



Adult Treatment Protocols

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Adult Treatment Protocols

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Adult Treatment Protocols – General Procedures

These protocols and procedures define the Adult (age 15 and over) treatment standards for the Merced County Emergency Medical Services System. This document is divided into two sections: General Procedures and Adult Treatment Protocols.

The General Procedures section contains individual treatment procedures which are referenced in the Adult Treatment Protocols. Included in this section are standard procedures for performing cervical spine immobilization, oxygen administration, pulse oximetry, vascular access, fluid administration, initiation of patient transport, cardiac monitoring and the prehospital determination of death.

The Adult Treatment Protocols outline the specific treatment protocols for adult patients. The Pediatric Treatment Protocols (separate document) are written for patients newborn through age 14 years. Each treatment protocol consists of a table divided into several sections. The top part entitled "Field Treatment - BLS" outlines the procedures for treating that particular illness or injury which are appropriate for either First Responders or ALS personnel to perform. The "Field Treatment – ALS" section is for ALS personnel only. Additionally, there may be a section titled "Considerations," which outlines those medications or procedures that should be evaluated for use by the paramedic.

The bottom "reversed text" section titled "Base Physician Orders" outlines the treatment procedures which require an order from a Base Physician. These orders are known as "Base Physician Orders" and physicians must give these orders directly to paramedics via radio or telephone communication. MICNs may not relay a "Base Physician Order."

The section titled "Base Hospital Orders" outline those medications or procedures that require Base Hospital contact, and may be given by an MICN. In the event that paramedics cannot make base hospital contact or if the clinical condition of the patient is such that a delay in treatment may jeopardize the patient, a paramedic may perform treatments listed in this section without a base hospital order as an "ALS without Base Hospital Contact" procedure. Paramedics must document on an ALS without Base Hospital Contact Report Form each instance where a procedure or medication requiring a Base Hospital Order was performed or administered without such a direct order. Base Hospital Physicians may order any medication or procedure within the paramedic scope of practice for any patient condition regardless of the treatment protocols. Each "Base Hospital Order" must be documented on a Base Hospital Radio Report Form and be available for review.

Additionally paramedics have the right to speak directly to the Base Hospital Physician, if available, for any call.

CERVICAL SPINE IMMOBILIZATION:

While cervical immobilization is a key element in the patient care management of many injured persons, there exists clear indicators for its application. The Cervical Spine Clearance Algorithm card was developed pursuant to clinical standards that have been in use for many years by physicians, and validated through numerous clinical studies.

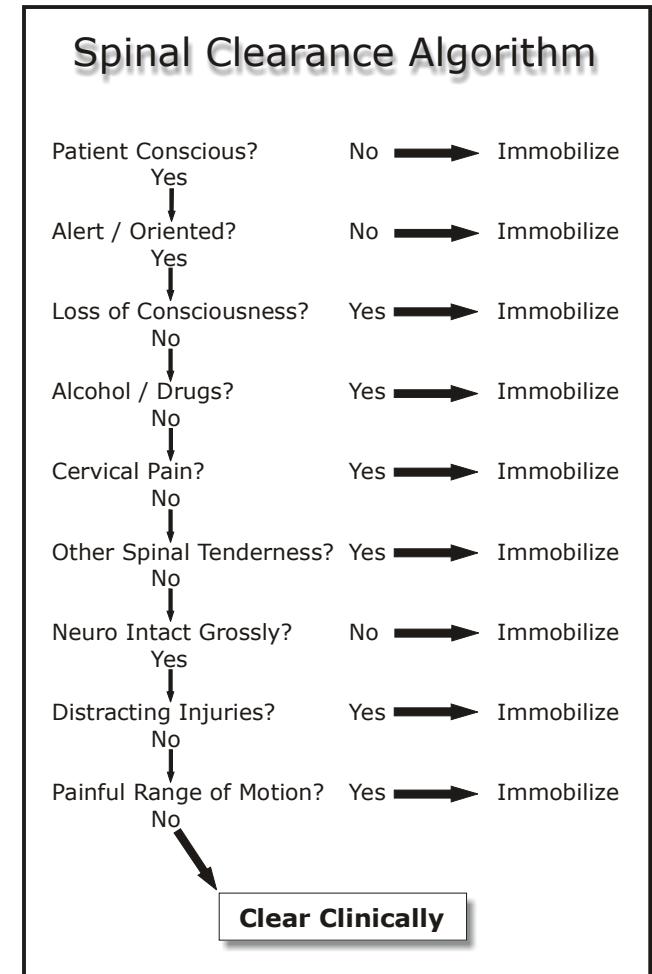
It is important to keep in mind that errors in the decision to not apply c-spine precautions can have disastrous results, and if any question remains about the necessity of c-spine precautions after applying the algorithm, you must error in favor of the patient's best interests and apply it.

Proper c-spine precaution includes all of the following:

- ❖ a rigid cervical collar
- ❖ lightweight head blocks
- ❖ adequate taping to restrict movement
- ❖ a long board which provides for the application of at least three straps
- ❖ minimum of three straps (traditional "X" trunk placement with a third strap across the lower thigh area just above the knees). Currently in this EMS system, "Spider" straps are utilized, which exceeds this minimum.

OXYGEN ADMINISTRATION:

The administration of oxygen is one of the most important interventions available to EMS personnel, and its role in improving compromised patients should not be overlooked. This section is included to provide the basic



guidelines for oxygen use, rather than including specific guidelines for each and every protocol. In general, the following recommendations should apply broadly:

- ❖ When "High-Flow" is indicated in the protocol, this should be interpreted to mean 15 l/min by non-rebreather mask. In the case of some patients (e.g. anxious cardiac patients) this can be reduced to 4-6 L/min via cannula, if the patient will not tolerate a mask. Your use of oxygen should be driven by the patient's level of distress or medical condition, not the Pulse Oximeter.
- ❖ When "as indicated" is listed in the protocol, you should gauge your rate of administration by the patient's level of distress. DO NOT withhold high flow oxygen from a COPD patient in severe respiratory distress, simply be prepared to encourage their respirations and support them with appropriate adjuncts (e.g. BVM, intubation, etc.) as needed.

PULSE OXIMETRY:

The pulse oximeter measures the differences in absorption of light waves by oxygen-saturated vs non-saturated hemoglobin to determine what percent of hemoglobin is carrying oxygen. It does not measure the actual amount of oxygen carried by the blood. Tissue oxygen delivery is proportional to the quantity of blood circulated per unit of time as well as the percent of oxygen saturation. When there is insufficient hemoglobin [i.e., anemia] or diminished circulation, blood may be 100% saturated, but still not carry enough total oxygen for tissue needs. **BASE YOUR USE OF OXYGEN ON THE PATIENT'S LEVEL OF DISTRESS.**

Indications: The monitoring of any patient at risk for hypoxemia from any cause including the administration of medications (such as morphine and diazepam), which can cause respiratory depression, and procedures (such as endotracheal intubation and airway suctioning) during which hypoxia may be worsened.

Interpretation:

greater than 95% = Normal

91-94% = Mild Hypoxemia

86-90% = Moderate Hypoxemia (90% O₂ Sat. = PO₂ ~ 60 TORR)

less than 86% = Severe Hypoxemia (Accuracy below 80% is not reliable)

Potential Sources of Error:

- ❖ Movement of the sensor or its cord ("check sensor" alerts or falsely triggered alarm settings)
- ❖ Exposure of sensor to outside source of bright light (optical interference)
- ❖ Use of BP cuff on same extremity (inability to sense)
- ❖ Low circulatory flow states such as cardiac arrest, hypothermia, shock (overestimation of tissue oxygenation: inability to sense)
- ❖ Black, blue or green nail polish (inability to sense)
- ❖ Finger-print dye (inability to sense)
- ❖ Carbon Monoxide toxicity (falsely elevated readings)
- ❖ Severe anemia (inability to sense; overestimation of oxygenation)
- ❖ Hemoglobin disorders such as sickle cell disease, methemoglobinemia, sulfhemoglobinemia

Documentation:

Pulse oximeter printout strips, if available, should be attached to the PCR and any treatments or conditions that may effect oxygen saturation should be noted on the strip. As with ECG tracings, the PCR number and call date should be documented on the oximeter strip.

VASCULAR ACCESS:

Intravenous access is a Standing Order for all adult patients and pediatric patients when an IV is indicated by protocol. Peripheral IV placement is the preferred choice in all patients.

External Jugular (IV) placement is indicated in patients when no other peripheral IV can be established and the patient requires fluid administration or access for IV medications. Generally external jugular IV lines are established in unconscious patients, but may be used in conscious patients with due regard for the patient's sensitivities.

Intraosseous Access (IO) is used in patients with a GCS less than 8 when a peripheral IV cannot be established and the patient requires fluid administration or access for IV medications. These patients should be in extremis and have an urgent need for vascular access such as cardiac arrest, hypovolemic shock, respiratory arrest, near drowning,

multi-system trauma or status epilepticus. The proximal tibia is the only insertion site allowed in Merced County. Contraindications for site selection includes fractures, infections, and significant orthopedic procedures (ie prosthetic limbs or joints). The paramedic should check skin adipose and muscle thickness when choosing the appropriate needle size. Aspiration of a small amount of blood should be used to confirm placement prior to flush. The paramedic should frequently monitor the insertion site for extravasations.

A base physician order is required for an IO in a patient with a GCS greater than 8. In these **rare** cases, 2% lidocaine may also be ordered by the base physician. Following the placement of an IO needle and prior to fluid administration, the paramedic should:

- Administer 1 mg/kg of 2% Lidocaine (**not to exceed 40mg total**) and infuse *slowly* (over 30 to 60 seconds). Allow 1 minute for anesthetic effect before infusing fluids.

A base physician order is required for both the placement of the IO (with a GCS greater than 8) and the administration of lidocaine; all cases will be reviewed by the EMS Agency.

Pre-existing Intravenous Access may be used if the patient has an indwelling IV catheter with an external port and a peripheral IV cannot be established. A pre-existing intravenous access should only be used in patients requiring fluid therapy or IV medications. Paramedics should consult with a Base Hospital MICN or Physician if they are unfamiliar with the type of indwelling catheter the patient has in place. Sterile technique must be followed when using a pre-existing vascular access.

FLUID ADMINISTRATION:

The standard IV fluid for all patients is normal saline.

Adult Fluid Rates, unless otherwise indicated by treatment protocols:

- ❖ For adult patients requiring medications but not fluid therapy maintain IV rate at TKO.

- ❖ For adult patients in traumatic arrest or who require rapid volume replacement, two large bore (16 gauge or larger preferred) IV lines should be established and fluid boluses administered per protocol. Consult with a base hospital physician once the systolic blood pressure of greater than 90 is obtained or 2 liters of fluid is infused.
- ❖ If signs of pulmonary edema develop during IV fluid administration, slow IV rate to TKO and contact a base hospital physician for fluid orders.

ADVANCED AIRWAYS

Oral intubations and/or placement of a King Airway are considered standing orders for adult patients that require advance airway management. Nasal intubations are not permitted in Merced County. Three attempts total, among all providers are allowed for intubation of the patient. A paramedic may decide to go directly to a King Airway at any time. An intubation attempt is defined as “when the laryngoscope has passed the teeth with the intent of intubating the patient.” If intubation attempts are unsuccessful the paramedic will place a King Airway or use good BLS airway techniques to maintain proper oxygenation and ventilation. Medications should not be given down the King Airway. King Airway placement is not to be used in patients under 4 feet in height.

All patients that have been intubated must have end-tidal CO₂ detectors placed to confirm tube placement. Documentation confirming tube placement shall include color change by the CO₂ detector or an attachment of capnography wave form strips with documentation of capnography values. Documentation should also include visualization of the cords, good lung sounds, absent epigastric sounds, and rise and fall of the chest, the size of the tube and the centimeters at which it is secured. The paramedic must re-confirm tube placement after movement and document that assessment on the PCR.

TRANSPORT:

The majority of the treatment protocols do not specifically list “transport” in their treatment orders. Generally paramedics should take steps to minimize their on-scene times with all patients. In protocols where “transport” is not specifically listed paramedics need to initiate transport based on the patient’s clinical condition and scene logistics, such as proximity to a hospital and the availability/appropriateness of air transport.

Paramedics should take steps to transport all critically injured trauma patients and STEMI patients within ten (10) minutes (unless using air evacuation) and most other medical and trauma patients within twenty (20) minutes. When transporting critically injured or ill patients by ground, paramedics should notify the receiving facility of their estimated time of arrival (ETA) as soon as possible to allow the hospital time to activate internal teams and/or other specialized resources.

Paramedics should consider remaining on scene and treating adult cardiac patients with an asystolic rhythm. These patients can be transported after converting to a more stable rhythm or can be declared dead with a base physician order if they fail to respond to specific ALS treatments.

CARDIAC MONITORING:

It is assumed that personnel will place any patient in which the monitoring of their cardiac rhythm is either integral to their management (e.g. cardiac patients, syncope) or beneficial for the paramedic in providing care (monitoring heart rates). While reference to placing a patient on the cardiac monitor remains on several protocols, we have deleted the constant reference to reassessing the cardiac rhythm after treatments, as it is assumed that the need for this is obvious (e.g. following defibrillation or medication administration, etc.).

A good quality 12 lead ECG should be quickly completed for all patients with suspected cardiac ischemic chest pain, preferably prior to nitrate administration. Every effort should be made to obtain an ECG free of artifact and wandering baselines. It may be necessary to provide skin preparation such as shaving or by having the patient hold their breath. If a STEMI is identified, early transport is imperative. When able the paramedic should begin treatments such as IV's and medications enroute.

TRANSCUTANEOUS PACING (TCP):

Indications:

TCP may be utilized for the following patients after 1 mg of Atropine have been administered:

- A. Hemodynamically unstable bradycardic adult patients unresponsive to drug therapy.
- B. Patients in Asystole following electrocution, with a down time of less than 10 minutes.

C. For patients on the order of a physician who is initiating an interfacility transfer. Under these circumstances, the paramedic should confirm the pacing settings from the transferring physician.

Contraindications:

- A. Hemodynamically or symptomatically stable patients.
- B. Any patient in Asystole except as indicated above in section 1(B).

Procedure:

- A. Consider administration of Morphine Sulfate for pain and/or Versed for sedation, as indicated in the Adult Treatment Protocols.
- B. Place pads on the patient's chest and back. Set initial TCP rate at 80 beats per minute (bpm).
- C. Begin output at the lowest milliamps (mA) for the monitor in use and increase by 10mA until capture/pulses are noted. Once capture is confirmed, continue pacing at a slightly higher output level (10%).
- D. If capture is maintained but the patient remains symptomatic of inadequate tissue perfusion (BP less than 90 systolic, altered level of consciousness), consider increasing rate by 10 bpm until symptoms resolve or 100 bpm is achieved.

Troubleshooting:

- A. Make sure the pads are properly placed and have good contact with the skin.
- B. Check the batteries of the pacer.
- C. Use adequate energy to capture the rhythm.
- D. Use adequate analgesia and sedation to minimize patient discomfort.

NEEDLE THORACOSTOMY:

Indications:

Signs and symptoms of a tension pneumothorax include **all of the following**:

- A. Severe respiratory distress (as evidenced by apnea, severe dyspnea with tachypnea, oxygen saturation less than 90% for greater than 30 sec., or difficulty bagging).
- B. Lateralizing exam (decreased breath sounds on one side, or tracheal deviation away from the affected side, or asymmetric chest wall rise).
- C. Hemodynamic compromise (BP less than 90)

Procedure:

- A. Use a 10 or 12 gauge IV catheter at least 2 inches long
- B. Insert the catheter immediately above the third rib (second intercostal space), slightly lateral to the mid-clavicular line on the side of decreased breath sounds.
- C. When air returns, advance the catheter and remove the needle.
- D. Attach a one way valve to the catheter hub.
- E. Stabilize the catheter securely to the chest.
- F. Reassess the patient, including breath sounds and vital signs every time the patient is moved.

TRANSTRACHEAL JET INSUFFLATION:

Indications:

- A. Complete airway obstruction not relieved by manual procedures and airway visualization with laryngoscope.
- B. Inability to intubate and inability to successfully ventilate using BVM ventilation.

Procedure:

- A. Locate cricothyroid membrane.
- B. Insert 10 gauge IV catheter through the membrane at a 45° angle, directed toward the feet. Aspirate for air return with a syringe to check placement. Remove needle.
- C. Stabilize catheter securely to neck.
- D. Attach the three way stopcock to catheter.

- E. Supply 100% O₂ to the three way stopcock attach the oxygen tubing from the jet ventilator to the three way stopcock.
- F. Close stop cock and administer a one second breath. Open stock and allow patient to exhale for two seconds. And repeat.

NOTE: In children less than 12 years of age ventilate with Bag-Valve-Catheter with 100% oxygen, if unable to ventilate via anesthesia adapter.

G. Check for proper placement in the following order:

1. Assess chest rise.
2. Check absence of gastric sounds.
3. Check adequacy of breath sounds.
4. Assess for complications, including subcutaneous air.
5. Reassess placement every time patient is moved. Sometimes proper placement is difficult to assess, do not just rely on the indicators listed above. Continual clinical reassessment for adequate oxygenation is essential.

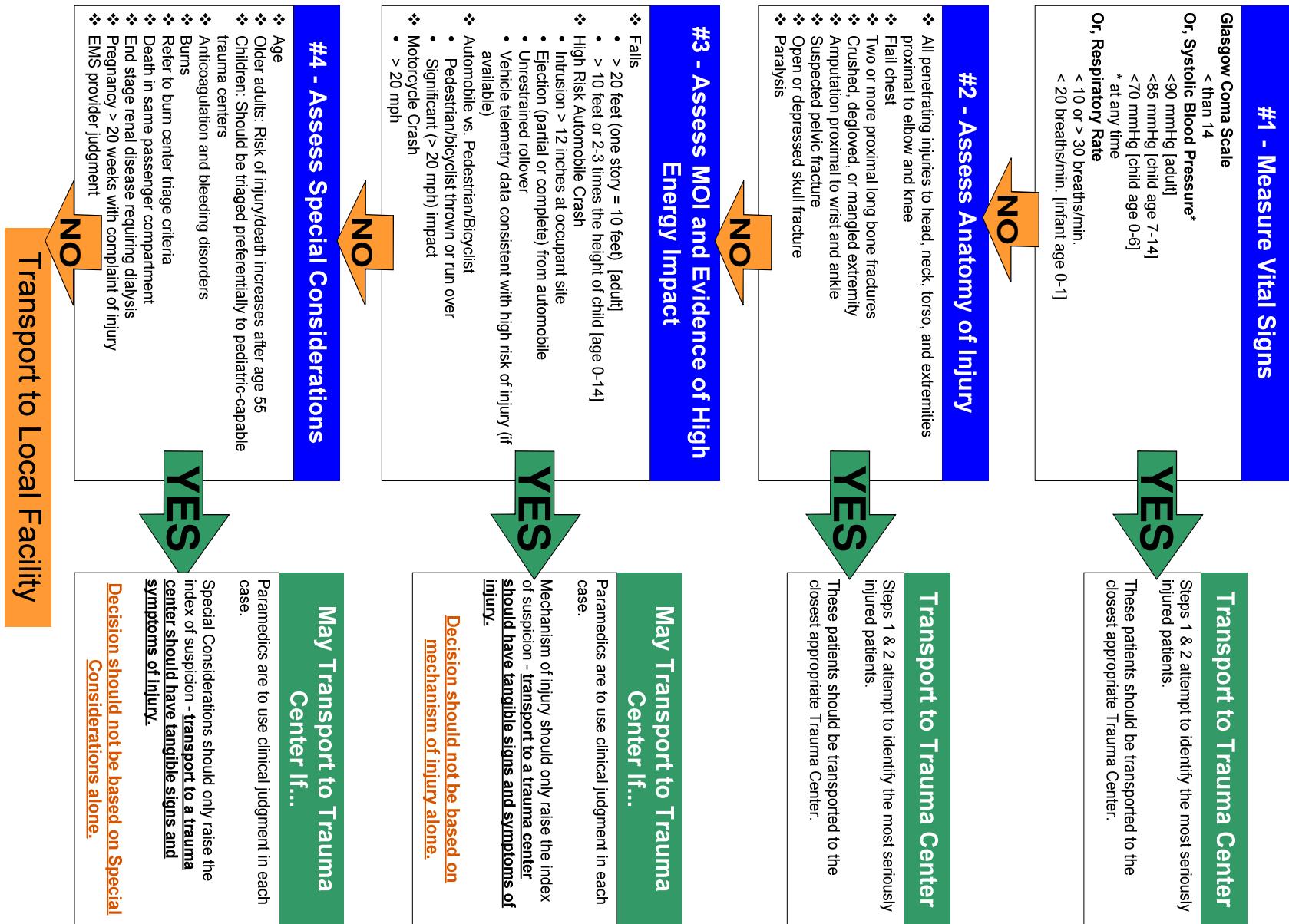
NOTE: SURGICAL CRICOHYROTOMY IS NOT A LOCALLY APPROVED PARAMEDIC SKILL.

DETERMINATION OF DEATH:

Medical Arrest: See "Asystole" protocol on Page 3.

Traumatic Arrest: See "Traumatic Arrest" protocols, Page 22.

TRAUMA TRIAGE: ADULT



Perform Primary Survey

Assess Vital Signs, Level of Consciousness & Anatomy of Injury



- ❖ GCS < 13 or a decrease of 2 or more from baseline;
- ❖ Age appropriate hypotension (see table, Appendix A)
- ❖ Respiratory rate outside of normal limits (see table, Appendix A)
- ❖ Penetrating injury to the head, neck or trunk
- ❖ Patient < 1 year of age with any visible fractures
- ❖ Open and depressed skull fractures
- ❖ Flail Chest
- ❖ Traumatic Paralysis
- ❖ Unstable pelvic fracture
- ❖ Two or more proximal long bone fractures
- ❖ Paramedic judgment:

Yes

No

Triage to TC

Transport to MHLB,
MMCM or Emanuel in
Turlock, whichever is
closest

TRAUMA TRIAGE: PEDIATRIC

APPENDIX A

Pediatric Vital Sign Table

AGE	MINIMUM SYSTOLIC BP	NORMAL HR	NORMAL RR
Premature	40	120-170	40-60
Term	60	100-170	40-60
3 months	60	100-170	30-50
6 months	60	100-170	30-50
1 year	72	100-170	30-40
2 years	74	100-160	20-30
4 years	78	80-130	20
6 years	82	70-115	16
8 years	86	70-110	16
10 years	90	60-105	16
12 years	94	60-100	16

BURN TRIAGE:

1. A patient (adult or pediatric) whose primary injuries are burns may be transported directly to a Burn Center from the field. These injuries include:
 - A. Partial/full thickness (2nd or 3rd degree) burns involving greater than 15% TBSA without airway compromise
 - B. Patients with partial/full thickness (2nd or 3rd degree) burns greater than 10% TBSA without airway compromise with the following:
 - 1) Greater than 60 years of age
 - 2) Associated trauma meeting Trauma Triage Criteria (and if transport can be completed within 60 minutes)
 - 3) Significant co-morbidities (e.g. COPD, major medical disorder, bleeding disorder or anticoagulant therapy, dialysis patients)
 - C. Partial/full thickness (2nd or 3rd degree) burns of face, perineum or circumferential burn to any body part
 - D. Significant electrical injuries with loss of consciousness, voltage in excess of 220, and/or open wounds
 - E. Electrical injuries resulting in a loss of distal pulses
 - F. Significant inhalation injury with successful intubation
 - G. Chemical burns with wounds greater than 5% TBSA
2. All burns with airway compromise, wheezing, stridor, carbonaceous sputum, nasal singeing or significant facial edema must have an evaluation for intubation either by air ambulance personnel or by the emergency physician at the closest appropriate receiving facility prior to transport to the Burn Center, if the ground ambulance is unable to intubate the patient.

VENTRICULAR FIBRILLATION - PULSELESS VENTRICULAR TACHYCARDIA

V-Fib:	Ineffective, non-perfusing rhythm characterized by bizarre, rapid, irregular electrical wave forms of varying form and amplitude.
V-Tach:	Regular or slightly irregular rhythm. Heart rate normally 100-200. A-V disassociation. QRS complexes wide and bizarre (greater than 0.12 seconds)

Field Treatment - BLS

CPR: Continue as described in General Procedures

VENTILATE: Via Bag-Valve Mask, 100% O₂

AED: Apply ASAP - Follow Prompts

Field Treatment - ALS

DEFIBRILLATE: 360 joules or biphasic equivalent. Interruptions in CPR must be minimized

AIRWAY: Ensure patent airway. Advanced airway management, as indicated. Ventilate with bag-valve @ 100% oxygen

IV/IO ACCESS: TKO

EPINEPHRINE: 1 mg of 1:10,000 IV/IO push or 2 mg via ET tube. Repeat every 3-5 minutes.
(Do not delay the administration of Epinephrine due to difficult IV/IO starts,
administer via ET tube)

DEFIBRILLATE: 1 time @ 360 joules or biphasic equivalent

LIDOCAINE: 1.5 mg/kg IV/IO push or 3 mg/kg via ET tube. Repeat once in 3-5 minutes
(If ET dose, do not repeat).

DEFIBRILLATE: 1 time @ 360 joules or biphasic equivalent

Considerations:

LIDOCAINE: Drip @ 2-4 mg/minute, if patient converts to a perfusing rhythm following lidocaine bolus or defibrillation.

SODIUM BICARBONATE: 1 mEq/kg for known or suspected hyperkalemia, renal failure with dialysis or for tricyclic overdose

CALCIUM CHLORIDE: 10 cc of 10% solution slow IVP for patients with suspected hyperkalemia, renal failure with dialysis,
or Ca channel blockers. (Note: use with caution in digitalized patients.)

PULSELESS ELECTRICAL ACTIVITY

The absence of a detectable pulse and the presence of some type of electrical activity other than V-fib or V-Tach define this group of arrhythmias. The summary term Pulseless Electrical Activity (PEA) incorporates electromechanical dissociation (EMD) and a heterogeneous group of rhythms that includes pseudo-EMD, idioventricular rhythms, ventricular escape rhythms and bradysystolic rhythms.

Field Treatment - BLS

CPR: Continue as described in General Procedures

VENTILATE: Via Bag-Valve Mask, 100% O₂

AED: Apply ASAP - Follow Prompts

Field Treatment - ALS

AIRWAY: Ensure patent airway. Advanced airway management, as indicated. Ventilate with bag-valve @ 100% oxygen

IV/IO ACCESS: 2 large bore - rate as indicated

CONSIDER CAUSES:

Hypovolemia:	Volume infusion, recheck vitals after each 500 ml infused
Cardiac Tamponade:	Volume infusion, recheck vitals after each 500 ml infused
Hypoxia:	Provide ventilation - @ 100% oxygen
Tension Pneumothorax:	Needle decompression
Drug Overdose:	Refer to Poisoning Section, Page 16

EPINEPHRINE: 1 mg of 1:10,000 IV push or 2 mg via ET tube. Repeat every 3-5 minutes. (Do not delay the administration of Epinephrine due to difficult IV/IO starts, administer via ET tube)

Considerations:

SODIUM BICARBONATE: 1 mEq/kg for known or suspected hyperkalemia, renal failure with dialysis, or for tricyclic overdose

CALCIUM CHLORIDE: 10 cc of 10% solution slow IVP for patients with suspected hyperkalemia, renal failure with dialysis, or Ca channel blockers. (Note: use with caution in digitalized patients.)

*Refer to Non-traumatic Shock / ROSC protocol if spontaneous circulation returns.

ASYSTOLE

Asystole represents the total absence of electrical activity in the heart. There is no rhythm, although an occasional P wave may be seen. Heart rate is less than five ectopic beats per minute.

Field Treatment - BLS

CPR: Continue as described in General Procedures

VENTILATE: Via Bag-Valve Mask, 100% O₂

AED: Apply ASAP - Follow Prompts

Field Treatment - ALS

AIRWAY: Ensure patent airway. Advanced airway management, as indicated. Ventilate with bag-valve @ 100% oxygen

IV/O ACCESS: TKO

CONSIDER CAUSES:

Hypoxia:	Provide ventilation - @ 100% oxygen
Poisoning / Overdose:	Refer to Poisoning Section, Page 16
Hypothermia:	Expedite transport for re-warming (not dead until warm & dead)
Electrocution:	Transcutaneous Pacing: per EMS Policy # 552.35 following 1 mg Atropine

EPINEPHRINE: 1 mg of 1:10,000 IV push or 2 mg via ET tube. Repeat every 3-5 minutes. (Do not delay the administration of Epinephrine due to difficult IV/IO starts, administer via ET tube)

Considerations:

Base Physician Order:

DECLARATION OF DEATH: If patient remains in Asystole (in two leads) after ensuring adequate ventilations and three administrations of epinephrine, if no reversible causes are identified.

BRADYCARDIA

Bradycardia is characterized by a decrease in the rate of atrial depolarization due to slowing of the sinus node. It may be secondary to sinus node disease, myocardial infarction, increased parasympathetic tone or drug effects (e.g., digitalis, propanolol or verapamil.) The rhythm is regular or slightly irregular. Heart ranges from 35 to 60 beats per minute. May be seen in setting of heart blocks. Do not treat any ventricular ectopy in bradycardia without base hospital contact. NOTE: Although bradycardia is defined as less than 60 beats per minute, high-performance athletes may have heart rates less than 60.

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS Keep patient in position of comfort, assess vitals

Field Treatment - ALS

EKG: Conduct 12 Lead for R/O AMI (Do NOT delay treatment for patient's with serious S & S to obtain 12 Lead).

IV/IO ACCESS: Rate as indicated

FLUID: 500cc fluid bolus unless S/S of Pulmonary Edema

ASSESS: Symptomatic: BP less than 90 related to bradycardic rhythm (HR less than 60) with serious signs and symptoms related to heart rate (chest pain, S.O.B., decreased level of consciousness, shock, pulmonary edema).

ATROPINE: If Symptomatic: 1 mg IV/IO (2 mg ET)

TRANSCUTANEOUS PACING: After total of 1 mg Atropine (2mg ET)
Sedation: Versed 0.1 mg/kg/dose slow IV push (over 2 min.) to a maximum of 4 mg
(may be repeated once with systolic BP greater than 90).
Morphine 2 - 10 mg IVP for pain

CONSIDER CAUSES: Poisoning / Overdose: Refer to Poisoning Section, Page 16

Considerations:

DOPAMINE: Drip @ 5 - 20 mcg/kg/min. for hypotensive patients refractory to IV fluids.
Titrate to systolic BP greater than 90.

VENTRICULAR TACHYCARDIA WITH PULSES / WIDE COMPLEX TACHYCARDIA

A regular or slightly irregular rhythm. Heart rate 100 to 200. A-V disassociation. QRS complex distorted, wide (greater than 0.12 seconds) and bizarre.

Serious Signs or Symptoms (S or S): Chest pain, S.O.B., decreased level of consciousness, low blood pressure, shock, pulmonary edema, acute myocardial infarction.

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS Keep patient in position of comfort, assess vitals

Field Treatment - ALS

12 Lead EKG Do **NOT** delay treatment for patient's with serious S & S to obtain 12 Lead.

IV / IO ACCESS: TKO

ASSESS:

Heart Rate greater than 150 with Presence of Serious S or S

VERSED: Versed 0.1 mg/kg/dose slow IV push (over 2 min.) to a maximum of 4 mg (may be repeated once)

CARDIOVERT: Synchronized at 100 J., 200 J., 300 J., 360 J (or biphasic equivalent)
Reduce power by half for digitalized patients. If delays in synchronization occur and clinical conditions are critical, go to immediate unsynchronized shocks.

Heart Rate less than 150 with Serious S or S or greater than 150 without Serious S or S

LIDOCAINE: 1.5 mg/kg IV push. If patient does not convert re-bolus with lidocaine
1.5 mg/kg IV push. Total lidocaine by bolus not to exceed 3 mg/kg.
If rhythm converts with lidocaine, start a lidocaine drip at 2 mg/min,
increase to 4 mg/min as needed for increased ventricular ectopy.

Considerations:

CYCLIC ANTIDEPRESSANTS: See Poisonings protocol, Page 16

PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIA

A regular rhythm. Heart rate typically 140 to 220. P waves may be absent. The QRS complex normal or narrow (QRS less than 0.12). PSVT has a sudden onset.

Serious Signs or Symptoms (S or S): Chest pain, S.O.B., decreased level of consciousness, low blood pressure, shock, pulmonary edema, acute myocardial infarction.

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS Keep patient in position of comfort, assess vitals

Field Treatment - ALS

IV / IO ACCESS: Large bore with macro tubing at or proximal to the antecubital fossa location for ADENOSINE administration.

ASSESS: **Heart Rate greater than 150 with Presence of Serious S or S**

VERSED: Versed 0.1 mg/kg/dose slow IV push (over 2 min.) to a maximum of 4 mg (may be repeated once)

CARDIOVERT: Synchronized at 100 J., 200 J., 300 J., 360 J (or Biphasic Equivalent)
Reduce power by half for digitalized patients. If delays in synchronization occur and clinical conditions are critical, go to immediate unsynchronized shocks.

Heart Rate less than 150 with Serious S or S or greater than 150 without Serious S or S

VALSALVA'S MANEUVER

ADENOSINE: 6 mg, rapid IV push, over 1-3 seconds. If patient does not convert in 1 - 2 mins. repeat adenosine with 12 mg, rapid IV push over 1-3 seconds. If the patient does not convert, a third administration of 12 mg may be administered in 1-2 minutes.

REASSESS: QRS Complex Width, heart rate and patient symptoms

ATRIAL FIBRILLATION - ATRIAL FLUTTER

Atrial Fib: The rhythm is irregularly irregular. Atrial rate is 350 to 600 but as a rule cannot be counted. Ventricular rate between 160 and 180 but may be much slower.

Serious Signs or Symptoms (S or S): Decreased level of consciousness, low blood pressure, shock, pulmonary edema and acute myocardial infarction.

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS Keep patient in position of comfort, assess vitals

Field Treatment - ALS

IV ACCESS: Rate as indicated

Base Hospital Order:

SEDATE: Versed 0.1 mg/kg/dose slow IV push (over 2 min.) to a maximum of 4 mg (may be repeated once)

CARDIOVERT: Synchronized @ 100j, 200j, 300j, 360j (or Biphasic Equivalent) Reduce power by half for digitalized patients.

MYOCARDIAL ISCHEMIC CHEST PAIN / ACUTE CORONARY SYNDROME

Characterized by: Substernal chest pain, chest or epigastric discomfort often described as a heaviness or squeezing, burning or tightness which may radiate to the jaw, shoulders or arms (usually left). May be associated with dyspnea, nausea, diaphoresis, dizziness and/or anxiety. The patient may have a history of coronary artery disease and/or previous myocardial infarcts. Patients with a myocardial infarction with ST segment elevation (STEMI) have been shown to have better outcomes when transported directly to hospitals capable of interventional cardiology.

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS Keep patient in position of comfort, assess vitals

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

ASPIRIN: 324 mg (4 standard 81 mg chewable tablets) Contraindicated in patients with known allergy to aspirin or ACTIVE GI Bleed.

12 LEAD ECG: If interpretation results reveal *****ACUTE MI SUSPECTED*****, expedite transport to either DMC or MMC, as directed, for possible PCI or CABG, if transport time is 60 minutes or less. It is preferable to obtain 12 lead prior to Nitro administration or transport.

NITROGLYCERIN: 1/150 (0.4 mg) sublingual X 3 doses (if systolic BP greater than 100 mmhg) to relieve pain. Should repeat every 5 min. Must repeat vitals before each dose to ensure systolic BP remains above 100 mmhg. Contact Base for patients that have taken an erectile dysfunction med. within previous 36 hours.

Transport: For STEMI patients, contact the EMS Dispatch Center for destination, unless patient has a preference between DMC or MMC. Contact receiving center ASAP to advise regarding STEMI transport. **Perform IV, Nitro Paste and other procedures enroute to STEMI center.**

IV ACCESS: TKO (preferably with 18g or larger catheter). All unsuccessful IV attempts must be documented carefully.

NITROGLYCERIN PASTE: 1" to chest wall (use with caution in inferior wall MI). If systolic BP drops below 100 mmhg, remove Nitro Patch.

MORPHINE: 2-10 mg increments slow IV (if systolic BP greater than 100 mmHg) to relieve pain. May repeat every 5 min. as needed to a maximum of 10 mg in 15 min. (must repeat vitals before each dose to ensure that the systolic BP remains above 100 mmHg). Additional doses shall be by base hospital order only.

CONTACT BASE:
(may be done enroute) For STEMI alerts, contact only as needed for assistance.
For Non-STEMI patients, follow normal Base contact procedures.

Considerations:

LIDOCAINE: 1.5 mg/kg IVP for frequent couplets or non-sustained V-tach (3 or more beats in a row)

AIRWAY OBSTRUCTION - STRIDOR

Stable Patient

OXYGEN: High Flow, as tolerated

POC & VITALS: Keep patient in position of comfort, assess vitals

MONITOR: Treat Rhythm as appropriate

Considerations:

IV/IO ACCESS: Rate as indicated

Unstable Patient - Unable to Cough or Speak

CONSIDER CAUSE: Foreign Body: Abdominal thrusts, finger sweeps, laryngoscopy and manual removal with McGill Forceps

Trauma: Good Airway Management. ALS Airway PRN

Anaphylaxis: Refer to Allergic Reaction Protocol, page 15

Croup/Epiglottitis: AVOID VISUALIZATION OF THROAT UNLESS INTUBATING. Refer to Respiratory Distress Protocol of Pediatric Protocols

IF UNABLE TO ESTABLISH PATENT AIRWAY VIA OTHER MEANS

Transtracheal Jet Insufflation: followed by 50 psi transtracheal oxygen ventilation and rapid transport (unless air ambulance summoned and ETA less than ground ETA to nearest receiving facility)

CHRONIC OBSTRUCTIVE PULMONARY DISEASE - ASTHMA - BRONCHOSPASM

COPD/ASTHMA: History may include emphysema, bronchitis, heavy smoking, recent cold, chronic dyspnea

Physical Findings: Increased AP diameter of the chest, purse-lip breathing, wheezing, rales and/or rhonchi, prolonged expiratory phase of respiration, accessory muscle use, hyperresonance, or diminished breath sounds.

Medications: May include inhalers, antihistamines, steroids, antibiotics

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS: Keep patient in position of comfort, assess vitals

ASSIST PATIENT: May assist patient with inhalers, home nebulizer unit

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

ALBUTEROL: Nebulized using 0.5 ml in 3.0 ml saline. If patient intubated, administer dose through aerosol holding chamber. Repeat as indicated. Monitor cardiac rhythm carefully in patients over 50 years of age.

IV ACCESS: TKO

Considerations:

EPINEPHRINE: 0.01 mg/kg of 1:1000 subcutaneously. (max. 0.4 mg/dose) May repeat in 20 min. (for severe asthma/COPD only). Use with caution in the presence of coronary artery disease or history of hypertension.

MAGNESIUM SULFATE: For severe Asthma. 2 gms in 10 cc saline slow IV push (over 2 min.) May repeat once after 5 min.

ACUTE PULMONARY EDEMA

History may include: an older patient, heart problems, orthopnea, symptoms of acute MI, taking "water pills," cough with watery or foamy sputum.

Physical Findings: rales and/or rhonchi, distended neck veins, pedal and/or presacral edema, hemoptysis

Medications: digoxin, lanoxin, digitoxin, diuril, esidrix, bumex or (other diuretics or antihypertensives)

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POC & VITALS Keep patient in POC, preferably sitting upright with legs dependent, assess vitals

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

IV ACCESS: TKO

NITROGLYCERINE: 0.4 mg sublingual, if systolic B.P. 100-120 mmHg. May repeat q 5 min.*
0.8 mg sublingual if systolic B.P. 120-180 mmHg. May repeat q 5 min.*
1.2 mg sublingual if systolic B.P. Greater than 180 mmHg. May repeat q 5 min.*

NTG PASTE: 1" if systolic BP 100 - 120 mmhg
2" if systolic BP greater than 120 mmhg

Considerations:

FUROSEMIDE: 40 mg IV over 3 - 5 min. if transport time greater than 30 mins.

DOPAMINE: Drip @ 5- 20 ug/kg/min. for hypotensive patients (not secondary to nitrate therapy).
Titrate to systolic B.P. about 100.

Base Hospital Order:

MORPHINE*: 2 - 4 mg increments slow IVP (if Systolic BP greater than 100 mmhg). May repeat as needed
not to exceed 20 mg in 30 min.

***Note: Differentiation of COPD from cardiogenic pulmonary edema and pneumonia can be extremely difficult. If in doubt as to the etiology, follow the COPD/Bronchospasm protocol.**

*** recheck vitals before repeating dose**

ALOC - ALTERED MENTAL STATUS - STROKE - SYNCOP

Characterized by a Glasgow Coma Score of less than 15, mental confusion, unconsciousness

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POSITION & VITALS: If not contraindicated by injuries, place patient in left lateral decubitus position, assess vitals, monitor airway and ventilatory effort - assist ventilations as needed

ORAL GLUCOSE: With history of diabetes and intact gag reflex - patient able to manage their own secretions

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

IV/IO ACCESS: TKO. If patient has a systolic BP less than 90, administer 500 cc fluid boluses as indicated. Reassess patient and vitals after each bolus.

ACCUCHECK: Test for glucose level

DEXTROSE: 25 gms IV push - if blood glucose less than 75 mg/dl. (Glucagon 1 unit IM if no IV access). May repeat Dextrose in 3 - 5 min. if no response and continued hypoglycemia.

NALOXONE*: 1 - 2 mg IV/IM titrate to correct respiratory depression, if narcotic overdose is suspected (e.g., pin-point pupils, track marks, drug paraphernalia, history of narcotic use, etc.) Larger doses may be required to reverse the effects of medications containing propoxyphene.

TRANSPORT: Minimize scene time.

Considerations:

INTUBATION: If GCS less than 9 and no response to Narcan, if indicated

* Defer intubation until after you can assess the affects of Naloxone. Titrate to improve respiratory status (e.g. increased tidal volume and respiratory rate). It is usually not desirable to have the patient wake up fully in the field.

SEIZURES

Characterized by a Glasgow Coma Score of less than 15, mental confusion, unconsciousness

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POSITION & VITALS: If not contraindicated by injuries, place patient in left lateral decubitus position, assess vitals, monitor airway and ventilatory effort - assist ventilations as needed

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

IV ACCESS: Saline lock (except for pediatric febrile seizures)

VERSED: 0.1 mg/kg/dose slow IV push to a maximum of 4 mg. May be repeated.
or 0.2 mg/kg IM to a maximum dose of 8 mg - may not be repeated.

ACCUCHECK: Test for glucose level

Considerations:

MAGNESIUM SULFATE: In 3rd trimester with hypertension - 2 gms in 10 cc saline slow IV push (over 2 min.)

DEXTROSE: 25gms IV push - if blood glucose less than 75mg/dl. (Glucagon 1 unit IM if no IV access). May repeat Dextrose in 3 - 5 min. if no response and continued hypoglycemia.

NALOXONE: 1 - 2mg IV/IM titrate to correct respiratory depression, if narcotic overdose is suspected (e.g., pin-point pupils, track marks, drug paraphernalia, history of narcotic use, etc.) May repeat in 2 mg increments to a total of 10 mgs. Larger doses may be required to reverse the effects of medications containing propoxyphene.

* Defer intubation until after you can assess the affects of Naloxone. Titrate to improve respiratory status (e.g. increased tidal volume and respiratory rate). It is usually not desirable to have the patient wake up fully in the field.

NON-TRAUMATIC SHOCK

History may include: GI bleeding, vomiting, diarrhea, septicemia, anti-hypertensive OD, Return of Spontaneous Circulation, heat injury/stroke.

Physical signs may be due to circulatory insufficiency (collapsed peripheral/neck veins, confusion, cyanosis, thready pulse) and compensatory or sympathetic nervous and adrenergic compensation mechanism (pale, cold, clammy and/or mottled skin, rapid respirations, anxiety). Signs of compensation may be absent in the elderly or patients taking beta-blocker or alpha-blocker medications. Heat stroke can present with ALOC; hot, red & dry skin signs; nausea/vomiting, etc.

Field Treatment - BLS

OXYGEN: High Flow, as tolerated

POSITION & VITALS: If third trimester pregnancy, place patient in left lateral decubitus position
assess vitals

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

IV ACCESS: 2 large bore cannula. If patient has a systolic BP less than 90, administer 500cc fluid boluses as indicated. Reassess vitals and lung sounds after each fluid bolus.

CONSIDER CAUSE: Cardiogenic: IV fluid bolus

Hypovolemia: IV fluid boluses

Hypoxia: 100% O₂ via NRM or BVM

Anaphylaxis: refer to Allergic Reaction Protocol, page 15

Overdose: refer to Poisoning Protocol, page 16

Heat Stroke: IV fluid bolus 500cc, re-check vitals. Remove excess clothing. Rapid cooling with water - keep head moist. Keep environment cool.

Aneurysm: IV fluid boluses to maintain target systolic BP of 90 mmhg

Considerations:

DOPAMINE: Drip @ 5 - 20 ug/kg/min for hypotensive patients refractory to IV fluids. Titrate to systolic BP 100 mm Hg.

ALLERGIC REACTION

Field Treatment - BLS

REMOVE ALLERGEN: If feasible (e.g. bee stinger) and apply cold pack

OXYGEN: As indicated

Field Treatment - ALS - MILD REACTION (RASH, SWELLING, WHEEZING)

MONITOR: Treat rhythm as appropriate

ALBUTEROL: Via nebulizer using 0.5 ml in 3cc saline for respiratory distress

Considerations:

DIPHENHYDRAMINE: 50 mg IV push or IM

Field Treatment - ALS - SEVERE REACTION (HYPOTENSION, ALOC, SEVERE RESP. DISTRESS, ORAL SWELLING, CHEST TIGHTNESS)

EPINEPHRINE: 0.01 mg/kg subcutaneously of 1:1000 (maximum dose 0.4 mg)

IV ACCESS: 2 large bore cannula. Administer 500cc fluid boluses as indicated. Reassess vitals after each fluid bolus.

DIPHENHYDRAMINE: 50 mg slow IV push or IM if IV access not promptly available

EPINEPHRINE*: 0.1 mg of 1:10,000 slow IV push if BP < 80 and the patient is in extremis due to inadequate ventilatory exchange or hypotension unresponsive to fluid boluses. May be repeated every 2 - 3 minutes if no response to treatment.

ALBUTEROL: Via nebulizer 0.5 ml in 3cc saline for respiratory distress. If patient intubated, administer dose through aerosol holding chamber. Repeat as indicated. Monitor cardiac rhythm carefully in patients over 50 years of age.

NEEDLE CRICOHYROTOMY: Followed by 50 PSI transtracheal oxygen ventilation, if upper airway obstruction and BVM or intubation unsuccessful

* Use with caution in patients with hypertension or coronary artery disease

POISONINGS - INGESTIONS

May cause early and often abrupt onset of cardiovascular collapse (bradycardia and hypotension), bronchospasm, respiratory arrest, seizures and hypoglycemia.

Field Treatment - BLS

SCENE:	Ensure scene safety with hazardous materials
OXYGEN:	High Flow, as tolerated
POSITION & VITALS:	If not contraindicated by injuries, place patient in left lateral decubitus position, assess vitals
CONTAINERS:	Attempt to secure containers of medications or other ingested material, if applicable

Field Treatment - ALS

MONITOR:	Treat rhythm as appropriate
IV ACCESS:	Rate as indicated. Give fluid bolus for systolic BP < 90 mmhg (refer to Non-traumatic Shock Protocol)
TRANSPORT:	Minimize scene time. STAT transport if patient unstable

Considerations:

Substance:

Beta-Blockers: A. Epinephrine 0.1mg (1:10000) IVP every 5 minutes for severe hypotension not responsive to fluid bolus.
B. Glucagon 2mg IVP for hypotension not responsive to above. Repeat every minute as needed.

Calcium Channel Blockers: A. Calcium Chloride 10 cc of 10% solution IVP for severe hypotension not responsive to fluid boluses.
B. Epinephrine 0.1mg IVP every 5 minutes for severe hypotension not responsive to fluid bolus.
C. Glucagon 2mg IVP for hypotension not responsive to above.

Cyclic Antidepressants: A. Sodium Bicarbonate 50 cc (50 mEq) IVP every 5 minutes X 3 until the following is resolved:
1. QRS interval greater than 0.10 in patients without a bundle branch block.
2. Continued seizures after benzodiazepine administration.
3. Hypotension non-responsive to fluid bolus.
4. V-Fib/V-Tach
B. Epinephrine 0.1mg IVP every 5 minutes for severe hypotension not responsive to fluid bolus.

Narcotics: Only treat if altered mental status or respiratory depression (see ALOC protocol)

Organophosphate: A. Atropine 2 mg IV push every 5 minutes until bronchial secretions are controlled
B. Treat seizures as appropriate

DYSTONIC REACTIONS TO PHENOTHIAZINE DRUGS

History may include: Restlessness, muscle spasms of the neck jaw and back, oculogyric crisis, history of ingestion of phenothiazine. Phenothiazines are prescribed for their antiemetic and tranquilizing properties.

Field Treatment - BLS

AIRWAY / BREATHING: Support as necessary

POSITION & VITALS: Maintain patient in POC and assess vitals

CONTAINERS: Attempt to secure containers of medications

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

IV ACCESS: Rate as indicated.

DIPHENHYDRAMINE: 50 mg slow IV push or IM if IV access not promptly available

ENVENOMATION

Field Treatment - BLS

AIRWAY / BREATHING: Support as necessary, High flow oxygen as tolerated

POSITION & VITALS: Maintain patient in POC and assess vitals

IDENTIFY CAUSE: If feasible and safe to do so, have animal transported for identification purposes

Field Treatment - ALS

MONITOR: Treat rhythm as appropriate

IV ACCESS: Large bore access, Rate as indicated.

IDENTIFY OFFENDER: Bee/Wasp Sting - Remove (scrape away) stinger. Cold packs may be applied to relieve pain.
Refer to Allergic Reaction protocol on page 15, as indicated.

Spider Bite - Scorpion Sting - Remove stinger. Cold packs may be applied to relieve pain.
Refer to Allergic Reaction protocol on page 15, as indicated.

Snake Envenomation - Avoid movement of the affected extremity. Keep extremity at neutral position. Do not apply ice. Monitor distal pulses. Remove any rings, jewelry or constricting clothing around area of bite. Circle any swelling around bite marks with a pen and note time. Additionally, measure the circumference of the extremity proximal to the bite and note time. This measurement can be used as a baseline for determining the progress of swelling.

Note: If a patient does not exhibit signs and symptoms of the envenomation within 30 minutes of being bitten, the probability of having received venom through the snake bite decreases.

CHILDBIRTH

ALL DELIVERIES, AS TIME PERMITS

OXYGEN: High Flow, as tolerated

MONITOR (ALS Only): Treat rhythm as appropriate

IV ACCESS (ALS Only): TKO

ROUTINE DELIVERY

TRANSPORT: With mother placed on left side, if time permits

DELIVER NEWBORN: If no time for transport, proceed with delivery. As head is delivered, gently suction newborn's mouth and nose while keeping the head dependent. Use hand to prevent explosive delivery. If cord is wrapped around newborn's neck and cannot be slipped over the head, double clamp and cut the cord between clamps. Complete delivery of body, then clamp and cut cord 6 - 8 inches from newborn. Dry the newborn and keep warm. Place newborn on mother's abdomen or breast.

ASSESS NEWBORN: Refer to page 6 of Pediatric Protocols - Neonatal Resuscitation

MASSAGE FUNDUS: Following delivery of placenta

BREECH PRESENTATION

DELIVER NEWBORN: For a buttocks presentation, allow newborn to deliver to the waist without active assistance (support only). Use hand to prevent explosive delivery. When legs and buttocks are delivered, the head can be assisted out. If the head does not deliver within 3- 4 minutes, insert a gloved hand into the vagina, palm towards the baby's face and cord between fingers and create a passage.

TRANSPORT: Stat, while retaining airway for newborn, if head undelivered

PROLAPSED CORD

CONSULT BASE PHYSICIAN:

POSITION: Place in shock position with hips elevated on pillows or knee-chest position

PROTECT CORD: Place gloved hand in vagina and gently push the presenting part off the cord. Cover the exposed portion of cord with saline-soaked gauze. Do not attempt to push cord back.

TRANSPORT: Stat, while retaining both procedures above.

Considerations (ALS Only):

MAGNESIUM SULFATE: 4 gms in 250cc and run at rate determined by transferring physician (approximately 2gms per hour)

Call base for drip changes if increasing hyporeflexia or areflexia occurs

For respiratory arrest, assist ventilations, discontinue magnesium drip and administer 10 - 20 ccs of 10% solution of Calcium Chloride IV push

BURNS

MOVE PATIENT:	To a safe environment, if necessary
OXYGEN:	As indicated, High flow if signs or symptoms of respiratory involvement
INTUBATE (ALS Only):	Be prepared to intubate patient if facial / oral swelling are present or if respiratory depression or distress develop.
IV ACCESS (ALS Only):	Rate as indicated
MONITOR (ALS Only):	Treat rhythm as appropriate
STOP BURNING PROCESS:	<p><u>Chemical Burns:</u> Brush off dry chemicals and flush with copious amounts of water. Consult with Fire Service or HazMat regarding decontamination requirements. If possible, transport chemical product label with patient.</p> <p><u>Tar Burns:</u> Cool with water and transport; do not attempt to remove tar.</p> <p><u>Thermal Burns:</u> Cool with water for up to 5 minutes to stop the burning process. Avoid prolonged cool water usage due to risks of hypothermia and local cold injury.</p>
DRESS BURNS:	<p><u>Thermal Burns > 20% of body surface</u> - cover with dry dressings and maintain normal body temperature (watch for hypothermia)</p> <p><u>Thermal Burns < 20% of body surface</u> - cool with saline soaks and maintain normal body temperature (watch for hypothermia)</p>
MORPHINE (ALS Only):	2 - 4 mg increments slow IV push (if systolic BP greater than 100 mmhg). May repeat as needed for pain, not to exceed 20 mg in 30 minutes.

TRAUMA

SECURE AIRWAY:	As appropriate while maintaining c-spine. Consider intubating while enroute. Ensure adequate ventilation.
OXYGEN:	As indicated
CONTROL BLEEDING:	Stop excessive (exsanguinating) hemorrhage
C-SPINE:	Protect if indicated by algorithm
TRANSPORT:	ASAP. Attempt to limit scene time to 10 minutes unless using air evacuation
ADVANCED AIRWAY (ALS)	As indicated
IV ACCESS (ALS):	Attempt at least two large bore lines WHILE ENROUTE (unless using air evacuation). A target systolic pressure of 90 -100 mmHg should be maintained, use 500 cc fluid boluses as indicated.
SECONDARY SURVEY:	Obtain full set of vital signs
DRESS & SPLINT:	Dress only those wounds with excessive hemorrhage (unless time allows attention to minor wounds). Splint as needed for stabilization of extremities.
CARDIAC MONITOR (ALS):	Treat rhythm as indicated
MORPHINE (ALS):	Isolated extremity trauma only. 2 - 4 mg increments slow IVP (if systolic B.P. greater than 100mmHg). May repeat as needed for pain not to exceed 20mg in 30 minutes.

Considerations:

POSITION:	If patient is greater than six months pregnant, consider left lateral decubitus position. If in c-spine, tilt board at 30 degrees, left lateral. If head injury is suspect place HOB up 30 degrees.
NEEDLE THORACOSTOMY(ALS):	Relieve the tension pneumothorax by performing a needle thoracostomy or by removing the occlusive dressing covering an open chest wound.
IMPALED OBJECT:	Immobilize and leave in place. Remove object upon Base Physician order. Exception: May remove an impaled object from the face, cheek or neck if unable to ventilate due to object.
OPEN CHEST WOUND:	Cover wound with 3-sided occlusive dressing (do not seal). Continuously re-evaluate patient for a developing tension pneumothorax.
EVISCERATING TRAUMA:	Cover eviscerated organs or bowel with saline soaked gauze. Do not attempt to replace organs or bowel into abdominal cavity.
AMPUTATIONS:	If partial amputation, splint in anatomic position and elevate the extremity. Place complete amputated parts in a sealed clean and dry container or bag. Place container or bag in ice, if possible.
EXTREMITY TRAUMA:	Check neuro-vascular status before and after each extremity manipulation. Grossly angulated long bone fractures may be reduced with gentle unidirectional traction for splinting.

Base Hospital Order:

MORPHINE (ALS):	2 - 4 mg increments slow IVP (if systolic B.P. greater than 100mmHg). May repeat as needed for pain not to exceed 20mg in 30 minutes in all other trauma.
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TRAUMATIC ARREST

CPR: Continue as appropriate. Do not delay transport even if CPR has to be interrupted. Do Not Air Evacuate patients in arrest.

MONITOR (ALS)

DEFIBRILLATE: V-FIB or V-TACH. Complete Traumatic Arrest Protocol through "C-SPINE" before referring to cardiac protocols. If asystolic, see Base Hospital Order below.

SECURE AIRWAY: Consider simplest effective method. Ventilate with bag-valve with 100% oxygen. Consider intubation while enroute.

CONTROL MAJOR HEMORRHAGE

NEEDLE THORACOSTOMY (ALS): Bilateral

C-SPINE: Apply

TRANSPORT: Immediate transport to definitive care is the best treatment for traumatic arrest patients after completing steps 1-4.

IV/IO ACCESS (ALS): Attempt at least two large bore lines - run wide open.

TREAT DYSRRHYTHMIA (ALS): Only after all of the above has been done.

BASE PHYSICIAN ORDER:

DECLARATION OF DEATH (ALS): **If patient remains asystolic in two leads after CPR for 1 minute.**

NOTE: Electrical injuries that result in cardiac arrest shall be treated as medical arrests