1. **PURPOSE**

1.1 Endotracheal intubation usually requires two qualified Health Care Professionals (HCP), one to insert the endotracheal tube (ETT) into the trachea and another person to assist. This procedure outlines the responsibilities of the assistant who will prepare and monitor the patient, assemble the equipment required, act as an extra set of hands (especially when the vocal cords are being visualized and immediately following tube placement), and ensure patient safety. A third HCP may be needed for medication administration or other tasks as directed.

2. **POLICY**

<table>
<thead>
<tr>
<th>Who may assist</th>
<th>Health Care Professional</th>
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<tbody>
<tr>
<td>Physician order required</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>Special considerations</th>
<th>Two personnel must be present to perform intubation – one qualified in intubation and one to assist</th>
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<tbody>
<tr>
<td></td>
<td>Ensure all equipment in working order before beginning procedure</td>
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<table>
<thead>
<tr>
<th>Supplies</th>
<th>Airway Management Kit (SKU # 112737) / Tray (SKU # 111616)</th>
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<tr>
<td></td>
<td>Or</td>
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<tr>
<td></td>
<td>Suction equipment including Yankuer tip and straight suction catheter of appropriate size</td>
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<tr>
<td></td>
<td>Laryngoscope – handles, curved &amp; straight blades of appropriate sizes. Glidescope may also be requested.</td>
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<tr>
<td></td>
<td>12 ml syringe</td>
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<td>Appropriate size and style of ETT: cuffed for adults and uncuffed for children less than 8 years of age. A cuffed ETT may be considered for children younger than 8 who require high ventilation pressures.</td>
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<td><strong>Note:</strong> for Pediatrics, assemble ET T0.5 mm larger and smaller than size anticipated.</td>
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<td>ETT tapes, ties, or commercially available holder</td>
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<td></td>
<td>Scissors</td>
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<tr>
<td></td>
<td>McGill forceps</td>
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<tr>
<td></td>
<td>Stylet – adult or child depending on size of ETT</td>
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</table>
3. **PROCEDURE**

3.1 Ensure that equipment is in working order:

3.1.1 Test endotracheal cuff for proper inflation with appropriate syringe

3.1.2 Test for proper function of laryngoscope

3.1.3 Test suction equipment

3.2 Explain procedure and risks to patient / family and obtains consent as appropriate for situation.

3.3 Obtain patient history and NPO status as appropriate.

3.4 Prepare for insertion:

3.4.1 Ensure direct ECG and SpO₂ monitoring (if available) is in place and patent IV access unless patient has no perfusing rhythm

3.4.2 Prepare medication as ordered.

3.4.3 Remove headboard from bed or position patient with access to their head. It may be necessary to move the bed away from the wall to allow access for 2 HCP and assembled equipment. The assistant should be positioned ideally to the right of the person inserting the ETT and have ready access to oral suction, styletted ETT and syringe.

3.4.4 Place patient supine unless otherwise directed. This is dependant on patient’s tolerance and physician’s/ RRT/ RN(NP) preference.

3.4.5 Remove any false teeth, bridges or foreign objects, such as body piercings, from the mouth.

3.4.6 Slightly extend head and flex neck ("sniff position"), unless contraindicated (e.g. C-spine precaution). To assist in maintaining sniff position, a small roll under shoulders in pediatrics or under the head in adults, maybe useful.

3.4.7 Monitor capnography (ETCO₂ or color metric device) if available

- Xylocaine spray and nozzle
- Water-soluble lubricating jelly (optional)
- Bag-valve-mask (BVM) with device with oxygen reservoir and appropriate size mask
- Stethoscope
- Personal Protective Equipment - clean gloves, face shield
- Direct ECG rhythm, SpO₂, ETCO₂ monitoring (when available)
- Medications (as ordered)
- Oropharyngeal airway (if necessary)
- Bite block (if necessary)
- Cuff pressure monitor for cuffed ETT
3.5 Assist with procedure.

3.5.1 Supply 100% oxygen (2 – 3 minutes for adults and 3 – 5 minutes for pediatrics) if spontaneously breathing or provide 3 – 4 hyperoxygenation, hyperinflation breaths using BVM device and oral airway (if necessary) or head tilt/jaw thrust maneuvers.

**Note:** Hyperoxygenation may not be recommended for certain congenital heart defects.

3.5.2 Suction oropharynx as requested by person intubating.

3.5.3 Premedicate patient as directed.

3.5.4 Application of cricoid pressure may be requested. This is done by applying firm pressure downward on cricoid cartilage to assist in visualizing the vocal cords. Do not remove pressure until ETT placement is confirmed in trachea and cuff is inflated.

3.5.5 Intubation attempts

- Adults: should be limited to 30 seconds.
- Pediatrics: should be limited to 20 seconds.
- The patient is manually ventilated with BVM device using 100% oxygen (unless contraindicated) between attempts.

3.5.6 Monitor SpO2 and/or ECG for deterioration during attempts. Notify the person intubating if SpO2 drops to below 90%, heart rate below age appropriate norm or rhythm changes.

3.5.7 Once the tube has been inserted into the trachea it will be held in place by the person who intubated. The assistant will then a take a firm hold of the proximal part of the ETT and remove the stylet, being careful not to move the tube itself.

**NOTE:** if patient is biting on the ETT, a bite block may be inserted

3.5.8 The end tidal CO2 adapter is placed onto the ETT, positive pressure breaths are provided, and the cuff is quickly inflated using the minimal occlusive volume technique - inject 3 or 4 mls at a time into the cuff until no air leak can be heard.

3.6 Immediately assess ETT placement following intubation.

3.6.1 Primary confirmation

- ETCO2 waveform with improving CO2 levels
- Person inserting ETT sees the tube pass through vocal cords
- Auscultate over right and left lung apices and epigastrium. Breath sounds should be heard over both lungs and no sounds from epigastrium.
- ADULTS: Bilateral, equal breath sounds should be heard. If air is heard entering stomach, tube is removed immediately and reinserted after hyperoxygenation and manual ventilation if required.
- PEDIATRICS: Auscultate peripheral lung fields (under axilla) for equal breath sounds. If air is heard entering stomach, there is no ETCO2 confirmation, or breath sounds in peripheral lung fields, the ETT should be removed immediately and BVM ventilation provided until patient stabilized prior to next intubation attempt.
- Observe for clinical improvement (heart rate, SpO2, color). Inspect for bilateral, symmetrical chest expansion.
3.6.2 Secondary confirmation (if necessary)
   - Utilize esophageal detector device
   - Observe for condensation on the inside of the tube during exhalation

3.7 Firmly secure ETT with tape, or twill ties. See Policy: Endotracheal Tubes – Care Of #1176. Secure across maxilla instead of mandible to decrease chance of displacement, unless patient condition contraindicates this. A commercially available ETT Holder may also be used - follow manufacturer's directions. Once ETT is secured, auscultate chest to ensure bilateral air entry.

3.8 Connect patient to humidified oxygen source or mechanical ventilator.

3.9 Ensure that chest x-ray is ordered and obtained (optional in PACU and OR for short term intubations).
   - Adults: ETT tip should lie at least 2 cm above carina.
   - Pediatrics: ETT tip should be 1-2 cm above carina.

3.10 Document:

3.10.1 ETT size, type, level of insertion in “cm” (to gums/teeth in adults, and upper lip in pediatrics), route of insertion, person performing intubation, volume or pressure used to inflate ETT cuff, presence of air leak.

3.10.2 Methods used to confirm tube placement

3.10.3 Patient's tolerance before, during, and after of procedure including vital signs

3.10.4 Assess patient's respiratory status (i.e. rate, rhythm, presence of secretions, SpO₂).

3.10.5 CXR done

3.10.6 Medications used, including signatures for checking high alert medications.

3.10.7 Oxygen percentage and ventilator parameters on appropriate record

3.10.8 If patient was a difficult intubation:

   Note: Post an Airway Alert sign (form # 102714) at head of bed and place an Airway Alert sticker (form # 102714 01/06) placed on front of patient's chart. An Assessment of Patient Airway Alert (form # 102713) should be completed by the HCP that did the intubation and placed in the patient's chart.
4. REFERENCES:

Advanced Cardiac Life Support 2010 Standards


Pediatric Advance Life Support 2010 Standards

