

Endotracheal Intubation

Procedure

Douglas County KS EMS System

March 2022

Endotracheal intubation is the most effective means of delivering high concentrations of oxygen, Ventilation, and airway control (allows suctioning and prevents aspiration).

Approved Provider: Paramedic

Reference Protocols: [Anaphylaxis](#), [Breathing Difficulty](#), [CAPE](#)

Indications

- Unable to maintain airway by other means (NPA, OPA, Igel)
- Copious vomitus, secretions, blood in airway
- Preferred method of airway control in chest, neck, facial trauma if time permits in transit to hospital

Precautions

- Endotracheal intubation is not the initial step in the treatment of respiratory arrest. Adequate oxygenation and ventilation should be accomplished first using BLS techniques (i.e. bag-valve-mask with 100% O₂)
- Endotracheal intubation may be safely accomplished in the patient with suspected cervical spine injuries as long as the head and neck are immobilized by an assistant using "in-line stabilization"
- Do not use the teeth as a fulcrum
- Have suction ready since vomiting is common

Contraindications

- Do not delay transport of unstable patient for intubation unless the airway cannot be maintained any other way

Technique

- Gather and test appropriate equipment prior to starting (while Ventilations are continuing).
 - **Appropriately sized ET Tube.** Test the cuff and leave syringe attached. Ensure correct size stylette is inserted and formed to provider preference
 - **Suction.** Have unit nearby and tip ready for use near the head
 - **Tube tamer.** Have the strap wrapped under the neck ready for use. Have tamer resting on neck
 - **Backup airway.** Have a backup Igel or Opa ready for use if attempt is not successful
 - **Laryngoscope.** Ensure light/ camera is working and appropriate size is used
 - **ETCO₂.** Ensure ETCO₂ is prepositioned in airway stack to help with confirmation of placement
 - **Stethoscope.** Have stethoscope nearby ready to confirm placement
- Position the patient in the "sniffing position" (except if cervical spinal injury is suspected). (fig.1)

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Technique (Cont.)

- An assistant should apply pressure to the thyroid cartilage to help with visualization and prevent possible aspiration of stomach contents. This maneuver should be performed gently to avoid C-spine movement. It cannot stop active vomiting and if the patient starts to vomit, pressure should be released to avoid esophageal injury.
- The laryngoscope blade is inserted and used to lift the tongue and epiglottis up.

When possible, guide the endotracheal tube between the vocal cords under direct visualization.

- The endotracheal tube should be advanced until the cuff is 2-3 cm beyond the cords (adults)
- The endotracheal tube should be advanced until the black line is just passed the cords (pediatrics)
- Confirm endotracheal tube placement.
- Securing Endotracheal Tube
- After endotracheal tube placement is confirmed, the tube should be secured. Do not remove your hand from the tube until it has been secured. Reconfirm placement after securing tube.
- See the "Confirmation of Endotracheal Tube Placement" procedure.
- If there is time enough to intubate the patient in the pre-hospital setting then there is time enough to secure the endotracheal tube.
- The following are acceptable methods:
 1. Appropriate commercial securing device (fig.1)
 2. Regular tape if no other means are available
- Confirm endotracheal tube placement after each patient movement.

Complications

- Unrecognized esophageal intubation can result in brain damage, cardiac arrest and death can occur
- Airway trauma, dental injury, bleeding, vocal cord/tracheal injury
- Vomiting/aspiration can result in pneumonia and ARDS
- Placement of the tube too deep can result in right mainstem intubation, only one lung being ventilated which can result in pneumothorax as well as inadequate ventilation

Documentation

Include the following (minimum)

- Precautions taken (i.e. in-line stabilization)
- Complications
- Method of confirmation
- Pt condition before and after tube placement and improvements noted
- Use of End-Tidal CO2 monitor
- Depth of insertion (i.e. "x" number of cm at the teeth)

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Airtraq Considerations

- Airtraq is a great tool for use in patients with difficult anatomy
- Airway MUST be suctioned prior to insertion of airtraq
- Airtraq should be used with caution in dirty airways. It may be preferable to use traditional laryngoscope in these situations
- Providers have the ultimate decision in use of airtraq over laryngoscope

Notes

- An intubation attempt should not take more than 15-20 seconds to complete.
- If intubation is still unsuccessful after three attempts then another operator may attempt or alternate means of airway control should be considered (i.e. two person BVM, ETCA) as applicable.
- "When in doubt, take it out" and assure oxygenation and ventilation.
- If an initial attempt at intubation results in esophageal intubation, the endotracheal tube may occasionally be left in the esophagus to provide a landmark for another attempt. However, this should not be done if it impedes BVM ventilation.