

**MEHLVILLE FIRE PROTECTION DISTRICT  
EMERGENCY MEDICAL SERVICES  
GUIDELINES FOR PREHOSPITAL EMERGENCY CARE**

**PAGE 1 OF 3**

**SUBJECT: 600.04  
AIRWAY MANAGEMENT:  
ENDOTRACHEAL INTUBATION**

**ORIGINAL ISSUE: 5/08  
LATEST REVISION: 2/15**

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**Indications:**

1. Unconscious and/or apneic patients.
2. The airway cannot be maintained by less invasive means or basic maneuvers

**Contraindications:**

1. Conscious patient (unless specifically ordered to so by Medical Direction).
2. Patient with head injury and positive gag reflex (unless specifically ordered to do so by Medical Direction).

**Procedure:**

1. Initiate BLS airway management; **consider cervical spine injury, immobilize as necessary.**
2. Check and assemble equipment. Recommend tube sizes for women 7.0 - 8.0 and for men 7.5 and 8.0. Lubricate the tube with water-soluble lubricant when possible.
3. Place the patient's head in the sniffing position if no cervical spine injury is suspected to align the axes of the mouth, pharynx, and trachea; avoid hyperextension.
4. If a cervical spine injury is suspected, maintain in-line cervical immobilization of the cervical spine while you perform the procedure.
5. Suction the patient if necessary and hyperventilate the patient with 100% oxygen.
6. Introduce the laryngoscope with the left hand sweeping the tongue to the left to prevent obscuring your vision. The tip of the curved (Macintosh) blade is positioned in the vallecula while the tip of straight (Miller) blade will directly lift the epiglottis. The Sellick Maneuver, (cricothyroid pressure), should be used, whenever possible, to improve visualization of the vocal cords and prevent regurgitation of stomach contents during intubation attempts. Avoid using the patient's teeth as a fulcrum.
7. Visualize the vocal cords and pass the ET through the glottic opening.
8. Insert the tube so that the cuff is just past the vocal cords. This will place the end of the tube above the level of the carina.

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**PAGE 2 OF 3**

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9. Inflate the ET tube cuff. Ventilate the patient and assess for tube placement by auscultating the epigastrium while observing for symmetric chest expansion. If stomach gurgling occurs and the chest does not expand, esophageal placement should be assumed, the tube removed and the patients hyperventilated before further attempts. If the chest wall rises appropriately and no gurgling is heard over the epigastrium, auscultate right and left lung fields at the apices and bases and document status of lung sounds. End tidal CO<sub>2</sub> should also be used to confirm placement. ETCO<sub>2</sub> and waveform capnography should be monitored and recoded/uploaded into the ePCR.
10. **If there is ANY question of proper tube placement, the tube must be removed and the patient hyperventilated before further attempts at intubation. Correct tube placement should be verified after each time the patient is moved and before the EMS crew leaves the patient in the care of hospital staff.**
11. Secure the tube and continue ventilation.

During intubation, carefully monitor the heart rate: if undue bradycardia develops, stop the procedure and hyperventilate the patient. Endotracheal intubation should be accomplished within 30 seconds and preferably less than 15 seconds; if unable to perform the procedure in this length of time, attempts should be stopped and the patient hyperventilated for 15-30 seconds before re-attempting intubation. If the Airtraq device is used to intubate the patient, the intubation will be recorded and the Field Training Officer will be notified so that the recording can be downloaded from the device.

**Complications:**

1. Inadvertent esophageal or pyriform sinus intubation.
2. Lip/tongue lacerations.
3. Chipped or broken teeth.
4. Lacerations, bleeding, hematomas, abscess formation to pharyngeal or tracheal mucosa.
5. Tracheal rupture.
6. Vocal cord/cartilage damage.
7. Pharyngeal esophageal perforation.
8. Right main stem bronchus intubation, (the most common complication).

**Removal:**

1. Once inserted properly, the ET tube should be removed only in the Emergency Department or under direct orders from Medical Direction.
2. Suction the ET tube thoroughly; then suction the oropharynx.
3. Deflate the ET tube cuff fully.
4. Promptly but gently remove the ET tube.
5. Place patient on supplemental oxygen and closely observe the patient's respiratory status.

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**PAGE 3 OF 3**

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**Methods to Assess for Proper ET Tube Placement:**

Visualization of the ET tube passing through the vocal cords coupled with the presence of bilateral breath sounds and the absence of gurgling over the epigastrium are the best indicators of ET tube placement. Adjunctive methods include: symmetrical chest rise and fall, condensation in the tube, improvement of the patient's color, absence of emesis in the tube, normal lung compliance, aphonia, and detection of CO<sub>2</sub> per end tidal CO<sub>2</sub> detector. End tidal CO<sub>2</sub> and waveform capnography should also be monitored continuously after intubation. The ETC)2 and waveform capnography should be recorded/uploaded to the ePCR.

**Pediatric Considerations**

Most pediatric airways can be managed in the field by using simply an oral or nasal airway and a bag valve mask. Pediatric endotracheal intubation is a difficult skill and most EMS providers rarely, if ever, perform the procedure. Should endotracheal intubation be necessary, the appropriate sized equipment should be used. This information can be found on the Broselow Tape.

**STANDARD PRECAUTIONS MUST BE OBSERVED.**