines**.
3. Transport the patient as soon as possible to the nearest medical facility, consider ALS intercept if transport time > 10 minutes.
 - a. Insert airway (follow **Airway Management Procedure Guidelines**).
 - Consider supraglottic/extraglottic airway
 - b. Turn the defibrillator/monitor on and apply defibrillation electrodes.
 - c. Analyze the ECG rhythm.
 - d. If patient is in V-Fib or Pulseless V-Tach., follow **Medical Cardiac Arrest Treatment Guidelines** if arrest is not due to obvious trauma. Remember the arrest may have preceded trauma and may be the underlying cause.
4. For traumatic arrest deemed appropriate for transport, all interventions beyond CPR, and spinal restrictions **should be performed enroute to receiving facility** to minimize scene time. Assess risk of CPR en-route before initiating transport.

AEMT

5. En route, initiate two large bore IV or IO access lines administering an isotonic solution wide open.
5. Administer **EPINEPHRINE**, IV/IO
 - a. Epinephrine: (1:10,000) 1 mg every 3-5 minutes as indicated

TRAUMA CARDIAC ARREST (Continued)

PARAMEDIC

6. Place a Supraglottic/Extraglottic Airway or ETT in accordance with the corresponding Airway Management Guidelines, allowing no disruption of chest compressions during placement. Managing the airway with BLS techniques is appropriate if good ventilation is achieved.
7. Consider reasons patient may be in arrest and rule out reversible causes.
8. Consider needle Thoracostomy if indicated
9. If patient is in V-Fib or Pulseless V-Tach., follow **Medical Cardiac Arrest Treatment Guidelines** if arrest is not due to obvious trauma. Remember the arrest may have preceded trauma and may be the underlying cause.

10. H's & T's

Hypovolemia

Hypoxia

Hydrogen Ion (acidosis)

Hyper-/hypokalemia

Hypothermia.

Toxins

Tamponade (cardiac)

Tension pneumothorax

Thrombosis (coronary and pulmonary)

TRAUMA DESIGNATION

Note: There should be very good communication between the lead EMT on scene and On-Line Medical Control for any Level 1 or Level 2 trauma patients in regards to what facility the patient should be taken to and by what method (ground vs air).

PHYSIOLOGIC CRITERIA ("Level 1")

1. Glasgow Coma Scale ≤ 13
2. SBP < 90mmHg
3. Breathing <10 or >29 breaths/min (<20 breaths/min if <1 year old)
4. Requires assisted ventilations

ANATOMIC CRITERIA ("Level 1")

1. Penetrating injury to head, neck, torso, or extremity proximal to elbow or knee
2. Chest wall instability or deformity (e.g. flail chest)
3. 2 or more proximal long-bone fractures
4. Crushed, degloved, mangled, or pulseless extremity
5. Amputation proximal to wrist or ankle
6. Pelvic fractures
7. Open or depressed skull fracture
8. Paralysis

MECHANISM OF INJURY CRITERIA ("Level 2")

1. Falls >20 ft. (>10 feet or 2-3x height for children)
2. High Risk Auto Crash-Intrusion, including roof > 12 inches at occupant site or >18 inches anywhere
3. Ejection (partial or complete) from automobile-Death in same compartment
4. Auto vs. pedestrian/bicyclist thrown, run over, or with significant (>20 mph) impact
5. Motorcycle crash >20 mph

SPECIAL CONSIDERATIONS/PROVIDER JUDGEMENT

Consider transport to appropriate Trauma center if ANY of the following are present:

1. Older Adults
2. Anticoagulants and bleeding disorders
3. Pregnant patients >20 week gestation

Cardiac Protocols

Note: American Heart Association Guidelines will be followed

ATRIAL FIBRILLATION with RVR / ATRIAL FLUTTER

ALL LEVELS

DESIGNATION OF CONDITION

Patient presentation with heart rate over 150 with supraventricular focus. Patients with narrow complex tachycardia, are often familiar with their problem and symptoms.

Those who do not show evidence of hemodynamic instability require no pre-hospital medications. Patients presenting with hemodynamic instability, evidence of poor perfusion, chest pain, altered level of consciousness, shortness of breath, cyanosis or evidence of CHF are considered unstable and invasive intervention should be implemented per this protocol.

EMPHASIS ON PATIENT CARE

Maintain adequate perfusion, adequate oxygenation, and ALS intervention

1. Primary Management - Assess ABC's and manage as indicated.
 - a. Titrate oxygen to maintain SpO₂ >92%
2. Initiate transport to appropriate medical facility. Consider ALS intercept.
3. Secondary Management - History, physical exam, vital signs
 - a. If suspected AMI, administer **ASPIRIN** [325 mg PO]. Chewed then swallowed

AEMT

1. En-route, initiate IV/IO access; if necessary, titrate isotonic solution to end organ perfusion.

PARAMEDIC

1. If **UNSTABLE** (symptomatic) A-Fib/A-Flutter:
 - a. Patients with significant decompensation (shock, mental decompensation, severe ongoing chest pain) may require immediate **Synchronized Cardioversion**. If the patient is conscious, consider sedation using **MIDAZOLAM** [1-5 mg] IV/IO/IN, prior to cardioversion, if appropriate to patient condition
 - i. Cardiovert at 100 joules if unsuccessful then escalate joules:
 - Cardiovert at 200 J, 300 J, 360 J.
 - b. Continuously monitor patients BP
2. If patient's cardiac rhythm changes during procedure, treat per applicable guidelines.
3. Use of Nitroglycerine or Narcotic Pain Relievers for patients with this rhythm may precipitate decompensation or cardiac arrest.

BRADYCARDIA

ALL LEVELS

DESIGNATION OF CONDITION

The patient will present with heart rate of <60 bpm and be symptomatic / unstable.

EMPHASIS ON PATIENT CARE

Maintain adequate oxygenation and perfusion. Consider the underlying causes of bradycardia (e.g., hypoxia, hypoglycemia, toxicology and hypothermia).

1. Primary Management - Assess ABC's and manage as indicated.
2. Cardiac monitoring, oxygen administration, and obtain 12 - lead ECG, if possible.
3. Call for ALS intercept if serious signs or symptoms (hypotension, acutely altered mental status, signs of shock, ischemic chest discomfort, or acute heart failure).
4. Transport the patient as soon as possible to the nearest medical facility.
5. Secondary Management - History, physical exam, vital signs
 - a. If suspected AMI, administer **ASPIRIN** [325 mg PO]. Chewed then swallowed.

AEMT

1. En-route, initiate an IV/IO Line of isotonic solution at a flow rate determined by patient condition.

PARAMEDIC

1. If serious signs or symptoms of hemodynamically instability (hypotension, acutely AMS, signs of shock, ischemic chest discomfort, or acute heart failure)
 - a. Consider cardiac pacing first.
 - i. May require sedation with **MIDAZOLAM** 2-5 mg IV/IO
 - ii. **ATIVAN** [2 - 4 mg] (0.05 mg/kg)
 - b. **ATROPINE** 0.5 mg IV/IO, may repeat dose up to 1.0mg max single dose to a total amount administered of .04 mgs/kg may be given simultaneously with pacing.
 - c. **ATROPINE** will not be effective in patients who have had heart transplants.
2. Repeat set of vitals, if no change, administer a vasopressor:
 - a. **EPINEPHRINE drip (1 mg in 250 ml of NS = 4 mcg/ml) and start at 2 mcg/min. Titrate drip up to 10 ug/min** or until an acceptable perfusing heart rate and BP are achieved.
 - b. Consider **DOPAMINE** [2-20 mcg/kg/min.]
3. A second IV line is desired, however, do not withhold medication if second IV is unobtainable.
4. **ATROPINE** should be considered before TCP for suspected vagal induced bradycardia

CHEST PAIN

ALL LEVELS:

DESIGNATION OF CONDITION

Signs and symptoms may include any, none, or all of the following: sub-sternal chest pain, chest pressure, shortness of breath, diaphoresis, nausea, and vomiting, syncope, radiating pain to the jaw and arms, a feeling of impending doom, and history of cardiac problems.

EMPHASIS ON PATIENT CARE

Airway management, adequate perfusion and oxygenation, pain control and early transportation to an appropriate facility

1. Primary Management - Assess ABC's and manage as indicated.
 - a. Obtain baseline set of vital signs (HR, B/P, SpO₂, BGL, etc.)
 - b. Cardiac monitoring, oxygen administration if SpO₂ <94%, and obtain a 12-lead ECG if possible.
2. Transport the patient to an appropriate medical facility. Consider AEMT/ALS intercept.
3. Secondary Management - History, physical exam, vital signs
 - a. Obtain history including Thrombolytic Therapy Checklist.
 - b. If suspected AMI chest pain, administer **ASPIRIN** [325 mg PO]. Chewed.
 - c. If applicable, contact **ONLINE MEDICAL CONTROL** for administration of the patient's own **NITROGLYCERIN** every 3-5 minutes up to 3 times if B/P >100mmHg systolic, HR >60 and < 140 and relief of symptom occurs.

AEMT

1. En route, initiate IV/IO access; consider second IV if patient condition indicates the need and time permits.
 - A. If systolic B/P <90mmHg, infuse at rate to attempt to raise BP.
 - B. If 2 unsuccessful IV attempts in patients who may be candidates for thrombolytics, **Contact MEDICAL CONTROL** for further attempts.

CHEST PAIN CONTINUED

AEMT CONTINUED

2. If patient does not have nitroglycerin and is still in pain, BP > 100mmHg systolic, and HR > 60bpm, and <140bpm, consider **NITROGLYCERIN** [0.4 mg SL] every 3-5 minutes up to 3 times if IV is established. If no relief after initial NTG discontinue further doses.
3. **DO NOT GIVE NITROGLYCERIN IF:** patient has taken **Erectile Dysfunction** medications in the past 48 hours (i.e. Viagra, Cialis, Levitra, etc.).
4. If transport is prolonged, contact **MEDICAL CONTROL** for additional Nitroglycerin administration.
5. Contact **MEDICAL CONTROL** for the administration of **NARCOTIC PAIN RELIEVERS**. **Narcotic Pain Relievers** should be administered slowly and incrementally to avoid nausea and hypotension.

PARAMEDIC

1. 12 lead ECG should be completed within the first 3-5 minutes of patient contact on chest pain patients.
2. Interpret the 12-lead ECG and transmit per transmission protocol to GRMC:
 - a. If STEMI initiate discussion with online medical control to determine transport options and perform additional treatments en route.
 - b. Hold NTG if EKG shows inferior MI pattern and consider Right sided EKG
3. Serial 12 leads should be completed on all chest pain patients. A minimum of two 12 leads should be performed on all chest pain patients but should not delay transport to definitive care.
4. For pain management, Follow Pain Management Treatment Guidelines.
 - a. **FENTANYL** 25-50 mcg IV/IM/SQ q 10 min prn pain. IM may required longer intervals due to slower onset.
5. See appropriate guidelines for Ventricular Tachycardia (VT) with a Pulse and/or Wide Complex Tachycardias. Treat arrhythmias as per ACLS protocols.

CARDIAC ARREST / MEDICAL

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms include an unresponsive, apneic patient with absent carotid pulses. If patient does not meet **Termination of Resuscitation guidelines**, continue with the following protocol.

EMPHASIS ON PATIENT CARE

1. Uninterrupted Effective CPR using pit crew approach if possible, defibrillation and ACLS intervention as rapidly as possible
 - a. Apply AED and follow prompts
2. Patients in cardiac arrest should be managed in the field; all cardiac patients not experiencing arrest require minimal scene times and expeditious transport.
3. If the patient has a return of spontaneous circulation (ROSC) (sustained palpable pulses and measurable blood pressure), the patient should be transported to the closest appropriate facility.
4. All patients in cardiac arrest require immediate CPR, airway management and ventilations with oxygen. CPR and initial defibrillation take precedence over advanced airway management unless the airway cannot be managed with BLS maneuvers.
5. Defibrillation of the VF/VT patient should occur as soon as possible

AEMT

1. Establish IV/IO access and flush to confirm patency.
2. Administer Epinephrine, IV/IO
 - a. **EPINEPHRINE** (1:10,000) 1 mg IV/IO every 3-5 minutes throughout Cardiac Arrest as indicated
 - b. ETT Dose for Epinephrine-USE ONLY IF IV/IO ACCESS IS NOT OBTAINABLE
 - i. 2 mg of 1:1,000 diluted in NS to total volume of 10 ml per single dose

CARDIAC ARREST/ MEDICAL (CONTINUED)

PARAMEDIC

1. Any patient who presents in cardiac arrest assumed to be from a medical cause will have CPR performed on scene for a minimum of **30 minutes**. If ROSC is achieved at any time during resuscitation efforts the patient will be transported to the closest most appropriate hospital.
2. If after 30 Minutes the patient remains in Cardiac arrest, **Medical Control** should be contacted.
3. The following information should be collected if available, and relayed to **Medical Control** for further instructions:
The Patient's:
 - Age
 - PMH
 - General health (skin turgor, muscle tone, mobility of patient prior to arrest)
 - Last time patient was seen alive
 - Witnessed arrest
 - Bystander CPR
 - Pupillary Response
 - Temperature
 - Blood sugar
 - Initial and current cardiac Rhythm
 - Current ETCO2 reading
 - Family wishes of resuscitation efforts

CARDIAC ARREST / MEDICAL (CONTINUED)

4. Resuscitation efforts may be terminated in the field if the patient meets the requirements for TOR guidelines, or with medical direction approval and if ALL of the following criteria are met:
 - a. CPR and ALS interventions have been attempted for at least 30 minutes,
 - b. No ROSC at any time during Resuscitation efforts
 - c. The final (terminating) rhythm is not shockable.
 - d. The arrest is not the result of hypothermia
 - e. Final Reading of ETCO₂ <20
 - f. Absence of Palpable Carotid/Femoral pulses
 - g. Family is accepting of the decision to terminate efforts for resuscitation.
 - h. The patient does not have an LVAD in place
5. All patients with a LVAD (left ventricular assist device) in cardiac should be transported unless there is an active DNR or POLST (Physician Ordered Life Sustaining Treatment).
6. The patient may be transported prior to reaching the 30 minute benchmark if responders feel that staying on scene does not promote good patient care or exposes them to harm.

CARDIAC ARREST / ASYSTOLE

ALL LEVELS

Designation of Condition

The patient will be unconscious, unresponsive, pulseless, apneic, and show asystole on the monitor (confirmed with a six-second strip) in 3 leads. Patients in cardiac arrest should be managed in the field.

1. Confirm patient is unresponsive, has apneic/agonal respirations and is pulseless.
 - a. Begin high quality pit crew CPR
 - b. Apply monitor/AED to confirm rhythm.
 - c. Consider placement of Supraglottic/extraglottic airway in accordance with the corresponding Airway Placement Procedural Guidelines, allowing no disruption of chest compressions during placement.
 - d. Apply EtCO₂ and SpO₂
 - e. Check rhythm/pulse every 200 compressions (2 minutes).

AEMT

1. Consider placement of Supraglottic/extraglottic Airway in accordance with the corresponding Airway Placement Procedural Guidelines, allowing no disruption of chest compressions during placement.
2. Establish IV/IO access and administer NS
3. Administer Epinephrine, IV/IO
4. IV/IO dosage of Epinephrine: (1:10,000) 1 mg every 3-5 minutes as indicated
5. ET drug delivery should be reserved (ONLY) for rare occasions when IV/IO cannot be established.
 - a. Epinephrine ETT Dose-2 mg 1:1,000 diluted in NS to total volume of 10 ml per dose

PARAMEDIC

1. Consider placement of SGA/EGA Airway or ETT in accordance with the corresponding Airway Placement Procedural Guidelines, allowing no disruption of chest compressions during placement.
2. If electrical activity returns but patient remains pulseless, proceed to PEA algorithm.
3. If sustained Asystole after 30 minutes TOR.
4. If no ROSC and patient remains in asystole after **30** minutes of ALS resuscitative efforts TOR.

CARDIAC ARREST / PEA

ALL LEVELS

DESIGNATION OF CONDITION

Patient presenting in cardiac arrest with organized electrical activity noted on the cardiac monitor, but without corresponding pulses palpated. Determination and correction of underlying cause of the PEA may improve outcome. Specific problems which may cause PEA:

EMPHASIS ON PATIENT CARE

Effective CPR, management of associated conditions

1. Primary Management - Assess ABC's and manage as indicated.
2. Initiate high quality team CPR
3. Insert advanced airway (follow Airway Management Procedure Guidelines).
4. Apply defibrillation electrodes and begin cardiac monitoring.
5. Transport the patient if ROSC, consider ALS intercept.
6. Secondary Management - History, physical exam, vital signs

AEMT

1. Consider placement of Supraglottic/extraglottic Airway in accordance with the corresponding Airway Placement Procedural Guidelines, allowing no disruption of chest compressions during placement.
2. Initiate one or two large bore IV/ IO of an isotonic solution with 20mL/kg fluid bolus. Repeat as indicated.
3. Administer **EPINEPHRINE 1:10,000** [1 mg] IV/IO, repeat every 3-5 minutes as long as the patient remains pulseless

PARAMEDIC

1. Consider placement of SGA/EGA, ETT Airway. DO NOT STOP CPR TO INTUBATE
2. Consider **SODIUM BICARBONATE** [1 mEq/kg] IV/IO, especially if hyperkalemia, tricyclic antidepressant overdose or metabolic acidosis is suspected.
3. Treat for any suspected reversible causes (identified in the designation of condition) within applicable scope of practice.
4. Contact medical direction for possible TOR order if no ROSC and patient remains in asystole after 30 minutes of ALS resuscitative efforts. See Cessation of Resuscitative Efforts Treatment Guidelines

Hypovolemia

Hypoxia

Hydrogen Ion (acidosis)

Hyper-/hypokalemia

Hypothermia.

Toxins

Tamponade (cardiac)

Tension pneumothorax

Thrombosis (coronary and pulmonary)

CARDIAC ARREST / V-FIB, PULSELESS V-TACH

ALL LEVELS

DESIGNATION OF CONDITION

Signs and symptoms include an unresponsive patient with absent carotid pulses, and an ECG showing ventricular fibrillation or pulseless ventricular tachycardia.

EMPHASIS ON PATIENT CARE

1. Primary Management - Assess ABC's and manage as indicated.
2. Turn the AED on and apply defibrillation electrodes following prompts.
3. **Effective pit crew CPR**, defibrillation and ACLS intervention as rapidly as possible
4. Place NPA/OPA and provide high flow oxygen

AEMT

1. Establish IV/IO and provide fluid bolus
2. Initiate Epinephrine administration IV/IO immediately upon establishing vascular access.
 - a. Epinephrine: IV/IO dosage of Epinephrine: 1 mg 1:10,000 every 3 to 5 minutes
3. Consider placement of Supraglottic/extraglottic Airway in accordance with the corresponding **Airway Placement Procedural Guidelines**, allowing no disruption of chest compressions during placement.

PARAMEDIC

1. Consider placement of Supraglottic or extraglottic airway or ETT in accordance with the corresponding Airway Placement Procedural Guidelines, allowing no disruption of chest compressions during placement
2. After second and on third defibrillation a second set of pads should be applied to chest to change defibrillation vector. Leave initial set attached for potential DSD on 4th attempt.
3. In persistent or recurrent VF/VT without a pulse: initiate appropriate anti-arrhythmic therapy after 3rd defibrillation:
4. Administer Anti-arrhythmic
5. Amiodarone IV/IO or Magnesium:
 - a. **AMIODARONE** [300mg] IV/IO followed by 10 mL saline flush. May repeat once at 150mg.
 - b. **MAGNESIUM SULFATE** 2 gm IV/IO (over 1-2 minutes) if continued VF or if suspected pulseless Torsades De Pointes

CARDIAC ARREST / V-FIB, PULSELESS V-TACH (CONTINUED)

6. **SODIUM BICARBONATE** 1 mEq/kg IV/IO. Use only in cases of suspected hyperkalemia or Tricyclic Antidepressant OD. May repeat in 5 minutes to a total of 2 doses.
7. **CALCIUM GLUCONATE** 10 ml 10% IV. Use only in cases of suspected hyperkalemia ie ESRD, dialysis. May repeat in 5 minutes to a total of 2 doses. DO NOT GIVE IN SAME IV LINE AS Sodium Bicarbonate.
8. All patients in V-FIB or Pulseless V-Tach at any time will be resuscitated on scene for a minimum of **30 minutes**.
9. If sustained V-FIB or Pulseless V-Tach after 30 minutes contact Medical control for consult and TOR.
10. **Refractory V-fib** (Constant V-fib without other rhythms that is resistant to drugs and shocks)

EPINEPHRINE 1:10,000. Administer maximum of three doses and continue CPR and defibrillations.

CARDIOGENIC SHOCK

ALL LEVELS

Designation of Condition

The patient will present with signs and symptoms of hypoperfusion usually accompanied by hypotension (BP <90 mmHg), shortness of breath often secondary to pulmonary edema (wet noisy respirations/crackles and, if severe, possibly pink frothy sputum), and other indicators of hypoperfusion such as confusion, decreasing LOC and diaphoresis. These signs and symptoms are usually observed in the setting of AMI and require expeditious transport.

1. Oxygen at a flow rate sufficient to maintain SpO₂ >94%.
2. Monitor ETCO₂
3. Allow the patient to seek a position of comfort (fowlers recommended if possible).
4. Manage airway and provide BVM ventilatory assistance as necessary.

AEMT

1. Establish Vascular access IV/IO of Normal Saline or LR
2. Check lung sounds, If lung sounds are clear Administer a 5-10 ml/kg NS/LR bolus

PARAMEDIC

1. Monitor cardiac rhythm.
2. Monitor Vital Signs closely
3. Obtain 12 lead ECG.
4. If no improvement with fluid bolus, or if fluids are contraindicated because of pulmonary edema administer a vasopressor.
 - a. Dopamine [2-20 mcg/kg/min]
 - b. EPINEPHRINE drip @ 2-10 ug/min
 - i. EPINEPHRINE drip (1 mg in 250 ml of NS = 4 mcg/ml) and start at 2 mcg/min. Titrate drip up to 10 ug/min or until an acceptable perfusing heart rate and BP are achieved. A second IV line is desired, however, do not withhold medication if second IV is unobtainable.

CARDIOGENIC SHOCK (Continued)

c. Push Dose Epinephrine – Two Options

Option 1 (When 100 mL bag of NS is available)

In the patient with severe anaphylaxis who is not responding to Epinephrine and fluid resuscitation, IV Epinephrine should be administered.

Inject 1 mg. (1 ml.) of 1:1,000 Epinephrine into a 100 ml. bag of NS and mix well. Draw out 10 ml. giving you a concentration of 1:100,000. Administer 1 mL (10mcg) each minute as needed until symptoms improve.

Option 2 (When 100 mL bag of NS is unavailable – uses Epi 1:10,000 abboject)

1. Expel 9 mL of Epinephrine 1:10,000 out of abboject leaving 1 mL (0.1mg) in abboject
2. Draw up 9 mL of Normal Saline making concentration of 100mcg in 10mL.
3. Administer 0.5 – 1 mL (5-10 mcg) each minute as needed over 5 minutes or until symptoms improve.

EKG TRANSMISSION

ALL LEVELS

Purpose

To establish guidelines for the use of wireless telemetry modems in the field setting for the transmission of 12-lead ECGs

Policy

The implementation of a field telemetry procedure has become a mainstay in the development of a progressive regional STEMI program. ECG transmission from the field has proven to be a vital link in timely care of STEMI patients.

Personnel will work diligently with all healthcare providers to expedite the receipt of the patient's 12-lead ECG at the receiving facility.

Procedure

1. Assess and treat ABC's appropriately.
2. Follow any applicable Cardiac Emergency Guidelines.
3. Obtain a 12-lead ECG as early as possible. Ensure that it is easily readable and clear of artifact.
4. Identify the need to transmit the ECG based on the following criteria:
 - a. ST segment Elevation Myocardial Infarction (STEMI)
 - b. New onset Bundle branch block and all Left BBB
 - c. Hemodynamically unstable tachyarrhythmia's (SVT, A-fib w/ RVR, A-flutter w/ RVR, atrial tachycardia)
 - d. 3rd degree AV block with associated bradycardia
 - e. Select the appropriate destination facility to receive the transmission.
6. Transmit the ECG and save the transmission confirmation receipt with the patient's PCR.
7. Contact medical direction at the receiving facility to discuss interventions and plan of action. Record physician's name on the PCR.
8. Continually assess treatments and their effects on the patient.
9. Provide a patient care update via cell phone or radio when 5-10 minutes from the facility.

Note: Primary treatment must focus on appropriate patient care and stabilization. Transmission should occur as early as possible after imminent life threats are treated.

Note: Transport should not be delayed for the sake of transmission. Transmission can be performed en-route to the facility.

Note: Do not transmit for curiosity sake. Each transmission occupies the ER physician's computer and prevents them from performing their other duties until the transmission is reviewed and printed.

TACHYCARDIA / NARROW

ALL LEVELS

DESIGNATION OF CONDITION

Heart rate over 150 bpm with supraventricular focus. Patients with narrow complex tachycardia are often familiar with their problem and symptoms. **Those who are asymptomatic require no pre-hospital medications.** Patients presenting with hemodynamic instability, evidence of poor perfusion, chest pain, AMS, SOB, cyanosis or evidence of CHF are considered unstable and invasive intervention should be implemented per this protocol.

EMPHASIS ON PATIENT CARE

Maintain adequate perfusion, adequate oxygenation, and ALS intervention

1. Primary Management - Assess ABC's and manage as indicated.
2. Perform the modified Valsalva maneuver
 - a. Have patient blow into 10 ml syringe for 15 seconds attempting to move plunger while sitting up, after 15 seconds have patient stop blowing and place patient supine and elevate legs to 45 degrees for 15 seconds.
3. Initiate transport to appropriate medical facility. Consider ALS intercept.
4. Secondary Management - History, physical exam, vital signs
 - a. If suspected AMI, administer **ASPIRIN** [325 mg] PO. Chewed then swallowed

AEMT

En-route, initiate IV/IO of an isotonic solution, titrate to maintain end organ perfusion.

PARAMEDIC

If patient is hemodynamically unstable, provide the following care:

- a. Trendelenberg position and fluid bolus.
- b. Administer ADENOSINE [6 mg] rapid IV/IO (1-2 seconds) followed with a 20 cc flush. May be repeated in 1-2 minutes, a second dose of [12 mg] rapid IV/IO followed by a 20 cc flush. Single doses of greater than 12 mg should not be given. May be given up to three times and always follow each bolus with a 20 cc flush.
- c. IO is not Recommended Route for Adenosine Administration

TACHYCARDIA / NARROW (CONTINUED)

6. If patient's condition deteriorates with AMS, perform synchronized cardioversion immediately. If the patient is conscious, consider sedation using:
 - a. **MIDAZOLAM** [1-5 mg] IV/IO/IN, prior to cardioversion, if appropriate to patient condition.
 - b. Cardiovert at 50 to 100 joules if unsuccessful escalate joules:
 - i. Cardiovert at 200 J, 300 J, 360 J.
7. If patient's cardiac rhythm changes treat per applicable guidelines.
8. Consider and treat potential underlying causes, e.g., hypoxemia, dehydration, fever.
9. Signs and Symptoms of Hemodynamic instability:
 - Hypotension
 - Acutely Altered Mental Status
 - Signs of Shock
 - Signs of Acute heart Failure
 - Ischemic Chest Pain
13. If ventricular rate is >150/min, prepare for immediate cardioversion. May give brief trial of medications based on specific arrhythmias. Immediate cardioversion is not indicated if heart rate is <150.
14. Adenosine should be administered rapidly through a proximal (e.g. antecubital) vein site followed by a rapid saline flush.

TACHYCARDIA / WIDE

ALL LEVELS

DESIGNATION OF CONDITION

Patient who presents with sustained Ventricular Tachycardia or Wide Complex Tachycardia with pulse present. These patients may be conscious or unconscious. "Unstable" indicates symptoms such as chest pain, dyspnea, hypotension, CHF, ischemia, or unconsciousness. "Stable" patients with sustained ventricular tachycardia will not have these symptoms, but must be monitored carefully for onset of such symptoms.

EMPHASIS ON PATIENT CARE

Maintain adequate perfusion, adequate oxygenation, ALS intervention

1. Primary Management - Assess ABC's and manage as indicated.
2. Turn the defibrillator/monitor on and apply defibrillation electrodes.
3. Initiate transport to an appropriate medical facility. Consider ALS intercept.
4. Secondary Management - History, physical exam, vital signs
 - a. If suspected AMI, administer **ASPIRIN** [325 mg PO]. Chewed then swallowed
5. If the patient becomes unconscious and pulseless, follow Medical **Cardiac Arrest Treatment Guidelines**.

AEMT

1. En-route, initiate an IV of an isotonic solution at a TKO rate.
2. Caution: Use of Nitroglycerine or Narcotic Pain Relievers for patients with VT rhythm may precipitate cardiac arrest

PARAMEDIC

1. If stable wide complex tachycardia or if patient has mild symptoms of decompensation:
 - a. If supraventricular tachycardia with aberrancy is suspected, consider **ADENOSINE** [12 mg] rapid IV/IO push (1-2 seconds) followed by a 20mL flush of Normal Saline.
 - b. If Ventricular Tachycardia consider **AMIODARONE** [150mg] over 10 min.
 - c. May also consider **MAGNESIUM SULFATE** [2g diluted in 10ml over 2 min.] slow IV/IO.
2. If hemodynamically unstable wide complex tachycardia:
3. Prepare for immediate **Synchronized Cardioversion, MIDAZOLAM** [1-5 mg] IV/IO/IN, prior to cardioversion, if appropriate to patient condition.
4. Cardiovert at 100 joules, 200 joules, 300 joules, 360 joules
5. If patient's cardiac rhythm changes, treat per applicable guidelines.

TEAM CPR GUIDELINES (pit crew CPR)

ALL LEVELS

DESIGNATION OF CONDITION

CPR performed during cardiac arrest should be a coordinated effort to maximize patient outcomes and minimize compression interruptions.

EMPHASIS ON PATIENT CARE

Team approach improves CPR quality, reduces CPR pauses, and reduces confusion between providers. Metronome or similar device can help with CPR pace (≥ 100 compressions/minute) if available. Do not interrupt chest compressions to place airway device. If cardiac arrest due to primary respiratory cause initiate mask ventilation as soon as possible.

1. FIRST provider to patient:

- a. Begin continuous compressions hard (≥ 2 in.) and fast (100/min.-120/min)
- b. Recheck pulse every 2 minutes (<5 seconds for each check)
- c. Place AED or cardiac monitor at first pulse check if still alone
- d. Call for/update additional responders

2. SECOND Provider to patient:

- a. Place AED or monitor if not already in place
- b. Appropriate guideline based on rhythm
- c. Place high flow oxygen via non-rebreather for first TWO cycles of high CPR
- d. Take over compressions at next pulse check
- e. Alternate compressions with first provider every two minutes until more help arrives
 - i. If no additional help place airway and apply ventilator after 4 minutes of CPR

3. THIRD Provider to patient:

- a. Assumes or assigns "Code Command"

4. CODE COMMAND:

- a. Enforces appropriate guideline based on rhythm
- b. Ensures compressors are rotating at 2 minute intervals
- c. Ensures CPR pauses are MINIMIZED
- d. Apply ventilator if available
- e. Assigns additional tasks according to appropriate guideline
- f. Tracks/records code progress
- g. Responsible for updating family and calling MCEP

5. ADDITIONAL providers to arrive:

- a. Place IV or IO
- b. Medications per appropriate guideline
- c. Airway management w/ BVM, SGA/EGA, or ETT if paramedic. Consider use of pediatric BVM for ventilation of adult patients to avoid over ventilation.
- d. Any other duties assigned

SCHEDULE OF UPDATES

Protocols will be reviewed annually with full thorough revisions/updates done every 2 years.

October, 2018 – Original Protocols Implemented

Grant County, New Mexico Emergency Medical Services

EMS MEDICAL DIRECTOR SIGNATURE PAGE

**THESE ATTACHED EMERGENCY MEDICAL PROTOCOLS
ARE THE OFFICIAL PROTOCOLS FOR EMERGENCY
MEDICAL SERVICE DEPARTMENTS OPERATING
WITHIN GRANT COUNTY, NEW MEXICO, UNDER THE
MEDICAL DIRECTION OF GREGORY KOURY, M.D.**

Reviewed and Approved _____ Date _____

Gregory Koury M.D.