

# Basic Airway Management

## Ventilation without Intubation



17<sup>TH</sup> **ANNUAL  
MEETING**  
**CONNECTIVITY**  
WORKING TOGETHER, IMPROVING LIVES

**OCTOBER 15-18, 2019**

VANCOUVER CONVENTION CENTRE  
VANCOUVER, BRITISH COLUMBIA

NEURO  **CRITICAL  
CARE SOCIETY**

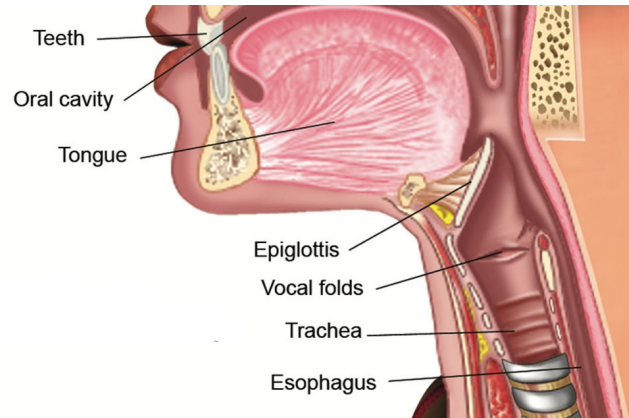
# Speaker Disclosures

I do not have financial relationships to disclose.



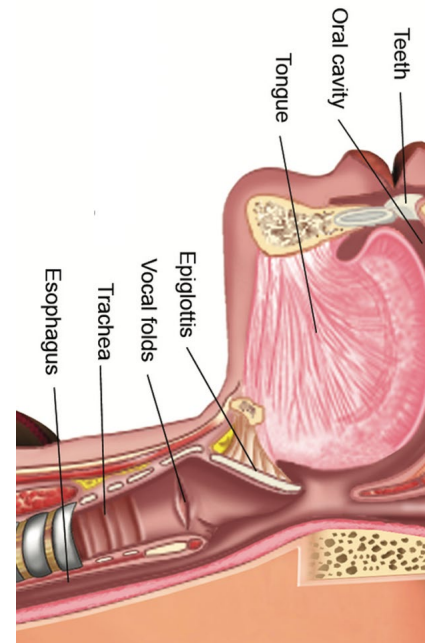
# A patent airway – first step to oxygenation

- Align axes and open pharynx



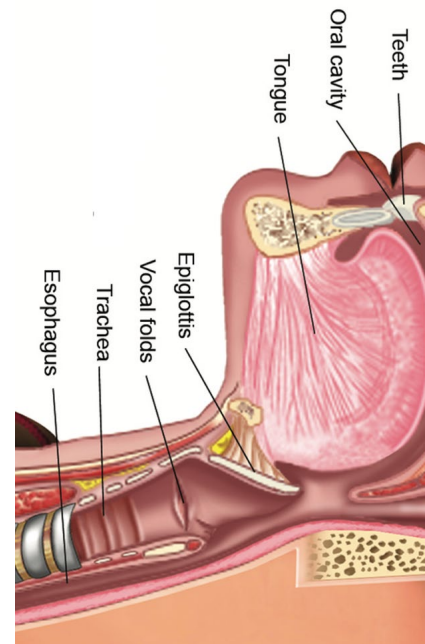
# A patent airway – first step to oxygenation

- Align axes and open pharynx
- Head tilt/chin lift



# A patent airway – first step to oxygenation

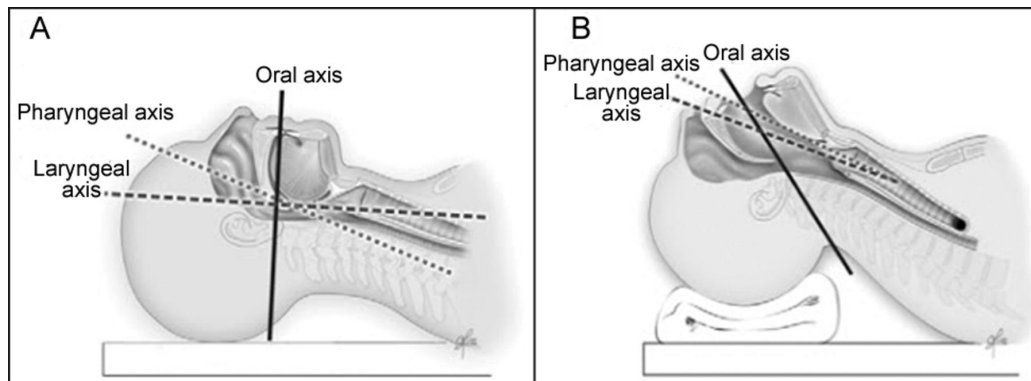
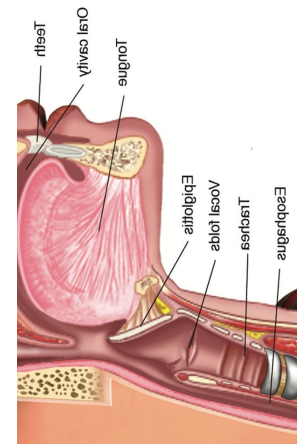
- Align axes and open pharynx
- Head tilt/chin lift
- Jaw thrust





# A patent airway – first step to oxygenation

- Align axes and open pharynx
- Head tilt/chin lift
- Jaw thrust
- Sniffing position

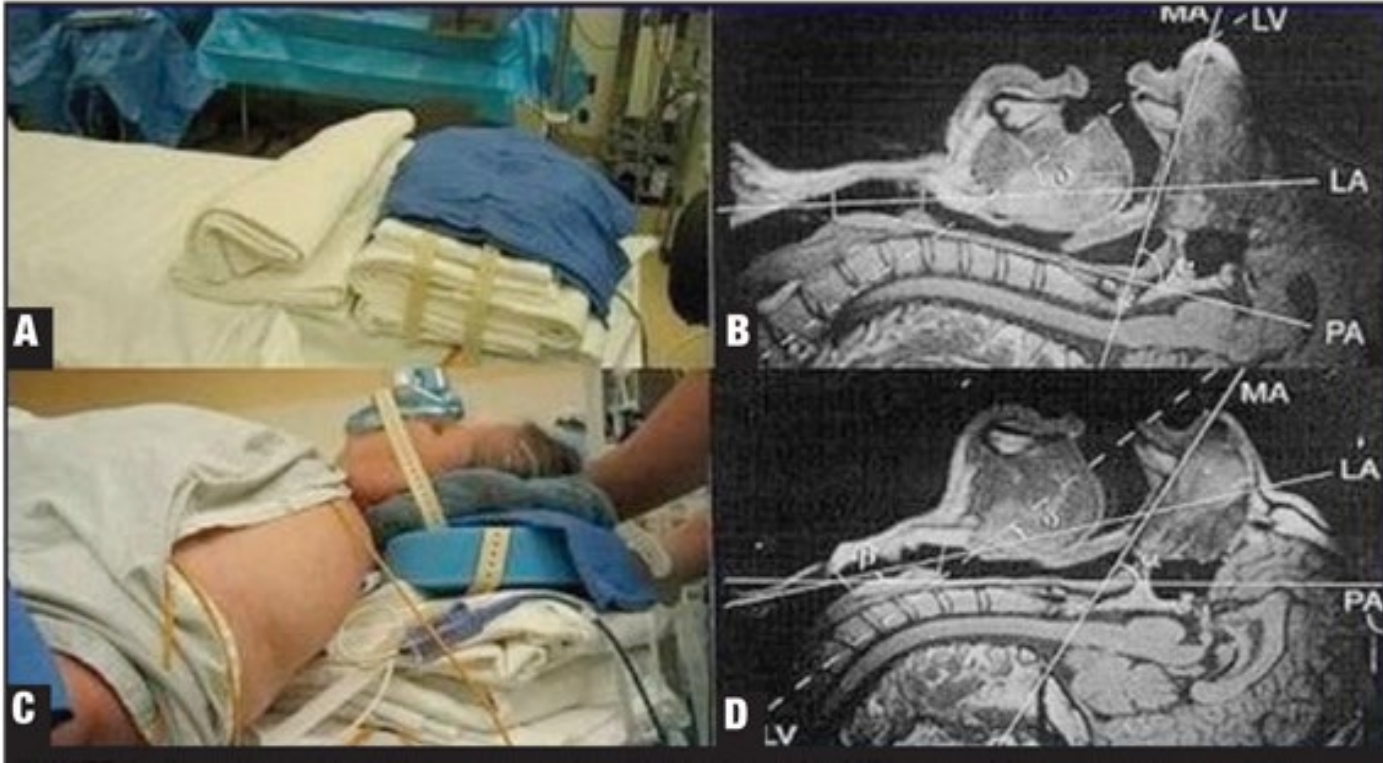


# A patent airway – first step to oxygenation

- Align axes and open pharynx
- Head tilt/chin lift
- Jaw thrust
- Sniffing position
- Ramping – increases FRC

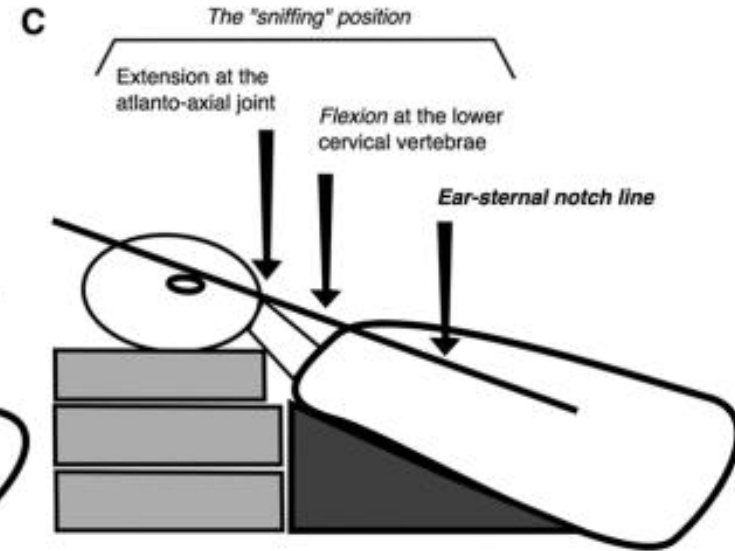
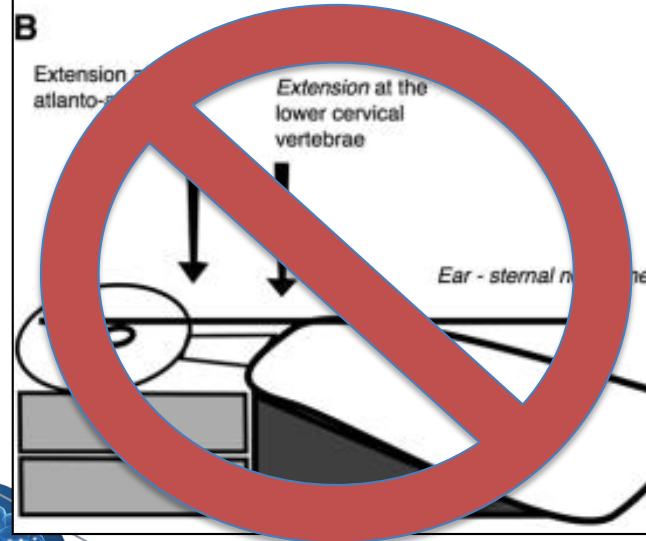
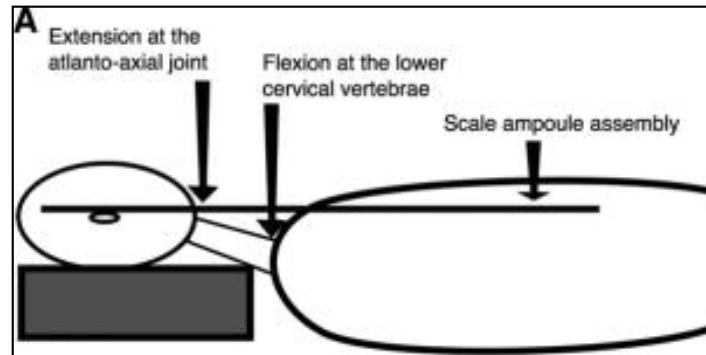


# Ramping





Rahiman et al.  
Anesthesia &  
Analgesia 2017

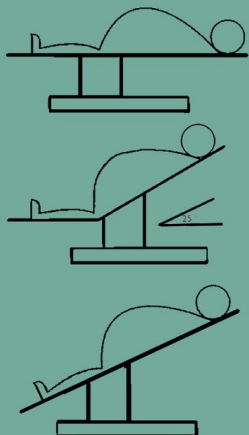


# Ramping increases FRC

@CJA\_Journal

Effect of position and positive pressure ventilation on functional residual capacity in morbidly obese patients

17 Spontaneously ventilating  
obese volunteers  
Mean (SD) BMI  
50 (8) kg/m<sup>2</sup>



## Zero Inspiratory Pressure

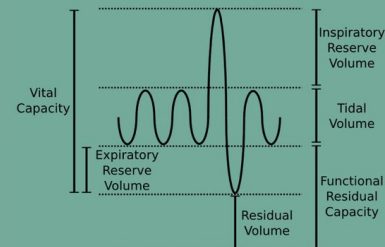
Inspiratory Pressure = 0 cm H<sub>2</sub>O  
PEEP = 0 cm H<sub>2</sub>O  
FiO<sub>2</sub> = 0.21



## Positive Pressure Support

Inspiratory Pressure = 8 cm H<sub>2</sub>O  
PEEP = 10 cm H<sub>2</sub>O  
FiO<sub>2</sub> = 0.21

FRC: mean (SD)  
2215 (481) mL



FRC Mean Difference: 356 mL  
95% CI, 209 to 502 mL;  $P < 0.001$

FRC: mean (SD)  
2571 (477) mL



#VisualAbstract

Couture, EJ *et al.* Can J Anesth 2018; 65(5): 522-28



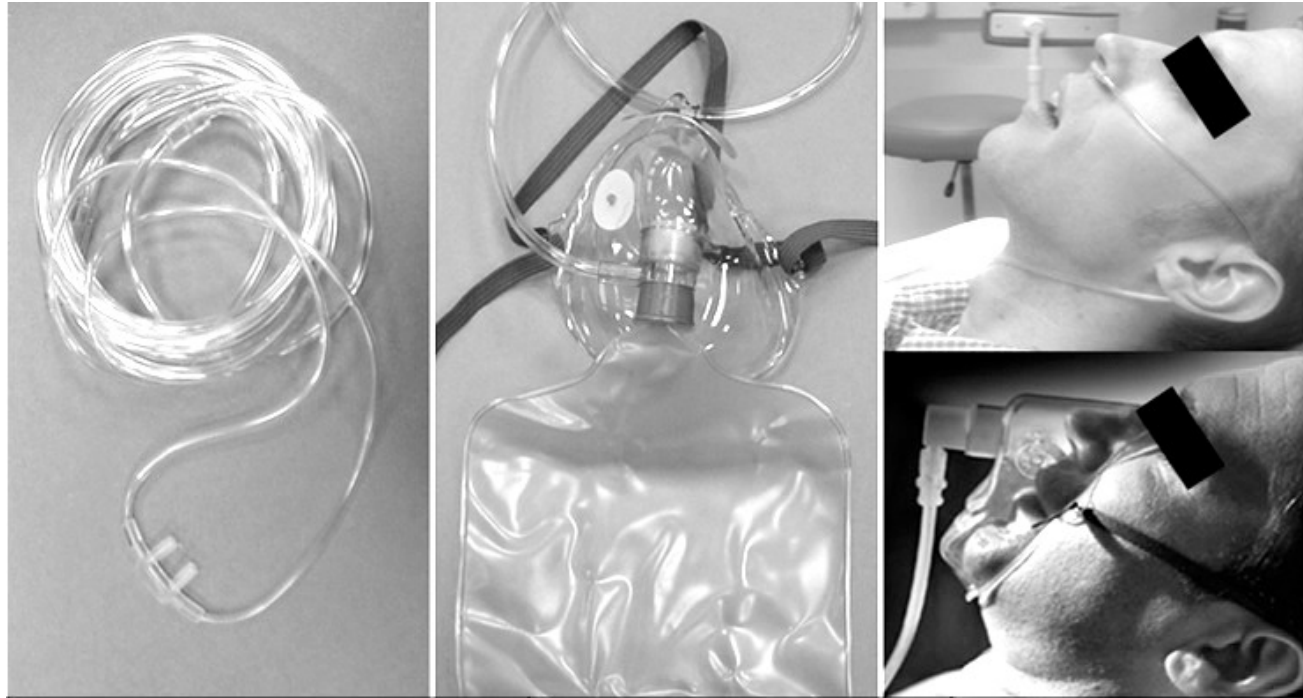
17 ANNUAL MEETING CONNECTIVITY  
WORKING TOGETHER, IMPROVING LIVES

NEUROCRITICAL  
CARE SOCIETY

# Increasing FiO<sub>2</sub>

- Increase alveolar PO<sub>2</sub>
- Apneic oxygenation



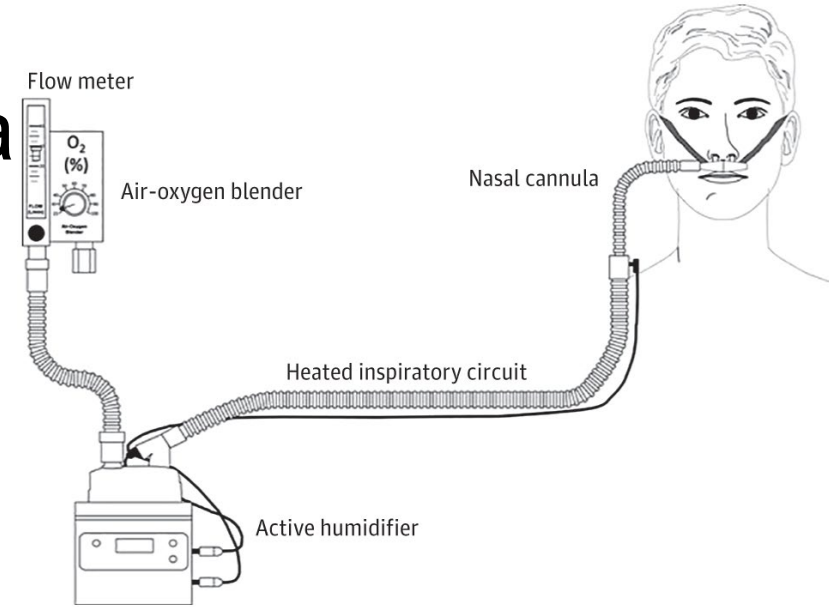


Device (L/min)	FiO <sub>2</sub> / each L/min ↑	Final FiO <sub>2</sub>
Nasal Cannula (1-6)	0.04	0.24-0.44
Simple Mask (6-10)	0.05	0.40-0.60
Mask with Reservoir (6-10)	0.10	0.60-0.80+



# Increasing FiO<sub>2</sub>

- Increase alveolar PO<sub>2</sub>
- Apneic oxygenation
- High-flow nasal cannula





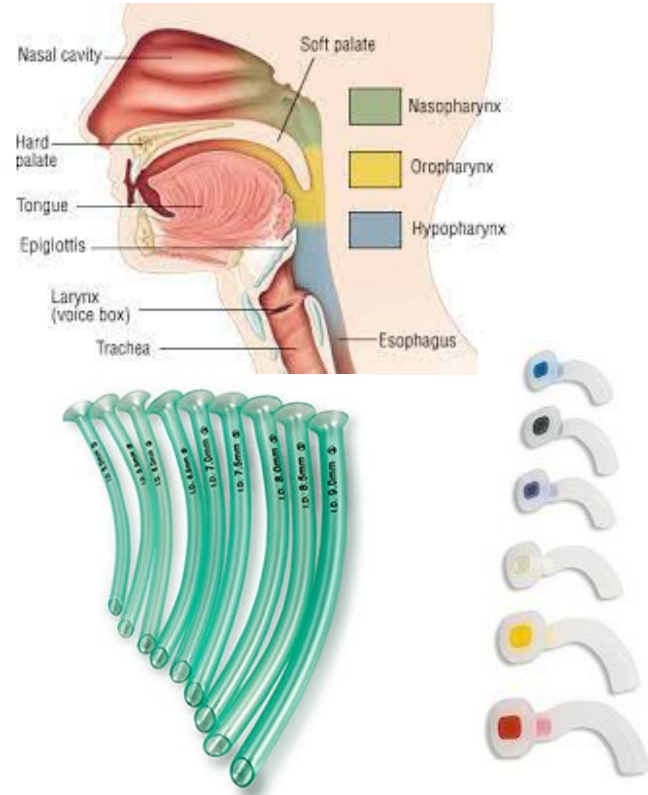
# Bag – facemask ventilation

- C-grip lifts jaw and achieves seal
- 2-handed approach improves seal
- Beard, obesity, thick neck, lack of teeth predict difficult BMV



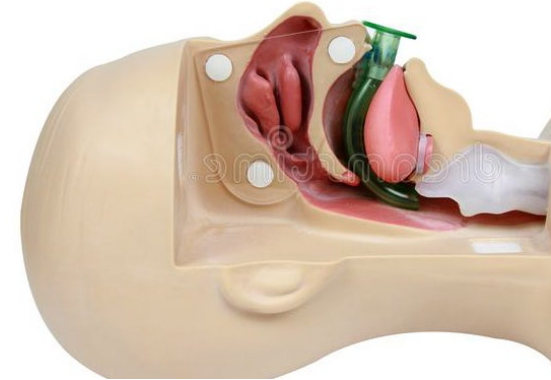
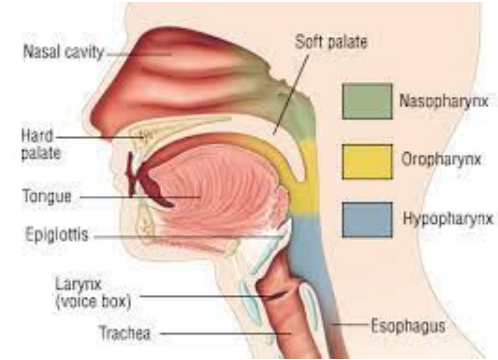
# Naso-/oropharyngeal airways

- Lift tongue, improve access to hypopharynx
- Can easily obstruct (NPA)



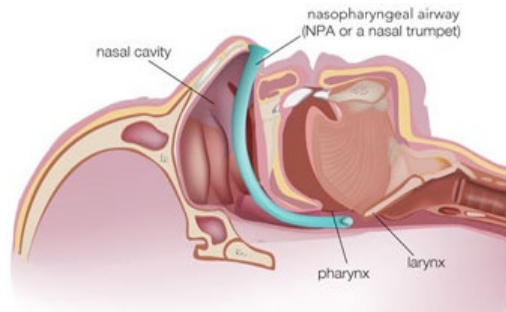
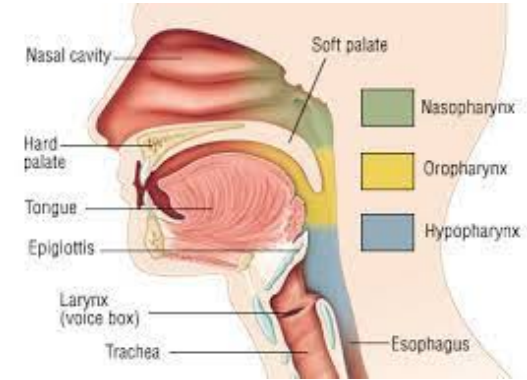
# Naso-/oropharyngeal airways

- Lift tongue, improve access to hypopharynx
- Can easily obstruct (NPA)
- Correct size is important



# Naso-/oropharyngeal airways

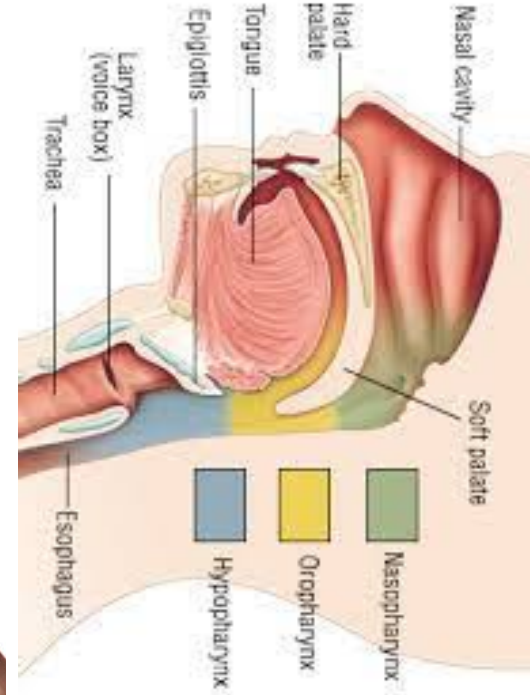
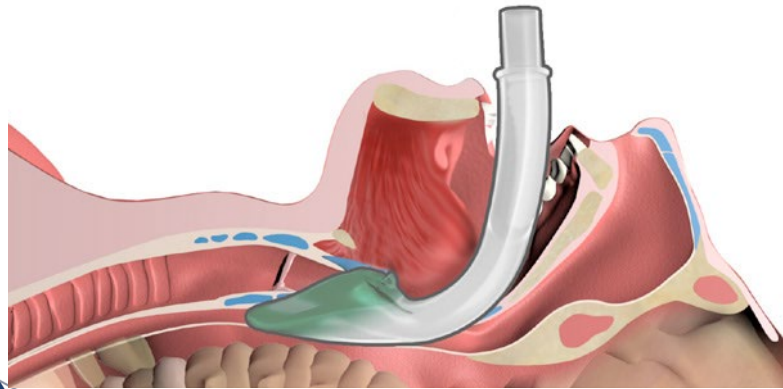
- Lift tongue, improve access to hypopharynx
- Can easily obstruct (NPA)
- Correct size is important
- Correct insertion is important





# Supraglottic airways

- Provide stable access to hypopharynx
- Direct gas flow to glottis
- Some insulation to esophagus, reducing aspiration risk





# Supraglottic airways

- Require open glottis
- Many allow fiberoptic intubation through device
- Laryngeal mask airway (LMA) and variation vs pharyngeal tube (e.g. King airway)

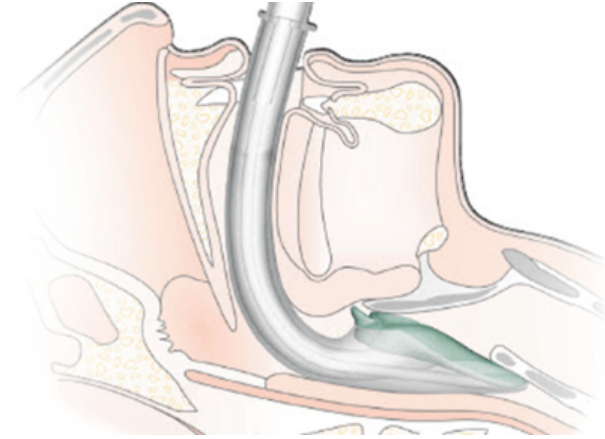
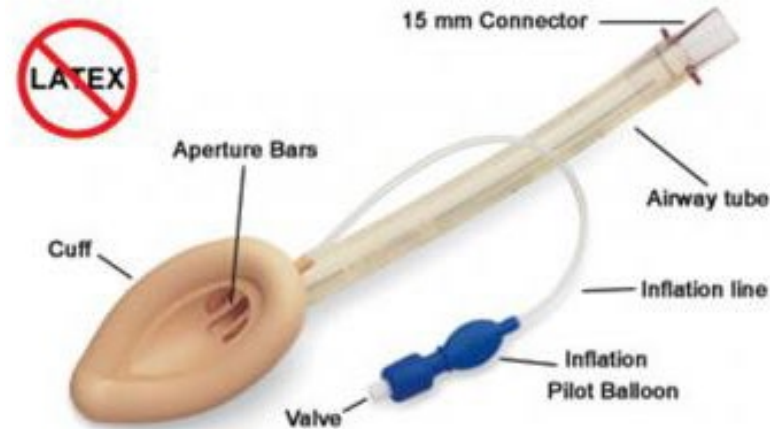


# Supraglottic airways - LMA



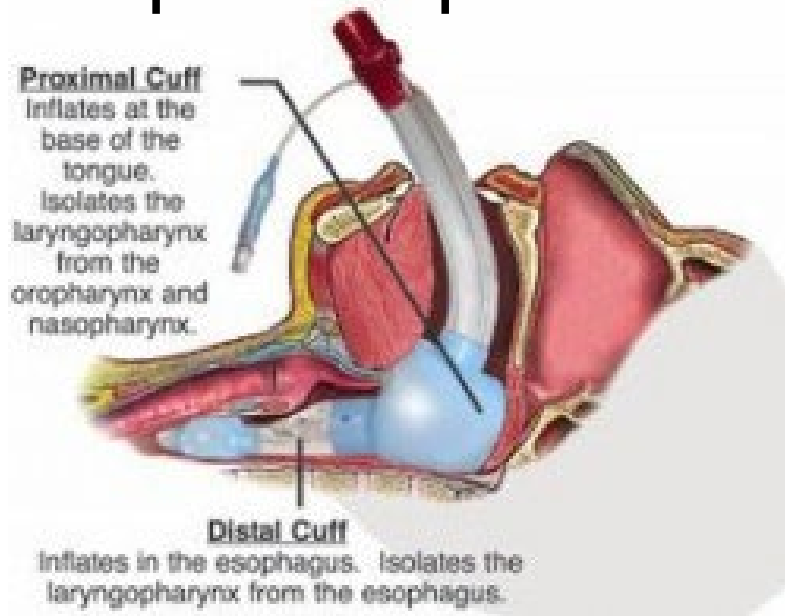
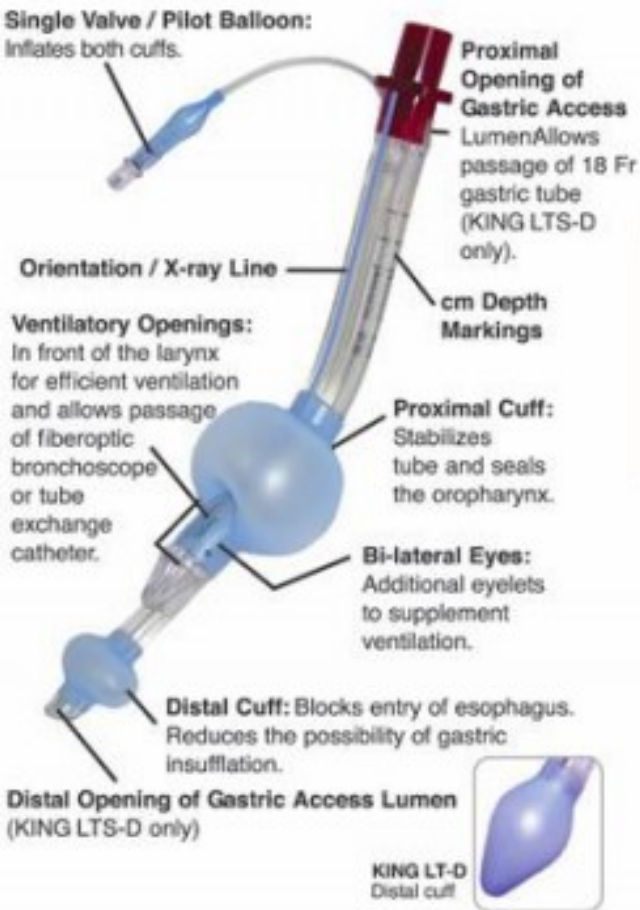
# LMA

- Used for anesthesia when aspiration risk is low



# Supraglottic airways – King Airway

- Faster and safer than intubation in pre-hospital setting



Thank you!

Next station is Intubation

