

**MOUNTAIN-VALLEY EMS AGENCY
POLICIES AND PROCEDURES**

POLICY: **554.00**
TITLE: **GENERAL PROTOCOLS**

APPROVED: Signature On File In EMS Office
Executive Director

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Medical Director

EFFECTIVE DATE 8/24/2009
SUPERSEDES: 552.23
REVISED: 8/2009
REVIEW DATE: 8/2012
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GENERAL PROTOCOLS

I. **AUTHORITY**

Health and Safety Code, Division 2.5, California Code of Regulations, Title 22, Division 9

II. **PURPOSE**

To serve as the treatment standard for EMT-Is and EMT-Ps in treating patients.

III. **PROTOCOL**

A. These are the treatment protocol standards for the Mountain-Valley Emergency Medical Services Region. This document is divided into three major sections:

1. **General Procedures**

- a. Contains individual treatment procedures that can be found throughout MVEMSA protocols.
- b. "ALS" or Advanced Life Support procedures are procedures performed by a MVEMSA accredited Paramedic
- c. "BLS" or Basic Life Support procedures are procedures performed by a MVEMSA accredited EMT-1 or First Responder

2. **Treatment Protocols**

- a. Adult – Patients age 15 and older
- b. Pediatric – Newborn to age 14 years

3. **Field Specific Policies**

- a. Medication Index
- b. Procedure Index
- c. Adult Medication Drip Chart

MEDICAL CONTROL

I. STANDING ORDERS

- A. **Standing Orders** are “treatments a licensed ALS provider can perform, without Base Hospital permission.
- B. The following are considered **Standing Orders**:
 - 1. All BLS skills and treatment
 - 2. All ALS skills and treatment **EXCEPT** those limited to **Base Physician Orders**

II. BASE PHYSICIAN ORDERS

- A. Base Physician Orders are treatment procedures that require a direct order from a Base Hospital Physician. The Base Hospital Physician may order any medications or procedures within the local paramedic scope of practice regardless of the treatment protocol. Verbal orders **MUST** be signed by the Base Physician and maintained in the patient medical record.
- B. An MICN may **RELAY** a verbal “Base Physician Order” from the Base Physician in accordance with any of the approved protocols.

III. ALS WITHOUT BASE HOSPITAL CONTACT FORM

- A. In the event that a paramedic cannot make Base Hospital Physician Contact, a paramedic can perform treatments listed under “Base Physician Order”
- B. Documentation on an “ALS without Base Hospital Contact Form” must be completed listing any “Base Physician Order” treatments performed. The form must be forwarded to the Mountain-Valley EMS Agency within 24 hours.

SPINAL IMMOBILIZATION

I. INCLUSION CRITERIA

- A. Patients who sustain a mechanism of injury sufficient to produce spinal trauma who do NOT meet exclusion criteria
- B. Patients with complaint of pain in the spine or neurological deficit
- C. Once the patient is placed in spinal immobilization, immobilization should be continued until transfer of care to the receiving facility

II. EXCLUSION CRITERIA

- A. Spinal immobilization in the prehospital setting may be deferred for patients who demonstrate the following findings on assessment:
 - 1. Absence of tenderness at the posterior midline of the cervical spine
 - 2. Absence of focal neurological deficit (no numbness, weakness, or abnormal sensations.)
 - 3. No Altered Level of Consciousness
 - 4. Ability to communicate independently and follow directions
 - 5. No evidence of alcohol or drug intoxication or impairment
 - 6. The patient has no other significant painful injury on the Patient Care Report.

III. PROCEDURE

- A. Airway – establish and secure maintaining neutral inline immobilization. Assist ventilations if needed. Administer oxygen at appropriate liter flow.
- B. Maintain manual in-line (NOT TRACTION) spinal immobilization until secured on spine board.
- C. Patients with neurological deficits are to be immobilized with minimal movement in the position found unless precluded by airway and/or extrication considerations. Apply rigid extrication-type cervical collar, of proper size, that provides full occipital and mandibular support.
- D. Provide lateral head support that prevents head rotation by stabilizing the temples. Support may be of foam or cardboard. “Towel roll” type supports are not acceptable
- E. Secure patient to a full length spine board or vacuum immobilization mattress (Device must meet OSHA requirements. It may be of break away design.), by using straps, making sure that the patient’s torso, pelvis, and legs are immobilized. Do not use duct-type tape or other tape to secure patients torso, pelvis, or legs.
- F. Secure patient’s forehead and chin to prevent head rotation with adhesive or duct-type tape. Do not tape facial hair or eyebrows.
- G. Treat other injuries

IV. PATIENT CARE REPORT DOCUMENTATION

- A. Neurological status prior to and after spinal immobilization
- B. If spinal immobilization is not done and patient has a mechanism that is sufficient to produce spinal trauma all the exclusion criteria shall be documented

V. HELMET REMOVAL

- A. Leave helmets and shoulder pads in place unless they interfere with resuscitative efforts

VASCULAR ACCESS

I. PERIPHERAL ACCESS

- A. Peripheral access is a Standing Order for all adult and pediatric patients when an IV is indicated by policy or protocol.

II. PROCEDURE

A. Peripheral IV

1. Peripheral IV is the preferred choice for all patients requiring vascular access
2. Select insertion site and needle size as appropriate to the patients condition
3. Utilize aseptic technique
4. Saline locks may used in lieu of intravenous lines when:
 - a. Treatment protocols specifies IV NS TKO
 - b. Fluid resuscitation or challenge is not anticipated
5. If saline lock was started, irrigate with 5 ml NS

B. External Jugular IV

1. External Jugular IV is indicated in patients when no other peripheral IV can be established and the patient requires immediate fluid administration or access for IV medications

C. Intraosseous Access (IO)

1. Intraosseous Access (IO) is the preferred choice peripheral access in patients:
 - a. When there is an urgent need for peripheral access as indicated by treatment guidelines. (The patient exhibits cardiac arrest, hypovolemic shock, respiratory arrest, near drowning, multiple-system trauma, status epilepticus, or is in extremis from any other condition.) **AND:**
 - b. When one failed attempt at intravenous access or no vein is immediately apparent after close inspection.
2. IO access is almost never indicated in an alert adult with normal vital signs
3. Location:
 - a. Pediatrics:
 1. Anterior tibia: on the flat medial surface, 2 cm (two finger breadths) below the tibial tuberosity.
 2. Distal anterior femur: in the midline, 2 cm (2 finger breadths) above the patella.

- b. Adults:
 1. Distal tibia: 2 cm (2 finger breadths) proximal to the medial malleolus.
 2. Anterior tibia: on the flat medial surface, 2 cm (two finger breadths) below the tibial tuberosity.
 4. For patients who have any GCS higher than 3, Lidocaine should be used for comfort, unless Lidocaine is otherwise contraindicated (allergies, for example).
 - a. **For adults, use 20-40mg of Preservative Free 2% Lidocaine SLOW IO push followed by a 10cc flush of Normal Saline.**
 - b. **For pediatrics, use 0.5 mg/kg of Preservative Free 2% Lidocaine SLOW IO push (Max dose = 20mg) followed by a 10cc flush of Normal Saline**
- D. Pre-Vascular Access Device (PVAD) – (e.g., arteriovenous shunt, tunneled catheters, and peripherally inserted central catheters (PICC lines)
1. A Pre-Vascular Access Device should only be used when a life-threatening condition requires immediate fluid therapy or IV medications.
 2. A Base Hospital MICN or Physician should be consulted if the paramedic is unfamiliar with the type of indwelling catheter
 3. Aseptic technique must be followed
 4. Attempt to withdraw and discard 5 cc of blood from the device prior to infusion. If unable to withdraw, proceed with the infusion.
 5. Use a Huber-type non-coring needle, whenever possible.

TRANSPORT

I. TRANSPORT

A. General Transport Guidelines

1. On-Scene Time Requirements
 - a. Critically ill or injured patients
 - i. Perform minimum treatment necessary on scene to stabilize and package patient
 - ii. Paramedics should strive to begin transport within ten (10) minutes of patient contact
 - iii. Critically ill or injured patients should be transported as “load and go”
 - iv. Document any “delay” in transport on the Patient Care Report
2. Code 2 - transport
 - a. Most patients should be transported Code 2 due to the risk of injury to bystanders and responding personnel
3. Code 3 – transport
 - a. Code 3 transports are only appropriate if in the paramedic’s judgment the instability of the patient’s condition warrants Code 3 transport.
 - b. Traffic and weather conditions must be taken into consideration
4. Patient Destination:
 - a. All patients who wish to be transported by ambulance to the hospital should be transported
 - b. Patients should be transported to the closest hospital appropriate for their medical needs within a reasonable transport time or as specified in the patient treatment protocols.
 - c. All patients, except those requiring transport to the closest facility or those under the direction of DCF, will be transported to the hospital of their preference.
 - d. If there are multiple patients in one ambulance, all patients will be transported to the same receiving facility.
5. Transport Decisions:
 - a. Transport decision should be based on paramedic judgment. Paramedics should take the following into consideration before transport:

- i. Paramedics will contact DCF for hospital destinations during Level 1 System Saturation. See MVEMSA Emergency Medical System Saturation Policy #571.00 in addition to Stanislaus County Policy #958.20
 - ii. Paramedics will contact DCF for destination for patients meeting critical trauma criteria. See MVEMSA Trauma Triage and Patient Destination Policy # 553.25

6. Receiving Hospital Notification:
 - a. Transport units should contact the receiving hospital prior to arrival. See MVEMSA Ambulance Report Format Policy #330.10.

RESPIRATORY GUIDELINES

I. DEFINITIONS

- A. Continuous Positive Airway Pressure (CPAP) is a means of delivering a constant positive pressure against a patient's respiratory effort in order to increase lung volume, and therefore improve ventilation.
- B. Oral-Tracheal Intubation (OTI) is the placement of a commercially manufactured flexible plastic tube into the trachea to protect the patient's airway and provide a means of mechanical ventilation and airway protection.
- C. Perilaryngeal airways (such as the Combitube® and King LTD®) are adjunct or rescue airways typically inserted blindly into the patient's esophagus to provide oxygenation and ventilation.
- D. Mild Distress means a patient who is typically able to speak full sentences; who's blood pressure and pulse may be elevated; might be weak and diaphoretic; have a normal mental status; no cyanosis.
- E. Moderate Distress means a patient who is generally able to speak just a few words; who's blood pressure and pulse are likely elevated; who might be weak and diaphoretic; have a normal mental status; circumoral and digital cyanosis may be present.
- F. Severe Distress means a patient who is unable to speak; whose blood pressure and pulse will be elevated or depressed; whose mental status typically altered; central cyanosis likely.

II. PROTOCOL

A. Airway and ventilation interventions:

- 1. The level of airway and ventilation interventions is determined by the patient assessment and reassessments.
- 2. Immediate transportation is indicated for all respiratory patients classified as severe. Early transportation is indicated for all respiratory patients classified as mild to moderate. The exception is the patient in need of airway support and ventilation.
- 3. Airway support and ventilation are not to be delayed. If a patient needs an advanced airway (OTI, perilaryngeal airway), this airway should be established immediately upon recognition.

B. Oxygen Administration:

- 1. Administer oxygen to all patients at risk for hypoxemia from any cause, including the administration of medications that can cause respiratory depression, and for procedures during which hypoxia may be worsened.
- 2. Almost all patients need only enough supplemental oxygen to keep their oxygen saturation above 95%. This is accomplished easily with nasal cannula oxygen at 1-6 L/min. Patients in extremis need oxygen by non-rebreather mask at 15L/min.

3. A small subset of patients with COPD suffers from CO₂ retention. They are only 2-3% of the total COPD population. Excessive oxygen administration to these patients can lead to sleepiness, then hypoventilation, and, if unrecognized, to respiratory arrest. Almost all of these patients can be identified by their use of home oxygen. Use oxygen cautiously in these patients, but be sure to use enough to treat their hypoxic symptoms. Start with only 1L/min more than the same amount of oxygen that they use routinely. Increase oxygen slowly, while watching their symptoms, wakefulness, and respiratory rate. Do not hesitate to use high oxygen flows, if necessary, to treat their symptoms, but be prepared to control their airway and ventilation.

C. Pulse Oximetry

1. The pulse oximeter measures the differences in absorption of light waves by oxygen-saturated vs. non-saturated hemoglobin to determine what percent of hemoglobin is carrying oxygen. It does not measure the actual amount of oxygen carried by the blood. Tissue oxygen delivery is affected by the quantity of blood circulated over time, as well as the oxygen saturation. When there is insufficient hemoglobin [i.e., anemia] or diminished circulation, blood may be 100% saturated, but still not carry enough total oxygen for tissue needs.
2. Indications
 - a. Paramedics must perform and document pulse oximetry on any patient at risk for hypoxemia from any cause, including the administration of medications that can cause respiratory depression (such as morphine and midazolam) and procedures (such as endotracheal intubation and airway suctioning) during which hypoxia may be worsened.
3. Interpretation
 - a. >95% = Normal
 - b. 90-95% = Mild Hypoxemia
 - c. <90% = Severe Hypoxemia
 - d. (Accuracy below 80% is not reliable)
4. Potential Sources of Error
 - a. Movement of the sensor or its cord ("check sensor" alerts or falsely triggered alarm settings)
 - b. Exposure of sensor to outside source of bright light (optical interference)
 - c. Inflated BP cuff on same extremity (inability to sense)
 - d. Low circulatory flow states such as cardiac arrest, hypothermia, shock (inability to sense)
 - e. Black, blue or green nail polish (inability to sense)
 - f. Finger-print dye (inability to sense)

- g. Carbon monoxide toxicity (falsely elevated readings)
 - h. Severe anemia (inability to sense or overestimation of oxygenation)
 - i. Hemoglobin disorders such as sickle cell disease, methemoglobinemia, or sulfhemoglobinemia
5. Documentation Pulse oximeter printout strips, if available, must be attached to the PCR and any treatments or conditions that may affect oxygen saturation should be noted on the strip. As with ECG tracings, the PCR number and call date should be documented on the oximeter strip.

D. Continuous Positive Airway Pressure (CPAP)

1. CPAP is indicated in Adult patients in MODERATE to SEVERE respiratory distress being treated under MVEMSA Policies 554.10, 554.22, and 554.24 and who are breathing spontaneously,
2. Conscious and able to follow commands
3. **CPAP is CONTRAINDICATED in the following:**
 - a. Pediatric patients (< 14 years old)
 - b. Patients with apnea, cardiac or respiratory arrest
 - c. Actively vomiting
 - d. Decreased level of consciousness,
 - e. Hypotensive (systolic BP <90)
 - f. Uncooperative (after coaching)
 - g. Suspected of having a pneumothorax
 - h. An inability to achieve a good facial seal with the CPAP mask.
4. Special Considerations:
 - a. Note that NASOTRACHEAL INTUBATION is no longer an approved skill for paramedics operating within the Mountain Valley EMS region.
 - b. Do not delay medication administration to apply CPAP.
 - c. The patient must be continuously monitored for development of respiratory failure or vomiting. If either occurs, remove the CPAP circuit, clear the airway as necessary to prevent any aspiration, and provide respiratory assistance with either BVM or other advanced airway adjunct.
 - d. Monitor Oxygen Consumption.
 - e. If staffing levels permit, one medic should set up the CPAP, coach, and monitor its use during the entire transport, with a second medic focused on the balance of the patient's care.

5. Initiate CPAP early and provide rapid transport of the patient in a position that optimizes continuous visual monitoring and response to treatment and minimizes aspiration risk.
6. Explain the procedure to the patient and coach and encourage the patient in the use of the mask and circuit. Use straps to maintain the CPAP seal.
7. Medication Administration:
 - a. CPAP will be delivered at a continuous pressure of up to 10 cmH₂O utilizing at least 30% oxygen.
 - b. Albuterol nebulization will be delivered via inline nebulizer utilizing at least 8 LPM oxygen flow.
 - c. Nitrates, when utilized, will be delivered via Nitropaste, 1 inch, applied to the anterior chest wall.
8. CPAP may introduce transient hypotension via decreased venous return secondary to elevated intrathoracic pressure.
 - a. If systolic BP falls to less than 80 mmHg, remove CPAP AND Nitropaste.
 - b. If systolic BP falls to between 80 to 90 mmHg, remove Nitropaste. If systolic BP persists between 80 and 90 mmHg, remove CPAP.
 - c. Reapplication of CPAP, once removed for the preceding reasons, requires base physician order.

B. Endotracheal Intubation:

1. Oral endotracheal intubation, stomal endotracheal intubation, and placement of a perilyngeal airway in either the trachea or esophagus, are **Standing Orders** in all adult patients (over age 15, or 34 kg, the Broselow Tape maximum) who require advanced airway management. Oral endotracheal intubation and stomal endotracheal intubation are **Standing Orders** in all pediatric patients (under age 14 or 34 kg, the Broselow Tape maximum) who require advanced airway management. **Note that needle cricothyrotomy and the Combitube ® are contraindicated in pediatric patients.**
2. Paramedics must not attempt any form of tracheal intubation more than three (3) times per patient. An attempt to intubate is defined as placement of the laryngoscope blade in a patient's mouth **with the intent to intubate**. An Endotracheal Tube Introducer (ETTI) may be used as an adjunct to intubation at any time during the intubation procedure. However, **if there has been at least one failed intubation attempt by the same operator, an ETTI must be utilized in subsequent intubation attempts if, at the very least, any portion of the epiglottis can be visualized**. If a total of three attempts are unsuccessful, paramedics will insert an alternative airway (in adults) or use BLS airway techniques (in adults or pediatrics).

3. Naloxone must be administered before intubating a symptomatic narcotic overdose.
4. Pediatric patients should be measured with the Broselow Tape to determine the appropriate ET tube size and type. Use uncuffed tubes in children younger than 6 years.
5. Correct tube placement must be confirmed by at least three of the following indicators; cords visualized, tube fogged, equal breath sounds, absent epigastric sounds, and chest rise and fall. All patients must be assessed immediately after intubation with an end-tidal CO₂ detector, colorimetric or continuous waveform. The number of centimeters at which the tube is secured, confirmatory indicators, and color change or waveform reading must be documented on the Prehospital Care Report. All patients must be continuously assessed using ETCO₂ waveform capnography. Any significant movement, emesis or change in clinical condition should be reassessed using waveform capnography and physical examination. If, at any time, capnography indicates that the tube is not in communication with the trachea, the airway must be immediately removed and re-intubation attempted.
6. In patients with head injury and declining neurologic status, pre-medicate with Lidocaine 1.5 mg/kg IV push prior to intubating, when time allows. This intervention may decrease the hypertensive and arrhythmic response to intubation.
7. All ET tubes should be secured using a “commercially available device designed to secure ETTS”. Tape is not acceptable.
8. All intubated patients shall have cervical immobilization to decrease the risk of accidental extubation. This must be documented in the prehospital report.