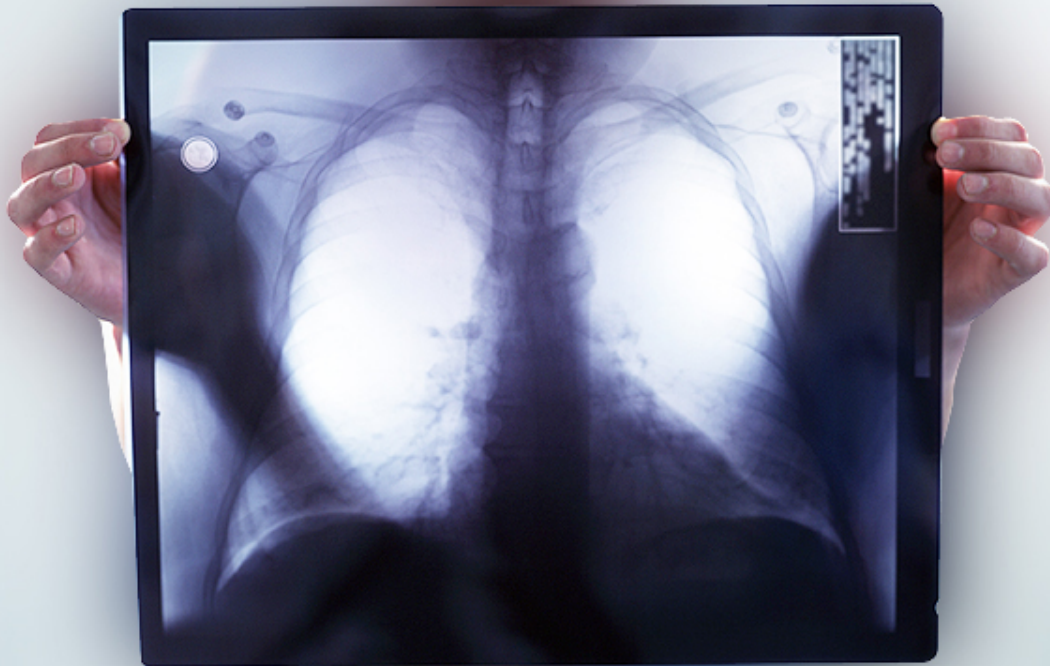


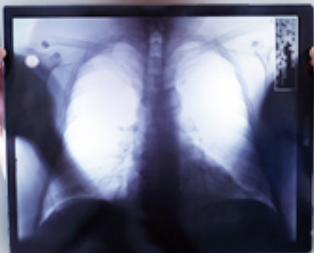
Just Breathe...



Stephanie Parks, DNP, CRNA
The University of Southern Mississippi
Assistant Professor
Nurse Anesthesia Program

OBJECTIVES

- Review airway anatomy
- Use Polleverywhere software throughout the lecture to facilitate classroom interaction and gauge the audience experience level
- Perform hands-on management of common airway management tasks
- Summary of information learned regarding basic and advanced airway skills



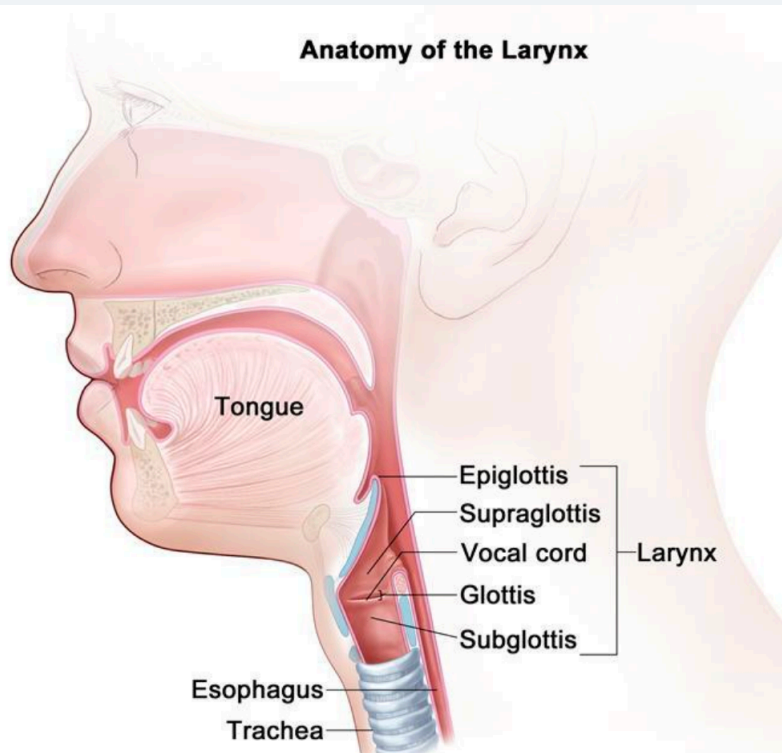
AIRWAY...STILL NUMBER 1!



It all starts here...

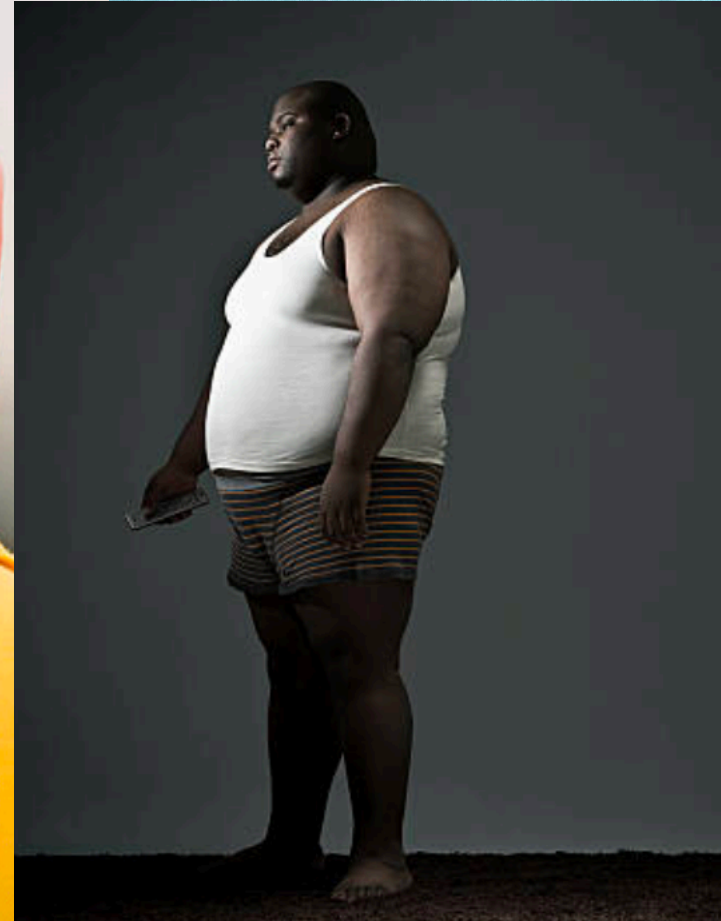


- History
 - Difficult history?
 - Reflux?
 - Concurrent diseases?
- General Exam
 - Do they look difficult?
 - Dentition?
 - Dysmobility?
 - Obese?
 - Beard?
- Investigations
 - X/R or MRI
 - Respiratory studies















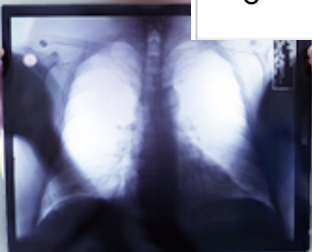


We are #1!

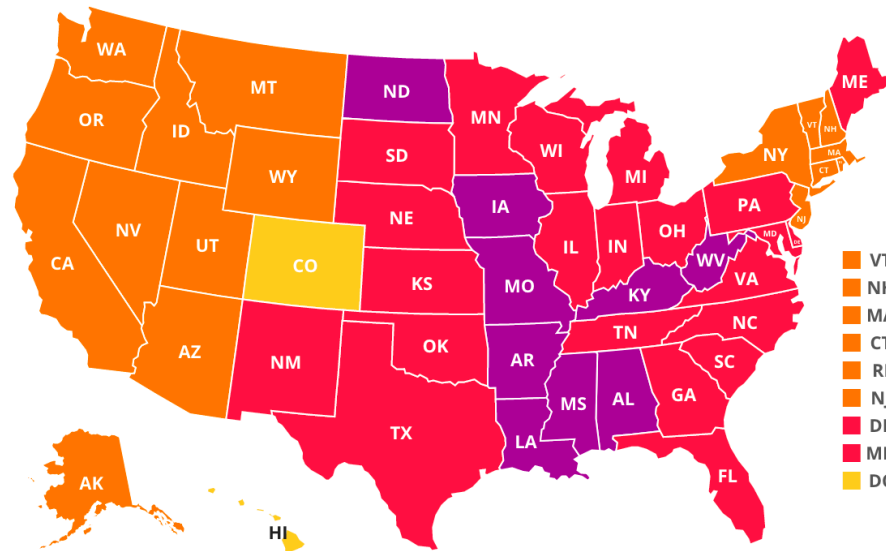
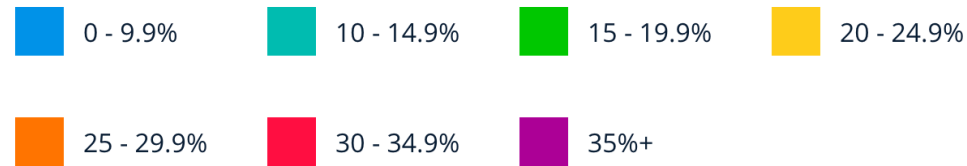


The clear winner...

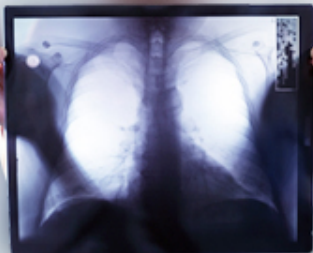
Rank ▲	State	Adult Obesity Rate 2018	
1	 Mississippi	39.5%	
1	 West Virginia	39.5%	
3	 Arkansas	37.1%	
4	 Louisiana	36.8%	
5	 Kentucky	36.6%	
6	 Alabama	36.2%	



PERCENT OF OBESE ADULTS (BMI >30%)



VT
NH
MA
CT
RI
NJ
DE
MD
DC



DIFFICULT VENTILATING

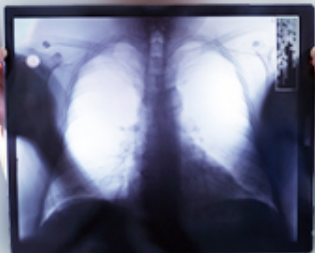
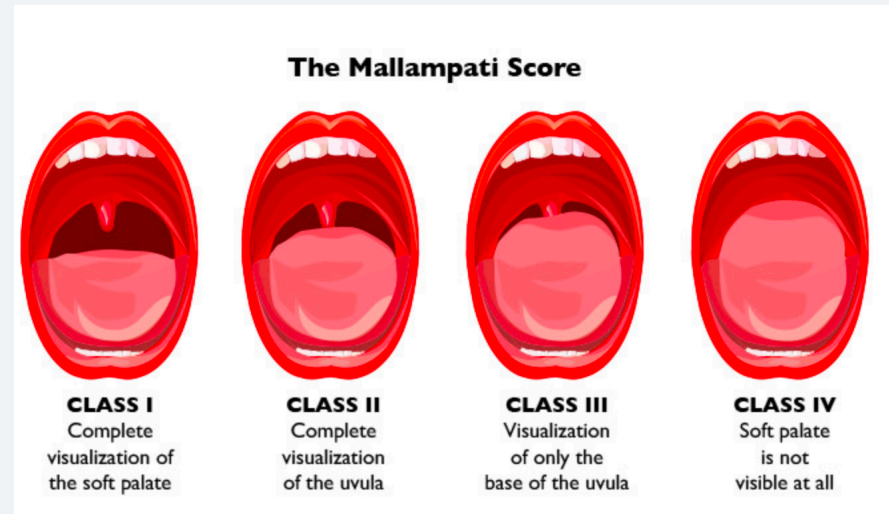
OBESE



- Obese (body mass index $> 26 \text{ kg/m}^2$)
- Bearded
- Elderly (older than 55 y)
- Snorers
- Edentulous

DIFFICULT INTUBATING

Reasons for difficulty	No.	%
Anterior larynx	38	40.9
Neck immobility	22	23.7
Secretions and blood	14	15.1
Small mouth < 3 fingerbreadths	13	14.0
Obesity	10	10.8
Incomplete frontal dentition	8	8.6
Airway oedema	8	8.6
Oral obstruction (tumour, mechanical obstruction)	7	7.5
Maxillofacial trauma	4	4.3
Combativeness	2	2.2



New Mallampati Classification for Sharks

CLASS I:

Full visibility of huge, scary mouth with large, sharp, frightening teeth, and remains of last eaten human.

CLASS II:

Visibility of hard and soft palate ...
Wait, why are we doing this again?! I feel like we're way too close to this great white ...

CLASS III:

Soft and hard palate and ... *Okay okay, I'm gonna be honest, I'm freaking out, guys ... I'm out, I'm out, screw the new classification system ...*

CLASS IV:

**MAN OVERBOARD!!! I REPEAT,
MAN OVERBOARD!!! SOMEONE,
ANYONE, PLEASE HELP!!! FOR
THE LOVE OF GOD, HELP US!!!**



Wilson's risk score

	Score
Weight	0=<90kg 1=>90kg 2=>110kg
Head and neck movement	0=Above 90degrees 1=About 90degrees 2=Below 90degrees
Jaw movement	0=IG>5cm or SLux >0 1=IG<5cm and SLux = 0 2=IG<5cm and SLux<0
Receding mandible	0=Normal 1=Moderate 2=Severe
Buck teeth	0=Normal 1=Moderate 2=Severe

- Head movement assessed with pencil taped to a patient's forehead.

- IG = Interincisor gap measured with mouth fully open.

- SLux = Maximal forward protrusion of the lower incisors beyond the upper incisors.

- score 5 or < =easy laryngoscopy**

- Score 8-10 =severe difficulty in laryngoscopy**

Thyromental Distance

Measure from upper edge of thyroid cartilage to chin with the head fully extended. Normal is approx 7cm.

If the thyromental distance is short, <3 finger widths, the laryngeal axis makes a more acute angle with the pharyngeal axis and it will be difficult to achieve alignment.

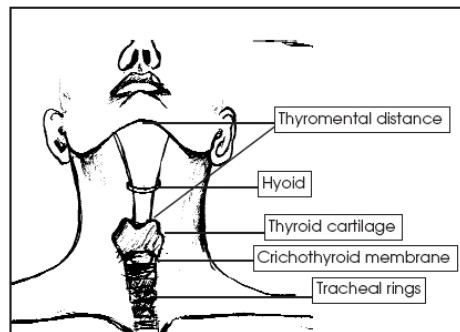
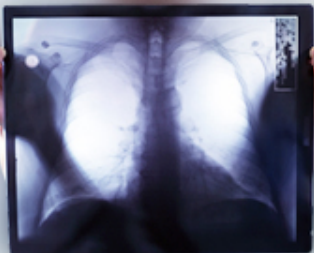


FIGURE 4: Chin to Thyroid notch (thyromental distance)

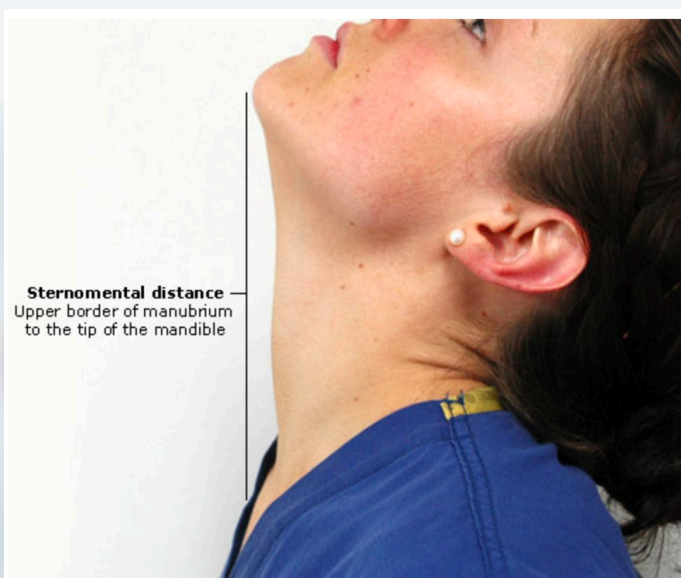
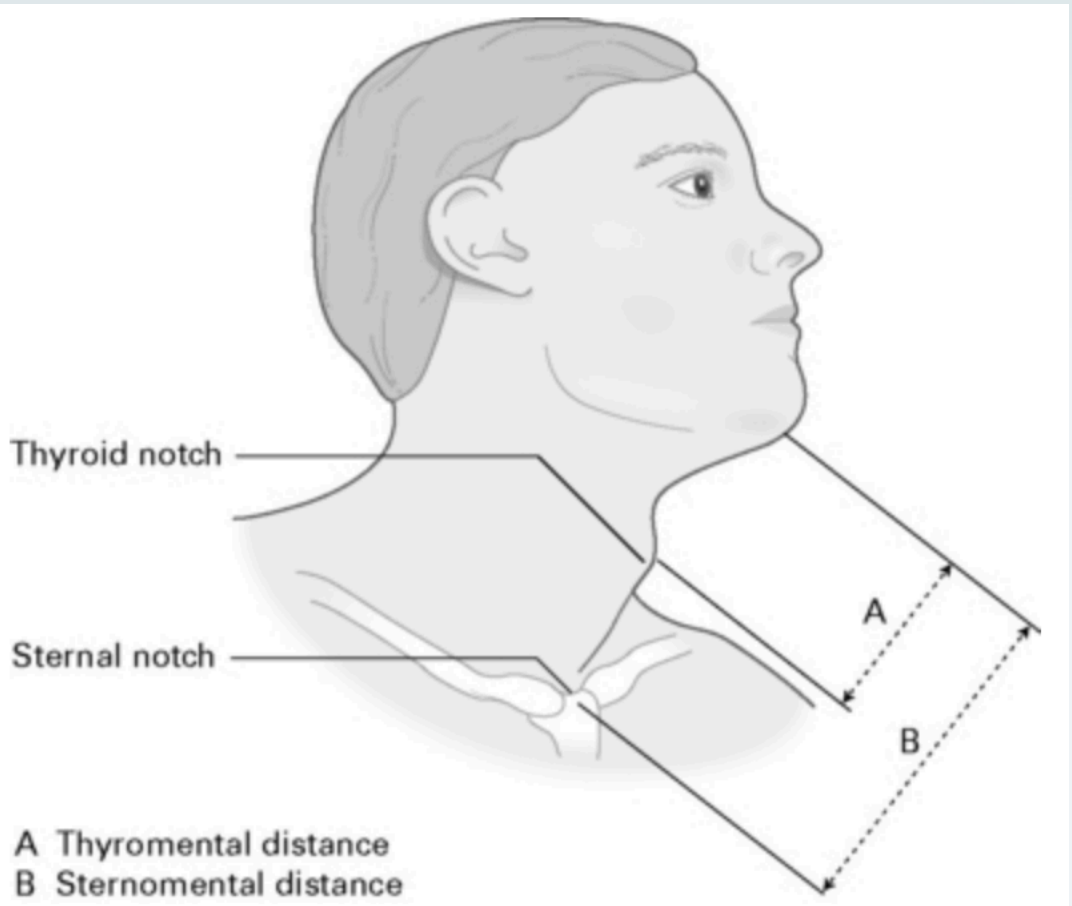


Sternomental Distance

Distance from the upper border of the manubrium to the tip of mentum, neck fully extended, mouth closed

Minimal acceptable value – 12.5 cm

Single best predictor of difficult laryngoscopy and intubation

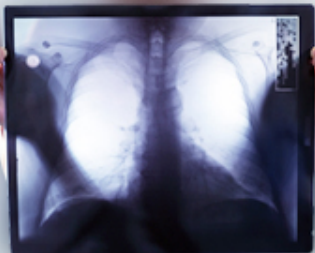


Limited Mobility



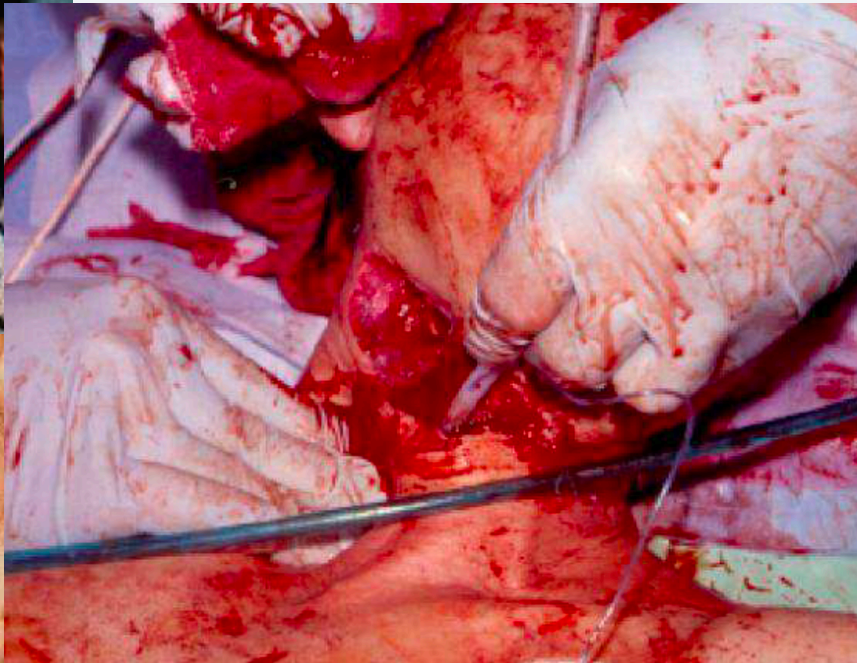
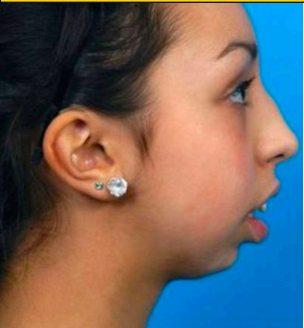
LEMON trial

- Look
 - Facial trauma
 - Large incisors
 - Beard
 - Large tongue
- Evaluate 3-3-2
 - Interincisor distance (3 fingers)
 - Hyoidmental distance (3 fingers)
 - Thyroid to floor of mouth (2 fingers)
- Mallampati
- Obstruction—trauma or FB
- Neck movement – chin to chest/extension



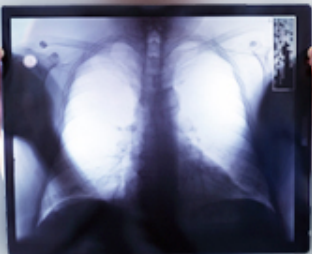
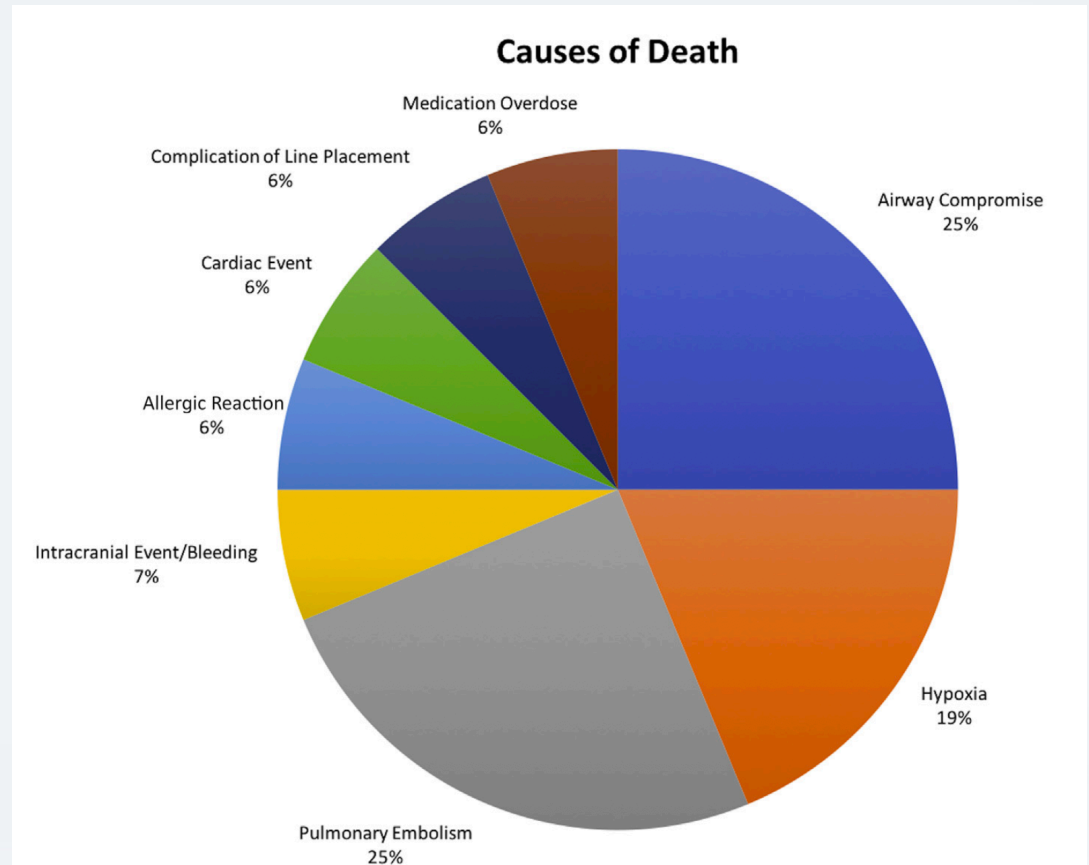
CAUTION

AIRWAY DISASTER AHEAD



Post Operative Airway Issues

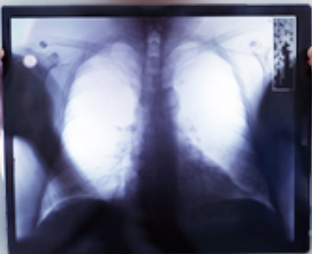
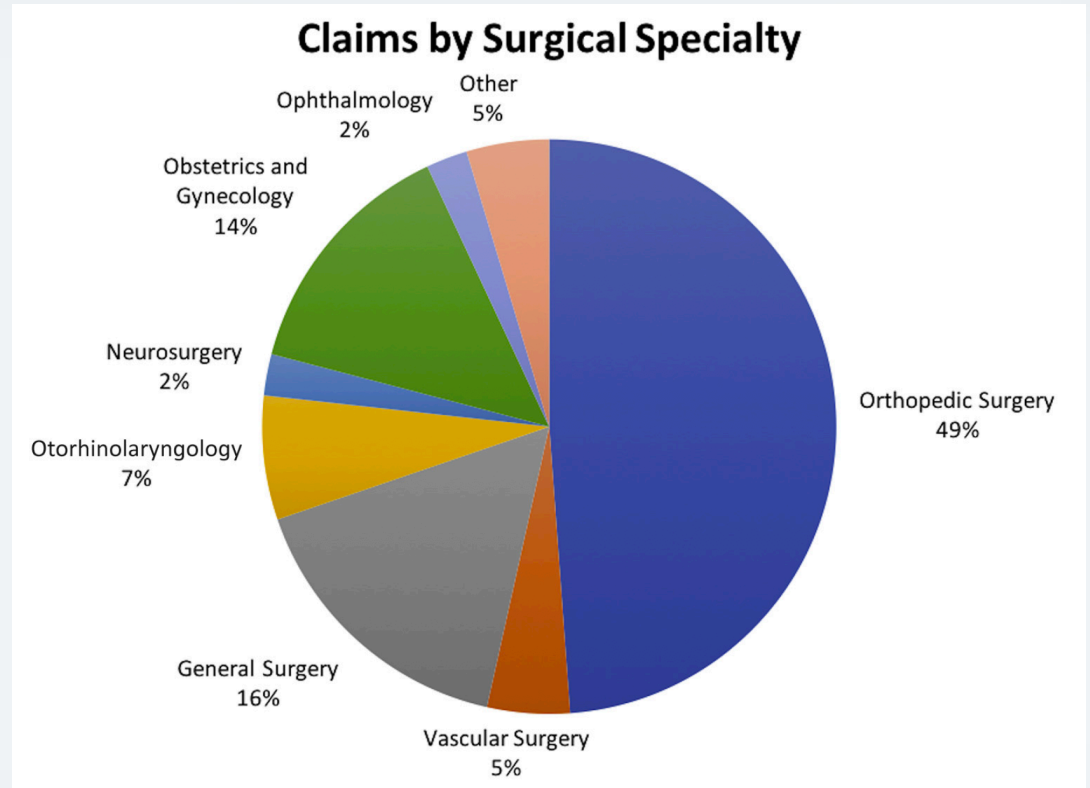
- **Type of anesthesia**
- **Residual neuromuscular blockade**
- **Emergence from general anesthesia**
- **Opioid-induced respiratory depression**



More specifically

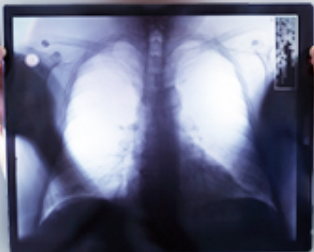
Among the 21
orthopedic cases,

- 4 involved pulmonary emboli from fat emboli
- 7 involved complications of nerve blocks
- 3 involved complications of airway management
- 1 polytrauma patient with pulmonary contusions



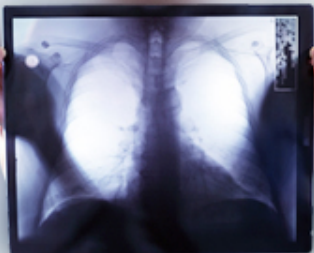
Predicting postoperative difficulty Airway Stuff:

- Difficult in=difficult out
- Obesity
- CPAP at home=CPAP at hospital
- Aspiration concerns
- Air in Stomach?
- Accessibility to the airway



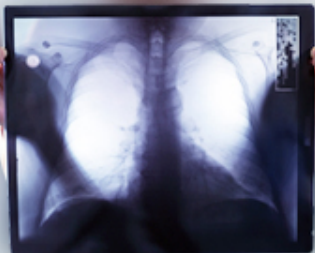
Predicting postoperative difficulty Surgery stuff:

- Neck Dissection
- Tongue biopsy
- Tonsillectomy
- Positional effects on the airway (T-Berg)
- Radical Neck dissection
- Cervical spine surgery
- Dental abscess
- Debulking neck tumors
- Any airway surgery



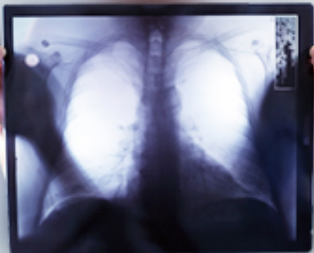
Predicting postoperative difficulty Anesthesia Stuff:

- Were they paralyzed?
 - **Reversed?**
- Excessive opioids used?
- Am I at risk of Negative Pressure Pulmonary Edema?
- Should they have been extubated?



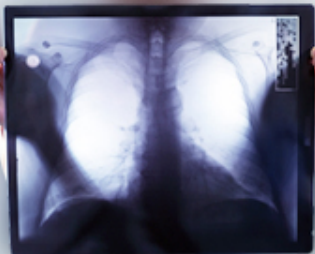
Causes of postoperative airway obstruction

- Laryngospasm
- Laryngeal edema—Too much T-burg?
- Vocal cord paralysis
- Bleeding into the airway
- Neck hematoma
- Foreign Body—Retained throat pack
- Obesity/Obstructive Sleep Apnea
- Inadequate reversal of paralytics



This all sounds awful...How Can I avoid it?

- History of the patient
- Does something look/sound strange?
 - **Stridor, hoarseness of voice, excessing drooling, decreased level of consciousness**
- If intubated, should I do a staged extubation?

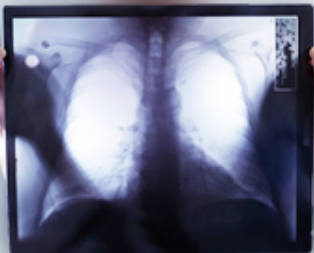




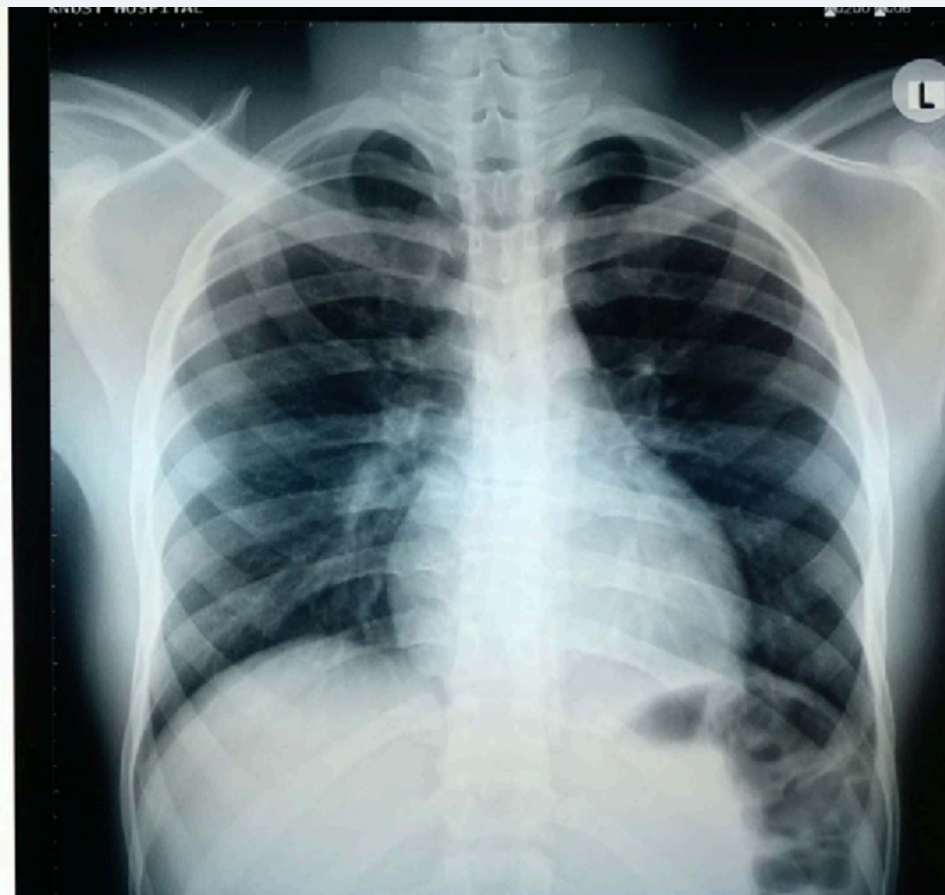
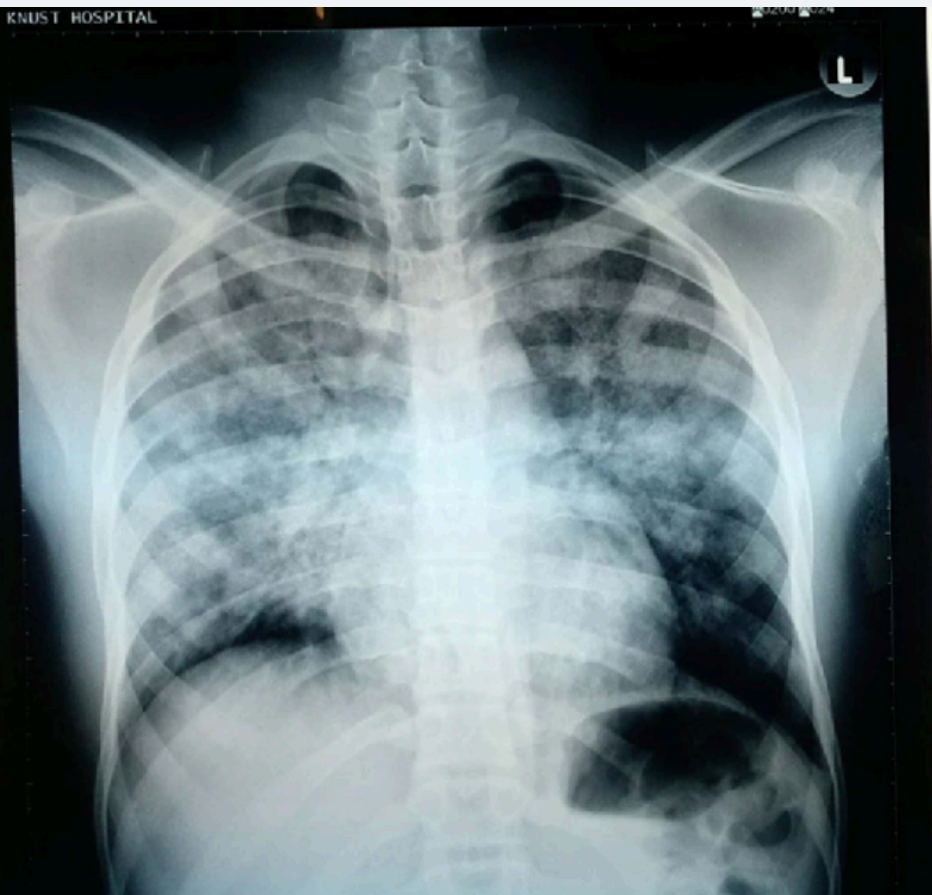
Keep asleep and transfer to the ICU



More on this Negative Pressure Pulmonary Edema



Day of Injury versus Day After Injury



Two green street signs are mounted on a silver pole against a clear blue sky. The top sign is angled upwards and to the right, displaying the text 'Success Ln' in white. The bottom sign is angled downwards and to the left, displaying the text 'Failure Dr' in white. The signs are positioned as if they are at an intersection.

Success Ln

Failure Dr



REFERENCES

- **<https://aam.ucsf.edu/article/preoperative-airway-assessment>**
- **<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5516487/>**
- **doi: 10.1093/bjaed/mkw077**

