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Acts Allowed

The acts allowed for individual certification holders in the State of Colorado are governed by 6 CCR 1015 Chapter 2—Rules Defining the Authorized Medical Acts of Emergency Medical Technicians. Any change to Chapter 2 may render the acts allowed as listed in this manual obsolete. Providers are responsible for knowing their scope of practice as mandated by Chapter 2 and adhering to any limitations until this manual can be updated to reflect those changes.

The Medical Director reserves the right to limit the scope of practice allowed within Chapter 2 for those practicing under his/her medical license. Those limitations are reflected within this manual. Although some exceptions can be made if a written physician order is obtained and the act is still within Chapter 2 for that provider level. Updates to this manual will be made on an on-going basis in order to best serve the needs of patients. Updates will be distributed to the Training Officers of each agency operating under these guidelines. It is each agency's responsibility to maintain current protocols and train their staff on any changes.

Agencies Adopting These Protocols

The following agencies are subject to guidelines within this manual:

- Western Eagle County Ambulance District
- Greater Eagle Fire Protection District
- Gypsum Fire Protection District
- Eagle County Regional Airport Fire

Approval & Review

This manual is approved by the current Western Eagle County Ambulance District Medical Director. It is reviewed on an on-going basis in order to stay current with advances in medicine, changes in acts allowed, and the needs of the District. If a change is made, an updated page will be inserted to replace the old page. The footer on the new page will read with the page number followed by a letter (for example, 35A) and the date the update was made. The Medical Director will update his/her signature on the master document kept at the Western Eagle County Ambulance District Station.

Please see the Master Document kept at Western Eagle County Ambulance District, 360 Eby Creek Road, Eagle, CO 81631 for the current Medical Director approval.

____

Printed Name

____

Signature

____

Date

Guidelines for Use of Protocols

GENERAL OVERVIEW

The purpose of this protocol manual is to provide EMS personnel with guidelines in the pre-hospital treatment of the majority of patients. Providers should rely on knowledge gained from training, consultation with medical control, and common sense when encountering situations not covered in these protocols. Always do what is right for the patient and within your scope of practice.

This manual is divided into three main sections as follows: Skills, Protocols, and the Drug Formulary. The Skill and Protocol Sections are further divided into subsections and alphabetized for ease of use. Each page has a footer that lists the Section: Subsection—Subject Title that can be used as a quick reference.

SKILLS SECTION

The Skills Section lists the indications and contraindications, and describes the procedure and any special notes for the majority of skills used by field providers. Skills within each subcategory have a heading that indicates the provider level that is allowed to utilize the skill.

Interpreting Headings in Skills Sections
EMT-B
Skill is appropriate for EMT-Basics, EMT-Basics-IV, EMT-Intermediates, and EMT-Paramedics
EMT-BASIC-IV
Skill is appropriate for EMT-Basics-IV, EMT-Intermediates, and EMT-Paramedics
EMT-INTERMEDIATE
Skill is appropriate for EMT-Intermediates
EMT-PARAMEDIC
Skill is appropriate for only EMT-Paramedics

Guidelines for Use of Protocols, cont.

PROTOCOL SECTION

The Protocol Section provides guidance for the pre-hospital treatment of the majority of patients. Like the Skills Section, the Protocol Section is also organized around certification levels listed in headings. The treatments are outlined in chronological steps. The order of the steps should be considered as suggestions rather than requirements. Using the steps out of order or electing not to use a specific step is not considered deviation from protocol unless doing so would cause foreseeable harm to the patient.

Interpreting Headings in Protocol Sections
EMT-B
Starting point for all providers at the EMT-B level and above.
EMT-BASIC-IV
Continuation for EMT-Basic-IV, EMT-Intermediates, and EMT-Paramedics
EMT-INTERMEDIATE
Continuation for EMT-Intermediates (EMT-Paramedics skip this section)
EMT-PARAMEDIC
Continuation for EMT-Paramedics.

DRUG FORMULARY

The drug formulary lists indications, dosage, contraindications, side effects, and any special notes for all drugs that are permitted to be administered in the field. Keep in mind many of the contraindications listed for specific drugs are relative to the patient's condition. Contact medical control if there is a concern regarding a listed contraindication.

Due to the transport times in the District, maximum drug dosages for some drugs are set high anticipating a lengthy transport. Use common sense when spacing dosage intervals. If the maximum dosage for any drug needs to be exceeded, contact medical control for further orders.

Drugs that are not listed in the formulary are not to be administered by WECAD personnel of any certification level unless authorized by the medical director. Authorization must be documented in the patient report. The formulary is subject to on-going change as the needs of the District's patient population changes.

Medical Direction

All EMS agencies providing pre-hospital care using this manual are doing so under the medical license of Dr. Benji Kitagawa.

Actions that are in boldface and italicized require a written or verbal order from a base physician.

It is preferable that EMS personnel contact a physician at the facility to which they are transporting as their base physician. Responding ALS units can be advised of patient updates, but cannot serve as medical control. For all other circumstances, Valley View Hospital is considered the medical control for agencies operating under these protocols.

If the on-duty physician is unavailable for consultation and/or radio & cell phone service are not available, this manual can be considered standing orders. In the previous mentioned circumstances, EMS personnel can proceed with treatment as needed using their best judgment. This manual can also be used as a standing order for critical patients when the time required to call in an order would likely result in harm to the patient.

If a protocol deviation occurs, the provider is required to complete an Unusual Circumstance Report and submit it to the Training Captain within 24 hours of the event.

References

This manual was compiled at Western Eagle County Ambulance District using the following references:

- Previous versions of the Western Eagle County Ambulance District Protocol Manual
- Eagle County Ambulance District Protocol Manual
- Denver Metropolitan Paramedic Protocol Manual
- Garfield/Pitkin County EMS Protocols
- Anchorage Fire Department Medical Operations Manual
- Austin/Travis County Protocols
- Wake County EMS Protocols
- Northwest Community Protocols
- American Heart Association Advanced Cardiovascular Life Support, Pediatric Advanced Life Support, and BLS for the Healthcare Provider Manuals, 2010.
- Advanced Medical Life Support Textbook
- Paramedic Textbook, 3rd Edition Revised, Mosby
- American Academy of Pediatrics, Pediatric Education for PreHospital Providers Textbook
- Pre-Hospital Trauma Life Support, 6th Edition, 2007
- Wilderness Medicine, 4th Edition, 2001, Paul Auerbach

Assisted Ventilation

EMT-BASIC

INDICATIONS

1. Failure of oxygenation and ventilation

CONTRAINDICATION

1. None

PROCEDURE

1. Two rescuers should be used to complete this skill whenever possible.
2. Place the mask on the patient's face using the bridge of the nose as a guide for correct position.
3. Use the E-C technique to hold the mask in place while you lift the jaw to hold the airway open.
4. Squeeze the bag to give breaths (1 second each) while watching for chest rise. The recommended tidal volume for most adults is 10-15 mL/Kg. Allow plenty of time for passive exhalation.
5. Success is determined by SpO2>90%, chest rise, skin color, bag compliance, and mask seal. If success is not achieved, other techniques should be tried including oral & nasal airways, two-person-two-handed technique, and optimal patient positioning.

Rates of Assisted Ventilation		
	Without Advanced Airway	**With Advanced Airway**
Adult	1/5-6 seconds	1/6-8 seconds
Child	1/3-5 seconds	1/6-8 seconds
Infant	1/3-5 seconds	1/6-8 seconds

SPECIAL NOTES

1. Whenever any form of assisted ventilation is used, you must be careful to avoid hyperventilation (too many breaths or too large a volume). Hyperventilation can be harmful because it increases intrathoracic pressure, decreases venous return to the heart, decreases cerebral perfusion, and diminishes cardiac output. It may also increase gastric inflation and predispose the patient to regurgitation and aspiration of gastric contents.

Capnography

EMT-BASIC

INDICATIONS

1. Continuous CO_2 monitoring to be used on ALL INTUBATED patients to:
   - Confirm initial tube placement
   - Recognize inadvertent tube dislodgement
   - ED physician confirmation and documentation of successful tube placement prior to transferring the patient from the ambulance cot to the hospital bed.

2. Continuous CO_2 monitoring may be used on intubated patients to:
   - Measure the effectiveness of ventilations
   - Measure the effectiveness of chest compressions
   - Indicate return of spontaneous circulation
   - Measure cardiac output when metabolic production of CO_2 and alveolar ventilation are constant

3. Continuous CO_2 monitoring may be used on non-intubated patients to measure:
   - Bronchospasm
   - Hypoventilation and hyperventilation
   - Impending need of an advanced airway

CONTRAINDICATIONS

1. None

PROCEDURE

1. Apply the measuring device. Use the in-line adapter for intubated patients, and the oral-nasal cannula for non-intubated patients. Normal $EtCO_2$ values are between 35-45 mmHg.
2. Attach device to the Lifepak 12 and select CO_2 reading.
3. Print the capnograph when desired because archives may only record the numeric value.

Chest Decompression

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Chest decompression is indicated in the presence of a tension pneumothorax with decompensation. Assessment findings for a tension pneumothorax include the following:
   - Hyperinflation of the affected side
   - Poor ventilation despite an open airway
   - Restlessness, agitation, extreme anxiety
   - Increased airway resistance on ventilating patient
   - Respiratory distress (severe dyspnea, tachypnea, air hunger in conscious patient)
   - Neck vein distension (may not be visible in the presence of hypovolemia)
   - Decreased or absent breath sounds on the affected side
   - Tachycardia
   - Signs of shock
   - Cyanosis
   - Narrow pulse pressure
   - Subcutaneous emphysema
2. Bilateral chest decompression for all traumatic arrest patients

CONTRAINDICATIONS

1. None for a tension pneumothorax with decompensation

PROCEDURE

1. Locate insertion site. Either the second intercostal space midclavicular, or the fourth intercostal space midaxillary.
2. Clean site with an alcohol pad.
3. Advance the needle to upper border of the lower rib. Once touching the rib, move the needle over the lower rib and into the intercostal space. As the needle enters the pleural space, there should be a pop and a hiss of air as the pneumothroax is decompressed.
4. Advance the catheter into the intercostal space. Remove the needle. Attach the one-way stop cock valve if available, and secure it in place.
5. Monitor for the above signs of tension, and open the stop-cock valve or repeat the procedure if needed.

SPECIAL NOTES

1. A pneumothorax can be spontaneous, due to trauma, or a complication of CPR. Chest decompression is only done when signs of tension develop, therefore, accurate diagnosis is paramount.

CPAP

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Any patient experiencing severe respiratory distress. Common causes include, but are not limited to, pulmonary edema and COPD.

CONTRAINDICATIONS

1. Pneumothorax
2. Need for intubation (respiratory arrest, agonal respirations, unconscious)
3. Penetrating Chest Trauma
4. Persistent nausea/vomiting
5. Facial anomalies, unable to maintain mask seal
6. Hypotension (relative contraindication, contact medical control with BP <90 mmHg systolic)
7. Active GI bleed or history of recent gastric surgery
8. Pediatrics (minimum 12 years of age)

PROCEDURE

1. Assess patient for s/sx of a pneumothorax.
2. Confirm BP >90 mmHg systolic, document baseline evidence of respiratory distress.
3. Place patient in a comfortable sitting position.
4. Explain the procedure to the patient. Use the following phrases as appropriate:
    - "You are going to feel some pressure from the mask but this will help you breath easier."
    - "I'm gong to put this mask on your face to help push air into your lungs"
    - "You will be breathing out against some pressure that will help keep your airway from collapsing when you breath."
    - "Just relax, breath normally, and you will see this will really help."
5. Select the appropriate
6. Allow the patient to hold the mask to their own face. Once they are comfortable with the sensation, manually apply some pressure to create a mask seal and place the head straps.
7. Start PEEP at 7.5 cm H2O. If there is no improvement after five minutes, increase PEEP to 10 cm, then to 12.5 cm.
8. Administer nebulizer treatments as needed.
9. If respiratory status and/or level of consciousness deteriorate, remove device and begin bag valve mask ventilation.
10. Include in radio report that patient is on CPAP so hospital ED can notify respiratory therapy if needed.

Cricothyrotomy（Pertrach）

EMT-PARAMEDIC

INDICATIONS

1. As described in airway management, all alternative airway management techniques have been exhausted, patient cannot be successfully ventilated with a bag valve mask and deemed unlikely to survive without airway intervention.

CONTRAINDICATIONS

1. None when patient is deemed unlikely to survive due to loss of an effective airway.
2. Pediatric set is to be used only for patients 3 to 10 years of age.

PRECAUTIONS

1. Straying from midline is very dangerous and likely to cause hemorrhage from the carotid or jugular vessels or their branches.
2. If the Splitting Needle is inserted too deep, perpendicular to the skin, it could puncture posterior wall of trachea.
3. Insertion of device through thyroid cartilage can injure vocal cords.
4. Over inflation of cuff may cause cuff to burst.

ADULT & PEDIATRIC PROCEDURE

1. Use aseptic technique（betadine/alcohol wipes）to cleanse the area.
2. Position the patient in a supine position, with in-line spinal immobilization if indicated.
3. Remove the dilator from the package and protective sheath and advance it into tracheostomy tube.
4. Landmark cricothyroid membrane.
5. Either make an incision in the skin or simply insert Splitting Needle through skin directly over cricothyroid membrane.
6. While advancing Splitting Needle perpendicular to the skin, lightly pull back on the plunger of syringe. When air bubbles occur or you feel a break in resistance, cease advancement of Splitting Needle.
7. Incline needle more than 45 degrees toward carina and complete insertion. Always maintain tip of the needle in the midline of the airway.
8. Remove syringe. Insert tip of dilator into the hub of Splitting Needle.
9. Squeeze wings of needle together, then open them out completely to split the needle.
10. Remove needle, continuing to pull it apart in opposite directions while leaving dilator in trachea.
11. Place thumb on dilator while first and second fingers are curved under flange of trachea tube.
12. By exerting pressure, advance dilator and tracheostomy tube into position until flange is against skin.
13. Remove dilator. Inflate cuff with 5 cc air and ventilate with BVM.
14. Confirm the placement with a minimum of primary confirmation using five-point auscultation（epigastrium, right and left anterior chest, and right and left midaxillary line）, and secondary confirmation with capnography. Additional confirmation with chest rise, bag compliance, and mist in the tube may also be used.
15. Observe for subcutaneous air, indicating tracheal injury or improper placement.
16. Secure tube with ties.

Dual-Lumen Airway (KingLT)

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Patient meets one of the following criteria as described in airway management:
   - Failure of airway maintenance or protection
   - Failure of ventilation or oxygenation
   - Poor anticipated clinical course

CONTRAINDICATIONS

1. Responsive patient with an intact gag reflex
2. The provider determines that successful tube placement is not possible due to anatomical abnormalities, airway obstruction, patient position.
3. The provider determines that it is not possible to maintain the tube position due to unavoidable excessive patient movement.

PROCEDURE

1. Apply chin lift and introduce King LTS-D into corner of mouth.
2. Advance tip under base of tongue, while rotating tube back to midline.
3. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums.
4. Fully inflate cuffs using the maximum volume of 60 cc syringe included in the kit.
5. Attach resuscitator bag. While gently ventilating with a BVM, slowly withdraw tube until ventilation is easy and free flowing (large tidal volume with minimal airway pressure).
6. If necessary, adjust/add cuff inflation volume to maximize the seal of the airway.
7. Confirm the placement with a minimum of primary confirmation using five-point auscultation (epigastrium, right and left anterior chest, and right and left midaxillary line), and secondary confirmation with capnography. Additional confirmation with chest rise, bag compliance, and mist in the tube may also be used.

Size	Description	Connector Color
3	4-5 feet tall in height	Yellow
4	5-6 feet tall in height	Red
5	Greater than 6 feet	Purple

EMT-PARAMEDIC

8. Lubricate gastric tube (up to 18 Fr) prior to inserting into the King-LTS-D's gastric access lumen.

Dual-Lumen Airway (KingLT), cont.

SPECIAL NOTES

1. Once an advanced airway has been established, prevention of tube dislodgement and confirmation of tube placement is of highest priority when moving the patient. The following steps must be taken to ensure successful airway management:
    - The bag valve mask should be disconnected during transitional movements including log rolling onto a backboard, moving the patient onto a stretcher, loading and unloading from an ambulance or helicopter, and transferring the patient to the hospital bed.
    - Primary and secondary confirmation should be done following any patient transitional movements.
    - ED physician confirmation and documentation of successful tube placement prior to transferring the patient from the ambulance cot to the hospital bed.

Nasopharngeal Airway

EMT-BASIC

INDICATIONS

1. Patient meets one of the following criteria as described in airway management:
    - Failure of airway maintenance or protection
    - Failure of ventilation or oxygenation
    - Poor anticipated clinical course

CONTRAINDICATIONS

1. Inserting anything (NPA, soft tip catheter, nasogastric tube, ect) into the nasopharanyx is contraindicated in any patients with suspected facial fractures or basal skull fractures.

PROCEDURE

1. Size NPA from the tip of the nose to the earlobe.
2. Insert with water soluble lubricant with beveled side towards the septum.
3. Do not force insertion. If resistance is met, rotate the tube slightly. Otherwise, try the other nostril.

Oropharngeal Airway

EMT-BASIC

INDICATIONS

1. Patient meets one of the following criteria as described in airway management:
    - Failure of airway maintenance or protection
    - Failure of ventilation or oxygenation
    - Poor anticipated clinical course
2. Should be used in all unresponsive patients for effective assisted ventilations with a BVM

CONTRAINDICATIONS

1. Responsive patient with an intact gag reflex

PROCEDURE

1. Size OPA from the incisors, along the hard palate, to either the tip of the earlobe or angle of the jaw.
2. Suction the airway of secretions, blood, or vomitus.
3. Insert the airway at 90 degrees, and rotate it into place when it reaches the posterior oropharynx
4. May need to use a tongue depressor for insertion into pediatric airways.

Nasotracheal Intubation

EMT-PARAMEDIC

INDICATIONS

1. Patient meets one of the following criteria as described in airway management:
    - Failure of airway maintenance or protection
    - Failure of ventilation or oxygenation
    - Poor anticipated clinical course
2. Appropriate alternative to orotracheal intubation for breathing patients with trismus, patients that are not able to be placed supine, or conditions that inhibit the visualization of the vocal cords

CONTRAINDICATIONS

1. Contraindicated if patient is apneic
2. Inserting anything (NPA, soft tip catheter, nasogastric tube, ect) into the nasopharanyx is contraindicated in any patients with suspected facial fractures or basal skull fractures.
3. Contraindicated if patient is taking Coumadin or is likely to receive heparin or thrombolytics
4. Use caution when nasally intubating a patient with a head injury due to risk for further increasing ICP.

PROCEDURE

1. Select the appropriate tube size, generally one size smaller than used for orotracheal intubations. Consider using a trigger tube.
2. Administer neosynephrine to the patient, and apply a generous amount of 2% lidocaine to the tube.
    - Neosynephrine (Adult)
3. Advance the tube into the larger nare to the point at which breath sounds are loudest using the BAAM.
4. During inspiration, quickly advance the tube. The patient should buck and cough with successful intubation. The ability to talk confirms lack of successful intubation.
5. Confirm the placement with a minimum of primary confirmation using five-point auscultation (epigastrium, right and left anterior chest, and right and left midaxillary line), and secondary confirmation with capnography. Additional confirmation with chest rise, bag compliance, and mist in the tube may also be used.
6. Secure the tube.

SPECIAL NOTES

1. Once an advanced airway has been established, prevention of tube dislodgement and confirmation of tube placement is of highest priority when moving the patient. The following steps must be taken to ensure successful airway management:
    - Unless the patient is not able to tolerate the supine position, they should be placed on a backboard with a c-collar prior to transport to decrease the risk of inadvertent dislodgement.
    - The bag valve mask should be disconnected during transitional movements including log rolling onto a backboard, moving the patient onto a stretcher, loading and unloading from an ambulance or helicopter, and transferring the patient to the hospital bed.
    - Primary and secondary confirmation should be done following any patient transitional movements.
    - ED physician confirmation and documentation of successful tube placement prior to transferring the patient from the ambulance cot to the hospital bed.

Orotracheal Intubation

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Patient meets one of the following criteria as described in airway management:
    - Failure of airway maintenance or protection
    - Failure of ventilation or oxygenation
    - Poor anticipated clinical course

CONTRAINDICATIONS

1. Responsive patient with an intact gag reflex
2. The provider determines that successful tube placement is not possible due to anatomical abnormalities, airway obstruction, patient position.
3. The provider determines that it is not possible to maintain the tube position due to unavoidable excessive patient movement.

PROCEDURE

1. Assemble and test equipment.
2. Pre-oxygenate the patient.
3. Pre-medicate with lidocaine for significant closed head injuries.
    - INTERMEDIATES: Lidocaine (Adult/Pediatric)
    - PARAMEDICS: Lidocaine (Adult/Pediatric)
4. Introduce the laryngoscope, and visualize the tube as it passes between the vocal cords.
5. Inflate the cuff.
6. Confirm the placement with a minimum of primary confirmation using five-point auscultation (epigastrium, right and left anterior chest, and right and left midaxillary line), and secondary confirmation with capnography. Additional confirmation with chest rise, bag compliance, and mist in the tube may also be used.

SPECIAL NOTES

1. Once an advanced airway has been established, prevention of tube dislodgement and confirmation of tube placement is of highest priority when moving the patient. The following steps must be taken to ensure successful airway management:
    - Unless the patient is not able to tolerate the supine position, they should be placed on a backboard with a c-collar prior to transport to decrease the risk of inadvertent dislodgement.
    - The bag valve mask should be disconnected during transitional movements including log rolling onto a backboard, moving the patient onto a stretcher, loading and unloading from an ambulance or helicopter, and transferring the patient to the hospital bed.
    - Primary and secondary confirmation should be done following any patient transitional movements.
    - ED physician confirmation and documentation of successful tube placement prior to transferring the patient from the ambulance cot to the hospital bed.

Oxygen Administration

EMT-BASIC

INDICATIONS

1. Provider discretion, but should be used for any patient with respiratory distress, cardiac disease, circulatory compromise, or other medical emergency
2. Required when administering narcotics or benzodiazepines

CONTRAINDICATIONS

1. Open flames or sparks
2. Severe latex allergy if latex-free equipment is unavailable

PROCEDURE

1. Select appropriate equipment. Oxygen is administered either via a nasal cannual (NC) or non-rebreather mask (NRB).
2. Set flow rate as follows:
   - Minor symptoms: 2-4 LPM via NC
   - Moderate symptoms: 5-6 LPM via NC
   - Severe symptoms: at least 10 LPM via NRB
3. For administration in pediatrics, use pediatric specific equipment, use lower doses when using a nasal cannula, and consider humidified oxygen for longer transport times to avoid drying out nasal mucosa. If pediatric patients will not tolerate standard equipment application, try blow-by oxygen with a mask or oxygen tubing.

Pulse Oximetry

EMT-BASIC

INDICATIONS

1. Provider discretion, but should be used for any patient with respiratory distress, cardiac disease, circulatory compromise, or other medical emergency.
2. Required when administering narcotics or benzodiazepines

CONTRAINDICATIONS

1. None
2. Pulse oximetry is inaccurate for patients with poor peripheral perfusion (hypotension, hypothermia, and vasoconstriction), severe anemia, excessive patient movement, high ambient light, CO poisoning, nail polish, and dirty fingernails.

PROCEDURE

1. Clean patient's finger if needed or consider using the toe or earlobe.
2. Apply device. May need pediatric adapter for infants and children.
3. Be aware that pulse oximetry readings may have up to a three minute time lag.

Suction—Upper Airway

EMT-BASIC

INDICATIONS

1. Used to remove vomitus, saliva, blood, food and other foreign objects that might block the airway or increase the likelihood of pulmonary aspiration.

CONTRAINDICATIONS

1. Inserting anything (NPA, soft tip catheter, nasogastric tube, etc) into the nasopharanyx is contraindicated in any patients with suspected facial fractures or basal skull fractures.

PROCEDURE

1. Attach either a soft or rigid tip suction catheter to the fixed or portable suction unit. Soft tips can be used for the nasopharynx, and rigid for the oropharynx.
2. Set the suction between 80-120 mmHg.
3. Suction should be applied while withdrawing the catheter. Suction for no longer than 10-15 seconds at a time for adults, and 5 seconds at a time for pediatrics.

Suction—Tracheobronchial

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Used to remove vomitus, saliva, blood, and other foreign material that might block the endotracheal tube.

CONTRAINDICATIONS

1. None

PROCEDURE

1. Select the appropriate size catheter. For pediatrics, use the broslow tape.
2. Advance the catheter to the desired location, about the level of the carina.
3. Suction is applied intermittently by closing the side opening as the catheter is withdrawn in a rotating motion.
4. Monitor the patient's cardiac rhythm. If dysrhythmias or bradycardia develop, suction should be discontinued.
5. It may be necessary to inject 3 to 5 mL of sterile saline down the ET tube to loosen secretions.

Automatic External Defibrillation

EMT-BASIC

INDICATIONS

1. Apnic & Pulseless

CONTRAINDICATIONS

1. Contraindicated if anyone is in direct contact with the patient, cot, or equipment in contact with the patient.

PROCEDURE

1. Power On, and attach electrode pads to the patient.
2. Provide BLS per protocol.
3. Analyze the rhythm. Make sure no one is in contact with the patient, and the patient is not in a moving vehicle.
4. If the AED signals that a shock is indicated, clear the patient, and deliver the shock.
5. Resume CPR immediately for 5 cycles or 2 minutes.
6. Repeat steps 2-4 until the AED no longer indicates a shock is needed.

SPECIAL NOTES

1. Remove transdermal medication patches and wipe the area clean before attaching electrode pads.
2. Place electrode pads at least one inch to the side of an implanted pacemaker and or defibrillator.
3. Remove the patient from contact with water, and dry the patient's chest before attaching electrode pads.
4. For infants and children, use child pads if available. If not available, use adult pads as long as pads do not touch. If the AED has a key or switch that will deliver a child shock dose, turn the key or switch on.
5. May need to shave the patient's chest with a razor if the AED prompts to "check pads" or "check electrodes."

Electrocardiogram

EMT-BASIC	Non-Interpretative 4 Lead & 12 Lead Monitoring
EMT-INTERMEDIATE	Interpretative 4 Lead & 12 Lead Monitoring
EMT-PARAMEDIC	Interpretative 4 Lead & 12 Lead Monitoring

INDICATIONS

1. For males >35 years old and females >40 years old, perform a 12 lead ECG in all patients with:

- Chest Pain
- Jaw Pain
- Left Arm Pain
- Non-traumatic upper abdominal pain
- Dyspnea
- Diaphoresis
- Syncope
- Weakness
- Palpitations
- First-onset seizure
- Back Pain
- Nausea/Vomiting/Indigestion

CONTRAINDICATIONS

1. None

PROCEDURE

4 Lead Monitoring

1. Prepare skin surface as needed.
2. Place limb leads as listed in the table for RA, LA, RL, LL. If circumstances require that limb leads be placed on the torso, they should be as close to the limbs as possible.
3. Write patient's name, date, provider initials, and provider interpretation on ECG included in the report.

12 Lead Monitoring

1. Prepare surface as needed.
2. Place leads as listed in the table for limb leads and V1-V6.
3. If ECG changes indicate an inferior infarction, right-sided leads should be checked for right ventricular infarction (V1R-V6R; if time does not permit, check at least V4R). Note leads appropriately on the print out.
4. If the only ST changes seen are depression, strongly consider obtaining posterior leads to assess for posterior infarction (V7-V9, V7R-V9R). Note leads appropriately on the print out.
5. Write patient's name, date, provider initials, and provider interpretation on ECG included in the report.
6. Obtain early and repeat 12 Lead ECG every 10 minutes. Early recognition and notification of an acute myocardial infarction is imperative. ECG's can significantly change in a very short period of time.

SPECIAL NOTE

1. A normal ECG does not rule out an acute myocardial infarction.

Electrocardiogram

12 Lead Placement	
Lead	**Placement**
RA	Inside of right wrist
LA	Inside of left wrist
LL	Inside of left leg near the ankle
RL	Inside of right leg near the ankle
V1	4th Intercostal, just right of the sternum
V2	4th Intercostal, just left of the sternum
V3	Halfway between V2 and V4
V4	5th Intercostal, midclavicular line
V5	Anterior, axillary line horizontal with V4
V6	Mid-axillary line, horizontal with V4
V1R	Same as V2
V2R	Same as V1
V3R	Midway between V2R and V4R
V4R	5th intercostal, right mid-clavicular line
V5R	Same level as V4R, right anterior mid-axillary line
V6R	Same level as V4R, right mid-axillary line
V7	Left posterior axillary line, level with V4
V8	Angle of left scapula, level with V4
V9	Left border of spine, level with V4
V7R	Right posterior axillary line, level with V4
V8R	Angle of right scapula, level with V4
V9R	Right border of spine, level with V4

Gastric Decompression

EMT-PARAMEDIC

INDICATIONS

1. Patient undergoing prolonged assisted ventilations without a definitive airway in order to reduce the risk of aspiration and increase cardiac preload.

CONTRAINDICATIONS

1. Ingestion of caustic substances
2. Nasogastric (NG) route not used with facial trauma or significant head trauma
3. Reduced level of consciousness without intubation

PROCEDURE

Method—Nasogastric (NG)

1. Examine for the more patent nare.
2. Measure from the nose or mouth to earlobe then to xiphoid for approximate depth of insertion.
3. Lubricate the tube with water-soluble lubricant (viscous lidocaine or neosynephrine as necessary).
4. Place the tube following the natural downward slope of the nose, trying to keep the tube on the floor of the nasal cavity. Limit depth to 5 cm with each swallow in conscious patients.
5. The tube should move easily, do not use excessive force. Remove tube immediately if patient develops difficulty breathing.
6. When the tube appears to be in position, place a stethoscope over the stomach, insufflate 20 mL of air with a syringe and auscultate for air in the stomach.
7. Place the tube to suction at 20-80 mmHg.

Method—Orogastric (OG)

1. Measure from the nose or mouth to earlobe then to xiphoid for approximate depth of insertion.
2. Lubricate the tube with water-soluble lubricant (viscous lidocaine or neosynephrine as necessary).
3. Insert the tube into the mouth. Limit depth to 5 cm with each swallow in conscious patients.
4. The tube should move easily, do not use excessive force. Remove tube immediately if patient develops difficulty breathing.
5. When the tube appears to be in position, place a stethoscope over the stomach, insufflate 20 mL of air with a syringe and auscultate for air in the stomach.
6. Place the tube to suction at 20-80 mmHg.

Hemorrhage Control

EMT-BASIC

INDICATIONS

1. Uncontrolled bleeding

PRECAUTION

1. Tourniquet should only be considered as a last resort when all other methods of hemorrhage control have failed.

PROCEDURE

Direct Pressure

1. Apply direct pressure with a pressure dressing and secure with a roller bandage.
2. If bleeding resumes and the dressing becomes soaked with blood, apply another dressing on top of the first one and hold it in place with direct pressure until the bleeding stops.

Tourniquet

1. Select a site for the tourniquet. The site should be about 2 inches proximal to the wound and over the supplying brachial or femoral artery.
2. Inflate the cuff until the cuff pressure exceeds the arterial pressure or to the point at which the hemorrhage stops.
3. Note the time in your documentation that the tourniquet was applied.

SPECIAL NOTES

1. There is clear survival advantage if the tourniquet if placed before the development of shock.

LUCAS Chest Compression System

EMT-BASIC

INDICATIONS

1. Cardiac arrest where manual chest compressions would otherwise be used.

CONTRAINDICATIONS

1. Pt is too small—fully extended compression arm must be either touching or within 15mm (5/8 in) of pts chest.
2. Pt is too large—support legs must be able to be locked in place without compressing the pts torso

PROCEDURE

1. Open back pack
2. Power on device
3. Position back plate under pt
4. Assemble LUCAS and make sure arms are locked in
5. Pull down pressure pad making sure it contacts pts chest (or is within 15 mm) without compressing at rest.
6. Make sure compression pad is over the lower sternum and above the xiphoid process
7. Press lock button (looks like a pause sign)

SPECIAL NOTES

1. Try not to interrupt CPR to apply device. This can be accomplished by continuing with manual chest compressions until a normal break for pulse and/or rhythm check.
2. Keep clear of compression arm during active compressions to avoid provider injury.
3. Do not place defibrillation pads under the compression arm.
4. Check position of LUCAS after each time the pt is moved to assure proper placement of the compression arm over the middle of the sternum.

Manual Defibrillation

EMT-INTERMEDIATE

EMT-ITNERMEDIATE, PARAMEDIC

INDICATIONS

1. VF/Pulseless VT

CONTRAINDICATIONS

1. Contraindicated if anyone is in direct contact with the patient, cot, or equipment in contact with the patient.
2. Limit of one shock for severe hypothermia (core temperature <30 degrees C).

PROCEDURE

1. Power on and attach electrode pads to the patient.
2. Complete 2 minutes or 5 cycles of CPR for an un-witnessed arrest with no previous quality bystander CPR.
3. Analyze the rhythm.
4. For the Lifepak 12 Biphasic, charge to 200J, clear the patient, and deliver the shock.
5. Resume CPR immediately for 2 minutes or 5 cycles of CPR.
6. Recheck the rhythm. If VF/Pulseless VT persists, with the Lifepak 12 Biphasic, repeat the sequence of shocks from 300J, to 360J followed immediately with CPR. For pediatric patients using the Lifepak 12 Biphasic, set sequence of shocks at 2 J/Kg, 4 J/Kg, and 4 J/Kg.

SPECIAL NOTES

1. Remove transdermal medication patches and wipe the area clean before attaching electrode pads.
2. Place electrode pads at least one inch to the side of an implanted pacemaker and or defibrillator.
3. Remove the patient from contact with water, and dry the patient's chest before attaching electrode pads.

Synchronized Cardioversion

EMT-PARAMEDIC

INDICATIONS

1. Tachycardia with a pulse, with serious signs and symptoms related to the tachycardia

CONTRAINDICATIONS & PRECAUTIONS

1. Contraindicated if anyone is in direct contact with the patient, cot, or equipment in contact with the patient

PROCEDURE

1. Consider sedation with Versed/Valium for conscious patients if time allows.
    - Versed (Adults & Pediatrics)
    - Valium (Adults & Pediatrics)
2. Power on and attach monitor limb lead and electrode pads.
3. Engage the synchronization mode, and check R markers to indicate sync mode is on.
4. With the Lifepak 12 Biphasic, charge to 100J V-tach, 120 A-fib, and 50J PSVT & Atrial Flutter. Press and hold the shock button until shock is delivered.
5. Recheck the rhythm. If tachycardia persists, repeat cardioversion with increasing joules from (100 for PSVT & Atrial Flutter), 200, 300, 360J. Reset the sync mode after each synchronized cardioversion because the Lifepak 12 will default back to the unsynchronized mode. For pediatric patients, using the Lifepak 12 biphasic, start with .5-1 J/Kg increasing to 2 J/Kg if needed.
6. If wide and irregular (unstable polymorphic), use defibrillation dose not synchronized.

SPECIAL NOTES

1. If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.
2. Remove transdermal medication patches and wipe the area clean before attaching electrode pads.
3. Place electrode pads at least one inch to the side of an implanted pacemaker and or defibrillator.
4. Remove the patient from contact with water, and dry the patient's chest before attaching electrode pads.

Transcutaneous Pacing

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Symptomatic bradycardia with signs of poor perfusion

CONTRAINDICATIONS

1. Severe hypothermia

PROCEDURE

1. Consider sedation for conscious patients if time allows.
   INTERMEDIATES:
   - *Valium (Adult & Pediatric)*

   PARAMEDICS:
   - Versed (Adults & Pediatrics)
   - Valium (Adults & Pediatrics)
2. Power on and attach electrode pads.
3. Set the demand rate to approximately 60/min for adults and 100/min for pediatrics. This rate can be adjusted up or down based on the clinical response once pacing has been established.
4. Following initiation of pacing, confirm electrical capture on the ECG, and mechanical capture with a radial pulse.
5. Set the current to 2 mA above the dose at which consistent capture is observed.
6. Reassess the patient for symptomatic improvement and hemodynamic stability.
7. Continue sedation, but realize Versed may further decrease blood pressure and affect the patient's mental status.

External Jugular Cannulation

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Consider for patients when no other peripheral access is obtainable. Should not be considered first line.

CONTRAINDICATIONS

1. Blind attempts, not able to locate the external jugular vein

PROCEDURE

1. Trendelenburg the patient (may not be able to with CHF and respiratory distress).
2. Turn patient's head away from side of the procedure.
3. Align the needle with the vein. Tamponade the vein above the clavicle, and apply traction to the skin.
4. Insert a 14 or 16 gauge needle bevel side up midway between the midclavicular line and the angle of the jaw.
5. Note blood return and advance the catheter. Attach IV set, and secure the IV in place.

SPECIAL NOTES

1. Withhold blood draw due to risk of air emboli.

Fluid Administration

EMT-BASIC-IV

INDICATIONS

1. Provider discretion
2. Fluid bolus should be administered for shock to maintain a blood pressure to allow adequate perfusion
3. Fluid challenge should be administered for some medical cases such as asthma, dehydration, DKA, right-sided MI, and hyperthermia.

PROCEDURE

1. Select administration set.
2. Fluid administration of normal saline should be administered according to the patient ' s condition.
3. Record amount of fluid administered and patient ' s response to the fluid.

Fluid Resuscitation	
Hypovolemic Shock	20 cc/Kg, in the absence of traumatic brain injury, the target systolic BP is 80-90 mmHg
Non-Traumatic Shock & Other Medical Conditions	200-400 cc increments with on-going assessment including ventilatory status between each increment.
Burns	Second and third degree burns >20% total body surface area administer fluids as follows: (4) (Kg) (%BSA), half of this amount in the first 8 hours from time the burn occurred.

Interosseous Cannulation

EMT-INTERMEDIATE

EMT-PARAMEDIC

INDICATIONS

1. Patient meets one of the following criteria and peripheral IV cannot be established in 2 attempts or 90 seconds:
   - An altered mental status (GCS of 8 or less)
   - Respiratory compromise (SaO2<90% after appropriate oxygen therapy, respiratory rate <8 or >40 with inadequate tidal volume)
   - Hemodynamic instability (systolic BP of <90)
2. Patient meets one of the following criteria, provider may skip peripheral IV attempts and go straight to Interosseous cannulation:
   - Cardiac arrest (medical or traumatic)
   - Patient in extremis with immediate need for delivery of medications and or fluids

CONTRAINDICATIONS

1. Fractures present or suspected at or above the IO site on the affected extremity
2. Excessive tissue at insertion site and/or absence of anatomical landmarks
3. Previous significant orthopedic procedures (IO within last 24 hours, joint replacement)
4. Infection at the site selected for insertion

PROCEDURE

1. Choose adult or pediatric needle set according to patient weight. Adult (40 kg and over), Pediatric (3-39 kg, patient fits on the Broslow tape).
2. Locate an approved insertion site:

   Adult Proximal Tibia: one finger width medial to the tibial tuberosity

   Adult Humeral Head: greater tubercle of the humerus, NOT medial to greater tubercle

   Pediatric Proximal Tibia:

   If they have a palpable tibial tuberosity, one finger width distal to the tibial tuberosity and medial along the flat aspect of tibia; if they have no palpable tibial tuberosity, two finger widths below the patella with their leg straight and then medial along the flat aspect of the tibia.
3. Prepare the insertion site using iodine and alcohol wipes.
4. Stabilize the site and insert the needle set using gentle, steady, downward pressure. When you feel the needle hit bone, check to make sure the 5 mm mark on the needle is still above skin. If it is, continue insertion and stop when you feel the pop.
5. Remove the driver from the needle set.
6. Remove the stylet from the catheter, place the stylet into a sharps container.
7. Protect the sterile connection point on the catheter hub, and attach the provided extension set.
8. Administer Lidocaine 2% IO to conscious patients.

Intermediates Paramedics	Lidocaine (Adults & Pediatrics)

Intranasal (IN) Medication Administration

EMT-BASIC

INDICATIONS

1. Procedure does not require IV access (minor fracture, contusion, wound dressing change)
2. Unable to obtain vascular access, patient is a "hard stick"
3. Acute emergency that does not allow time for IV access

CONTRAINDICATIONS

1. Epistaxis (escessive)
2. Trauma to the affecting nasal mucosa
3. Deformity
4. Copious mucus

PROCEDURE

1. Inspect nostrils for mucus, blood, deformity or other problems which might inhibit absorption. Have patient blow their nose if necessary. In extreme cases consider nasal suctioning.
2. Draw up medication into a 3 mL syringe and attach atomizer device. An extra 0.1 mL of medication should be drawn up to account for the dead space in the device.
3. Using your free hand to hold the crown of the head stable, place the tip of the atomizer device against the nostril aiming slightly up and outward (toward the top of the ear).
4. Briskly compress the syringe plunger to deliver half of the medication into the nostril.
5. Move the device over to the opposite nostril and administer the remaining medication into that nostril.

SPECIAL NOTES

1. 1/3 mL per nostril is ideal, 1 mL per nostril is maximum.
2. Atomize (rather than drip it in) to cover a large surface area.
3. Use both nostrils to double the absorptive surface area.
4. Aim slightly up and outwards to cover the turbinates and nasal mucosa.

Interosseous Cannulation, cont.

9. Flush the catheter with normal saline (Adult 10 mL, Pediatric 5 mL), failure to flush may result in no flow.
10. Confirmation of placement is done by checking for blood or marrow return, successful flushing of the catheter, and successful flow of the IV line.
11. Set up IV bag with the pressure infuser for continuous infusions, and begin the infusion. Dress site, secure tubing.
12. IO should be removed within 24 hours. Provide removal instructions to the receiving facility.

Lab Draw

EMT-BASIC-IV

INDICATIONS

1. Should be done on any patient receiving a peripheral IV if time permits

CONTRAINDICATIONS

1. External Jugular Cannulation
2. Interosseous Cannulation

PROCEDURE

1. Perform lab draw
2. Tubes should be collected in the order of red, green, purple, pink, and blue.
3. The label from the blood band should be completed including patient name, provider initials, and time of draw.
4. Affix the label to the pink tube, if pink was not drawn, affix it to the red tube.
5. Insure tubes are labeled correctly with numeric stickers corresponding to the correct blood band.
6. Put samples in a biohazard bag and tape the bag to the outside of the bag of fluid.

Medication Administration

CARE PROVIDER LEVEL IS SPECIFIC TO MEDICATION—SEE DRUG FORMULARY

INDICATIONS

1. See drug formulary for indications specific to each drug

CONTRAINDICATIONS

1. See drug formulary for contraindications specific to each drug
2. Universal contraindications of allergy to specific medication

PROCEDURE

1. Confirm the correct medication, dosage, route, patient, and expiration date.
2. Confirm patient does not meet a specific contraindication of the medication.
3. Check and record V/S and ECG at least 5 minutes prior to medication administration.
4. Select the appropriate route of administration:
    - Intravenous
    - Interosseous
    - Nebulized
    - Topical
    - Intramuscular: injection sites are in the deltoid, gluteal, or quadriceps muscles. The gluteal site is just lateral and halfway between the posterior superior iliac spine and the greater trochanter. The deltoid site is one to two inches below the acromion process. Use no bigger than a 20 gauge needle at 90 degrees, draw back to assure needle is not in a vessel. Injection volume is limited to 5 mLs.
    - Subcutaneous: are in the upper arm, although there are many approved sites. Use a 5/8 inch 25 gauge needle, grasp the fatty tissue of the upper arm, insert needle at a 45 degree angle, draw back to assure needle is not in a vessel. Injection volume is limited to 1 mL.
    - Sublingual: care must be taken to make sure the patient understands the medication is not to be swallowed.
    - Oral: patient must be able to swallow and protect his or her own airway in order to administer an oral medication.
    - Rectal: can be administered using a 14 gauge catheter with needle removed, lubricated TB syringe with the needle removed, or a pediatric ET tube.
4. Document medication, dosage, route, provider initials, and time given.
5. Repeat V/S and ECG within 5 minutes after medication administration.
6. Perform on-going patient assessment.

SPECIAL NOTE

1. According to Rule 500—If a pt is in cardiac arrest or has been deemed in extremis by the ALS provider in charge of the call, the EMT-IV may administer medications under the direct supervision and orders of an EMT-I or EMT-P as long as the drugs being administered are authorized for use by the ALS provider in accordance to these protocols.
2. These medications are ONLY to be given under the direct supervision of the ALS provider. The report will then be written by the ALS provider with notation that the drugs were given by the BLS provider and that they were done so with direct orders.

Peripheral Intravenous Cannulation

EMT-BASIC-IV

INDICATIONS

1. Provider discretion
2. Should be administered for any patient requiring or potentially requiring fluid or medication administration

CONTRAINDICATIONS

1. Do not use in the same arm that has an implanted vascular access device
2. Absolute contraindication distal to a fracture site or distal on a limb with significant trauma
3. Relative contraindication in limb with an acute minor trauma or chronic injury
4. Relative contraindication through skin damage with more than erythema or superficial abrasion

PROCEDURE

1. Select administration set and prepare equipment. For critical patients use trauma tubing and a 16 gauge needle or larger.
2. Select and cleanse IV site on the patient's arm. For critical patients use the AC site.
3. Insert the needle and catheter bevel side up until flashback is seen to confirm placement.
4. Advance the catheter, tamponade the vein, and retract the needle. To avoid an exposed sharp, do not pull the needle out of the catheter without retracting it first.
5. Complete lab draw per protocol.
6. Attach the IV tubing, and secure in place.
7. Open the roller clamp and confirm fluid is flowing without extravasation about the site.

SPECIAL NOTES

1. When possible establish an IV during transport instead of on scene.
2. Number of IV attempts is at the provider's discretion. However, if success is not achieved after two attempts consider an IO if immediate access is still necessary. Otherwise, delay access until arrival to the ED.

EMT-INTERMEDIATE

EMT-PARAMEDIC

The arm is the preferred site for placement of a peripheral IV, but if this is not possible, using an alternative peripheral site is allowed.

Blood Glucose Testing

EMT-BASIC

INDICATIONS

1. Suspected hypoglycemia
2. Altered mental status
3. Non-traumatic seizure
4. Prolonged hypothermia
5. Syncope
6. Pediatric suspected sepsis, altered mental, status febrile seizure, alcohol intoxication and suspected new onset of Type I Diabetes

CONTRAINDICATIONS

1. Caution in pediatric patients with respiratory distress. Consider if the need outweighs the risk of increasing work of breathing by agitating the child.

PROCEDURE

1. Set up equipment and confirm glucometer is working prior to finger stick
2. Wipe finger with an alcohol swab. Use the side of a finger in an adult, and the side of the big toe in pediatrics.
3. Increase blood supply to the test site by placing limb in a dependent position and massaging the limb/digit downward until it appears pinkish-red.
4. Place the test strip in the glucometer and make sure the glucometer is reading that it is ready.
5. Prick the test site using the stylet.
6. Apply the blood sample to the test strip.
7. Bandage the test site.
8. Record the time and reading in mg/dL on the patient report.

General Patient Assessment

EMT-BASIC

SCENE SIZE-UP

1. Number of Patients & Additional Resources
   - Request additional help or special resources early based on initial dispatch information.
   - Initiate START Triage and MCI procedure if appropriate.
2. Scene Safety
   - Personal and crew safety takes precedence over safety of patients and bystanders.
   - Do not enter a scene that is potentially hazardous or unstable.
   - Wait for law enforcement to secure crime scenes or potential crime scene, scenes involving alcohol, drugs, or behaviorally disturbed patients or bystanders, or aggressive patients.
   - Always carry a pack set into scenes so you can call for help if needed.
3. Body Substance Isolation
   - See Infection Control Manual for details.
4. Mechanism of Injury or Nature of Illness
   - Categorize patient as injured or ill.
   - Form a mental picture of the scene to detail the mechanism of injury for report.
   - Notify the receiving facility as early as possible for possible trauma team activations and alerts.
5. Consider C-Spine Immobilization

INTIAL ASSESSMENT

1. General Impression
   - Sick/Injured or Not Sick/Injured
   - Consider the patient ' s general appearance, speech pattern, and posture.
2. Mental Status
   - Obtain baseline AVPU
   - Note quality of verbal responses such as confusion, disorientation, inappropriate words, incomprehensible sounds. Note nature of motor responses such as purposeful movement and non-purposeful movement, and posturing.
3. Airway
   - A partially or completely blocked airway or a patient that is unable to protect his own airway are signs of a critical patient. Immediately manage the airway per protocol.
4. Breathing
   - Assess adequacy of breathing by both rate and depth of respirations.
   - Note abnormal breath sounds.
   - Respiratory rate less than 8 BPM or more than 30 BPM with inadequate tidal volume is a sign of a critical patient. Assist ventilations per protocol.
   - Administer oxygen as needed per protocol.
5. Circulation or Perfusion Status
   - Note pulses, skin color, skin temperature, and capillary refill.
   - If no carotid pulse is felt perform adult BLS per protocol.
   - Control life threatening bleeding.

General Patient Assessment, cont.

EMT-BASIC

TRANSPORT DECISION

Patients with abnormal findings on the initial assessment should be considered critical patients. Life saving treatments should be initiated on scene in an attempt to stabilize the patient before initiating transport. Further assessment and treatments on scene should be kept to a minimum to avoid delaying transport.

For non-critical patients collect all needed information on scene from bystanders, communicate with family members, and collect all needed materials such as medications and patient belongings for transport. Otherwise, the majority of treatment can be done during transport due to the long transport times in district.

PATIENT HISTORY & PHYSICAL EXAM

1. Collect SAMPLE history from patient and bystanders
2. Collect OPQRST of the patient's symptoms
3. Complete an appropriate physical exam taking note of any DCAP-BTLS:
    - Focused Assessment: an isolated injury, or a preliminary head-to-toe exam for medical patients.
    - Rapid Trauma Assessment: preliminary head-to-toe exam for trauma patients completed in less than two minutes.
    - Detailed Assessment: detailed, secondary head-to-toe exam for medical patients and stable trauma patients completed during transport.

ONGOING ASSESSMENT

1. Ongoing assessment should be done every 5-15 minutes for critical patients, and every 15-30 minutes for non-critical patients.
2. Ongoing assessment should include repeating initial assessment, re-examining abnormal findings of physical exam, and recording vitals.

Pediatric Patient Assessment

EMT-BASIC

INTIAL ASSESSMENT

1. Pediatric Assessment Triangle. This is to be completed within the first 30-60 seconds to identify severity, and key physiologic findings. It is based on the following:
    - Appearance—note tone, interactiveness, consolability, look/gaze, speech/cry.
    - Work of Breathing—note abnormal airway sounds, abnormal patient positioning, retractions, nasal flaring.
    - Circulation to the Skin—note pallor, mottling, cyanosis.
2. Physical Exam
    - Airway & Breathing:
        - Auscultate midaxillary for stridor, wheezing, expiratory grunting, inspiratory crackles, or absent breath sounds.
    - Circulation:
        - Check brachial pulse, if no peripheral pulse is felt check the femoral pulse in infants and the carotid pulse in older children. If pulse is present but <60 BPM in an infant or child with poor perfusion, begin chest compressions.
        - Check signs of circulation to the skin such as skin color, skin temperature, and capillary refill.
        - Check blood pressure using a cuff with a width of two thirds the length of the upper arm or thigh. For a child younger than 3 years of age, technical difficulties reduce the value of blood pressure readings in the field.

TRANSPORT DECISION

1. Transport decision is the same as that detailed in the General Patient Assessment.

PATIENT HISTORY & PHYSICAL EXAM

1. Patient history and physical is generally the same as that detailed in the General Patient Assessment with some additional considerations:
    - Listen to the parent's opinion of the problem. They often detect small changes in their child's condition.
    - Inspect skin for petechiae or purpuric lesions.
    - Listen to the trachea to distinguish the origin of upper airway sounds.

ONGOING ASSESSMENT

1. Ongoing assessment is the same as that detailed in the General Patient Assessment.

Neurological Exam

EMT-BASIC

INDICATIONS

1. Neurological testing is indicated for any patient with suspected neurological pathology. Documenting changes has clinical significance to the patient's course of treatment in the hospital. Therefore, it is important that the field provider accurately observes and records neurological findings using measures that will be followed throughout the patient's hospital course.

CONTRAINDICATIONS

1. None

PROCEDURE

The following measures are clinical standards:

1. AVPU—test responsiveness

AVPU Scale (test to measure level of responsiveness)			
Category	Stimulus	Response Type	Reaction
Alert	Normal Environment	Appropriate	Normal Interactiveness
Verbal	Simple Command	Appropriate Inappropriate	Responds to Name Nonspecific or Confused
Painful	Pain	Appropriate Inappropriate Pathological	Withdraws from Pain Makes Sound or Motion without Localization of Pain Posturing
Unresponsive	No perceptible response to any stimulus		

1. A&Ox3/3—test orientation; alert to person, place, and event.

2. Motor Function and Sensation Testing—test for spinal cord damage, or peripheral nerve damage.
   - Motor function is tested using upper extremity grip strength, and lower extremity plantarflexion.
   - Sensation is tested using light touch on the upper extremities or lower extremities.

3. Babinski Reflex—test for brain and spinal cord injury or disease.
   Stroke the plantar surface of the foot with a blunt instrument from the heel along a curve to the metatarsal pad. The test should produce one of the following results:
   - Normal: toes curve inward and foot everts
   - Abnormal: large toe extends upward, and other toes fan out

Neurological Exam, cont.

EMT-BASIC

4. Glasgow Coma Scale: test for traumatic and non-traumtic brain injury.

Child/Adult Glasgow Coma Score		
Eye Opening	None To Pain To Speech Spontaneously	1 2 3 4
Best Verbal Response	None Garbled Sounds Inappropriate Words Disoriented Speech Oriented	1 2 3 4 5
Best Motor Response	None Abnormal Extension Abnormal Flexion Withdrawal to Pain Localizes Pain Obeys Commands	1 2 3 4 5 6
Score = Sum of Scores in 3 Categories (15 points possible) Must record total score as well as subcategories if total is less than 15		

Infant Glasgow Coma Score		
Eye Opening	No Response To Pain To Speech Spontaneously	1 2 3 4
Best Verbal Response	No Response Moans, grunts Cries to Pain Irritable Cry Coos, Babbles	1 2 3 4 5
Best Motor Response	No Response Abnormal Extension Abnormal Flexion Withdraws From Pain Localizes Pain Spontaneous	1 2 3 4 5 6
Score = Sum of Scores in 3 Categories (15 points possible) Must record total score as well as subcategories if total is less than 15		

Neurological Exam, cont.

EMT-BASIC

5. Cincinnati Prehospital Stroke Screen: test for stroke.

6. Cranial Nerve Testing: test for cranial nerve function.
   If common medical symptoms such as lethargy, unsteadiness, headaches and dizziness are combined with positive cranial nerve testing, there is a high likelihood of brainstem dysfunction.

Cincinnati Prehospital Stroke Scale			
Category	Test	Response Type	Reaction
Facial Droop	Have patient show teeth or smile	Normal Abnormal	Both sides of face move equally One side does not move well
Arm Drift	Patient closes both eyes and extends both arms straight out, with palms up, for 10 seconds	Normal Abnormal	Both arms move the same, or both arms do not move at all. One arm does not move or one arm drifts down compared with the other.
Abnormal Speech	Have the patient say, “You can not teach an old dog new tricks.”	Normal Abnormal	Correct words, no slurring Slurs words, uses wrong words, or is unable to speak
Interpretation: If any one of these 3 signs is abnormal, the probability of a stroke is 72%.			

Cranial Nerve Testing	
Test	Cranial Nerve
Sense of Smell	Cranial Nerve I (Olfactory)
Visual acuity	Cranial Nerve II (Optic)
Pupillary size, equality and response; visual tracking; opening eyelid	Cranial Nerve III (Oculomotor)
Facial droop	Cranial Nerve VII (Facial)
Difficulty swallowing	Cranial Nerve IX (Glossopharyngeal)
Tongue deviation	Cranial Nerve XII (Hypoglossal)

Extremity Splinting

EMT-BASIC

INDICATIONS

1. Suspected fracture or dislocation
2. As needed for other extremity injury to reduce pain, bleeding, and to prevent further injury
3. Traction splint is only indicated for isolated fractures of the femur

CONTRAINDICATIONS

1. Do not splint extremity injuries on scene for a multi-system trauma patient. The use of a long spine board can substitute for extremity splinting. If time allows, splint the extremity during transport.
2. Do not use the traction splint for fractures/dislocations of the pelvis, knee, or lower leg.

PROCEDURE

1. Check distal pulse, motor function, and sensation prior to splinting. Mark the location of the palpated pulse. The distal posterior tibial pulse can be difficult to palpate. If you are not able to locate it, consider other signs of circulation such as distal capillary refill, and distal skin color and temperature.
2. Remove jewelry and watches.
3. Dress open wounds, note if any wounds have exposed bone, or if wounds involve the fracture site.
4. Select a splint to immobilize the joint above and below the fracture site. Use the traction splint for isolated fractures of the femur.
5. If no distal pulse is present, apply gentle traction as needed in an attempt to regain the distal pulse.
6. Apply splint. The traction splint should be applied with the patient already on a backboard.
7. Recheck distal pulse, motor function, and sensation after splinting and periodically during transport.

Pelvic Binder

EMT-BASIC

INDICATIONS

1. Unstable pelvis fracture

CONTRAINDICATIONS

1. Pregnant

PROCEDURE

1. Slide the binder under a supine patient, or have the binder in place on a backboard prior to immobilizing the patient.
2. Cut the free end of the binder to leave 6-8 inch gap. The binder is one size fits all.
3. Attach the velcro straps and plate to the free end of the binder.
4. Tighten the shoelace mechanism and close the fastener.

SPECIAL NOTE

1. An unstable pelvis fracture is typically seen with a significant mechanism of injury that often involves a multi-system trauma. It is determined to be unstable through field provider clinical impression. Signs and symptoms include significant pain at the site of injury, and movement when applying gentle pressure to the pelvic crest. If the patient has a decreased level of consciousness, consider the mechanism of injury combined with palpation of the pelvis, and possibly signs of shock. When in doubt, apply the binder.
2. It is helpful to make the decision to use the binder before extricating a patient from a vehicle in order to get the binder under the patient before they are supine on a long spine board.
3. The binder can reduce critical blood loss and every attempt possible should be made to use it.

Selective Spinal Immobilization

EMT-BASIC

WITHHOLD IMMOBILIZATION				IMMOBILIZE
←	No Mechanism	Uncertain to immobilize ↓	**High Risk** • >65 years with positive mechanism • High risk mechanism (ejection, fall from height) • Parasthesias in extremities	
		Assess Reliability →	Acute Stress Reaction Altered Mental Status Belligerent Communication Problem Distracting Injury Intoxication Uncooperative →	←
		A&Ox3/3 Calm, Cooperative Sober Obeys Command ↓		
		Assess for spine pain →	C/o neck or back pain and/or pain to midline palpation →	←
		Assess sensory and motor function →	Sensory loss, weakness, or paralysis →	←
←	Pain-free Cervical Rotation 45 degrees to right and left	← Assess cervical rotation (immediately cease test if patient experiences pain) →	Unable to rotate 45 degrees either direction or pain with rotation →	←

Spinal Immobilization

EMT-BASIC

INDICATIONS

1. Mechanism of injury that has potential for spine injury, and the patient does not meet the criteria to withhold spinal immobilization.

CONTRAINDICATIONS

1. Scene condition that is a threat to the safety of the patient or rescuer and requires immediate extrication such as a fire, danger of explosion, drowning, or structure collapse.
2. Patient condition that requires immediate intervention that cannot be done in an entrapped area such as an airway obstruction or cardiac arrest.

PROCEDURE

1. Maintain manual cervical spine immobilization, place patient in a properly fitting cervical collar. Avoid cervical traction.
2. Perform a gross neurological motor and sensory assessment.
3. Choose appropriate immobilization equipment.
    - Consider the Kendrick Extrication Device for isolated spinal injury with high risk of spinal cord damage.
    - For non-critical patients, consider supplementing the backboard with the full-body vacuum splint for patients that will likely be spending a prolonged amount of time on the backboard, or patients that have a high risk for developing pressure sores.
    - Children can be immobilized in their car seat with appropriate padding and tape, or in a pediatric immobilization device. Children under age 3 should have padding beneath the back and shoulders to maintain an open airway. For the child who is frightened and struggling there may be no good way to obtain immobilization. Careful reassurance, the presence of a comforting family member, and gentle management will help prevent more complications and further struggling.
4. Secure the patient to the appropriate immobilization device while preventing gross cervical spine movement and moving the patient in-line with the long axis of the body. Safety of the EMS personnel is of prime importance. Therefore, modifications may need to be made for some situations such as confined space, special rescue operations, hazardous environment, and limited personnel and equipment.
5. Perform a second gross neurological motor and sensory assessment.
6. Be prepared to log roll the patient if needed to protect the airway, especially those complaining of nausea or who are unconscious.

SPECIAL NOTES

1. Pregnant women should be placed in the left lateral recumbent position.
2. Do not straighten out a patients neck to fit them on the backboard if they are guarding or complaining of neck pain.
3. Some patients may experience life-threatening hypoxia if forced to remain supine, modifications may need to be made for proper immobilization.
4. Patients with shoulder pad and helmets are best immobilized with equipment left in place unless it is inhibiting maintenance of an open airway. If needed, the face guard can be cut with trauma shears, or the helmet can be removed while maintaining manual in-line cervical stabilization. If the helmet is removed, patients with shoulder pads must have padding under the head to maintain a neutral position.
5. The scoop can be used as an alternative device for spinal immobilization, but the long spine board is preferred.

Altered Mental Status & Syncope

EMT-BASIC

1. General patient assessment
    - Differential Diagnosis: should include stroke, traumatic brain injury, meningitis, seizure, hypoxia, shock, diabetes, toxic exposure, electrolyte imbalance, environmental causes, and psychiatric causes.
    - Focus efforts on supporting vital functions, gathering information for hospital staff, and keeping scene time to a minimum; determining the underlying disorder may be difficult in the field.
    - Test orthostatic vital signs if appropriate. A 10 mmHg or greater decrease in blood pressure and 20 BPM or greater increase in heart rate when changing from supine to standing are diagnostic of orthostatic hypotension. However, other changes in the patient's condition such as pallor and faintness are also indicative of orthostatic hypotension.
    - Complete a neurological exam including Glasgow Coma Scale, Cincinnati Prehospital Stroke Screen, and motor function and sensory testing. If signs of central nervous system pathology are present, consider testing the Babinski reflex and cranial nerve testing.
2. Airway management, oxygen, pulse oximetry per protocol. Position patient on their side if not contraindicated.
3. Blood glucose testing for all cases of altered mental status
4. If there is suspicion of hypoglycemia and the patient is able to maintain their airway consider oral ingestion of food or drink or administer oral glucose.
    - Oral Glucose

EMT-BASIC-IV

5. Establish an IV, obtain lab draws, and administer fluids as needed.
6. Dextrose for hypoglycemia (BGL<60 mg/dL)
    - Dextrose: IV, IO
7. Repeat blood glucose testing if dextrose was administered.
8. Administer fluids per protocol.
9. Narcan for suspected narcotic overdose
    - Narcan

Altered Mental Status & Syncope, cont.

EMT-INTERMEDIATE

10. Advanced airway management per protocol.
11. Electrocardiogram per protocol.
    - Males >35 and females >40 years old, perform a 12 lead in all patients with syncope, weakness, and/or diaphoresis.
12. Valium for sedation
    - ***Valium***
    - ***Versed***

NOTE—If the provider feels that the safety of either the crew, the pt or others on scene are in danger, then these drugs may be given on standing orders.

EMT-PARAMEDIC

10. Advanced airway management per protocol.
11. Electrocardiogram per protocol.
    - Males >35 and females >40 years old, perform a 12 lead in all patients with syncope, weakness, and/or diaphoresis.
12. Valium or Versed for sedation
    - Valium
    - Versed

CO Poisoning

EMT-BASIC

1. General patient assessment
    - Signs & Symptoms: Carbon monoxide poisoning is often mistaken for the flu or food poisoning. Common symptoms include nausea and vomiting, headache, dizziness, chest pain, shortness of breath, and weakness. With more severe exposures, patients may experience altered mental status, incontinence, and seizure.
    - Environmental Examination: Responders should be alert to other sources of CO than smoke inhalation. This includes portable generators, automobiles, furnaces, water heaters, household stoves, camping lanterns and stoves, snow blowers, floor buffers, pumps, power sprayers, lawn movers and garden tractors. CO poisoning is especially prevalent during winter storms. This is due to stranded motorist idling their cars in drifted snow, and electrical outages causing victims to find other sources of heat such as generators and stoves. Be especially alert to CO poisoning with history of an ill household pet.
    - History: Record the source of the CO, ambient CO levels if known, duration of the exposure, and location of the source in relation to the patient.
    - Hb has an affinity to CO that is 200-250 times greater than oxygen. It has even a higher affinity for fetal Hb.
    - Individuals with increased oxygen demands (unborn babies, infants, young children, senior citizens, and persons with cardiac or respiratory disease are especially at risk.
2. Airway management, high flow oxygen via NRB, pulse oximetry per protocol. Position patient on their side if not contraindicated.
    - Half-life of COHb is reduced to 40-90 minutes on a NRB versus 4-6 hours on room air.
3. Blood glucose testing for all cases of altered mental status.
4. If there is suspicion of hypoglycemia and the patient is able to maintain their airway consider oral ingestion of food or drink or administer oral glucose.
    - Oral Glucose (Adult/Pediatric): 1 Full Tube PO
5. SpCO reading on Lifepak 15. See tables for initial and reassessment parameters.

INITIAL CO ASSESSMENT PARAMETERS	
0-5%	Considered normal in non-smokers. When >3% with symptoms, consider high flow oxygen and evaluate environment for CO sources. Consider measuring others in same room/office/vehicle as the patient. In absence of symptoms, no further medical evaluation of SpCO is needed.
5-10%	Considered normal in smokers, abnormal in non-smokers. If symptoms are present, consider high flow oxygen and inquire if others are ill. Alert fire department.
10-15%	Abnormal in any patient. Assess for symptoms, consider high flow oxygen, Evaluate environment for CO sources.
>15%	Significantly abnormal in any patient. Administer high flow oxygen, assess for symptoms, consider transport. Evaluate environment for CO sources.
>30%	Consider transport to hyperbaric facility (some experts recommend hyperbaric referral for any patient >25% or with altered mental status or pregnant).

CO Poisoning

CO REASSESSMENT PARAMETERS	
0-5%	If symptoms persist, recommend transport regardless of SpO2 readings. If symptoms resolved, no further medical evaluation of SpCO needed.
5-10%	If symptoms persist, recommend transport regardless of SpO2 readings. If symptoms resolve and SpCO remains > 5% in any patient, recommend further medical evaluation. Non-smokers should be encouraged to have their home/work environment evaluated for CO.
10-15%	If symptoms persist or SpCO remains > 10% in any patient, recommend transport. Envourage patient to have home/work environment evaluated for CO.
>15%	Recommend transport regardless of symptoms. Ensure that others in patient ' s home or workplace are not ill.
>30%	Consider transport to hyperbaric facility (some experts recommend hyperbaric referral for any patient >25% or with altered mental status) .

EMT-BASIC-IV

6. Establish an IV, obtain lab draws, and administer fluids as needed.
7. Repeat blood glucose testing if dextrose was administered.
8. Administer fluids per protocol.

EMT-INTERMEDIATE

EMT-PARAMEDIC

9. Advanced airway management per protocol.
10. Electrocardiogram per protocol.

Diabetes Mellitus

EMT-BASIC

1, General patient assessment
- Determine time and amount of last dose of diabetic medication/insulin and last oral intake.
- Past medical history should include type of diabetes (I, II, gestational).
- No personnel regardless of care level may assist patient in administering insulin.

2. Airway management, oxygen, pulse oximetry per protocol
3. Blood glucose testing for all cases of altered mental status
4. If there is suspicion of hypoglycemia and the patient is able to maintain their airway consider oral ingestion of food or drink or administer oral glucose.
   - Oral Glucose

EMT-BASIC-IV

5. Establish an IV and obtain lab draws per protocol.
6. Dextrose for hypoglycemia (BGL<60 mg/dL)
   - Dextrose

7. To mix D 10, take D 50% and waste 40 mL (leaving 10 mL) and draw up 40 mL NS.
8. Administer fluids per protocol.
   - If patient is in DKA or HHNC, they may require aggressive fluid replacement; administering 2 L prior to arrival to the hospital is not unusual. Severe cases may have fluid deficits of 5 to 6 liters or more. However,

EMT-INTERMEDIATE

EMT-PARAMEDIC

10. If IV access cannot be obtained, establish IO per protocol and administer dextrose solution.
11. If unable to obtain IV or IO, administer glucagon.
    - Glucagon

11. Electrocardiogram per protocol.
    - Diabetics tend to incur a disproportionate amount of cardiac problems. Obtain a 12 lead if patient is showing any signs and symptoms of an acute coronary syndrome.

Drug Overdose & Poisoning

EMT-BASIC

1. General patient assessment
    - Include the substance consumed, method of consumption (ingestion, injected, absorbed, or inhaled), amount, and exact time. Be aware of the reasons for exposure such as child neglect, or attempted suicide.
    - Bring the poison, the container, all medications, and anything questionable in the area to the emergency department. Keep scene time to a minimum.
    - Anticipate respiratory arrest, seizure activity, dysrhythmias, and/or vomiting.
    - For drug overdoses and poisonings contact Poison Control during transport as needed (1-800-332-3073).
2. Airway management, oxygen, and pulse oximetry per protocol. Position patient on their side if not contraindicated.
3. Blood glucose testing for all cases of altered mental status.

EMT-BASIC-IV

4. Establish an IV, obtain lab draws, and administer fluids per protocol.
5. Dextrose for hypoglycemia (BGL <60 mg/dL).
6. Narcan for suspected narcotic overdose
    - Narcan

EMT-INTERMEDIATE

7. Advanced airway management per protocol.
8. ETCO2 monitoring.
10. Electrocardiogram per protocol.

Pharmacological Treatment of Toxic Emergencies	
Toxin	Treatment
Organophosphate	Atropine to treat symptoms of an organophosphate poisoning per protocol. • *Atropine*
Calcium Channel / Beta Blocker OD	Treat the symptoms of hypotension and bradycardia first with fluids and consider pacing. Calcium channel blocker overdose can also be treated with calcium chloride. • *Calcium Chloride*

EMT-PARAMEDIC

7. Advanced airway management per protocol.
8. ETCO2 monitoring.
9. *Insertion of a nasogastric or orogastric tube for removal of stomach contents per protocol.*
10. Electrocardiogram per protocol.

Drug Overdose & Poisoning, cont.

Treatment of Toxic Emergenices	
Toxin	Treatment
Calcium Channel Blocker / Beta blocker	Treat the symptoms of hypotension and bradycardia first with fluids and consider pacing. Calcium channel blocker overdose can also be treated with calcium chloride. • *Calcium Chloride*
Tricyclic Antidepressant.	Sodium Bicarbonate if patient presents with tachycardia, hypotension, and/or wide QRS. • *Sodium Bicarbonate*
Organophosphate	Atropine to treat symptoms of an organophosphate poisoning per protocol. • *Atropine*

Intoxication & Withdrawal

EMT-BASIC

1. General patient assessment
   - Differential Diagnosis: Rule out other possibilities such as stroke, head injury, hypoglycemia, seizure, and metabolic disorders.
   - Past medical history should include substance, amount, and time span of consumption; whether it is acute or chronic substance abuse, suicidal intentions, and associated trauma.
2. Airway management, oxygen, and pulse oximetry per protocol. Position patient on their side if not contraindicated.
3. Blood glucose testing for all cases of altered mental status.
4. IN ORDER TO REFUSE TRANSPORT, THE PATIENT MUST HAVE DECISION-MAKING CAPCITY. A patient who is displaying altered mental status, unsteady gait, uncoordinated or slowed motor response, and/or slurred speech likely does not have the mental competence for adequate decision-making capacity. ***Contact medical control if the patient is refusing treatment and/or transport.***

<table>
<tr><th>High Risk Intoxication—Transport Strongly Advised</th></tr>
<tr><td>Incapacitating Intoxication:
• Inability to stand from a seated position, and walk independently
• Inability to maintain airway
• Inability to care for self, e.g. at risk for trauma or environmental exposure due to an unsafe location</td></tr>
<tr><td>Intoxication with Associated Illness or Injury:
• Abnormal vital sign that might indicate an acute illness or injury
• Physical complaint such as headache, vomiting, chest pain or shortness of breath that might indicate an acute illness or injury
• Seizure or hypoglycemia associated with an intoxicated episode
• A history of associated acute trauma, including falls from standing, assault, MVA or other significant mechanism of injury
• Physical exam findings consistent with recent head injury, including facial bruising, abrasion, tenderness or deformity</td></tr>
</table>

5. Patients that have tremors associated with alcohol withdrawal and delirium tremens (mental confusion, constant tremors, fever, dehydration, tachycardia, and/or hallucinations) are at high risk and should be transported.
6. Minors that are intoxicated should be transported for evaluations. Parents may wish to take their children home to "sleep it off." The intoxicated minor is at risk for adverse outcome and often benefits from evaluation of both medical and psychological concerns. ***The parent or guardian must speak with the base physician if he or she is refusing transport for the minor.***

EMT-BASIC-IV

6. Dextrose for hypoglycemia (BGL<60 mg/dL).
7. Establish an IV, obtain lab draws, administer fluids per protocol.
8. Narcan as needed for suspected narcotic overdose.
   - Narcan

Intoxication & Withdrawal, cont.

EMT-INTERMEDIATE

9. Advanced airway management per protocol.
10. Electrocardiogram per protocol.
11. Valium for tremors associated with alcohol withdrawal and delirium tremens (mental confusion, constant tremors, fever, dehydration, tachycardia, and/or hallucinations) per protocol.
    - *Valium*

EMT-PARAMEDIC

9. Advanced airway management per protocol.
10. Electrocardiogram per protocol.
11. Valium for tremors associated with alcohol withdrawal and delirium tremens (mental confusion, constant tremors, fever, dehydration, tachycardia, and/or hallucinations) per protocol.
    - Valium

Pre-Hospital Neurological Screening Form

Record neurological screen from time zero and every 10-20 minutes throughout transport for all patients with neurological compromise. Cincinnati Pre-Hospital Stroke Scale and/or Glasgow Coma Scales can be recorded. This form should be given to the receiving physician and a copy made to include in the Patient Care Report.

TIME ZERO :
Initial Signs & Symptoms at time zero:

TIME OF INITIAL TEST:			
Category	Test	**CIRCLE RESPONSE**	Reaction
Facial Droop	Have patient show teeth or smile	Normal Abnormal	Both sides of face move equally One side does not move well
Arm Drift	Patient closes both eyes and extends both arms straight out, with palms up, for 10 seconds	Normal Abnormal	Both arms move the same, or both arms do not move at all. One arm does not move or one arm drifts down compared with the other.
Abnormal Speech	Have the patient say, "You can not teach an old dog new tricks."	Normal Abnormal	Correct words, no slurring Slurs words, uses wrong words, or is unable to speak
Glasgow Coma Score	Eye Opening 1 2 3 4	Best Verbal Response 1 2 3 4 5	Best Motor Response 1 2 3 4 5 6

TIME OF SECOND TEST:			
Category	Test	**CIRCLE RESPONSE**	Reaction
Facial Droop	Have patient show teeth or smile	Normal Abnormal	Both sides of face move equally One side does not move well
Arm Drift	Patient closes both eyes and extends both arms straight out, with palms up, for 10 seconds	Normal Abnormal	Both arms move the same, or both arms do not move at all. One arm does not move or one arm drifts down compared with the other.
Abnormal Speech	Have the patient say, "You can not teach an old dog new tricks."	Normal Abnormal	Correct words, no slurring Slurs words, uses wrong words, or is unable to speak
Glasgow Coma Score	Eye Opening 1 2 3 4	Best Verbal Response 1 2 3 4 5	Best Motor Response 1 2 3 4 5 6

Pre-Hospital Neurological Screening Form, cont.

TIME OF THIRD TEST:			
Category	Test	**CIRCLE RESPONSE**	Reaction
Facial Droop	Have patient show teeth or smile	Normal Abnormal	Both sides of face move equally One side does not move well
Arm Drift	Patient closes both eyes and extends both arms straight out, with palms up, for 10 seconds	Normal Abnormal	Both arms move the same, or both arms do not move at all. One arm does not move or one arm drifts down compared with the other.
Abnormal Speech	Have the patient say, "You can not teach an old dog new tricks."	Normal Abnormal	Correct words, no slurring Slurs words, uses wrong words, or is unable to speak
Glasgow Coma Score	Eye Opening 1 2 3 4	Best Verbal Response 1 2 3 4 5	Best Motor Response 1 2 3 4 5 6

TIME OF FOURTH TEST:			
Category	Test	**CIRCLE RESPONSE**	Reaction
Facial Droop	Have patient show teeth or smile	Normal Abnormal	Both sides of face move equally One side does not move well
Arm Drift	Patient closes both eyes and extends both arms straight out, with palms up, for 10 seconds	Normal Abnormal	Both arms move the same, or both arms do not move at all. One arm does not move or one arm drifts down compared with the other.
Abnormal Speech	Have the patient say, "You can not teach an old dog new tricks."	Normal Abnormal	Correct words, no slurring Slurs words, uses wrong words, or is unable to speak
Glasgow Coma Score	Eye Opening 1 2 3 4	Best Verbal Response 1 2 3 4 5	Best Motor Response 1 2 3 4 5 6

Signature of Field Provider:

Please contact WECAD Supervisor Phone for any questions (970) 401-1456.

Psychiatric Emergencies

EMT-BASIC

1. General patient assessment
    - Differential Diagnosis: Rule out organic basis for symptoms. Consider alcohol or other drug intoxication, hypoglycemia, head injury, or hypoxia.
    - STAGE AT A SAFE DISTANCE UNTIL LAW ENFORCEMENT HAS SECURED THE SCENE. Once on scene, exercise caution when approaching the patient and always position yourself for a safe exit.
    - NEVER leave the patient alone. EMS, fire, law, or other responder must remain with them at all times.
    - Past medical history should include specific psychiatric diagnoses, changes in psychiatric medications, and recent emotional trauma.
    - Determine patient's ability to make decisions and document in detail the following to support your field impression:

        Activity level: restlessness, agitation, and compulsions
        Speech: rate, volume, articulation, and content
        Thought Process: delusions, flight of ideas, obsessions, and phobias
        Affect and Mood: appropriate, inappropriate
        Perception: delusions, and hallucinations (tactile, auditory, visual).
    - Determine if the patient is a threat to themselves or others or unable to care or provide for themselves. Ask specifically about suicidal thought or intentions. Bring any suicide notes to the hospital.
2. Mental Health Hold per protocol.
3. Airway management, pulse oximetry, and oxygen per protocol.
4. Restraint of agitated patients per protocol.

EMT-BASIC-IV

5. Blood glucose testing for all cases of altered mental status per protocol.
    - Do not administer dextrose until an accurate BGL has been measured.
6. Establish an IV, obtain lab draws, and administer fluids per protocol.

EMT-INTERMEDIATE

7. Valium for sedation per protocol.
    - ***Valium***
8. Valium or Versed for a chemical restraint per protocol
    - ***Versed***
    - ***Valium***

NOTE—If the provider feels that the safety of either the crew, the pt or others on scene are in danger, then these drugs may be given on standing orders.

Psychiatric Emergencies, cont.

EMT-PARAMEDIC

7. Valium or versed for sedation per protocol.
    - Valium
    - Versed
8. Valium or versed for a chemical restraint per protocol
    - Versed
    - Valium

Restraint of the Agitated Patient

EMT-BASIC

1. General patient assessment per protocol.
    - ENSURE LAW ENFORCEMENT IS ON SCENE PRIOR TO APPROACING THE PATIENT.
    - Patients requiring restraints are often in a state of excited delirium. This is a condition characterized by a severe disturbance in the level of consciousness and a change in mental status over a relatively short period of time. It is manifested by mental and physiological arousal, agitation, hostility and heightened sympathetic stimulation. It can result from mental illness, substance abuse (usually stimulants), or a combination of both. These patients can be amazingly strong and pose a clear and present danger to emergency personnel and others on scene.
    - Differential Diagnosis: should include medical conditions such as hypoglycemia, hypoxia, and nervous system illness or injury can result in agitation.
2. Airway management, pulse oximetry, and oxygen per protocol.
3. Mental Health Hold per protocol.
4. Physical Restraint
    - Documentation to support the use of restraints must be thorough.
    - A minimum of five people should be available, one for each extremity and one for the head. All personnel should have appropriate BSI including protective eye wear. Approach and surround the patient from a safe distance. The team leader should talk with the patient calmly for distraction. With a pre-approved signal, each team member should approach the patient and secure their pre-assigned body appendage. The patient should be brought safely to the ground.
    - The stretcher or backboard and commercial soft restraints can be used to restrain the patient. Ideally, the patient's arms should be crossed on his/her chest. One strap should be placed tightly across the knees, and one over the chest (but lose enough to allow breathing). A cervical collar may be used to reduce the risk of biting, and a non-rebreather mask with oxygen flowing to reduce the risk of spitting.
    - Continuously monitor the patient's condition during care, including pulses distal to the restraint devices every 10 minutes.
    - If law enforcement has handcuffed a patient prior to EMS transport, the handcuffs should be moved to the front of the patient. It is preferable that the law enforcement officer accompany the subject in the patient compartment. If this is not possible, they should accompany behind the ambulance in their patrol car with a prearranged radio channel for communication should the patient deteriorate and need the handcuffs removed. Personnel should always get a handcuff key prior to transport of anyone in handcuffs.
    - Risk factors for restraint asphyxia include excited delirium, hog-tie restraint, prone positioning, and forceful struggle against restraints. EMS personnel should never transport a patient in a hog-tie, prone, or other position that compromises the patient's airway such as neck hyperflexion or hyperextension.

EMT-BASIC-IV

5. Blood glucose testing for all cases of altered mental status. Establish an IV and obtain lab draws as needed.
    - Do not administer dextrose until an accurate BGL has been measured.

Restraint of the Agitated Patient, cont.

EMT-INTERMEDIATE

7. Chemical Restraint
    - Continued struggle during restraint has been shown to be a significant risk factor in deaths due to restraint asphyxia. In these cases, it may be prudent to administer a sedative to lessen the patient ' s agitation. The patient should be approached and restrained before the medication is administered to reduce the risk of needle sticks. In severe cases, providers may need to administer medication through clothing.
8. Valium or versed for a chemical restraint per protocol
    - *Versed*
    - *Valium*

NOTE—If the provider feels that the safety of either the crew, the pt or others on scene are in danger, then these drugs may be given on standing orders.

EMT-PARAMEDIC

7. Chemical Restraint
    - Continued struggle during restraint has been shown to be a significant risk factor in deaths due to restraint asphyxia. In these cases, it may be prudent to administer a sedative to lessen the patient ' s agitation. The patient should be approached and restrained before the medication is administered to reduce the risk of needle sticks. In severe cases, providers may need to administer medication through clothing.
8. Valium or versed for a chemical restraint per protocol
    - Versed
    - Valium

Seizure

EMT-BASIC

1. General patient assessment
   - Initial management of an actively seizing patient is to support the airway and breathing, then stop the seizure. Further management is aimed at treating the underlying cause.
   - Consider spinal immobilization.
2. Move furniture, objects that the patient may strike.
3. Basic airway management, pulse oximetry per protocol.
   - Airway maintenance of a seizing patient should not require more than an NPA and suctioning until the patient is alert enough to maintain their own airway.
   - Actively seizing and postictal patients should be placed on NRB at 12-15 LPM and assist ventilations if needed. Place them on their side during postictal phase if not contraindicated.
4. Blood glucose testing for all cases of altered mental status per protocol.

Determine Cause of Seizure to Direct Further Treatment		
Causes	Examples	Typical Findings
CNS Injury or Disorder	Traumatic brain injury, stroke, brain tumor	History (recent head injury, previous TIA or stroke, diagnosed brain tumor), abnormal pupil size/ reactivity, abnormal cranial nerve testing, positive babinski, positive Cincinnati Stroke Test
Metabolic Disorder	Hypoglycemia, hypoxia, drug side effect, hepatic or renal failure, electrolyte imbalance, failure to take anti-seizure medication	Low BGL, low pulse oximetry, history of liver or kidney dysfunction, history of diabetes, medication containers, evidence of illegal drug use
Infectious Disease	Meningitis, Encephalitis	Elevated temperature, headache, stiff neck, history of infection, flu-like symptoms, abnormal pupil size/ reactivity, abnormal cranial nerve testing, positive babinski, purpura and peticiae are indicative of sepsis in pediatrics
Obstetric	Eclampsia	History of pre-eclampsia including hypertension, swelling in face, hands, and feet; headache.
Febrile	Febrile	Age 6 months to 5 years, history of fever

EMT-BASIC-IV

1. Administer Dextrose for hypoglycemia (BGL<60 mg/dL)
2. Establish an IV and obtain lab draws per protocol.
3. Narcan for suspected narcotic overdose.
   - Narcan

Seizure, cont.

EMT-INTERMEDIATE

8. Electrocardiogram per protocol.
    - Males >35 and females >40 years old, perform a 12 lead in all patients with first onset seizure.
9. If actively seizing give Valium per protocol.
    - *Valium*

EMT-PARAMEDIC

8. Electrocardiogram per protocol.
    - Males >35 and females >40 years old, perform a 12 lead in all patients with first onset seizure.
9. If actively seizing give Valium (first choice anticonvulsant).
    - Valium
10. If actively seizing and not able to obtain IV access, give Versed (second choice anticonvulsant).
    - Versed
11. Pre-Eclampsia give Magnesium Sulfate
    - *Magnesium Sulfate*
12. Eclampsia, give Magnesium Sulfate.
    - Magnesium Sulfate

Pre-Eclampsia & Eclampsia Differential Diagnosis	
Pre-Eclampsia	>20 weeks gestation, BP>180 mmHg systolic, and/or 110 mgHg diastolic
Eclampsia	Signs of pre-eclampsia with altered mental status or seizure

Stroke & Stroke Alert

EMT-BASIC

1. General patient assessment.
    - Identify signs of a possible stroke, many of which may be subtle:

Signs & Symptoms of a Possible Stroke
• Sudden weakness or numbness of the face, arm, or leg, especially on one side of the body • Sudden confusion • Trouble speaking or understanding speech (differentiate from confusion) • Sudden trouble seeing in one or both eyes • Sudden trouble walking • Dizziness or loss of balance or coordination • Sudden severe headache with no known cause

2. Basic airway management pulse oximetry and oxygen per protocol.
    - Be attentive to the airway. Difficulty with secretions, vomiting, and inadequate tidal volume are common.
3. Blood glucose testing for all cases of altered mental status.
4. Determine if patient meets the criteria for a Stroke Alert.

Criteria for Stroke Alert
1. <3 hours have elapsed since time zero. 2. Patient is >18 years of age. 3. Blood Glucose is >60 mg/dL 4. Patient has a newly positive finding on the Cincinnati Prehospital Stroke Scale

Cincinnati Prehospital Stroke Screen

Category	Test	Response Type	Reaction
Facial Droop	Have patient show teeth or smile	Normal Abnormal	Both sides of face move equally One side does not move well
Arm Drift	Patient closes both eyes and extends both arms straight out, with palms up, for 10 seconds	Normal Abnormal	Both arms move the same, or both arms do not move at all. One arm does not move or one arm drifts down compared with the other.
Abnormal Speech	Have the patient say, "You can not teach an old dog new tricks."	Normal Abnormal	Correct words, no slurring Slurs words, uses wrong words, or is unable to speak

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

Stroke & Stroke Alert, cont.

5. Determine Time Zero.
   - Time zero is when the patient was last known to be normal or at neurologic baseline. If the patient wakes from sleep with symptoms of stroke, time zero is the last time the patient was seen to be normal. If possible, bring a witness or family member to the hospital with the patient to confirm time of onset of stroke symptoms.
6. Make a transport decision.
   - Do not transport to a facility that does not have an operating CT scan.
7. When time allows during transport, complete and give the following documents to the receiving facility:
   - Pre-Hospital Neurological Screening Form (optional)
   - Fibrinolytic Checklist for Stroke Alert

EMT-BASIC-IV

4. Administer Dextrose for hypoglycemia (BGL<60 mg/dL)
5. Establish a peripheral IV and obtain lab draws per protocol.

EMT-INTERMEDIATE

EMT-PARAMEDIC

6. Advanced airway management per protocol.
7. Electrocardiogram per protocol.
   - Complete a 12 lead to identify a recent or on-going AMI or arrhythmia as a cause of an embolic stroke (eg, atrial fibrillation). A small percentage of patients with acute stroke or TIA have coexisting myocardial ischemia or other abnormalities.

Fibrinolytic Checklist for Stroke Alert

Patient Name: Time & Date:

Step 1: Does the patient have any contraindications to fibrinolysis? If any are checked yes, fibrinolysis MAY be contraindicated.	Yes	No
1. Systolic BP >180 mmHg? Confirm with manual BP.		
2. Diastolic BP >110 mmHg? Confirm with manual BP.		
3. Right vs left arm systolic BP difference > 15 mmHg? Confirm with manual BP.		
4. History of structural central nervous system disease?		
5. Significant closed head/facial trauma within the previous 3 months?		
6. Recent (within 6 weeks) major trauma, surgery (including laser eye surgery), GI/GU bleed?		
7. Bleeding or clotting problem or blood thinners?		
8. CPR greater than 10 minutes?		
9. Pregnant female?		
10. Serious systemic disease (eg, advanced/terminal cancer, severe liver or kidney disease)		

Step 2. Is patient at high risk for fibrinolysis?	Yes	No
1. Heart rate > than or equal to 100 BPM AND systolic BP less than 100 mmHg		
2. Pulmonary edema		
3. Signs of shock (cool, clammy)		
4. Contraindications to fibrinolytic therapy		

Signature of Field Provider:

Please contact WECAD Supervisor Phone for any questions (970) 401-1456.

Acute Coronary Syndrome

EMT-BASIC

1. General patient assessment
    - Differential Diagnosis: should include AMI, angina, dissecting aorta, pericarditis/myocarditis, cocaine use, PE, chest wall trauma, pneumothorax, GI reflux, esophageal spasm, pleural pain, pneumonia, asthma, and COPD.
    - The most common symptom of ACS (ischemia or AMI) is retrosternal chest discomfort. The patient may perceive this more as pressure or tightness than actual pain. Other symptoms suggestive of ACS include radiating pain in the shoulders, neck, arms, jaw, back, and between the shoulder blades; unexplained, sudden shortness of breath; lightheadedness, fainting, sweating, and/or N/V/indigestion.
    - Beware that 20-30% of patients having an AMI have no CP. Instead they have anginal equivalents such as syncope/near syncope, weakness, dyspnea, diaphoresis, palpitations, and/or N/V/indigestion. This is more common in elderly, females, and patients with diabetes.
2. Basic airway management, pulse oximetry and oxygen per protocol.
3. Be prepared to provide CPR and defibrillation.
4. Keep scene time to a minimum, fibrinolytic therapy must be started within three hours from time of onset.
5. Asprin

    Asprin (Adult): 324 mg PO
6. Nitroglycerin
    - ***Nitroglycerin : patient assisted, must be prescribed to the patient and not expired, use as directed, usually q 5 minutes max 3 doses.***

EMT-BASIC-IV

7. Establish a peripheral IV, obtain lab draws, and administer fluids per protocol.

EMT-INTERMEDIATE

8. Advanced airway management per protocol.
9. Electrocardiogram per protocol.
10. Nitroglycerin
    - Nitroglycerin: ***Contact medical control for patients with BP <100 mmHg, or with signs of poor peripheral perfusion or with hypertension***
11. Fentanyl
    - ***Fentanyl***

Acute Coronary Syndrome, cont.

12-Lead ECG			
Leads	Artery	Damage	Complications
V1-V2	LCA: LAD-septal branch	Septum, His bundle, bundle branches	Infranodal block & BBB 's
V3-V4	LCA: LAD-diagonal branch	Anterior wall LV	LV dysfunction, CHF, BBB' s , complete heart block, PVC 's
V5-V6, pluse I & AVL	LCA: circumflex branch	High lateral wall LV	LV dysfunction, AV nodal block in some
II, III, aVF	RCA: posterior descend-ing branch	Inferior wall LV, pos-terior wall LV	Hypotension, sensitivity to nitroglycerin and mor-phine
V4R (II, III, AVF)	RCA: proximal branches	RV, inferior wall LV, posterior wall LV	Hypotension, supranodal and AV-nodal blocks, atrial fibrillation/flutter, PAC' s , adverse medical reactions
V1-V4 (marked de-pression)	Either LCA-circumflex or RCA-posterior descending	Posterior wall LV	LV dysfunction

EMT-PARAMEDIC

8. Advanced airway management per protocol.
9. Electrocardiogram per protocol.
    - Obtain early and repeat 12 Lead ECG every 10 minutes. Early recognition and notification of an acute myo-cardial infarction is imperative, and ECG 's can significantly change in a very short period of time.
10. *EARLY NOTIFICAITON OF A CARDIAC ALERT PER PROTOCOL*
11. Nitroglycerin
    - Nitroglycerin: ***Contact medical control for patients with BP <100 mmHg, or with signs of poor peripheral per-fusion or with hypertension***
12. Fentanyl
    - Fentanyl
13. Dopamine
    - ***Dopmaine***

Basic Life Support

EMT-BASIC

No Movement or Response

↓

Get AED

↓

Check Pulse: Definite pulse within 10 seconds?

Definite Pulse →

- Give 1 breath every 5 to 6 seconds
- Recheck pulse every 2 minutes

↓

If the patient is breathing or resumes effective breath-ing, place them in the re-

No Pulse ↓

Give cycles of 30 COMPRESSIONS and 2 BREATHS until AED/defibrillator arrives, ALS providers take over, or victim starts to move.

- Push hard and fast (100/min) and release completely.
- Minimize interruptions in compressions

↓

AED/Defibrillator Arrives

↓

Check Rhythm
Shockable rhythm?

Shockable ←

Give 1 Shock
Resume CPR Immediately for 5 Cycles

(return to Check Rhythm)

→ **Not Shockable**

Resume CPR immediately for 5 Cycles
Check rhythm every 5 cycles
Continue until ALS providers take over or victim starts to move.

(return to Check Rhythm)

Basic Life Support, cont.

Component	Recommendations		
	Adults	Children	Infants
Recognition	Unresponsive (for all ages)		
	No breathing or no normal breathing (ie, only gasping)	No breathing or only gasping	
	No pulse palpated within 10 seconds		
CPR Sequence	C-A-B		
Compression Rate	At least 100/min		
Compression Depth	At least 2 inches (5cm)	At least 1/3 AP diameter about 2 inches (5 cm)	At least 1/3 AP diameter about 11/2 inches (4 cm)
Chest Wall Recoil	Allow complete recoil between compressions Rotate compressors every 2 minutes		
Compression Interruptions	Minimize interruptions in chest compressions Attempt to limit interruptions to <10 seconds		
Airway	Head tilt-chin lift (suspected trauma: jaw thrust)		
Compression-to-Ventilation (until advanced airway placed)	30:2 1 or 2 rescuers	30:2, Single rescuer 15:2, 2 rescuers	
Ventilations with Advanced Airway	1 breath every 6-8 seconds (8-10 breaths/min) Asynchronous with chest compressions About 1 second per breath Visible chest rise		
Defibrillation	Attach and use AED as soon as available. Minimize interruptions in chest compressions before and after shock: Resume CPR beginning with compressions immediately after each shock.		

Cardiac Alert

EMT-Intermediate

EMT-PARAMEDIC

1. Determine if patient meets the criteria for a Cardiac Alert.

Criteria for Cardiac Alert
• ST segment elevation >1 mm in 2 or more contiguous precordial leads or 2 or more adjacent limb leads • New or presumed new left bundle branch block

2. Make a transport decision.
   - Contact Valley View Hospital prior to transport to check the availability of the cath lab.
3. Obtain repeat 12 lead ECG every 10 minutes.
4. Complete and give the following documents to the receiving facility:
   - Fibrinolytic Checklist for Cardiac Alert

Cardiac Algorithm—Bradycardia

EMT-BASIC

1. General patient assessment
    - Determine if the patient ' s signs (hypotension, pulmonary edema, decreased level of consciousness, and syncope) and/or symptoms (chest discomfort, shortenss of breath, weakness, fatigue, lightheadedness, and dizziness) are due to the slow heart rate (HR<60 BPM) or some other illness.
    - If signs and symptoms are due to some other cause besides the bradycardia, treat the other cause accordingly.
2. Basic airway management, pulse oximetry, and oxygen per protocol.

EMT-BASIC-IV

3. Establish peripheral IV, obtain lab draws, and administer fluids per protocol.

EMT-INTERMEDIATE

4. Obtain a 12 lead per protocol. Do not delay treatment to obtain a 12 lead.
5. Atropine for hemodynamically unstable bradycardia
    - *Atropine*

7. Consider epinephrine if atropine is not effective.
    - *Epinephrine*

8. Transcutaneous Pacing per protocol.
    - Start immediately for patients who are severely symptomatic, have high-degree blocks (Mobitz Type II or Third Degree Block), or do not respond to atropine.

EMT-PARAMEDIC

5. Obtain a 12 lead per protocol. Do not delay treatment to obtain a 12 lead.
6. Atropine for hemodynamically unstable bradycardia
    - Atropine
7. Consider dopamine or epinephrine if atropine is not effective.
    - *Dopmaine*
    - *Epinephrine*
8. Transcutaneous Pacing per protocol.
    - Start immediately for patients who are severely symptomatic, have high-degree blocks (Mobitz Type II or Third Degree Block), or do not respond to atropine.

Cardiac Algorithm—Pulseless Arrest

EMT-BASIC

1. General patient assessment
2. Basic Life Support per protocol.
3. Basic airway management and oxygen per protocol.

EMT-BASIC-IV

5. Establish peripheral IV, obtain lab draws and administer fluids only if time permits.

EMT-INTERMEDIATE

Shockable rhythm?

- Shockable → VF/VT
- Not Shockable → Asystole/PEA

Box 1 (VF/VT)

- Give 1 Shock (200J Lifepak12 Biphasic)
- Resume BLS Immediately per protocol

2 minutes

Box 2

- Check Rhythm
- Shockable rhythm?

Not Shockable → (see box below Box 3)

Shockable:

- Continue BLS per protocol while defibrillator is charging
- Give 1 Shock (300J Lifepak12 Biphasic)
- Resume BLS per protocol immediately
- Epinephrine given during CPR
  Epinephrine

2 minutes

Check Rhythm
Shockable rhythm?

- Continue BLS per protocol while defibrillator is charging
- Give 1 Shock (360J Lifepak12 Biphasic)
- Resume BLS per protocol immediately
- Amiodarone given during CPR:
  Amiodarone

Box 3 (Asystole/PEA)

- Resume BLS per protocol for 2 minutes before checking rhythm
- Epinephrine given during CPR
  Epinephrine
- Treat reversible causes

Shockable → Go to Box 1

Not Shockable:

- Asystole, go to Box 3
- Electrical activity, check pulse, no pulse, go to Box 3
- Pulse, begin postresuscitation care per protocol.
- Consider termination of effort per Field Pronouncement Protocol.

Special Notes

- Patients should not be moved from the scene until three cycles of 2 minutes compressions/ rhythm analysis are completed.
- Initial airway management should only consist of an OPA & BVM. Insertion of an advanced airway is not performed until either return of spontaneous circulation or after three cycles of 2 minutes compressions/rhythm analysis are completed.

Cardiac Algorithm—Pulseless Arrest, cont.

EMT-PARAMEDIC

Shockable rhythm?

- Shockable → VF/VT
- Not Shockable → Asystole/PEA

Box 1 (from VF/VT)

- Give 1 Shock (200J Lifepak12 Biphasic)
- Resume BLS per protocol immediately

2 minutes

Box 2

- Check Rhythm
- Shockable rhythm?

Not Shockable → (go to Asystole box below)

Shockable →

- Continue BLS per protocol while defibrillator is charging
- Give 1 Shock (300J Lifepak12 Biphasic)
- Resume BLS per protocol immediately
- Epinephrine given during CPR
  - Epinephrine

2 minutes

Check Rhythm
Shockable rhythm?

- Continue BLS per protocol while defibrillator is charging
- Give 1 Shock (360J Lifepak12 Biphasic)
- Resume BLS per protocol immediately
- Amiodarone given during CPR:
  - Amiodarone ***Contact base for further dosing.***
- Magnesium Sulfate given during CPR (hypomagnesemia or Torsades de Pointes)
  - Magnesium Sulfate
- Repeat sequence of checking rhythm, shocking (360J Lifepak12Bi-phasic), and 2 minutes of BLS per protocol.
- If patient regains pulse start post-resuscitation care per protocol.

Box 3 (from Asystole/PEA)

- Resume BLS immediately for 2 minutes before checking rhythm
- Epinephrine given during CPR
  - Epinephrine
- Treat reversible causes

Shockable → Go to Box 1

Not Shockable →

- Asystole, go to Box 3
- Electrical activity, check pulse, no pulse, go to Box 3
- Pulse, begin postresuscitation care per protocol.
- Consider termination of effort per Field Pronouncement Protocol.

Special Notes

- Patients should not be moved from the scene until three cycles of 2 minutes compressions/ rhythm analysis are completed.
- Initial airway management should only consist of an OPA & BVM. Insertion of an advanced airway is not performed until either return of spontaneous circulation or after three cycles of 2 minutes compressions/rhythm analysis are completed.

Cardiac Algorithm—Tachycardia with Pulses

EMT-BASIC

1. General patient assesssment
2. Basic airway management and oxygen per protocol.
3. Be prepared to provide CPR and defibrillation.

EMT-BASIC-IV

4. Establish peripheral IV, obtain lab draws and administer fluids only if time permits.

EMT-INTERMEDIATE

- Assess and support ABC's as needed
- Give oxygen
- Monitor ECG (identify rhythm), blood pressure, pulse oximetry
- Identify and treat reversible causes

↓ Symptoms Persist

Is the patient stable?
Unstable signs include altered mental status, ongoing chest pain, hyotension or other signs of shock.
Note: Rate-related symptoms uncommon if heart rate <150 BPM

Unstable → Request EMT-P intercept for cardioversion

Stable →

- Establish IV
- Obtain 12 Lead.

QRS wide or narrow?

Wide →

Consult medical control
Amiodarone
Adenosine

Narrow →

Is rhythm regular?

Irregular → *Consult Medical Control*

Regular →

- Attempt vagal maneuvers
- *Adenosine*
- *Consult medical control if rhythm does not convert.*

Cardiac Algorithm—Tachycardia with Pulses, cont.

EMT-PARAMEDIC

- Assess and support ABC 's as needed
- Give oxygen
- Monitor ECG (identify rhythm), blood pressure, pulse oximetry
- Identify and treat reversible causes

Symptoms Persist

Is the patient stable?
Unstable signs include altered mental status, ongoing chest pain, hypotension or other signs of shock.
Note: Rate-related symptoms uncommon if heart rate <150 BPM

Stable

- Establish IV
- Obtain 12 Lead.

QRS wide or narrow?

Wide (>.12msec)

Consult medical control
Amiodarone
Adenosine

Narrow (<.12 msec)

Is rhythm regular?

Irregular

Consult Medical Control

Regular

- Attempt vagal maneuvers
- Adenosine *Contact base for additional dosing.*
- *Consult medical control if rhythm does not convert.*

Unstable

- Synchronized Cardioversion
- If time allows, give sedation.
  Versed
- Be prepared for pulseless arrest
- If regular narrow complex, consider adenosine
- If wide and irregular, defibrillation dose not synchronized

Congestive Heart Failure & Pulmonary Edema

EMT-BASIC

1. General patient assessment
    - Differentiate mild to moderate compromise (alert, systolic BP>90 mmHg, diastolic BP>60 mmHg) and cardiogenic shock (pump failure with BP<90 mmHg with signs and symptoms of hypoperfusion) and treat accordingly.
2. Basic airway management, pulse oximetry and oxygen per protocol.
3. Be prepared to provide CPR and defibrillation.
4. POC. If patient is lying down, sit them up.
5. Consider Asprin
    - Asprin
6. Nitroglycerin
    - **Nitroglycerin: patient assisted, must be prescribed to the patient and not expired, use as directed, usually q 5 minutes max 3 doses.**

EMT-BASIC-IV

6. Establish peripheral IV and obtain lab draws per protocol.
7. Administer fluid per protocol.
    - Administer fluid challenge for cardiogenic shock with frequent reassessment of breath sounds.

EMT-INTERMEDIATE

8. Advanced airway management per protocol.
9. Electrocardiogram per protocol.
    - Obtain early and repeat 12 Lead ECG every 10 minutes. Early recognition and notification of an acute myocardial infarction is imperative, and ECG's can significantly change in a very short period of time.
10. ***EARLY NOTIFICAITON OF A POSSIBLE MYOCARDIAL INFARCTION***
    - Contact Valley View Hospital prior to transport to check the availability of the cath lab.
    - Complete Fibrinolytic Checklist for a Possible Myocardial Infarction per protocol.
11. CPAP per protocol.
12. Nitroglycerin
    - Nitroglycerin ***Contact medical control for patients with BP <100 mmHg, or with signs of poor peripheral perfusion or with hypertension***
13. Morphine
    - ***Morphine***

Criteria for Possible Myocardial Infarction
1. ST segment elevation >1 mm in 2 or more contiguous precordial leads or 2 or more adjacent limb leads 2. New or presumed new left bundle branch block

Congestive Heart Failure & Pulmonary Edema, cont.

EMT-PARAMEDIC

8. Advanced airway management per protocol.
9. Electrocardiogram per protocol.
    - Obtain early and repeat 12 Lead ECG every 10 minutes. Early recognition and notification of an acute myocardial infarction is imperative, and ECG ' s can significantly change in a very short period of time.
10. ***EARLY NOTIFICAITON OF A POSSIBLE MYOCARDIAL INFARCTION***
    - Contact Valley View Hospital prior to transport to check the availability of the cath lab.
    - Complete Fibrinolytic Checklist for a Possible Myocardial Infarction per protocol.
11. CPAP per protocol
12. Nitroglycerin
    - Nitroglycerin ***Contact medical control for patients with BP <100 mmHg, or with signs of poor peripheral perfusion or with hypertension***
13. Morphine
    - Morphine
14. Dopamine for cardiogenic shock
    - ***Dopmaine***

Criteria for Possible Myocardial Infarction
1. ST segment elevation >1 mm in 2 or more contiguous precordial leads or 2 or more adjacent limb leads 2. New or presumed new left bundle branch block

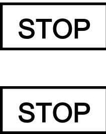
Fibrinolytic Checklist for Cardiac Alert

Patient ' s Name:
Time & Date:

Signature of Field Provider:

Please contact WECAD supervisor phone for any questions（970-401-1456）.

Step 1: Is the patient a candidate for fibrinolysis?	Yes	No
1. Has patient experienced chest discomfort for greater than 15 minutes and less than 12 hours? If yes, continue to next question.		
2. Does ECG show STEMI or new or presumably new LBBB? If yes, continue to step 2.		



Step 2. Does the patient have any contraindications to fibrinolysis? If any are checked yes, fibrinolysis MAY be contraindicated.	Yes	No
1. Systolic BP >180 mmHg? Confirm with manual BP.		
2. Diastolic BP >110 mmHg? Confirm with manual BP.		
3. Right vs left arm systolic BP difference > 15 mmHg? Confirm with manual BP.		
4. History of structural central nervous system disease?		
5. Significant closed head/facial trauma within the previous 3 months?		
6. Recent（within 6 weeks）major trauma, surgery（including laser eye surgery）, GI/GU bleed?		
7. Bleeding or clotting problem or blood thinners?		
8. CPR greater than 10 minutes?		
9. Pregnant female?		
10. Serious systemic disease (e g, advanced/terminal cancer, severe liver or kidney disease)		

Step 3. Is patient at high risk for fibrinolysis?	Yes	No
1. Heart rate > than or equal to 100 BPM AND systolic BP less than 100 mmHg		
2. Pulmonary edema		
3. Signs of shock（cool, clammy）		
4. Contraindications to fibrinolytic therapy		

Post Resuscitation Care

EMT-BASIC

1. General patient assessment
    - Place patient in recovery position. If patient is immobilized be prepared to log roll the backboard.
    - Re-access peripheral pulses and ventilatory status every 3-5 minutes. Be prepared to provide CPR and defibrillation.
2. Basic airway management, pulse oximetry and oxygen per protocol.
    - Optimizing oxygenation and ventilation is paramount, 10-12 ventilations/minute for intubated patient.
    - Upper airway suctioning as needed.
3. Asprin
    - Asprin

EMT-BASIC-IV

4. Establish a peripheral IV, obtain lab draws, and administer fluids as needed.

EMT-INTERMEDIATE

5. Advanced airway management per protocol.
    - Maintain CO2 between 35-45 mmHg
    - Titrate oxygen to maintain SpO2 at 94% or slightly higher.
6. Maintain BP of at least 90 mmHg systolic with fluids.

EMT-PARAMEDIC

5. Advanced airway management
    - Maintain CO2 between 35-45 mmHg
    - Titrate oxygen to maintain SpO2 at 94% or slightly higher.
6. Electrocardiogram
    - Obtain 12 Lead ECG and repeat every 10 minutes.
7. Maintain BP of at least 90 mmHg systolic either through fluids or dopamine.
    - ***Dopamine***

Allergies & Anaphylaxis

EMT-BASIC

1. General patient assessment
    - Differentiate between a localized allergic reaction and a systemic allergic reaction.
    - Record the time and type of the exposure.
    - Record the patient's history of past exposures.

Signs & Symptoms of Systemic Allergic Reaction	
Upper Airway • Hoarseness, voice changes, stridor, barking cough, swelling in and around the oropharynx, complaints of tightness in the neck and dyspnea	Gastrointestinal • Abdominal cramps, diarrhea, nausea, vomiting
Lower Airway • Wheezing, accessory muscle use, decreased breath sounds	Neurological • Anxiety, coma, dizziness, headache, seizure, syncope, weakness
Cardiovascular System • Chest tightness, dysrhythmias, hypotension, tachycardia, diaphoretic, slow capillary refill	Cutaneous • Angioedema, edema, erythema, pallor, pruritus, tearing of the eyes, urticaria, itching

2. Basic airway management, pulse oximetry, and oxygen per protocol.
    - Most deaths from anaphylaxis are due to upper airway obstruction.
3. Epinephrine
    - May assist patients taking their own prescribed epinephrine auto-injector for bronchoconstriction and anaphylaxis.
4. Albuterol either single dose or continuous depending on severity of respiratory distress.
    - ***Albuterol***

EMT-BASIC-IV

5. Establish peripheral IV, obtain lab draws, and administer fluids per protocol.
    - If hypotension (BP<90 mmHg) does not respond to epinephrine, a rapid fluid bolus of 20 cc/Kg may be needed initially. If not able to administer epinephrine due to provider level, treat hypotension with fluids until ALS intercept.

Allergies & Anaphylaxis, cont.

EMT-INTERMEDIATE

6. Advanced airway management per protocol.

Treatment of Lower Respiratory Distress (with mild wheezing and/or cough, SpO2>95%)

7. Albuterol either single dose or continuous depending on severity of respiratory distress.
    - ***Albuterol***
8. Albuterol/Atrovent combination if no response from a single albuterol dose.
    - ***Albuterol***
    - ***Atrovent: (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.***
9. CPAP per protocol.

Treatment for Moderate to Severe Lower Respiratory Distress (Significant wheezing, breath sounds decreased or absent, altered mental status, hypoxic or exhausted, SpO2<84%, bradycardia, impending respiratory arrest)

TIME SENSITIVE PATIENT—prepare resuscitation equipment, anticipate rapid deterioration

7. Albuterol or Albuterol/Atrovent combination.
    - ***Albuterol***
    - ***Atrovent (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.***
8. Epinephrine per protocol.
    - ***Epinephrine***
9. SoluMedrol per protocol.
    - ***SoluMedrol***
10. CPAP per protocol.

10. Diphenhydramine (Benadryl) is indicated for signs/symptoms of a mild to moderate allergic reaction. Epinephrine should precede Benadryl for moderate to severe allergic reactions especially with respiratory distress.
    - ***Benadryl***
11. Epinephrine is indicated for anaphylaxis.
    - ***Epinephrine***

Allergies & Anaphylaxis, cont.

EMT-PARAMEDIC

6. Advanced airway management per protocol.

Treatment of Mild to Moderate Lower Respiratory Distress (with mild wheezing and/or cough, SpO2>95%)
7. Albuterol either single dose or continuous depending on severity of respiratory distress. • Albuterol 8. Albuterol/Atrovent combination if no response from a single albuterol dose. • Albuterol • Atrovent (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol. 9. CPAP per protocol.

Treatment for Moderate to Severe Lower Respiratory Distress (Significant wheezing, breath sounds decreased or absent, altered mental status, hypoxic or exhausted, SpO2<94%, bradycardia, impending respiratory arrest)
TIME SENSITIVE PATIENT—prepare resuscitation equipment, anticipate rapid deterioration 7. Albuterol or Albuterol/Atrovent combination. • Albuterol • Atrovent (Adults & Pediatrics > 2 years): f no improvement continue with only albuterol. 8. Epinephrine per protocol. • Epinephrine 9. SoluMedrol per protocol. • SoluMedrol 10. Magnesium Sulfate if unresponsive to epinephrine and inhaled beta-agonists. • ***Magnesium Sulfate*** 11. Consider CPAP

11. Diphenhydramine (Benadryl) is indicated for signs/symptoms of a mild to moderate allergic reaction. Epinephrine should precede Benadryl for moderate to severe allergic reactions especially with respiratory distress.
    - Benadryl
12. Epinephrine is indicated for anaphylaxis.
    - ***Epinephrine***

Bites & Stings

EMT-BASIC

1. General patient assessment
    - Record the type of animal, insect, or reptile and the time of exposure.
    - If the patient was bitten by a spider or snake, bring it to the hospital if captured and contained or dead for accurate identification. Do not put crew safety at risk trying to round up a venomous snake.
2. Remove injection mechanism if still present (stinger, needle, etc). Do not squeeze venom sac; rather scrape it with a straight edge.
3. Remove jewelry and watches if the patient was bitten or stung on an extremity.
4. Ice can be used on insect stings for patient comfort, but ice can cause serious tissue damage to a snake bite.
5. Follow Allergies and Anaphylaxis Protocol if signs and symptoms local or systemic allergic reaction develop.

High Altitude Illness

EMT-BASIC

1. General patient assessment
   - Record the current and highest altitude, the amount of time at the altitude, and duration of the ascent.

Differential Diagnosis of AMS, HAPE, HACE		
Acute Mountain Sickness (AMS)	High Altitude Pulmonary Edema (HAPE)	High Altitude Cerebral Edema (HACE)
Cardinal symptom is a HA followed by fatigue, sleeplessness, anorexia, nausea.	Progression of AMS. Patient will also begin to develop difficulty breathing at rest.	Progression of AMS. Patient will also develop ataxia. Patient may not be able to perform daily duties such as dressing and eating, and be confused and disoriented.

2. The mainstay of treatment is descent from altitude. Consider transport to Valley View Hospital.
3. Basic airway management, pulse oximetry, and oxygen per protocol.
   - High flow oxygen may help temporarily alleviate symptoms to allow more time for descent.

EMT-BASIC-IV

4. Establish peripheral IV and obtain lab draws per protocol.
   - IV can be should be set at TKO

EMT-INTERMEDIATE

5. Advanced airway management per protocol.
6. Electrocardiogram per protocol.
   - Symptoms of an AMI may mimic high altitude illness. 12 ECG may be required.
7. Anti-emetic as needed.
   - *Zofran*
8. Consider CPAP

EMT-PARAMEDIC

5. Advanced airway management per protocol.
6. Electrocardiogram per protocol.
   - Symptoms of an AMI may mimic high altitude illness. 12 ECG may be required per protocol.
7. Anti-emetic as needed.
   - Zofran
8. Consider CPAP

Hyperthermia

EMT-BASIC

1. General patient assessment
    - Take note of the patient ' s dress, ambient temperature, length of exposure to the temperature, and amount they are sweating.

Differential Diagnosis for Hyperthermia		
Heat Cramps	Heat Exhaustion	Heat Stroke
Severe muscle cramping due to rapid sodium and water loss. Patients who suffer from heat cramps sweat profusely and drink water without adequate salt. Abdomen and legs are typically affected.	Significant fluid loss may result in positive orthostatic hypotension and possible syncope upon standing. Patients may also c/o dizziness, nausea, and HA.	Medical emergency. It is distinguished by an altered level of consciousness. Sweating may still be present. Individuals at risk are athletes exercising in a hot environment, elderly, and children left unattended in vehicles.

2. Basic airway management, pulse oximetry, and oxygen per protocol.
3. Remove clothing, soak the skin with a cold, wet towel or trauma dressing, and fan the patient. If transport is delayed, immersion or spraying with cool water is advised. Do not submerse the patient in ice water.
4. 50/50 water/sport drink can be used to treat symptoms of heat cramps and heat exhaustion.
5. Record temperature every five minutes.
6. Be prepared to treat seizures per protocol.

EMT-BASIC-IV

7. Establish peripheral IV and obtain lab draws per protocol.
8. Administer fluid per protocol.
    - Patients with an altered mental status should be treated with an IV of normal saline.
9. Blood glucose testing for all cases of altered mental status per protocol.
    - Do not administer dextrose until an accurate BGL has been measured.

EMT-INTERMEDIATE

EMT-PARAMEDIC

9. Advanced airway management per protocol.
10. Electrocardiogram per protocol.

Hypothermia

EMT-BASIC

1. General patient assessment
   - Take note of the patient's dress, ambient temperature, length of exposure to the temperature, and if they are shivering.
   - Take note of history of changes in mental status, prior drug use, history of alcoholism, or diabetes.
   - Take note of blanching, blistering; skin color of extremities, ears, and nose.

Clinical Presentation of Hypothermia		
Mild Hypothermia	Moderate Hypothermia	Severe Hypothermia
Core Temperature: 93.2-96.8 F Shivering, may be lethargic	Core Temperature: 86 - 93.2 F Lost ability to shiver, altered mental status, progress to stupor and coma	Core Temperature: <86 F Unconscious, may present as pulseless, dilated pupils, and stiff/rigid muscles, high risk of going into VF

2. Evacuate the patient to a warm shelter, remove cold, wet clothing; cover the patient with warm blankets, and increase the temperature in the ambulance. Avoid active re-warming of frostbiten extremities in the field.
3. Avoid rough movement and excess activity, and keep patient horizontal if tolerated.
4. Basic life support, basic airway management, oxygen, and pulse oximetry per protocol.
   - Airway adjuncts can induce VF in severe hypothermia. Gentle BLS airway procedures are preferred.
   - Pulse and respirations may be difficult to detect. These vitals signs should be assessed for at least 30-45 seconds to confirm the need for CPR. If there is any doubt about the presence of a pulse, begin CPR.
   - Warm, humidified oxygen is preferred.

EMT-BASIC-IV

5. Establish peripheral IV once in the ambulance. Administer warm fluids per protocol.
6. Blood glucose testing for all cases of altered mental status per protocol.
   - Do not administer dextrose until an accurate BGL has been measured.

EMT-INTERMEDIATE

EMT-PARAMEDIC

7. Advanced airway management per protocol.
   - Endotracheal intubation is only indicated for unresponsive patients and those in arrest.
8. Electrocardiogram per protocol.
   - VF/Pulseless VT: give only 1 shock at 200J with the Lifepak 12 Biphasic. If core temperature >86 F, give one round of cardiac drugs with 10 minute intervals between drugs. If core temperature is <86 F, withhold all medications.
9. Field Pronouncement
   - Prolonged resuscitation can be beneficial, and CPR is indicated even if signs of death are present. Resuscitation may only be withheld if the victim has obvious lethal injuries or if the body is frozen so that the nose and mouth are blocked by ice and chest compression is impossible.

Lightning Injuries

EMT-BASIC

1. General patient assessment
   - Scene safety is a first priority. If the electrical storm is still in progress, all patient care should take place in a sheltered area.
   - BLS procedures should be started immediately for patients who appear dead because resuscitation is possible after a lightning injury. Only 30% of those struck by lightning die; do not assume you are responding to a non-viable victim.

Patient Presentation with Lightning Strikes		
Mild Lightning Strike	Moderate Lightning Strike	Severe Lightning Strike
Patient is usually conscious, but confused and amnesic. Burns or other signs of injury are rare. Vitals are stable.	Patient may be combative or comatose. Usually have associated injuries from the impact of the strike. First and second degree burns, tympanic membrane rupture, serious internal organ damage, and paralysis of the lower extremities are common.	Patient may suffer immediate brain damage, seizures, respiratory paralysis, and cardiac arrest. Care is directed at immediate BLS and ALS procedures.
Patient's clinical condition often improves within the first few hours. However, first and second degree burns, and internal organ damage may take longer to evolve. Patients should be transported to a hospital for further observation. Keep scene time to a minimum in anticipation of possible patient deterioration.		

2. Basic airway management, pulse oximetry, and oxygen per protocol.
3. Spinal immobilization per protocol.
4. Seizure management per protocol.
5. Burn care per protocol.

EMT-BASIC-IV

6. Establish peripheral IV, obtain lab draws, and administer fluids per protocol.
   - Hypotension should be transient. If it persists evaluate the patient for signs of blunt force trauma.

EMT-INTERMEDIATE

7. Advanced airway management per protocol.
8. Electrocardiogram per protocol.
   - Resuscitation of asystole should be prolonged to 30 minutes before a field pronouncement.
9. Morphine Sulfate or Fentanyl for pain management as needed.
   - ***Morphine***
   - ***Fentanyl***

Lightning Injuries, cont.

EMT-PARAMEDIC

7. Advanced airway management per protocol.
8. Electrocardiogram per protocol.
    - Resuscitation of asystole should be prolonged to 30 minutes before a field pronouncement.
9. Morphine Sulfate or Fentanyl for pain management.
    - Morphine
    - Fentanyl

Submersion

EMT-BASIC

1. General patient assessment
   - Take note of how long the patient was submerged, temperature of the water, cleanliness of the water, and age of the patient.
   - If there is suspicion of spinal injury, spinal immobilization should be initiated while the patient is still in the water. WECAD personnel can instruct rescuers from other agencies in spinal immobilization, but cannot directly partake in a water rescue.
   - Check lung sounds for evidence of aspiration.
2. See Basic Life Support Protocol
   - The use of the Heimlich maneuver is not advised for victims of drowning.
   - Do not withhold CPR based on time of submersion. Survival after 30 minutes submersion in warm water and 60 minutes in cold water have been reported.
3. Basic airway management, upper airway suctioning, and oxygen per protocol.
4. Treat hypothermia per protocol for submersion in cold water.
5. Transport is highly advised even if the patient appears normal. Evidence of aspiration may not be evident for several hours after a near-drowning.

EMT-INTERMEDIATE

EMT-PARAMEDIC

6. Advanced airway management, and tracheobronchial suctioning per protocol.
7. Electrocardiogram per protocol.
   - See Hypothermia Protocol for treatment of VF/Pulseless VT from cold-water drowning.

Childbirth

EMT-BASIC

1. General patient assessment

Pertinent Past Medical History
• 1st baby? • Previous deliveries vaginal or cesarean? • When did water break? What color was it? • Have you been getting prenatal care? Anticipate complications? • Prescribed medications? • Drugs or alcohol during the pregnancy? • The need to push or have a bowel movement?

Pertinent Physical Exam
When privacy is possible, examine the perineum by observation (have at least one other field personnel present) taking note of the following: • Vaginal bleeding or fluid (note color) • Crowning (check during contraction) • Abnormal presentation (i.e, foot, arm, face, or cord)

- Determine if field delivery is imminent.
- If field delivery is imminent, set up for delivery at the scene instead of risking delivery during patient transfer.

Signs of Imminent Delivery
• Contractions less than five minutes apart (timed from the beginning of one to the beginning of the next) • Mother has the urge to bear down or have a bowel movement • Mother believes delivery is imminent • Crowning (examined during contraction)

Childbirth, cont.

Steps of Uncomplicated Childbirth

1. Preparation
    - BSI (gloves, eyewear, gown)
    - Position mother (preferably not on a soft surface), administer oxygen per protocol
    - Set up OB kit
2. Guide delivery of the head.
    - Prevent explosive delivery and tearing of the perineum.
    - If the amniotic sac has not ruptured do this using a clamp away from the babies face. This is done only as the head is emerging because you then need to pull it away from the face.
3. Suction the mouth and then nose using a bulb syringe.
4. Check for a cord on the neck.
    - One loop, unloop with fingers; two loops, clamp and cut the cord.
5. Guide delivery of the shoulders.
6. Cut the cord & record time of birth.
    - Keep infant level with mother until cord is cut.
    - First clamp four finger widths from the infant; second clamp two to four inches from the first clamp.
7. Prepare for delivery of the placenta.
8. Be prepared for delivery of the placenta, but do not delay transport. Placenta should be placed in a biohazard bag and delivered to the hospital.
9. Provide post delivery care for the infant and mother.
    - Infant: stimulate and dry, APGAR at 1 and 5 minutes, KEEP WARM (maximize cabin temperature, use commercial infant warmer provided in the OB kit).
    - Mother: vital signs, oxygen as needed, make mother comfortable for transfer to the OB ward.
    - Radio report is phoned to the ED. ED will likely transfer call to the OB ward if there is no medical emergency.

APGAR (1 Minute & 5 Minutes)			
Sign	0	1	2
Color	Blue or Pale	Acrocyanotic	Completely Pink
Heart Rate	Absent	<100	>100
Reflex Irritability	No Response	Grimace	Cry or Active Withdrawal
Muscle Tone	Limp	Some Flexion	Active Motion
Respiration	Absent	Weak Cry; Hypoventilation	Good, Crying

Childbirth, cont.

3. Transport immediately and treat accordingly for the following obstetric emergencies:

Obstetric Emergencies		
Presentation	**Delivery or Transport**	**Treatment**
Prolapsed Cord	Field delivery not possible. Emergent transport.	Trendelenburg the cot, put the mother in a prone knee-to-chest position, gently push the presenting part of the infant off the cord to relieve the pressure, keep the cord warm and moist during transport.
Frank Breech & Footling Breech	Field delivery prolonged and difficult, initiate transport.	Very difficult to deliver in the field, neck may get caught in the birth canal. If the chest has delivered and the head is caught, trendelenburg the cot, put the mother in a prone knee-to-chest position, and insert a gloved hand over the infant's face making a "V" shape with your hand for an air canal. Breech presentation also has a very high risk of a prolapsed cord. Treat this accordingly.
Hand/Arm Presentation	Field delivery not possible. Emergent transport.	Trendelenburg the cot, put the mother in a prone knee-to-chest position. If possible, push the presenting part of the infant off the cord to relieve the pressure, or create a "V" shape with your hand for an air canal.
Excessive Postpartum Bleeding	Initiate Transport	Have infant start nursing if no resuscitation is required, start uterine massage

Complications of Pregnancy

EMT-BASIC

1. General patient assessment
    - Patient history should include differential diagnosis for vaginal bleeding:

Differential Diagnosis for Vaginal Bleeding		
Abortion	<20 weeks	Usually occur within the first 10 weeks, abdominal pain will feel like a contraction
Ectopic	2-12 weeks	Abdominal pain, vaginal bleeding, amenorrhea
Abruptio Placentae	>20 weeks	Single episode of abdominal pain and bleeding
Placenta Previa	Usually >20 weeks	Painless bright red bleeding that repeats over days to weeks
Uterine Rupture	Usually >20 weeks	Sudden tearing abdominal pain with possible bleeding, usually associated with sudden onset of N/V

    - If a patient is pregnant with vaginal bleeding, bring in any tissue for laboratory analysis.
    - Patient history should include differential diagnosis for pre-eclampsia:

2. Airway management, oxygen, and pulse oximetry per protocol.
3. Transport.
    - If patient is immobilized on a long spine board, put pillows under the right side of the board to tilt it on it's left side.
    - All pregnant patients that suffer even a minor trauma such as a slip-and-fall or minor MVA should be transported for fetal monitoring.
    - For pre-eclampsia, handle the patient gently and minimize sensory stimuli (darken ambulance) to help avoid seizures. Be prepared for a seizure at any moment, and treat per Seizure Protocol.

EMT-BASIC-IV

4. Establish peripheral IV, obtain lab draws, and administer fluid per protocol.
    - Scant vaginal bleeding either spontaneous or from trauma, especially coupled with abdominal pain, can signify significant internal blood loss. Signs of hypovolemia may not be present until a large blood loss. Fluid replacement is indicated, even when blood pressure remains normal.

Complications of Pregnancy, cont.

EMT-PARAMEDIC

7. Pre-Eclampsia give Magnesium Sulfate
    - ***Magnesium Sulfate***
8. Eclampsia, give Magnesium Sulfate.
    - Magnesium Sulfate

Pre-Eclampsia & Eclampsia Differential Diagnosis	
Pre-Eclampsia	>20 weeks gestation, BP>180 mmHg systolic, and/or 110 mgHg diastolic
Eclampsia	Signs of pre-eclampsia with altered mental status or seizure

Neonatal Resuscitation

EMT-BASIC

Steps of neonatal resuscitation are completed in blocks of 30 seconds. If steps are being performed correctly, only spend 30 seconds on each block before moving to the next.

COMPLETED IN 30 SECODNS

Initial Assessment

1. Term Gestation? <36 weeks more likely to require resuscitation
2. Clear amniotic fluid?
3. Breathing or crying? Gasping is treated as apnea.
4. Good muscle tone? Babies should have flexed extremities and be active.

Treatment

1. Provide warmth.
2. Position & clear airway. Meconium will require vigorous suctioning with bulb syringe.
3. Dry, stimulate, re-position airway.

COMPLETED IN 30 SECONDS

Assessment

1. Respirations
2. Heart Rate
3. Skin Color

Apneic or HR<100

1. Provide positive pressure ventilations (1 breath/3-5 seconds)

HR>100 but Cyanaotic

1. Give supplemental oxygen. If persistently cyanotic treat with positive pressure ventilations (1 breath/3-5 seconds).

COMPLETED IN 30 SECONDS

Assessment

1. Respirations
2. Heart Rate
3. Skin Color

HR<60

1. Provide positive pressure ventilations (1 breath/3-5 seconds). Start Chest Compressions.

HR>60

1. Provide positive pressure ventilations (1 breath/3-5 seconds).

Neonatal Resuscitation

EMT-INTERMEDIATE

Continued from Previous Page

COMPLETED IN 30 SECODNS

Assessment
1. Respirations 2. Heart Rate 3. Skin Color
HR<60
1. Administer Epinephrine. • *Epinephrine*

- If meconium is present, deep tracheal suctioning with a meconium aspirator should be done repeatedly throughout all steps of the resuscitation.

EMT-PARAMEDIC

Continued from Previous Page

COMPLETED IN 30 SECODNS

Assessment
1. Respirations 2. Heart Rate 3. Skin Color
HR<60
1. Administer Epinephrine. • Epinephrine

- If meconium is present, deep tracheal suctioning with a meconium aspirator should be done repeatedly throughout all steps of the resuscitation.

Advanced Medical Directives

EMT-BASIC

Many types of advanced directives are legal under Colorado State Law and should be honored. However, a CPR Directive and Medical Durable Power-of-Attorney are two types of directives that may be more commonly encountered in the field. Photocopies of advanced directive documents are acceptable if originals are not readily available.

If the validity of any advanced directive is ever in question, contact medical control to determine correct actions.

CPR ADVANCED DIRECTIVE

The executor of the directive, or the "declarant", can be the patient, medical-durable-power of attorney, or legal guardian in the case of a minor. Although many different types of forms are acceptable, there is a standardized form that can be obtained from a physician, or a licensed health care facility. The standardized form should be printed on distinctive security paper, and should include the following information:

- Name, date of birth, sex, eye and hair color, and race of whom the directive applies
- Attending physicians name, address, telephone, and license
- Statement indicating the declarant has been informed of the expected consequences of withholding CPR
- Signature or mark of the declarant and attending physician

A CPR directive necklace or bracelet may substitute for the original CPR directive paperwork. The necklace or bracelet should have Colorado Directive Logo on the front, and the patient's name, birth date, sex, and ethnicity on the backside along with the words, "DO NOT RESUSCITATE."

If the necklace, bracelet, or other valid paperwork are present, EMS personnel shall:

- Withhold or withdraw CPR, ET intubation or other advanced airway management, artificial ventilation, defibrillation, cardiac resuscitation medication, and other related procedures.
- Provide comfort care including oxygen, pain medications, and suction.
- Provide treatment for conditions other than cardiac arrest unless it is stated otherwise in the document

MEDICAL DURABLE POWER-OF-ATTORNEY

The Medical Durable Power of Attorney is a document naming someone to make health care decisions. This is not limited to terminal illness and may contain very specific requests concerning treatments in relation to a known disease or condition. A Medical Durable Power-of-Attorney form may also have an attached "Values History" form, which discusses the patient's values, wishes, and preferences in relation to life and illness. These forms are less standardized and can be obtained from a physician, lawyer, health care organization, and even office supply store. It also needs to be signed by two witnesses (not necessarily physicians).

If the proxy is able to produce either the original or a copy of the document, confirm that it is valid and covers the patient's current condition. If yes, honor the proxy's instructions. If there is any doubt, contact medical control.

Custody of Law Enforcement

EMT-BASIC

Any patient in custody of law enforcement, either on scene or at a facility such as the Eagle County Jail, must have a law enforcement officer accompany the ambulance crew to the hospital. If the patient is handcuffed, the officer with the key must either accompany the crew in the ambulance, or escort them in their patrol car. If the officer is escorting the crew in a separate vehicle, a pre-arranged channel should be designated should the crew need to communicate with the officer. If the patient is restrained in handcuffs and law enforcement is not riding in the patient compartment, the attendant must have a handcuff key. Under no circumstance should the patient be restrained in a prone position. The receiving hospital should be notified in the radio report that the patient being transported is in custody.

If the ambulance crew responds to a patient that is not in custody, but the crew feels the patient poses a threat to their safety, the crew should request that a law enforcement officer accompany them to the hospital. If no officer is available, the patient's health is not in jeopardy, and the patient poses a threat to EMS personnel, the crew can wait on scene until an officer becomes available. If all other options have been exhausted, the crew can refuse transport under the circumstance that their safety was being jeopardized. Contact medical control and complete thorough documentation including names of the officers on scene.

Destination Policy

EMT-BASIC

Patients requiring transport from a scene to a hospital can be brought to Vail Valley Medical Center in Vail, Valley View Hospital in Glenwood Springs, The Gypsum Urgent Care, or a higher level care facility via a rotor wing transport from the scene (see Rotor Wing to the Scene Protocol).

Non-critical patients can be transported to the facility of their choice, but critical patients should be taken to the nearest facility. Transport to the Gypsum Urgent Care per protocol. If the patient is being transported from an east or westbound lane on the interstate, it may be quicker to bring them to the hospital that is geographically further because of the direction of traffic. If multiple critical patients are requiring transport, contact the nearest facilities to determine the capacity. If there are multiple patients from the same family, do NOT split the families unless absolutely necessary.

If a cardiac alert has been made, contact Valley View Hospital in Glenwood Springs before transporting to determine if the cath lab is fully staffed. If it is operating and they are able to accommodate the patient, transport the patient to Valley View Hospital even if it is a longer transport.

Field Pronouncement

EMT-INTERMEDIATE

EMT-PARAMEDIC

WITHHOLDING ALL RESUSCITATIVE EFFORTS

Resuscitative efforts should be withheld for any patient that is pulseless, apenic, asystolic, and with any of the following presentations that are considered incompatible with life:

- Decapitation
- Gross Body Dismemberment
- Blunt Trauma
- Massive Head or Torso Trauma
- Total body, full-thickness burns
- Decomposition, Rigor Mortis without Hypothermia, Dependent Lividity
- Other presentation discussed with base physician

CEASING ALL RESUSCITATIVE EFFORTS

If a patient is not found on scene with one of the above conditions, but is puleseless, apenic, and asystolic, begin resuscitative efforts unless the patient has a valid advanced directive readily available per protocol. Patients in persistent asystole who do not respond to resuscitation require a base physician's order to stop resuscitative efforts. All of the following need to be affirmed:

1. Patient has remained in monitored asystole in all leads for at least ten minutes.
2. CPR and ventilations are adequate, IV/IO access has been achieved, and first-line medications for asystole have been administered.
3. There are no reversible causes of arrest identified.

FIELD PRONOUNCEMENT PROCEDURE

1. Contact base physician with appropriate information for full report.
2. If approved by base physician, document time, and notify law enforcement and coroner's office.
3. Counsel family members on the situation, and contact support if appropriate (consider requesting a victim's advocate through dispatch if necessary).
4. If ever in doubt, or confrontation with family develops, then provide care and transport to the emergency department for further clarification of patient status.

Fixed Wing Transfer

EMT-BASIC

Some patients may need to be transferred by a flight team from a local facility to an aircraft to be flown to a distant facility. Typically, this will necessitate picking up a flight team at the Eagle County Regional Airport, transporting the team and their equipment to the hospital, picking up the patient, and transferring them back to the airport. The ambulance personnel are responsible for providing transport, some equipment, and assistance with medical care under the direction of the flight team leader. If a party calls the ambulance station requesting a flight team transfer, at least one field employee must be available for the transfer. It is preferred to have two employees handle the transfer, but if system demands warrant, one employee may be sent. The Flight Team Transfer Worksheet needs to be completed. This worksheet is accessed on the server in the Shared Documents under station operations. This worksheet contains necessary agency, transfer, and billing information. Billing information must be obtained for any out of state flight companies prior to completing a flight team transfer. A written report should be completed including total mileage, patient information, ambulance equipment used, and any patient care delivered by ambulance personnel.

Interfacility Transfer

EMT-BASIC

Some patients may need to be transferred to a hospital outside of Eagle County. At least two ambulance personnel must be available for the transfer, and all transfer paperwork must be completed. The transfer paperwork includes the following:

- Physician's Medical Necessity Certification Form
- Advance Beneficiary Notice
- Physician transfer orders (found in the patient chart)
- Patient consent for transfer (patient to sign WECAD consent for transfer)
- M1 Psychiatric Hold papers, only in applicable cases (found in patient chart)

The following items should also be obtained prior to departure:

- Copy of the necessary papers from the patient chart
- Lab results, radiographic studies, and any other diagnostic tests
- Phone number and specific directions to the receiving facility

It is important to ensure that the level of care the patient is receiving at the sending facility can be maintained throughout the transfer. Ambulance personnel may only provide treatments that are within protocol. Other arrangements should be made if discontinuing treatments not in protocol could be detrimental to the patient's condition.

A report should be telephoned to the receiving facility 15-20 minutes prior to arrival, and full bedside report should be given to the nurse upon arrival. Document the disposition of all patient belongings, and write a full patient report. The report should include general history and physical, treatments given during transport, on-going assessments, and any complications or unusual circumstances.

Local Clinic to VVMC or VVH

EMT-BASIC

Some patients may need to be transferred from a local clinic or the Gypsum Urgent Care to either Vail Valley Medical Center (VVMC) or Valley View Hospital (VVH) for further care and diagnostics. Prior to transferring the patient, ambulance personnel should obtain a full patient report including history and physical, treatments already given, orders for additional treatment, and copies of ALL paperwork and tests from the clinic. They should ensure that the receiving facility has already been contacted, and the physician has answered any questions regarding treatments to be given during transport. Ambulance personnel may provide additional treatments and diagnostics during transport according to protocol. Prior to arriving to the receiving hospital, a radio report should be given with any changes in the patient condition and estimated time of arrival. A full written report should be completed.

Mass Casualty Incident (MCI)

EMT-BASIC

The ALS provider from the first responding ambulance becomes the Medical Branch Director (until supervisor arrives) and his/her partner becomes the Triage Group Supervisor. All staff on scene need to be wearing the appropriate identification vest if they are filling one of the outlined roles, and should try to maintain face-to-face communication when reporting to their higher level command. They also must wear their employee identification badge and have their accountability tags. Additional staff called in from home will report to the station, not to the scene (unless otherwise notified), to wait for further instruction.

Medical Branch Director (responsibilities vary depending on the size of the incident)

- Reports to Incident Command or Operations Section Chief
- Establishes geographic divisions (staging, treatment, morgue, etc.)
- Assigns Transportation, Treatment, and other Group Supervisors as necessary and available. Otherwise, the Medical Branch Director assumes these responsibilities.
- Completes ICS Form 201 (if complex enough incident)

Triage Group Supervisor

- Reports to Medical Branch Director
- Begins triage using START per protocol. Utilize firefighters to assist if available.
- Places triage tags on patients
- Once triage is complete and reported to the Medical Branch Director, this person may assume additional roles as directed by the Medical Branch Director.

Transportation Group Supervisor

- Reports to Medical Branch Director
- Contacts treatment facilities to determine capacity and arranges transportation as needed.
- Keeps record of patient identification (full name, and/or triage tag) and destination

Treatment Group Supervisor

- Reports to Medical Branch Director
- Keeps record of patient identification, age, sex, triage status, transport unit, and disposition
- If large enough incident, divides treatment area into sections (red, yellow, green) and may assign officers to be in charge of each section

Mental Health Hold

EMT-BASIC

Only law enforcement or medical control can put a patient on an M1 hold. If a field provider feels its warranted, he or she should have law enforcement present and contact medical control for permission. Reasons that warrant an MI hold include the following:

- Evidence of suicidal attempt or intention
- Pose threat to themselves or others
- Not alert or oriented due to psychiatric condition (i.e., they are not able to verbalize an understanding of their situation)

Minors

EMT-BASIC

Unattended Minor with Serious Illness or Injury

In the event a minor is contacted who is without a parent or legal guardian, a history and physical exam should be conducted. If the minor has a serious injury or illness which could get worse without medical attention transport the child without further delay. The hospital will take on the task of parental notification.

Unattended Minor with No Obvious Ilness or Injury

In the event a child's illness or injury does not need immediate treatment, nor is it likely to worsen, a vigorous effort should be made to contact a parent to discuss potential options.

If a parent is contacted and declines transport, he or she should come to the scene to collect the child and sign the refusal paperwork. If this is not logistically possible, work with the parent to make reasonable arrangements for the child. Include these alternative arrangements in your report to medical control.

If a parent cannot be contacted with a minimum of two documented phone calls a secondary authorized signer can be used as an alternative. These individuals are listed below. If no secondary person is available on the scene to sign paperwork, the child must be transported.

Note: all cases of minors who are not transported must have approval through medical control.

Authorized Signers for Minors

Primary authorized signers of a patient under age 18:

- Custodial parent
- Legal guardian: if a person indicates they are legal guardian to the patient, attempt to obtain documentation of this fact (court order, etc.) and attach to the patient care report. If no such documentation is available, you may obtain a signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself as a legal guardian of the patient.

If a primary authorized signer is not readily available, at least two attempts must be made to contact them by phone. Document the attempts in the patient care report. If they were not available over the phone one of the following secondary authorized signers may be used if they are acting in good faith and have moral and ethical responsibility to the child:

- Sibling over 18 years of age
- Aunt or Uncle
- Grandparent
- Stepparent

A minor may sign for themselves only under the following conditions:

- They are married
- They are currently pregnant
- They are emancipated. Attempt to obtain documentation of this fact (court order, etc.) and attach it to the patient care report. If no such documentation is available, you may obtain their signature if they have a general knowledge of the meaning and legal procedure for becoming emancipated.

Note: all cases of minors who are not transported must have approval through medical control.

Non-Transport of Patients

EMT-BASIC

1. PATIENT ASSEMENT. Complete and document a patient assessment. This includes a patient history, physical exam, and minimum of two sets of vital signs.

2. DECISION MAKING CAPACITY. Determine and document if the patient has decision making capacity.
   In order to have decision making capacity, the individual must meet the following three criteria:
   - Legal Capacity: 18 years or older (if under 18 years, see Skill: Documentation—Minors), not in custody of law enforcement, or legal guardian or health care agent present.
   - Mental Competence: patient is oriented to person, place, time and purpose; capable of understanding the risks of refusing care, and is not a danger to himself or others. See Protocol: Altered Mental Status—Intoxication.
   - Medical or Situational Competence: ensure the patient is not suffering from an acute medical condition that might impair his or her ability to make an informed decision. Examples include previous loss of consciousness, hypovolemia, hypoxia, and head trauma.

3. INFORM THE PATIENT. Inform the patient and document the following:
   - Nature of illness or injury and associated danger signs (give them an informational handout if appropriate)
   - Possible consequences of delaying treatment and/or refusing transport
   - Benefits of treatment and/or transport

4. CONTACT MEDICAL CONTROL. If the patient is 18 years of age or older, has no obvious illness or injury, has decision making capacity, and did not at any point request medical assistance; then contacting medical control is not required. ***Otherwise, contacting medical control is required for all field refusals.***

5. ADVISE THE PATIENT. Advise and document that EMS personnel are not physicians and are not qualified or authorized to make a diagnosis and that their care is not a substitute for that of a physician. If they have a condition that is likely to worsen, inform them that they may have a serious injury or illness which could get worse without medical attention even though they feel fine at the present time. Inform them to call 911, call their doctor, or go to an emergency department if symptoms persist or get worse or any of the danger signs you inform them of appear. Give the patient an informational handout on their condition if appropriate.

6. OBTAIN SIGNATURE OF WITNESS. Obtain a signature from a witness. Preferably the witness should be someone who witnessed your explanation of risks and benefits to the patient, heard you advise the patient, and watched the patient sign the form. If no other witness is available, a crew member can sign as a last resort. Witness must be at least 18 years of age.
7. OBTAIN SIGNATURE OF AUTHORIZED SIGNER. Obtain the signature of the patient or authorized signer. If the patient refuses to sign, document this fact in the patient care report. The following agents can act as authorized signers:
   - Patient with decision making capacity
   - For minors see Skill: Documentation—Minors
   - Minor may refuse care for his or her own child
   - Legal Guardian
   - Health Care Agent
   - Note: If the person indicates they are a legal guardian or has durable power of attorney to the patient, attempt to obtain documentation of this fact and attach it to the patient care report. If no such documentation is available, you may obtain refusal signature from the guardian as long as you do so in good faith and do not have any evidence or knowledge that the person is misrepresenting himself.

Physician on Scene

EMT-BASIC

Medical control is ultimately responsible for all patient care. If another physician is on scene, he or she may assist in patient care with the EMS responder ' s cooperation. If the responder becomes uncomfortable with the scene physician ' s management of patient care, the responder should contact medical control. Both the scene physician and the responder may speak with medical control. Depending on the conversation, patient management may be transferred to the scene physician or retained by medical control at his or her discretion. Record the name and contact information of the physician on scene, in the report if, they assisted in patient care.

Rotor Wing to the Scene

EMT-INTERMEDIATE

EMT-PARAMEDIC

In some circumstances, it may be necessary to request that a flight team respond to the scene for patient transport. This may be due to lack of resources for patient transport, lack of access to the patient by ground, or a prolonged transport time by ground. If it is necessary to request a flight team, the following guidelines should be followed:

1. Determine necessity of response (time to definitive care, need for higher level care, rough terrain that may be detrimental to patient care, etc). If the patient is in imminent risk of cardiac arrest in the helicopter, consider emergent ground transport due to lack of space in the helicopter for adequate BLS care. Contact medical control if in doubt.
2. Request dispatch activate flights. Request should specify the flight company/location (for example, Flight for Life out of Summit County).
3. Notify other responding agencies as soon as possible to make a unified plan for setting up a landing zone.
4. Once on scene, provide a brief report to the flight team. This should include a brief description of the patient's condition and weight. It also may include GPS location, identifying geographical features such as a baseball field or interstate mile marker, landing zone size, and hazards such as powerlines and surface conditions.
5. Manage patient care until it can be transferred to the flight team with a full report. Be prepared to specify the receiving facility.
6. Complete documentation including the location of the rendezvous and the conditions that necessitated the transfer.

The nearest helicopter is Careflight out of Eagle County Regional Airport. The next choice would be Flight For Life out of Summit County. If absolutely no other commercial flight teams are available from Denver or Grand Junction, and the patient has a threat to life or limb, HAATS from the Eagle County Airport may be contacted. Keep in mind, they have no duty to respond to the scene, but if they are available, they may choose to provide assistance. Flight team response may be limited by lack of visibility from weather or lack of daylight, or inclement weather.

Urgent Care Center Patient Receiving Types

EMT-BASIC

MINOR ILLNESS/INJURY

1. Jail patients with minor illness or injury
2. Minor orthopedic problem
3. Non cardiac chest pain
4. Headaches without signs / symptoms of stroke
5. Diabetes with known or confirmed history of the disease
6. Seizure that is not the first onset and known history of seizure disorder

CRITICAL PATIENTS

1. Critical airways—consider if the patient meets the criteria for a cricothyrotomy
2. Crashing trauma for stabilization

SPECIAL NOTES

If there is any question about the Urgent Care Center' s ability to take a patient, call the Center directly for consultation. At the same time, the crew should avoid at all costs taking patients we know will have to be transferred again to a higher level of care.

Simple Triage & Rapid Treatment

EMT-BASIC

The START system is used to rapidly triage patients during an MCI. The initial classification of patients is based on respirations, perfusion, and mental status (RPM), and should be completed in 60 seconds or less per patient. Repositioning the airway and controlling severe hemorrhage are the only initial treatments approved during primary triage. This system's effectiveness relies on a more thorough assessment performed during a secondary triage at a later time.

GREEN
WALKING WOUNDED

Breathing?

- NO → Position Airway → Breathing?
  - NO → BLACK / DEAD
  - YES → RED / IMMEDIATE
- YES → Breathing Rate?
  - Over 30/min? → RED / IMMEDIATE
  - Under 30/min? → Perfusion? Radial Pulse? Capillary Refill?
    - Radial Pulse Absent or Cap Refill >2 seconds → Control Bleeding → RED / IMMEDIATE
    - Radial Pulse Present or Cap Refill <2 seconds → Mental Status?
      - Can Follow Command → YELLOW / DELAYED
      - Cannot Follow Command → RED / IMMEDIATE

Abdominal Pain & Nausea/Vomiting

EMT-BASIC

1. General patient assessment
   - The most important diagnoses to consider are those associated with catastrophic internal bleeding ruptured aneurysm, liver, spleen, ectopic pregnancy, etc. Recognize and treat for shock early.
   - Consider myocardial infarction for any upper abdominal or lower thoracic pain.
2. Basic airway management, pulse oximetry, and oxygen per protocol.

EMT-BASIC-IV

4. Establish a peripheral IV, obtain lab draws, and administer fluids per protocol.
   - If patient is showing signs of shock, establish 2 large bore IV's and administer fluid bolus per protocol.

EMT-INTERMEDIATE

5. Electrocardiogram per protocol.
   - Males >35 and females >40 years old, perform a 12 lead in all patients with non-traumatic upper abdominal pain and or nausea/vomiting/indigestion.
6. Pain management per protocol.
7. Anti-emetic as needed.
   - ***Zofran***

EMT-PARAMEDIC

5. Electrocardiogram per protocol.
   - Males >35 and females >40 years old, perform a 12 lead in all patients with non-traumatic upper abdominal pain and or nausea/vomiting/indigestion.
6. Pain management per protocol.
7. Anti-emetic as needed.
   - Zofran

Epistaxis

EMT-BASIC

1. General patient assessment
    - Epistaxis may arise from trauma or spontaneously. There are two basic types: those that arise from anterior nasal cavity and those that arise from the posterior nasal cavity. Anterior bleeding can usually be treated with direct pressure. Posterior bleeding is generally the result of significant arterial bleeding, and it is not treatable with direct pressure in the field. Significant nasal bleeding in the elderly should be presumed to be posterior unless an anterior bleed is visualized.
    - Anticoagulants include aspirin, coumadin, NSAID's, and many over-the-counter headache relief powders.
2. Basic airway management, pulse oximetry and oxygen per protocol.
3. First-line treatment of applying ice packs, compress nostrils with rolled gauze pads, and tilt head forward. Do not release pressure for at least 10 minutes.

EMT-BASIC-IV

4. Establish a peripheral IV, obtain lab draws, and administer fluids per protocol.

EMT-PARAMEDIC

5. If epistaxis is not controlled with basic procedures, consider neosynephrine per protocol.
    - Neosynephrine

Shock (Non-Traumatic)

EMT-BASIC

1. General patient assessment
   - Differential diagnosis: non-traumatic hypovolemia, tension pneumothorax, cardiac tamponade, pulmonary emboli, neurogenic shock (infection or drug overdose causing vasodilation), anaphylaxis, sepsis, cardiogenic shock (failure of heart muscle, valvular insufficiency, or rhythm disturbance).
2. Basic airway management, pulse oximetry and oxygen per protocol.
   - Elevate the head and shoulders if pulmonary edema is suspected. Otherwise, place patient supine.
   - Be alert to changes in ventilatory status that may indicate tension pneumothorax or anaphylaxis.
3. Treat cause of shock according to protocol.

EMT-BASIC-IV

4. Establish a peripheral IV, obtain lab draws, and administer fluids per protocol.

EMT-INTERMEDIATE

5. Treat dysrhythmias according to protocol.

EMT-PARAMEDIC

5. Treat dysrhythmias according to protocol.
6. Administer dopamine for progressive shock per protocol (altered mental status, cool clammy skin, tachycardia, and falling blood pressure).
   - *Dopmaine*

Use of Narcotics & Benzodiazepines

EMT-INTERMEDIATE	
Use of Narcotics & Benzodiazepines	
Pain Management	Fentanyl is the drug of choice for pain management due to it ' s quick onset. However, if the field provider is anticipating a prolonged transport or scene time, they should consider morphine. • *Fentanyl* • *Morphine*
Muscle Spasm	Valium for muscle spasm. • *Valium*
Sedation	Valium for sedation. • *Valium*
Chemical Restraint	Valium for a chemical restraint. • *Valium*
Mixing Opiates	*Mixing opiates requires a verbal order from medical control.* • *Fentanyl* • *Morphine*
Mixing an Opiate with a Benzodiazepine	*Giving a patient both an opiate and a benzodiazepine is allowed if the medications are given for two separate conditions.* Rule500 does not allow mixing an opiate and benzodiazepine for the purpose of conscious sedation.

Use of Narcotics & Benzodiazepines

EMT-PARAMEDIC	
Use of Narcotics & Benzodiazepines	
Pain Management	Fentanyl is the drug of choice for pain management due to it ' s quick onset. However, if the field provider is anticipating a prolonged transport or scene time, they should consider morphine. • Fentanyl • Morphine
Muscle Spasm	Valium for muscle spasm. • Valium
Sedation	Versed or valium can be used for sedation. • Versed • Valium
Chemical Restraint	Versed is the drug of choice for chemical restraint. • Versed
Mixing Opiates	***Mixing opiates requires a verbal order from medical control.*** • ***Fentanyl*** • ***Morphine***
Mixing Benzodiazepines	***Mixing benzodiazepines requires a verbal order from medical control.*** • ***Versed*** • ***Valium***
Mixing an Opiate with a Benzodiazepine	Giving a patient both an opiate and a benzodiazepine is allowed if the medications are given for two separate conditions. Rule500 does not allow mixing an opiate and benzodiazepine for the purpose of conscious sedation.

Abuse & Neglect

EMT-BASIC

1. Pediatric patient assessment
    - Assess environmental factors that could adversely affect a child ' s welfare, the child ' s interaction with parents/guardian, discrepancies in the history obtained form the child and care-givers, injury patterns that do not correlate with the history, and/or any other signs of abuse and neglect.
3. Treat obvious injuries per appropriate protocol.
4. Prepare to transport. If the parent/guardian refuses transport, remain on scene until law enforcement arrives. ***Contact medical control to notify them of the suspected abuse or neglect.*** If appropriate, have law enforcement place the child in protective custody pending medical evaluation at the hospital.
6. Thoroughly document the child ' s history and physical exam findings.

Pediatric—Cardiac Algorithm—Bradycardia

EMT-BASIC

1. Pediatric patient assessment
2. Basic life support, basic airway management, pulse oximetry, and oxygen per protocol.
    - Perform chest compressions if despite oxygenation and ventilation HR<60 BPM with poor perfusion.
    - In children, bradycardia almost always reflects hypoxia rather than a primary cardiac problem. Oxygen and ventilation is the primary treatment for bradycardia. Other possible causes include drug overdose, vagal stimulation from a medical procedure, and congenital heart block.

Normal Heart Rates for Pediatric Patients	
Age	Heart Rate (BPM)
Newborn to 3 months	85 – 205
3 months to 2 years	100 – 190
2 to 10 years	60-140
> 10 years	60 – 100

EMT-BASIC-IV

3. Establish peripheral IV, obtain lab draws, and administer fluid per protocol.

EMT-INTERMEDIATE

4. Obtain a 12 lead per protocol. Do not delay treatment to obtain a 12 lead.
5. Epinephrine for hemodynamically unstable bradycardia.
    - ***Epinephrine (Pediatric)***
7. Atropine for increased vagal tone or primary AV block.
    - ***Atropine (Pediatric)***
8. Consider transcutaneous pacing per protocol.

EMT-PARAMEDIC

4. Obtain a 12 lead per protocol. Do not delay treatment to obtain a 12 lead.
5. Epinephrine for hemodynamically unstable bradycardia.
    - Epinephrine (Pediatric)
7. Atropine for increased vagal tone or primary AV block.
    - Atropine (Pediatric)
8. Consider transcutaneous pacing per protocol.

Pediatric—Cardiac Alogrithm—Pulseless Arrest

EMT-BASIC

1. Pediatric patient assessment
3. Basic life support, basic airway management, and oxygen per protocol.

EMT-BASIC-IV

5. Establish peripheral IV, obtain lab draws is time permits, and administer fluids per protocol.

EMT-INTERMEDIATE

Shockable rhythm?

Shockable → VF/VT

Not Shockable → Asystole/PEA

VF/VT →

Box 1

- Give 1 Shock (2J/Kg Lifepak15 Biphasic)
- Resume CPR Immediately)

5 cycles of CPR

Box 2

- Check Rhythm
- Shockable rhythm?

Not Shockable → (Asystole/PEA outcome box below)

Shockable →

- Continue CPR while defibrillator is charging
- Give 1 Shock (4 J/Kg Lifepak15 Biphasic)
- Resume CPR Immediately
- Epinephrine given during CPR every 3-5 min
- Consider advanced airway

5 cycles of CPR

Check Rhythm
Shockable rhythm?

- Continue CPR while defibrillator is charging
- Give 1 Shock (4 J/KgJ Lifepak12 Biphasic)
- Resume CPR Immediately
- Amiodarone given during CPR
- Treat reversible causes
- Repeat sequence of checking rhythm, shock (4J/Kg Lifepak15 Biphasic), and CPR.
- If patient regains a pulse, begin post-resuscitation care per protocol.

Asystole/PEA →

Box 3

- Resume CPR Immediately for 5 cycles
- Epinephrine given during CPR every 3-5 min
- Consider advanced airway
- Treat Reversible causes

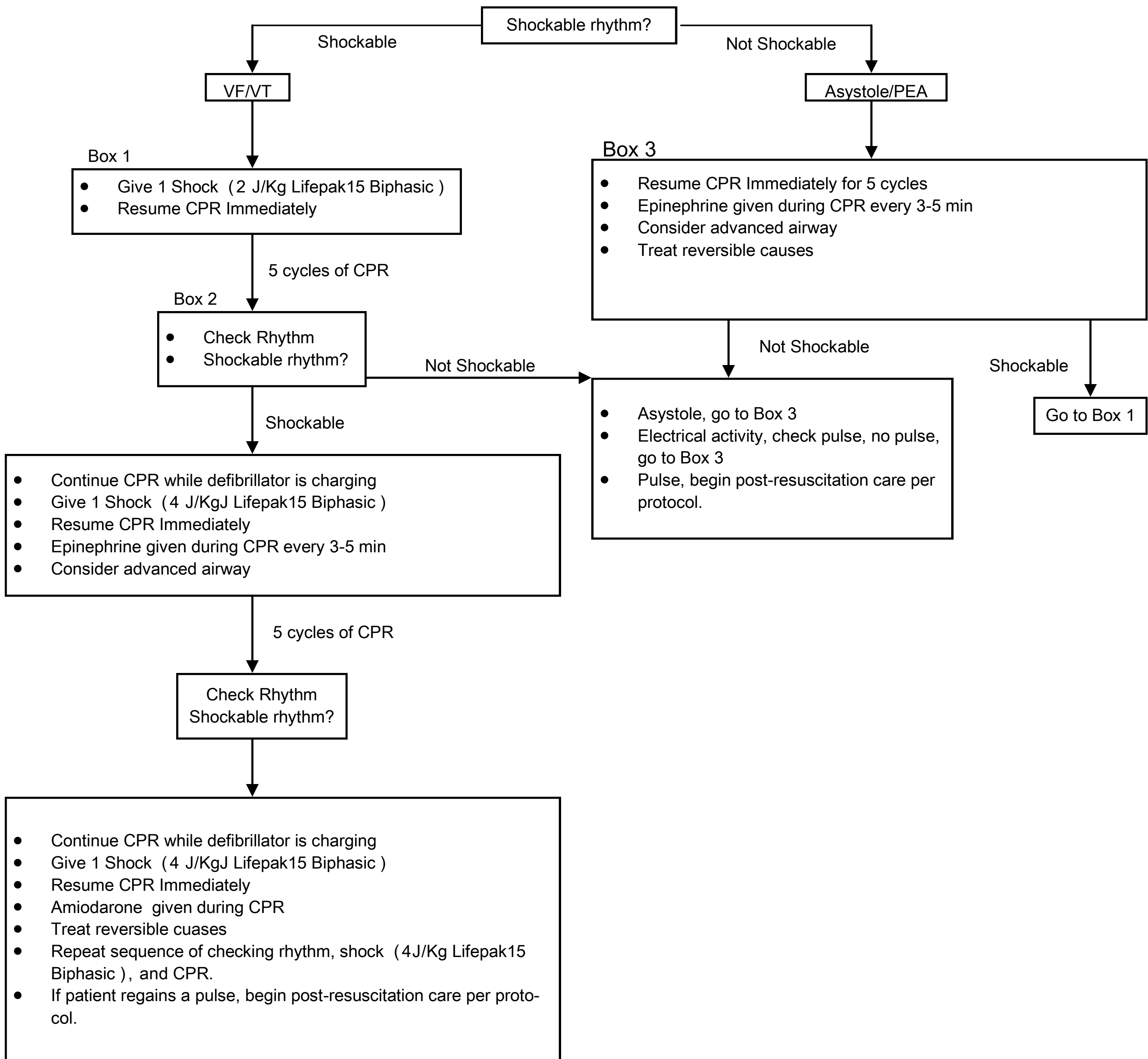
Shockable → Go to Box 1

Not Shockable →

- Asystole, go to Box 3
- Electrical activity, check pulse, no pulse, go to Box 3
- Pulse, begin postresuscitation care per protocol.

Pediatric—Cardiac Alogrithm—Pulseless Arrest, cont.

EMT-PARAMEDIC



Pediatric—Cardiac Algorithm—Tachycardia with Pulses

EMT-BASIC

1. Pediatric patient assessment
2. Basic airway management, pulse oximetry, and oxygen per protocol.
3. Be prepared to provide CPR and defibrillation per protocol.

EMT-BASIC-IV

4. Establish peripheral IV, obtain lab draws, and administer fluids per protocol.

EMT-INTERMEDIATE

Poor perfusion persists despite adequate BLS care.
Evaluate QRS Duration with 12 lead ECG.

QRS<.09 sec

- PROBABLE SINUS TACHYCARDIA
  - Search for and treat the cause.
- PROBABLE SVT
  - Vagal maneuvers (ice or bridge of nose and cheeks)
  - *Adenosine*
  - Paramedic intercept for synchronized cardioversion.

QRS>.09sec

PROBABLE VENTRICULAR TACHYCARDIA

Cardiopulmonary Compromise?

- Hypotension
- Acutely altered mental status
- Signs of shock

Yes: Paramedic intercept for synchronized cardio-version

No:

- Consider *adenosine* if rhythm is regular and QRS is monomorphic
- *Amiodarone*

Cardiac Algorithm—Tachycardia with Pulses, cont.

EMT-PARAMEDIC

Poor perfusion persists despite adequate BLS care.
Evaluate QRS Duration with 12 lead ECG.

QRS<.09 sec

PROBABLE SVT
- Vagal maneuvers (ice or bridge of nose and cheeks)
- Adenosine
- Synchronized cardioversion per protocol for evidence of cardiopulmonary compromise.

PROBABLE SINUS TACHYCARDIA
- Search for and treat the cause.

QRS>.09 sec

PROBABLE VENTRICULAR TACHYCARDIA

Cardiopulmonary Compromise?
- Hypotension
- Acutely altered mental status
- Signs of shock

Yes

SYNCHRONIZED CARDIO-VERSION

No

- Consider adenosine if rhythm is regular and QRS is monomorphic
- *Amiodarone*

Fever

EMT-BASIC

1. Pediatric patient assessment
    - Findings suggestive of serious underlying illness include an infant who is crankier when picked up and held than left alone, seizures, prolonged capillary refill time, stiff neck and/or headache, and petechial or purpuric rash.
    - Cool the feverish child by undressing him/her, but avoid hypothermia. Do not use cold water, fans, or ice bags to lower temperature.
2. Airway management, pulse oximetry and oxygen per protocol.
3. Treat seizures per protocol.

EMT-BASIC-IV

4. Establish peripheral IV and obtain lab draws per protocol for children with signs of abnormal appearance (decreased level of consciousness/interactiveness) or decreased circulation to the skin.
5. Administer fluid per protocol. Consider and treat septic shock per protocol.

EMT-INTERMEDIATES

6. In a febrile child >3 months old, consider administration of acetaminophen if none has been given in the past four hours.
    - Children's Tylenol

WEIGHT	AGE	DOSE
INFANT TYLENOL		
0-3 months	6-11 pounds	.4 mL
4-11 months	12-17 pounds	.8 mL
12-23 months	18-32 pounds	1.2 mL
CHILDRENS TYLENOL		
2-3 years	24-35 pounds	5 mL
4-5 years	36-47 pounds	7.5 mL
6-8 years	48-59 pounds	10 mL
9-10 years	60-71 pounds	12.5 mL
11 years	72-95 pounds	15 mL

Lower Airway Respiratory Distress

EMT-BASIC

1. Pediatric patient assessment
2. Airway management, pulse oximetry and oxygen per protocol.
    - Avoid agitation.
    - Do not attempt any airway adjuncts unless cardiorespiratory collapse.
    - Note inspiratory and/or expiratory wheezing and locations to track progression

EMT-BASIC-IV

3. Establish peripheral IV if child is in cardiorespiratory collapse.
4. Administer fluid as needed.

EMT-INTERMEDIATE

5. Advanced airway management per protocol.

Treatment of Lower Respiratory Distress (with mild wheezing and/or cough, SpO2>95%)
7. Albuterol either single dose or continuous depending on severity of respiratory distress. • ***Albuterol*** 8. Albuterol/Atrovent combination if no response from a single albuterol dose. • ***Albuterol*** • ***Atrovent: (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.***

Treatment for Moderate to Severe Lower Respiratory Distress (Significant wheezing, breath sounds decreased or absent, altered mental status, hypoxic or exhausted, SpO2<84%, bradycardia, impending respiratory arrest)
TIME SENSITIVE PATIENT—prepare resuscitation equipment, anticipate rapid deterioration 7. Albuterol or Albuterol/Atrovent combination. • ***Albuterol*** • ***Atrovent (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.*** 8. Epinephrine per protocol. • ***Epinephrine*** 9. SoluMedrol per protocol. • ***SoluMedrol***

Lower Airway Respiratory Distress, cont.

EMT-PARAMEDIC

5. Advanced airway management per protocol.

Treatment of Mild to Moderate Lower Respiratory Distress (with mild wheezing and/or cough, SpO2>95%)
7. Albuterol either single dose or continuous depending on severity of respiratory distress. • Albuterol 8. Albuterol/Atrovent combination if no response from a single albuterol dose. • Albuterol • Atrovent (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.

Treatment for Moderate to Severe Lower Respiratory Distress (Significant wheezing, breath sounds decreased or absent, altered mental status, hypoxic or exhausted, SpO2<94%, bradycardia, impending respiratory arrest)
TIME SENSITIVE PATIENT—prepare resuscitation equipment, anticipate rapid deterioration 7. Albuterol or Albuterol/Atrovent combination. • Albuterol • Atrovent (Adults & Pediatrics > 2 years): f no improvement continue with only albuterol. 8. Racemic epinephrine per protocol. • Racemic epinephrine. 8. Epinephrine per protocol. • Epinephrine 9. SoluMedrol per protocol. • SoluMedrol 10. Magnesium Sulfate if unresponsive to epinephrine and inhaled beta-agonists. • *Magnesium Sulfate*

Upper Airway Respiratory Distress

EMT-BASIC

1. Pediatric patient assessment
2. Airway management, pulse oximetry and oxygen per protocol.
    - Avoid agitation.
    - Do not attempt any airway adjuncts unless cardiorespiratory collapse.
    - If child cannot speak or breath, consider foreign-body airway obstruction.

EMT-BASIC-IV

3. Establish peripheral IV if child is in cardiorespiratory collapse.
4. Administer fluid as needed.

EMT-INTERMEDIATE

Pharmacological Treatment of Mild Respiratory Distress (abnormal breath sounds or cough, SpO2>95%, no change in appearance/interactiveness)
5. Cool humidified oxygen or nebulized saline.

Pharmacological Treatment of Moderate to Severe Distress (stridor, increased work of breathing, altered mental status, hypoxic or exhausted, SpO2<94%, bradycardia, impending respiratory arrest)

5. Advanced airway management.
    - Do not attempt endotracheal intubation if the child can be ventilated with a BVM. Exhaust all techniques such as two-person, BLS airway adjuncts, and repositioning with a towel under the shoulder blades.
    - Use one tube size smaller than indicated for patient size if performing endotracheal intubation.
6. Racemic Epinephrine per protocol for upper airway obstruction associated with croup.
    - ***Racemic Epinephrine***

Upper Airway Respiratory Distress

EMT-PARAMEDIC

Pharmacological Treatment of Mild Respiratory Distress (abnormal breath sounds or cough, SpO2>95%, no change in appearance/interactiveness)

5. Cool humidified oxygen or nebulized saline.

Pharmacological Treatment of Moderate to Severe Distress (stridor, increased work of breathing, altered mental status, hypoxic or exhausted, SpO2<84%, bradycardia, impending respiratory arrest)

5. Advanced airway management.
    - Do not attempt endotracheal intubation if the child can be ventilated with a BVM. Exhaust all techniques such as two-person, BLS airway adjuncts, and repositioning with a towel under the shoulder blades.
    - Use one tube size smaller than indicated for patient size if performing endotracheal intubation.
    - If child is in respiratory arrest and all attempts at airway management and ventilation have failed, perform a needle cricothyrotomy per protocol.
6. Racemic Epinephrine per protocol for upper airway obstruction associated with croup.
    - Racemic Epinephrine

Shock

EMT-BASIC

1. Pediatric patient assessment
    - Differential diagnosis should include hypovolemic shock (from blood loss or dehydration), distributive shock (from sepsis, anaphylaxis, drug intoxication, or spinal cord injury), cardiogenic shock (from congenital heart disease or myocarditis), and obstructive shock (from pericardial tamponade, or tension pneumothorax).
2. Basic life support, airway management, and oxygen per protocol.

EMT-BASIC-IV

3. Establish peripheral IV, obtain lab draws, and administer fluid per protocol.
    - Administer fluid at 20 mL/Kg boluses. Keep giving the fluid boluses until the patient has an improved clinical response or max of 60 mL/Kg.
4. Blood glucose testing for all cases of pediatric shock without history of trauma.

EMT-INTERMEDIATE

5. Establish IO access per protocol if an IV was not obtained.

EMT-PARAMEDIC

6. Establish IO access per protocol if an IV was not obtained.
7. If hemodynamic instability (hypotension, tachycardia, poor responsiveness) persists after fluid replacement of up to 60 mL/Kg, consider a vasopressor. Vasopressors are contraindicated for untreated hypovolemia.
    - ***Dopmaine***

Sudden Infant Death Syndrome

EMT-BASIC

1. Pediatric patient assessment
   - Note position in which the child was found, condition of the bed, last time child was seen well, recent trauma, possibility of ingestion, recent illness, and significant history such as premature birth or chronic illness.
   - Activate needed support for the family if a field pronouncement is made on scene. If appropriate, this includes the Colorado SIDS Program at 303-320-7771 or their website at www.coloradosids.org.
2. Basic Life Support per protocol unless an ALS provider has made a field pronouncement.

EMT-INTERMEDIATE

3. Field pronouncement per protocol if appropriate. The decision to transport regardless of meeting the criteria for a field pronouncement is acceptable if provider feels it is appropriate.
4. If decision for treatment and transport has been made, follow appropriate cardiac algorithm.

Basic & Advanced Airway Management

EMT-BASIC

INDICATIONS

There are three conditions that indicate the need for immediate airway management:

1. Failure of Airway Maintenance or Protection
    - The presence of pooled secretions with the inability to swallow, or GCS <8 are good indicators of potential failure to protect the airway.
    - The gag reflex does not correlate well with airway protection and is of no clinical use when assessing the need for airway management.
2. Failure of Ventilation or Oxygenation
    - Inability to adequately ventilate or achieve adequate oxygenation despite supplemental oxygen are good indicators of potential failure to ventilate or oxygenate.
    - A respiratory rate less than 8 BPM or more than 30 BPM with inadequate tidal volume is a sign of a critical patient.
3. Poor Anticipated Clinical Course
    - This is the patient whose condition may be predicted to deteriorate, either because of progressive changes related to the presenting condition, or because the work of breathing will become overwhelming in the face of catastrophic illness or injury.

CONTRAINDICATIONS

1. Contraindications are specific to each airway procedure and are listed in the skills sections.

PROCEDURE

1. Open the airway using BLS procedures of head-tilt, chin-lift or jaw thrust as appropriate.
2. Suction the upper airway to remove vomitus, saliva, blood, food and other foreign objects that might block the airway or increase the likelihood of pulmonary aspiration.
3. Insert a BLS adjunct. Oropharyngeal airways should be used in all unresponsive patients for effective assisted ventilations with a bag valve mask.
4. Ventilations must be assisted with a bag valve mask if there is still a failure of oxygenation and ventilation despite managing airway with BLS procedures and supplemental oxygen.

EMT-INTERMEDIATE

6. Attempt orotracheal intubation.
    - Techniques to facilitate difficult airway management include repositioning the patient's airway, adequate suctioning, laryngeal manipulation, changing intubator's position, changing the laryngyscope blade, and/or changing the provider who is intubating.
    - If unsuccessful at orotracheal intubation, return to BLS procedures and consider placement of a dual lumen airway.
7. Tracheobronchial suctioning as needed to remove vomitus, saliva, blood, and other foreign material that might block the endotracheal tube.

Basic & Advanced Airway Management, cont.

EMT-PARAMEDIC

6. Attempt orotracheal intubation.
    - Techniques to facilitate difficult airway management include repositioning the patient ' s airway, adequate suctioning, laryngeal manipulation, changing intubator' s position, changing the laryngyscope blade, and/or changing the provider who is intubating.
    - If unsuccessful at orotracheal intubation, return to BLS procedures and consider placement of a dual lumen airway.
7. Tracheobronchial suctioning as needed to remove vomitus, saliva, blood, and other foreign material that might block the endotracheal tube.
8. Nasotracheal intubation is an appropriate alternative to orotracheal intubation for patients who are breathing and may have trismus, patients who are not able to be placed supine, or conditions that inhibit the visualization of the vocal cords.
9. If all alternative airway management techniques have been exhausted, patient cannot be successfully ventilated with a bag valve mask and deemed unlikely to survive without airway intervention, proceed to a cricothyrotomy.

Bronchoconstriction

EMT-BASIC

1. General patient assessment
2. Airway management, pulse oximetry and oxygen per protocol.
3. Bronchodilator
    - ***Assist patients taking their own prescribed metered dose inhaler of a short-acting bronchodilator such as albuterol sulfate to treat bronchoconstriction.***

EMT-BASIC-IV

4. Establish peripheral IV, obtain lab draws, and administer fluids per protocol.

EMT-INTERMEDIATE

6. Advanced airway management per protocol.

Treatment of Lower Respiratory Distress (with mild wheezing and/or cough, SpO2>95%)
7. Albuterol either single dose or continuous depending on severity of respiratory distress. • ***Albuterol*** 8. Albuterol/Atrovent combination if no response from a single albuterol dose. • ***Albuterol*** • ***Atrovent: (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.*** 9. CPAP per protocol.

Treatment for Moderate to Severe Lower Respiratory Distress (Significant wheezing, breath sounds decreased or absent, altered mental status, hypoxic or exhausted, SpO2<84%, bradycardia, impending respiratory arrest)
TIME SENSITIVE PATIENT—prepare resuscitation equipment, anticipate rapid deterioration 7. Albuterol or Albuterol/Atrovent combination. • ***Albuterol*** • ***Atrovent (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol.*** 8. Epinephrine per protocol. • ***Epinephrine*** 9. SoluMedrol per protocol. • ***SoluMedrol*** 10. CPAP per protocol.

Bronchoconstriction, cont.

EMT-PARAMEDIC

6. Advanced airway management per protocol.

Treatment of Mild to Moderate Lower Respiratory Distress (with mild wheezing and/or cough, SpO2>95%)
7. Albuterol either single dose or continuous depending on severity of respiratory distress. • Albuterol 8. Albuterol/Atrovent combination if no response from a single albuterol dose. • Albuterol • Atrovent (Adults & Pediatrics > 2 years) If no improvement continue with only albuterol. 9. CPAP per protocol.

Treatment for Moderate to Severe Lower Respiratory Distress (Significant wheezing, breath sounds decreased or absent, altered mental status, hypoxic or exhausted, SpO2<94%, bradycardia, impending respiratory arrest)
TIME SENSITIVE PATIENT—prepare resuscitation equipment, anticipate rapid deterioration 7. Albuterol or Albuterol/Atrovent combination. • Albuterol • Atrovent (Adults & Pediatrics > 2 years): f no improvement continue with only albuterol. 8. Epinephrine per protocol. • Epinephrine 9. SoluMedrol per protocol. • SoluMedrol 10. Magnesium Sulfate if unresponsive to epinephrine and inhaled beta-agonists. • ***Magnesium Sulfate*** 11. Consider CPAP

Foreign-Body Airway Obstruction

EMT-BASIC

1. General patient assessment
    - If the patient can still cough, cry, or speak, or has stridor; the airway is only partially obstructed. Keep patient in position of comfort, transport, and prepare for a full airway obstruction. Take care not to agitate children.
    - History of a complete airway obstruction followed by more mild respiratory distress is indicative of a foreign body airway obstruction in the lower airway. Patient should be transported for evaluation.
2. Follow BLS for Foreign-Body Airway Obstruction
    - Upper airway suctioning may be enough to relieve the airway obstruction, but do not delay BLS procedures.

BLS for Foreign-Body Airway Obstruction		
ADULT (puberty or older)	CHILD (1 year to puberty)	INFANT (less than one year)
RESPONSIVE PATIENT		
1. Ask, "Are you choking? " 2. Give abdominal thrusts or chest thrusts for pregnant or obese patients. 3. Repeat until effective or patient becomes unresponsive.	1. Ask, "Are you choking? " 2. Give abdominal thrusts. 3. Repeat until effective or patient becomes unresponsive.	1. Confirm severe airway obstruction. Check for sudden onset of severe breathing difficulty, ineffective or silent cough, weak or silent cry. 2. Give up to 5 back slaps and up to 5 chest thrusts. 3. Repeat step 2 until effective or infant becomes unresponsive.
UNRESPONSIVE PATIENT		
4. Begin CPR. 5. Look into mouth when opening the airway during CPR. Use finger seep only to remove visible foreign body in an unresponsive victim. 6. Continue CPR.	4. Begin CPR. 5. Look into mouth when opening the airway during CPR. Use finger seep only to remove visible foreign body in an unresponsive victim. 6. Continue CPR.	4. Begin CPR. 5. Look into mouth when opening the airway during CPR. Use finger seep only to remove visible foreign body in an unresponsive victim. 6. Continue CPR.

EMT-INTERMEDIATE

7. Attempt removal of the foreign body with Magill forceps of appropriate size and direct laryngoscopy.
8. If the object cannot be removed, continue ventilating the patient with a BVM per protocol. Success is determined by SpO2>90%, chest rise, skin color, bag compliance, and mask seal. If success is not achieved, other techniques should be tried including oral & nasal airways, two-person-two-handed technique, and optimal patient positioning.
9. Perform endotracheal intubation if ventilation with a BVM is unsuccessful.
10. Attempt forcing the object into the right bronchus with the endotracheal tube if ventilation is still unsuccessful.

Burns

EMT-BASIC

1. Assess and treat according to general trauma guidelines.
    - Consider mechanism of injury associated with the burn.
    - Estimate the thickness and total body surface area burned using the Rule of 9's. Include this in the report to the hospital.
2. Stop the burning process. Do not try to pull burning substances off the skin.
3. Remove clothing and jewelry from the involved areas.
4. Place a dry, sterile dressing over the burn, and place layers of blankets over the sterile dressing. Keep the patient warm. Do not place ice or cold packs on a burn.

EMT-BASIC-IV

5. Establish peripheral IV, and administer fluids as needed.
    - Second and third degree burns >20% total body surface area administer fluids as follows: (4)(Kg)(% BSA), half of this amount in the first 8 hours from time the burn occurred.

EMT-INTERMEDIATE

6. Advanced airway management per protocol. Be prepared for early aggressive airway management with evidence of burns to the head/neck region. Consider a paramedic intercept for more aggressive airway management.
7. Pain management per protocol.

EMT-PARAMEDIC

6. Advanced airway management per protocol. Be prepared for early aggressive airway management with evidence of burns to the head/neck region. Consider nasal intubation or Per Trach per protocol.
7. Pain management per protocol.

General Trauma Guidelines

EMT-BASIC

1. General patient assessment
    - Scene times should not exceed 10 minutes for any critical patients. This includes all trauma team activation and alerts. Document all circumstances such as multiple patients, prolonged extrication, and geographical constraints that contributed to scene times over 10 minutes.
    - Based on location, mechanism, and number of patients; consider requesting rotar-wing transport per protocol prior to arrival on scene.

Type of Injury	Special Considerations
Abdominal Trauma	Manually or mechanically immobilize impaled objects. Cover eviscerated organs with a moist sterile dressing. Keep dressings moist, and keep the patient from coughing, crying, or screaming.
Amputation/Avulsion	Rinse amputated part with sterile saline, wrap it in a moist sterile dressing, place it in a biohazard bag, place the biohazard bag in a secondary container or bag containing ice or a cold pack. Consider requesting the fire department collect, package, and deliver the extremity if it is not readily available to keep scene time to a minimum. Splint partial amputations in alignment to facilitate blood flow.
Eye Injury	Remove contact lenses unless lacerated or dislocated globe. Immediate continuous irrigation of globe if intact. Do not attempt to remove foreign objects. Avoid inadvertent pressure on the globe. Protect dislocated globe with rigid cup or splint, keep moist and patch opposite eye.
Crush Syndrome	Deficits identified in the initial assessment should be addressed before freeing the entrapped body part. Anticipate and prepare for a rapid deterioration of the patient's condition upon freeing them from the entrapment.
Pelvic Trauma	Apply pelvic binder per protocol.
Thoracic Trauma	Efforts to stabilize a flail chest with sandbags or other means is contraindicated. Seal an open pneumothorax on three sides with an occlusive dressing such as a plastic or foil wrapper. Monitor for signs of tension and release the dressing as needed.
Traumatic Brain Injury	Hyperventilation is contraindicated. Avoid placing the patient in a head-down position. For isolated head injuries consider elevating the head of the backboard. Prepare for and treat seizures per protocol. Complete Pre-Hospital Neurological Screening Form for progression. Avoid hypotension. A single episode of hypotension has a 4-fold increase in mortality.
Spinal Cord Injury	Bradycardia and hypotension are a classic finding. Report approximate location of injury (high or low cervical, thoracic, or lumbar).

General Trauma Guidelines, cont.

1. Airway management, oxygen, and pulse oximetry per protocol.
2. Hemorrhage control per protocol.
3. Trauma team activation or alert per protocol.
4. Spinal immobilization per protocol.

EMT-BASIC-IV

5. Establish peripheral IV, obtain lab draws, and administer fluids per protocol. This should only be done on scene if it does not delay transport or prior to freeing a patient from a significant and/or prolonged crush injury.

EMT-INTERMEDIATE

6. Advanced airway management per protocol. Address airway management at the scene only if it is emergently required.
7. Chest decompression per protocol.
8. Consider external jugular or interosseous cannulation per protocol.
9. Electrocardiogram per protocol.
10. Pain management per protocol.

EMT-PARAMEDIC

6. Advanced airway management per protocol. Address airway management at the scene only if it is emergently required.
7. Chest decompression per protocol.
8. Consider external jugular or interosseous cannulation per protocol.
9. Electrocardiogram per protocol.
10. Pain management per protocol.
11. Dopamine per protocol for hypotension associated with spinal cord injury.
    - ***Dopmaine (Adult/Pediatric)***

TASER

EMT-BASIC

1. General patient assessment.
    - Most local law enforcement agencies use the TASER brand of device as a less-than-lethal option. TASER uses technology that interrupts the muscular function which is painful and causes contractions that can be incapacitating.
    - The TASER is considered a safe device, and not all patients may require transport. Transport should be strongly encouraged for the following criteria.

Conditions Necessitating Transport Related to TASER
1. Evidence of excited delirium prior to being tasered 2. Altered mental status 3. Aggression, violent behavior, resistive to evaluation 4. Abnormal subjective complaints 5. Evidence of trauma to head, thorax, or abdomen other than from the taser probe 6. Taser probes imbedded in nipple/breast, genitalia, joint space or anywhere above the clavicles (do not remove) 7. Multiple taser applications

2. If the taser probe has not yet been removed by law enforcement and is not located in one of the above sensitive areas, it can be removed using the following procedure:

Probe Removal
1. Gently place counter pressure on each side of the probe with one hand, then firmly tug on the probe straight back. 2. Law enforcement may keep the probes for evidence otherwise dispose of it as a contaminated sharp. 3. Clean probe site, treat other minor soft-tissue injury, and recommend updating tetanus.

EMT-INTERMEDIATE

EMT-INTERMEDIATE

3. ECG per protocol.

Traumatic Arrest

EMT-BASIC

1. General patient assessment.
    - Focus treatment on management of airway, breathing, and circulation and scene time under 10 minutes.
2. Trauma team activation per protocol.

EMT-BASIC-IV

3. Establish peripheral IV, obtain lab draws, and administer fluids per protocol. This should only be done on scene if it does not delay transport or prior to freeing a patient from a significant and/or prolonged crush injury.

EMT-INTERMEDIATE

EMT-PARAMEDIC

6. Advanced airway management per protocol. Address airway management at the scene only if it is emergently required.
7. BILATERAL CHEST DECOMPRESSION FOR ALL TRAUMATIC ARRESTS
8. Consider external jugular or interosseous cannulation per protocol.
9. Electrocardiogram per protocol.
10. In the presence of multiple patients, a field pronouncement should be made for all patients found pulseless and apneic secondary to blunt force trauma.

VVH Trauma Team Alert & Activation

EMT-BASIC

Valley View Hospital Trauma Team ACTIVATION

a. Unable to adequately ventilate
b. Intubation
c. Child (0-12 yr.) resp. distress, Cap. refill > 2 seconds, BP abnormal for age (<70+2x age)
d. Adult BP < 90 or respiratory rate < 10 or > 29 with distress
e. GCS < 10
f. Penetrating injury head, neck, torso, pelvis
g. Flail chest
h. Suspected bilateral femur fx.
i. Suspected unstable pelvic fx.
j. Paralysis or evidence of spinal cord injury
k. Amputation above wrist or ankle.
l. Significant burns: > 20% TBSA partial or full thickness
> 10% TBSA age < 10 or > 50
Circumferential burn of chest or extremity
Inhalation injury & resp. compromise, high voltage electrical burn
m. Unequal or non-reactive pupils after trauma
n. Pedestrian or pedal cyclist thrown > 15 ft., run over, or speed > 15 mph.
o. Ejection from motor vehicle/ conveyance
p. Trauma Surgeon or Emergency Department discretion

Valley View Hospital Trauma Team ALERT

a. High Energy dissipation
b. Extrication > 20 minutes with injury
c. Falls > 15-20 feet (adults) or 2 x height of child
d. Elderly with suspect rib fx.
e. Unrestrained in vehicle rollover
f. Death same car occupant
g. Significant assault
h. Exposure to blast or explosion
i. Significant crush injury
j. Intrusion of vehicle ≥ 12 inches occupant compartment
k. Suspected non-accidental trauma
l. Pulse less extremity
m. Lightning strike involving trauma or cardiac irregularities

Valley View Hospital Trauma Team ALERT CONSIDERATIONS

Considerations by ED for Trauma Alert or for Consultation by Trauma Surgeon after evaluation of pt. by ED Physician:

Age <5 or > 55
Extreme heat or cold
Medical history such as COPD, CHF, Renal failure, Diabetes
Patients with bleeding disorder or anti-coagulants
Presence of intoxicants
Pregnancy > 20 weeks
EMT clinical suspicion
MVC crash > 40 mph
Auto/ped or auto/bike
MCC, ATV, snowmobile
Auto crash with significant vehicle damage

VVMC Trauma Team Activation & Alert

EMT-BASIC

POLICY:

A. The following is the procedure for trauma guidelines when transporting to VVMC.

1. Per VVMC trauma services, when a field provider has a suspicion of serious injury that they believe might need a trauma team activation, the provider only needs to give a radio report with the following information.
2. Pt age, sex, chief complaint, a brief history, a good description of the mechanism of injury, a brief physical exam, V/S, interventions and as accurate an ETA as possible.
3. It will be up to the ED staff to make the determination whether or not the trauma team will be activated.

B. The following are criteria for a **Trauma Alert**:

1. When a paramedic has suspicion of serious injury not otherwise defined in the criteria for a Trauma Team Activation. Documentation of rationale for suspicion is required.
2. The ED physician and an ED RN must meet the patient upon arrival to the Emergency Department. This should be documented by the nurse on the clinical record. The Trauma Surgeon, Radiologist, Administrative Supervisor, CT Technician, X-ray Technician, and Cardiopulmonary will be notified that a Trauma Alert has been activated. If the patient's condition deteriorates enroute, the patient should be changed to a Trauma Team Activation.

Acetaminophen (Tylenol)

Class/Action	Antipyretic
Dosage EMT-BASIC INTERMEDIATE PARAMEDIC	See Dosing Chart.
Indications	1. Pediatric Fever
Special Notes	• If giving Tylenol to a child, they are considered a patient. An appropriate history, physical, and paperwork must be completed.

WEIGHT	AGE	DOSE
INFANT TYLENOL		
0-3 months	6-11 pounds	.4 mL
4-11 months	12-17 pounds	.8 mL
12-23 months	18-32 pounds	1.2 mL
CHILDRENS TYLENOL		
2-3 years	24-35 pounds	5 mL
4-5 years	36-47 pounds	7.5 mL
6-8 years	48-59 pounds	10 mL
9-10 years	60-71 pounds	12.5 mL
11 years	72-95 pounds	15 mL

Adenosine (Adenocard)

Class/Action	A nucleoside found in all cells of the body. It slows conduction time through the AV junction, can interrupt reentry pathways through the AV junction, and can restore normal sinus rhythm in patients with paroxysmal supraventricular tachycardia (PSVT).
Indications	1. Acute SVT 2. Wide Complex Tachycardia with a Pulse (refractory to amiodarone and magnesium)
Dosage INTERMEDIATE	***Adenosine (Adult): 6 mg rapid IV/IO, 2nd dose 12 mg IV/IO.*** ***Adenosine (Pediatric): .1 mg/Kg rapid IV/IO, max 6 mg. 2nd dose .2 mg/Kg IV/IO, max 12 mg.***
Dosage PARAMEDIC	Adenosine (Adult): 6 mg rapid IV/IO, 2nd dose 12 mg IV/IO. ***Contact base for additional dosing.*** Adenosine (Pediatric): .1 mg/Kg rapid IV/IO, max 6 mg. 2nd dose .2 mg/Kg IV/IO, max 12 mg. ***Contact base for additional dosing.***
Contraindications	1. 2nd or 3rd Degree Heart Block 2. Sick Sinus Syndrome 3. History of MI, cerebral hemorrhage, asthma (relative)
Side Effects	1. May produce new arrhythmias such as bradycardia, tachycardia, heart blocks, PVC's, or asystole; usually transient, but be prepared to treat. 2. May produce dyspnea, flushing, CP or pressure, dizziness, HA, palpitations, and feelings of impending doom.
Special Notes	1. Needs to be given with an antecubital IV site, use 20 cc saline flush in a separate syringe, clamp above IV port, print rhythm strip pre-treatment, elevate arm. 2. 10-second 1/2 life, the clinical effects occur rapidly and are very brief. 3. Larger doses may be required in patents taking theophylline or caffeine, smaller doses in patients taking dipyridamole or carbamazepine.

Albuterol (Ventolin, Proventil)

Class/Action	• Beta-adrenergic stimulating properties resulting in potent bronchodilation • Rapid onset of action under five minutes, duration is between 2-6 hours
Indications	• Bronchoconstriction
Dosage EMT-BASIC	1. May assist patients taking their own prescribed meter dose inhaler of a short-acting bronchodilator such as albuterol 2. Single dose or continuous depending on the severity of respiratory distress • ***Albuterol (Adult/Pediatric) : 2.5 mg/3 mL in a nebulizer set at 6-8 LPM oxygen.*** ***Albuterol (Adult/Pediatric): 7.5 mg/9 mL in a nebulizer set at 6-8 LPM oxygen***
Dosage INTERMEDIATE	1. Single dose or continuous depending on the severity of respiratory distress • ***Albuterol (Adult/Pediatric) : 2.5 mg/3 mL in a nebulizer set at 6-8 LPM oxygen.*** • ***Albuterol (Adult/Pediatric) : 7.5 mg/9 mL in a nebulizer set at 6-8 LPM oxygen.***
Dosage PARAMEDIC	1. Single dose or continuous depending on the severity of respiratory distress • Albuterol (Adult/Pediatric) : 2.5 mg/3 mL in a nebulizer set at 6-8 LPM oxygen. • Albuterol (Adult/Pediatric) : 7.5 mg/9 mL in a nebulizer set at 6-8 LPM oxygen.
Contraindications	Hypokalemia, coronary artery disease, active labor (relative)
Side Effects	Tachycardia, hypertension, HA, dizziness, palpitations, anxiety
Special Notes	1. Albuterol has sympathomimetic effects. Use with caution in patients with known coronary disease. Monitor pulse, blood pressure, cardiac monitor, and 12 lead in these patients. 2. When inhaled, albuterol can result in a paradoxical bronchospasm, which can be life threatening. If this occurs, the preparation should be discontinued immediately. 3. May need patients to rinse moth with water secondary to binding of albuterol in the oral cavity after continuous use.

Amiodarone (Cordarone)

Class/Action	Amiodarone is a very complex drug with actions upon sodium, potassium, and calcium channels as well as alpha and beta-adrenergic blocking properties.
Indications	1. VF/VT 2. Successfully defibrillated from VF/VT 3. Wide Complex Tachycardia with a Pulse
Dosage INTERMEDIATE	1. VF/VT • Adult: 300 mg IV, IO. May repeat single dose 150 mg in 3-5 minutes. Contact base for further dosing. • Pediatric: 5 mg/Kg IV, IO. May repeat single dose 5 mg/Kg in 3-5 minutes. Max single dose 300 mg. Contact base for further dosing. 2. Wide Complex Tachycardia with a Pulse • **Adult: 150 mg IV/IO over 10 minute** • **Pediatric: 5 mg/Kg IV/IO over 20 to 60 minutes**
Dosage PARAMEDIC	1. VF/VT • Adult: 300 mg IV, IO. May repeat single dose 150 mg in 3-5 minutes. ***Contact base for further dosing.*** • Pediatric: 5 mg/Kg IV, IO. May repeat single dose 5 mg/Kg in 3-5 minutes. Max single dose 300 mg. ***Contact base for further dosing.*** 2. Wide Complex Tachycardia with a Pulse • ***Adult: 150 mg IV/IO over 10 minute*** • ***Pediatric: 5 mg/Kg IV/IO over 20 to 60 minutes***
Contraindications	1. Ventricular escape beats or accelerated IVR 2. Pulmonary congestion and cardiogenic shock (relative) 3. WPW (relative) 4. Sympathomimetic toxidromes, i.e., cocaine or amphetamine overdose (relative)
Side Effects	Hypotension, cardiogenic shock, pulmonary congestion
Special Notes	• Amiodarone has potentially life-threatening side effects, and multiple complex drug interactions. It should be used for only the above recurrent, or life-threatening arrhythmias only after other first-line treatments have failed. • When using Amiodarone after successfully defibrillating from VF/VT, mix 6 G in 50 mL NS using a burette. Drip rate is determined as follows: (Volume to be Infused x Drip Rate of Tubing) / Time in Minutes to be Infused = Gtts/ Minute (50 mL x 60 gtt/mL) / 15 to 30 minutes = 100 to 200 gtt/minute

Aspirin

Class/Action	Platelet inhibitor and analgesic that impedes clotting action and platelet aggregation.
Indications	1. Chest pain or other signs/symptom indicative of acute coronary syndrome
Dosage ALL LEVELS	Aspirin (Adult): 324 mg PO
Contraindications	1. Allergic to aspirin 2. Evidence of active GI bleed 3. Suspected hemorrhagic stroke
Side Effects	None
Special Notes	Aspirin is one of the few interventions that has been shown to improve mortality and therefore should be considered early in treatment.

Ativan (Lorazepam)

Class/Action	Lorazepam is a benzodiazepine that acts as a tranquilizer, anticonvulsant, and skeletal muscle relaxant through effects on the central nervous system.
Indications	1. Status Seizure (in the field this will be any seizure which has lasted longer than five minutes, or two consecutive seizures without regaining consciousness, if the patient is seizing upon arrival to scene status seizure can be assumed) 2. Anxiety. 3. Sedation & Chemical Restraint.
Dosage PARAMEDIC	1. Status Seizure Ativan (Adult): 2-4 mg IV, IO, IM. Given over 20 to 30 seconds, max dose 4 mg. Ativan (Pediatric): .05 to .1 mg/Kg IV, IO, IM. Given over 20 to 30 seconds, max dose 2 mg 2. Anxiety Ativan (Adult): 1-2 mg IV, IO, IM. Given over 20 to 30 seconds, max dose 4 mg. 3. Sedation & Chemical Restraint Ativan (Adult): 1-2 mg IV, IO, IM. Given over 20 to 30 seconds, max dose 4 mg.
Contraindications	1. A known hypersensitivity to Ativan. 2. Shock 3. Respiratory depression
Side Effects	1. Common side effects include headache, drowsiness, dizziness, vertigo, syncope, respiratory depression, fatigue, ataxia, amnesia, paradoxical excitement or stimulation can occur.
Special Notes	1. Patients on Ativan should be placed on oxygen 2. Should not be mixed with other agents or diluted with intravenous solutions. 3. Can cause significant respiratory depression, apnea, and hypotension especially when used in combination with other sedatives such as alcohol or narcotics. Continuous pulse oximetry, ETCO2, and cardiac monitoring are mandatory. Emergency resuscitative equipment must be immediately available. 4. Consider lower doses for elderly patients; significant respiratory depression, apnea, and hypotension are more frequently encountered. 5. Use caution for patients with a history of using depressants such as alcohol.

Atropine Sulfate

Class/Action	Anticholinergic that has the following effects: • Increases HR and AV conduction (blocks vagal effects) • Reduces GI motility and tone, dilates pupils • Reduces action and tone of the urinary bladder (may cause retention)
Indications	1. Hemodynamically Unstable Bradycardia 2. Organophosphate Poisoning
Dosage INTERMEDIATE	1. Hemodynamically Unstable Bradycardia • ***Atropine (Adult): .5 mg IV/IO q 3-5 minutes, max .04 mg/Kg or 3 mg.*** • ***Atropine (Pediatric): .02 mg/Kg IV/IO q 3-5 minutes, minimum dose .1 mg, max cumulative dose 1 mg*** 2. Organophosphate Poisoning • ***Atropine (Adult/Pediatric): 2 mg q 5 minutes***
Dosage PARAMEDIC	1. Hemodynamically Unstable Bradycardia • Atropine (Adult): .5 mg IV/IO q 3-5 minutes, max .04 mg/Kg or 3 mg. • Atropine (Pediatric): .02 mg/Kg IV/IO q 3-5 minutes, minimum dose .1 mg, max cumulative dose 1 mg 2. Organophosphate Poisoning • ***Atropine (Adult/Pediatric): 2 mg q 5 minutes***
Contraindications	1. Not effective in infranodal (Mobitz Type II) or new 3rd degree blocks, may cause paradoxical slowing. 2. Hypothermic bradycardia 3. Shock
Side Effects	Palpitations, HA, blurred vision, tachycardia, dry mouth, drowsiness, and anxiety
Special Notes	1. Atropine dilates pupils in a cardiac arrest situation 2. If administered too slowly or in too small a dose, paradoxical profound bradycardia may result 3. Bradycardia in the setting of an acute MI may be beneficial 4. Pediatric bradycardia is usually secondary to hypoxia. Correct the ventilation first. Epinephrine is almost always the 1st line drug for pediatric bradycardia.

Atrovent

Class/Action	Anticholinergic and bronchodilator that dries respiratory tract secretions
Indications	1. Bronchoconstriction
Dosage INTERMEDIATE	1. Mild/Moderate Distress • ***Atrovent (Adults & Pediatrics > 2 years): if initial dose of albuterol was ineffective, mix second dose of albuterol with atrovent .5 mg/2.5 mL NS*** 2. Moderate/Severe Distress or Known COPD • ***Atrovent (Adults & Pediatrics > 2 years): .5 mg/2.5 mL NS mixed with albuterol nebulized at 6-8 LPM. If no improvement continue with only albuterol.***
Dosage PARAMEDIC	1. Mild/Moderate Distress • Atrovent (Adults & Pediatrics > 2 years): if initial dose of albuterol was ineffective, mix second dose of albuterol with atrovent .5 mg/2.5 mL NS 2. Severe Distress or Known COPD • Atrovent (Adults & Pediatrics > 2 years): .5 mg/2.5 mL NS mixed with albuterol nebulized at 6-8 LPM. If no improvement continue with only albuterol.
Contraindications	1. Hypersensitivity to atrovent, soy, or peanuts
Side Effects	Palpitations, dizziness, anxiety, tremors, HA, nervousness, dry mouth, and blurred vision
Special Notes	1. Atrovent is given only in combination with albuterol. 2. Can cause paradoxical bronchospasm. If this happens discontinue treatment.

Benadryl

Class/Action	Antihistamine that blocks the release of histamine from cells during an allergic reation. It also has an anti-parkinsonian effect which is used to treat acute dystonic reactions to antipsychotic drugs (Haldol). These reactions include oculogyric crisis, torticollis, and facial grimacing.
Indications	1. Allergic Reaction & Anaphyalaxis 2. Motion Sickness 3. Extrapyramidal Reaction
Dosage INTERMEDIATE	• *Benadryl (Adult): 50 mg IV/IO slow or IM* • *Benadryl (Pediatric): 1-2 mg/Kg IV/IO slow or IM, max 50 mg*
Dosage PARAMEDIC	• Benadryl (Adult): 50 mg IV/IO slow or IM • Benadryl (Pediatric): 1-2 mg/Kg IV /IO slow or IM, max 50 mg
Contraindications	1. Asthma, COPD, glaucoma, bladder obstruction (relative—condition will be exacerbated) 2. Nursing mothers (relative)
Side Effects	Dry mouth, dilated pupils, flushing, drowsiness
Special Notes	1. IV route is preferred if established 2. May cause CNS stimulation in children 3. The direct effect can be stimulant, or more commonly depressant depending on the individual variation.

Calcium Chloride

Class/Action	Electrolyte that regulates cell permeability of sodium and potassium. It causes potassium to enter cells.
Indications	1. Calcium Channel or Beta Blocker Overdose (for symptomatic bradycardia and/or hypotension) 2. Hyperkalemia or Hypocalcemia (renal compromised patients or crush syndrome)
Dosage PARAMEDIC	*Calcium Chloride (Pediatric): 20 mg/Kg, max 500 mg, very slow at 100 mg/min* *Calcium Chloride (Adult) : 500-1000 mg, very slow at 100 mg/min*
Contraindications	Hypercalcemia, digitalis toxicity, cardiac arrest
Side Effects	Cardiac dysrhythmias, HA, dizziness, hypotension, N/V
Special Notes	1. Avoid mixing with bicarbonate, precipitate will form 2. Use of calcium with digoxin can cause increased cardiac irritability

Dextrose

Class/Action	Carbohydrate that is the body’s basic fuel required for cellular metabolism
Indications	1. Hypoglycemia (BGL <60 mg/dL) 2. Unable to obtain BGL but patient presenting with an altered mental status and history consistent with hypoglycemia (diabetes, seizure, poisoning or overdose, alcoholic, hypothermia)
Contraindications	1. Stroke (precaution) 2. Closed head injury (precaution)
Side Effects	Tissue necrosis in a faulty IV line
Special Notes	1. One bolus should raise BGL 50-100 mg/dL, should not need a second bolus 2. Effect may be delayed in elderly or person with poor circulation 3. Red tube is highest priority in the blood draw, get this before administering dextrose. 4. IO will be a very slow push. 5. Mixing D25—Waste 25 mL of the D50 prefilled. Draw up 25 mL NS to make 50 mL of D25. 6. Mixing D10—Waste 40 mL of the D50 prefilled. Draw up 40 mL NS to make 50 mL of D10.

Dosage
EMT-B-IV
INTERMEDIATE
PARAMEDIC

Age	Dose
Adult	25 G D50 IV/IO
Infant > 6 months, Children	2-4 mL/Kg of D25 IV/IO
Infant < 6 months	1-2 mL/Kg D25 IV/IO
Newborn	5-10 mL/Kg D10 IV/IO

Dopamine

Class/Action	1. Sympathomimetic that is a chemical precursor to epinephrine, occurs naturally in humans. 2. Has the following dose-related effects • 1-2 mcg/Kg/min: dilates renal and mesenteric vessels, on effect on HR or BP • 2-10 mcg/Kg/min: beta effects on heart, usually increases cardiac output, HR and BP • 10-20 mcg/Kg/min: alpha peripheral effects cause peripheral vasoconstriction and increased BP
Indications	1. Hypotension from causes other than hypovolemia such as cardiogenic, neurogenic, septic, or anaphylactic shock 2. Hemodynamically Unstable Bradycardia
Dosage PARAMEDIC	***Dopmaine (Adult/Pediatric) : 2-10 mcg/Kg/min, pre-mix bag, 400 mg in 250 mL D5W, 1600mcg/mL***
Contraindications	1. Hypovolemic shock
Side Effects	Hypertensive crisis in susceptible individuals
Special Notes	1. Dopamine may induce tachydysrhythmias. If the HR exceeds 140 BPM, the infusion should be stopped. 2. At low doses, decreased blood pressure may occur due to peripheral vasodilation. Increasing the infusion rate will correct this. 3. Should not be added to sodium bicarbonate or other alkaline solutions since dopamine will be inactivated at a higher pH 4. Tissue extravasation at the IV site can cause skin sloughing due to vasoconstriction. Be sure to make ED staff aware if there has been any extravasation of dopamine-containing solutions so that proper care can be initiated. 5. Certain antidepressants potentiate the effects of dopamine. Notify base when calling in for orders if the patient is on an antidepressant.

Dopamine Drip Rates (400 mg in 250 mL D5W pre-mix)																	
Pt Wt Kg	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120
Mcg/Kg/Min																	
2	3	3	4	4	5	5	5	6	6	6	7	7	8	8	8	9	9
5	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
10	15	17	19	21	23	24	26	28	30	32	34	36	38	39	41	43	45
15	22	25	28	31	34	37	40	43	45	48	51	54	57	59	62	65	68
20	30	34	38	41	45	49	53	56	60	64	68	71	75	79	83	86	90

Epinephrine

Class/Action	Alpha and beta agonist that has the following effects: 1. Cardiovascular: increased HR, BP, arterial vasoconstriction, myocardial contractile force, myocardial oxygen consumption, and myocardial automaticity and irritability 2. Pulmonary: potent bronchodilator
Indications	1. Pulseless Arrest 2. Hemodynamically Unstable Bradycardia 3. Bronchoconstriction—Moderate to Severe Respiratory Distress 4. Anaphylaxis
Dosage EMT-BASIC	May assist patients taking their own prescribed epinephrine auto-injector for bronchoconstriction and anaphylaxis.
Dosage INTERMEDIATE	1. Pulseless Arrest • ***Epinephrine (Adult): 1 mg 1:10000 IV, IO q 3-5 minutes*** • ***Epinephrine (Pediatric): .01 mg/Kg 1:10000 IV, IO q 3-5 minutes*** 2. Hemodynamically Unstable Bradycardia • ***Epinephrine (Adult): 2-10 mcg/min 1:10000 IV, IO*** • ***Epinephrine (Pediatric): .01 mg/Kg 1:10000 IV, IO q 3-5 minutes*** 3. Bronchoconstriction—Moderate to Severe Respiratory Distress • ***Epinephrine (Adult): .3 mg 1:1000 IM, may repeat in 10 minutes*** • ***Epinephrine (Pediatric): .01 mg/Kg 1:1000 IM max single dose .3 mg, may repeat in 10 minutes*** 4. Anaphylaxis • ***Epinephrine (Adult): .1 mg 1:10000 IV, IO followed by infusion of 1 mg 1:10000 in 250mL NS, start infusion at 2 mcg/min (= 30 gtts/min) and titrate to effect (signs of improved perfusion, systolic BP>100 mmHg.*** • ***Epinephrine (Pediatric): .01 mg/Kg 1:10000 IV/IO***
Dosage PARAMEDIC	1. Pulseless Arrest • Epinephrine (Adult): 1 mg 1:10000 IV, IO q 3-5 minutes • Epinephrine (Pediatric): .01 mg/Kg 1:10000 IV, IO q 3-5 minutes 2. Hemodynamically Unstable Bradycardia • Epinephrine (Adult): 2-10 mcg/min 1:10000 IV, IO • Epinephrine (Pediatric): .01 mg/Kg 1:10000 IV, IO q 3-5 minutes 3. Bronchoconstriction—Moderate to Severe Respiratory Distress • Epinephrine (Adult): .3 mg 1:1000 IM, may repeat in 10 minutes • Epinephrine (Pediatric): .01 mg/Kg 1:1000 IM, max single dose .3 mg, may repeat in 10 minutes 4. Anaphylaxis • Epinephrine (Adult): .1 mg 1:10000 IV, IO followed by infusion of 1 mg 1:10000 in 250mL NS, start infusion at 2 mcg/min (= 30 gtts/min) and titrate to effect (signs of improved perfusion, systolic BP>100 mmHg. • Epinephrine (Pediatric): .01 mg/Kg 1:10000 IV/IO

Epinephrine, cont.

Contraindications	1. Pulmonary Edema (relative) 2. Use caution in patients with pulmonary edema, HTN, hyperthyroidism, peripheral vascular disease, patient >50 YO
Side Effects	1. Increase in myocardial oxygen consumption can precipitate angina or MI in patients with coronary artery disease. 2. Anxiety, tremor, palpitations, vomiting, and headache
Special Notes	1. Do not add to solutions containing sodium bicarbonate.

Fentanyl

Class/Action	Narcotic that is a CNS depressant and reduces sensitivity to pain.
Indications	1. Pain Management
Dosage INTERMEDIATE	1. Pain Management • ***Fentanyl (Adult): 1-2 mcg/Kg IV, IO, IM , IN max single dose 100 mcg, max cumulative dose 250 mcg.*** • ***Fentanyl (Pediatric): 1-2 mcg/Kg IV, IO, IM, IN max 100 mcg.***
Dosage PARAMEDIC	1. Pain Management • Fentanyl (Adult): 1-2 mcg/Kg IV, IO, IM, IN max single dose 100 mcg, max cumulative dose 250 mcg. • Fentanyl (Pediatric): 1-2 mcg/Kg IV, IO, IM, IN max 100 mcg.
Contraindications	1. Severe hypotension 2. Myasthenia gravis 3. MAO inhibitors, closed head injury (relative)
Side Effects	1. Increase intracranial pressure 2. Chest wall rigidity with rapid administration 3. Sedation, bradycardia, hypotension, respiratory depression, respiratory arrest, laryngospasm 4. Pediatric patients may develop apnea without manifesting significant mental changes

Glucagon

Class/Action	Antihyopoglycemic agent that promotes the breakdown of liver glycogen to glucose thereby increasing the BGL. It also relaxes GI peristalsis and has the cardiac effects of increasing HR and contractility, and promotes AV node conduction.
Indications	1. Hypoglycemia (BGL<60 mg/dL and unable to obtain IV access)
Dosage INTERMEDIATE PARAMEDIC	1. Hypoglycemia • Glucagon (Adult): 1 mg IM • Glucagon (Pediatric): .025 mg IM
Side Effects	Nausea, vomiting, headache
Special Notes	1. When glucagon is given for hypoglycemia the patient should receive glucose as soon as possible after the administration of glucagon. 2. If possible, obtain BGL before administration of glucagon. 3. To convert micrograms to milligrams, divide by 1000. Example 4000 mcg / 1000 = 4 mg

Oral Glucose

Class/Action	Carbohydrate that is rapidly absorbed into the oral mucosa, thus elevating the body's glucose level.
Indications	1. Hypoglycemia 2. Altered mentation and history of diabetes
Dosage EMT-BASIC INTERMEDIATE PARAMEDIC	1 Full Tube, PO
Contraindications	Unable to swallow
Special Notes	1. Squeeze a small portion of the tube (approximately 1/3) into the patient's mouth between the cheek and gum. Or, utilizing a tongue depressor, deposit a small portion of the tube (approximately 1/3) onto the tongue depressor and slide it into the patient's mouth between the cheek and gum. Repeat the procedure until one full tube of glucose has been administered.

Lidocaine

Class/Action	1. Antiarrhythmic that suppresses ventricular ectopy, increases ventricular fibrillation threshold, and reduces velocity of electrical impulses through the conduction system. 2. Blunts spike in ICP with invasive procedure
Indications	1. Adjunct to intubation in patients (especially pediatrics) with closed head injuries 2. Local anesthetic prior to fluid administration through an IO cannulation
Dosage INTERMEDIATE	1. Intubation Adjunct • ***Lidocaine (Adult/Pediatric): 1-1.5 mg/Kg IV, IO*** 2. IO Administration • Lidocaine (Adults): 20-40 mg IO • Lidocaine (Pediatrics): .5mg/Kg, max 20 mg IO
Dosage PARAMEDIC	1. Intubation Adjunct • Lidocaine (Adult/Pediatric): 1-1.5 mg/Kg IV, IO 2. IO Administration • Lidocaine (Adults): 20-40 mg IO • Lidocaine (Pediatrics): .5mg/Kg, max 20 mg IO
Contraindications	IVR, ventricular escape rhythm, 2nd or 3rd degree block, PVC's associated with bradycardia
Side Effects	Anxiety, seizures, N/V, drowsiness, widening of the QRS
Special Notes	Consider half dose for patients over 70 YO, history of CHF, or liver disease

Magnesium Sulfate

Class/Action	Electrolyte that has the following effects: • Cardiac: stabilizes the potassium pump, correcting repolarizaiton. Shortens the QT interval in the presence of ventricular arrhythmias due to drug toxicity or electrolyte imbalance. • Respiratory: may act as a bronchodilator in acute bronchospasm • Obstetric: controls seizures by blocking neuromuscular transmission. Also lowers blood pressure and decreases cerebral vasospasm.
Indications	1. Pulseless Arrest (due to hypomagnesemia or Torsades de Pointes) 2. Moderate to severe respiratory distress unresponsive to epinephrine and inhaled beta-agonists. 3. Pre-Eclampsia & Eclampsia (>20 weeks gestation, BP>180 systolic, >110 diastolic with altered mental status and/or seizure)
Dosage PARAMEDIC	1. Pulseless Arrest (due to hypomagnesemia or Torsades de Pointes) • Magnesium Sulfate (Adult): 2 G IV, IO over 2 minutes 2. Moderate to Severe Respiratory Distress • ***Magnesium Sulfate (Adult): 2 G IV, IO over 2 minutes*** • ***Magnesium Sulfate (Pediatric): 25 mg/kg over 2 minutes, max dose 2 G*** 3. Pre-Eclampsia • ***Magnesium Sulfate (Adult): 2 G IV, IO over 2 minutes, followed by 4 G IV drip over 15-30 minutes.*** 4. Eclampsia • Magnesium Sulfate (Adult): 2 G IV, IO over 2 minutes, followed by 4 G IV drip over 15-30 minutes.
Contraindications	1. AV Block (relative) 2. Decrease in respiratory or cardiac function (relative) 3. Patients taking digitalis (relative)
Side Effects	Respiratory depression, ventilatory assistance may be required
Special Notes	• Pre-Eclampsia: >20 weeks gestation, BP>180 mmgHg systolic and/or >110 mmHg diastolic • Eclampsia: signs of pre-eclampsia with altered mental status or seizure • Drip rate is determined as follows: (Volume to be Infused x Drip Rate of Tubing)/Time in Minutes to be Infused = Gtts/Minute

Morphine Sulfate

Class/Action	Narcotic that has the following actions: • CNS depressant qualities that reduce sensitivity to pain • Hemodynamic property of vasodilation that decreases systemic resistance and preload. This contributes to decreased cardiac work, decreased cardiac oxygen consumption, and reduced pulmonary congestion.
Indications	1. Cardiogenic Pulmonary Edema 2. Pain Management
Dosage INTERMEDIATE	***Morphine (Adult): 2-10 mg IV, IO, contact base for additional dosing*** ***Morphine (Pediatric): .1 to .2 mg/Kg IV, IO slowly***
Dosage PARAMEDIC	Morphine (Adult): 2-10 mg IV, IO, ***contact base for additional dosing*** Morphine (Pediatric): .1 to .2 mg/Kg IV, IO slowly
Contraindications	1. Hypotension (relative) 2. Respiratory distress, unless due to pulmonary edema 3. Major blood loss, the bodies compensatory mechanisms will be suppressed by the use of morphine and the hypotensive effect will become very prominent.
Side Effects	N/V, hypotension, respiratory depression
Special Notes	1. Pulse oximetry and ECG should be monitored

Narcan

Class/Action	Narcotic antagonist that completely binds to narcotic sites but which exhibits almost no pharmacological effects of its own.
Indications	1. Narcotic Overdose 2. Altered mental status of unknown origin 3. Seizure of unknown origin
Dosage EMT-B-IV	Narcan (Adult): 2 mg IV, IM, IN repeat in 5 minutes if needed May be beneficial to start at 0.5 mg increments and titrate to return of breathing Narcan (Pediatric): 1 mg IV, IM, IN repeat in 5 minutes if needed
Dosage INTERMEDIATE PARAMEDIC	Narcan (Adult): 2 mg IV, IO, IM, IN repeat in 5 minutes if needed May be beneficial to start at 0.5 mg increments and titrate to return of breathing Narcan (Pediatric): 1 mg IV, IO, IM, IN repeat in 5 minutes if needed
Special Notes	1. The duration of some narcotics is longer than narcan and the patient must be monitored closely. Repeated doses of narcan may be required. Patients who have received this drug must be transported to the hospital because coma may occur when the narcan wears off. 2. With an ET tube in place and assisted ventilations narcotic OD patients may be safely managed without narcan. Think twice before totally reversing coma, airway may be lost, or worse the patient may become violent and refuse transport.

Neosynephrine

Class/Action	Sympathomimetic used for topical nasal administration. It primarily exhibits alpha-adrenergic stimulation. This stimulation can produce moderate to marked vasoconstriction and subsequent nasal decongestion.
Indications	1. Nasal Intubation
Dosage PARAMEDIC	Neosynephrine (Adult): 2 sprays
Special Notes	Avoid administration into the eyes as this will cause dilation

Nitroglycerin

Class/Action	Nitrate. Cardiovascular effects include: • Reduced venous tone, causes blood-pooling in peripheral veins, decreasing venous return to the heart • Decreased peripheral resistance • Dilation of coronary arteries (if not already at maximum) and relief of coronary artery spasm
Indications	1. Acute Coronary Syndrome 2. Cardiogenic Pulmonary Edema
Dosage INTERMEDIATE	Nitroglycerin (Adult): .4 mg SL q 5 minutes, max 3 doses ***Contact medical control for patients with BP <100 mmHg, or with signs of poor peripheral perfusion or with hypertension***
Dosage PARAMEDIC	Nitroglycerin (Adult): .4 mg SL q 5 minutes, max 3 doses, ***contact medical control for additional doses or for patients with BP <100 mmHg, or with signs of poor peripheral perfusion or with hypertension***
Contraindications	1. Hypotension (BP<90 mmHg systolic) 2. Extreme bradycardia (<50 BPM) 3. Tachycardia (>100 BPM) without heart failure 4. Presence of RV STEMI 5. Patients taking Viagra or some other erectile dysfunction medication with in the last 24-36 hours 6. Hypertensive Crisis (relative, must call in for orders)
Side Effects	1. Generalized vasodilation may cause profound hypotension and reflex tachycardia 2. Common side effects include throbbing headache, flushing, dizziness, and burning under the tongue. Less common is orthostatic hypotension.
Special Notes	1. Nitroglycerin tables lose potency easily; they should be stored in dark glass container with tight lid and not exposed to heat 2. Must check BP prior to each dose 3. Therapeutic effects are enhanced, but adverse effects are increased when patient is sitting upright. 4. Because nitroglycerin causes generalized smooth muscle relaxation, it may be effective in relieving chest pain caused by esophageal spasm. 5. Hypertensive crisis is a sudden and severe increase in blood pressure, up to 200/120 mmHg. If BP is lowered too quickly in the field, infarction of organs can occur.

Racemic Epinephrine

Class/Action	Alpha and beta agonist that decreases swelling in the respiratory membranes and causes bronchodilation.
Indications	1. Upper airway obstruction with moderate to severe respiratory distress
Dosage INTERMEDIATE	***Racemic Epinephrine (Adult/Pediatric): .5 mL (2.25% solution) mixed with 2mL normal saline nebulized, q 20 minutes based on patient response***
Dosage PARAMEDIC	Racemic Epinephrine (Adult/Pediatric): .5 mL (2.25% solution) mixed with 2mL normal saline nebulized, q 20 minutes based on patient response
Contraindications	Same contraindications as epinephrine
Side Effects	1. Tachycardia and agitation are the most common side effects. Since there are also the hallmarks of hypoxia, watch the patient closely. 2. Nebulizer treatment may cause blanching of the skin in the mask area due to local epinephrine absorption. Reassure parents.
Special Notes	1. Mask and noise may be frightening to small children. Agitation will aggravate symptoms of respiratory obstruction. Try to enlist the support of parents for administration. 2. In a less than critical patient, nebulized saline may be enough to bring symptomatic relief from croup. 3. Racemic epinephrine is heat and light sensitive. It should be stored at room temperature in a dark cool place. 4. Clinical improvement in croup can be dramatic after administration, and presentation in the ED may be markedly altered. Rebound worsening of airway obstruction can occur in 1-4 hours.

Sodium Bicarbonate

Class/Action	Sodium bicarbonate is an alkalotic solution which neutralizes acids found in the body. Acids are increased when body tissue become hypoxic due to cardiac or respiratory arrest.
Indications	1. Tricyclic Antidepressant OD (widened QRS, hypotension, seizures)
Dosage PARAMEDIC	*Sodium Bicarbonate (Adult/Pediatric): 1 mEq/Kg of 8.4% solution IV, IO*
Contraindications	1. Should not be given with catecholamines or calcium chloride
Side Effects	1. Hyperosmolality of the blood can occur resulting in cerebral impairment. 2. Addition of too much may result in alkalosis, this is more difficult to correct than acidosis 3. Each ampule of sodium bicarbonate contains 44-50 mEq of sodium This increases intravascular volume which increases workload on the heart.

SoluMedrol

Class/Action	Synthetic steroid that suppresses acute and chronic inflammation. In addition, it potentiates vascular smooth muscle relaxation by beta-adrenergic agonists and may alter airway hyperactivity.
Indications	1. Pharmacological Treatment of Moderate to Severe Respiratory Distress Secondary to Anaphylaxis and Bronchoconstriction
Dosage INTERMEDIATE	*SoluMedrol (Adult): 125 mg IV, IO* *SoluMedrol (Pediatric): 2 mg/Kg IV, IO*
Dosage PARAMEDIC	SoluMedrol (Adult): 125 mg IV, IO SoluMedrol (Pediatric): 2 mg/Kg IV, IO
Contraindications	Gastrointestinal bleeding, diabetes mellitus, or severe infection (all relative)
Side Effects	GI bleeding, headache, hypertension, sodium and water retention, hypokalemia, alkalosis
Special Notes	1. Be aware that the effect of SoluMedrol is generally delayed for several hours. Although it is worthwhile to administer it early in treatment of a patient with severe respiratory distress or anaphylaxis you may not see any effects from the drug for several hours. 2. SoluMedrol is not a first-line drug. Be sure to attend to the patient's primary treatment priorities first. Once primary treatment priorities have been addressed, SoluMedrol can be administered during transport.

Tetracaine

Class/Action	Topical opthalmic anesthetic Onset is within 30 seconds, but duration is only 10-15 minutes
Indications	1. Short-term relief from eye pain or irritation 2. Patient comfort before eye irrigation
Dosage INTERMEDIATE	***Adult: 1-2 drops*** ***Pediatrics: 1-2 drops***
Dosage PARAMEDIC	Adult: 1-2 drops Pediatric: 1-2 drops
Contraindications	1. Open eye injury to the eye 2. Hypersensitivity to tetracaine

Valium

Class/Action	Diazepam acts as a tranquilizer, anticonvulsant, and skeletal muscle relaxant through effects on the central nervous system.
Indications	1. Status Seizure (in the field this will be any seizure which has lasted longer than five minutes, or two consecutive seizures without regaining consciousness, if the patient is seizing upon arrival to scene status seizure can be assumed) 2. Valium for tremors associated with alcohol withdrawal and delirium tremens (mental confusion, constant tremors, fever, dehydration, tachycardia, and/or hallucinations) per protocol. 3. Severe Musculoskeletal Spasms 4. Sedation & Chemical Restraint
Dosage INTERMEDIATE	*Valium (Adult): 1-10 mg IV, IO* *Valium (Pediatric): .3 mg/Kg slow IV, max 10 mg; .5 mg/Kg PR*
Dosage PARAMEDIC	Valium (Adult): 1-10 mg IV, IO Valium (Pediatric): .3 mg/Kg slow IV, max 10 mg; .5 mg/Kg PR
Contraindications	1. Under the influence of alcohol (relative) 2. Shock 3. Respiratory depression
Side Effects	1. Common side effects include drowsiness, dizziness, fatigue, and ataxia. Paradoxical excitement or stimulation can occur.
Special Notes	1. Patients on valium should be placed on oxygen 2. Should not be mixed with other agents or diluted with intravenous solutions. 3. Rectal administration in children should be through a TB/1 cc syringe with the needle removed. Lubrication may be required before insertion of the syringe. The syringe barrel should be completely inserted prior to administration. 4. Can cause significant respiratory depression, apnea, and hypotension especially when used in combination with other sedatives such as alcohol or narcotics. Continuous pulse oximetry, ETCO2, and cardiac monitoring are mandatory. Emergency resuscitative equipment must be immediately available. 5. Consider lower doses for elderly patients; significant respiratory depression, apnea, and hypotension are more frequently encountered.

Versed

Class/Action	Benzodiazepine and anticonvulsant that has properties of CNS depressant, sedative/hypnotic, sleep induction, anxiolysis (reduce anxiety), and amnesitc.
Indications	1. Sedation for Altered Mental Status 2. Sedation Prior to Cardioversion and Transcutaneous Pacing 3. Status Seizure (in the field this will be any seizure which has lasted longer than five minutes, or two consecutive seizures without regaining consciousness, if the patient is seizing upon arrival to scene status seizure can be assumed) 3. Severe Musculoskeletal Spasms
Dosage INTERMEDIATE	1. For Sedation and status seizure patients only …. Not for pain management • *Versed (Adults): 1-5 mg IV, IM, IN* • *Versed (Pediatrics): .1 mg/Kg IV, IM, IN max 5 mg*
Dosage PARAMEDIC	1. Sedation, Status Seizure: • Versed (Adults): 1-5 mg IV, IM, IN • Versed (Pediatrics): .1 mg/Kg IV, IM, IN max 5 mg 2. Muscle Spasm • Versed (Adults): .5-1 mg, max 2 mg IV, IM, IN
Contraindications	1. Glaucoma, depressed vital signs, concomitant use of barbiturates, alcohol, narcotics, or other CNS depressants (relative) 2. Shock, coma
Side Effects	Respiratory depression, hiccup, cough, oversedation, pain at the injection site, nausea and vomiting, and headache
Special Notes	1. Patients on versed should be placed on oxygen 2. Should not be mixed with other agents or diluted with intravenous solutions. 3. Can cause significant respiratory depression, apnea, and hypotension especially when used in combination with other sedatives such as alcohol or narcotics. Continuous pulse oximetry, ETCO2, and cardiac monitoring are mandatory. Emergency resuscitative equipment must be immediately available. 4. Consider lower doses for elderly patients; significant respiratory depression, apnea, and hypotension are more frequently encountered.

Zofran

Class/Action	Serotonin is released from cells in the small intestine. The released serotonin may stimulate the vagal afferent nerves through the 5-HT3 receptors, thus stimulating the vomiting reflex. Zofran is a 5-HT3 antagonist and blocks this effect of serotonin.
Indications	1. Prolonged nausea and vomiting
Dosage INTERMEDIATE	*Zofran (Adult): 4 mg IM, IV, second dose PRN. 8 mg PO.* *Zofran (Pediatric): .1 mg/Kg IV, IM, not to exceed 4 mg, second dose PRN*
Dosage PARAMEDIC	Zofran (Adult): 4 mg IM, IV, second dose PRN. 8 mg PO. Zofran (Pediatric): .1 mg/Kg IV, IM, not to exceed 4 mg, second dose PRN
Contraindications	1. Children under the age of 3 years 2. Liver impairment
Special Notes	Zofran administration can result in prolonging the QT interval. Patient with pre-existing Prolonged QT Syndrome or patient at risk of a prolonged QT interval (low magnesium, low potassium, taking medications that can prolong the QT interval), can be at risk of sudden cardiac arrest with Zofran administration. If you are concerned the patient is at risk of a prolonged QT interval, consider checking their ECG prior to administration.

Interfacility Transport Formulary

Amiodarone Infusion

Class/Action	Amiodarone is a very complex drug with actions upon sodium, potassium, and calcium channels as well as alpha and beta-adrenergic blocking properties.
Indications	1. VF/VT 2. Successfully defibrillated from VF/VT 3. Wide Complex Tachycardia with a Pulse
Dosage PARAMEDIC	1. Dose is dependant on sending physician ’s orders.
Contraindications	1. Ventricular escape beats or accelerated IVR 2. Pulmonary congestion and cardiogenic shock (relative) 3. WPW (relative) 4. Sympathomimetic toxidromes, i.e., cocaine or amphetamine overdose (relative)
Side Effects	Hypotension, cardiogenic shock, pulmonary congestion
Special Notes	1. Amiodarone has potentially life-threatening side effects, and multiple complex drug interactions.

Interfacility Transport Formulary

Antibiotics

Class/Action	Antimicrobial compounds used to kill or inhibit the growth of bacteria.
Indications	1. Used to treat or prevent known or suspected bacterial infections
Dosage PARAMEDIC	1. Dose is dependant on sending physician ' s orders.
Contraindications	1. A known or suspected allergy to certain types of antibiotics.
Side effects	1. Major concern is allergic reaction ranging from minor to severe 2. Nausea 3. Vomiting 4. Diarrhea

Interfacility Transport Formulary

Blood Components

Class/Action	Whole blood components and/or blood derivatives used in the treatment of blood loss, transfusions and surgical procedures.
Indications	1. Blood loss due to trauma and / or medical ailments. 2. Transfusions 3. Post or preoperative procedures.
Dosage PARAMEDIC	1. Dose is dependant on sending physician ' s orders.
Contraindications	1. None if properly matched to pts blood type.
Side effects	1. Vascular overload if not properly monitored. 2. Pulmonary edema 3. Allergic reaction

Interfacility Transport Formulary

Colloid Solutions

Class/Action	Volume expanding fluid which acts by raising osmotic pressure within the vascular space.
Indications	1. Fluid resuscitation 2. Conditions with loss of large amounts of proteins
Dosage PARAMEDIC	1. Dose is dependant on sending physician ’s orders.
Contraindications	1. Hypersensitivity to certain colloids.

Interfacility Transport Formulary

Crystalloid Solutions

Class/Action	Isotonic fluid used for fluid replacement or in combination with drug delivery.
Indications	1. Fluid resuscitation 2. Hypovolemia 3. Heat exhaustion
Dosage PARAMEDIC	1. Dose is dependant on sending physician ' s orders.
Contraindications	1. CHF
Side effects	1. Volume overload 2. CHF 3. Diuresis

Interfacility Transport Formulary

Diltiazem

Class/Action	Calcium channel blocker which decreases SA and AV conduction and prolongs AV node refractory periods.
Indications	1. A-Fib 2. A-Flutter 3. MAT 4. PSVT 5. Angina
Dosage PARAMEDIC	1. Dose is dependant on sending physician ’s orders.
Contraindications	1. Sick Sinus Syndrome 2. 2nd or 3rd Degree AV block without pacemaker 3. Hypotension 4. AMI or cardiogenic shock 5. VT or wide complex tachycardia of unknown origin
Side Effects	1. Heart Block 2. Bradycardia 3. Hypotension

Interfacility Transport Formulary

Dobutamine

Class/Action	Synthetic Sympathomimetic Low doses—Acts selectively on beta 1 –adrenergic receptors which increase contractility. Higher doses—Increases HR and stimulates beta 2—adrenergic receptors which causes vasodilation.
Indications	1. CHF 2. Cardiac decompensation
Dosage PARAMEDIC	1. Dose is dependant on sending physician's orders.
Contraindications	1. Tachydysrhythmias 2. Severe hypotension
Side Effects	1. Dysrhythmias 2. Hypertension 3. Ventricular ectopy

Interfacility Transport Formulary

Glycoprotein Inhibitors

Class/Action	Anticoagulant group which is used to prevent platelets from binding together. Often used in conjunction with aspirin or heparin.
Indications	1. Unstable angina 2. MI 3. Angioplasty
Dosage PARAMEDIC	1. Dose is dependant on sending physician ' s orders.
Contraindications	1. History of abnormal bleeding within the past 30 days 2. Severe hypertension 3. Major surgery within past 30 days 4. History of CVA within past 30 days
Side Effects	1. Bleeding is most common 2. Allergic reaction

Interfacility Transport Formulary

Heparin

Class/Action	Anticoagulant. Potenientates the inhibitory action of antithrombosis.
Indications	1. ACS 2. A-Fib 3. DVT 4. PE 5. Cardiac Surgery
Dosage PARAMEDIC	1. Unfractionated Heparin or Low Molecular Weight Heparin may be prescribed. Dose will be dependant on sending physician ' s orders.
Contraindications	1. Active bleeding 2. Hemophyllia 3. Purpura 4. Thrombocytopenia
Side Effects	1. Hemorrhage ranging from minor to severe

Interfacility Transport Formulary

IV Nitroglycerin

Class/Action	Antianginal nitrate which relaxes vascular smooth muscle, resulting in peripheral vasodilation.l
Indications	1. Chest pain 2. Pulmonary Hypertension 3. CHF 4. Hypertensive crisis
Dosage PARAMEDIC	1. Dose is dependant on sending physician ’s orders.
Contraindications	1. Head trauma 2. Hypotension 3. Hypovolemia 4. Sildenafil citrate （Viagra） within 24 hours
Side Effects	1. Hypotension 2. Reflex tachycardia 3. Nausea and vomiting

Interfacility Transport Formulary

Insulin

Class/Action	Hormone and antihyperglycemic which combines with insulin receptors present on cell membranes and promotes glucose entry into the cells and lowers the blood glucose levels.
Indications	1. Diabetic ketoacidosis 2. Hyperglycemia 3. Hyperkalemia
Dosage PARAMEDIC	Dose is dependant on sending physician ' s orders.
Contraindications	1. Should be administered ONLY after hyperglycemia and / or ketoacidosis have been confirmed.
Side Effects	1. Hypoglycemia 2. Allergic reaction

Interfacility Transport Formulary

Lidocaine Infusion

Class/Action	1. Antiarrhythmic that suppresses ventricular ectopy, increases ventricular fibrillation threshold, and reduces velocity of electrical impulses through the conduction system.
Indications	1. Antiarrhythmic which acts by shortening the refractory period and suppresses the automaticity of ectopic foci.
Dosage PARAMEDIC	1. Dose is dependant on sending physician ' s orders.
Contraindications	IVR, ventricular escape rhythm, 2nd or 3rd degree block, PVC ' s associated with bradycardia
Side Effects	Anxiety, seizures, N/V, drowsiness, widening of the QRS
Special Notes	Consider half dose for patients over 70 YO, history of CHF, or liver disease

Interfacility Transport Formulary

Mannitol

Class/Action	Osmotic diuretic that inhibits sodium and water absorption in the kidneys, which promotes movement of fluid from the intracellular into the extracellular space.
Indications	1. Acute cerebral edema 2. Blood transfusion reactions
Dosage PARAMEDIC	Dose is dependant on sending physician ' s orders.
Contraindications	1. Acute pulmonary edema 2. Profound hypovolemia
Side Effects	1. Chills 2. Headache 3. Dizziness 4. Chest pain 5. Nausea and vomiting

Interfacility Transport Formulary

Potassium Chloride

Class/Action	Potassium is the major cation of intracellular fluid and is essential for the conduction of nerve impulses in heart, brain, and skeletal muscle; contraction of cardiac, skeletal and smooth muscles; maintenance of normal renal function, acid-base balance, carbohydrate metabolism, and gastric secretion.
Indications	Treatment or prevention of hypokalemia
Dosage PARAMEDIC	Dose is dependant on sending physician ’s orders.
Contraindications	1. Severe renal impairment 2. Hyperkalemia 3. Addison ’s disease
Side Effects	1. Dysrhythmias 2. Nausea and vomiting 3. Heart block 4. Abdominal cramping
Special Notes	Use with caution in pts with cardiac disease and renal impairment

Interfacility Transport Formulary

TPN/Vitamins

Class/Action	Supplements that contain vitamins, minerals, electrolytes, carbohydrates, proteins and fats.
Indications	1. Malnourishment 2. Pt ' s who cannot eat for any given reason 3. Pts with deficiencies in any given vitamin or mineral
Dosage PARAMEDIC	1. Dose is dependant on sending physician ' s orders.
Contraindications	1. In cases of pathologic conditions where additives of potassium, calcium, magnesium, etc…..could be clinically dangerous. 2. Anuria 3. Hyperkalemia 4. Heart block 5. Myocardial damage
Side effects	1. An excess or deficit of one or more of the ions present in the solution being given. 2. Fluid overload