Albuquerque Bernalillo County Emergency Medical Services System Protocols and Guidelines

EMT - Basic - Intermediate – Paramedic
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Airway Section [A]

A-1 Airway Management & Intubation Guidelines

Designation of Condition: All Patients who are apneic or severely hypoxic and/or bradypneic should be managed with basic airway maneuvers and BVM initially. Those patients 13 years and older and/or greater than 40 kg who are unresponsive to oxygen and basic airway maneuvers (jaw thrust, foreign body removal, BVM) should be managed with more advanced maneuvers, including an Extraglottic Airway Device or endotracheal tube placement.

Patients 12 and younger and/or less than 40 kgs are ONLY to be managed by basic airway maneuvers OR, if needed, Extraglottic Airway Device placement.

NOTE: ENDOTRACHEAL INTUBATION IN PATIENTS 12 AND YOUNGER AND/OR LESS THAN 40 KGS IS NOT ALLOWED.

ALL PROVIDERS

BVM: Pay close attention to technique. Remember to bring the jaw and mouth to mask rather than pushing the mask down upon the patients' mouth and nose—which may occlude the lower airway. DO NOT insufflate the stomach. Avoid generating high intra-thoracic pressures; ventilate slowly. If possible have an assistant provide cricoid pressure (Sellick's maneuver) during ventilations to prevent air from entering the stomach. When utilizing Sellick's maneuver, avoid excessive pressure, so as not to obstruct the trachea.

NOTE: Health care providers often deliver excessive ventilations with BVM and when advanced airways are in place. Excessive ventilation is detrimental because it:

- Impedes venous return and therefore decreases cardiac output and cerebral blood flow
- Increases intrathoracic pressures and therefore decreases coronary artery perfusion pressure
- Causes air trapping and baro-trauma
- Increases risk of regurgitation and aspiration

NOTE: During CPR ventilation rates should not exceed 8-10 breaths per minute through advanced airway device (one breath every 6 seconds).

Extraglottic Airway Device Placement: In certain situations, an Extraglottic Airway Device (if available) may be the preferred initial method of airway control over endotracheal intubation in patients 13 years and older and/or greater than 40kgs, or used as a salvage device if intubation attempts are unsuccessful. If employed, follow procedures as outlined for Extraglottic Airway Device.

Documentation: The run report should include patient mental and respiratory status, all procedures done, pre-oxygenation, ease of Extraglottic Airway Device insertion, and how Extraglottic Airway Device placement was confirmed and maintained.

PARAMEDIC

Oral Intubation (Patients 13 and older and/or greater than 40 kgs ONLY) : Before intubation the patient should be pre-oxygenated with a BVM with high flow oxygen. Cricothyroid pressure (Sellick's maneuver) is no longer routinely recommended but may be applied to minimize gastric distention during BVM. Release pressure if patient is actively vomiting. During intubation, the use of external laryngeal manipulation is encouraged. In most situations, providers should make no more than 2 intubation attempts before moving to an alternate advanced airway.

- Insert Adult Bougie (if available)
- Usual tube Size: 7.0 - 8.0 mm for oral intubation of adults and 6.0 - 7.0 mm for nasal intubation of adults

Confirming tube placement:

- Always auscultate both sides of chest and stomach.
- Frequent reassessment of ETT during transport and after any move/transfer to confirm placement is mandatory.
- Adjuncts for confirming tube placement:
- Utilize EtCO2 detection as an adjunct for ETT confirmation on all intubated patients. Place an end tidal CO2 detector (colorimetric or quantitative device) between the ETT and BVM.
- If quantitative capnography is available, attach and monitor waveform and capnometry readings.
- Consider using a Toomey syringe or other esophageal detector device. Aspirate the ETT; if 30 ml of air can be drawn freely into the syringe, the tube is likely in the trachea.
- Prior to releasing intubated patient to receiving hospital, physician, or respiratory therapist, appropriate ET tube placement and patency should be confirmed.

Nasal Intubation: Nasal intubation has limited applications, and several drawbacks. It should be employed only when absolutely necessary, in patients with spontaneous respirations. It is contraindicated in combative patients, in the context of severe facial trauma, and in the presence of a known coagulopathy. It is strongly discouraged in cases of increased intracranial pressure, unless airway control is otherwise unobtainable.

- Nasal intubation should be preceded by nasal phenylephrine and xylocaine® jelly 2% if time permits.

- Do not force tube. Epistaxis (posterior and anterior) is a common complication to this procedure.
- Guidable (Endotrol) tube is preferred. In most patients 6.0 - 7.0 tube size should be chosen.
- Pre-oxygenate with high flow O2.
- Choose most patent nostril. If no difference, use right nares.
- If patient becomes combative, cease attempt; as epistaxis and/or turbinate damage may ensue.
- Gently insert tube into nostril. The tube should be turned so that the bevel is away from the septum. Once the tip of the tube is past the inferior turbinate it should be directed caudal to follow the gentle down sloping floor of nose. Proceed very slowly and carefully. Once the nasopharynx is entered, restore tube to normal (sagittal) position.
- Advance tube until breath sounds maximal. Advance tube gently but firmly through cords during inspiration.
- Confirming tube placement (See above.)

Documentation: The run report should include patient mental and respiratory status, all procedures done, pre-oxygenation, ease of intubation, all medication given, and cricothyroid pressure use, how tube placement was confirmed and maintained.

Post-Intubation Sedation to maintain ETT patency and maximize ventilation compliance:

- Should this need arise, use the following sedation dosing guidelines. Closely monitor blood pressure, SaO2 and ETCO2.
  Midazolam (preferred):
    - Adult: Titrate in 1-2 mg increments SIVP q 3-5 minutes to a maximum of 5.0 mg
- Diazepam (may be used as an alternative to Midazolam):
    - Adult: Titrate to a total of 0.2 mg/kg not to exceed 5 mg/min
- If additional doses of Midazolam or Diazepam are required to achieve/maintain adequate sedation, contact MCEP.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 2/19/2014	Revision # 11	Implemented 4/1/2014

A-2 Adult Foreign Body Airway Obstruction

Designation of Condition: Patient may present unable to speak, breathe or cough and may clutch his/her neck between the thumb and fingers. Movement of air will be absent in complete airway obstruction - a life-threatening emergency.

ALL PROVIDERS

- Establish level of responsiveness
- Determine history of witnessed or suspected aspiration

Conscious Patient

- If good air exchange, encourage the patient to cough as long as cough is persistent & effective and respiratory distress is minimal. Monitor closely and transport ASAP.
- If patient unable to speak or cough, or if poor air exchange (e.g., ineffective cough, significant stridor, cyanosis), treat as complete airway obstruction:
- Perform sub-diaphragmatic abdominal thrusts until obstruction is relieved or victim becomes unconscious. (Use chest thrusts in patients with marked obesity and during late stages of pregnancy.)

Unconscious Patient

- If event unwitnessed, establish unresponsiveness.
- Turn patient unto back as a unit, supporting head and neck. Patient should be face up with arms at side.
- Perform head-tilt/chin lift maneuver, if no trauma suspected. If trauma suspected, perform trauma jaw thrust. Maintain open airway. Look, listen, and feel for any signs of respiratory effort.
- Attempt to ventilate patient. If unable, reposition head and attempt to ventilate again.
- If unable to ventilate begin 2 minute cycle of CPR (30:2 compressions/ventilations). Prior to each ventilation cycle, attempt to visualize the airway. If a foreign object is visualized, perform finger sweep and remove object. If no object is visualized, do not perform blind finger sweep.

PARAMEDIC

Unconscious Patient

- If still unable to ventilate, perform direct laryngoscopy and attempt to visualize and remove obstruction. Use Magill forceps, if indicated, to retrieve foreign body.
- Minimize interruption of chest compressions while performing direct laryngoscopy.
- Intubate if necessary.
- Ventilate with high flow oxygen.
- If unable to visualize and remove obstruction, and still unable to ventilate or intubate, and patient condition is deteriorating, perform cricothyrotomy.

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A-3 Pediatric Foreign Body Airway Obstruction

Designation of Condition: The infant/child may present with respiratory distress associated with coughing, wheezing, gagging or stridor. Movement of air will be absent in complete airway obstruction. This is a true life-threatening emergency.

ALL PROVIDERS

- Establish level of responsiveness.
- Determine history of witnessed or suspected aspiration: sudden onset of coughing, gagging, wheezing or stridor with respiratory difficulty.
- Consider epiglottitis, croup or other infections as an etiology, and refer to that specific protocol.

Conscious INFANT or CHILD

- If good air exchange, optimally position the patient and encourage the infant/child to persist with coughing as long as cough is effective and respiratory distress is minimal.
- Give oxygen via blow-by as tolerated.

Conscious INFANT with severe obstruction (increasing respiratory difficulty and ineffective cough)

- Deliver 5 back blows
- Deliver 5 chest thrusts
- Repeat sequence until foreign body is expelled or infant becomes unconscious

Conscious CHILD with severe obstruction (increasing respiratory difficulty and unable to speak or cough)

- Perform abdominal thrust maneuver until foreign body is expelled or child becomes unconscious

Unconscious INFANT or CHILD

- Check for foreign body. If visible, remove with finger sweep (no blind finger sweep if not visible).
- Open airway with head tilt-chin lift (use jaw thrust if trauma suspected).
- Attempt to ventilate. If unable, reposition airway and reattempt ventilation.
- If unable to ventilate, begin 2 minute cycle of CPR (15:2 compressions/ventilations). Prior to each ventilation cycle, attempt to visualize the airway. If the foreign object is visualized, perform finger sweep and remove object. If no object is visualized, do not perform blind finger sweep.

PARAMEDIC

Unconscious INFANT or CHILD

- Direct laryngoscopy should be done if unable to adequately ventilate. Use Magill forceps to retrieve foreign body if it is visible. Minimize interruption of chest compressions while performing direct laryngoscopy. Ventilate with BVM with high flow oxygen or mouth to mask.
- Ventilate for gentle chest rise.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 02/19/2014	Revision # 6	Implemented 04/01/2014

A-4 Pediatric Croup, Epiglottitis

Designation of Condition: When severe, patient will be stridorous and in respiratory distress. Remember to consider foreign body aspiration in your differential diagnosis. Watch for drooling (common in epiglottitis), and listen for a barking cough (common in croup).

ALL PROVIDERS

- Keep patient comfortable and quiet with parent. No invasive procedures.
- Allow patient to assume position of comfort.
- Administer cool humidified oxygen or nebulized saline.
- Monitor HR and respirations continuously.
- In the event of respiratory arrest or extremis:
  - Provide positive pressure ventilation with BVM using high flow oxygen.
- Transport ASAP
- Call ahead to receiving facility ASAP.

PARAMEDIC

- If patient is in significant respiratory distress, and has audible stridor AT REST (i.e., when not crying), administer one dose only of nebulized Epinephrine (1:1000): 0.05 mg/kg (maximum dose 3 mg) in NS, to a total volume of 3 ml. Contact MCEP if repeat dosing required.
- If unable to adequately ventilate with BVM, consider Extraglottic Airway Device.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 02/19/2014	Revision # 5	Implemented 04/01/2014

A-5 Confirmation of Endotracheal Tube Placement

Designation of Condition: Confirmation of correct ET tube placement is critical. Traditional methods of confirming correct tube placement include: visualizing the ETT passing through the vocal cords, auscultation of clear and equal bilateral breath sounds, absence of air sounds over the epigastrium, observation of symmetric chest rise and fall, visualizing condensation ("misting") in the tube, and monitoring of SpO_2. Unfortunately, all have been shown to have limitations and are subject to failure, resulting in undetected misplacement or displacement of ET tubes into the esophagus or hypopharynx. Reliable confirmation of ET tube placement is best achieved by combining all appropriate traditional methods with one or more of the methods discussed below. Application of an end-tidal CO_2 detector device is mandatory for all intubated patients.

PARAMEDIC

Colorimetric $EtCO_2$ Detector Device
Indications: Initial and continuous confirmation of ETT placement in patients with or without pulses

Colorimetric $EtCO_2$ detectors are extremely accurate when used on patients with peripheral circulation sufficient to produce palpable pulses.

- Yellow (patients with or without pulses): Color change from purple to yellow indicates presence of exhaled CO_2 and tracheal intubation
- Purple (patients with pulses): No change of color to yellow indicates lack of exhaled CO_2 and esophageal intubation
- Purple (patients without pulses): ET tube placement indeterminate; in such cases, repeat laryngoscopy and/or use of an esophageal detector device will be helpful.
- Consider transition to quantitative capnography for continued monitoring when available.

Quantitative Capnography
Indications: Initial confirmation and continuous reassessment of correct ETT placement in patients with or without pulses

- Tracheal placement: Tracheal ETT placement creates a normal rectangular waveform or an expected variant of the normal waveform.
- Esophageal placement: Esophageal ETT placement results in a flat-line capnographic display. Esophageal placement cannot create a normal/normal variant capnographic waveform, even if CO_2 is present in the stomach and reflected by a measured capnometric value.

Limitations of quantitative capnography:

- Cardiac arrest/severely low blood flow states: The lowest level of CO_2 that can create a reliable waveform and capnometric value is unknown. In the setting of cardiac arrest, use all available advanced airway assessment techniques and adjuncts as appropriate to confirm proper ETT placement.

Toomey Syringe / Esophageal Detector Device (EDD)
Indication: Initial or ongoing assessment of ET tube placement when $EtCO_2$ detection results are indeterminate (patients without pulses)

Method: Attach Toomey syringe (or other EDD) to ET tube adaptor and attempt to rapidly withdraw a large volume of air. If able to rapidly withdraw at least 30 ml of air, the ETT is almost certainly placed in the trachea (unless the tip of the ETT is very shallow and in the hypopharynx). If unable to easily and rapidly withdraw 30 ml free air, the ETT should be considered in the esophagus.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 12/15/10	Revision # 1	Implemented 04/01/11

A-6 Combitube (Multi-lumen Airway)

Designation of Condition:

- BLS – A primary airway device to secure a patent airway in the indicated patient population.
- ALS – A secondary airway device to be used after 2 attempts at normal intubation have failed or when intubation is not practical.

ALL PROVIDERS

Indications: Patient is unconscious and unable to protect own airway, no apparent gag reflex.

- Use 37 F "Small Adult" devices for patients 4 to 6 feet tall.
- Use 41 F "Large Adult" devices for patients over 6 feet tall.

Contraindications

- Responsive patients with an intact gag reflex.
- Patients with known esophageal disease.
- Patients who have ingested caustic substances.
- Known or suspected foreign body obstruction of the larynx or trachea.
- Patients under 4 feet in height.

Insertion

- Prior to Combitube insertion the patient should be pre-oxygenated with a BVM and high flow 0_2. Cricothyroid pressure (Sellick's maneuver) should be applied to minimize gastric distention during BVM.
- The recommended position for the patient's head is in the neutral position.
- Lubricate the device with a water-based lubricant.
- In the supine patient, insert the thumb of a gloved hand into the patient's mouth, grasping the tongue and lower jaw between the thumb and index finger, and lift upward.
- When facial trauma has resulted in sharp, broken teeth or dentures remove debris and exercise extreme caution when passing the Combitube into the mouth to prevent the cuff from tearing.
- With the other hand, hold the Combitube with the curve in the same direction as the curve of the pharynx. DO NOT APPLY CRICOID PRESSURE DURING INSERTION OF THE COMBITUBE. Insert the tip into the mouth and advance along the true midline of the oropharynx. Advance carefully and gently until the printed ring is aligned with the teeth. Caution: DO NOT FORCE THE COMBITUBE. If the tube does not advance easily, redirect it (to true midline) and reinsert. Have suction available and ready whenever withdrawing tube.
- If the Combitube is not successfully placed within 30 seconds, remove the device and ventilate and pre-oxygenate the patient for 30 seconds using basic methods, as described above, before re-attempting insertion.

Ventilation

- Once successfully inserted, inflate the proximal (#1) blue pilot balloon leading to the large pharyngeal cuff with 85 ml of air using the large syringe provided (100 ml for the Large Adult Combitube). Do not hold the Combitube tightly while inflating the pharyngeal cuff; it needs to be able to move to properly seat in the patient's mouth.
- Inflate the distal (#2) white pilot balloon leading to the distal esophageal cuff with approximately 10 ml of air using the small syringe (15 ml for the Large Adult Combitube).
- Begin ventilation through the longer blue tube. Watch for chest rise. If auscultation of breath sounds is positive and auscultation of gastric air sounds is negative, continue ventilation. The presence of air entry into the lungs and absence of gastric insufflation indicates the Combitube is in the esophagus, which occurs virtually all the time. If available, quantitative $EtCO_2$ detection may be used to assess ventilations.
- If no chest rise, negative lung sounds, and/or positive gastric air sounds with ventilation through the blue tube, the Combitube is likely in the trachea, and ventilation should be provided through the shorter clear tube. Confirm ventilation with chest rise, presence of auscultated lung sounds, and absence of gastric air sounds.
- If Combitube is placed in the trachea (adequate ventilations achieved through clear tube), verify placement with $EtCO_2$ detector (if available) or esophageal detector device.
- If there is no chest rise or positive lung sounds through either tube, remove the device, ventilate and oxygenate the patient for 30 seconds, and repeat the insertion/inflation/ventilation procedures. (Providers may also consider placing an LMA.)

- After successful insertion, ventilate the patient through the tube that resulted in lung sounds using a BVM.
- REASSESS TUBE PLACEMENT FOLLOWING EVERY PATIENT MOVEMENT.

Removal of Combitube: At direction of Medical Control or when attempting reinsertion, or if the patient awakens. Remove Combitube as follows:

- Place the patient on side if practical
- Have suction ready
- Deflate #1 blue pilot balloon leading to the large pharyngeal cuff
- Deflate #2 white pilot balloon leading to the small esophageal cuff
- Remove Combitube
- Be prepared for vomiting

Exchange of Combitube with endotracheal tube: Some ED physicians are unfamiliar with the Combitube and may require your assistance to intubate around the Combitube. Always keep the inflation/deflation syringes with the device when you relinquish patient care.

1. Have suction ready
2. Deflate #1 blue pilot balloon leading to the large pharyngeal cuff.
3. Keep #2 white esophageal cuff inflated (to help prevent regurgitation).
4. Insert ETT around Combitube and inflate cuff. Begin ventilations. Secure ETT.
5. Deflate #2 white pilot balloon and remove Combitube from patient.

SUCTIONING THROUGH THE COMBITUBE:
When suctioning the patient through the Combitube, always introduce the suction catheter through the clear tube.

Esophageal Placement: ALL PROVIDERS
Because the Combitube will usually be in the esophagus, most through-the-tube suctioning will be gastric suctioning and will result in decreased gastric distension. Gastric suctioning via the Combitube may be performed by all providers.

Tracheal Placement: PARAMEDIC
In the event the Combitube is in the trachea, placement of the suction catheter into the clear tube will result in tracheal suctioning. Tracheal suctioning may be performed by Paramedics only.

MCB Action	Passed 12/16/04	Implemented 04/01/05	Revised 12/15/10	Revision # 1	Implemented 04/01/11

A-7 Continuous Positive Airway Pressure (CPAP)

PARAMEDIC

Definition: CPAP is a non-invasive procedure designed to improve lung mechanics by improving pulmonary compliance and increasing pressure within the airway, and by a reduction of the work of breathing.

Indications:

- Acute respiratory distress in patients with severe CHF/cardiogenic pulmonary edema with systolic blood pressures >90 mmHg
- Severe dyspnea secondary to asthma, chronic obstructive pulmonary disease, and patients with severe pulmonary compromise who are awake and oriented, (GCS>10) and have the ability to maintain an open airway and are refractory to Albuterol therapy (if indicated) alone.
- Near Drowning patients who are conscious and able to follow directions

Contraindications:

- Inability to use mask (e.g., uncooperative patient, facial trauma or facial anomalies)
- Immediate need for intubation (e.g., respiratory or cardiac arrest)
- Profoundly diminished level of response
- Hemodynamic instability or life-threatening arrhythmia
- Active vomiting or GI Bleed
- Excessive secretions
- Head trauma with SxS of increased intracranial pressure
- Penetrating chest trauma or Pneumothorax
- Explosive Barotrauma

Relative Contraindication: Suspected Pneumonia is a relative contraindication.

Procedure:

- Follow the appropriate respiratory emergency protocol (see AC-9).
- Place patient in an upright & seated position, alternatively, position head of bed at 45-degree angle.
- Regularly assess vital signs and respiratory rate.
- Continuously monitor heart rhythm and oxygen saturation.
- Apply nasal cannula end-tidal CO2 (ETCO2) capnography prior to placement of CPAP (if available)
- Apply CPAP operating system (CPAPos) and titrate to a maximum of 10 cmH_2O.
- Monitor for gastric distention and arrhythmia.
- Treatment should be given continuously throughout transport to ED.
- Continually assess patient for changes and need for additional interventions and/or medications.
- Vital signs q5 minutes
- In the event of life-threatening complications:
  - Stop treatment
  - Offer reassurance
  - Institute BLS/ALS support per appropriate protocol
- Notify ED early to prepare for appropriate pulmonary support.
- Do not leave patient unattended while CPAP is in place.

IN CIRCUMSTANCES WHEN THE PATIENT DOES NOT IMPROVE OR CONTINUES TO DETERIORATE DESPITE CPAP AND/OR MEDICATION THERAPY, TERMINATE CPAP ADMINISTRATION AND PERFORM BVM VENTILATION AND INVASIVE AIRWAY PROCEDURE IF REQUIRED.

MCB Action	Passed 01/16/08	Implemented 04/01/08	Revised 07/17/2013	Revision # 2	Implemented 10/01/2013

A-8 Cricothyrotomy, Vertical Approach

Designation of Condition: Cricothyrotomy may be attempted in an unconscious patient >12 years old with immediate life threatening airway compromise and when other modalities of airway management are ineffective or contraindicated.

PARAMEDIC

- Locate and identify cricothyroid membrane and prep with betadine.
- Identify the thyroid cartilage and palpate the inferior border. The cricoid cartilage is the hard cartilaginous ring inferior to the thyroid cartilage. The cricothyroid membrane is situated between the two structures.
- Make a vertical incision through the skin over the cricothyroid membrane 2-3 cm. with sufficient depth to expose the cricothyroid membrane. Horizontally puncture the membrane with the scalpel to facilitate access to the trachea.
- Insert and maintain airway with a cuffed endotracheal tube (in most adults, a 6 mm tube will suffice). Advance cuff 2 centimeters past the opening and inflate the cuff.
- Use all standard methods for confirming ETT placement. Visualize chest excursion and auscultate lung fields and epigastrium. Monitor pulse oximetry. Place a colorimetric or quantitative $EtCO_2$ detector device between the ETT and BVM to further confirm proper placement and ventilation.
- Consider using a Toomey syringe or other esophageal detector device; if 30 ml of air can be drawn freely into the syringe, the tube is almost certainly in the trachea.
- Secure the tube and optimize ventilation with high flow oxygen.
- Prior to releasing intubated patient to receiving hospital physician or respiratory therapist, you <u>must</u> reconfirm tube placement and patency.
- Contact MCEP if possible, for further orders.
- The service medical director will review all cricothyrotomy attempts.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 12/15/10	Revision # 2	Implemented 04/01/11

A-9 Laryngeal Mask Airway (LMA Supreme™)

Designation of Condition: Patients with apnea, severe hypoxia or bradypnea should be primarily managed with basic airway maneuvers and good BVM technique. Those unresponsive to oxygen and basic airway maneuvers (jaw thrust, foreign body removal, BVM) should be managed with more advanced maneuvers and devices such as the LMA Supreme (SLMA).

ALL PROVIDERS

BLS – The SLMA is a BLS advanced airway option utilized when either basic ventilatory technique is inadequate or more definitive airway security is needed. The SLMA is the primary advanced airway in children.

ALS – SLMA may be used as a primary adult airway device or as a secondary adult airway device when attempts at intubation have failed or when intubation is not practical. The SLMA is the primary advanced airway device in children. The SLMA provides good aspiration protection, though not as definitive as endotracheal intubation.

Indications:

- Patient is unconscious without protective airway reflexes.
- Providers are unable to adequately ventilate and oxygenate patient using basic airway management.

Absolute Contraindication:

- Responsive patient with an intact gag reflex

Relative Contraindications:

- Laryngeal edema
- Patients who have ingested caustic substances

Preparation:

- Optimize oxygenation and ventilation while preparing equipment.
- Select the appropriate size SLMA using the OPA method:
  - Find the OPA that fits correctly between the angle of the patient's jaw and the corner of the mouth. Use the OPA and Table 1 as a baseline for sizing #3, #4 or #5 SLMA.
  - If faced with a choice between two sizes, choose the smaller size.
  - Rule of Thumb: average size adults - #4; small adult/large child - #3; large adults - #5
- When the SLMA required is less than a size #3, refer to Table 2 (weight based method).

Table 1 (Adult - Sizes 3, 4 and 5)

OPA SIZE	SLMA SIZE	MAXIMUM SIZE OG TUBE	RECOMMENDED MAXIMUM INFLATION VOLUME
80 mm	3	14 Fr.	30 ml
90 mm	4	14 Fr.	45 ml
100 mm	5	14 Fr.	45 ml

Table 2 (Pediatric - Sizes 1 and 2)

SLMA SIZE	PATIENT WEIGHT	MAXIMUM SIZE OG TUBE	RECOMMENDED MAXIMUM INFLATION VOLUME
1	less than 5 kg	6 Fr.	5 ml
2	10-20 kg	10 Fr.	12 ml

- Inspect SLMA for cuff tears, obstructions in tube, etc.
- Inflate cuff with one-half the maximum recommended volume of air to ensure that it does not leak.
- Completely deflate cuff and lubricate palatal side prior to insertion.

Insertion:
- If C-spine injuries are NOT suspected, place the head in the neutral or slight "sniffing" position.
  - NOTE: If C-spine injuries are suspected maintain the head in neutral position.
- Do not apply cricoid pressure during insertion.
- Insert SLMA maintaining gentle pressure against the palate and following the natural curvature of the airway. Do not push tongue back into the hypopharynx during insertion.
- Insert until resistance is felt as the distal end of the SLMA meets the upper esophageal sphincter.
- The integral bite block should lie between the teeth.
  - If >2 cm of the integral bite block extends outside of the mouth, use smaller size SLMA.
  - If the fixation tab presses on the upper lip, change the SLMA to the next larger size.

Inflation:
- Inflate the cuff initially with one-half the maximum recommended volume. Assess ventilation and assess for air leaks around the cuff. Inflate with just enough air to achieve a seal sufficient to permit ventilation without leaks.
  - Note: Over-inflation can result in an inadequate seal and excessive cuff pressure.
  - Never inflate cuff with more than the maximum recommended volume.

Ventilation:
- Attach BVM and ventilate the patient. Listen for lung and epigastric sounds, and observe for bilateral chest rise.
  - These clinical assessment parameters for appropriate SLMA placement are of paramount importance as qualitative $EtCO_2$ (colorimetric) devices are not recommended.
  - If quantitative $EtCO_2$ waveform capnography is available it may be utilized to monitor trends in ventilatory efforts.

Fixation:
- Tape across the fixation tab so the tape adheres to the patient's cheeks and the SLMA is gently pressed inward.

Gastric Suctioning:
- The drain tube facilitates channeling of fluids and gases emerging from the stomach.
- Suction should not be applied directly to the end of the drain tube port, as this may cause the drain tube to collapse and might injure the upper esophageal sphincter.
- To facilitate gastric drainage, a 14 Fr. orogastric tube may be passed through the drain tube port into the stomach at any time.
  - Refer to Tables 1 and 2 for maximum OG tube sizes.
- The gastric tube should be well lubricated and passed gently.
- Suction should not be performed until the gastric tube has reached the stomach.

Reassessment:
- Reassess frequently to ensure proper SLMA placement, cuff inflation, and adequacy of ventilation and oxygenation.

Special Considerations:
- If SLMA has been placed prior to your arrival:
  - Device may be left in place for transport if ventilation and oxygenation are adequate.
  - Ask about difficulties encountered with initial intubation attempt(s) and/or SLMA insertion.
- Consider intubation if:

- Long transport time
- Unable to adequately ventilate and/or oxygenate patient with SLMA
- High risk of laryngeal edema

Documentation:

- The run report should include patient's mental and respiratory status, all procedures done to manage ventilation and pre-oxygenation, SLMA size used, ease of insertion, and how SLMA placement was verified and maintained.
- All SLMA insertions will be reviewed by agency QA and/or Medical Director. Document procedure on QA report per agency requirements.

Link to the Abstract for OPA to SLMA sizing recommendations:

LMA Supreme website

MCB Action	Passed 12/15/10	Implemented 01/01/11	Revised	Revision #	Implemented

Cardiac Section [C]

C-1 CPR (CCC) Continuous Chest Compressions

Designation of condition: The adult patient will be unresponsive, pulseless, and breathing inadequately (apneic or agonal). The pediatric patient will be unresponsive, pulseless (or HR <60 with signs of poor perfusion) and breathing inadequately (apneic or agonal). Adult is defined as signs of puberty present. Child is defined as age 1 to puberty, and infant from birth to 1 year old. This protocol assumes the presence of at least 2 health care providers.

ALL PROVIDERS

Continuous Chest Compressions (CCC): Initiate 200 chest compressions at a rate of at least 100 per minute; allow full chest recoil. Change compressors every 200 compressions (2 minutes).

Airway management guidelines for all patients: Do not take time to open or manage the patient's airway unless emesis present. If emesis present, quickly suction prior to initiating compressions.

Ventilation guidelines for all patients: After CCC has been initiated, (if available) apply N/C ETCO2, insert OPA, and place patient on NRM at 10 lpm. After 600 compressions (3 cycles), insert Extraglottic Airway Device or perform intubation as needed. CCC must continue during airway insertions.

AED guidelines: Adult AED settings and pads should be used for adults and children >8 years old. Pediatric AED settings and pads (if available) should be used for children age 1-8 and infants (if a manual defibrillator is not available). If no pediatric AED is available, an adult AED may be used for children and infants.

Defibrillation guidelines for all patients: Pre- charge Defibrillator at (175 compressions) 1:45 seconds prior to each rhythm and pulse check (every 200 compressions) Chest compressions must be continued until shock ready for delivery and immediately following all defibrillations. If at any time there is a delay in shocking, resume compressions until shock can be delivered.

Advanced airway guidelines for all patients: Advanced airway placement should not be performed until CPR and defibrillation (if indicated) have occurred, (after 600 compressions) Placement of an Extraglottic Airway Device should not interrupt chest compressions; interruption for ETT placement should be limited to a maximum of 10 seconds. Once an advanced airway is in place, provide asynchronous compressions and ventilations: continuous chest compressions at a rate of at least 100 per minute without pauses for ventilation; ventilations at 8-10 breaths per minute.

Adult

- Confirm patient is unresponsive.
- Assess breathing and carotid pulse for at least 5 seconds but no longer than 10 seconds.
- If the patient has a perfusing rhythm but is not breathing adequately, ventilate at a rate of 8-10 breaths per minute (1 breath every 5-6 seconds). Check pulse every 2 minutes.
- If no pulse and patient not breathing/breathing agonally, begin CPR starting with 200 chest compressions to a depth of at least 2 inches.
- If EMS provider witnessed arrest as soon as defibrillator is ready,1st pre-charge defibrillator, Next analyze cardiac rhythm and, if indicated, administer one shock at the appropriate initial joule setting according to department and manufacturer guidelines
- Insert OPA
- Apply N/C ETCO2 adaptor (if available)
- Apply NRM at 10lpm.
- Perform (CCC) 200 compressions
- Pre charge defibrillator pre charge defibrillator, check rhythm/pulse after (200 continual chest compressions) 2 minutes and, if indicated, use defibrillator/AED to defibrillate again at appropriate joule setting.
- Resume CPR immediately - starting with (CCC) 200 continual chest compressions - for two minutes; pre charge defibrillator, check rhythm/pulse after (200 continual chest compressions)) 2 minutes and, if indicated, use defibrillator/AED to defibrillate again at appropriate joule setting.

- After 600 compressions (3 cycles) begin CPR provide 200 compressions: at a rate of at least 100 per minute. Repeat this cycle until ROSC or termination of code.
- Consider advanced airway management with Extraglottic Airway Device or ETT after 600 compressions with asynchronous ventilations at 8-10 breaths per minute..

Child

- Confirm patient is unresponsive.
- Assess breathing and carotid or femoral pulse for at least 5 seconds but no longer than 10 seconds.
- If the patient has a perfusing rhythm but is not breathing adequately, ventilate at a rate of 12-20 breaths per minute (1 breath every 3-5 seconds). Check pulse every 2 minutes.
- If no pulse, or if pulse is less than 60 BPM with signs of poor perfusion (pallor, mottling, cyanosis), and patient is not breathing/breathing agonally, begin CPR starting with 15 chest compressions. Using the heel of one or two hands, compress the lower half of the sternum at least one-third the anterior/posterior (A/P) depth of the chest wall. Do not compress over the xiphoid or ribs.
- Pause compressions for 5-10 seconds in order to administer two ventilations.
- Perform compressions and ventilations at 15:2 until defibrillator/AED is ready.
- While CPR is in progress, one provider should immediately prepare manual defibrillator/pediatric AED (if available) and apply pads.
- <u>As soon as defibrillator/pediatric AED is ready</u>, analyze cardiac rhythm and, if indicated, administer one shock at the appropriate initial joule setting according to department and manufacturer guidelines (2 J/kg for manual defib).
- Resume CPR starting with chest compressions; check rhythm/pulse after 2 minutes, and if indicated use defibrillator/pediatric AED to defibrillate again at appropriate joule setting (4 J/kg for manual defib).
- Repeat this cycle until ROSC or termination of code.
- Consider advanced airway management with Extraglottic Airway Device, ETT if greater than 12 y/o or greater than 40 kg.

Infant

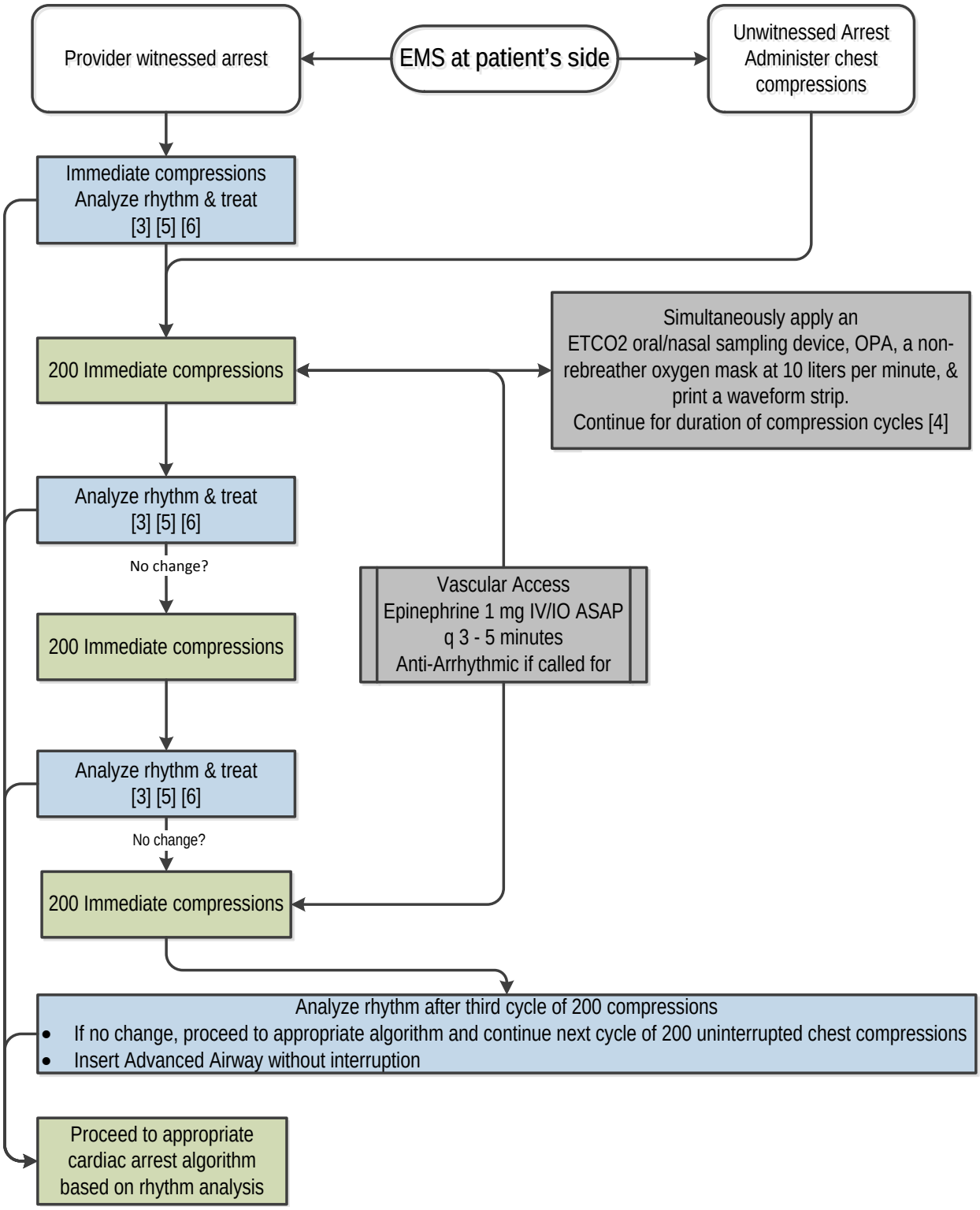
- Confirm patient is unresponsive.
- Assess breathing and brachial pulse for at least 5 seconds but no longer than 10 seconds.
- If the patient has a perfusing rhythm but is not breathing adequately, ventilate at a rate of 12-20 breaths per minute (1 breath every 3-5 seconds). Check pulse every 2 minutes.
- If no pulse is detected, or if pulse is less than 60 BPM with signs of poor perfusion (pallor, mottling, cyanosis), and patient is not breathing/breathing agonally, begin CPR starting with 15 chest compressions. Utilizing 2 thumb-encircling hands technique, place thumbs just below inter-mammary line and compress at least one-third the A/P depth of the infant's chest wall. Do not compress over the xiphoid or ribs.
- Pause compressions for 5-10 seconds in order to administer two ventilations.
- Perform compressions and ventilations at 15:2 until defibrillator/pediatric AED is ready.
- While CPR is in progress, one provider should immediately prepare manual defibrillator/pediatric AED (if available) and apply pads.
- <u>As soon as defibrillator/pediatric AED is ready</u>, analyze cardiac rhythm and, if indicated, administer one shock at the appropriate initial joule setting according to department and manufacturer guidelines (2 J/kg for manual defib).
- Resume CPR starting with chest compressions; check rhythm/pulse after 2 minutes, and if indicated use manual defibrillator/pediatric AED to defibrillate again at appropriate joule setting (4 J/kg for manual defib).
- Consider advanced airway management with Extraglottic Airway Device.

Special Situations:

- If bystander CPR is in progress upon EMS arrival, EMS providers should replace bystander(s) and continue with 200 chest compressions and then analyze rhythm.
- If patient is in 3rd trimester of pregnancy, displace the fetus to the left manually. This will optimize venous return via the inferior vena cava.
- If asphyxial death is suspected, perform 2 full minutes of CPR prior to using defibrillator/AED in order to restore blood oxygen levels.

MCB Action	Passed 06/21/06	Implemented 04/01/07	Revised 08/11/2014	Revision # 3	Implemented 10/01/14

C-2 Pit Crew CPR



1. age > 8 years
2. should not be used on patients involved in traumatic event or where evidence of primary respiratory arrest is evident
3. assess rhythm in paddles or AED
4. evaluate airway and place oral/nasal airway simultaneously and/or suction as necessary
5. do not attempt advanced airway management before the third set of 200 compressions completed
6. pulse checks should be done only if ECG indicates a potentially perfusing rhythm and with no interruption in delivery of compressions

MCB Action	Passed 04/16/2014	Implemented 07/01/2014	Revised 08/11/2014	Revision # 1	Implemented 10/01/2014

Adult Cardiac Section [AC]

AC-1 Adult Cardiac Section

ALL PROVIDERS

Introduction: The cardiac patient must be reassessed frequently and prior to/post each therapeutic intervention. Consider the possibility that an underlying medical condition or medications may be contributing to the problem.

- All cardiac patients will be given oxygen at a flow rate sufficient to treat any component of shortness of breath or hypoxia. If the patient *is not* short of breath or hypoxic, a nasal cannula at a flow rate of 2 liters per minute is recommended. Cardiac patients should be allowed to seek a position of comfort, usually fowlers, unless they are in shock, in which case the supine position is preferred.
- An IV of NS or saline lock should be initiated.
- Patients in cardiac arrest should be managed in the field; all other cardiac patients require minimal scene times and expeditious transport.
- If the patient has a return of spontaneous circulation (ROSC) (sustained palpable pulses and measurable blood pressure), (s) he should be transported to a core facility (VAMC, Pres DT, UNMH or Heart Hospital of New Mexico). All other patients in cardiac arrest should be transported to the nearest appropriate medical facility. The transporting crew may opt to transport to nearest facility depending on circumstances.
- All patients in cardiac arrest require immediate CPR, basic airway management and ventilations with oxygen (see protocol C-1). CPR and initial defibrillation (if indicated) take precedence over advanced airway management unless the airway cannot be managed with BLS maneuvers.
    - Defibrillation of the VF/pulseless VT patient should occur as soon as possible on a EMS provider witnessed arrest.
    - ET drug delivery should be reserved for occasions when IV/IO cannot be established.

PARAMEDIC

Resuscitation efforts may be terminated in the field with MCEP approval if the following conditions apply:

- ALS interventions have been implemented for at least 30 minutes, and
- No return of spontaneous circulation (ROSC) occurred, and
- The terminal rhythm is asystole
- The arrest is not the result of hypothermia
- Any patient who presents in the following rhythm at any point during the resuscitation will be resuscitated on scene for a minimum of 40 minutes:
    - Ventricular Fibrillation
    - Ventricular Tachycardia
    - PEA > 40 bpm
- All LVAD patients in cardiac arrest must be transported.

Continuous Quantitative Waveform EtCO2 Monitoring in Cardiac Arrest (if available)

- All patients in cardiac or respiratory arrest shall be placed on Continuous Quantitaitve Waveform Capnorgraphy.
- An abrupt sustained increase in $EtCO_2$ during CPR should be considered an indicator of ROSC in all patients with an advanced airway (ETT or Extraglottic Airway Device) and continuous quantitative capnographic monitoring in place. If providers see an organized rhythm and an abrupt, sustained increase in $EtCO_2$, complete cycle of CPR and check pulse.
- If no pulse is palpable but the increase in $EtCO_2$ is sustained, resume CPR and treat as CARDIOGENIC SHOCK (AC-6) rather than PEA. Conversely, an abrupt sustained decrease in $EtCO_2$ after ROSC may indicate re-arrest. If this occurs, assess patient status.
- Cardiac Arrest Patients with ETCO2 levels above 30 mmHg should be worked on scene until ROSC is achieved. After 30 minutes a UNM Consortium physician will be contacted for consult.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 07/06/2014	Revision # 8	Implemented 10/01/2014

AC-2 Analgesia or Sedation for Transcutaneous Pacing

Designation of Condition: The patient who meets the criteria for transcutaneous pacing may experience discomfort during this procedure caused by chest wall skeletal muscle contraction. Analgesia may be required.

PARAMEDIC

In order to facilitate transcutaneous pacing in the conscious patient with a hemodynamically unstable bradycardia, analgesia is the preferred intervention:

- Morphine Sulfate may be titrated in 2 mg increments SIVP q 3-5 minutes to a maximum of 10 mg.
- As an alternative to Morphine Sulfate and if available, Fentanyl may be titrated in 0.25-0.5 mcg/kg increments SIVP q 3-5 minutes to a maximum of 1 mcg/kg.
- Ensure adequate oxygenation, and continuously monitor patient's ventilatory status.
- If opiate administration causes bradypnea/apnea, provide ventilatory assistance and administer Narcan titrated to reversal of respiratory depression.

If narcotic administration is contraindicated (e.g., patient allergy), sedation may be utilized instead of analgesia:

- Midazolam may be titrated in 1-2 mg increments SIVP q 3-5 minutes to a maximum of 5 mg.
- As an alternative to Midazolam, Diazepam may be titrated in 2.5-5 mg increments SIVP q 3-5 minutes to a maximum of 0.2 mg/kg.

Contact MCEP

- Dosing of any analgesic or sedative agent over the maximums listed above requires an MCEP order.
- Combining analgesia with sedation can be dangerous and is strongly discouraged; it greatly increases the risks of apnea/severe respiratory depression and hypotension. It is preferable to optimize the level of analgesia. However, if the patient is experiencing intolerable pain despite adequate analgesia, contact MCEP to discuss the need for adding sedation in accordance with the following dosing guidelines:
    - Midazolam may be titrated in 0.5-1 mg increments SIVP q 3-5 minutes to a maximum of 2.5 mg.
    - As an alternative to Midazolam, Diazepam may be titrated in 2.5 mg increments SIVP q 3-5 minutes to a maximum of 5 mg.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 05/18/11	Revision # 2	Implemented 10/01/11

AC-3 Asystole

Designation of Condition: The patient will be unconscious, unresponsive, pulseless, apneic, and show asystole on the monitor (confirmed with six-second strip).

ALL PROVIDERS

- Confirm patient is unresponsive, has apneic/agonal respirations and is pulseless.
- Begin CPR (see protocol C-1)
- Apply monitor/AED to confirm rhythm.
- Consider placement of advanced or Extraglottic Airway Device in accordance with protocol C-1 and applicable airway protocols, allowing no disruption of chest compressions during placement.
- Check rhythm/pulse every 200 compressions (2 minutes).

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Epinephrine, IV/IO or ET
  - IV/IO dosage of Epinephrine: (1:10,000) 1 mg q 3 to 5 minutes
  - ET dosage of Epinephrine: (1:1,000) 2 mg diluted in NS to total volume of 10 ml

PARAMEDIC

- If electrical activity returns but patient remains pulseless, proceed to appropriate algorithm.
- Contact MCEP for possible D/C order if no ROSC and the patient remains in asystole after 30 minutes of ALS resuscitative efforts.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 07/01/14	Revision # 5	Implemented 10/01/2014

AC-4 Atrial Fibrillation & Atrial Flutter

Designation of Condition: The patient will have a rapid heart rate (often greater than 150 bpm) with Atrial Flutter or Atrial Fibrillation on the ECG or 12 Lead ECG (if available).

ALL PROVIDERS

- Obtain a complete set of VS; apply O_2
- If the patient is hemodynamically stable but has severe chest pain, administer 324 mg chewable Aspirin PO and refer to protocol AC-8. If patient is significantly SOB with rales on auscultation, refer to CHF protocol AC-9.

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock

PARAMEDIC

- Monitor ECG
- If the patient is hemodynamically stable, obtain 12 lead ECG.
- If the patient is hemodynamically unstable with decreased mental status, perform synchronized cardioversion.
- If sedation prior to cardioversion is considered necessary, MCEP order is required:
- Midazolam (preferred): 1 – 2 mg increments SIVP q 3-5 minutes to a maximum of 5 mg
- Diazepam (as an alternative to Midazolam): 2.5 – 5 mg increments SIVP as appropriate up to a total dose of 0.2 mg/kg

Atrial Fibrillation - Synchronized cardioversion at:

- Monophasic and Medtronic biphasic: 100 joules; increase to 200, 300, 360 joules in subsequent cardioversions PRN
- Zoll biphasic 50 joules; increase to 75, 120, 150, 200 joules in subsequent cardioversions PRN

Atrial Flutter - Synchronized cardioversion at:

- Monophasic and Medtronic biphasic: 50 joules; increase to 100, 200, 300, 360 joules in subsequent cardioversions PRN
- Zoll biphasic 20 joules; increase to 50, 75, 120, 150, 200 joules in subsequent cardioversions PRN

- Be aware that cardioversion of the patient who has not been adequately anti-coagulated carries a significant risk of embolic stroke and pulmonary embolism. Patients with symptoms >48 hours are at greatest risk. Consider rapid transport and MCEP consultation prior to cardioversion if time permits. If cardioversion cannot be delayed, assess post cardioversion for possible stroke/PE symptoms.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/16/13	Revision # 6	Implemented 04/01/13

AC-5 Symptomatic Bradycardia

Designation of Condition: The patient will present with a hemodynamically unstable bradycardia (BP <90 mmHg systolic and a heart rate typically <50 bpm) with associated signs and symptoms of hypoperfusion (decreased or altered LOC, chest pain, shortness of breath, acute heart failure or other SxS of shock).

ALL PROVIDERS

- ABC's; oxygen
- Obtain a complete set of vital signs.
- If patient complains of chest pain and can maintain airway, administer 324 mg chewable Aspirin PO.

INTERMEDIATE AND PARAMEDIC

- IV NS

PARAMEDIC

- Monitor ECG
- Obtain 12 lead ECG unless patient condition warrants immediate intervention.
- Atropine: 0.5 mg IVP/IO/ET q 3-5 minutes to a total of 3 mg. The goal is a heart rate of at least 60 bpm and a blood pressure of 90 mmHg systolic (⇑LOC, ⇑hemodynamics). In the setting of acute MI, cardiac transplant patients, third degree heart block or Mobitz type II second-degree heart block, Atropine should be used with caution, and only after attempts at transcutaneous pacing have failed.
- Transcutaneous Pacing: Pace at a rate of 60-70 bpm. Slowly increase current until electrical capture is achieved (evidenced by a wide QRS complex and tall, broad T wave following each pacer spike); then assess for mechanical ventricular capture (palpable pulses corresponding to all QRS complexes).
- If blood pressure remains low after mechanical capture confirmed, consider increasing pacer rate in 5-10 bpm increments to a maximum of 80 bpm. (Do not confuse chest wall skeletal muscle capture and contraction with mechanical ventricular capture and cardiac contraction.) Consider also patient's fluid status and the need for IV fluid administration.
- Peripheral IV access is required, as the patient may require analgesia per protocol AC-2. However, noninvasive pacing should not be delayed in order to initiate a peripheral IV. Ideally, both procedures should be performed simultaneously.
- Vasopressor Support: If Atropine and/or pacing unsuccessful, contact MCEP for orders for an infusion of dopamine @ 4-12 mcg/kg/min OR epinephrine @ 2-10 mcg/min titrated to increased heart rate and/or BP >90 mmHg systolic.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/11/2014	Revision # 7	Implemented 10/01/2014

AC-6 Cardiogenic Shock

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

ALL PROVIDERS

- Oxygen at a flow rate sufficient to maintain SpO_2 >94%.
- Allow the patient to seek a position of comfort (fowlers recommended if possible).
- Manage airway and provide BVM ventilatory assistance as necessary.
- Obtain a complete set of vital signs

INTERMEDIATE AND PARAMEDIC

- IV NS TKO or saline lock
- If lung sounds are clear:
  - Administer a 5-10 ml/kg NS bolus

PARAMEDIC

- Monitor cardiac rhythm.
- Obtain 12 lead ECG.
- If no improvement with fluid bolus, or if fluids are contraindicated because of pulmonary edema:
  - an infusion of dopamine @ 4-12 mcg/kg/min OR epinephrine @ 2-10 mcg/min

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/11/2014	Revision # 6	Implemented 10/01/2014

AC-7 Pulseless Electrical Activity

Designation of Condition: The patient will be unconscious, unresponsive, pulseless, apneic or breathing agonally, and show organized electrical activity on the monitor.

ALL PROVIDERS

- Confirm patient is unresponsive, has apneic/agonal respirations and is pulseless.
- Begin CPR (see C-1).
- Apply monitor/AED to confirm rhythm.
- Consider placement of advanced airway (Extraglottic Airway Device or ETT) in accordance with protocol C-1 and applicable airway protocols, allowing no/minimal disruption of chest compressions during placement.
- Check rhythm/pulse every 2 minutes.
- Consider treatable causes of PEA:
    - Hypoxia
    - Hypovolemia
    - Hypothermia
    - Hyper / Hypokalemia
    - Hydrogen ions [metabolic acidosis]
    - Tension pneumothorax
    - Tamponade
    - Thrombosis [AMI or PE]
    - Toxins / Tablets
    - Trauma

INTERMEDIATE AND PARAMEDIC

- IV/IO NS (at least one large bore)
- If hypovolemia or cardiac tamponade suspected, begin fluid bolus of 20 ml/kg with frequent reassessment.
- Epinephrine, IV/IO or ET:
    - IV/IO dosage of Epinephrine: (1:10,000) 1 mg q 3 to 5 minutes
    - ET dosage of Epinephrine: (1:1,000) 2 mg diluted in NS to total volume of 10 ml

PARAMEDIC

- Suspected hyperkalemia (e.g. dialysis or renal patient with or without sine wave or widened QRS)
    - Administer 10% Calcium Chloride 1 gram IV/IO or Calcium Gluconate 3 gram IV/IO
    - Administer Sodium Bicarbonate 1 mEq/kg IV/IO
- Suspected calcium channel blocker overdose
  Administer 10% Calcium Chloride 1 gram IV/IO or Calcium Gluconate 3 gram IV/IO
- Suspected TCA overdose
    - Administer Sodium Bicarbonate 1 mEq/kg IV/IO

  May repeat same dose after 5 minutes
- Suspected tension pneumothorax (absent unilateral lung sounds and in PEA arrest)
  Perform needle thoracostomy (see T-6)

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/20/2015	Revision # 6	Implemented 04/01/2015

AC-8 Myocardial Infarction

Designation of Condition: A chief complaint, which has signs and symptoms suggestive of AMI. Patient may present with one or more of the following: chest or epigastric pain/discomfort (radiating or non-radiating), discomfort or altered sensations to neck, jaw, either shoulder/arm or into the back. There may be complaints of SOB, weakness, diaphoresis, syncope, nausea and/or vomiting.

ALL PROVIDERS

- Oxygen therapy:
  - If appropriate, obtain room air O2 sat.
  - O2 at a flow rate sufficient to maintain SpO2 >94%
- Allow patient to assume position of comfort.
- Baseline vital signs
- Administer 324 mg chewable Aspirin PO if the patient has not taken Aspirin since the onset of current symptoms (unless contraindicated by known allergy or active GI bleed).If the patient has taken pre-arrival Aspirin give to a total of 324mg chewable Aspirin. Document clearly if patient has taken Aspirin after onset of symptoms.
- Determine time of symptom onset.

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock
- Titrate fluid to patient vital signs.

INTERMEDIATE

- Intermediates may administer NTG and Morphine following MCEP consultation or when a paramedic is present and after a 12 lead ECG has been performed.

PARAMEDIC

- Monitor cardiac rhythm.
- Acquire 12 lead ECG. If there is evidence of inferior wall AMI, or if you have other reasons to suspect right ventricular AMI, obtain a right-sided 12 lead ECG (either V4R or V1R-V6R).
- If the first-arriving agency is not the transport agency, and the first-arriving agency acquires a 12 lead ECG, the transport agency will deliver a copy of the first 12 lead ECG to the hospital (along with subsequent 12 lead ECGs) and will record the time of acquisition of the first 12 lead ECG in the patient's chart.
- If no contraindications, administer 0.4 mg NTG SL q 3-5 minutes as needed for pain relief. If after 2-3 NTG SL doses, the patient's level of pain is not decreasing, then administer Narcotics per MISC-3 Pain Management protocol.
- NTG is CONTRAINDICATED in the following circumstances:
- Patient has taken prescription or OTC Sexual Performance Enhancing Drug (SPED) within 72 hours
- Suspected acute right ventricular MI
- Hypotension (SBP <100 mmHg)
- If 12 lead ECG interprets "Acute MI Suspected" or "Meets ST Segment Criteria", (or if history, physical exam and/or ECG findings are suspicious of an ischemic cardiac event), limit scene times and initiate rapid transport to a core cath lab facility (VAMC, UNMH, Pres DT, HHNM).
- Early ED Notification and Cath Lab Activation: When the 12 ECG interpretation is "Acute MI Suspected" or "Meets ST Segment Criteria" it is imperative that early ED notification and Cath lab activation occur. The EMS provider (including Fire Rescue personnel if applicable) should contact the receiving hospital as soon as possible (or Albuquerque Base if unable to reach hospital) and provide the following information:

- STEMI Alert
- Patient age, gender
- Patient's cardiologist/cardiology group (if known)
- ETA
- If Albuquerque Base is contacted, provide hospital destination as well, and they will forward this information to the receiving hospital. If 12 Lead ECG transmission is available and the receiving facility is capable ECG reception, transmit the 12 Lead ECG as soon as possible after transport is initiated for all patients being treated for ACS.
- If acute MI is suspected and no transport unit is available, the rescue unit should transport the patient without delay.

Narcotic Analgesia (Morphine Sulfate or Fentanyl)

- If NTG has not relieved patient's pain, or if NTG is contraindicated, follow MISC-3 PAIN MANAGEMENT PROTOCOL
- In the setting of acute right ventricular MI, if patient is hypotensive administer 1-2 (250 cc) fluid challenges. If pain continues follow MISC-3 PAIN MANAGEMENT PROTOCOL
- If additional narcotic analgesia is required, contact MCEP

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/21/2013	Revision # 20	Implemented 10/01/2013

AC-9 Pulmonary Edema, Congestive Heart Failure

Designation of Condition: The patient will present with shortness of breath and rales (wet noisy respirations/crackles). Pink frothy sputum is a classic sign but usually absent. The patient will often appear anxious, pale, clammy and acutely dyspneic/tachypneic. Individuals will avoid recumbency, and attempt to sit upright. Signs of right heart failure may also be present (jugular venous distention and dependent edema). Most patients will have a history of CHF, but if not, consider an acute, concomitant precipitating cause (e.g., cardiac ischemia or valvular failure).

ALL PROVIDERS

- High flow oxygen
- Allow the patient to seek a position of comfort (fowlers recommended if possible).
- Manage airway and ventilations as necessary. Consider need for BVM assist.
- Obtain a baseline set of vital signs.
- If patient has chest pain, administer 324 mg chewable Aspirin PO.

INTERMEDIATE AND PARAMEDIC

- IV NS TKO or saline lock

PARAMEDIC

- Monitor cardiac rhythm.
- Acquire 12 lead ECG. If 12 lead ECG interprets as “Acute MI Suspected”, “Meets ST Segment Criteria”, (or if history, physical exam and/or ECG findings are suspicious of an ischemic cardiac event), see protocol AC-8.
- If no contraindication, administer Nitroglycerine, 0.4 mg SL q 5 minutes until the shortness of breath is relieved. Monitor BP closely after each dose.
- NTG is CONTRAINDICATED in the following circumstances:
  - Patient has taken prescription or OTC Sexual Performance Enhancing Drug (SPED) within 72 hours
  - Suspected acute right ventricular MI
  - Hypotension (SBP <100 mmHg)
- If available, consider CPAP in patients with severe respiratory distress (see protocol A-7).

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/21/2013	Revision # 6	Implemented 10/01/2013

AC-10 Sinus Tachycardia

Designation of Condition: The patient has a pulse and heart rate over 100 (usually 100-160) and p-waves preceding each QRS complex.

ALL PROVIDERS

- ABC's
- Apply oxygen as indicated.
- Obtain full set of vital signs.
- Treat the underlying cause (e.g., hypoxia, hypovolemia, shock, hypoglycemia, pain, fever or anxiety) when possible. Consider medication/drug-mediated tachycardia.

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock PRN

PARAMEDIC

- Monitor ECG
- Consider obtaining 12 lead ECG

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 04/20/11	Revision # 1	Implemented 10/01/11

AC-11 Supraventricular Tachycardia

Designation of Condition: The patient will have a regular heart rate greater than 150 beats per minute with a supraventricular focus. P-waves will not be present. QRS complexes are most often narrow (< 0.10 sec), but may be wide if patient has pre-existing ventricular conduction defect or reentrant conduction via accessory pathway.

ALL PROVIDERS

- ABCs
- Apply oxygen as indicated.
- Obtain a complete set of vital signs.
- If patient is experiencing chest pain, administer 324 mg chewable Aspirin PO.

INTERMEDIATE AND PARAMEDIC

- Proximal IV NS

PARAMEDIC

- Monitor ECG (activate paper recorder prior to and during any procedure)

If the patient is HEMODYNAMICALLY UNSTABLE and has decreased mental status, perform immediate synchronized cardioversion:

- Initial energy level:
  - Medtronic biphasic: 100 joules
  - Zoll biphasic: 75 joules
- Subsequent energy levels:
  - Medtronic biphasic: 200, 300, 360 joules
  - Zoll biphasic: 120, 150, 200 joules

If sedation prior to cardioversion is considered necessary, MCEP order is required:

- Midazolam (preferred): 1 – 2 mg increments SIVP q 3-5 minutes to a maximum of 5.0 mg
- Diazepam (as an alternative to Midazolam): 2.5 – 5 mg increments SIVP as appropriate up to a total dose of 0.2 mg/kg

If the patient is HEMODYNAMICALLY STABLE, awake and alert, and suffering ischemic chest pain or severe SOB, administer Adenosine.

- Obtain 12 lead ECG prior to conversion attempt.
- Adenosine 6 mg rapid IV push (1-3 seconds) followed by a rapid 20 ml NS flush
- If no response in 1-2 minutes, 12 mg rapid IV push (1-3 seconds) followed by a 20 ml NS flush
- If no response, contact MCEP to discuss possible synchronized cardioversion and orders for sedation (dosing above).

*Adenosine will not be administered in our prehospital system to patients with known Wolff Parkinson White disorder, wide complex tachycardia (QRS >0.10 sec), A-Flutter, A-Fib, or any narrow or wide complex dysrhythmia with irregular rate.
*Adenosine should be used with caution in patients with a history of reactive airway disease, especially in patients who are actively wheezing, because it may cause bronchospasm. In this situation, contact MCEP prior to use.
*Consider the following drug interactions and conditions:

- Tegretol (Carbamazepine), Aggrenox and Dipyradomole (Persantine) enhance the effects of Adenosine and may increase the duration of AV blocks and periods of asystole.
- The effects of Adenosine are also prolonged in heart transplant patients.
  - In the above circumstances, maintain initial dose of 6 mg but decrease second dose (if needed) to 6 mg.

If the patient is HEMODYNAMICALLY STABLE, without significant associated symptomology:

- Obtain 12 lead ECG prior to conversion attempt.
- Consider Valsalva maneuver, with patient in slight Trendelenberg.
- Transport to the hospital ASAP.

Consider MCEP contact for possible Adenosine order only for the following:

1. Transport time is expected to be prolonged
2. Patient has a history of SVT responsive to Adenosine, or
3. An emergent need for chemical cardioversion is deemed necessary (e.g., patient has history of significant CAD)

Provide copies of pre-conversion, conversion and/or post-conversion rhythm strips (and 12 lead ECGs) to receiving ED. Originals will be reviewed by routine QA process.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/16/13	Revision # 6	Implemented 4/01/13

AC-12 Ventricular Fibrillation/Pulseless Ventricular Tachycardia

Designation of Condition: The patient is unconscious, unresponsive, has apneic/agonal respirations, is pulseless, and the monitor displays ventricular fibrillation or ventricular tachycardia.

ALL PROVIDERS

Begin CPR, activate metronome and defibrillate ASAP IF WITNESSED, If Unwitnessed then perform 200 compressions and defibrillate using AED or manual defibrillator (see C-1 CPR).
Defibrillation and CPR sequence:

- Initial defibrillation:
  - Medtronic biphasic (manual or AED): 200 joules
  - Zoll biphasic (manual or AED): 120 joules
- Resume CPR for 200 compressions
- Check rhythm
- If indicated, 2nd defibrillation:
  - Medtronic biphasic (manual or AED): 300 joules
  - Zoll biphasic (manual or AED): 150 joules
- Resume CPR for 200 compressions
- Check rhythm
- If indicated, 3rd (and subsequent) defibrillations:
  - Medtronic biphasic (manual and AED): 360 joules
  - Zoll biphasic (manual and AED): 200 joules
- Resume CPR for 200 compressions
- Check rhythm/pulse

Consider placement of an advanced or Extraglottic Airway Device in accordance with protocol A-1 and applicable airway protocols, allowing no disruption of chest compressions during placement.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS as soon as possible
- Initiate Epinephrine administration IV/IO ASAP
- Epinephrine:
  - IV/IO dosage of Epinephrine: 1 mg 1:10,000 q 3 to 5 minutes
  - ET dosage of Epinephrine: 2 mg 1:1,000 diluted in NS to total volume of 10 ml q 3 to 5 minutes

Incorporate pattern of defibrillation -- immediate resumption of CPR for 200 compressions -- drug administration during CPR -- rhythm/pulse check.

PARAMEDIC

Initiate appropriate anti-arrhythmic therapy after 3rd defibrillation:

- Lidocaine IV/IO or ET:
  - IV/IO dosage: Initial dose 1-1.5 mg/kg. Additional doses of 0.5-0.75 mg/kg may be given q 5-10 minutes up to a total loading dose of 3 mg/kg.
  - ET dosage: 2 mg/kg diluted in NS to a total volume of 10 ml
- Magnesium Sulfate 2 gm IV/IO (over 1-2 minutes) if continued VF or if suspected pulseless Torsades
- Sodium Bicarbonate 1 mEq/kg IV/IO. Use <u>only</u> in cases of suspected hyperkalemia or TCA OD. May repeat in 5 minutes to a total of 2 doses. In these special circumstances, Sodium Bicarbonate administration should precede Lidocaine.
- All patients in V-FIB or Pulseless V-Tach at any time will be resuscitated on scene for a minimum of 40 minutes.
- If sustained V-FIB or Pulseless V-Tach after 40 minutes contact UNM Consortium physician for consult.

If ROSC occurs, see protocol AC-15 Cardiac Arrest - Post Resuscitation Care.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 07/01/14	Revision # 11	Implemented 10/01/2014

AC-13 Stable Ventricular Tachycardia

Designation of Condition: Sustained ventricular tachycardia (broad QRS tachycardia) will be present on the monitor. The patient will be conscious, alert, with a blood pressure greater than 90 mmHg, free of chest pain, without shortness of breath, and is not diaphoretic.

ALL PROVIDERS

- ABC's
- Apply oxygen.
- Obtain a full set of vital signs.
- Apply defibrillation/cardioversion pads (may be done after 12 lead ECG if paramedic present).
- Initiate rapid transport.

INTERMEDIATE AND PARAMEDIC

- IV NS

PARAMEDIC

- Provide continuous ECG monitoring.
- Obtain 12 lead ECG as soon as possible.
- Assess perfusion status at regular intervals. If patient condition deteriorates and becomes unstable: See AC-14.
- If Torsades de Pointes is present and the patient is hemodynamically stable, administer Magnesium Sulfate 2 gm IV over 12 minutes (1 gm q 6 minutes) and initiate 30 mg/min infusion. Monitor BP carefully and cease administration if hypotension ensues.
- If suspected hyperkalemia (e.g., dialysis patient with “sine-wave” pattern on monitor, or sino-ventricular rhythm) or TCA OD, contact MCEP for possible Sodium Bicarbonate 1 mEq/kg order.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 05/18/11	Revision # 8	Implemented 10/01/11

AC-14 Unstable Ventricular Tachycardia

Designation of Condition: Sustained ventricular tachycardia (broad QRS tachycardia) will be present on the monitor. The patient will have a pulse. The patient will be hypotensive with decreased mental status, severe chest pain or significant SOB.

ALL PROVIDERS

- ABC's, oxygen
- Obtain a complete set of vital signs.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS

PARAMEDIC

- Monitor ECG
- Perform immediate synchronized cardioversion or defibrillation per guidelines below.

If sedation prior to cardioversion/defibrillation is considered necessary, administer:

- Midazolam (preferred): 1 – 2 mg increments SIVP q 3-5 minutes to a maximum of 5 mg
- Diazepam (as an alternative to Midazolam): 2.5 – 5 mg increments SIVP as appropriate up to a total dose of 0.2 mg/kg

Monomorphic VT

- Synchronized Cardioversion*:
  - Monophasic and Medtronic biphasic: 100 joules
  - Zoll biphasic: 75 joules
- If necessary proceed to:
  - Monophasic and Medtronic biphasic: 200, 300, 360 joules as needed
  - Zoll biphasic: 100, 120, 150, 200 joules as needed

*Deliver unsynchronized shock(s) if unable to sync.

Polymorphic VT

- Unsynchronized Defibrillation
  - Monophasic and Medtronic biphasic: 200 joules
  - Zoll biphasic: 120 joules
- If necessary proceed to:
  - Monophasic and Medtronic biphasic: 300, 360 joules as needed.
  - Zoll biphasic: 150, 200 joules as needed

If VT persists despite cardioversion/defibrillation, administer Lidocaine 1-1.5 mg/kg SIVP/IO. Repeat 0.5 - 0.75 mg/kg SIVP/IO q 5 minutes until arrhythmia resolves or 3 mg/kg has been given. Alternate Lidocaine administration with continued synchronized cardioversion at maximum joule setting until VT is terminated.

NOTE 1*:* The benefit of Lidocaine is probably limited to VT caused by cardiac ischemia.

NOTE 2: DO NOT ADMINISTER LIDOCAINE if you suspect hyperkalemia (e.g., renal failure patients on dialysis) or if the underlying rhythm is believed secondary to an overdose by an agent that blocks sodium channels (e.g., tricyclic antidepressants, phenothiazines, B-blockers, antihistamines and cocaine).

If hyperkalemia, TCA OD, or other sodium channel blocker OD is suspected, administer Sodium Bicarbonate 1 mEq/kg IV/IO. If VT persists, consider repeat dose with MCEP approval.

NOTE 3: Consider Torsades de Pointes. Torsades may be caused by prolonged QT syndrome or medications such as tricyclic antidepressants, phenothiazines, non-sedating antihistamines and certain anti-arrhythmic drugs. Although it can be suppressed by Magnesium Sulfate, it will often recur unless the precipitating mechanisms are removed.

If the patient with Torsades de Pointes is HEMODYNAMICALLY UNSTABLE:

- Defibrillate as outlined above for polymorphic VT; escalate joule settings PRN.
- Administer Magnesium Sulfate 2 gm IV/IO over 3-6 minutes (1 gm q 3 minutes).
- If no change in rhythm, repeat defibrillation.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 05/18/11	Revision # 10	Implemented 10/01/11

AC-15 Cardiac Arrest - Post Resuscitation Care

Designation of Condition: Adult patient with return of pulses (ROSC) after cardiac arrest

ALL PROVIDERS

- Manage airway with basic adjuncts (OPA/NPA) and suction PRN.
- Avoid hyper-oxygenation. Administer oxygen sufficient to maintain SpO2 >94% up to 99%.
- If unconscious, assure proper placement of advanced airway (Extraglottic Airway Device or ETT). Ensure airway is not secured circumferentially around the soft tissue of the neck.
- Avoid hyperventilation; if patient requires assisted ventilation, ventilate10-12 times per minute with just enough volume to create visible chest rise.
- Apply capnography and print out ETCO2 waveform (If available)
- Monitor VS frequently.
- Check BGL; treat hypoglycemia per protocol M-5.
- If unconscious, allow permissive hypothermia: keep patient uncovered. Consider active hypothermia: apply cold packs to groin, axilla and side of neck.
- If unconscious, elevate head of gurney to 30° if possible.

INTERMEDIATE AND PARAMEDIC

- Verify patency of all IV lines.
- Maintain SBP >90 mmHg if possible. If patient is hypotensive and lung sounds are clear, administer small (250 ml) normal saline boluses up to one liter. Auscultate lung sounds between boluses; stop fluid administration promptly if pulmonary edema develops.

PARAMEDIC

- Monitor cardiac rhythm.
- Obtain post-conversion 12 lead ECG as soon as possible; transmit to receiving facility if available.
- Transport patient to core facility with cardiac cath lab.
- Consider a dopamine or epinephrine infusion if crystalloid therapy is contraindicated or fails to restore adequate blood pressure (see protocol AC-6).
- If patient seizes, treat per protocol M-10.
- Post VF/pulseless VT arrest anti-arrhythmic therapy: After ROSC, routine maintenance or prophylactic administration of anti-arrhythmics is discouraged. If post-ROSC dysrhythmia occurs, treat per appropriate protocol.
- If patient goes into stable VT post-ROSC, administer Lidocaine:
- If no Lidocaine was administered during the arrest, administer 1 – 1.5 mg/kg SIVP. If the dysrhythmia persists, additional doses of 0.5-0.75 mg/kg may be administered SIVP q 5-10 minutes, to a total loading dose of 3 mg/kg.
- If Lidocaine was administered during arrest, consider amount already given as well as time of last administration when administering additional doses post-ROSC.

MCB Action	Passed 09/20/06	Implemented 04/01/07	Revised 08/01/14	Revision # 3	Implemented 10/01/2014

AC-16 Left Ventricular Assist Device (LVAD)

Designation of Condition: The patient will have an indwelling Left Ventricular Assist Device (LVAD), a mechanical pump implanted in the left ventricle to augment the pumping function of the heart. Patients and family members are trained on the device and troubleshooting techniques. Patients and family members are instructed to notify the VAD Coordinators at the implanting facility in case of emergency. EMS is often only activated by the patient or family if troubleshooting techniques fail or the patient experiences acute decompensation.

General considerations for LVAD patients

- LVAD patients are likely to have multiple medical problems in addition to cardiac problems
- In general, treat the patient's condition per the appropriate protocol unless directed otherwise by the patient's VAD coordinator, by MCEP consultation, or by the points below.
- Blood flow from an LVAD is continuous, not pulsatile. Pulses may not be palpable and BP may not be obtainable
- If unable to obtain pulse or blood pressure, use level of consciousness and skin color to determine adequacy of circulation
- Use care at all times not to pull on the power cord exiting the patient's abdomen (so as not to increase the risk of infection), and ensure the power cord is never cut.

General CONTRAINDICATIONS for LVAD patients

- DO NOT PERFORM CHEST COMPRESSIONS IF DEVICE IS RUNNING.
- Since the LVAD is directly inserted into the left ventricle and the aorta, chest compressions can dislodge the device and cause massive bleeding into chest.
- If patient is PULSELESS, UNRESPONSIVE, and device is NOT RUNNING, contact MCEP before initiating chest compressions
- CPAP is contraindicated because it may increase intrathoracic pressure and impede LVAD/heart function
- Nitrates and diuretics are contraindicated because they may worsen perfusion by affecting blood pressure and preload

ALL PROVIDERS

Call the VAD Coordinator for recommendations AS SOON AS a provider can be assigned to do so

- Contact MCEP if VAD Coordinator recommends treatment outside of the provider's scope of practice or comfort level.

Assess airway, breathing, circulation, and DEVICE status:

- Airway: assess and treat per appropriate protocol
- Breathing: Treat SOB/hypoxemia with appropriate oxygen administration to maintain SpO2 of 92% or greater
- Circulation: If unable to obtain pulse or blood pressure, use level of consciousness and skin color to determine adequacy of circulation

Device status:

- Listen to chest to hear device – it should make a whirring sound (silence means it is not running)
- Interpret any alarms with help from family and VAD coordinator

Initiate urgent transport.

INTERMEDIATE AND PARAMEDIC

- If clinical signs and symptoms of poor perfusion: administer 500 ml normal saline boluses, even if peripheral edema is present

PARAMEDIC

- Monitor ECG

If patient is responsive:

- If crystalloid therapy fails to restore adequate perfusion, contact MCEP to consider an infusion of dopamine @ 4-12 mcg/kg/min OR epinephrine @ 2-10 mcg/min

If patient is unresponsive:

- Follow standard protocol for ACLS per the presenting rhythm
- EXCEPTION: do not perform chest compressions if the device is running.

Device Difficulty or Failure

ALL PROVIDERS

- Coordinate with family and VAD coordinator. The family and patient are trained in all aspects of device troubleshooting, restart procedures, power issues and transport necessities.

Transport Considerations

ALL PROVIDERS

- If the device is being monitored locally, the patient should be transported to that facility - regardless of hospital status (unless black closure).
- If the patient is not being monitored locally, or if providers are unable to determine where the patient is being monitored, transport to the closest core cardiac facility.
- Early notification of the facility is critical because ED will need to coordinate with specialty physicians and staff to provide care.
- On arrival, remind the receiving staff of the function of the VAD as they may not be familiar with this. Remind them that pulse/BP may not be attainable due to the continuous flow state.
- Always allow family members trained on the device to accompany the patient during transport to function as the device liaison for EMS.
- Bring patient's backup batteries, external power source, and/or any other accessories deemed necessary by patient or family to the hospital with the patient.

MCB Action	Passed 07/18/12	Implemented 10/01/12	Revised 08/11/2014	Revision # 1	Implemented 10/01/2014

Pediatric Cardiac Section [PC]

PC-1 Pediatric Cardiac Section

Pediatric cardiac arrest is often a result of progressive respiratory failure or shock. When CPR is indicated, start compressions while immediately preparing to address airway, ventilation and oxygenation:

- Assure open airway
- Provide ventilations with BVM and supplemental oxygen

AED Guidelines:

Adult AED settings and pads should be used for children >8 years old. If a manual defibrillator is not available, pediatric AED settings and pads (if available) should be used for children age 1-8 and infants. If no pediatric AED is available, an adult AED may be used for children and infants.

Resuscitation efforts may be terminated in the field with MCEP approval if the following conditions apply:

- ALS interventions have been implemented for at least 20 minutes, and
- No return of spontaneous circulation (ROSC) occurred at any time during the resuscitation, and
- The terminal rhythm is asystole or an agonal bradyasystolic rhythm (PEA) < 40 bpm, and
- The arrest is not the result of hypothermia

Cardiac resuscitation attempts will not be terminated without MCEP approval.

Definitions

Neonatal	Birth to 28 days
Infant	28 days to 1 year
Child	1 year or greater than 10 kg but less than 50 kg
Adolescent	Greater than 50 kg (treat as adult)

Pediatric Vital Signs Chart

Age	Heart Rate	Respiratory Rate	Systolic BP
Newborn	100 – 160	30 – 60	50 – 70
1 to 6 weeks	100 – 160	30 – 60	70 – 95
6 months	90 – 120	25 – 40	80 – 100
1 year	90 – 120	20 – 30	80 – 100
3 years	80 – 120	20 – 30	80 – 100
6 years	70 – 100	18 – 25	80 – 110
10 years	60 – 90	16 – 22	90 – 120
12 years	60 – 90	15 – 20	105 – 135

MCB Action	Passed 1/18/12	Implemented 04/01/2012	Revised 02/19/2014	Revision # 3	Implemented 04/01/2014

PC-2 Pediatric Asystole

Designation of Condition: The patient will be unconscious, unresponsive, pulseless, apneic, and show Asystole on the monitor (confirmed in at least 2 leads). Consider the possibility the rhythm is fine ventricular fibrillation, and if appropriate, proceed to ventricular fibrillation protocol.

ALL PROVIDERS

- Confirm patient is unresponsive, has apneic/agonal respirations and is pulseless.
- Begin CPR (see C-1 CPR).
- Apply monitor/AED to confirm rhythm.
- Consider hypoglycemia; check blood glucose level
- Check rhythm/pulse every 2 minutes.
- Consider need for placement of advanced airway in accordance with A-1, C-1 and applicable airway protocols, allowing no/minimal disruption of chest compressions during placement.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Epinephrine:
  - IV/IO - 1:10,000 - 0.01mg/kg (0.1ml/kg) q 3-5 minutes PRN

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 02/19/2014	Revision # 5	Implemented 04/01/14

PC-3 Pediatric Bradycardia with Cardio-Respiratory Compromise

Designation of Condition: The patient will present with a hemodynamically unstable bradycardia and signs of poor perfusion (decreased LOC, hypotension, cyanosis/mottling/pallor, prolonged peripheral or core capillary refill, and weak/absent peripheral pulses). In pediatric patients, bradycardia most often results from respiratory failure.

ALL PROVIDERS

- Assure open airway and assess adequacy of ventilation.
- Administer high flow oxygen. Assist ventilations with BVM PRN.
- Assess vital signs.
- Consider hypoglycemia; check blood glucose level.
- Transport ASAP.

If severe cardio-respiratory compromise and heart rate is less than 60 bpm:

- Begin CPR (see C-1 CPR)
- Reassess after 2 minutes. If hemodynamic compromise persists, continue CPR.
- Consider need for placement of advanced airway in accordance with A-1, C-1 and applicable airway protocols, allowing no/minimal disruption of chest compressions during placement.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Epinephrine:
  - IV/IO: (1:10,000) 0.01 mg/kg (0.1 ml/kg) q 3-5 minutes PRN

PARAMEDIC

- Monitor ECG.
- If Epinephrine is ineffective, consider Atropine or transcutaneous pacing (TCP) at age-appropriate rate.
- Atropine (for patients >6 months old):
  - IV/IO: 0.02 mg/kg (0.1 mg minimum dose, 0.5 mg maximum single dose) q 5 minutes. May be repeated once.
- In the setting of third degree heart block, Mobitz type II second-degree heart block, or for cardiac transplant patients, Atropine should be used with caution, and only after attempts at transcutaneous pacing have failed.
- Transcutaneous Pacing (TCP): Initiate pacing at age-appropriate rate if medications are ineffective or if Atropine is not indicated.
- Analgesia for TCP: Children 2 years of age and older may receive Fentanyl to manage the pain of TCP. Do not administer Fentanyl until electrical and mechanical capture have been achieved and the patient's perfusion and mental status have improved. (If patient <2 years of age, MCEP order is required for analgesia.)
  - Fentanyl: Titrate 0.25-0.5 mcg/kg to a maximum of 1.0 mcg/kg slow IV push over 2 minutes. If repeat dosing is necessary, administer half the initial dose after 10 minutes. (MCEP approval is required if patient requires more than 1.0 mcg/kg.) Carefully observe level of consciousness, perfusion status and respiratory status prior to re-dosing.
  - As an alternative to Fentanyl, Morphine may be titrated in 0.05 – 0.1 mg/kg increments slow IV push q 3-5 minutes to a maximum of 0.15 mg/kg.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised: 02/19/2014	Revision # 4	Implemented 04/01/14

PC-4 Pediatric Pulseless Electrical Activity

Designation of Condition: Patient will be pulseless, apneic and unresponsive. The monitor will show an organized rhythm. Consider and expeditiously treat underlying causes such as hypovolemia, hypoxemia, acidosis, hypoglycemia, hypothermia, tension pneumothorax, cardiac tamponade, or drug overdose.

ALL PROVIDERS

- Confirm patient is unresponsive, has apneic/agonal respirations and is pulseless.
- Begin CPR (see C-1 CPR).
- Apply monitor/AED to confirm rhythm.
- Check rhythm/pulse every 2 minutes.
- Consider treatable causes of PEA, including hypoglycemia.
- Consider need for placement of advanced airway in accordance with A-1, C-1 and applicable airway protocols, allowing no/minimal disruption of chest compressions during placement.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Epinephrine:
  - IV/IO: (1:10,000) 0.01 mg/kg (0.1 ml/kg) q 3-5 minutes PRN
- Rapid fluid bolus, NS IV/IO 20 ml/kg; repeat PRN

PARAMEDIC

- If sodium channel blocking agent OD/ingestion is suspected (e.g., TCA, phenothiazines, beta blockers, antihistamines, cocaine, or Class 1 anti-arrhythmic agents such as procainamide, amiodarone [weak Class 1 effects], quinidine, disopyramide, lidocaine, flecainide or phenytoin), or if hyperkalemia is suspected:
  - Administer 1 mEq/kg Sodium Bicarbonate IV/IO.
  - May repeat in 5 minutes to a total of two doses.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 02/19/2014	Revision # 4	Implemented 04/01/14

PC-5 Neonatal Resuscitation

Designation of Condition: The patient is a newborn who requires resuscitative intervention. The extent and level of intervention is patient condition dependent.

ALL PROVIDERS

- DO NOT delay delivery if it appears imminent (see OB-2).
- Once neonate has delivered:
  - Suction mouth and nose PRN (ONLY if obvious obstruction or if BVM required)
  - Warm and dry baby, simultaneously providing tactile stimulation
  - Place in supine position and assure open airway
  - Clamp and cut umbilical cord
- Perform rapid assessment:
  - Was baby born full term?
  - Is amniotic fluid clear?
  - Is baby breathing well and/or crying?
  - Does baby have good muscle tone?
- If HR >100 but infant has labored breathing:
  - Clear airway (if not already done)
  - Provide PPV with BVM, starting without supplemental oxygen (room air)
- If HR <100 OR infant gasping or apneic:
  - Clear airway (if not already done)
  - Provide PPV with BVM, starting without supplemental oxygen (room air)
- If HR remains <100 but >60 despite these actions for 30 seconds:
  - Ensure airway is open, mask seal is good, and chest rise is visible with PPV
  - Add 10 lpm supplemental oxygen to BVM
- If HR <60 despite resuscitative efforts above:
  - Begin CPR at a 3:1 compression-to-ventilation ratio using 2 thumbs-encircling hands technique
  - Ensure airway is open, mask seal is good, and chest rise is visible with PPV
  - Add 10 lpm supplemental oxygen to BVM if not already done
  - Consider advanced airway in accordance with applicable airway protocols
- Obtain a heel stick glucose reading
- Rapid transport to a facility with NICU (UNMH, Pres DT, RUST, LWS or Women's)

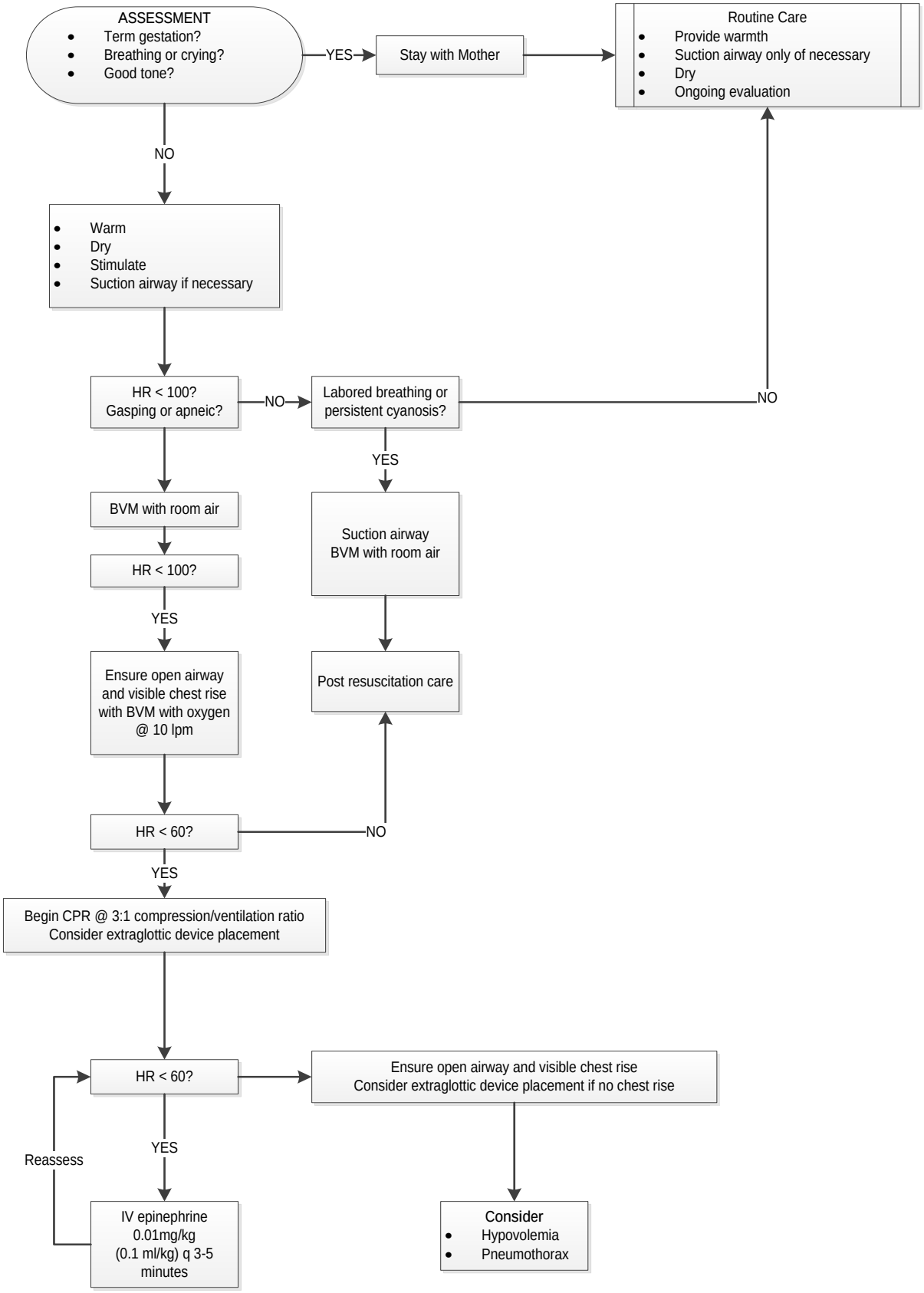
INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Administer 10 cc/kg NS bolus(es) if hypovolemia suspected
  - Avoid rapid fluid delivery in preterm infants
- If BGL less than 45 mg/dl: administer D_{10} 1 – 2 ml/kg (100 – 200 mg/kg) IV/IO
  - Dilute each 1 ml of D_{50} with 4 ml IV fluid to make D_{10} (100 mg/ml)
- Administer Epinephrine ONLY if CPR and BVM with supplemental oxygen do not raise HR >60:
  - IV/IO: Epi 1:10,000, 0.01 mg/kg (0.1 ml/kg) q 3-5 minutes

PARAMEDIC

- Meconium: Perform tracheal suctioning only if meconium-stained infant is non-vigorous. If tracheal suctioning is necessary, keep neonate warm, but delay tactile stimulation until suctioning is accomplished. Avoid prolonged suctioning; if infant becomes bradycardic, provide PPV with BVM (room air initially).
- Monitor ECG

Newborn Resuscitation Algorithm



MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 02/19/2014	Revision # 10	Implemented 04/01/14

PC-6 Pediatric Sinus Tachycardia

Designation of Condition: The patient has a pulse and heart rate greater than normal range (see table below). The monitor will show a rhythm that is readily identifiable as sinus in origin (P waves present/normal).

ALL PROVIDERS

- Assure open airway; administer high flow oxygen.
- Obtain full set of vital signs.
- Assess for symptoms of hypotension or poor perfusion.
- Treat the underlying cause (e.g., dehydration, hypoxia, hypoglycemia, blood loss, pain, fever or anxiety) when possible.
- Transport

INTERMEDIATE AND PARAMEDIC

- IV NS if appropriate

PARAMEDIC

- Monitor ECG
- Consider obtaining 12 lead ECG

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/18/12	Revision # 1	Implemented 04/01/12

PC-7 Pediatric Supraventricular Tachycardia

Designation of Condition: The patient will have a rapid heart rate (infant heart rate usually ≥220 bpm; child heart rate usually ≥180 bpm). The monitor will show a narrow QRS complex rhythm (≤ 0.09 sec) without P waves.

ALL PROVIDERS

- Assess ABCs, assure open airway, and provide high flow oxygen.
- Obtain a complete set of vital signs (LOC, RR, HR, skin color, lung sounds, capillary refill, pulse locations, SpO_2 and BP when possible).
- Minimize scene time
- Perform thorough exam, including physical assessment, AMPLE history and pain assessment.
- Reassess vital signs and perfusion status frequently.

INTERMEDIATE AND PARAMEDIC

- Proximal IV NS (or IO if appropriate)
- Consider need for fluid resuscitation (10-20 ml/kg bolus increments) en route.

PARAMEDIC

- Monitor ECG

If the patient is HEMODYNAMICALLY UNSTABLE (decreased mental status, hypoperfusion, cyanotic, limp) perform immediate synchronized cardioversion:

- Initial energy level: 0.5 – 1 J/kg
- If unsuccessful, repeat at 2 J/kg

If the patient is HEMODYNAMICALLY STABLE with appropriate mental status, but has concerning symptoms (e.g., SOB, CP, tachypnea) and in the paramedic's judgment requires prehospital chemical conversion with Adenosine, contact MCEP[1] for Adenosine orders:

- Acquire 12 lead ECG prior to conversion attempt
- Record continuous ECG strip during conversion attempt(s)
- Adenosine 0.1 mg/kg very rapid IV push not to exceed 6 mg initial dose. Follow with rapid NS flush.
- If unsuccessful, Adenosine 0.2 mg/kg not to exceed 12 mg

[1]Occasionally MCEP may order sedation and cardioversion rather than Adenosine. In those instances, sedation dosing is as follows:

- Midazolam (preferred): 0.025 – 0.05 mg/kg IV/IO
- Diazepam (as an alternative to Midazolam): 0.1 – 0.2 mg/kg IV/IO

*Adenosine will not be administered in our prehospital system to patients with known Wolff Parkinson White disorder, wide complex tachycardia (QRS >0.09 sec), A-Flutter, A-Fib, or any narrow or wide complex dysrhythmia with irregular rate.
*Adenosine should be used with caution in patients with a history of reactive airway disease, especially in patients who are actively wheezing, because it may cause bronchospasm.
If the patient is HEMODYNAMICALLY STABLE (appropriate mental status without concerning symptoms)

- Acquire 12 lead ECG (prior to any valsalva attempt)
- Transport to the hospital ASAP
- Consider valsalva maneuver with patient in Trendelenburg en route to hospital

Provide copies of pre-conversion, conversion and/or post-conversion rhythm strips (and 12 lead ECGs) to receiving ED. Originals will be reviewed by routine QA process.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/01/2014	Revision # 3	Implemented 10/01/2014

PC-8 Pediatric Ventricular Fibrillation-Pulseless Ventricular Tachycardia

Designation of Condition: The patient will be unconscious, unresponsive, apneic and pulseless. The monitor will show ventricular fibrillation or ventricular tachycardia (wide QRS >0.09 sec).

ALL PROVIDERS

- Confirm patient is unresponsive, has apneic/agonal respirations and is pulseless.
- Begin CPR (see C-1 CPR).
- Apply monitor/AED to confirm rhythm.
- Defibrillate as soon as possible:
  - Medtronic and Zoll biphasic and monophasic (manual): 2 J/kg
  - Biphasic and monophasic AED: per manufacturer settings
- Resume CPR for 2 minutes.
- Check rhythm/pulse.
- If indicated, 2nd defibrillation:
  - Medtronic and Zoll biphasic and monophasic (manual): 4 J/kg
  - Biphasic and monophasic AED: per manufacturer settings
- Resume CPR for 2 minutes.
- Check rhythm/pulse; defibrillate as necessary at 4 J/kg or AED manufacturer setting.
- Resume cycle of 2 minutes CPR -- rhythm/pulse check -- defibrillation PRN.
- Consider need for placement of advanced airway in accordance with A-1, C-1 and applicable airway protocols, allowing no/minimal disruption of chest compressions during placement.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS as soon as possible
- Epinephrine (begin administration after the 2nd defibrillation):
  - IV/IO: (1:10,000) 0.01 mg/kg (0.1 ml/kg) q 3-5 minutes PRN
- Incorporate pattern of defibrillation -- CPR for 2 minutes -- drug administration during CPR -- rhythm/pulse check

PARAMEDIC

- Any pediatric patient in persistent VF/pulseless VT should be transported.
- Initiate appropriate anti-arrhythmic therapy after 3rd defibrillation.

Lidocaine

- IV/IO: 1 mg/kg; repeat PRN 0.5 mg/kg q 3-5 minutes up to total of 3 mg/kg

NOTE: DO NOT ADMINISTER LIDOCAINE if you suspect hyperkalemia (e.g., renal failure patients on dialysis) or if the underlying rhythm is believed secondary to an overdose by an agent that blocks sodium channels.

Sodium Bicarbonate

- If sodium channel blocking agent OD/ingestion is suspected (e.g., TCA, phenothiazines, beta blockers, antihistamines, cocaine, or Class 1 anti-arrhythmic agents such as procainamide, amiodarone [weak Class 1 effects], quinidine, disopyramide, lidocaine, flecainide or phenytoin), or if hyperkalemia is suspected:
  - Administer 1 mEq/kg Sodium Bicarbonate IV/IO
  - May repeat in 5 minutes to a total of two doses
  - In these special circumstances, Sodium Bicarbonate should replace Lidocaine dosing

Magnesium Sulfate (only in pulseless Torsades de Pointes)

- 50 mg/kg IV/IO

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 02/19/2014	Revision # 6	Implemented 04/01/14

PC-9 Pediatric Ventricular Tachycardia

Designation of Condition: The patient will have a pulse and show sustained ventricular tachycardia (wide QRS >0.09 sec) on the monitor.

ALL PROVIDERS

- Assess ABCs, assure open airway, and provide high flow oxygen.
- Obtain a complete set of vital signs (LOC, RR, HR, skin color, lung sounds, capillary refill, pulse locations, SpO_2 and BP when possible).
- Initiate rapid transport.
- Perform thorough exam, including physical assessment, AMPLE history and pain assessment.
- Reassess vital signs and perfusion status frequently.

INTERMEDIATE AND PARAMEDIC

- IV NS (or IO if appropriate)

PARAMEDIC

- Monitor ECG

<u>HEMODYNAMICALLY UNSTABLE</u> (pulses present with signs of shock/poor perfusion)
Monomorphic VT:

- Synchronized cardioversion*** at 0.5 – 1 J/kg
- If unsuccessful, synchronized cardioversion at 2 J/kg up to two attempts
- ***Defibrillate if synchronized cardioversion is delayed

Polymorphic VT:

- Defibrillation at 2 J/kg
- If unsuccessful, defibrillation at 4 J/kg up to two attempts

If sedation prior to cardioversion/defibrillation is considered necessary, contact MCEP for orders:

- Midazolam (preferred): 0.025 – 0.05 mg/kg IV/IO
- Diazepam (as an alternative to Midazolam): 0.1 – 0.2 mg/kg IV/IO

<u>HEMODYNAMICALLY STABLE</u> (Patient is alert with palpable pulses and no signs of shock)

- Acquire 12 lead ECG
- Transport ASAP

HEMODYNAMICALLY STABLE OR UNSTABLE
If sodium channel blocking agent OD/ingestion is suspected (e.g., TCA, phenothiazines, beta blockers, antihistamines, cocaine, or Class 1 anti-arrhythmic agents such as procainamide, amiodarone [weak Class 1 effects], quinidine, disopyramide, lidocaine, flecainide or phenytoin), or if hyperkalemia is suspected:

- Administer 1 mEq/kg Sodium Bicarbonate IV/IO.
- May repeat in 5 minutes to a total of two doses.

Torsades de Pointes:
HEMODYNAMICALLY UNSTABLE

- Defibrillate at 2 J/kg.
- If no change in rhythm, defibrillate at 4 J/kg up to two more times.
- If dysrhythmia persists, administer Magnesium Sulfate 25 mg/kg IV/IO over 6 minutes and initiate 0.5 mg/kg/min infusion
- If no change in rhythm, repeat defibrillation at 4 J/kg.

If sedation prior to defibrillation is considered necessary, contact MCEP for orders:

- Midazolam (preferred): 0.025 – 0.05 mg/kg IV/IO
- Diazepam (as an alternative to Midazolam): 0.1 – 0.2 mg/kg IV/IO

HEMODYNAMICALLY STABLE

- Administer Magnesium Sulfate 25 mg/kg IV/IO over 6 minutes and initiate 0.5 mg/kg/min infusion.
- Monitor BP carefully, and cease administration if hypotension develops.
- If no change in rhythm, contact MCEP.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/18/12	Revision # 7	Implemented 04/01/12

Medical Section [M]

M-1 Anaphylaxis/Angioedema/Urticaria

Designation of Condition: Anaphylaxis is a true life-threatening emergency. It is considered highly likely when the patient presents with acute onset of symptoms (Minutes to a few hours), often after exposure to a likely antigen, and when TWO or more of the following occur in combination:

1. Involvement of skin (e.g., generalized urticaria, itching or flushing), Angioedema, usually involving eyelids and mucosal tissue(swelling of lips, tongue, uvula) or both
2. Respiratory compromise (e.g., dyspnea, SOB,, Stridor or wheezing)
3. Reduced blood pressure or symptoms of hypoperfusion (e.g., hypotonia, syncope, near-syncope, incontinence)

ALL PROVIDERS

- Assess and ensure adequate oxygenation and ventilations.
- Administer high flow O_2.
- Airway management as required. Supraglottic devices may not assure patent airway in these patients if airway tissues are swelling.
- Remove offending agent (e.g., stinger) in appropriate manner.
- Albuterol 5 mg nebulizer if wheezing is detected
- EMT-Basics may assist with the self-administration of patient's own (prescribed) pre-measured Epinephrine (Epi-Pen), after contact with MCEP.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS (at least one large bore); titrate to blood pressure
- If anaphylaxis criteria are met (See Designation of condition) Administer Epinephrine (1:1,000) IM at scene.
  - Adults: 0.3 mg 1:1000 IM. May repeat the dose in 5 minutes if necessary. Contact MCEP if further dosing required. Children: 0.01 mg/kg IM (max 0.3 mg). May repeat the dose in 5 minutes if necessary. Contact MCEP if further dosing required.
  - For severe urticaria complicated by angioedema, or if the patient has a history of anaphylaxis: Diphenhydramine 0.5 – 1 mg/kg SIVP/IO/IM to a maximum of 50 mg and monitor frequently. For patients under 2 y/o consult MCEP.
  - NOTE: Epinephrine can be life saving for patients in anaphylactic shock. However, in certain situations it should be used with great caution (and only if absolutely necessary). These include:
  - Patients on B-blockers (unopposed alpha effects)
  - Pregnancy (decreased blood flow to placenta)
  - Patients with severe CAD
  - Wheezing due to pulmonary edema
  - Hydrocarbon aspiration (myocardium sensitive to epinephrine)
  - Consider MCEP consultation, if time permits, in these situations.

PARAMEDIC

- If significant intra-oral or pharyngeal swelling observed, or patient has inspiratory stridor:
- Epinephrine nebulizer: (1:1000) 0.05 mg/kg (maximum dose 3 mg) in NS, to a total volume of 3 ml
- Intubate if impending airway obstruction or respiratory failure.
- Monitor cardiac rhythm.
- Contact MCEP, if patient continues to decompensate, to obtain an order for an infusion of dopamine @ 4-12 mcg/kg/min OR epinephrine @ 2-10 mcg/min

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/11/2014	Revision # 7	Implemented 10/01/2014

M-2 Reactive Airway Disease

Designation of Condition: Most commonly associated with asthma, COPD, bronchitis, bronchiolitis (RSV), and anaphylactic/allergic reactions. This condition is caused by small airway obstruction usually secondary to hyperactive bronchial smooth muscle contraction (bronchospasm) and/or peribronchial inflammation. Common clinical findings include wheezing, tachypnea, and a prolonged expiratory phase. If airflow is severely compromised, wheezing may be absent and/or the patient may be hypoxic (O_2 sat <90%).

ALL PROVIDERS

- Quickly assess ABC's. Manage airway as necessary with BVM (or Extraglottic Airway Device if appropriate and patient becomes unconscious).
- Administer supplemental oxygen: Goal is to maintain O_2 sat >90%.
- Allow patient to assume position that is most conducive to maximal airflow.
- If patient remains in respiratory distress begin Albuterol nebulizer:
  - Children <2 yrs. of age: 2.5 mg in NS
  - Adults & children >2 yrs. of age: 5 mg in NS
  - Repeat Albuterol as needed.
- Transport ASAP. Monitor vital signs en route.

INTERMEDIATE AND PARAMEDIC

- IV NS titrate fluid to patient's condition.
- Adults & children > 2yrs. of age: 5mg of Albuterol and 0.5mg Ipratropium Bromide nebulized
- Repeat Albuterol as needed.
- If patient has moderate to severe respiratory distress administer Dexamethasone IV/IO slowly over 2 minutes. (Dexamethasone should NOT be administered in the wheezing patient secondary to inhalation burns.)
- Adult Dosage:10mg IV/IO slowly over 2 minutes
- Pediatric Dosage:0.6mg/kg SIVP to a max of 10mg
- If quantitative Capnography is available providers must continuously monitor waveform and capnometry readings.
- If attack is severe or life threatening (e.g., cyanosis, inability to speak, respiratory extremis): administer Epinephrine (1:1000) SQ or IM. Contact MCEP BEFORE administration if patient has history of CAD or HTN.
  - Adults: 0.3 mg SQ or IM; may repeat in 5 minutes with MCEP approval.
  - Children: 0.01 mg/kg SQ or IM; MAX 0.3 mg. May repeat in 5 minutes with MCEP approval.

PARAMEDIC

- Manage airway as necessary with BVM, advanced airway, and/or CPAP.
- In cases of severe asthma refractory to Albuterol and Epinephrine:
- Administer Magnesium Sulfate: 2 gm. SIVP over 5-10 minutes en route or 20-25 mg/kg for patients under 50 kg
- All patients receiving Epinephrine or Magnesium Sulfate shall be placed on cardiac monitor as well as quantitative Capnography if available.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 7/16/2014	Revision # 7	Implemented 10/01/2014

M-3 Carbon Monoxide Poisoning

Designation of Condition: Carbon monoxide poisoning may occur in two different circumstances: by slow exposure (e.g., a defective furnace) or by rapid exposure (e.g., from by-products of combustion during a fire or a suicide attempt by auto exhaust). Signs and symptoms include headache, nausea, vomiting, weakness, dizziness, chest pain and changes in level of consciousness. Carbon Monoxide poisoning should be suspected after smoke inhalation in a confined space fire, and if several patients in the same dwelling present with similar complaints (usually headache, nausea and vomiting) during cold weather months.

ALL PROVIDERS

- Provider safety is a priority. If CO exposure is suspected, only properly equipped rescuers should enter the hazardous environment to remove patients to the safe zone.
- Establish and secure an airway by appropriate means.
- Administer high flow oxygen. Use a non-rebreathing mask with reservoir, if patient breathing spontaneously.
- Ventilate as needed.
- Remember that O_2 saturation monitors confuse carboxyhemoglobin with oxyhemoglobin and may show high O_2 saturations even in severe poisonings.
- Check BGL.

Transport Considerations:

- Any hospital is capable of caring for the mild to moderate CO exposure patient. Most patients respond well to high flow O_2 and gradual off-gassing of CO.
- Patients with any alteration of LOC should be transported to a facility with hyperbaric oxygen capabilities. Pregnant patients with suspected exposures (even if mild) should also be transported to a facility with a hyperbaric chamber (as fetal hemoglobin has a much greater affinity for CO than adult hemoglobin). Currently the only facility with a chamber is Presbyterian Hospital Downtown.
- If there are multiple patients, follow the MCI protocol for distribution: patients with most severely altered mental status should be transported to Presbyterian.
- Any patient with burns meeting Trauma Triage criteria should be transported to UNMH.

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock

PARAMEDIC

- Monitor ECG

MCB Action	Passed 02/15/2006	Implemented 04/01/06	Revised	Revision #	Implemented

M-4 Heat Exhaustion and Heat Stroke

HEAT EXHAUSTION

Designation of Condition: Patient will have a prolonged exposure to a warm environment or have excessive body heat produced by physical activity. S&S of hypovolemia may be present.

HEAT STROKE

Designation of Condition: Patient will have a prolonged exposure to a warm environment or have excessive body heat produced by physical activity. S&S of hypovolemia may be present. Patient will have an altered LOC. Patient will be hot to touch.

ALL PROVIDERS

- If trauma suspected protect C-spine.
- ABC's, high flow oxygen
- Remove patient from hot environment.
- Remove clothing; moisten skin with cool water.
- Monitor vital signs.
- Expeditious transport

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Administer IV fluid bolus (es) as necessary to support vital signs. Bolus in 250 ml increments, with reassessment of LOC, vital signs and lung sounds between boluses.

PARAMEDIC

- Monitor ECG

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 2/16/00	Revision # 1	Implemented 4/1/00

M-5 Hypoglycemia

Designation of Condition: Patient will present with a blood glucose level less than 60 mg/dL (less than 45 mg/dL in neonates) and with an altered mental status (e.g., confusion, agitation, unconsciousness or seizure).

ALL PROVIDERS

- ABC's; oxygen as appropriate
- Check BGL
- If BGL is less than 60 mg/dl administer oral glucose. Administer only if patient is conscious and able to swallow solution without difficulty.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Dextrose:
  - Adult: $D_{50}W$, 12.5 – 25 gm slow IVP; titrate to effect
  - Pediatric: $D_{25}W$, 0.5 gm/kg (2 ml/kg) slow IVP. Dilute $D_{50}W$ 1 to 1 with NS to make $D_{25}W$ solution.
  - Neonate: $D_{10}W$, 0.5 gm/kg (5 ml/kg) slow IVP. Dilute 1 part $D_{50}W$ with 4 parts NS to make $D_{10}W$ solution.
- If prompt improvement does not occur, repeat BGL. Consider protocol for Unconscious, Unknown Cause (M-11).

ALL PROVIDERS

Field Glucose Determination Guidelines:

- Field glucose determination is appropriate in patients with altered mental status, seizures, or coma.
- Dextrose should be given regardless of field glucose reading if your suspicion of hypoglycemia is high (e.g., insulin dependent diabetic who thinks they are hypoglycemic, has not eaten).
- Insulin pump use is increasing. If the patient is awake, discuss use with the patient. If the patient is hyperglycemic, do not turn the pump off; treat based on signs and symptoms. If the patient is hypoglycemic and conscious, have the patient or family turn the pump off and treat per protocol. If the patient is unconscious and family is present, have them turn off the pump and treat per protocol. As a last resort, in the profoundly hypoglycemic patient and the pump cannot be turned off at the switch, the EMS provider should gently disconnect the infusion set at the pump. If this does not work, attempt to remove the batteries. If this does not work then gently remove the catheter from the skin and treat per protocol. Assure the pump stays with the patient and is not misplaced.

Patient Refusal Guidelines: If the patient refuses transport after being treated for a documented hypoglycemic episode, follow these guidelines:

MCEP contact is NOT required if the patient meets all refusal criteria as delineated in protocol TT-6 AND

- The patient is only on a short acting insulin or insulin analog, or on a pre-mixed insulin analog (e.g., Novolog 70/30 or Humalog 70/30) and displayed an adequate response (normal vital signs, normal mentation and a BGL within normal limits) to ONE dose of dextrose (age-appropriate as described above), AND (s)he has no acute co-morbid medical condition (liver disease, kidney disease, alcoholism or febrile illness), AND the patient is released to a competent adult for observation for 2-3 hours.

MCEP contact is MANDATORY in the following situations:

- If the patient is known to take, or has access to, an oral diabetic medication in the sulfonylurea class. These patients are at very high risk and must be strongly encouraged to be transported to a hospital for further evaluation.

If the patient is on an insulin preparation that is long acting (s)he must be strongly encouraged to go to a hospital for further evaluation.

Sulfonylurea Medications

1. Glyburide (Micronase, Diabeta, Glynase)
2. Glyburide + Metformin (Glucovance)
3. Glypizide (Glucatrol XL, Glucatrol)
4. Glimepiride (Amaryl)

Long-Acting Insulin Analogs

1. Glargine (Lantus)
2. Detemir (Levemir)

Intermediate-Long-Acting Insulins

1. Lente
2. NPH
3. Ultralente

- If there is a question regarding a specific agent and whether or not it may have caused the hypoglycemic episode, Poison Control (272-2222) must be contacted for clarification.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 6/20/12	Revision # 4	Implemented 10/01/12

M-6 Hypothermia

Designation of Condition: The patient will have experienced a prolonged exposure to a cold environment. The patient will be cool or cold to touch with marked depression of critical body functions.

ALL PROVIDERS

- ABCs; high flow oxygen
- Move to warm environment (heated rescue/ambulance). Handle gently. Rough handling may precipitate V-Fib.
- Carefully remove cold/wet clothing.
- Wrap torso in warm dry blankets.
- Attempt passive external re-warming (radiant heat, forced warmed air, warm packs)
- Monitor vital signs.
- Expeditious transport

INTERMEDIATE AND PARAMEDIC

- IV NS
- Enhance passive external re-warming with warmed IV fluids (warm by wrapping tubing around instant hot packs).

PARAMEDIC

- Monitor cardiac rhythm

Hypothermic Cardiac Arrest

ALL PROVIDERS

- If patient is not breathing, or if breathing ineffective: ventilate with BVM and manage airway (see A-1).
- If patient is without a pulse, begin CPR (See C-1 CPR). Allow 30-45 seconds to ascertain if carotid pulse present. If ANY pulse is detected, DO NOT PERFORM CPR.

If V-Fib or pulseless V-Tach is present:

- Defibrillate with AED or manual defibrillator:
  - Monophasic and Medtronic biphasic: 200 joules
  - Zoll biphasic: 120 joules
- If single defibrillation attempt is unsuccessful perform CPR and avoid further defibrillation attempts.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Administer Epinephrine. Give one dose only. Dose per protocol AC-12.

PARAMEDIC

Note: In severe hypothermia (core temperature <30 degrees Centigrade), the myocardium will be unresponsive to drug therapy.

- V-Fib/pulseless V-Tach: Administer Lidocaine. Give one dose only. Dose per protocol AC-12.
- If Ventricular Tachycardia with a pulse is present: Give single dose of Lidocaine 1-1.5 mg/kg.
- If bradycardia present with severe hypothermia, do not administer atropine. Consider external transthoracic pacing if bradycardia severe (<35 bpm), but DO NOT initiate without MCEP approval.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 12/31/08	Revision # 4	Implemented 04/01/09

M-7 Apparent Life-Threatening Events in Infants

Designation of Condition: An episode that is frightening to the parent or caregiver and that is characterized by some combination of the following observations:

1. Apnea (absence of breathing for at least 3 breaths and not simple gasping)
2. Skin color change (cyanosis or recognized paleness)
3. Marked change in muscle tone (unexplained rigidity or flaccidity)
4. Unexplained choking or gagging (i.e., not choking or gagging episodes that commonly occur with feeding or rhinorrhea). In some cases the observer has feared the infant had died, and initiated CPR.

An apparent life-threatening event (ALTE) describes a set of symptoms and is associated with a wide variety of illnesses, including: gastroesophageal reflux, pertussis, RSV infection, UTI, metabolic disorders, cardiac dysrhythmias, seizures, sepsis, and child abuse.

The majority of infants with an ALTE will appear to be in no acute distress when evaluated by EMS personnel. Therefore the signs and symptoms noted by the caregiver should be considered credible even when they do not match the observations of EMS providers.

ALL PROVIDERS

- Airway: Ensure it is clear and patent.
- Breathing: Evaluate lung sounds. Record the respiratory rate. Evaluate work of breathing (use of accessory muscles, nasal flaring, grunting). Obtain O_2 sat. Apply O_2 as indicated.
- Circulation: Note skin color and cap refill. Record pulse quality and rate.
- Neurological Status: Is the infant alert and appropriately interactive? If not check, blood glucose. Check pupils. Note abnormal muscle tone or movements.
- Expose: Expose the infant. Look carefully for signs of trauma or rash.
- Carefully record the signs and symptoms observed by caregivers.
- Transport to hospital with pediatric admission capabilities (UNMH or Presbyterian).

INTERMEDIATE AND PARAMEDIC

- IV NS if necessary

PARAMEDIC

- Monitor ECG as indicated

MCB Action	Passed 09-20-06	Implemented 04-01-07	Revised	Revision #	Implemented

M-8 Drug Overdose

Designation of Condition: The patient will have ingested, inhaled or injected an unknown quantity of one or more medications or substances.

ALL PROVIDERS

- ABC's, high flow oxygen. Ventilate if appropriate.
- Obtain and monitor vital signs.
- Check BGL. Follow hypoglycemia protocol if indicated.
- Identify substance, amount ingested, inhaled or injected. Secure any containers for transport to the hospital.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS; titrate to patient condition.

PARAMEDIC

- Monitor ECG
- For known or suspected tricyclic antidepressant (TCA) overdose, if patient is hemodynamically stable and exhibits any of the following signs Administer1 mEq/kg IV/IO Sodium Bicarbonate :
  - QRS >0.10 sec
  - Ventricular arrhythmia
  - Tachycardia
- For known or suspected tricyclic antidepressant (TCA) overdose, if patient is hemodynamically UNSTABLE and exhibiting a wide complex tachycardia or seizure: Administer Sodium Bicarbonate 1 mEq/kg IV and contact MCEP for possible repeat bolus.

FOR KNOWN OR SUSPECTED STIMULANT OVERDOSE

Description of Condition: The patient will be experiencing an agitated mental status and be physically agitated. High index of suspicion of stimulant ingestion will be suspected based on history or circumstances found at scene. Pupils will be large to fully dilated, *unless an opiate has been ingested in concordance with stimulants.* Common stimulants that will cause this condition include cocaine, crack cocaine, methamphetamine (meth, crystal, ice), or Ecstasy (X, MUPA). Ingestion of significant amount of caffeine or “energy drinks” may also lead to overdose symptoms and should be treated accordingly.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS; large bore(s). Infuse 1-2L NS.

PARAMEDIC

• Monitor ECG

- Administer Midazolam 5mg IM/IN/IV/IO.
- May repeat Midazolam 5mg in 5 minutes if severe agitation not controlled. Total dosing should not exceed 10mg without MCEP approval.

FOR KNOWN OR SUSPECTED NARCOTIC OVERDOSE:

Designation of Condition: The patient will be unconscious or have a depressed mental status and be either apneic or bradypneic. Opiate ingestion will be suspected based on history or circumstances found at scene. Pupils will be small to pinpoint.

Bradypnea with a pulse: Adult

ALL PROVIDERS

- Establish patent airway and begin bag ventilation with high flow oxygen.
- Administer Naloxone 0.4 mg IM or 2 mg IN
  - IM Naloxone 0.2- 0.4 mg may be repeated every 2-4 minutes if little or no improvement is noted, until 2 mg has been administered.
  - The dosage of Naloxone should be titrated to reverse only the ventilatory depression.

- Intranasal administration:
  - Load syringe with 2 mg (2 ml) of Naloxone and attach MAD™ nasal atomizer.
  - Place atomizer 1.5 cm within the nostril.
  - Briskly compress syringe to administer 1 ml of atomized spray.
  - Remove and repeat in other nostril, so all 2 ml (2 mg) of medication are administered
  - A second dose of 1 mg Naloxone (0.5 ml per nare) may be re-administered via intranasal route as needed, for a maximum IN dose of 3 mg.
- Continue ventilating patient as needed.
- Extraglottic Airway Device should be placed as needed, depending on the patient's level of consciousness after receiving Naloxone and need for airway security.

INTERMEDIATE AND PARAMEDIC

- May consider Naloxone 0.4 mg IV

APNEA OR CYANOSIS PRESENT: ADULT

ALL PROVIDERS

- Establish patent airway and begin bag ventilation with high flow oxygen. If no EMT-I or EMT-P present, treat as above. IM Naloxone may have a more rapid onset of action and, if available, is preferred over the IN route in this situation.

INTERMEDIATE AND PARAMEDIC

- IV NS, obtain BGL and titrate Naloxone 0.2-0.4 mg increments IV to reversal of ventilatory depression. Intralingual and sublingual injections will not be used.
- Naloxone 0.2- 0.4 mg may be repeated every 2-4 minutes if little or no improvement is noted, until 2 mg has been administered.
- The dosage of Naloxone should be titrated to reverse only the ventilatory depression.

PARAMEDIC

- Intubation should be performed as needed, depending on the patient's level of consciousness after receiving Naloxone and need for airway security.

Pediatrics:

ALL PROVIDERS

- 0.02 mg/kg Naloxone IN or IM up to a total of 2 mg. IN administration: Divide dosage. Give one-half of total volume per nostril.
- Transport without delay.

INTERMEDIATE AND PARAMEDIC

- 0.02 mg/kg Naloxone IV/IO/IM/IN up to a total of 2 mg
- IN administration: Divide dosage. Give one-half of total volume per nostril.

MCB Action	Passed 04/20/94	Implemented 06/01/94	Revised 07/16/14	Revision # 12	Implemented 10/01/2014

M-9 Stroke

Designation of Condition: Stroke is defined as an interruption of perfusion to the brain. The patient may present with one or more disturbances involving vision, sensory, motor or cognitive functions.

ALL PROVIDERS

- Establish and maintain airway with appropriate adjuncts.
- Administer O2. Maintain SPO2 >94%
- Maintain ventilatory support as needed.
- Determine baseline blood glucose reading.
- Monitor vital signs.
- Do not attempt to alter the blood pressure of a hypertensive patient.
- Rapid assessment of GCS, LOC and motor and sensory functions
- Utilize the Cincinnati Prehospital Stroke Scale
- Transport without delay. Early notification of a STROKE ALERT to the receiving facility is important. Stroke Alert is defined as any single component failure of the Cincinnati Prehospital Stroke Screen with onset of symptomology less than 3 hours.
- Treat seizures per protocol (see M-10).
- A detailed history and time of onset are critical, OR determine the last known time the patient was asymptomatic.
- If possible, a family member should accompany patient or a contact number should be obtained for the receiving MD.
- Obtain a detailed medication list.

The Cincinnati Prehospital Stroke Scale© (Kothari R, et al. Acad Emerg Med. 1997;4:986-990)

Facial Droop (have patient show teeth or smile):

- Normal – both sides of face move equally
- Abnormal – one side of face does not move as well as the other side
- Arm Drift (patient closes eyes and holds both arms straight out for 10 seconds):
- Normal – Both arms move the same or both arms do not move at all (other findings, such as pronator grip, may be helpful)
- Abnormal – one arm does not move or one-arm drifts down compared with the other
- Abnormal Speech (have the patient say “you can’t teach an old dog new tricks”):
- Normal – patient uses correct words with no slurring
- Abnormal – patient slurs words, uses the wrong words, or is unable to speak

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock

PARAMEDIC

- Monitor ECG. Obtain 12 lead ECG and transmit if time permits and receiving facility is capable of receiving ECG transmission.

MCB Action	Passed 05/15/02	Implemented 07/01/02	Revised 08/21/2013	Revision # 1	Implemented 10/01/2013

M-10 Convulsive Seizures, Status Epilepticus

Designation of Condition: Excessive, chaotic discharge of cerebral neurons that typically manifests with immediate loss of consciousness and convulsive tonic-clonic muscular activity-followed by a post-ictal period of generalized muscle relaxation and confusion. Bite wounds to tongue and/or buccal mucosa, as well as bladder incontinence, are often observed.

ALL PROVIDERS

- Establish and maintain airway. Supplemental oxygen.
- Position on left side (left lateral recumbent position). Provide suction as needed. Protect patient from injury/aspiration.
- Check BGL. Follow hypoglycemia protocol if indicated.
- Transport ASAP.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS or saline lock
- If unable to perform field glucose determination, and patient is still convulsing, give D_{25} (2 ml/kg) to children or D_{50} (12.5 – 25 g) to adults SIVP.

PARAMEDIC

- If patient continues to actively seize and:
  - Generalized seizure is prolonged (>5 minutes), OR
  - If more than two generalized seizures recur without an intervening lucid period, administer Diazepam. (See dosing below.)
- Diazepam:
  - Infant: 0.2 mg/kg dose IV/IO over 2-3 minutes to a maximum of 2.5 mg
  - Children: 0.2 mg/kg IV/IO, not to exceed 1 mg/min to a maximum of 5 mg
    - Diazepam may be administered in children rectally via a lubricated 3 ml syringe, 0.3 – 0.5 mg/kg with a maximum dose of 10 mg
  - Adult: 0.2 mg/kg IV/IO, not to exceed 5 mg/min to a maximum of 10 mg
- Midazolam: Consider in patients if IV access not readily available
  - Infants and children: 0.1 mg/kg IN (via MAD nasal atomizer) or IM up to maximum 5 mg
  - Adults: 0.1 mg/kg IM up to maximum 5 mg
- If seizure activity has been controlled but recurs, administer same agent used initially up to the maximum dose. If greater doses are required, contact MCEP
- Anticonvulsants are rarely necessary in the field. If Diazepam or Midazolam is administered, be prepared to actively manage the patient's airway as respiratory arrest may result.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 05/19/10	Revision # 5	Implemented 10/01/10

M-11 Unconscious, Unknown Cause

Designation of Condition: The patient will be unconscious for an undetermined reason.

ALL PROVIDERS

- ABCs, high flow oxygen
- Assess and ensure a patent airway, rate and depth of respiration, and circulation.
- Manage airway with BVM, if indicated. Consider Combi-tube, if equipped.
- If the patient was traumatically injured, perform full spinal immobilization using C-spine precautions.
- If overdose is suspected, refer to Drug Overdose Protocol (M-8)
- Check BGL. If hypoglycemia is suspected, refer to Hypoglycemia Protocol (M-5).
- If the patient has signs and symptoms consistent with opiate intoxication (decreased respiratory drive, constricted pupils, LOC, etc.), refer to Drug Overdose Protocol (M-8).
- If the history of present illness does not reveal the probable cause of unresponsiveness, glucometry should be used to rule out hypoglycemia. If the history of present illness is suggestive of opiate intoxication, naloxone should be administered first. Glucose is relatively contraindicated in stroke and perhaps trauma.
- Reassess frequently.

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 09/20/00	Revision # 1	Implemented 01/01/01

M-12 Snakebite

Designation of condition: Patient has sustained bite from rattlesnake (bites from other snakes including exotics require different treatment methods; contact MCEP), usually recognized by two small puncture wounds. Expect swelling and discoloration of the area. Even though snake may be venomous, venom may not have been injected.

ALL PROVIDERS

- Attempt to calm the patient verbally.
- Keep patient as still as possible.
- Obtain history including, if possible, the type of snake.
- Identify the puncture site or sites and cover with sterile gauze with no circumferential taping.
- Oxygen
- Expect swelling and discoloration of the area.
- DO NOT:
  - Make any incisions
  - Apply a tourniquet
  - Apply ice
  - Elevate above level of heart
- Transport

INTERMEDIATE AND PARAMEDIC

- IV NS TKO in unaffected limb
- Treat pain per Pain Management Protocol (MISC-3). Use Morphine cautiously with hypotensive patients.
- Treat hypotension with aggressive IV fluid boluses:
  - Adults: En route, IV/IO NS (preferably 2 lines) and bolus 20 ml/kg; reassess and adjust to desired effect.
  - Child: En route, IV/IO NS and bolus 20 ml/kg; reassess and titrate to effect.

PARAMEDIC

- Monitor ECG
- If fluid bolus does not improve hypotension: an infusion of dopamine @ 4-12 mcg/kg/min OR epinephrine @ 2-10 mcg/min

MCB Action	Passed 7/19/95	Implemented 07/19/95	Revised 08/11/2014	Revision # 2	Implemented 10/01/2014

M-13 Adult Sepsis / Septic Shock

Designation of Condition: Facilitate rapid identification and management in patients with suspected or confirmed sepsis in patients 18 years of age or older. The patient may be hypotensive (with a widened pulse pressure), tachycardic, and tachypneic. Mental status changes may be present, ranging from mild disorientation to coma. Fever is typical, but hypothermia is possible. Refer to the "Infection Control" protocol when treating patients with suspected or confirmed sepsis.

Modified SIRS Criteria

Suspicion of Infection plus 2 of the following…

- Temperature > 38.3 ^{o}C or < 36 ^{o}C (>100.1 ^{o}F or <96.8 ^{o}F)
- Heart Rate > 90
- Respiratory Rate >20

Other considerations

- History or suspicion of fever
- Altered mental status
- Hypoxia (Saturation < 90%)
- EtCO2 < 20 mmHg or > 60 mmHg (if available)
- Hypotension with SBP < 90 mmHg or 40 mmHg known drop in patients with hypertensive history
- Evidence of abnormal bleeding
- Decreased urine output
- Hypergylcemia > 140 mg/dL without history of diabetes
- Peripheral edema (end organ failure)
- Absent bowel sounds (Ileus)
- Jaundice (Hyperbilirubinemia)
- Capillary refill > 2 seconds
- Documented serum lactate > 4 mmol/L (if available)

Field Treatment

ALL PROVIDERS

- ABC's, high flow oxygen
- BGL
- Serum Lactate if available
- Rapid transport
- Early notification of receiving ED ("Sepsis Alert") if patient meets modified SIRS criteria, and has one of the following: hypotension, is in respiratory distress, has a serum lactate > 4 mmol/L (if available) or there is a high index of suspicion

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Adults: One to two liter bolus (unless contraindicated)
- If no response, bolus one more liter and then run initial fluid therapy @ 250cc/hr. Consider repeat lactate if available
- Titrate fluids to obtain stabilization of patient's mentation, blood pressure, respiration, heart rate, and skin perfusion.

PARAMEDIC

- Consider vasopressor agents if the patient's SBP is < 80 with altered mental status or their MAP is <60 and after 1 - 2 liters of NS, or if pulmonary edema is present:
    - Norepinephrine infusion (Levophed) with MCEP order
        - Maintain fluids at 500cc/hr unless contraindicated and…
        - Mix 4 mg Levophed in in 250 cc D5W

        - Start dosing at 4 mcg/ min. May increase dose 2 mcg/ min every 5 minutes as needed, to a maximum rate of 10 mcg/min.

- or
    - Epinephrine infusion with MCEP order
        - Maintain fluids at 500cc/hr unless contraindicated and…
        - Mix 1 mg Epinephrine in 250 cc N.S.
        - The dosing 2-10 mcg/min

- or
    - Epinephrine mini-bolus therapy with MCEP order
        - Maintain fluids at 500cc/hr unless contraindicated and…

            Empty 9 cc from 10 cc ampule of 1:10,000 Epinephrine and replace with saline (leaves 0.1 mg). Administer 0.5 to 1 cc of 1; 100,000 IV/IO every minute as needed.

MCB Action	Passed 07/18/2012	Implemented 10/01/2012	Revised 08/11/2014	Revision # 2	Implemented 10/01/2014

M-14 Drowning/Near Drowning

Designation of Condition: Arrest or survival after suffocation by submersion.

ALL PROVIDERS

- Search and Rescue by appropriate personnel/resources
- Rapid cautious removal of patient from the water

CONSCIOUS WITH ADEQUATE RESPIRATORY EFFORT

ALL PROVIDERS

- Clear airway of debris and/or fluid
- Assess and secure airway. Provide O_2. Maintain O_2 sats above 94%.
- Assess circulatory status.
- Begin warming patient.
- Transport without delay.

PARAMEDIC

- Monitor cardiac rhythm.
- NOTE: Remember, no matter how good the patient looks at the scene, the secondary component of the drowning cascade is pulmonary edema, which can begin hours after the initial submersion event.

ALTERED LEVEL OF CONSCIOUSNESS WITH ADEQUATE RESPIRATIONS

ALL PROVIDERS

- Clear airway of debris and/or fluid.
- Assess and secure airway; high flow O_2 by partial non-rebreather mask.
- Assist ventilations as needed.
- Assess circulatory status.
- Begin warming patient.
- Transport without delay to appropriate facility.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS

PARAMEDIC

- Monitor cardiac rhythm.

UNCONSCIOUS WITH ABSENT/INADEQUATE RESPIRATIONS

ALL PROVIDERS

- Clear airway of debris and/or fluid.
- Assess and secure airway.
- Assist ventilation with BVM and high flow oxygen.
- Anterior cricoid pressure PRN
- Secure airway with Extraglottic Airway Device if no sign of rapid improvement; administer positive pressure ventilations with high flow O_2.
- Assess circulatory status; if pulse is absent, begin CPR and proceed to appropriate cardiac arrest protocol.
- Begin warming patient.
- NOTE: Consider hypoglycemia; check blood glucose level.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS

PARAMEDIC

- Secure airway with Extraglottic Airway Device or ETT.
- Monitor cardiac rhythm.

MCB Action	Passed 04/01/03	Implemented 04/01/03	Revised 07/16/2014	Revision # 3	Implemented 10/01/2014

M-15 Psychiatric Emergencies

Designation of Condition: The patient will be alert, but may have other mental status alterations, such as: disorders of perception and thought, inappropriate situational behavior, appearance and attitude, abnormal affect or mood, poor insight and poor judgment, and disordered speech or speech content. Signs and symptoms may include: depression and suicidality, hallucinations, pressured speech, loose associations, racing thoughts, grandiose or paranoid ideation, delusions, hysteria, extreme anxiety, or any other aggressive actions that could cause harm to the patient or others.

ALL PROVIDERS

- Make sure the scene is safe
- Approach the patient in a calm, slow, reassuring and honest manner. Multiple people attempting to intervene may increase the patient's confusion and agitation.
- Protect the patient from injury. Involuntary restraint should be considered if indicated by patient behavior and if necessary to render care and protect rescuers. (Refer to protocol TT-5 Involuntary Emergency Transport.)
- Remove patient from stressful environment if possible. Remember psychiatric episodes can be extremely difficult for the patient and their families.
- Be sure to consider and treat all possible trauma/medical causes for aberrant behavior per protocols. Be aware that medical illnesses including hypoglycemia, hypoxia, stroke, head injury, CNS infection, etc. may mimic psychiatric illness. Do not assume the patient's condition is purely psychiatric.
- If the Crises Intervention Team (CIT) is on scene, EMS assessment and intervention must not be delayed or hampered, however, in certain "volatile" situations the CIT will need the necessary time to diffuse the situation in order to allow for EMS intervention to occur as smoothly as possible. When arriving on scene where a CIT interview has taken place or is in progress, EMS crews should get an initial report from the CIT Officer in charge so as not to duplicate questions to the patient already in crises. Conversely, if EMS is first on scene, give an initial report to the CIT Officer so that duplication of questioning can be kept to a minimum.

All patients will be assessed and evaluated by EMS regardless of transport status.

- Patient Exam: ABC's, vital signs, and a thorough medical and psychiatric history (including all current medications). O_2 as necessary. Do not agitate or irritate the patient with a prolonged exam.

INTERMEDIATE AND PARAMEDIC

- IV NS as necessary

PARAMEDIC

- Monitor ECG as necessary.

Transport: Patients may be transferred directly to a mental health facility if they are not under the influence of drugs or alcohol, if pre-hospital personnel harbor no suspicion of OD (e.g., patients own psychiatric medications), and both of the following conditions apply:

1. Patient is alert, with normal vital signs (see parameters below) and has no signs or symptoms of an acute medical illness or injury, and has either an unambiguous psychiatric condition (e.g., suicidal ideation) or has a history of a psychiatric illness that is consistent with current presentation.
2. After consultation with MCEP of the receiving facility a joint decision is made that the patient does not require an ED evaluation and that the patient is appropriate for transport to a mental health facility, OR prior acceptance of patient has been arranged by the accepting mental health facility.

Law Enforcement officers may transport directly to a mental health facility if vital signs fall within stated parameters and the paramedic does not suspect any other underlying traumatic or medical causes.

- Vital signs parameters:
  - HR 60-110
  - RR 12-25
  - O_2 sat >90%
  - Systolic BP 90-160 mmHg
  - BGL 70-200 (if performed)

In all other situations, paramedics will transport psychiatric/mental patients directly to the emergency room for evaluation.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 05/15/02	Revision # 4	Implemented 07/01/02

M-16 Public Inebriate

Designation of Condition: Upon evaluation, adult patient (age 18 or greater) is determined to be intoxicated with ethanol.

ALL PROVIDERS

Transport criteria: All intoxicated or withdrawing persons who require or request evaluation or transport to a hospital should be transported to the appropriate emergency department (hospital of request, or if no preference, closest ED). Inebriates may also be transported to MATS if they meet admission criteria.

1. Transport to social detoxification facility at MATS:
   a. Person must be easy to arouse.
   b. Person must be able to make focused eye contact and state name.
   c. Person must be ambulatory without assistance and have no focal motor or sensory deficits.
   d. Person should have no evidence of acute injury or illness.
   e. Person must accept offer to be transported to MATS.
   f. Vital Signs:

HR	60-110	Systolic BP	90-160
RR	12-25	Oxygen Saturation	>90%
BGL	70-200		

If these criteria are met then transport to MATS is also permitted by non-EMS personnel, including: police, PSO or MATS van driver.

2. Transport to MATS medical monitoring facility:

Prior to transport, EMS must confirm medical facility is open and accepting patients. Patients eligible for transport MUST:

   a. Be arousable
      1) Opens eyes spontaneously, or opens eyes to verbal or gentle physical stimulation (e.g., shoulder shake)
      2) Be verbal: able to state name and answer basic questions or make simple statements (e.g., “Leave me alone”)
      3) Demonstrate purposeful movement to physical stimulation and/or commands, such as rolling away from examiner or pushing examiner’s hand away
   b. Have no evidence of acute head trauma. Pupils must be equal, round and reactive to light.
   c. Not voice active suicidal intentions
   d. Not be actively seizing or post-ictal
   e. Not be combative or belligerent
   f. Not manifest physical evidence to suggest that he is suffering from anything other than acute ETOH intoxication, and will not require studies such as X-ray, blood tests or specialist consultation.
   g. Deemed safe for transport to MATS by EMT-P
   h. Have Vital Signs that fall within following parameters:

HR	55-115	Systolic BP	90-175
RR	12-25	Oxygen Saturation	>90%
BGL	60-350	Temp	>34.9C <38.1C

Inebriates who are arousable and non-ambulatory due to ETOH intoxication, as well as persons who are suffering from alcohol withdrawal, are potential candidates for transport to the MATS medical monitoring unit if all above criteria are met.

Upon arrival to MATS, if the inebriate is not a candidate for the social detox facility and requires medical monitoring, the EMT-P shall await medical personnel at the MATS medical monitoring facility, who will take report and assume care of the patient. Patients who are not accepted into the facility must be transported to the requested ED. If patient has no hospital preference, he/she will be transported to area core hospitals on a rotational basis.

3. Transfer protocol enabling transport from EDs or other medical facilities:

Patients deemed stable in emergency departments after an appropriate medical screening exam are eligible for transfer to MATS, if medically cleared and transfer approved by physician.

The following criteria must be met for transfer:

a. Patient must require no further testing.
b. Patient must require no further therapies that are available only in a hospital setting.
c. Patient has required no Narcan for 2 hours.
d. Vital signs stable
e. Meets criteria for van transport to MATS

MCB Action	Passed 11/15/00	Implemented 01/01/01	Revised 01/19/11	Revision # 6	Implemented 02/01/11

M-16A MATS Serial Inebriate Intervention Program (SIIP) Pilot Project

Designation of Condition: Upon evaluation, adult person (at least 18 years of age) is determined to be intoxicated with Ethanol.
The Purpose of this program is: to relieve congestion in the Metropolitan area Hospital Emergency Departments and Psychiatric Emergency Services, and reduce the frequency of low acuity, non- emergency responses by pre-hospital providers to serial inebriates. This will increase the availability of resources for critical emergencies, and reduce the number of bookings by APD at the Metropolitan Detention Center (MDC) by instead providing stabilization, observation, and placement support services to public inebriates at the Metropolitan Assessment and Treatment Services (MATS) location in Bernalillo County.

ALL PROVIDERS

Transport criteria:
All intoxicated or withdrawing persons may be transported to MATS (SIIP) if the following admission criteria are met:

Transport to SIIP social detoxification facility if:

- Primary diagnosis is Intoxication.
- Person can walk or use their assistive devices without assistance (i.e. cane or wheelchair).
- Person is able to use the toilet, eat, and drink independently.
- Person is non-combative.
- A person is expressing suicidal ideations, as long as the person does not have an actual plan for self-harm.
- Person has no active wounds, signs of head trauma or other acute trauma beyond simple skin abrasions.
- Person is not actively seizing.
- Person accepts offer to be transported to SIIP.
- APD is aware that person can leave SIIP at any time.

If these criteria are met then transport to SIIP is permitted by non-EMS personnel including: police, PSO or SIIP Transport unit.

The SIIP unit will be staffed with not less than one APD officer and one AFD EMT.

- The SIIP unit is meant to be proactive in its response. The SIIP unit will be primarily responsible for the identification of SIIP candidates and their subsequent transport to SIIP.
- Pre-hospital providers that make contact with SIIP candidates or candidates for the social model of MATS may contact the appropriate 911 PSAP for availability of the SIIP unit. The SIIP unit may also be requested for the specific call type and/or respond in coordination with an emergency response unit.
- Providers should make a good faith decision regarding delaying transport of the SIIP candidate in lieu of waiting for the SIIP unit to respond.
- In the event that a pre-hospital transport and an APD unit arrive on scene simultaneously to a SIIP candidate, if possible the SIIP candidate should be transported to MATS via PSO, SIIP unit or APD unit. If neither of those options is available, then EMS will transport; it will be assumed that EMS will not transport to SIIP unless there are no other available or appropriate means of transportation.

Additional SIIP Information:

- Clients will be admitted through the central Intake Unit. (capacity 20 clients)
- Clients will not be dressed out in standard MATS attire, they will be I.D.'d with a red wristband with name, time of intake, and locker number. Clients will empty their pockets and place contents in a plastic bag that will be secured in their assigned locker located in the former mailroom.
- CIU will hold clients until a bed becomes available in the detox area. Clients that appear unstable / distressed beyond impending withdrawal will be referred to MOTU.

- As beds become available in the permanent detox area, clients will be moved from the CIU to the detox area. Beds designated for SIIP males are #11, 12, 19, 20, 27, and 28. If female beds are full, (16 beds) temporary cots will be brought in to the women's area in order to not have the day room operating as a co-ed dorm. Clients will not be dressed out in standard MATS wear. (capacity 48 beds)
- If the CIU and detox areas are full, clients will be temporarily moved into the day room for males only. (Capacity 12 beds)
- Ambulance transports must use the M-16 protocol for all clients being transported to MOTU. MOTU hours of operation are 8 am to 7pm. MATS will not accept any ambulance transports between the hours of 1900 and 0800, or that do not fit the social model services criteria.
- Clients not self-admitted to MATS Detox, that stayed through the night, will be discharged at the designated discharge time.
- It is important that the transport unit communicate with MATS designated intake staff on availability of beds prior to transport. MATS will offer observation for up to eighty (80) clients staying at SIIP. MATS contact is 505-468-1555.

MCB Action	Passed 02/20/13	Implemented 04/01/13	Revised	Revision #	Implemented

M-17 Pulmonary Hypertension

Designation of Condition: A patient with pulmonary hypertension being treated with continuous Flolan® infusion activates the EMS system by calling 911 or by calling the AAS System Status Center directly.

PARAMEDIC

If patient is conscious:

- Perform primary and secondary surveys and provide care as appropriate.
- If a problem exists with the patient's central IV line that compromises the continuous infusion of Flolan®, initiate a peripheral IV and connect the Flolan® tubing directly to the peripheral IV catheter after ensuring patency of the peripheral line.
- Utilize patient's expertise to ensure patient's ambulatory pump is working properly and Flolan® is infusing at the correct rate.
- Transport to hospital of patient's choice.
- If you need to administer any other IV medications, initiate a second peripheral IV line; Flolan® is incompatible with all other medications.

If patient is unconscious:

- Perform primary and secondary surveys and provide care as appropriate.
- Evaluate whether Flolan® is infusing properly *via* patient's central IV line by inspecting the patient's ambulatory pump for signs of proper operation.
- If Flolan® is infusing properly, leave infusion as is and allow patient's ambulatory pump to control Flolan® infusion en route to the hospital.
- If Flolan® is not infusing properly via the patient's central IV line and you determine it is due to occlusion of the central IV line, initiate a peripheral IV and connect the Flolan® tubing directly to the peripheral IV catheter after ensuring patency of the peripheral line.
- If patient's ambulatory pump is alarming another type of failure, troubleshoot as possible, gather all materials necessary and transport patient emergently to the hospital.

If patient is in cardiac arrest:

- Perform a primary survey and treat the cardiac arrest per protocol.
- Ensure the continuous infusion of Flolan® either through the patient's central IV line or through a designated peripheral IV line. Remember, Flolan® is incompatible with all other medications; ACLS drugs must be administered *via* a separate IV line or through an endotracheal tube as appropriate.

In all cases, upon arrival at the hospital, ensure the staff is informed of the patient's condition and of the need for the Flolan® to infuse continuously

Toll Free Assistance Number: 1-800-9FLOLAN (1-800-935-6526)

MCB Action	Passed 08/03	Implemented 10/03	Revised	Revision #	Implemented

M-18 Infection Control

Designation of Condition: Appropriate use of universal precautions to minimize the risk of disease transmission to providers and patients.

ALL PROVIDERS

- Universal Infection control precautions will be utilized on all patients, as appropriate, per OSHA directives.
- Routine infection control precautions for potential contact with blood or infectious material include:
  - Gloves (wear gloves prior to any ANY contact with patient)
  - Hand hygiene
    - Hand washing before and after patient contact is imperative. If hands come in contact with blood or other bio-hazardous material, immediately wash with Cal Stat solution or equivalent.
    - Wash hands with alcohol-based solution upon entering and exiting EMS units.
  - Eye protection (sealed eye protection if available)
  - Gown (as indicated)
  - For endotracheal intubation, suctioning, and bag valve mask assisted ventilation, full-face mask shield is required (or N95 and sealed eye protection).
  - Providers should wear PPE until post-transport cleaning of all surfaces (including front and rear of vehicle) with an appropriate disinfectant is complete. Exception: Remove PPE used on scene before getting into front of emergency unit to drive to hospital.
  - Be sure to use correct technique to don and doff PPE.
  - Contaminated sharps will not be recapped, bent, or broken. They will be discarded intact immediately after use into a needle disposal box.
  - Safer medical devices, when available, will be used according to manufacturer guidelines and per departmental policy.
  - All blood spills and other biohazard spills will be cleaned up with Virex or equivalent.
  - After patient encounter, re-use of provider N95 mask is permitted per CDC guidelines. Mask must remain dry, clean, with no evidence of contamination. Mask should be stored in paper bag to keep clean.
- If a service is notified of a potential infectious disease exposure, it is incumbent on that service to notify other responding agencies' supervisory staff (AAS Operations Supervisor and/or Fire Department Battalion Commander) of the exposure as soon as possible so that appropriate in-house occupational medicine exposure guidelines may be implemented.

  - All patients with cough will be fitted with a surgical mask, and screened for possible influenza or TB infection.
  - An influenza-screening test will help identify patients at increased risk of active influenza infection. Besides fever >100, most infected patients will typically complain of:
  - Cough, myalgia and headache
  - Sore throat and congestion may also be present.
  - Nausea and vomiting are commonly reported among children.
- If influenza is suspected, obtain full set of vital signs, including O_2 sat and temperature. (Fever may be absent in the elderly, young children and patients with underlying chronic illnesses.) Perform lung exam. Make note of any rales/rhonchi. Look for signs of increased work of breathing.
  - Providers will wear a protective mask, either surgical or N95, while caring for patients with positive influenza screening exam. All secretions in these patients will be considered infectious. Notify receiving hospital ASAP to allow for early consideration of respiratory isolation.
  - Optimize internal vehicle ventilation.

- In the event of an influenza pandemic:
  - Assume all patients with cough are infected with the influenza virus. In order to mitigate exposure, patient care responsibility should be delegated to one paramedic and another EMT of lesser training (if available). Only aforementioned personnel shall initiate patient contact and perform patient care. Other personnel should await instructions at their vehicle. Should additional resources be needed, attending personnel may call for them.
  - In order to minimize the spread of infection, providers should not shake hands without wearing gloves.

- If known or suspected exposure to the pandemic flu strain takes place, advise supervisor per departmental policy.
  - Annual Influenza vaccine is strongly recommended for all EMS providers.

  - TB screening test will help identify patients at increased risk of active TB infection. Patient has cough AND:
  - Has a known history of active TB or has spent time with a person diagnosed with TB
  - Is homeless
  - Has diagnosis of AIDS
  - Has recently been in prison
  - Has lived in high endemic area (most countries in Latin America and the Caribbean, Africa, Asia, Russia and Eastern Europe)
  - Consider TB in all patients with hemoptysis and in coughing patients with night sweats and recent weight loss.
  - Providers will wear N95 respirator mask while caring for patients with positive TB screening exam. All secretions in these patients will be considered infectious. Notify receiving hospital ASAP to allow for early consideration of respiratory isolation.
  - Optimize internal vehicle ventilation.

MCB Action	Passed 12/17/03	Implemented 01/01/04	Revised 05/19/10	Revision # 2	Implemented 10/01/10

M-19 Nausea and Vomiting

Designation of Condition: Patient will be complaining of nausea and/or vomiting.

ALL PROVIDERS
- Ensure airway patency; provide suction and supplemental oxygen PRN.
- Perform a thorough assessment, including palpation of the abdomen and assessment for signs of dehydration.

INTERMEDIATE AND PARAMEDIC
- IV NS or saline lock PRN
- If patient shows signs of dehydration or has history of significant volume loss:
  - Adult: Bolus in 250 ml increments, reassessing between boluses
  - Infant/Child: Bolus in 10-20 ml/kg increments, reassessing between boluses
- In cases of severe hypovolemia, refer to Hypovolemic Shock protocol (T-9)

Zofran
- Indications:
  - Complaint of moderate to severe nausea
  - Active vomiting
  - Fully immobilized patients with any complaint of nausea

- Contraindications:
  - Zofran should not be administered to patients who have a known allergy or hypersensitivity to Zofran or other selective serotonin receptor antagonists (SSRA's).
  - Zofran should not be used in cases of overdose or ingestion where vomiting works as one of the body's protective mechanisms.

- Precautions:
  - Administration of anti-emetics may cause sedation, especially when given concomitantly with narcotics.

Dosing:
  - Adult (12 years and older): 8 mg IM/IV/IO or orally disintegrating tablet (ODT). Place ODT in patient's mouth and instruct patient to allow it to dissolve. The tablet dissolves in seconds and any residue may then be swallowed.
  - Lower dosing in the elderly is not necessary.
  - Pediatric (ages 4 – 11 years): 4 mg ODT or 0.15mg/kg IV/IM/IO to max of 8 mg.
  - MCEP order is required for additional doses of Zofran.

PARAMEDIC
- Consider ECG monitor

MCB Action	Passed 12/15/10	Implemented 04/01/11	Revised 01/20/15	Revision # 2	Implemented 04/01/15

M-20 Hyperkalemia

Designation of Condition: Any patient with a pulse for whom a diagnosis of hyperkalemia (serum K > 5.2) has been confirmed by sending facility (e.g. urgent care, clinic, SNF, etc.), or for whom hyperkalemia is highly suspected based upon history of known renal failure and, most commonly, missed dialysis.

ALL PROVIDERS

- Routine care
- Obtain and monitor vital signs
- Transport without delay

INTERMEDIATE AND PARAMEDIC

IV/IO

PARAMEDIC

Apply cardiac monitor
Perform 12-lead ECG
If marked peaked T-waves or QRS > 0.12 or sine wave on ECG:

- Administer 10% Calcium Chloride 1g IV/IO or Calcium Gluconate 3g IV/IO via slow push to stabilize cardiac membranes
- Administer Sodium Bicarbonate 1mEq/kg IV/IO slow push
- Administer 10mg Albuterol Sulfate nebulized to drive potassium intracellular

Repeat ECG

- If ECG changes have not resolved, contact MCEP for consultation

If no ECG changes on initial ECG, consider repeat ECG in 15-30 minutes and treat accordingly

MCB Action	Passed 01/20/2015	Implemented 04/01/2015	Revised	Revision #	Implemented

Obstetrics Section [OB]

OB-1 General Active Labor

Designation of condition: The patient will be pregnant or have a suspected pregnancy and present with complaints of intermittent abdominal contractions with abdominal cramping and/or lower back pain.

ALL PROVIDERS

Obtain History

- Estimated gestational age
- Date of last period
- Duration and time interval of contractions
- Vaginal bleeding: amount? (OB-3 Vaginal Bleeding During Pregnancy)
- Amniotic fluid? Color? When noted?
- Previous deliveries
- Prenatal care
- Known abnormal presentation or obstetrical complication (previa, abruption, circlage)
- Single or multiple gestation
- Drug or alcohol abuse
- Pregnancy Induced Hypertension, pre-eclampsia or Gestational Diabetes

Physical Exam

- Vital signs
- Examine perineum for:
- Visible cord (OB-4 Prolapsed Umbilical Cord) or presenting parts in vagina other than head (OB-5 Breech Delivery)
- Head crowning (OB-2 Imminent Delivery)
- Active vaginal bleeding (OB-3 Vaginal Bleeding During Pregnancy)
- Amniotic Fluid
- Meconium staining of amniotic fluid

Treatment

- ABC's
- Oxygen as needed to maintain SaO2 >90%
- Reassurance of mother

INTERMEDIATE AND PARAMEDIC

- Establish IV

Transport

- If 30 weeks gestation or greater, patients without complications should be transported to an OB capable facility (preferably where the patient has had prenatal care). These include Presbyterian Downtown, UNMH, Rust Medical Center, Lovelace Westside, and Lovelace Women's Hospital
- Any patient with gestational age between 20-29 weeks should be transported to a NICU facility. These include Presbyterian Downtown, UNMH, RUST Medical Center, or Lovelace Women's.
- If gestational age is <20 weeks and patient presents with vaginal bleeding and/or abdominal pain, transport to nearest appropriate Emergency Department.

MCB Action	Passed 06/15/05	Implemented 10/01/05	Revised 08/21/2013	Revision # 1	Implemented 10/01/2013

OB-2 Imminent Vertex Delivery Guidelines

Designation of Condition: Pregnant patient in active labor with delivery imminent as evidenced by crowning (or other presenting part), urgent desire to push, continuous intense contractions, etc.

ALL PROVIDERS

- Universal precautions. Open OB delivery pack containing the following: sterile gloves, sterile clamps and scissors, sterile towels for neonate, bulb suction, silver swaddler and placenta bag. Don sterile gloves, and create field for delivery.
- If membranes are ruptured, look for meconium (see PC-4) or prolapsed cord (see OB-4) and prepare to treat appropriately.
- Proceed with delivery:
  - Control delivery of head with one palm. Sterile towel in other hand at perineum will protect infant's mouth/nose from anal contamination. Gently wipe baby's face. Suction oral cavity and nares with bulb suction.
  - With delivery of neck, check for nuchal cord. If nuchal cord is present, gently loosen and slip over baby's head. If unable to manually remove cord, double clamp and cut cord.
  - If necessary, gently assist delivery of anterior shoulder by placing hands on side of head and exerting very mild downward pressure. Then, a very gentle upward lift of the head may aid in delivery of posterior shoulder. The remainder of the body usually follows without difficulty. Do not exert traction or try to "pull" baby from birth canal, as this may result in injury.
  - Once delivered, hold infant at or slightly below the level of the introitus for 60 seconds prior to clamping cord.
  - Thoroughly suction the airway.
  - Dry/stimulate baby with sterile towels. Keep infant covered (including head) to prevent heat loss.
  - Place sterile clamps at approximately 6-8 inches from infant's abdomen, and cut between them using sterile scissors. (Never use non-sterile equipment to cut cord.)
  - If infant is pink and vigorous you may place infant on mother's breast.
  - If infant is cyanotic, limp, depressed or not well-appearing, see PC-4.
- If abnormal presentation at delivery e.g., breech or shoulder dystocia (See OB-5 and contact MCEP)
- Placental delivery: The placenta usually delivers spontaneously (often preceded by a sudden gush of blood) within 5-10 minutes of delivery. As the placenta passes through the introitus gently lift it away with both hands employing a slight twisting motion. Never exert traction on the cord to pull placenta from uterus. When expelled, place placenta in plastic bag or other container and give to personnel at receiving hospital.
- If placenta has been delivered, and uterus does not feel firm, massage the uterine fundus by supporting the lower uterine segment with one hand just above the symphysis pubis, and massaging the uterus with the other hand.

INTERMEDIATE AND PARAMEDIC

- IV NS if time permits prior to delivery
- If bleeding from mother is severe start a second IV.
- Transport to the closest appropriate medical facility (hospital with a Labor & Delivery unit):
  - Women's Hospital
  - University Hospital
  - Presbyterian Hospital
  - Lovelace Westside Hospital

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 04/20/11	Revision # 5	Implemented 10/01/11

OB-3 Vaginal Bleeding During Pregnancy

Designation of Condition: Vaginal bleeding during pregnancy is abnormal. First trimester bleeding may result from threatened miscarriage, miscarriage or ectopic pregnancy. Bleeding after 20 weeks gestation may result from placentae previa (usually painless), placental abruption (usually associated with pain, often secondary to trauma), premature rupture of membranes or post-partum hemorrhage. Third trimester bleeding should always be considered an emergency, as profound shock secondary to exsanguinating hemorrhage may occur within minutes.

NOTE: The amount of visualized vaginal blood loss is NOT a reliable indicator as to the actual amount of blood loss occurring.

NOTE: Digital vaginal examinations should never be performed. Visual inspection of the perineum is indicated if preterm labor is suspected. If crowning is noted, see OB-2 Imminent Vertex Delivery protocol.

ALL PROVIDERS

- ABC's
- Follow blood and body fluid exposure guidelines.
- Oxygen, if indicated
- If uterine fundus is palpable at or above umbilicus, place patient in a left lateral recumbent position to avoid supine hypotension syndrome.

INTERMEDIATE AND PARAMEDIC

- IV NS; titrate IV flow rate to patient's hemodynamic status.
- If gestational age is 30 weeks or greater, the patient should be transported to an OB capable facility (UNMH, RUST Medical Center, Presbyterian, Lovelace Women's Hospital). If pre-term labor is suspected, and the gestational age is >20 weeks, but <30 weeks, transport patient to a facility with a NICU (Presbyterian, UNMH, RUST Medical Center, and Lovelace Woman's Hospital). Trauma patients should be transported to UNMH.
- If gestational age is <20 weeks and patient presents with vaginal bleeding and/or abdominal pain, transport to nearest appropriate Emergency Department.

MCB Action	Passed 06/15/2005	Implemented 10/01/05	Revised 08/21/2013	Revision # 1	Implemented 10/01/2013

OB-4 Prolapsed Umbilical Cord

Designation of condition: This occurs when the cord slips down into the vagina or presents externally after the amniotic membranes have ruptured. The umbilical cord is compressed against the presenting part, diminishing fetal blood flow from the placenta. Fetal asphyxia may rapidly ensue if circulation through the cord is not re-established and maintained until delivery.

ALL PROVIDERS

- ABC's
- Oxygen
- Maintain universal blood and body fluid precautions.
- Rapid transport to the nearest OB capable facility
- Position the mother with hips elevated in Trendelenburg or knee-chest-position to relieve pressure on the cord.
- Instruct the mother to "pant" with each contraction to prevent her from bearing down.
- Insert two gloved fingers into the vagina and gently elevate the presenting part to relieve pressure on the cord and restore umbilical pulse. DO NOT attempt to reposition or push the cord back into the uterus.
- If assistance is available, apply moist sterile dressings to the exposed cord.
- Maintain hand position (preventing compression of the cord) during rapid transport to receiving hospital, and until such time that hospital personnel are able to relieve you of this life-saving intervention.

INTERMEDIATE AND PARAMEDIC

- IV NS or saline lock
- The definitive treatment is an emergency cesarean section.
- Early notification of receiving facility is mandatory.

MCB Action	Passed 06/15/2005	Implemented 10/01/05	Revised	Revision #	Implemented

OB-5 Breech Delivery

Designation of condition: The largest part of the fetus (head) is delivered last. In general, breech presentations include buttocks presentation and/or footling presentation. An infant in a breech presentation is best delivered in the hospital setting since an emergency cesarean section is often necessary. However, if it is necessary to perform a breech delivery in a pre-hospital setting, the following procedures should be performed:

ALL PROVIDERS

- ABC's
- Oxygen as needed
- Maintain universal blood and body fluid precautions.
- Follow general treatment guidelines as indicated in general active labor protocol.
- If breech presentation identified, begin immediate transport to OB capable hospital. Determine need for imminent delivery. (The mere appearance of the feet through the vulva does not mandate delivery. It is important to allow the feet, legs, and buttocks to advance through the introitus before intervention.) If imminent delivery necessary:
- Position mother for delivery.
- Whenever possible, use sterile or aseptic technique.
- Allow the fetus to deliver spontaneously up to the level of the umbilicus. If the fetus is in a front presentation, gently, extract the legs downward after the buttocks are delivered.
- After the infant's legs are clear, support the baby's body with the palm of the hand and volar surface of the arm.
- After the umbilicus is visualized, gently extract a 4"-6" loop of umbilical cord to allow for delivery without excessive traction on the cord. Gently rotate the fetus to align the shoulder in an anterior-posterior position. Continue with gentle traction until the axilla is visible.
- Gently guide the infant upward to allow delivery of the posterior shoulder.
- Gently guide the infant downward to deliver the anterior shoulder.
- During a breech delivery, position the head so that the fetal face is downward, away from the maternal symphysis.
- The head may deliver without difficulty. However, be careful to avoid excessive head and spine manipulation or traction.
- If the head does not deliver immediately, action must be taken to prevent suffocation of the infant. Perform Mariceau's maneuver:
  - Rotate mothers legs up towards her shoulders
  - Place a gloved hand in the vagina with the palm toward the babies face.
  - With the index and middle fingers, form a "V" on either side of the infant's nose on the maxilla.
  - Gently push the vaginal wall away from the infant's face while applying gentle traction to the baby's face to roll the occiput under the pubic symphysis. An assistant may apply gentle downward pressure above the pubic symphysis until the head is delivered.
- If unable to deliver infant's head within three (3) minutes, maintain the infant's airway with the "V" formation and rapidly transport to the hospital.
- Early notification of the receiving facility of a complicated delivery is mandatory.

INTERMEDIATE AND PARAMEDIC

- IV NS

MCB Action	Passed 06/15/05	Implemented 10/01/05	Revised	Revision #	Implemented

OB-6 Pre-Eclampsia and Eclampsia

Designation of Condition: Pre-eclampsia: A condition of pregnancy (after 20 weeks gestation) characterized by increasing hypertension, headaches, clonus, visual disturbances, right upper quadrant pain and edema of the lower extremities. This condition may progress to Eclampsia, an active life threatening seizure in the pregnant or post-partum patient.

ALL PROVIDERS

- Establish and maintain airway. Provide supplemental oxygen.
- Position patient on left side (left lateral recumbent position). Avoid supine hypotension syndrome.
- Perform field glucose determination. If <60 mg/dl, administer dextrose per protocol.
- Transport ASAP.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS TKO or saline lock

PARAMEDIC

- Monitor ECG.

Pre-Eclampsia:

- If patient is exhibiting signs and symptoms of **severe** pre-eclampsia: 1) systolic BP >170 and/or diastolic BP >110, **OR** 2) systolic BP >150 and/or diastolic BP >100 **AND** the patient exhibits at least 2 signs and symptoms of severe pre-eclampsia (severe headache, blurred vision, or abdominal pain), contact MCEP for possible magnesium order. Administer 2 gm. $MgSO_4$ IV over 12 minutes (1 gm. q 6 minutes).

Eclampsia: If patient begins seizing:

- Magnesium:
  - Administer a total of 4 gm. $MgSO_4$ IV/IO over 12 minutes (1 gm. q 3 minutes) and then begin $MgSO_4$ drip at 30 mg/min. If seizure continues after giving magnesium, administer Diazepam (see dosing below).
  - Perform field glucose determination. If <60 mg/dl, administer dextrose per protocol.
  - Magnesium is contraindicated in patients with renal failure.
  - If magnesium is administered too rapidly (i.e., faster than parameters listed above) severe hypotension, arrhythmia, and/or cardiac arrest may occur.
- Diazepam:
  - If Diazepam is administered, be prepared to actively manage the patient's airway as respiratory arrest may result.
  - Adult: 0.2 mg/kg IV/IO, not to exceed 5 mg/min (maximum dose 0.2 mg/kg)
- Contact MCEP if greater Diazepam doses are required, or if unable to establish IV or IO in order to request IM administration of Midazolam.
  - Midazolam: 0.1 mg/kg IM up to maximum 5 mg

MCB Action	Passed 06/16/99	Implemented 10/01/99	Revised 05/19/10	Revision # 3	Implemented 10/01/10

Trauma Section [T]

T-1 Airway Management for the Trauma Patient

Designation of Condition: The patient will be unable to adequately maintain an airway in the presence of trauma.

ALL PROVIDERS

- Immobilize the cervical spine (axial immobilization). An airway may be maintained by utilizing the trauma jaw thrust or trauma chin lift. An oral or nasal airway may be utilized. Suction as necessary.
- If patient is not breathing adequately or is in respiratory arrest and BVM ineffective, the neck should be stabilized with axial immobilization (in-line) and the airway secured with an Extraglottic Airway Device (see A-6) without extension or flexion of the head.

PARAMEDIC

- If patient is not breathing adequately or is in respiratory arrest and BVM ineffective, the neck should be stabilized with axial immobilization (in-line) and the trachea orally intubated without extension or flexion of the head.
- If the attempt at an axial immobilization oral intubation is not successful, consider: Extraglottic Airway Device (see A-6) or surgical cricothyrotomy (see A-8).
- In the unresponsive breathing patient, consider nasotracheal intubation, unless contraindicated (see A-1).

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 12/01/04	Revision # 2	Implemented 04/01/05

T-2 Spinal Immobilization

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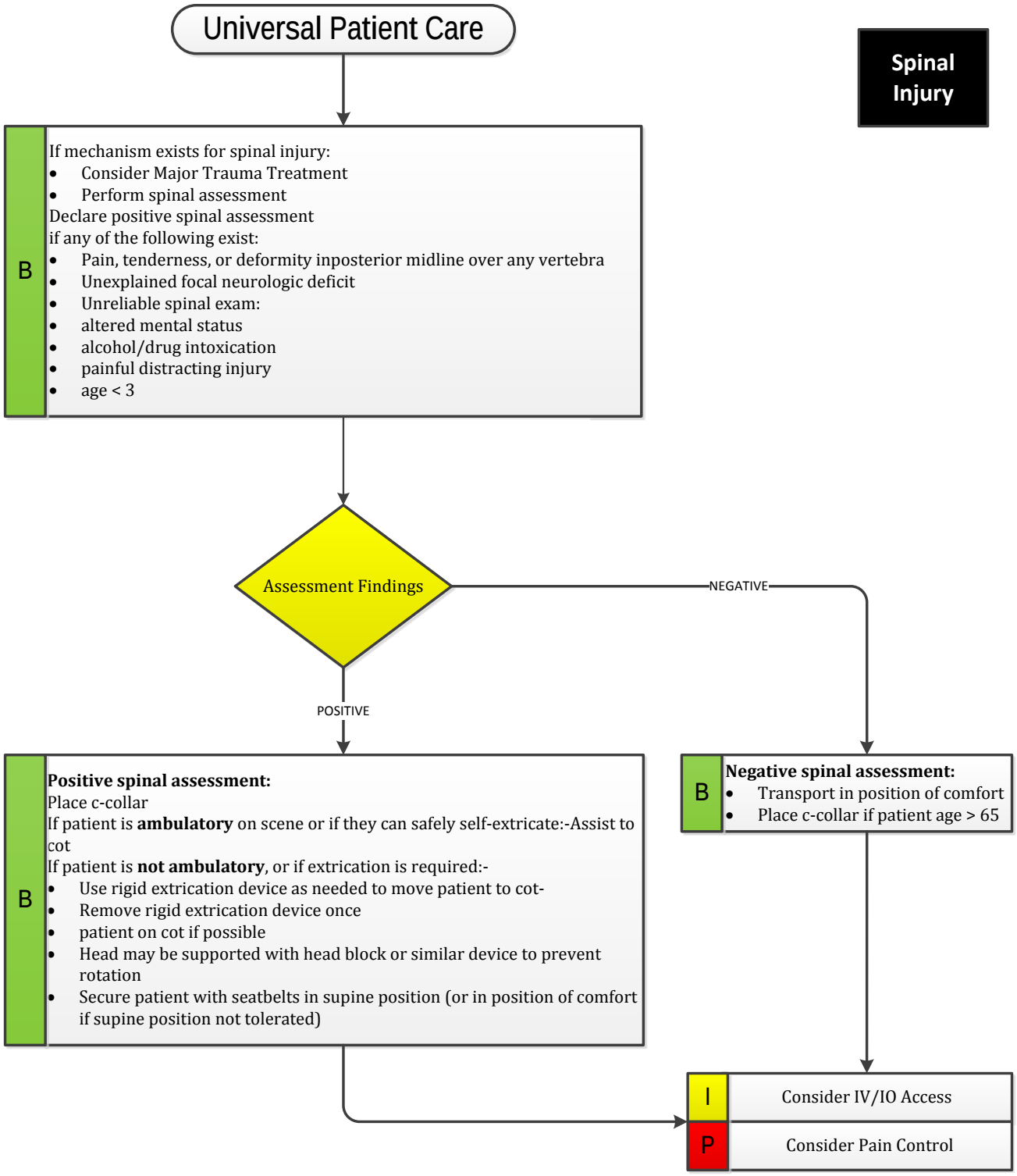
MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 12/18/2013	Revision # 4	Implemented 04/01/2014

T-3 Spinal Immobilization Algorithm



Notes:

- No patient shall be transported on a backboard or other rigid extrication device UNLESS removing patient from device interferes with critical treatments or interventions
- Exception: patient may be transported with vacuum splint in place
- C-collar may be removed if interfering with airway or airway placement, or if causing extreme distress

MCB Action	Passed	Implemented	Revised	Revision #	Implemented 4/01/2014

T-4 Major Trauma Patients, Penetrating

Designation of Condition: See Trauma Triage Protocol.

ALL PROVIDERS

Penetrating Trauma: Transport to the appropriate Trauma Center should be initiated as soon as possible.
For Category 1 or Category 2 penetrating trauma patients, prolongation of scene time is unacceptable except in the following circumstances:

- The scene is unsafe
- The patient is not accessible
- Airway has not been established and requires prompt intervention
- Multiple patients
- Belligerent combative patients who require additional personnel

Field Procedures:

- Rapid transport is the priority.
- Secure airway as appropriate utilizing axial immobilization, oxygen, BVM, suction, and Extraglottic Airway Device/intubation as indicated (see T-1).
- Immobilize C-spine as appropriate. Immobilize only if focal neurological deficit is noted below the injury, or if you suspect a spinal injury based on the anatomic location of the wound and the patient is unconscious or severely obtunded.
- Control major external bleeding with direct pressure (see T-10).
- Begin immediate transport to appropriate facility according to the trauma triage protocol (see T-7).
- Monitor and support vital signs en route.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS (two large bore preferred) en route and provide fluid resuscitation. Cautiously titrate fluids to maintain mental status or a systolic BP at or near 100 mmHg. In cases of severe brain trauma, titrate fluids (aggressively if necessary) to maintain SBP at or above 100 mmHg.

PARAMEDIC

- If evidence of tension pneumothorax, treat appropriately (see T-6).

PENETRATING TRAUMATIC ARREST (patient apneic, pulseless, no signs of life)

ALL PROVIDERS

- Resuscitation should be initiated in all trauma arrest cases except patients whose bodies are decapitated, transected, have extruded brain matter, or livormortis.
- Mandatory resuscitation field procedures include:
- Secure airway as appropriate, utilizing axial immobilization (as indicated); ensure adequate oxygenation and ventilation.

PARAMEDIC

- If evidence of tension pneumothorax, treat appropriately.
- If patient remains pulseless and apneic after above,
- Place patient on cardiac monitor:
  - If PEA >40 bpm, provide rapid transport. Commence CPR and IV fluids.
  - If Asystole or PEA <40 bpm, you may call MCEP for D/C order.
- If there is a return of pulses, titrate fluids to maintain systolic BP of 100 mmHg.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 06/15/05	Revision # 3	Implemented 10/01/05

T-5 Major Trauma Patients, Blunt

Designation of Condition: See trauma triage protocol.

ALL PROVIDERS

Blunt Trauma: Transport to the appropriate Trauma Center should be initiated as soon as possible.
For Category 1 or Category 2 blunt trauma patients, prolongation of scene time is unacceptable except in the following circumstances:

- The scene is unsafe
- The patient is not accessible
- Airway has not been established and requires prompt intervention
- Multiple patients
- Belligerent combative patient who requires additional personnel

Field Procedures:

- Rapid transport is the priority.
- ABC's. Secure airway as appropriate; oxygen, BVM, suction, and Extraglottic Airway Device/intubation as indicated (see T-1).
- Immobilize and protect the C-spine as appropriate (see T-3).
- Control bleeding with direct pressure (see T-10).
- Begin immediate transport to appropriate facility according to trauma triage protocol (see T-7).
- Consider MAST if available, as appropriate (see T-10).
- Monitor and support vital signs en route.

INTERMEDIATE AND PARAMEDIC

- IV NS (two large bore preferred) en route and provide fluid resuscitation. Cautiously titrate fluids to maintain mental status or a systolic BP at or near 100 mmHg. In cases of severe brain trauma, titrate fluids (aggressively if necessary) to maintain SBP at or above 100 mmHg.

PARAMEDIC

- If evidence of tension pneumothorax, treat appropriately (see T-6).
- Cardiac monitor en route

BLUNT TRAUMATIC ARREST (patient apneic, pulseless, no signs of life):

ALL PROVIDERS

- Resuscitation should be initiated in all trauma arrest cases except patients whose bodies are decapitated, transected, have extruded brain matter, or livormortis.
- Mandatory resuscitation field procedures include:
- Secure airway as appropriate utilizing axial immobilization. Ensure adequate oxygenation and ventilation.

PARAMEDIC

- If evidence of tension pneumothorax, treat appropriately.
- If patient remains pulseless and apneic after the above modalities have been instituted, place patient on cardiac monitor.
- If PEA >40 bpm, provide rapid transport. Commence CPR and IV fluids.
- If Asystole or PEA <40 bpm, you may call MCEP for D/C order.
- If there is a return of pulses, titrate fluids to maintain systolic BP of 100 mmHg.
- If there is a reasonable suspicion (based on mechanism or history) that the arrest was secondary to a primary cardiac event, and not trauma, then treat patient in accordance with the appropriate cardiac protocols.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 09/20/06	Revision # 3	Implemented 04/01/07

T-6 Chest Decompression

Designation of Condition: To be used when signs and symptoms of tension pneumothorax are present. Unless the situation is immediately life-threatening, contact an MCEP before performing this procedure.

PARAMEDIC

- Locate the landmark on the anterior chest; 2nd or 3rd intercostal space at the mid-clavicular line. Alternatively, the 4th or 5th intercostal space at the mid-axillary line may be used.
- Prep skin with antiseptic swab, if possible.
- Insert a #14g angiocath at a 90-degree angle at the superior border of the third rib to a depth sufficient enough to obtain free air from the pleural space. Withdraw the stylet, leaving the catheter in place.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised	Revision #	Implemented

T-7 Trauma Triage Algorithm

ALL PROVIDERS

Category 1 Trauma

- Assess physiologic status
  - Hemodynamic compromise [1]
  - Respiratory compromise [2]
  - Unconscious or deteriorating mental status

If yes to any of the above, transport to Level 1 Trauma Center (University Hospital)
If no, continue trauma triage

Category 2 Trauma

- Assess anatomical injury
  - All penetrating injuries to head, neck, torso, or proximal extremities[3]
  - Flail chest
  - Trauma with burns of 10% or > or inhalation injuries
  - 2 or more suspected proximal long bone fractures
  - Potential multi-system trauma
  - Limb paralysis
  - Amputation proximal to distal phalangeal joint
  - Open or suspected depressed skull fracture
  - Unstable pelvis or suspected pelvic fracture
  - Altered mental status [4]

If yes to any of the above, transport to Level 1 Trauma Center (University Hospital)
If no, continue trauma triage

Category 3 Trauma

- Assess mechanism of injury and risk for occult injury
  - Ejection from vehicle
  - Death in same vehicle
  - Falls > 15 feet
  - Pregnant > 20 weeks
  - Evidence of high energy event of clinical significance [5,6]

If yes to any of the above, transport to Level 1 Trauma Center (University Hospital)

If no, the patient meets non-category trauma criteria and may be transported to a:

- Level 1 trauma center (University Hospital) or
- Presbyterian or Lovelace Medical Center or
- Requested facility or
- Closest facility by proximity or access or Capacity status
- If the patient or paramedic requests a non-listed facility, contact MCEP at requested facility and follow their guidance prior to transport.

Footnotes:

1. Hypotension, pallor, tachycardia, or diaphoresis
2. Tachypnea (hyperventilation) alone will not necessarily initiate this level of response
3. Non-life threatening, minor injuries excluded
4. Altered mental status (secondary to sedative or hypnotic will not necessarily initiate this level of response)
5. High-energy event of clinical significance = large release of uncontrolled energy to patient. These events may include rollover crashes, motorcycle, ATV or bicycle crashes, auto versus pedestrian impacts, significant assaults or altercations, or extrication times >20 minutes. Assume patient is injured until proven otherwise (multi-system injuries may be present) and exercise clinical judgment considering direction and velocity of impact, patient

kinematics, physical size and vehicle damage. Age and co-morbid factors/conditions should be considered in triage level decisions.

6. If a patient with evidence of a high energy event of clinical significance but without any clinical signs or symptoms of injury refuses transport to the trauma center and requests another facility, the paramedic will contact the MCEP at the requested facility and follow their guidance.

MCB Action	Passed 02/21/96	Implemented 04/01/96	Revised 04/04	Revision # 6	Implemented 10/01/04

T-8 University Hospital Trauma Distribution Plan

The mission of University Hospital is to be able to care for all trauma patients. However at times it may become necessary to prioritize the receipt of the critically injured. During these times, distribution of Category I, II, III and non-category patients will be necessary.

ALL PROVIDERS

- Lifeguard Communication Center will notify AAS, AFD and BCFD Dispatch centers regarding the specific category of patient divert.

- AAS, AFD and BCFD Dispatch centers will notify their supervisors of the status.

- Due to the potential short time frame of the divert status; field units will only be notified on a case-by-case basis as the need arises. This will cut down on the confusion and the lengthy notification process to rescind the divert.

- All category 3 patients will be taken to Lovelace Downtown or Presbyterian Emergency Departments. These patients will be distributed according to:
  - Patient preference
  - Closest facility
  - Capacity status

- Non-categorized patients will be transported to any facility according to:
  - Patient preference
  - Closest facility
  - Capacity status

Lifeguard Communication Center will notify the three dispatch centers once the divert status has been lifted. These times will be recorded in the Lifeguard Communication Center logs.

MCB Action	Passed 05/20/98	Implemented 07/01/98	Revised 11/11/01	Revision # 1	Implemented 01/01/02

T-9 Hypovolemic Shock

Designation of Condition: The patient may present with any of the following: an altered mental status (anxious, combative, confused, etc.), pale, clammy skin, weakness, nausea, decreased blood pressure (systolic <90 mmHg), weak rapid pulse, rapid, shallow respirations and a mechanism (medical or trauma) which may cause severe blood or fluid loss.

ALL PROVIDERS

- ABC's, high flow oxygen
- Control hemorrhage; support respiration and circulation
- Rapid transport is the priority.
- Vital signs
- Consider applying MAST (see T-10)

INTERMEDIATE AND PARAMEDIC

- Adults: IV/IO NS en route (two IVs preferred) and bolus 20 ml/kg; reassess and adjust to desired effect.
- Child: IV/IO NS en route and bolus 20 ml/kg; reassess and titrate to effect.
- NOTE: Over-aggressive fluid resuscitation may be detrimental in certain hypovolemic shock situations and caution combined with good clinical judgement is required to manage them.
    1. Patients in cardiogenic shock with signs of pulmonary edema (dyspnea, hypoxia, rales, JVD, dependent edema) - see AC-6.
    2. Hypovolemia secondary to penetrating torso trauma. New guidelines support the concept of cautious fluid resuscitation, with a goal of maintaining systolic blood pressure at or about 90-100 mmHg (see T-4).

PARAMEDIC

- Monitor ECG

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 06/15/05	Revision # 3	Implemented 10/01/05

T-10 Bleeding-Hemorrhagic Shock

Designation of Condition: Control of bleeding will be established to prevent hemorrhagic shock from developing.

ALL PROVIDERS

- Manage airway as needed.
- Administer oxygen.
- Apply direct pressure over wound.
- Lie patient supine and cover with a blanket to prevent hypothermia
- Apply a temporary tourniquet if direct pressure is unsuccessful at controlling bleeding (e.g., commercial tourniquet, BP cuff).
    - Document time applied.
    - Re-evaluate every 5 minutes.
- Consider rapid ground or air transport.
- MAST (if available) may be considered for bleeding control or fracture stabilization below the level of MAST with prolonged transport times.
    - MAST should not delay transport.
    - MAST should not be used if penetrating trauma to the chest or abdomen exists.

Patient should be transported to appropriate level trauma facility to manage care.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS
- Titrate IV fluids to systolic BP of 100 mmHg.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 06/01/12	Revision # 2	Implemented 10/01/12

T-11 Burns

Designation of Condition: The patient will have suffered a chemical, electrical or thermal injury.

Initial Examination and Evaluation

ALL PROVIDERS

- ABC's, high flow oxygen
- Evaluate the patient and determine type of burn
- History of the injury (GLOBAL SURVEY/MECHANISM OF INJURY)
- Record time of injury and location: [indoor (closed space), outdoors, etc.]
- Mechanism: scald, flame, chemical, electrical, explosion, etc.
- En route, roughly estimate extent of injury using the RULE OF NINES.
- Determine age of patient.
- Note any significant medical history.
- Electrical injury may produce apnea. If the patient is in cardiac arrest initiate CPR & Advanced Life Support.
- When burns are associated with severe trauma, trauma protocols will supersede burn protocols.
- In simple chemical accidents, remove all contaminated clothing. Copious irrigation of the affected areas with water, unless contraindicated, should be instituted for 20 minutes as it will dilute the concentration of the offending agent and may lessen the severity of injury.

Treatment

ALL PROVIDERS

- Remove from injuring source; remove all smoldering clothing.
- Assess ABC's. Check for associated injuries. REASSESS FREQUENTLY.
- Patients suspected of having inhalation injury or carbon monoxide poisoning should receive high flow O2 by mask.
- Cover burns with dry sterile dressings. Do not apply creams or ointments.
- A cool, moist dressing may be used to alleviate pain, if the BSA (body surface area) of the burn is less than 10%. DO NOT cover the patients with wet dressings if the BSA of the burn is greater than 10%.
- If possible, cover the stretcher with a sterile sheet. Place patient on stretcher and cover with another sterile sheet & blanket to prevent heat loss.

INTERMEDIATE AND PARAMEDIC

- IV NS en route. Avoid burned area if possible when establishing IV access. Do not delay transport to establish IVs on scene in critical patients.

PARAMEDIC

- Morphine Sulfate per pain management protocol (MISC-3)
- Contact an MCEP for Morphine Sulfate order above amounts in the pain management protocol to manage discomfort associated with burns.

Transportation

ALL PROVIDERS

Major Burns should be transported to the Regional Burn Center. Major burns are categorized as:

- Partial thickness burns greater than 25% in adults, 20% in children
- ALL severe full-thickness burns involving 10% or more of the body surface area
- ALL full thickness burns involving hands, face, eyes, ears, feet, and perineum
- ALL burns that compromise circulation
- ALL burns with evidence of respiratory involvement. If unable to secure airway and patient is in respiratory distress, go to nearest facility.
- ALL high voltage electrical injuries
- Burns with associated multi-system trauma

- ALL high-risk patients
- Any burn that involves hydrofluoric acid
- Moderate Burns should be transported to the Regional Burn Center. Moderate burns are categorized as;
- Partial thickness burns of 15-25% in adults; 10-20% in children
- Full thickness injuries of less than 10% body surface area

MCB Action	Passed 04/20/94	Implemented 06/01/94	Revised 11/20/2013	Revision # 7	Implemented 04/01/2014

T-12 Eye Injuries

Designation of Condition: Injury to the eye that results from blunt trauma, penetrating trauma, chemical exposure, foreign body or scratch.

ALL PROVIDERS

- Obtain history.
- Consider traumatic mechanism and immobilize C-spine if necessary.
- Physical Exam: Assess vision and examine pupils for size, shape, and reactivity to light.
- Check eye movement in all directions and document any soft tissue injury.
- Penetrating Eye Injuries: Protect globe by covering orbital area with moist dressing and bulky padding. Do not apply pressure to globe. Once a penetrating injury is discovered, further pupillary and eye examination is contraindicated.
- Protruding Intraocular Foreign Body: Do not remove. Further pupillary and eye examination is contraindicated. Stabilize foreign body and cover with bulky padding and secure with tape. Patch unaffected eye to diminish consensual eye movement.
- Small particulate foreign bodies (e.g., dust/dirt): Irrigate with saline. Flip lids back and irrigate as necessary. If present, contact lenses should be removed prior to irrigation.
- Chemical Injury
  - Alkalis and Acids: Immediate treatment upon arrival. Copious irrigation with saline (brush off dry powders first). Continue irrigation en route to hospital.
  - Mace and Pepper Spray: Irrigate eyes and affected skin with saline or water until pain relief obtained. Patients with significant pain after irrigation, prolonged visual impairment or shortness of breath should be transported to hospital.
  - If present, contact lenses should be removed prior to irrigation.

MCB Action	Passed 04.16.2003	Implemented 07/01/2003	Revised	Revision #	Implemented

T-13 Sexual Assault

Algorithm

ED Transport Not Required

INDIVIDUAL STABLE
- No symptoms as listed in box to the right
- Person wants a sexual assault exam and is within 5 days of the assault

884-SANE
(24/7 Dispatch service)

Nurse and Paramedic Consult

Provide the following info to SANE nurse:
- Medical condition
- Ability to consent
- Special needs
- Age & gender

Transport client to SANE Unit at the Family Advocacy Center via POV, Law enforcement, Yellow Cab, or EMS. (NOTE: the SANE nurse will dispatch the cab.)

Emergency Department of client choice if staff is not immediately available to receive the SANE client and the client wishes to be taken to the ED.

ED Transport Required

- Significant AMS/Intoxication/suspected or confirmed overdose
- Decreased oxygen saturation <90%
- Unstable vital signs
- P>110, RR >24, SBP <90 or >180
- Dysrhythmia
- Loss of consciousness
- Incoherent or combative
- Compromised airway or anticipated, based on report of recent strangulation attempt or ligature use
- Injuries requiring ED evaluation and Rx
- Uncontrolled bleeding
- Signs and symptoms of head injury
- Orthopedic or maxillofacial injury
- Suicidal

ED per EMS Protocol
(Sexual assault is secondary) concern)

NOTE: The SANE Dispatch service can be asked to contact the SANE Administrator-on-Call if there are any difficulties.

continued on next page

ALL PROVIDERS

1. EMS personnel determine if the sexual assault victim requires further medical assessment and/or treatment at an ED prior to a Sexual Assault (SA) exam.
2. See above algorithm for transport criteria.
3. Individuals not requiring ED treatment can be referred to the SANE unit at the Family Advocacy Center (FAC) at 625 Silver SW for a SA exam.

SCENE Responsibilities for SANE referral:

1. See above algorithm for SANE Dispatch process. NOTE: SANE nurses are not on-site. You must page the SANE nurse by calling 884-7263. Nurse response time to the FAC can be up to 1 hour. It is preferable for the SANE and Paramedic to speak directly to each other. If this is not possible, the EMS Dispatch will have to be the intermediary.
2. The SANE and Paramedic will consult and proceed accordingly. If possible, the SANE client should be transported to the FAC via private vehicle or law enforcement. If neither of those options is available, then the SANE nurse can dispatch Yellow Cab. Response time for Yellow Cab is usually within 20 minutes, at no charge to the client. NOTE: SANE clients under 16 years old must be accompanied by an adult in the taxi. It will be assumed that EMS will not transport to FAC unless there are no other available or appropriate means of transportation.
3. In the rare instance a SANE client is transported to FAC by EMS, the Paramedic will give report to the SANE nurse via phone or through the EMS Dispatch. The FAC access will be at the front of the building. The facility is typically staffed from 0800 - 1700. When speaking to the SANE nurse, confirm someone is on-site to receive the client. After 1700 hours, EMS personnel will transport to the FAC only if contact has been made with SANE and it is confirmed that staff will be present on arrival to the facility to take charge of the client. If staff is not available to receive the SANE client, the client will be taken to the ED of client choice and SANE will facilitate further treatment.
4. Advise client against eating, drinking, bathing, smoking, and urinating, if possible.
5. Encourage client to wear or bring the clothing (bag in paper bag only) he/she was wearing at time of assault, if possible.

MCB Action	Passed 08/16/00	Implemented 10/01/00	Revised 01/16/08	Revision # 2	Implemented 04/01/08

T-14 Air Taser Injuries

Designation of Condition: EMS personnel may be requested to assess patients after Taser deployment, and/or to remove Air Taser probes lodged in a subject's skin. Be aware that secondary injuries may result from falls sustained after the device has been deployed. Subjects may be dazed/confused for several minutes post device deployment. The patient may require additional restraint as defined in protocols TT-5 Involuntary Emergency Transport and MISC-5 Patient Restraint.

ALL PROVIDERS

- Scene Safety
- Confirm that the Air Taser has been shut off and the probe is no longer connected to the Taser gun.
- Obtain vital signs at the earliest opportunity. Violent and combative behavior may be secondary to intoxication, psychosis, hypoxia, hypoglycemia, OD or CNS infection. Obtain O_2 sat and BGL as soon as it is feasible. Treat trauma and seizure if applicable.
- Evaluate the anatomical location of the probe (s) puncture zone(s). High-risk/sensitive zones will require transport to a medical facility for removal. They include:

Eyes, ears, nose, mouth and neck. (Darts to scalp, and low risk areas of forehead and cheek, can be removed in the field, but the wounds listed below may require assessment by a physician).	
Breast	Genitals
Hands or Feet	Joints

Dart Removal:

- Utilize PPE. Place hand in the form of a "V" around the Taser dart in order to stabilize the surrounding skin and to keep loose skin from coming up with the dart. Firmly grasp the probe and with one smooth hard jerk, remove probe from subject's skin.
- Prior to probe removal inform all caregivers that you are about to remove the contaminated sharp.
- Examine the probe and the patient closely in an effort to make sure the probe tip did not break off during removal. Accordingly, it is important that the person removing the barb visually inspect it to make sure that the tip is fully intact. If the barb remains in the subject, the patient will transported to a medical facility for removal.
- Be careful to avoid accidental needle sticks when removing probes.
- Promptly dispose of the probe immediately after removal and examination to ensure that it is intact. Place in an appropriate sharps disposal container. If the dart falls into the law enforcement chain of custody ensure it is placed in an appropriate container that contains no other sharps.
- Provide wound care by cleansing the affected area with saline, and apply a Band-Aid.
- Inform patient of basic wound care and the need to seek additional care in event that signs of infection occur (redness-fever-drainage-swelling-etc.)
- Clear and thorough documentation is required in the body of the report narrative whether or not EMS transports the patient.
- If transport is necessary, transport to the closest appropriate hospital.

MCB Action	Passed 05/04	Implemented 10/01/04	Revised	Revision #	Implemented

T-15 Helmet Removal

Designation of Condition: A patient with a suspected spinal injury based upon a physical assessment and/or mechanism of injury, who is wearing a helmet.

ALL PROVIDERS

Football Helmets: Indications for football helmet removal:

- When a patient is wearing a helmet and not the shoulder pads
- In the presence of head and or facial trauma
- Patients requiring advanced airway management when removal of the facemask is not sufficient
- When the helmet is loose on the patient's head
- In the presence of cardiopulmonary arrest. (The shoulder pads must also be removed.)

When the helmet and shoulder pads are both on, the spine is kept in neutral alignment.

Note: If the patient is wearing only the helmet or the shoulder pads, neutral alignment must be maintained. Either remove the other piece of equipment or pad under the missing piece.

All Other Helmets: Due to the absence of offsetting padding as in football shoulder pads, all other helmets must be removed in order to maintain spinal alignment. These include but are not limited to motorcycle helmets, bicycle helmets, roller blading helmets and skiing helmets.

MCB Action	Passed 10/20/99	Implemented 01/01/00	Revised	Revision #	Implemented

T-16 Tourniquet

Designation of Condition: Tourniquets can be an effective means of mitigating uncontrolled exsanguination from a limb or extremity caused by a traumatic injury. This tool should be considered in the event of a life threatening extremity hemorrhage that cannot be controlled by other means or when tactical considerations prevent the use of standard hemorrhage control techniques.

ALL PROVIDERS

CONTRAINDICATIONS:

- Non-extremity hemorrhage
- Proximal extremity location where tourniquet application is not practical

Procedure:

- Place tourniquet proximal to wound, the best points of application are high on the upper arm under the armpits for brachial arteries and high on the upper thigh within the groin area for femoral arteries.
- Tighten per manufacturer instructions until hemorrhage stops and/or distal pulses in affected extremity disappear.
- Secure tourniquet per manufacturer instructions
- Note time of tourniquet application and communicate this to receiving care providers
- Dress wounds per standard wound care protocols
- If delayed or prolonged transport and tourniquet application time > 45 minutes: consider reattempting standard hemorrhage control techniques and removing tourniquet
- If one tourniquet is not sufficient or not functional to control hemorrhage, consider the application of a second tourniquet more proximal to the first.
- Application of tourniquets will initiate each agency's Quality Assurance review process.

MCB Action	Passed 08/21/2013	Implemented 10/1/13	Revised	Revision #	Implemented

Transport/Transfer of Care/Patient Destination [TT]

TT-1 911 Patient Transport and MCEP Order Guidelines

ALL PROVIDERS

All 911 patients within the City of Albuquerque or Bernalillo County will be transported by a 911 system provider (AFD, BCFD or AAS), excluding MCI events when other ambulance services may be utilized as additional transport resources. If other ambulance service providers encounter a patient in need of EMS, they will activate the 911 system, provide initial stabilization, and wait for the 911 system providers to continue further treatment and transport of the patient. If other ambulance service providers are responsible for a scheduled transport patient who deteriorates or is deemed unstable, they may activate 911 for assistance if needed.

Patients will be transported to the hospital of their choice, unless protocol or hospital status dictates otherwise. Every effort will be made to keep patients within their preferred hospital system. If a patient does not have a hospital preference, (s)he should be transported to the closest appropriate facility.

If MCEP orders (including transport refusal orders) are needed, providers should contact the hospital to which the patient will/would be transported (excluding circumstances when it is appropriate to contact an EMS Consortium physician for orders). If providers are unable to contact an MCEP at the intended facility, attempt to contact an MCEP within the same hospital system.

MCB Action	Passed 10/29/99	Implemented 01/01/00	Revised 01/18/12	Revision # 1	Implemented 04/01/12

TT-2 Guidelines for the Transport of Minors

Designation of Condition: These guidelines are designed to help crews with the difficult job of handling minor patients (<18 years of age) and the situation when a minor has a child.

ALL PROVIDERS

- For minors to make a decision regarding healthcare, they must be emancipated. They must be 16 years of age and:
  - Married
  - Divorced
  - Active military
  - Legally declared emancipated in a court of law
- Pregnancy in and of itself does not emancipate a minor.
- When in doubt, use EMS Act, Section 24-10B.-9.1, to transport the patient against their will (see TT-5). Error on the side of transport versus cancellation.
- When in doubt, contact an MCEP.
- When a minor over the age of 16 is evaluated and is uninjured and is refusing further care, the patient can sign the liability release as acknowledgment of evaluation and refusal but this does not absolve the agencies of liability. The minor must be left in a safe environment. Utilize law enforcement and MCEP as necessary.
- In certain circumstances, young minors may be left in the care of others who have been left in charge of the minor. Specific caretakers (loco parentis), including a non-minor sibling or other non-guardian family member, a school bus driver or adult group leader (church, scouts, church), may take responsibility if they have assumed responsibility for the child and sign the liability release.
- An emancipated minor can make decisions for her minor child. There is no law that allows a minor mother to or prohibits a minor mother from making decisions for her minor child. Therefore, if the minor mother is not making a decision in the best interest of the child, this would be an area to utilize the EMS Act noted above, an MCEP, or law enforcement if necessary.
  - An exception is children 14-18 years of age who have been sexually assaulted. These patients can consent for treatment and can request parents not be contacted.

Notes: When dealing with the emancipation issues, document statements made by the parties involved when the appropriate documentation (marriage certificate, court order, etc.) is not readily available. Remember to error on the side of patient care.

MCB Action	Passed 12/20/06	Implemented 04/01/07	Revised	Revision #	Implemented

TT-3 Pediatric Transport Protocol

Designation of Condition: When presented with an unstable or critical pediatric medical patient, it is important to remember that only hospitals with NICU/PICU capabilities are equipped to handle these patients.

ALL PROVIDERS

- Provide ABC's, assist ventilations as appropriate.
- Follow necessary protocol for given condition.
- Consider transport to closest facility with NICU/PICU capability.
  - University of New Mexico Hospital (NICU/PICU)
  - Presbyterian Hospital (NICU/PICU)

Important Considerations:

- If confronted with a medical patient that you are unable to maintain an airway and are unable to successfully intubate, divert to the closest facility for airway stabilization.
- It is important that the receiving hospital be notified as soon as possible during the transport so that the appropriate personnel can be in the ER when you arrive.

MCB Action	Passed 12/06/98	Implemented 04/01/99	Revised	Revision #	Implemented

TT-4 Transport to Multiple Destinations

Designation of Condition: At times circumstances necessitate transport of several patients in transport unit. There will be times that it is necessary to transport these patients to different hospitals. These times should occur only when the number of patients exceeds the number of transporting units. When multiple back boarded patients are transported, they must be secured safely and appropriately.

PARAMEDIC

- Multiple destinations may be the result of patient request or to optimize patient care.
- The more severely ill or injured patient will mandate the first hospital destination. If both patients are deemed equal in illness or injury, the transport unit will go to the closest hospital first.
- Based on Paramedic judgment, if transport to the second hospital puts the patient at any risk to well-being, the patient should be unloaded at the first destination.
- If a patient is on hospital property and is requesting to be transported to a second hospital against the Paramedic's advice, clearly document the refusal (consider MCEP consult) of evaluation at the first hospital and transport to the second hospital, if open.

MCB Action	Passed 07/18/01	Implemented 01/01/02	Revised 02/20/13	Revision # 1	Implemented 04/01/13

TT-5 Involuntary Emergency Transport

New Mexico State Statutes Amended 1978 Chapter 24-10B-9.1 Emergency Transportation

ALL PROVIDERS

Any person may be transported to an appropriate health care facility by an emergency medical technician, under medical direction, when the emergency medical technician makes a good faith judgment that the person is incapable of making an informed decision about his own safety or need for medical attention and is reasonably likely to suffer disability or death without the medical intervention available at such a facility.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/19/11	Revision # 3	Implemented 04/01/11

TT-6 Patient Refusal of Treatment or Transport

Designation of Condition: To provide guidelines for instances where patients are not treated or transported to a hospital

ALL PROVIDERS

Interpretations and Guidelines: As emergency service providers we should respond to all calls with the intention of providing appropriate pre-hospital patient care. At no time should we try to talk the patient out of going to the hospital. Whatever their decision, it must be theirs alone. If the patient asks you whether he/she really needs to go to the hospital or be seen by a physician, it is recommended that you tell them, "We can't make that determination. If you would like to go to the emergency room to be seen by a doctor, we will provide transportation for you to the hospital of your choice, if available."

Requirements for Patient Refusals: Certain criteria must be met before a patient may sign a refusal of treatment and/or transport.

Age Criteria:

- Adult - 18 years of age or older
- Emancipated Minor - 16 years of age and married, a minor in the military or court order divorcing minor from the parents

Patient Assessment Criteria:

- Patient must be alert and able to maintain coherent thought and speech
- Patient must be oriented and able to reference Time/Date/Place/Person/Situation
- Patient judgment must not be clouded with alcohol or drug use
- Patient must not have evidence of suicidal tendencies and must not have evidence that they are a danger to themselves or others
- Patient must not exhibit evidence of bizarre or psychotic thought/behavior
- Patient vital signs must be within normal limits
- Patient must have a neurologic exam including coordination and gait that is normal or consistent with their past medical history.
- Patient must not have evidence of life or limb threatening injury or illness

If above criteria are met and the patient refuses treatment or transport, they must demonstrate an understanding of their medical situation and the risks associated with refusal.

If the patient meets the above criteria and refuses treatment and/or transport, have the patient sign the patient refusal portion of the run report.

If the patient does not meet the above criteria, attempt to persuade the patient of the need for treatment /transport. If the patient continues to refuse, consider utilizing protocol TT-5 or contact an MCEP.
Minors: Reference TT-2 Guidelines for the Transport of Minors
The refusal form MUST BE SIGNED BY: Natural Parent or Adopted Parent or Legal Guardian.
In no event will legal consent procedures delay emergent patient care or transport. All cases resulting in non-transport will generate a thorough patient care narrative for each patient seen.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/16/13	Revision # 4	Implemented 04/01/13

TT-7 EMS Helicopter Transfers

Designation of Condition: Allow for safe transfer of patients from EMS units to a helicopter when the helipad is on hospital grounds.

ALL PROVIDERS

- Circumstances may require utilization of a hospital helipad to facilitate transfer of either a medical or trauma patient to an appropriate facility.
- Request the helicopter intercept through Albuquerque Base.
- It must be determined that it is in the best interest of the patient for emergent transfer via helicopter verses evaluation in the hospital's emergency department.
- Notify the hospital's emergency department that its helipad will be used for the helicopter intercept only and that no evaluation or treatment of the hospital's emergency department is being requested.

Explanation: EMTALA applies where an individual comes to the hospital's emergency room and a request is made on the individual's behalf for examination or treatment of a medical condition. HCFA has interpreted the phrase, "comes to the hospital's emergency room" to mean that the individual is on the hospital's premises or is in an ambulance owned by the hospital. Where the hospital's helipad is being used only to accommodate a transfer of a patient from a ground ambulance to an air ambulance, it is necessary that the hospital's emergency department be informed of what is going on and that no request for examination or treatment is being made.

MCB Action	Passed 02/21/01	Implemented 04/01/01	Revised	Revision #	Implemented

TT-8 Air Medical Helicopter

Designation of Condition: Guidelines for trauma scene responses and rendezvous

ALL PROVIDERS

Field providers should always use their best judgment.

Within 20 minutes ground transport time to University Hospital:

- Helicopter transport rarely indicated
- Consider if prolonged extrication of patient who is in severe shock or requires airway management.
- Consider in MCI with multiple patients meeting 20-40 minute criteria (yellow)

20-40 minutes ground transport time to University Hospital:

- All of the aboveGCS <13 and not likely due to intoxication alone
- Signs of shock
- Respiratory distress
- MCI

40 minutes ground transport time to University Hospital:

- All of the above
- Severe mechanism of injury
- Passenger space intrusion >20 inches
- Ejection from vehicle
- Fatality in same vehicle
- Fall > twice patient height
- Prolonged extrication
- High speed rollover
- Auto versus pedestrian or bicyclist
- Auto versus tractor trailer
- Penetrating trauma to head or neck or torso
- Motorcycle/ATV crash
- Other high risk features
- Age >65
- Age <3
- Loss of consciousness >2 minutes
- Limb threatening injuries, amputations, etc.
- Burns >20% BSA or face/airway involvement

- The air medical helicopter may be canceled at any time by the paramedic in charge or the Incident Commander when deemed necessary.
- The Incident Commander, designee, or local Law Enforcement Agency will be responsible for establishing a safe Landing Zone.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 04/19/2006	Revision # 3	Implemented 10/01/2006

TT-9 Transport Drugs

INTERMEDIATE

Intermediates may monitor potassium infusions on interfacility transfers provided:

- The potassium concentration is not greater than 20 mEq/L
- The potassium infusion rate is not greater than 10 mEq/hour

PARAMEDIC

The following drugs are allowed to be monitored by paramedics during transport:

Medications Requiring an Infusion Pump:	Medications NOT Requiring an Infusion Pump:
Aminophylline Antibiotics and anti-infective agents Beta Blockers Calcium Channel Blockers Dobutamine (Dobutrex) Anticoagulation-type blood modifying agents • Such as fibrolytic drugs, heparin, glycoprotein IIbIIIa inhibitors/antagonists Flolan Glycoprotein IIb-IIIa inhibitors / antagonists Heparin and Protamine Sulfate Insulin Mannitol Methylprednisolone (Solu Medrol) Nesiritide (Natrecor) Non-Depolarizing neuromuscular agents Norepinephrine (Levophed) Potassium • An infusion pump and cardiac monitor are required for concentrations greater than 20 mEq/1,000 ml • Cardiac monitor required for infusion rates greater than 10 mEq/hour Procainamide Propofol (Diprivan) Sodium Nitroprusside (Nipride) Terbutaline Octreotide, proton pump inhibitors and H2 antagonists TPN	Blood and Blood Products Medications for Administration During Patient Transfer: Acetylcysteine Retavase (second dose only) Protamine Sulfate Phenergan Medical Procedure Monitoring: Monitoring chest tubes

Paramedics may not initiate any of the above listed medications. Dosage and administration instructions must be obtained from the physician or nursing staff of the sending facility. All paramedics must complete training (as outlined by the NM EMS Bureau) for transport medications before they can monitor these infusions. If problems occur during transport, contact an MCEP for instructions as soon as possible.

MCB Action	Passed 11/15/95	Implemented 04/01/96	Revised 02/20/13	Revision # 7	Implemented 04/01/13

TT-10 Interfacility Transport of Patients on Ventilators

Designation of Condition: Patient on ventilator being transferred between healthcare facilities by a paramedic transport service.

PARAMEDIC

- Immediately perform a thorough reassessment of the airway.
- Visualize chest excursion and auscultate lung fields and epigastrium. Monitor pulse oximetry. Place a colorimetric or quantitative $EtCO_2$ detector device inline to continuously confirm proper placement of advanced airway and monitor for adequate ventilation.
- If the EMS transport unit is equipped with a ventilator that meets the needs of the patient, the patient may be placed on the EMS ventilator and monitored by the paramedic during transfer.
- If the EMS transport unit is not equipped with a ventilator, or if the EMS ventilator does not meet the needs of the patient, a trained provider from the transferring facility must accompany the transport paramedic to operate that facility's ventilator.
    - If the referring facility is unable to send a trained healthcare provider to accompany the transport paramedic, the ventilator will be removed and the patient will be ventilated by bag valve mask.
    - In this event, a second licensed EMS provider will accompany the paramedic during the transport to monitor vital signs and assist as needed.
- If concerns arise regarding airway or ventilator status, the transport paramedic has final judgment regarding airway management.

MCB Action	Passed 05/19/99	Implemented 07/01/99	Revised 01/19/11	Revision # 1	Implemented 04/01/11

TT-11 Transfer of Patient Care Responsibility

ALL PROVIDERS

Purpose: To facilitate smooth transfer of patient from pre-hospital to hospital including:

- Arrival at hospital
- Patient unloading
- Moving patient from transport unit stretcher to hospital stretcher
- Verbal turnover report to designated hospital personnel

Transport unit personnel will maintain charge of patient care on arrival at hospital until all of the following are accomplished:

- Arrival at Hospital: The pre-hospital team will be responsible for unloading the patient. Hospital personnel will remain outside the transport unit unless asked by the transport paramedic.
- Patient Unloading: The transport paramedic will be responsible for and oversee all patient care during unloading of the patient. This includes maintenance of all pre-hospital performed procedures (endotracheal tube placement and ventilation, intravenous line placement, etc.). Only the transport unit personnel will operate the stretcher during the unloading procedure. The transport paramedic will maintain charge as the patient is moved into the hospital.
- Moving Patient from Transport Unit Stretcher to Hospital Stretcher: The transport paramedic will be responsible for and oversee all patient care during transfer of the patient from the transport unit stretcher to the hospital stretcher. This includes maintenance of all pre-hospital performed procedures (endotracheal tube placement and ventilation, intravenous line placement, etc.). After transfer of patient to the hospital stretcher, the transport paramedic will reassess and verify placement of the endotracheal tube before transferring care to hospital personnel. The transport paramedic will maintain charge during transfer of the patient from the transport unit stretcher to the hospital stretcher.
- Verbal Turnover Report to Designated Hospital Personnel: The transport paramedic will give a verbal report as appropriate to inform designated hospital personnel of the recent event.

Note: While on hospital premises, Emergency Room M.D. may at any time assume responsibility for the care, transfer and maintenance of lines and tubes as deemed necessary by the physician. In the event the Emergency Room M.D. takes charge of patient care before transfer of patient care responsibility occurs, the Emergency Room M.D. assumes responsibility for patency of all procedures performed to that point.

MCB Action	Passed 5/15/96	Implemented 07/01/96	Revised	Revision #	Implemented

TT-12 Emergency Department Patient Turnover

Designation of Condition: Expedite appropriate and timely turnover of pre-hospital patients to the Emergency Department staff.

ALL PROVIDERS

- Expeditious and complete patient turnover will be the goals of all personnel involved.
- The responsibility for patient care transfers to the E.D. staff once the patient enters the E.D. EMS personnel will strive to do what is medically appropriate for the patient and keep continuity of care until report is given.
- It is expected that ED staff will receive pre-hospital personnel in a timely manner on arrival to ED and direct them to the appropriate bed or ED area.
- Pre hospital personnel will assist in moving patient to the hospital gurney and give a complete pre-hospital report.
- Except when dictated by call volume, EMS run reports will be left at the hospital when the patient is turned over to the hospital staff.
- It is expected that a complete turnover will be completed within 15 minutes of ED arrival or when the relevant EMS run report is complete, whichever is longer.
- If the above criteria is not met and the patient remains on the pre-hospital gurney greater than 15 minutes, pre-hospital personnel will seek a safe and appropriate place to unload the patient and give the written run report to the first available ED staff RN and then return to service.
- There is no EMS obligation to provide personnel or equipment in the E.D.

MCB Action	Passed 07/18/01	Implemented 01/01/02	Revised 05/15/02	Revision # 1	Implemented 07/01/02

TT-13 EMS Unit Diversion

Designation of Condition: To promote optimal patient care through the coordinated efforts of the EMS and hospital systems. To allow for proper patient destination based on patient request and facility status during times when the facility staff feels it is temporarily incapable of providing optimal care to further patients.

ALL PROVIDERS

- All hospital systems must work to keep their facilities on an open status. They must maintain their system screens to allow field personnel to appropriately route patients to hospitals that are staffed, equipped and prepared to administer emergency care appropriate to the needs of the patient.
- Current protocol for patient destination should be maintained including patient request and closest hospital.
- When possible, all EMSystem status should be followed. Early contact with Albuquerque Base will help facilitate patients to the closest appropriate open hospital.
- Cardiac arrest or unstable airway patients will still go to the closest facility, unless they are on “totally closed” status. MCI protocols may alter the patient destination decisions.
- If a circumstance arises when a field EMS provider feels it is mandatory to go to a diverting hospital (except for “total” closures) because of risk to the patient or provider, they should advise the receiving hospital that they are overriding closed status and give a med report and ETA. These cases will prompt mandatory QI reporting to the appropriate medical director.
- Such special circumstances may include:
  - Discharge from receiving hospital in the past last 24 hours
  - Special or experimental drugs or procedures provided and monitored at receiving hospital
  - Patient threatens bodily harm to self or provider if not allowed transport to receiving hospital
  - Patient has recent complex medical and/or surgical history managed by receiving hospital
  - Patient has been previously accepted by the facility
- If a unit is on the property of a hospital (cross the driveway), you should not leave the facility. Advise the facility you are already on the hospital grounds.

MCB Action	Passed 08/16/00	Implemented 10/01/00	Revised 07/08/02	Revision # 1	Implemented 10/01/02

TT-14 Dynamic Forced Closure of Emergency Departments

Designation of Condition: Because of internal ED issues and the inability to off-load patients, it may be necessary to mandate closure of that ED.

ALL PROVIDERS

- When Albuquerque Base Communication Center (ABCC) is notified that a Bernalillo County transport unit is going to experience an extended drop time (more than twenty minutes), ABCC will monitor additional units en-route to the same destination. If the fire department transports and they are delayed, they will contact ABCC directly. Once there are three Bernalillo County units at that facility, ABCC will start the process of Dynamic Forced Closure to prevent any additional Bernalillo County units from going to that hospital and being held for extended periods of time.
- ABCC will notify the AAS supervisor of the situation. The supervisor will respond to the facility and while en-route, notify the charge nurse of the facility to assist in rectifying the extended drop time issue. If they cannot resolve the extended drop time issue, the AAS supervisor will notify the Administrator on Call (AOC) of the situation while advising ABCC to put the facility on "Forced Closure" status on EMSystem.
- Once a facility is on Dynamic Forced Closure, when two of the Bernalillo County transport units have cleared the facility the Dynamic Forced Closure will be removed from the screen. Off-load priority will be given to fire based units.
- The automated time for Dynamic Forced Closure will be a maximum of one hour. Any extension of this time will be based on a reassessment by the AAS Supervisor in conjunction with ED supervisor. Extensions will be based mainly on the inability to off-load patients and the inability to return units to service. If the forced closure is extended, the AOC of the affected facility will be advised.
- Other transported patients to the affected facility will be distributed to the same hospital system depending on their status and chief complaint or distributed equally among area ED's.
- As per previous protocols, trauma will continue to go to UNM, specific pediatric and obstetric protocols will be adhered to, and the special circumstances in protocol TT-13 (EMS Unit Diversion) will be followed.

MCB Action	Passed 01/16/08	Implemented 04/01/08	Revised	Revision #	Implemented

TT-15 EMTALA Risk

Designation of condition: To minimize EMTALA risk to hospitals by EMS transport units.

ALL PROVIDERS

- It is expected that all hospitals will adhere to current status that is reflected in the EMSystem window for ED and inpatient statuses.
- When circumstances arise and an EMS transport unit is on a hospital's property, the EMS unit will not divert to another hospital.
- If you get a divert order from the facility and you are on their property, you will advise the facility that you are on their property and will not be diverting.
- Upon arrival advise the staff of the EMTALA risk and tell them that an internal quality assurance will be generated and will be reviewed by the medical director.
- Radio reports will be done as early as possible during transport to minimize EMTALA risk.

MCB Action	Passed 02/21/01	Implemented 04/01/01	Revised	Revision #	Implemented

TT-16 Patient Care Responsibilities

ALL PROVIDERS

- The first on duty paramedic to arrive on scene will assume charge of, and direct patient care.
- All subsequent pre-hospital providers will take direction from that person by receiving a verbal report from the on-scene provider and at the paramedic's direction assisting with further patient care.
- In the event ambulance personnel and fire personnel arrive on scene simultaneously, the fire department paramedic will assume charge of patient care until the patient is transferred to the transport ambulance.
- Patient care responsibility reverts to the ambulance service paramedic once the patient has been moved into the ambulance, regardless of whether another service paramedic accompanies the patient to the hospital. The transporting service should transport the patient to their hospital of choice (or, if no preference, the nearest hospital) appropriate to medical needs and protocols.
- If in the judgment of any of the paramedics on scene, patient care requires additional support, fire department personnel will accompany the patient to the hospital in the ambulance.

MCB Action	Passed 04/20/94	Implemented 06/01/94	Revised 09/20/00	Revision # 2	Implemented 01/01/01

TT-17 Interagency Interaction Guidelines

ALL PROVIDERS

Introduction: Emergency Medical Services in the Albuquerque Metro Area is provided by several agencies that must interact cooperatively within a two-tiered EMS system. In order to achieve the goal of Quality Patient Care, it is critical that interactions between the services be predictable and consistently professional. The following guidelines have been developed jointly by AFD, BCFD and AAS, in order to facilitate optimal patient care, transfer and scene flow, and so that all field providers can approach scenes with the same expectations and cooperation.

1. The first arriving unit will relay information regarding scene safety, scene access, equipment needs, and staging, as appropriate, to subsequent arriving units utilizing the 800 MHz radio system or relay through respective communication centers.
2. The ALS transport provider will bring in their stretcher when immediate patient transport is deemed necessary by the first arriving EMS units via radio or once the need for transport has been determined. It is optimal to bring in the stretcher upon arriving on scene on all calls. Good judgment should be used at all times.
3. The first on duty paramedic to arrive on scene will assume charge of and direct patient care (lead paramedic), in accordance with their capabilities. All subsequent pre-hospital providers will take direction from that person.
4. The lead agency (agency first on scene) is responsible for directing patient assessment and care. If a paramedic is not present with the lead agency, the officer, or designated person in charge will brief the first arriving paramedic on patient condition and transfer patient care responsibilities to the lead paramedic. This includes:
   - Obtaining consent for treatment and transport.
   - Obtain a signed and fully documented refusal on any patient who refuses treatment/transport and meets refusal criteria in accordance with the City of Albuquerque/Bernalillo County EMS Protocols and guidelines.
5. If the ALS transport provider is first on scene, or first ALS, then following a complete patient assessment, an evaluation fee will be charged if the patient refuses transport. Complete refusal documentation will be generated.
6. Once the lead paramedic is on scene, the second arriving paramedic will approach the lead paramedic and offer assistance. As soon as it is clinically practical, the lead paramedic will give a brief verbal report to subsequent arriving EMS units.
7. The first arriving unit will bring in appropriate equipment upon their arrival. If ambulance and rescue/paramedic personnel arrive simultaneously, then the rescue/paramedic personnel will take in their equipment and ambulance personnel will bring in their stretcher. (If deemed necessary)
8. In the event the ALS transport paramedic and fire/rescue personnel arrive on scene simultaneously, the fire department paramedic will take responsibility of directing patient care. Paramedics will work cooperatively and in a professional manner to ensure high quality patient care. If a disagreement regarding patient care occurs in this context, MCEP guidance will be sought.
9. The first arriving EMS providers will begin to assess the patient, (history and physical) and gather other pertinent information. Other arriving personnel will approach the first EMS provider to obtain patient report. (See #3.) It is inappropriate for subsequent arriving providers to go directly to the patient and repeat questions that have been asked. Although the first arriving paramedic is in charge of patient care, please remember that this is a team concept and any disagreements will be approached from that standpoint, or deferred to an MCEP.
10. All agencies will assist each other in every possible way (i.e. moving/gathering of equipment and stretcher); however, due to risk management considerations, any time there is a patient on a stretcher, employees from that agency must perform operation of the stretcher at the head and the foot. Other personnel on scene will be utilized to help lift in the interest of patient safety and comfort.
11. The ALS transport paramedic assumes responsibility of patient care after receiving a complete patient turnover report. (See protocol P-19) In critical life threatening situations the transfer of patient care responsibility will automatically happen once the patient is loaded into the back of the ambulance. Although the ALS transport paramedic is in charge of patient care, please remember this is a team concept and any disagreements will be approached from that standpoint, or deferred to an MCEP. While awaiting MCEP advice, the ALS transport paramedic will continue to direct patient care. Disagreements will not delay transport. Again, patient care will remain a cooperative effort.
12. Upon transfer of patient care, an appropriate patient turnover report must be given and accepted in a professional manner by both services involved. Once patient care is transferred, a confirmatory patient assessment by the transport paramedic is both appropriate and necessary. However, as a routine, such assessments should not delay transport, and should be done en route if possible. Transport should not be delayed in order for fire/rescue personnel to complete their written patient report.

13. If a patient has been loaded into the ambulance prior to the fire/rescue unit arrival (BLS or ALS), it is appropriate for the arriving personnel to inquire if they can be of any assistance. If the ALS transport provider deems assistance unnecessary, the fire department unit may cancel at their discretion. Transport will not be delayed in order for BLS or ALS reassessment, information gathering and/or report writing if the patient is loaded and ready for transport.
14. If in the judgment of any paramedics on the scene, patient care requires additional support, other agency personnel may accompany the patient to the hospital in the transporting unit.
15. The ALS transport provider will accept cancellations from all fire/rescue agencies. It is appropriate for on scene agencies to downgrade responding units when emergency response is not medically necessary.
    If fire/rescue personnel are informed by the transport medic that no assistance is required the fire/rescue units may cancel, without further intervention or assessment as appropriate.
16. The Bernalillo County EMS system follows the Incident Command System structure. Be familiar with the ICS and be able to execute it when called for. A good example of this would be any scene where hazards such as fire, fluids, power lines, etc. exist. In these situations, the incident commander is in charge of all personnel to ensure that only properly protected and/or trained responders will be in the “hot” zones. Fire Department IC will direct all responding EMS personnel to an appropriate staging area for duty assignments.

MCB Action	Passed 09/10/01	Implemented 10/01/01	Revised 01/20/15	Revision # 1	Implemented 04/01/15

TT-18 MD at Scene

ALL PROVIDERS

Card or note to be presented to M.D. at scene, which reads:

An Emergency Medical Services System with comprehensive written protocols has been established and is monitored by the Albuquerque-Bernalillo County Medical Control Board. By showing proof that you are a licensed medical physician, you may take responsibility for the patient's care if you accept full responsibility for patient management and the issuing of orders conforming to the established protocols, attending the patient to the hospital and signing the EMS patient report form. If the paramedic believes there is a problem with patient care they are instructed to contact an Emergency Physician (MCEP) at a local emergency department via radio.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised	Revision #	Implemented

Miscellaneous Protocols [MISC]

MISC-1 New Procedure-Product Trial Guidelines

Purpose: To provide an organized system approach to suggestions from EMS Agencies, Medical Directors or field personnel for new procedures and products in a timely fashion.

- Suggestions for new procedures, product trials, or other requests not part of the current standing protocols must be made to the Medical Control Board in writing.
- The proposal will include the following:
  1. Request
  2. Rationale
  3. Service or specific group to be utilized
  4. Written protocol for use of procedure or product
  5. Time frame planned: start of project, duration
  6. Training needs identified and training plan.
  7. Cost-analysis information
  8. Scientific evidence (bibliography) supporting proposal
- The proposal will be prioritized and placed on the next available MCB agenda. The agency sponsoring the proposal should be represented at the meeting.
- If accepted, the hospital and pre-hospital representatives will disseminate the appropriate information to their respective agencies.
- A follow-up report will be made at the MCB meeting within three months of the actual implementation of the proposal. The report will include:
  1. Incidence of use
  2. Positive and negative outcomes associated with use
  3. Recommended modifications
- A written report will be submitted at the end of the project, or at 6 months, and will include the above information, as well as recommendations for future use.

MCB Action	Passed 10/15/97	Implemented 01/01/98	Revised	Revision #	Implemented

MISC-2 Intraosseous Infusion

Designation of Condition: To be used as an alternative route for drug and/or fluid administration in critically ill or injured patients when IV access cannot be obtained.
All EMS drugs approved by protocol for IV administration may be safely administered at the same dosage via the Intraosseous (IO) route. Different manufacturers approve different sites and techniques. It is important to note which product you're using and follow the manufacture recommendations.

INTERMEDIATE AND PARAMEDIC

Procedure: Site of insertion: In both adults and children, all of the devices use the proximal tibia as one of insertion sites however; there are slight differences in exact location.

TECHNIQUE: MANUAL IO DEVICE JAMSHIDI OR OTHER Manual DEVICE

- Identify landmarks.
    - In Adults: From tibial tuberosity go 2 cm directly medial to the tibial tuberosity.
    - In Children: From the tibial tuberosity go 1-2 cm medial and 1 cm distally (away from the knee joint toward the foot) in order to avoid growth plate injury.
- Locate insertion site and sterilize with povidone-iodine or alcohol.
- Support the leg on firm surface. Stabilize tibia by grasping thigh/knees with non-dominant hand.
- Insert needle through skin over flat anteromedial surface of the tibia.
- Advance needle through bony cortex using a gentle but firm twisting or drilling motion.
- Stop advancement of needle when sudden decrease to resistance to forward motion is felt. If in marrow, needle should remain upright without support.
- Unscrew cap and remove stylet.
- Stabilize needle. Aspirate marrow. Slowly inject 10 ml NS, checking for resistance to flow, extravasation or increased firmness of surrounding tissue.
- If placement successful, evacuate air from IV line and attach tubing to needle.

TECHNIQUE: BONE INJECTION GUN (BIG)

- Support the patient's leg to minimize movement.
- Locate insertion site and sterilize with povidone-iodine or alcohol.
- In Adults: From tibial tuberosity go 1 inch (2.54cm) directly medial to the tibial tuberosity and 0.5 inches (1.27cm) proximal.
- In Children: From the tibial tuberosity go 0.5 inches (1.27cm) medial and 0.5 inches (1.27cm) distally (away from the knee joint toward the foot) in order to avoid growth plate injury.
- Hold base of BIG firmly at 90-degree angle. Remove safety latch.
- Hold down base of BIG firmly and press down with palm of hand.
- Pull BIG slowly away from needle.
- Remove trocar needle from cannula.
- Secure cannula with safety latch.
- Aspirate bone marrow. Flush cannula with 10-20 ml NS.
- Attach IV line and tape securely to patient.

TECHNIQUE: EZ-IO

- The EZ-IO has six (6) manufacture approved sites. Those include the proximal humerus head, proximal tibia and distal tibia sites on each extremity.
- NOTE: Only the 45 mm needle should be used in the humeral head and this site is approved in adults only.
- Identify landmarks and estimate weight and needle size
- Appropriate size intraosseous Needle Set based on patient size and weight
    - EZ-IO® 45 mm Needle Set (yellow hub) should be considered for proximal humerus insertion in patients 40 kg and greater and patients with excessive tissue over any insertion site
    - EZ-IO® 25 mm Needle Set (blue hub) should be considered for patients 3 kg and greater
    - EZ-IO® 15 mm Needle Set (pink hub) should be considered for patients approximately 3-39 kg

- Proximal Tibia - If NO tuberosity is present, the insertion is located approximately 4 cm below the patella and then medial along the flat aspect of the tibia. If the tuberosity IS present, the insertion site is located approximately 2cm medial to the tibial tuberosity along the flat aspect of the tibia. Carefully feel for the “give” or “pop” indicating penetration into the medullary space.
- Distal Tibia - Place one finger directly over the medial malleolus; move approximately 2 cm (depending on patient anatomy) proximal and palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.

EZ-IO 25mm
- Proximal Tibia – Insertion site is approximately 2 cm below the patella and approximately 2 cm (depending on patient anatomy) medial to the tibial tuberosity.
- Distal Tibia - Insertion site is located approximately 3 cm proximal to the most prominent aspect of the medial malleolus. Place one finger directly over the medial malleolus; move approximately 2 cm (depending on patient anatomy) proximal and palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.

EZ-IO 45mm: (recommended for the proximal humerus application, patients with excessive tissue over the insertion site or when a black line is not visible after penetration into the tissue)
- Proximal Tibia – Insertion site is approximately 2 cm below the patella and approximately 2 cm (depending on patient anatomy) medial to the tibial tuberosity.
- Distal Tibia - Insertion site is located approximately 3 cm proximal to the most prominent aspect of the medial malleolus. Place one finger directly over the medial malleolus; move approximately 2 cm (depending on patient anatomy) proximal and palpate the anterior and posterior borders of the tibia to assure that your insertion site is on the flat center aspect of the bone.
- Proximal Humerus – Insertion site is located directly on the most prominent aspect of the greater tubercle. Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle, this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site. • Ensure that the patient’s hand is resting on the abdomen and that the elbow is adducted (close to the body)

- Prep the surface with antiseptic
- Connect needle set to driver
- Position the driver at the insertion site with the needle set at a 90-degree angle to the bone surface. Gently pierce the skin with the Needle Set until the needle touches the bone.
- Check to ensure that at least one black line is visible. If not, your needle may be to short and thus will not reach the medullary space. Consider alternate site or a longer needle.
- Penetrate the bone cortex by squeezing drivers tripper and applying gentle, consistent, steady, downward pressure (no need to press hard, allow the driver to do the work)
- Release the drivers trigger and stop the insertion process when:
  1. On adult patients, when accessing the tibia or proximal humerus, you may stop by releasing the trigger when the hub is almost flush with the skin.
  2. On pediatric patients, when you feel a decrease in resistance, indicating the Needle has entered into the medullary space, release the trigger.
- Remove the EZ-IO power driver from needle while stabilizing the catheter hub
- Remove stylet from catheter by turning counter-clockwise and then dispose of stylet
- Secure site with EZ Stabilizer or tape
- Connect primed EZ-Connect to exposed Luer-lock hub
- Syringe bolus: Rapid bolus with approx.: 10 cc normal saline.
- Connect IV tubing to EZ-Connect
- Consider additional bolus of saline if flow rates are slower than expected
- Utilize an IV pump or BP cuff and pressure infuse the fluids (designed to flow under pressure)

Complications: Necrosis and sloughing of the skin may occur if fluid or drugs extravasation from the puncture site into the surrounding tissues.

Pain Control: In patients who are awake or respond to pain, administer 40 mgs of 2% Lidocaine (no preservatives) very slowly over 1-2 minutes followed by a 10 cc saline flush. This is done prior to the 10cc bolus of fluid and connecting the IV tubing. If pain returns and or patient requires a prolonged crystalloid administration or medication drip, may administer another bolus of 20 mgs of 2% Lidocaine

- Pediatrics- 0.5 mgs/kg of 2% Lidocaine for pain- Administer slowly over 1-2 minutes as indicated above. If pain returns, may administer another bolus at ½ the initial dose.

Contraindications:

- Fracture at site
- Previous orthopedic surgery in limb
- Infection/burn in limb
- Absence of landmarks
- Excessive soft tissue

MCB Action	Passed 06/16/08	Implemented 10/01/08	Revised 12/18/2013	Revision # 5	Implemented 04/01/2014

MISC-3 Pain Management

Designation of Condition: Consider treatment of all patients who present with pain or discomfort. Carefully evaluate and examine the patient prior to administration of pain medication to establish an initial pain level and pain location.

INTERMEDIATE

- EMT-Intermediates may administer either Morphine or Fentanyl under the supervision and approval of the EMT Paramedic and abiding by the same parameters as outlined below.

PARAMEDIC

General:

- Pain medication should not be given to patients with hypotension, respiratory depression, or significantly altered mental status
- If hypotension, respiratory depression, or significant mental status change occurs after pain medication is started, perform appropriate supportive care, stop the medication, and do not restart
- Select either Fentanyl OR Morphine; repeat doses (if needed) should be of the same medication
- Combining analgesia with sedation can be dangerous and is strongly discouraged
- Use lower incremental dosing in the elderly
- Contact MCEP if the patient requires more than the maximum allowable dose
- ETCO2 (If available consider waveform capnography monitoring for all patients receiving narcotics)

Morphine Sulfate

In adults (age 16 and older):

- Dosage: 2-20 mg (IV/IO/IM/IN) titrated to effect
- Administer in 2-5 mg increments, may repeat every 5 minutes up to maximum dose
- Use lower incremental dosing in the elderly.
- Pre-adolescent pediatric patients (age 15 and younger):
- Dosage: 0.1-0.2 mg/kg (IV/IO/IM/IN) titrated to effect
- Administration may be repeated every 5 minutes up to maximum dose

Fentanyl:

In all patients age 2 and older:

- Dosage: 1-3 mcg/kg (IV/IO/IM/IN) titrated to effect
- Administer in 0.5-1 mcg/kg increments, may repeat every 5 minutes up to maximum dose
- Use lower incremental dosing in the elderly.

MCB Action	Passed 07/21/99	Implemented 10/01/99	Revised 11/20/2013	Revision # 10	Implemented 04/01/2014

MISC-4 Communications

Designation of Condition: Provide specific requirements for succinct and expeditious radio reports to receiving medical facilities when transporting stable patients, and describe expectations for communication when transporting critical patients

ALL PROVIDERS

- Receiving facilities require some form of adequate notice for all incoming patients.
- Radio reports should be limited to 30 seconds for the majority of patients.
- Routine requirements for radio reports are as follows:
- Age and gender
- Chief complaint / mechanism of injury (relevant clinical conditions)
- Current status (stable, unstable, suitable for triage)
- ETA

When required by acuity or complexity, more information may be relayed, including vital signs and treatment rendered. Whenever necessary it is the option of the EMS providers to request MCEP consult.

The ED should be contacted at the earliest opportunity during critical care cases in order to allow them to prepare to receive the patient and to allow the MCEP to become familiar with the case. Examples of critical care cases requiring early ED involvement include but are not limited to:

- Cardiac arrest / ROSC
- Major trauma
- Respiratory distress
- Shock
- OB
- Stroke
- AMI
- When transporting a critical patient it is important to provide a "picture" of the patient and their condition. Brevity is still important. It is not important at this stage to include everything about the patient's recent or past medical history unless something in that history is important in obtaining a medication order.
- In most cases the Paramedic will not need to talk to an MCEP unless required by protocol. Instead they may talk to other medical ED personnel answering the radio to give a patient report.
- When requesting to speak to the MCEP, state the reason or need for direct MCEP. This allows the MCEP to prepare for your call and prioritize it in relation to other patients in the emergency department.
- Patient name, medical record number or other patient identifiers cannot be given over the radio because these are open channels and the patient's right to privacy would be violated.
- If patient is unstable, contact the ED or Albuquerque Base ASAP from scene to provide early notification (age, chief complaint and ETA).
- Activate UNMH trauma team using Trauma Alert Protocol (TAP) criteria when appropriate.
- Advise dispatch and activate MCI protocol when appropriate (see Appendix A).

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 06/20/12	Revision # 4	Implemented 10/01/12

MISC-4A Communications Failure Protocol

Designation of Condition: It is incumbent upon system providers to make MCEP contact in a number of scenarios. These may include but are not limited to the discontinuation of resuscitative efforts, administration of dangerous drugs or narcotics as outlined by the board of pharmacy and State of NM DOH guidelines, and atypical treatment of medical or traumatic conditions. Communications are also critical to obtaining medical orders and transmitting patient condition (See Bernalillo County Protocol MISC-4). At times, due to geographic location, communication or technological limitations, and or catastrophic failure of a communication system, communications may become unlikely or impossible. Should such an event take place and compromise the ability of field personnel to obtain medical control from an emergency physician The Communication Failure Protocol may be utilized when it is determined to be in the best interest of patient care.

ALL PROVIDERS

- Shall adhere to the scope of practice that their licensure allows, and the "Albuquerque and Bernalillo County Emergency Medical Services Protocols and Guidelines."
- Shall make reasonable attempts as patient care allows, to obtain MCEP Consult during transport until successful or at the receiving facility. Unsuccessful attempts at MCEP contact must be documented in the EPCR with approximate times.
- Adhere to patient privacy regulations when utilizing alternate forms of communication
- Not all patients will require MCEP consultation but in situations where it is required by protocol the paramedic shall attempt to obtain medical control using all reasonably secure forms of communications possible; including but not limited to radio Med channels, relay through communications center and telephone/cellular devices.
- If all attempts to obtain MCEP consultation have been unsuccessful and the patient's condition falls under a specific protocol in which a drug or other intervention requires MCEP orders the provider may complete the protocol if he or she determines that the patient cannot wait to receive the intervention.
- The provider shall thoroughly document the patient's condition before and after interventions, circumstances behind the inability to obtain medical control, times of contact attempts, approximate location, and types of communications that were attempted unsuccessfully.
- Providers will immediately notify their agency of utilization of this protocol through the agency's QI process. All uses of "The Communications Failure Protocol" will be reviewed by the agency's Medical Director in detail.

LIMITATIONS

- This protocol does not provide exemption for MCEP consultation for the "No Protocol Protocol"

MCB Action	Passed 08/21/13	Implemented 10/01/13	Revised 00/00/00	Revision #	Implemented 10/01/13

MISC-5 Patient Restraint

Designation of Condition: The patient will be significantly impaired (e.g., intoxication, medical illness, injury, psychiatric condition, etc.) and will lack the capacity to make an informed decision regarding their own care; AND/OR exhibits violent, combative or uncooperative behavior which does not respond to verbal de-escalation. The application of restraints must be done out of the necessity to ensure patient or provider safety or to facilitate patient assessment and treatment.

ALL PROVIDERS

- Request law enforcement at the earliest opportunity
- Ensure the presence of sufficient personnel to safely apply restraints.
- Attempt less restrictive measures to control before restraining (e.g., verbal de-escalation).
- Explain to the patient and family why restraints are necessary.
- Use the minimal amount of restraints necessary to control the patient and still insure provider safety during transport. Watch for positional asphyxia.
- Apply restraints in a humane manner, affording the patient as much dignity as possible. Utilize only appropriate restraint devices (see below).

Patient Exam: ABC's, vital signs (including O_2 sat and BGL) at the earliest opportunity. Treat trauma and seizure if applicable.

- Continuously monitor the airway, breathing, circulatory status, neurovascular function in restrained limbs, and the need for continued restraint.
- Maintain the patient in the supine or lateral recumbent position.

Prone or "hobble" restraint position are not appropriate for EMS

- A paramedic and at least one other EMT will attend restrained patient at all times.

Documentation:

- A Restraint QA Form must be completed on all restrained patients.
- Document the following:
  - Reason for restraint; MCEP involvement
  - Circumstances of the incident
  - Known or suspected causes of agitated or delirious behavior
  - Why the patient could not be transported without restraints
  - Relevant comments made by patient
  - Vital signs, O_2 sat and BGL (if obtained)
  - Position of patient, type of restraint, and location of restraints on patient
  - Injury to patient or to EMS personnel: state whether injury occurred before, during, or after the restraint process
- In cases of restrained patients, every service on-scene must generate an EMS report and complete a restraint form. Complete documentation is mandatory.
- All restraint cases will undergo quality assurance review and are reviewed by the Medical Director.

Appropriate Devices:

- Restraint devices that are appropriate for EMS utilization include:
  1. Soft patient restraints to backboard or gurney
  2. Spit hood [system approved full visibility hood when patient is spitting]
  3. Supine on a Spine board
  4. KED (Kendrick Extrication Device)
  5. Vacuum splints
  6. Soft gauze
  7. Blankets and sheets
  8. Other system approved commercially available devices
  9. Handcuffs may only be used in accordance with the handcuff policy of the transporting agency. (NEVER HANDCUFF PATIENT TO GURNEY.)

Chemical Sedation for the Agitated and Delirious Patient

Designation of Condition: Chemical sedation should be reserved for those patients who remain violently agitated, despite verbal de-escalation attempts and physical restraint, and in the judgment of the paramedic, poses a continued risk to themselves and/or to the EMS provider. Chemical restraint is a measure to be employed as a last resort and should only be

used after all other less invasive means of control have been exhausted. Midazolam should never be administered as a "convenience" measure. Although many patients remain uncooperative and verbally abusive after physical restraint, most of these patients usually DO NOT necessarily require mandatory chemical sedation. If you are in doubt as to whether chemical restraint is indicated, contact MCEP.

PARAMEDIC

- Assess patient and determine that he/she remains uncooperative and violently agitated, despite verbal de-escalation attempts and physical restraint maneuvers. (Remember to record these observations later.)
- If possible, obtain set of vital signs.
- Administer Midazolam: 5 mg IM (administration into the deltoid muscle is preferred). Elderly patients (age >65), patients with known COPD, and patients on medications that enhance Midazolam's effects (see below) should receive ½ of the normal adult dose (2.5 mg IM). Consideration for lower dosage (<5 mg IM) should be given for patients with a recent known co-ingestion of opiates or large amounts of alcohol, and small patients (<50 kg).
- Repeat IM dosing will require MCEP approval.
- In order to prevent injury or inadvertent needle stick to the patient or the provider, DO NOT attempt to administer the medication prior to obtaining secure physical control of the patient.
- If an IV is in place, Midazolam may be administered via IV route. If given intravenously, it should be given in 1-2 mg increments every 2 minutes up to a total dosage of 2.5 mg. Administration of more than 2.5 mg IV will require on-line MCEP approval.

Caution:

1. Inappropriate use of either physical or chemical restraint (use that does not conform to the designation of condition) may be considered an infringement on the patient's civil rights. EMS providers must be aware of risk/benefit of restraint and the need for appropriate documentation.
2. Midazolam is a potent respiratory depressant, especially when given intravenously. Most episodes of respiratory depression or arrest can be managed with bag-valve-mask.
3. Drug interactions that prolong the respiratory depressant effects of midazolam include: Antifungals (e.g., ketoconazole and fluconazole), HIV Antiviral drugs (protease inhibitors and reverse transcriptase inhibitors), Macrolides antibiotics (e.g., erythromycin) and certain anti-depressants (SSRI inhibitors).
4. Midazolam is also a cardiovascular depressant and may cause hypotension. It has been noted to cause mild to moderate drops in blood pressure, especially in patients who are volume depleted

Contraindications:

1. Administration to patient prior to attempts at less invasive means of behavioral control.
2. Allergy to benzodiazepine
3. SBP <90 mmHg
4. Unable to maintain airway, or anticipation that airway control would be very difficult (e.g., significant facial or airway trauma)
5. Pre-pubescent minors

Mandatory Post Medication Procedures:

1. Obtain and record vital signs every 5 minutes.
2. Continuously monitor HR and O_2 sats.
3. Be prepared to manage the airway.
4. Be prepared to manage drops in blood pressure.

MCB Action	Passed 08/15/01	Implemented 10/01/01	Revised 09/15/10	Revision # 2	Implemented 10/01/10

MISC-6 “No Protocol” Protocol

Designation of Condition

Anyone requesting emergency medical care will receive appropriate assessment, care, treatment, and transportation in accordance with the individual’s condition, chief complaint and Bernalillo County protocol. It is understood however that no set of protocols could ever be “all inclusive.” At times, EMS providers will be faced with situations that cannot be categorized into an existing Bernalillo County protocol, or no protocol exists addressing the situation.

ALL PROVIDERS

- The provider on scene may consider all allowable treatment options within the Bernalillo County protocols and the New Mexico Scope of Practice.
- An MCEP will be contacted for treatment guidelines and to discuss appropriate management options; in particular if the on scene provider believes that such interventions are necessary and in the best interests of the patient.
- The provider must inform that MCEP that no protocol exists to cover this particular situation, and the MCEP will then advise the provider as to how to proceed with the treatment of that patient.
- Exclusions to this may be found in protocol Misc. – 4A. All patient interaction, to include MCEP contact, care, treatment, transport or refusal of transport will be documented accurately and in its entirety.
- The appropriate agency QA process will be initiated as needed.

MCB Action	Passed 04/16/06	Implemented 10/01/06	Revised 08/21/2013	Revision # 1	Implemented 10/01/2013

MISC-7 D N R or MOST

E M S - D N R for DOH Reg. 94-10 or MOST
Designation of Condition: If the patient has a valid EMS-DNR Order, per DOH Reg. 94-10, or a “New Mexico Medial Orders For Scope of Treatment “ (MOST) form the specifics of the document will be followed and care will be administered as outlined.

ALL PROVIDERS

- The EMS-DNR Order or MOST form does not affect the provision of other emergency medical care, such as oxygen and other comfort care measures.

Alternate DNR/Living Will/Advanced Medical Directive
Designation of Condition: If the patient has an Alternate “Do Not Resuscitate”(DNR)Order, a” Living Will”, or an “Advanced Medical Directive”, the specifics of the document will be followed and care will be administered as judged appropriate by the Paramedic.

ALL PROVIDERS

- Contact MCEP.
- At the scene of a cardiac arrest:
- While initiating basic life support, ask if the patient has an “Advanced Medical Directive”, a "Living Will" or a "Do Not Resuscitate" (DNR) form.

PARAMEDIC

If the patient does not have a DNR, a “Living Will, “ an “Advanced Directive, “or a MOST form that prohibits ACLS intervention in the event of cardiac arrest.

- Full ALS resuscitation efforts will be initiated. If the patient remains in cardiac arrest after completion of ACLS algorithms, resuscitation may be terminated after MCEP contact. The scene will then be considered an unattended death/crime scene until law enforcement and/or Office of the Medical Investigator (OMI) arrives at the scene.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 08/15/12	Revision # 2	Implemented 10/01/12

MISC-8 Dead At the Scene

Designation of Condition: The patient will be unconscious, unresponsive, pulseless and apneic.

ALL PROVIDERS

- Resuscitation efforts may be withheld if any of the following criteria are met:
  - Obviously expired:
    - Presence of rigormortis or livormortis
    - Obvious external exsanguination
    - Decapitation or visible brain contents
    - Decomposition

- Advanced resuscitation efforts may be withheld in the presence of an approved DNR form. (Refer to MISC-7.)
- Advanced resuscitation efforts may be withheld in an expected death of a terminal patient without a DNR form, but will require MCEP contact.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 10/21/98	Revision # 1	Implemented 01/01/99

Appendix A: Mass Casualty Incident Response

THE FOLLOWING PROCEDURES HAVE BEEN APPROVED BY THE MEDICAL CONTROL BOARD OF THE CITY OF ALBUQUERQUE & BERNALILLO COUNTY EMERGENCY MEDICAL SERVICES AUTHORITY

Designation of Condition:
A Mass Casualty Incident may be defined as "any event resulting from man-made or natural causes resulting in illness and/or injuries that exceed the EMS capabilities of a hospital, locality, jurisdiction and/or region". We must remember that these events typically necessitate a large response and thereby tax the EMS system, creating an inability to resolve the emergency using routine procedures. The High Level Mass Casualty Incident or MCI is any incident involving 25 – 100 patients. A Low Level MCI is any incident involving 5 - 25 patients. Although this type of incident has the potential to stress the EMS system, it may still be handled utilizing a localized response. A Disaster is any incident involving more than 100 patients. A response to a "Disaster" incident will require notification and request for State and or regional resources. These procedures must be processed first within the framework of the Incident Management Sysytem and Local Fire/ EMS Standard operating procedures.
* Triage tags will be used in all incidents where greater than 5 patients have been identified as transportable. Triage tags should be used on smaller incidents to help improve scene organization and to facilitate ease of use during Large incidents such as High Level MCI's.
Note: These incidents may involve Chemical, Biological, Radiological, Nuclear, and or Incendiary/Explosive devices. (CBRNE)

ALL PROVIDERS:

The first arriving Unit at a High or Low Level Mass Casualty Incident or Disaster shall establish command. It is the responsibility of the first arriving unit to implement the MCI protocol on incidents requiring a Low or High Level MCI designation, also to include a Disaster response. In the event that a unit other than the local Fire Department arrives on scene first, command shall be established and then transferred to the Fire Department upon arrival of local Fire Department response units.
This protocol does not address specific Fire Department Standard Operating Guidelines but outlines the specific "EMS tactical objectives" to be completed during this type of incident.

EMS Tactical Objectives:
1. Completion of a "Triage Report".
2. Declaration of "All IMMEDIATES transported".
The National Incident Management System (NIMS) is designated as the predominant Incident Command System by the Department of Homeland Security and FEMA. It will be used at all Mass Casualty or Disaster incidents. The Incident Management System will drive the completion of of all tactical objectives identified by the Incident Commander.

Arrival:
Declaration and Notification: The first arriving unit shall communicate with dispatch (i.e., what I have, what I need, what I'm doing, who's in charge). Initial actions shall be directed toward scene size-up, request of additional resources and scene organization.
Example: "Engine 1 to Alarm, we are onscene. We have a restaurant explosion with multiple victims. This is a High level MCI. Engine 1 is staged at Central and 4th street. We will initiate Triage and Extrication. Engine one has command and accountability."
Note: Initial response units should proceed to the scene; additional resources shall use Level 1 staging (one block away in the direction of travel) awaiting assignment. The onscene Incident Commander should consider Level 2 staging early in the incident (Designated area for responding apparatus, with a designated staging officer) for additional units.
In the event an Ambulance unit arrives onscene first, a "clear text" message using common language will be used to communicate the type of incident and to request Fire Department response (see above). Remember these events may require extrication and or specialty responders. Training and local Fire/EMS Standard Operating Guidlines should dictate your actions.
The first arriving unit must determine the number and condition of patients. The first arriving unit should also consider the resources necessary to mitigate the emergency. Notification of the AFD or BCFD fire communications centers will include:

1. Type of incident
2. Estimated number of patients
3. Additional resources needed

The AFD or BCFD communications center will notify all other area dispatch centers and Santa Fe Control [Albuquerque Base if patients will be transported to Albuquerque]. Notification of the regional hospitals will be accomplished using EMSystems® and local dispatch/ Albuquerque base. All facilities on caution or closed status will open or be forced open for the duration of the Incident. All hospitals will utilize EMSystems® for initial and ongoing capacity updates.

The Office of Emergency Management (City of Albuquerque and or Bernalillo County, dependent upon jurisdiction and severity of the incident) will be notified for all events designated as a "High Level MCI" or greater. The Office of Emergency Management is instrumental in the coordination and management of essential resources. Consider notification of the Office of Emergency Management for Low Level MCI's based upon severity of injuries, number of immediates and or type of incident.

Ambulance personnel are primarily responsible for transport of injured patients from the incident scene. Ambulance personnel may act in the capacity of Transport officer. Communications with the Transport officer should take place on EMS channel 1.

Staging:

- Additional resources should be requested early in the incident.
- All High Level MCI's should result in Level 2 staging. Level 2 staging requires units to park or stage a sufficient distance to keep the scene from becoming congested.
- Non-Fire or outside agencies that are requested to respond to the scene should respond to the designated staging area and report to the staging officer.

Incident Command System:

The Fire Department will have overall control of the EMS and Fire/Rescue operations. Only Fire Department personnel will be involved in rescue/hazmat/fire suppression roles. These roles may be identified as Triage, Extrication, Treatment and or Transport as necessary. Initially, Ambulance personnel may be utilized in essential areas to help rapidly process victims. As Fire Department personnel become available, they can and should replace Ambulance personnel in identified areas as necessary to facilitate transport of injured victims. Let training and equipment dictate your role or actions.

Due to the number and condition of victims, available onscene resources may quickly become overwhelmed.Triage must begin immediately to enable onscene units to maintain a level of organization and control. Maintain a high index of suspicion with regards to scene safety and potential hazards, i.e., CBRNE (Chemical, Biological, Radiological, Nuclear and Explosives).

Patient Management:

- Patients will be triaged using the state adopted START Triage System.

Triage Officer:

Once Triage is complete, a "Triage Report" should be given to the AFD or BCFD communications centers. The "Triage Report" is given by the Triage officer and should state the total number of patients, along with the appropriate numbers in each triage category. This report signifies that triage is complete, and also communicates the scope of the incident to all responding agencies. The "Triage Report" will also be given to Command identifying the number of patients in each triaged category in this order:

- Number of Immediate (Red)
- Number of Delayed (Yellow)
- Number of Minor (Green)
- Number of Dead/Dying (Black)

The Albuquerque Fire Department has two MCI trailers. The MCI Trailer is an additional resource for triage and treatment equipment. It should be requested as early in an incident as possible. Each trailer contains BLS supplies sufficient to treat 50 patients.

START Triage Categorization Criteria

Triage Category	Description
Red Tag (Immediate/Critical)	These are patients of the highest priority which, in most circumstances, are removed and treated first. This categorization EXCLUDES patients who are in cardiopulmonary arrest or are near death and have, in the judgement of the Triage Officer, fatal injuries.
Yellow Tag (Delayed/Serious)	Patients whose condition is serious and needs attention. However, treatment and removal may be delayed until viable Red Tag patients have been treated and transported.
Green Tag (Minor/Stable)	Patients who may have treatment and/or transport delayed, but require treatment and transport. They may be the last to be transported.
Black Tag (Deceased)	Patients who are already dead, or so severely injured, that death is certain within a short time, regardless of treatment given.
Contaminated	These patients may be from any triage category but need to be grossly decontaminated prior to transport.

START Triage Algorithm

Move Walking Wounded	MINOR	
No Resp. After Head Tilt/OPA	DEAD-DYING	
Respirations - Over 30	IMMEDIATE	
Pulse – No Radial Pulse	IMMEDIATE	
Mental Status – Unable to follow simple commands	IMMEDIATE	
Otherwise…	DELAYED	

*Remember Respirations-Pulse-Mentation (RPM) while determining IMMEDIATE patients

Treatment:
All treatment will follow local standard of care. On scene treatment will be minimal and patients will be transported as expeditiously as possible.

Patient Distribution Guidelines: The following is a starting point in determining initial patient transport destinations, as well as a guide for each successive wave of transports in an MCI or Greater incident.The hospitals must, at a minimum, accept the following numbers of patients. Some hospitals may choose to increase their patient allotment, or accept patients with a higher level of acuity. Local hospital capacities may change daily and will require frequent re-evaluation as appropriate. During a declared MCI or greater, any closed facility will automatically be put on open status (unless on black closure), no facilities will be allowed to close, and no facilities will divert patients brought to them based on the protocols below

	Hospital	Trauma	Medical
1. Most severely injured	University	up to 3 Red Tag or 3 Yellow Tag or 3 Green Tag patients (or any combination, not to exceed 3 per wave)	2 Patients/wave
2. Next most injured	Lovelace Downtown OR	up to 1 Red Tag or 2 Yellow Tag or 3 Green Tag patients (or any combination, not to exceed 3 per wave)	2 Patients/wave
	Presbyterian	up to 1 Red Tag or 2 Yellow Tag or 3 Green Tag patients (or any combination, not to exceed 3 per wave)	2 Patients/wave
3. Any Green Tag Patients	Kaseman Lovelace Women's Lovelace West Mesa VA Heart Hospital Rust Med Ctr	Up to 2 Green Tag patients per wave Heart Hospital will accept 1 Red Tag or 1 yellow tag isolated chest trauma patient if necessary.	2 Patients/wave

Patient distribution will follow above guidelines in initial and all subsequent waves.

The Transport Officer will:
Assign patients to ambulances and designate appropriate destination.
Request dispatch to notify receiving hospitals of patients' arrivals. This notification may take place thru Albuquerque Base or AFD/ BCFD communications centers.
The final benchmark or Tactical Objective is "All Immediates Transported". This "Tactical Objective" is announced when all patients who have been tagged as immediate (Red Tag) have been transported off scene.

Notify command when "All" patients have been transported.

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 01/18/12	Revision # 8	Implemented 02/01/12

Appendix B: Medical Control Emergency Physician Handbook

Purpose - This handbook is designed to familiarize emergency physicians with pre-hospital protocols and capabilities of pre-hospital providers. MCEPs (Medical Control Emergency Physicians) are authorized by the City/County EMS Authority to give on line orders to EMS providers within Bernalillo County.

EMS System - The City of Albuquerque and Bernalillo County have designed and implemented an emergency medical services system that provides pre-hospital emergency medical care to the citizens of Bernalillo County. Access and activation of EMS is accomplished by enhanced 911 telephone dispatch centers. The Emergency Medical Services Authority (EMSA), the Medical Control Board and the Providers Advisory Committee oversee, direct and provide information and feedback to the agencies providing emergency medical services to citizens of Albuquerque and Bernalillo County. Currently, the Albuquerque Fire Department, Albuquerque Ambulance Service, Bernalillo County Fire Department, Village of Los Ranchos de Albuquerque Fire Department, and the Village of Tijeras Fire Department provide ground emergency medical services for the EMS System within Bernalillo County. PHI is the primary rotor-wing service providing scene responses within the county.

Albuquerque Fire Department - The Albuquerque Fire Department provides the first-tier of the emergency response at the Basic and Paramedic level for the City of Albuquerque and to certain areas of Bernalillo County. This tiered response includes but is not limited to the receipt of 911 calls, dispatch of emergency units, scene control, patient assessment, treatment and stabilization in anticipation of transport. Albuquerque Fire Department EMT's and Paramedics may ride in with Albuquerque Ambulance Service to help provide patient care during transport of critical patients. The Albuquerque Fire Department may also transport patients when it is deemed medically necessary. The Albuquerque Fire Department / 911 Communications Dispatch Center utilizes Emergency Medical Dispatchers trained in Clawson Medical Priority Dispatch to prioritize calls, determine response configurations, and to provide pre-arrival instructions to callers.

Albuquerque Ambulance Service - Albuquerque Ambulance Service is a private, nonprofit, 501, C3 Corporation, and is a division of Presbyterian Hospital. The Albuquerque Ambulance Service Board of Directors is made up of representatives from all the area hospitals. Albuquerque Ambulance Service is CAAS accredited and provides emergency 911 system paramedic transport services for the City of Albuquerque and Bernalillo County. Albuquerque Ambulance Service also provides emergent and non-emergent inter-facility advanced life support and intermediate life support transport services, within Bernalillo County and throughout the state.

Bernalillo County Fire Department - The Bernalillo County Fire Department operates advanced life support rescues and engines that provide first response emergency medical services within the unincorporated areas of Bernalillo County. This response includes but is not limited to the receipt of 911 calls at Bernalillo County's own Public Safety Answering Point, dispatch of emergency units, scene control, patient assessment, treatment and stabilization in anticipation of transportation In general; Bernalillo County Fire Department Rescues do not provide transport service, as Albuquerque Ambulance Service is the primary transport agency. Bernalillo County Fire Department paramedics & EMT's may ride in with Albuquerque Ambulance to help provide care for critical patients. The Bernalillo County Fire Department may transport patients when it is deemed medically necessary. Bernalillo County has also teamed up with Bernalillo County Sheriff's Department to provide helicopter hoist rescue in circumstances which require this service.

Rotor Wing Air Medical Service - Rotor wing services are available in Bernalillo County and the surrounding areas. The local service flies with two medical personnel, an RN and a paramedic or two RNs. The helicopter can land at UNMH, Presbyterian, HHNM, Presbyterian Rust MC, Lovelace Westside and the VA Hospital. Transports to other facilities require a secondary ambulance ride or clearing the hospital parking lot. Rotor wing protocols differ from Bernalillo County EMS protocols. Whenever possible the rotor wing service utilizes the Bernalillo County EMS protocols.

Sandia National Laboratories (SNL) Clinical Services and Emergency Management collectively provide 911 services for SNL Members of the Workforce. These services includes the receipt of 911 calls, dispatch of SNL ALS and BLS emergency units, scene control, patient assessment, treatment, stabilization, and transport. The Sandia National Laboratories Emergency Management Communications Center utilizes certified National Academy Emergency Medical Dispatchers to prioritize calls, determine response configurations, and to provide pre-arrival instructions to callers.

Superior Ambulance is a private, for profit, corporation operating at the EMT Basic, Intermediate and ALS level providing non-emergency and emergency inter-facility advanced life support transport services statewide, including the City of Albuquerque and Bernalillo County. Superior Ambulance is not a 911-transport provider in the City of Albuquerque and Bernalillo County, but is in other counties in the Albuquerque Hospital catchment area, such as Torrance County.

Village of Tijeras Fire Department -The Village of Tijeras Fire Department provides first response emergency medical services primarily to the Village of Tijeras with a basic, intermediate or advanced life support rescue and/or engine company.

The Village of Tijeras receives 911 calls from the Bernalillo County Public Safety Answering Point. In general, the Village of Tijeras Fire Department Rescue does not provide transport service, as Albuquerque Ambulance Service is the primary transport agency. The Village of Tijeras Fire Department paramedics & EMT's may ride in with Albuquerque Ambulance to help provide care for critical patients. The Village of Tijeras Fire Department may transport patients when it is deemed medically necessary.

State Organizations - Licensing of EMT's is under the authority of the EMS Bureau in Santa Fe. The state legislature also funds the EMS Academy, at the University of New Mexico, to provide training for EMT's at all levels. At the national level, the Department of Transportation (DOT) is charged with developing EMT curricula. The National Registry of EMT's is a private corporation dedicated to testing EMT's nationwide. Passing the National Registry EMT examination is one way of becoming a licensed EMT in New Mexico, i.e., New Mexico is a National Registry State.

Trauma System - Bernalillo County has a recognized trauma system authorized by the state and agreed to by all the area hospitals. This, in general, matches the American College of Surgeons Trauma designations although there have been a few modifications. University Hospital is a level one-trauma center, and is the only designated trauma center in Bernalillo County.

Bernalillo County EMS Formulary & Standing Orders

- Adenosine: Hemodynamically stable SVT with significant symptoms. 6mg--12mg. Pediatric 0.1mg/kg--0.2 mg/kg
- Albuterol: 5 mg nebulized for reactive airway disease (2.5 mg ≤2 y/o)
- Aspirin: 324 mg for chest pain
- Atropine: 0.5 mg IV/IO/ET max 3 mg for symptomatic bradycardia
- Calcium Gluconate Hydrofluoric Acid Exposure/Burns; 2.5% calcium gluconate gel (if available) to burned area of skin every 15 minutes and massage gently until pain resolves. If inhalation injury presents, as soon as possible give calcium gluconate neb. (if available). Mix 1 ml of 10% calcium gluconate with 3 ml of normal saline to give 2.5% solution. For suspected systemic toxicity, IV Calcium gluconate. (If available) For adult patients: administer 10% calcium gluconate: 0.1 ml/kg up to 10ml IV. For pediatric patients: administer calcium gluconate 0.1 ml/kg IV (monitor patient closely)
- Dexamethasone: Reactive Airway Disease: Adult: 10mg IV/IO slowly over 2 minutes. Pediatrics Dosage; 0.6 mg/kg SIVP to a max of 10mg.
- Dextrose 50%, 25%, 10%, 5% for hypoglycemia
- Diazepam: 0.2 mg/kg for seizures, transcutaneous pacing (when analgesia contraindicated or ineffective), synchronized cardioversion, post-intubation sedation; 0.3-0.5 mg/kg rectally for children for seizures
- Diphenhydramine: 0.5-1 mg/kg up to 50 mg for anaphylaxis
- Dopamine: 4-12 mcg/kg/min for cardiogenic shock, symptomatic bradycardia unresponsive to pacing or Atropine
- Epinephrine:
    - Cardiac arrest: 1 mg 1:10,000 IV/IO or 2 mg 1:1,000 ET (pediatric: 0.01 mg/kg 1:10,000 IV/IO or 0.1 mg/kg 1:1,000 ET)
    - Severe croup/epiglottitis and anaphylaxis with airway swelling: 0.05 mg/kg (max 3 mg) 1:1,000 diluted to 3 ml in NS nebulized
    - Anaphylaxis: 0.3 mg 1:1,000 IM (pediatric: 0.01 mg/kg)
    - Reactive airway disease: 0.3 mg 1:1,000 SQ/IM (pediatric 0.01 mg/kg)
    - Bradycardia, Cardiogenic Shock, Anaphylaxis, Drug Overdose, Snakebite & Sepsis: Adult 2-10 mcg/min.
- Fentanyl: Patients presenting with pain or discomfort.
    - Adult: 1.0-3.0mcg/kg to a maximum of 3.0mcg/kg; MCEP contact required if patient requires more than 3mcg/kg. Administer in 0.5-1.0mcg/kg increments, may repeat every 5 minutes up to a maximum dose.
    - Pediatric: Children 2 years of age and older may receive Fentanyl. The dosing is the same as adults.
- Ipatropium Bromide (Atrovent) – Reactive Airway Disease:
    - Adult & children > 2 yrs: 0.5mg nebulized
- Lidocaine: 1.0-1.5 mg/kg (repeat 0.5-0.75 mg/kg PRN, max 3.0 mg/kg) IV/IO (2 mg/kg increments ET) for pulseless VT/VF and unstable VT
- Magnesium Sulfate:
    - Reactive airway disease refractory to albuterol and epi: 2 gm. IV over 5-10 minutes (pediatric 20-25 mg/kg)

    - Eclampsia: 4 gm. over 12 minutes
    - Pre-eclampsia: 2 gm. over 12 minutes (requires MCEP order)
    - Torsades de Pointes: stable - 2 gm. over 12 minutes; unstable - 2 gm. over 3-6 minutes; 30 mg/min infusion if indicated
- Midazolam:
    - Chemical sedation for violently agitated patient: max dose: 5 mg IM or 2.5 mg IV
    - Status epilepticus (consider if IV access not readily available): Adults - 0.1 mg/kg IM, max 5 mg; Infants/Children - 0.1 mg/kg IN (via MAD nasal atomizer) or IM, max 5 mg
    - Eclamptic seizures (if unable to establish IV/IO): 0.1 mg/kg IM, max 5 mg
    - Synchronized cardioversion: 1-2 mg increments IV, max 5.0 mg (pediatric: 0.025 – 0.05 mg/kg IV/IO)
- Morphine Sulfate:
    - Patients who present with pain or discomfort. Adults age 16 and older: 2-5 mg increments to a total of 20 mg (patients <15 y/o); 0.1-0.2mg/kg may be repeated every 5 minutes up to maximum dose.
    - Transcutaneous pacing: 2 mg increments to a total of 10 mg; (pediatric: 1-3 mg increments to a total of 0.15 mg/kg); MCEP order required if additional dosing needed
- Naloxone: 0.2-0.4 mg, max 2.0 mg IM/IV/IO; 2 mg IN with repeat dose 1mg; (pediatric: 0.02 mg/kg IM/IV/IO/IN, max 2.0 mg)
- Nitroglycerine: 0.4 mg SL q 3-5 min. as needed for cardiac chest pain relief
- Norepinephrine (Levophed): Adult Sepsis: 4-10 mcg/min to a max of 10 mcg/min.
- Sodium Bicarbonate: 1 mEq/kg for VF/PEA/pulseless VT and stable/unstable VT if suspected hyperkalemia or tricyclic antidepressant OD
- Zofran: Adult 8 mg ODT; Children (12-17 years) 4 mg ODT

Bernalillo County EMS Approved Skills

- Basic Airway management (including airway adjuncts and obstructed airway interventions)
- BVM
- Extraglottic Airways
    - Combitube
    - LMA Supreme
    - King LT
- CPAP
- Direct Laryngoscopy
- Endotracheal Intubation: Oral and Nasal
- End-tidal CO2 monitoring
- Surgical Cricothyrotomy
- Needle Thoracostomy
- Bleeding Control Including Temporary Tourniquet application
- Wound management and Wound dressings
- Splinting Extremities
- Spinal Immobilization
- Patient Restraint
- Peripheral IV
- Glucometry
- IO placement
- Emergency Childbirth
- Defibrillation
- Synchronized Cardioversion

- External Cardiac Pacing
- Cardiac Monitoring
- 12 Lead ECG

Protocols: In Bernalillo County most EMT and paramedic medical functions are determined by protocols approved by the Medical Control Board and individual service Medical Directors. The general philosophy of these protocols is that the emergency lifesaving interventions must be made by Emergency Medical Technicians, utilizing standing orders, without direct on-line medical control. On-line medical control should be contacted "as soon as possible" for guidance in situations not specifically covered by written protocol, or in certain circumstances that are mandated by protocol, (e.g., requesting D/C orders for a cardiac arrest). Medical Control Emergency Physicians (MCEP) are authorized to give orders outside of the Bernalillo County protocols provided that such orders do not violate the scope of practice of the provider, or involve the use of medications that have not been approved for use in Bernalillo County. (See above list for allowable medications and approved skills.) Once an MCEP has been contacted the Paramedic & EMTs provide care under the direction of the on-line MCEP. EMTs are also encouraged to directly contact medical control if they have difficulties at the scene that a physician may help to resolve (e.g., if a patient refuses transport or desires to go in by private vehicle against the medical advice of the EMT).

MCB Action	Passed 4/20/94	Implemented 06/01/94	Revised 12/18/2013	Revision # 8	Implemented 04/01/2014

Appendix C: UNM EMS Consortium Field Response Program

Purpose: To provide an understanding to all personnel within the Albuquerque Metro Area EMS System of the UNM EMS Consortium Field Response Program and how the physicians that comprise this group function within the established system.

ALL PROVIDERS

The UNM EMS Medical Direction Consortium (The Consortium) brings together all the EMS resources within the University Of New Mexico Department Of Emergency Medicine. The Consortium consists of multiple EMS Medical Directors, each who also serves as a faculty member within the Department, EMS Fellows obtaining additional training in EMS Medical Direction, and Management.

Partner agencies are those agencies to whom the Consortium provides medical direction or with whom the Consortium has a contract.

The Consortium has field response capabilities and will be providing on-scene medical oversight, consultation and patient care throughout the Metro area. The EMS Fellows will be the primary EMS Physicians in the field.

The goals of the Field Response Program are to: increase interaction between medical directors and field providers, provide real-time education and feedback to EMS providers, improve overall system design and functioning, enhance patient care, and educate the fellows about the complicated realities of EMS fieldwork.

All members of the Consortium are approved and recognized Medical Control Emergency Physicians (MCEPs) within the Albuquerque Metro Area EMS System. Furthermore each Consortium Physician is considered an Assistant Medical Director for all Consortium Partner Agencies. As such these Physicians do not fall under the TT-18 "MD at Scene" Protocol. Orders from the Physicians are no different from those obtained by radio MCEP consultation or from direct contact with a Service Medical Director.

On-scene orders received by field providers from a Consortium Physician should be signed for BY THAT PHYSICIAN prior to transport to patient's receiving hospital, unless the Physician is going along to the hospital or meeting the crew at the hospital.

Involvement of Consortium Physicians in on-scene patient care in no way mandates transport of a patient to UNM facilities.

Consortium Physicians will respond to scenes based on automatic dispatch criteria with Partner Agencies, requests from field providers or from monitoring radio traffic. Providers from any Partner Agency may request a field response for complicated situations. Once on-scene, the Consortium Physician will interact equally with all providers from any agency.

EMS Consortium physicians can be reached through Albuquerque Ambulance Dispatch 505-449-5710.

MCB Action	Passed 01/19/11	Implemented 02/01/11	Revised 08/21/2013	Revision # 1	Implemented 10/01/2013

Appendix D: Hazardous Materials [HM]

HM-1 Hydrofluoric Acid Exposure/Burns

Designation of Condition: Patient will have a known exposure to hydrofluoric acid (HF). Exposure may be by direct skin contact, inhalation, or eye exposure. HF is commonly used for polishing, frosting, and etching glass; it is also found in rust-removing agents and heavy-duty cleansers, a potential source of human exposures. HF is highly corrosive and causes damage by two mechanisms. It produces a corrosive burn from the high concentration of hydrogen ions, and the fluoride ion is able to diffuse rapidly through tissue, complexing with a wide variety of cations and causing a severe liquefaction necrosis not usually seen with other acid exposures. Also, the fluoride ion has the ability to form insoluble complexes with calcium, which, in turn, is leached out of the bloodstream rapidly, which may cause life-threatening electrolyte disturbances.

ALL PROVIDERS: Provider Safety: All responders should wear personal protective gear, including appropriate gown, gloves and goggles.

- Thoroughly decontaminate the patient.
- Ensure no possibility of secondary contamination.
- Remove patient from contaminated environment.
- Immediately flush exposed areas with large amounts of water.
- After thorough initial irrigation apply 2.5% calcium gluconate gel (if available) to burned area of skin every 15 minutes and massage gently until pain resolves
- Rubber or neoprene gloves must be worn while touching victim. (Latex gloves are not an effective barrier against HF)
- Eye Injuries: Immediately flush affected eye with water for at least 30 minutes while holding eyelid open. Keep effluent from entering unaffected eye. If available apply topical ophthalmic anesthetic solution.
- If inhalational exposure: Give 100% oxygen by mask
- Transport to Regional Burn Center.

INTERMEDIATE

- IV/IO NS or saline lock away from site of exposure.
- Pain Control: See Protocol MISC 3.
- If patient shows signs of hypovolemia:
- Adult: Bolus in 250 ml increments, reassessing between boluses
- Infant/Child: Bolus in 10-20 ml/kg increments, reassessing between boluses

PARAMEDIC

- Monitor ECG

If inhalation injury presents:

- As soon as possible give calcium gluconate neb. (If available)
- Mix 1 ml of 10% calcium gluconate with 3 ml of normal saline to give 2.5% solution
- Place solution in nebulizer and connect to oxygen to provide effective fog.
- Carefully watch the patient for edema of the upper airway with respiratory obstruction. Consider endotracheal intubation or cricothyrotomy if necessary.

Suspect systemic toxicity if there is a large surface area exposure or inhalational exposure. Signs of systemic toxicity include tetany, EKG changes (Prolonged QTc. (> 500 msec), or ventricular arrhythmias. If present treat with IV Calcium gluconate. (If available)

- Adult: Administer 10% calcium gluconate: 0.1 ml/kg up to 10ml IV.
- Pediatric: Administer calcium gluconate 0.1 ml/kg IV (monitor patient closely)

Transport patient to Regional Burn Center.

If multiple patients see MCI Appendix A

This protocol is for use only by specially trained HAZMAT treatment teams

MCB Action	Passed 04/18/12	Implemented 04/18/12	Revised 11/20/2013	Revision # 2	Implemented 04/01/2014

HM-2 Cyanide Poisoning Protocol

Designation of Condition: Inhalation of cyanide gas or ingestion of cyanide crystals prevents the cells of the body from utilizing oxygen. A bitter almond smell may be present. Symptoms are non-specific and rapid in onset. They include: Headache, weakness, nausea, vomiting and confusion. Signs of significant toxicity include: Tachypnea, tachycardia, hypotension, cyanosis, agitation, seizure, and coma. These may progress to cardio-pulmonary arrest if not treated.
NOTE: Multiple patients with similar signs and symptoms should increase your index of suspicion for a chemical event.
NOTE: If suspected exposure has occurred in an enclosed space, do not enter until HAZMAT team determines the scene is safe.

HISTORY: Cyanides are present in the products of combustion of many natural and synthetic materials. Cyanide toxicity should be suspected in victims of smoke inhalation exhibiting concerning signs and symptoms. There are also many industrial uses of cyanide from which exposure may occur, including removal of gold from ore, photography development, electroplating, and cleaning of various industrial metals. In addition, cyanide is a potential agent of chemical terrorism.

ALL PROVIDERS

- Decontaminate patient.
- ABC's. Ensure airway patency.
- Provide suction as needed.
- Provide supplemental oxygen.
- Perform a thorough assessment.
- Rapid transport to Core Facility.

INTERMEDIATE AND PARAMEDIC

- IV/IO NS or saline lock. Treat hypotension with saline boluses. Frequently re-assess blood pressure and lung sounds.
- Hydroxocobalamin (Cyanokit) The decision to administer hydroxycobalamine is empirical and must be based on clinical characteristics. These include hypotension and altered mental status in the context of a known or suspected cyanide exposure. In cases where exposure is suspected, but no significant signs or symptoms are present, contact MCEP prior to treatment
    - Adult: Administer 5 grams IV/IO over 15 minutes (If available). Re-assess blood pressure during and after infusion.
    - Child: 70 mg/kg IV/IO over 15 minutes (If available). Re-assess blood pressure during and after infusion.

Each 2.5 gm vial must be reconstituted with 100 mL of normal saline using the supplied sterile transfer spike. The line on each vial represents 100 mL volume. Following reconstitution the vial should be repeatedly inverted or rocked for at least 30 seconds prior to infusion. DO NOT SHAKE. If reconstituted solution is not dark red or if particulate matter is seen after the solution has been appropriately mixed, the solution should be discarded.

- If seizures occur, treat appropriately (See M-10)
- If there are associated thermal burns (See T-11)
- If multiple patients (See MCI Appendix A)

NOTE: The extent of cyanide toxicity is dependent on the amount of exposure, route of exposure and length of time exposed. Inhalation of cyanide gas is most rapidly harmful, but ingestion can be severely toxic. Cyanide gas disperses quickly in open spaces and is most dangerous in enclosed areas. It is less dense than air, so it will rise.
This protocol is for use only by specially trained HAZMAT treatment teams

MCB Action	Passed 04/18/12	Implemented 04/18/12	Revised 11/20/2013	Revision # 1	Implemented 04/01/2014