

PARAMEDIC TIP SHEET #4: *Endotracheal Intubation*

Indications for Endotracheal Intubation

There are a variety of scenarios in which patients require tracheal intubation. Most commonly, intubation is performed in order to:

- ◆ **Provide assisted or manual ventilation over a prolonged time period**
- ◆ **Improve oxygenation via positive pressure ventilation over a prolonged time period**
- ◆ **Protect the airway in the patient with a depressed level of consciousness or who is unable to protect his/her own airway for some other reason.**

In this tip sheet, tracheal intubation is defined to include orotracheal intubation using direct laryngoscopy only. It does not include nasotracheal intubation, esophageal intubation, intubation using multi-lumen devices, or surgical intubation techniques.

Suggested Methods

The following endotracheal intubation methods assume that initial care of the patient has already begun. These methods apply when direct laryngoscopy is used.

1. Prepare and test all necessary equipment and instruments. (Don't forget the suction!)
 - Select the appropriate laryngoscope blade. The straight blade is *recommended* in pediatric patients and in patients with suspected cervical spine injury.
 - Select the appropriately sized endotracheal tube. The following is a useful guide.
 - i) Average Adult Male – 8.0 or 8.5 mm
 - ii) Average Adult Female – 7.0 or 7.5 mm
 - iii) Term Infant – 3.0 mm; Premature Infant – 2.0 or 2.5 mm, 1 year old – 4.0 mm
 - iv) Child > than 1 yr ETT size = (Age in yrs ÷ 4) + 4
 - Check the tube's cuff, insert a style (if desired), and lubricate the end of the tube.
2. Ensure adequate ventilations are ongoing. Direct hyperventilation of the patient for 30 – 60 seconds prior to attempting intubation. (Hyperventilation is an increased rate of ventilation not tidal volume.)
3. Place the head in the sniffing position (nose up to the sky) unless a C-spine injury is suspected. In the event of suspected C-spine injury, direct neutral alignment, stabilization of the head, and jaw thrust.
4. Holding the laryngoscope handle and blade in the left hand, insert the blade into the right side of the mouth and sweep the tongue toward the left.
5. Visualize the anatomy as the blade enters the mouth. Aggressively inserting the blade may lead to oropharyngeal trauma and excessive blade depth resulting in the inability to visualize landmarks.
6. Place the curved blade into the vallecula and indirectly lift the epiglottis. Place the straight blade under the epiglottis thus directly lifting it.
7. Once the vocal cords are visualized, insert the endotracheal tube from the right corner of the mouth through the vocal cords. The tube's cuff should pass the cords by approximately ½ inch.
 - In adults, typical insertion depth is 20-24 cm at the teeth.
 - In children > 2 years, (Age in years ÷ 2) + 12 = cm of depth or 3 X ETT size
8. Inflate the cuff and assess tube placement. At a minimum, assess tube placement by auscultating for bilateral lung sounds and epigastric sounds.
9. Secure the tube and reassess placement.

Tips

- ◆ Use the Sellick maneuver to minimize the risk of aspiration and to improve visualization of the anterior airway.
- ◆ Do not let go of the tube until it is secured.
- ◆ Confirmation of tube placement may include visualization of the tube passing through the cords, symmetrical lung sounds, absent epigastric sounds, condensation within the tube, and/or end-tidal CO₂ detection device.
- ◆ Frequently reassess tube placement.