

 NOR-CAL EMS	06-0109	Air Ambulance Providers Optional Scope of Practice – Rapid Sequence Intubation
Nor-Cal EMS Policy & Procedure Manual	EMS Aircraft	
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Authority

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

Definition

To serve as a patient treatment standard for Air Ambulance Provider Paramedics.

Do Not Miss !

- FP-C certificate holders may utilize this protocol completely.**
- FP-C in training may assist the Qualified Nurse by drawing up and administering the medications in this protocol, but the Qualified Nurse will determine the medications and dose.**

Preparation

- Procedural and Medication Time Outs.
- Pt pre-oxygenated and airway assessed.
- Equipment ready and functioning.
- Agree upon end points to abort attempt, i.e. desaturation.
- Must BVM patients if oxygen saturations are less than 95%.

Policy

Function

To facilitate secure definitive control of the airway by endotracheal intubation (ETI) in an expeditious and safe manner.

Circumstances Under Which Clinical Personnel May Perform Function

- Setting: Qualified Transport Program Paramedic with a Qualified Transport Program Nurse.
- Supervision: If FP-C in training, Qualified Nurse selects drug and dose.
- Indications met.

Indications

- Failure to Oxygenate.
- Failure to Ventilate.
- Failure to protect the airway.
- Altered Mental Status with GCS<8 or demonstrated inability to protect the airway.
- Status epilepticus.
- Expected course is likely to end in airway deterioration including airway swelling secondary to burn/inhalation/anaphylaxis/hematoma, etc.

Contraindications

- Facial/neck injuries or anatomy which would preclude reasonable expectation of successful endotracheal intubation.
- Findings on Airway Evaluation (See Plan B.1) which raise concerns over successful endotracheal intubation (consider BLS airway maneuvers and/or back up plan before RSI).
- Epiglottitis.

RSI Protocol

Definition

Administration of medication for sedation and paralysis to facilitate oral tracheal intubation.

Diagnosis

Failure to oxygenate, ventilate, or protect the airway.

Plan

Equipment

1. Laryngoscope Handle/Blade.
2. Video Laryngoscope.
3. Stylet and Bougie.
4. Endotracheal tubes – ideal size and one size smaller.
5. Oxygen and suction.
6. BVM.
7. IV Fluids.
8. Syringe and Needles.
9. Medications (etomidate or ketamine, and rocuronium).
10. Pulse Oximeter.
11. Continuous End Tidal CO₂ monitor.
12. Supraglottic Airway Device as a rescue airway.
13. Surgical Airway Kit (nurse only).
14. Resuscitation medications for complications such as cardiopulmonary arrest.

Assessment for a Difficult Airway

1. Evaluate the potential for difficult intubation, “**LEMON**”.
 - A. **L**ook.
 - B. **E**xamine.
 - C. **M**allampati.
 - D. **O**bstruction.
 - E. **N**eck Mobility.
2. Evaluate the potential for difficult mask ventilation, “**MOANS**”.
 - A. **M**ask seal.
 - B. **O**bese.
 - C. **A**ged (>55 y/o).
 - D. **N**o teeth.
 - E. **S**tiff (increased ventilatory pressures – asthma, COPD, ARDS, term pregnancy).
3. Evaluate the potential for difficult supraglottic device, “**RODS**”.
 - A. **R**estricted mouth opening.
 - B. **O**bstruction (upper airway obstruction).
 - C. **D**isrupted or distorted airway.
 - D. **S**tiff lungs or cervical spine.
4. Assess the potential for difficult Cricothyrotomy, “**SHORT**”.
 - A. **S**urgery (or other airway disruption).
 - B. **H**ematoma (includes infection or abscess).
 - C. **O**besity.
 - D. **R**adiation distortion.
 - E. **T**umor.
5. Once a patient has been given paralytics, they will no longer be able to ventilate on their own, nor will they be able to protect their own airway. Therefore, the airway manager must be confident in providing effective BVM ventilations, achieving successful intubation, placing a supraglottic device or performing cricothyrotomy.
6. Hypotension is common in the post intubation period and is often caused by diminished venous blood return as a result of the increased intrathoracic pressure that accompanies mechanical ventilation or exacerbation of the hemodynamic effects of the induction agent. This is usually self-limiting and responds well to treatment with IV fluids.
7. Patients being transported by air are especially vulnerable to worsening pneumothorax in the setting of positive pressure ventilation. Be vigilant and prepared for thoracic decompression should your patient exhibit tension physiology or worsening oxygenation/ventilation despite proven ETT placement.

8. If airway has potential to be difficult, consider continued BLS, use of endotracheal tube introducer or bougie and reattempt intubation or intubate without paralysis using sedation only (See #10 below). Keep in mind the risks of vomiting and aspiration when evaluating a patient for rapid sequence intubation (RSI). Be prepared with the rescue and surgical airway equipment before initiating RSI.
9. Pre-oxygenate using a non-rebreather mask or BVM with a FiO₂ of 100% for at least 5 minutes; or 8 vital capacity breaths if patient is able. Utilize high flow nasal cannula (12-15Lpm) in addition to non-rebreather mask in spontaneously breathing adult or pediatric patients to augment pre-oxygenation.
10. Continue utilizing passive oxygenation via NC at 1liter/min/kg up to max 15 liters/min during apnea and intubation attempts.
11. Position patient. Apply in-line cervical spine stabilization (not traction) when indicated.
12. If indicated, administer Lidocaine per protocol. Wait 2-5 minutes before paralyzing the patient.
13. Atropine may be considered for pediatric/ neonatal patients per direction of atropine protocol but no longer used routinely.
14. Pretreatment medication: Consider fluid bolus 20ml/kg if hypovolemic, asthmatic or COPD. Take patient fluid status into account prior to initiating bolus.
15. Initiate ventilatory assistance with a BVM if pulse oximetry less than 95%.

TIME OUT!

Take 60 seconds to ensure:

1. All equipment is ready.
2. All medications are ready at the correct doses.
3. The patient is appropriately prepared (pre meds, IV).
4. All practitioners are ready.
5. What is the next step if this step fails.
6. At what point will we stop and BVM the patient.
7. If any questions remain regarding readiness, do not proceed until everyone and everything is ready.

Procedure

1. Administer Etomidate (0.3 mg/kg IV) or Ketamine (2 mg/kg slow IV push over 2 minutes), and Rocuronium (1 mg/kg IV) as first choice or required alternatives as per protocol – must wait one minute after paralytic before attempting intubation or risk vomiting and aspiration.
 - A. If patient was adequately pre-oxygenated, do not ventilate patient prior to intubation during relaxation phase in order to avoid inflation of the stomach. This will take 60 seconds, as measured from the time rocuronium was given. If oxygen saturation is less than 95% or below agreed upon target, initiate or continue BVM ventilation to maximize oxygenation prior to intubation attempt.
 - B. For patients with a contraindication to Etomidate, administer midazolam or ketamine per protocol.
(Ketamine is preferred in patients with asthma, bronchospasm, sepsis or hypotension. It may cause salivation, laryngospasm, hypertension or tachycardia.)
2. Perform orotracheal intubation.
3. Inflate cuff (if indicated).
4. Verify placement of endotracheal intubation using a minimum of 4 methods:
 - A. Equal lung sounds bilaterally, chest rise and fall.
 - B. Mist present in ETT with exhalation.
 - C. Presence of ETCO₂ wave form (ETCO₂ capnography is the standard however in rare circumstances where ETCO₂ not available may use appropriate color change on colorimetric ETCO₂ device.
 - D. Normal SpO₂ reading.
5. Secure the ETT with tape or a compatible commercial device.
6. Assess for ETT leak.
7. Consider the administration of midazolam for sedation (Nurse can administer only). All patients who receive paralytics should receive sedation unless contraindications to sedation exist.
8. Support head and neck to minimize flexion/ extension which could cause tube-tip movement resulting in extubation or bronchial intubation.
9. Apply soft restraints.
10. Monitor placement continuously:
 - A. Monitor ETCO₂ and SpO₂ continuously.

- B. Reconfirm placement using a minimum of 4 methods (chest rise, lung sounds, appropriate ETCO₂ reading, appropriate SpO₂ reading, mist in tube, tube depth based @ lip line) after every patient move.
11. Place a Gastric Drainage device. To facilitate ventilation and avoid regurgitation, an OG or NG tube should be placed.
 12. Continue evaluation/management of pain based on physiologic signs in the sedated/paralyzed patient.
 13. If re-dosing of medication is required, do not re-administer Etomidate as per the Etomidate protocol.

Pediatric and Neonatal Considerations

1. Atropine administration is not required but should be available if bradycardia during intubation is not responsive to BVM.
2. In the event of Etomidate shortage, when Ketamine is not an option, the Nurse may substitute the use of Etomidate with the use of midazolam per protocol or Broselow tape.
3. Passive apneic oxygenation:
 - A. May use blow-by at 12-15 L per min.
 - B. Utilize NC, max of 5 L per min for neonate.
 - C. If utilize NC, max 6-15 L per min for pediatric.
4. Pretreatment fluid resuscitation:
 - A. Fluid bolus 10mL/kg in Neonates if hypovolemic.
 - B. Fluid bolus 20mL/kg in Pediatric patients if hypovolemic.

Recordkeeping

1. Document full procedure note:
 - A. time of insertion
 - B. # of attempts (defined as insertion of laryngoscope)
 - C. tube size
 - D. cuffed or uncuffed
 - E. inflation of cuff with #mL
 - F. depth of insertion measured at lip line
 - G. lowest oxygen saturation during attempt
 - H. blood pressure during attempt
 - I. securing device
2. At least 4 different ways to confirm tracheal placement and any adverse outcomes / challenges and treatment related to those challenges.