# Intubation

## Gather/Test Equipment

- NC
- BVM + PEEP Valve
- Free flowing IV
- EKG, SpO₂ monitor
- ETT x2 sizes
- Blade x2
- Video scope
- LMA
- OPA
- Bougie
- Suction
- Capnograph
- Cric kit
- Ventilator

## Plan

- **Assess for difficult airway (LEMON)**
  - Look externally (beard, teeth, etc)
  - Evaluate with 3:3:2 finger rule
  - Mallampati score
  - Obstruction (burns, )
  - Neck Mobility

- **Anticipate risks (HOpI killers)**
  - HYPOTENSION → fluid? pressors?
  - OXYGENATION → pre-ox plan?
  - pH (ACIDOSIS) → adequate vent?
  - ICP ISSUES → Premed? BP control?

- **Approach:** RSI / DSI / Awake

- **Pre-Medication and Paralytics**
  - Consider Succ contra-indications

- **Primary and secondary airway plan**

- **Emergency plan/Cric preparations**

## Pre-Medication

- **LIDOCAINE** 1.5 mg/kg
- **FENTANYL** 3 mg/kg

## Induction

- **ETOMIDATE** 0.3 mg/kg
- **KETAMINE** 1 - 2 mg/kg
- **PROPOFOL** 2 - 3 mg/kg
- **MIDAZOLAM** 2 - 4 mg
- **FENTANYL** 100 mcg

## Paralytic

- **ROC** 1.2 - 1.5 mg/kg
- **SUCC** 1.5 mg/kg
- **CISATRACURIUM** 0.3 mg/kg

## Time-Out/Verbalize Plan

- **CONSENT/EXPLAIN** (if possible), verify DNR/DNI STATUS
- **Verbalize** the above plan and assign roles
- **Don PPE**
**PREPARATION/INDUCTION**
- Position patient, adjust height of bed
- De-nitrogenation
- Push medications and wait

**VISUALIZATION/TUBE PLACEMENT**
- Insert Laryngoscope
  - *Sweep tongue, advance blade, lift jaw*
  - *Consider placing towel under occiput*
- “Call the view” and suction if needed
- Adjust view if needed
  - If unable to visualize → alternative blade/operator
  - Still unable to visualize → go to plan B
- Place tube, withdraw stylete
  - If unable to pass → use smaller size tube + lube
  - If persistent problem → difficult airway procedure

**CONFIRMATION**
- Auscultate
- Capnography
- Repeat DL/VL if uncertain

**MODIFIED CORMACK-LEHANE GRADE**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Probability</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>2a</td>
<td>4.3%</td>
</tr>
<tr>
<td>2b</td>
<td>67%</td>
</tr>
<tr>
<td>3</td>
<td>87%</td>
</tr>
<tr>
<td>4</td>
<td>&gt;95%</td>
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</tbody>
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**ETT SIZING/DEPTH**

- **Women**: 7.0 - 8.0 mm ETT / 21 cm
- **Men**: 7.5 - 8.5 mm / 23 cm
- **Peds**: (16 + age in yrs) / 4

Probability of a difficult airway
POST INTUBATION MANAGEMENT

- Secure ETT
- Reassess hemodynamics and oxygenation
  - Consider fluid bolus/pressors
  - If unstable → hemodynamic collapse post intubation protocol
- Analgesia/Sedation plan
  - Hypertensive: propofol gtt + fentanyl bolus
  - Hypotensive: fentanyl bolus + low dose midazolam bolus
    address and treat cause of hypotension
- Ventilator settings
  - Oxygenation: start FiO2 1.0, if hypoxemic add PEEP
    wean FiO2/PEEP for goal SpO2 > 90%
  - Ventilation: ensure MV is at least matching pre-intubation
    MV
    - use ETCO2 or ABG to adjust
    - Document plateau pressure (before paralytics wear off) _____
    - Monitor for breath stacking as paralytics wear off
- Connect in-line suction
- Place NG/OG Tube
- ABG (ideally at least 10 min post intubation)
- Chest radiograph (ideally post NG placement)
- HOB > 30 degrees
After each failure consider:

1. **MANIPULATION** of
   - Head/neck position
   - External larynx
   - Device
2. Use of **ADJUNCTS**
3. Different **SIZE/TYPE**
4. Use of **SUCTION**
5. Optimizing **MUSCLE TONE**

**MAXIMUM of THREE attempts of each technique.** At least one attempt should be performed by the most experienced clinician.

**EMERGENCY FRONT OF NECK AIRWAY (eFONA)**

1. **Position** (neutral neck) and **Prep**: sterilize skin, local analgesia (*if time*)
2. **Palpate** cricothyroid and **stabilize** trachea (non-dominant hand)
3. **Vertical incision** 2-3 cm midline
4. **Horizontal incision** 1-2 cm through cricothyroid membrane
5. **Insert scalpel** into trachea, rotate 90 degrees
6. **Place Tracheal hook** into incision, apply superior traction
7. **Insert endotracheal tube** and **confirm placement**

**HEMODYNAMIC COLLAPSE POST INTUBATION**

- **POSITION** – esophageal, R mainstem?  → 1. **verify placement**
- **PEEP** – Auto-PEEP from breath-stacking?  → 2. **break circuit, use BVM**
- **PRELOAD** – loss of preload? hypovolemic?  → 3. **fluid bolus**
- **TONE** – loss of sympathetic tone  → 5. **start/increase pressors**
- **TENSION** – development of tension PTX?  → 4. **chest US, consider needle**