Emergency Airway Management Tips and Tricks

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Mike McEvoy - Books:

- Emergency & Critical Care
- Critical Care Transport
Outline (not in order):

• From easy to difficult
• How many airway problems are there?
• Can’t ventilate
• Can’t intubate
• OPA or NPA
• Preventing hypoxia
• BVM tricks
• Prehospital stuff
• ETT options
Hypoxia

If he pulls his mask off, could he arrest?
Hypoxia

- If he pulls his mask off, could he arrest?
- **Absolutely!**
- **Why?**
ACLS 101

- Treatable causes (formerly H’s & T’s)

  - **H** = hypoxia
  - Coronary ischemia $\rightarrow$ bradycardia $\rightarrow$ PEA
ACLS 101

- Treatable causes (formerly H’s & T’s)
  - H = hypoxia
  - Coronary ischemia ➞ bradycardia ➞ PEA
In-Hospital Cardiac Arrests

What is the most common cause of in-hospital codes?

- **PEA/Asystole** (67% adults, 64% peds)
- Vfib/Vtach
- Unknown
- Narcotics

Suggests Respiratory Etiology

JAMA, January 4, 2006 – Vol 295, No 1 (50-57)
How Important is Airway?

Airway is CRITICAL!
Easy Airway Maneuvers

- Positioning

- Decreases resistance
Positioning

**Ear-to-sternal notch**

Elevate the head until the ear is at the sternal notch
Positioning
Positioning

1.
Positioning

2.
Positioning

3.

[Image of a person lying on a medical bed, facing upwards with a pillow under the head.]
Positioning
Easy Airway Maneuvers

- Sit up!
- Decreases resistance
Easy Airway Maneuvers

- Suctioning – NTS (nasotracheal suctioning)
- Decreases resistance

Risks:
- Hypoxia
- Vagal (bradycardia)
Airways

- OPA (Oro Pharyngeal Airway)
  - Apneic patients, only when unable to BVM
  - Useful for patients biting on ETT as well
Airways

- NPA (Naso Pharyngeal Airway)
- Active gag, sonorous (snoring) resps
- Adjunct to NTS

In-hospital airway of choice!
Airway Nightmares

- 5% of population cannot be BVM ventilated
- 1% cannot be intubated
Can We Predict Trouble?

- Sometimes, we can
- Mallampati Score is a useful tool
Can We Predict Trouble?
Your Instinct Works, Too:
Bag Valve Mask (BVM) Tips

• Are they breathing?
• What are the risks/benefits of ventilating?

To Do:
1. BREATHE
2. BUY MILK
3. WALK DOG
4. PAY BILLS
SpO₂ versus EtCO₂
Bag Valve Mask (BVM) Tips

• Positioning is key
Bag Valve Mask (BVM) Tips

- Improve oxygenation – “NODESAT”
- Nasal Oxygen During Efforts Securing A Tube
- Add 15 LPM nasal cannula

**Blast from the Past**
Apneic oxygenation in man, Anesthesiology 1959, Nov/Dec;789-798

<table>
<thead>
<tr>
<th>Subject</th>
<th>Apnea duration (Minutes)</th>
<th>Lowest arterial saturation</th>
<th>Lowest pH</th>
<th>Highest PaCO2</th>
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<td>30</td>
<td>100</td>
<td>-</td>
<td>-</td>
</tr>
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<td>100</td>
<td>6.96</td>
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15 LPM nasal cannula + NMBA
Bag Valve Mask (BVM) Tips

- Hand position: EC Clamp technique
Bag Valve Mask (BVM) Tips

- Get help: BVM is a 2-person skill
Bag Valve Mask (BVM) Tips

- Beard?
- Water soluble lubricant (on the beard)
Bag Valve Mask (BVM) Tips

• Dentures?
• Leave ‘em in (maintains facial form)
Bag Valve Mask (BVM) Tips

- Still can’t ventilate?
- Insert an OPA
SALT® Airway

ECOLAB $19

- Supraglottic Airway Laryngopharyngeal Tube
- Facilitates blind ETT placement
- Mixed reviews
- However, in difficult to ventilate patients, this may be a *lifesaving tool*

Mazurek P. Should You Use SALT? EMS1.com
Bag Valve Mask (BVM) Tips

- Still Can’t Ventilate?
- **DOPE**
  - Dislodged
  - Obstructed
  - Pneumothorax
  - Equipment
Bag Valve Mask (BVM) Tips

- Could there be an airway obstruction?
Bag Valve Mask (BVM) Tips

- Could there be an airway obstruction?
If the patient can’t be intubated

- Additional tools, such as video scopes
If the patient can’t be intubated

- And, a whole family of supraglottic airways (SGAs)
If the patient can’t be intubated

• LMA (Laryngeal Mask Airway)
Design of the King LTS-D

- **Pilot Balloon**
- **Primary Ventilatory Opening**
- **Multiple Distal Ventilatory Openings**
- **Proximal Opening of Gastric Access Lumen**
- **Proximal Cuff**
  - Stabilizes tube & seals oropharynx
- **Bilateral Ventilation Eyelets**
- **Distal Tip & Cuff**
  - Anatomically shaped to assist in passage behind larynx and normally collapsed esophagus
- **Distal Opening of Gastric Access Lumen**
King LTS-D Design continued...

- Distal tip and cuff flattened for more anatomical fit behind larynx
- Multiple outlets and bilateral eyelets, in order to obtain best ventilation
- Ramp directs tube exchange catheter out main ventilatory opening
## Comparison of Tube Sizes

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<tr>
<th>COLOR</th>
<th>Yellow</th>
<th>Red</th>
<th>Purple</th>
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<tbody>
<tr>
<td>SIZE</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>ITEM #</td>
<td>KLTD203</td>
<td>KLTD204</td>
<td>KLTD205</td>
</tr>
<tr>
<td>OD</td>
<td>14 mm</td>
<td>14 mm</td>
<td>14 mm</td>
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<tr>
<td>ID</td>
<td>10 mm</td>
<td>10 mm</td>
<td>10 mm</td>
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<tr>
<td>RECOMMENDED PATIENT SIZE</td>
<td>4-5 feet (122-155 cm) in height</td>
<td>5-6 feet (155-180 cm) in height</td>
<td>greater than 6 feet (180 cm) in height</td>
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<tr>
<td>CUFF PRESSURE</td>
<td>60-70 cmH(_2)O</td>
<td>60-70 cmH(_2)O</td>
<td>60-70 cmH(_2)O</td>
</tr>
<tr>
<td>MAXIMUM CUFF VOLUME</td>
<td>60 ml</td>
<td>80 ml</td>
<td>90 ml</td>
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**Range:**
- **SIZE 3:** 45–60 ml
- **SIZE 4:** 60–80 ml
- **SIZE 5:** 70–90 ml
Patient Insertion
Insertion Procedure continued…

- Without excessive force, advance tube until connector is aligned with teeth and/or gums.

It is important that the King is advanced all the way.
The KLTSD Gastric Access Lumen

- Lubricate gastric tube prior to inserting into the gastric access lumen.

- Up to an 18 Fr catheter may be utilized.

- Attach suction unit to catheter.

- Once stomach contents are evacuated and suction no longer necessary, suction device may be detached.

- Catheter may be left in place to “plug” lumen, and to continue to decompress the stomach.
Questions?

WILL INTUBATE FOR FOOD

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