

The background features a dark blue gradient with faint, semi-transparent white graphics of medical gauges and circular patterns. Some gauges have numerical scales, such as 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, and 260. The overall aesthetic is technical and clinical.

# SECURING THE PEDIATRIC AIRWAY

WYC CHEATHAM, MD

PEDIATRIC AND NEONATAL INTENSIVIST

EIRMC

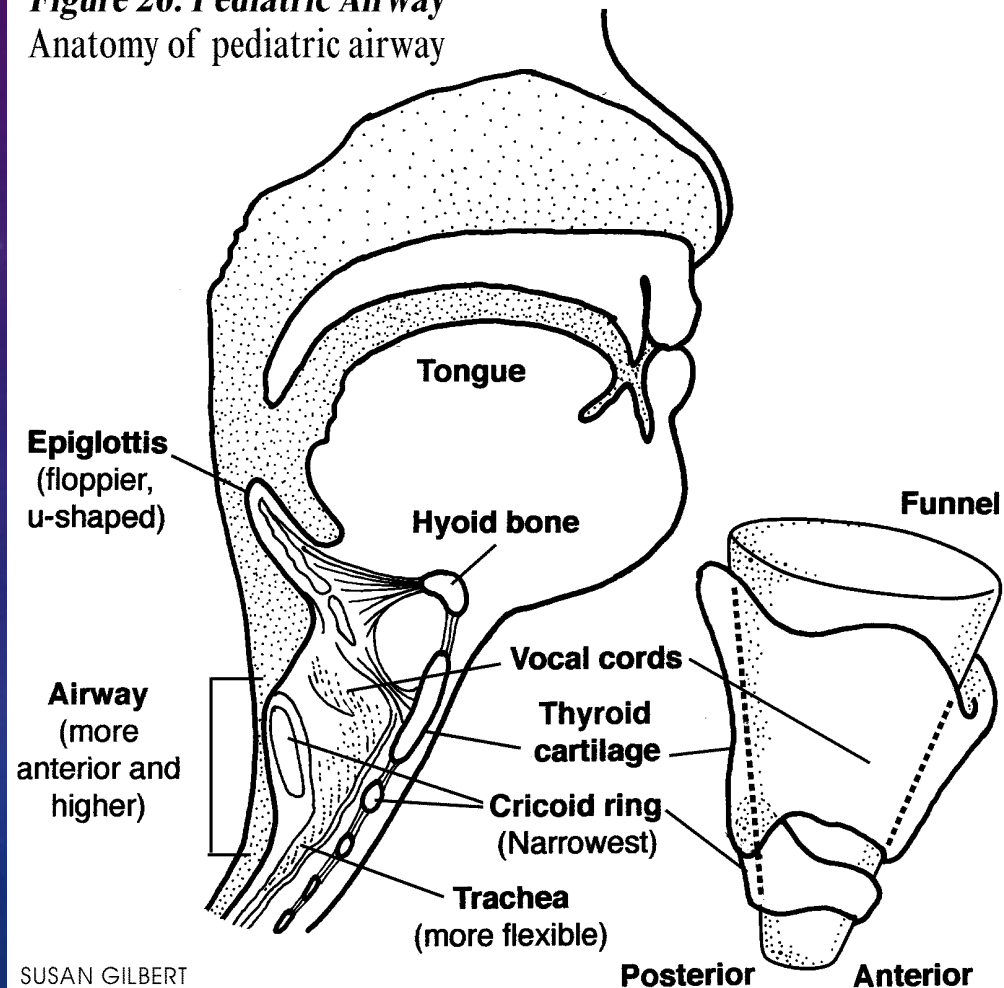
# ASA TASK FORCE ON MANAGEMENT OF THE DIFFICULT AIRWAY - DEFINITIONS:

- **Difficult airway:** The clinical situation in which a conventionally trained anesthesiologist experiences difficulty with PPV, intubation, or both
- **Difficult laryngoscopy:** Not being able to see any part of the *vocal cords* with conventional laryngoscopy
- **Difficult mask ventilation/PPV:**
  - (1) Inability to maintain sats >90% using 100% O<sub>2</sub> & PPV in a patient whose sats were >90%
  - (2) Inability to reverse signs of inadequate ventilation during PPV
- **Difficult intubation:** Using conventional laryngoscopy, if it requires either:
  - (1) More than three attempts
  - (2) More than ten minutes

# ANATOMY

- Infant's larynx is more superior
- The epiglottis is shorter
- The epiglottis angled more over the cords
- The vocal cords are slanted
  - The anterior commissure is more inferior
- Infant tongue is larger
  - Macroglossia
- Head is naturally flexed
  - Large occiput

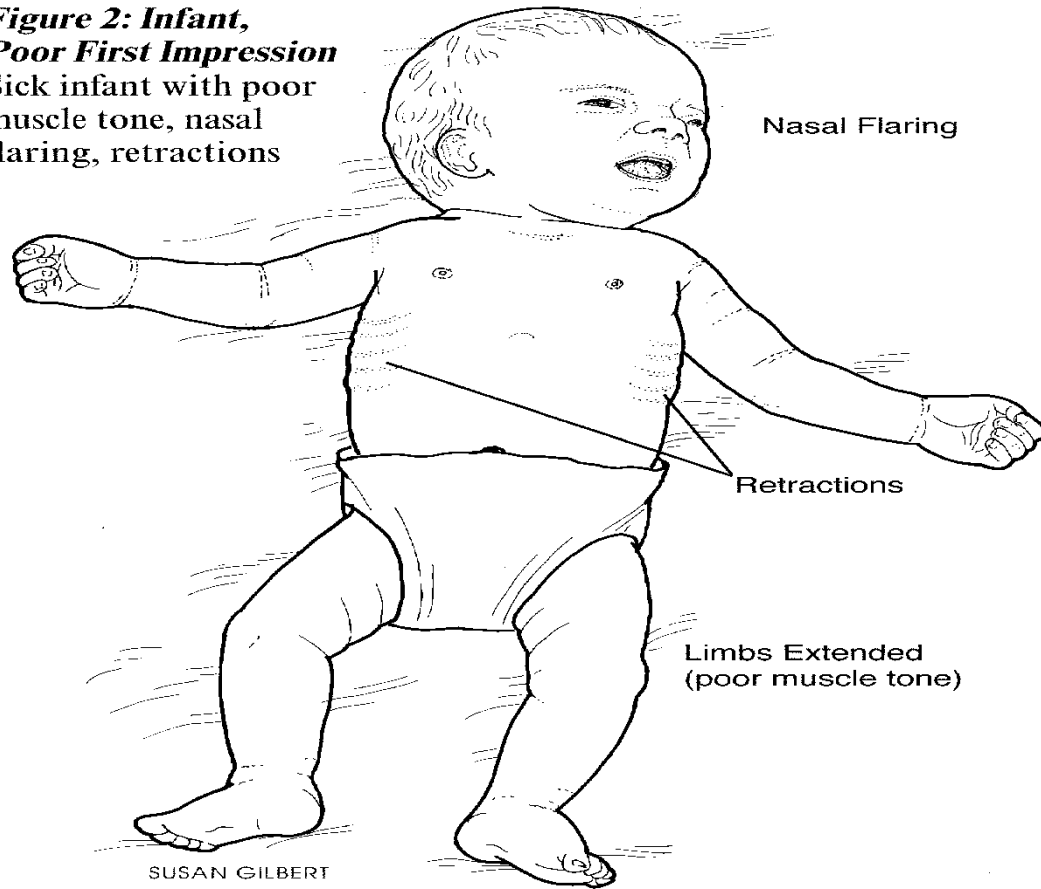
**Figure 26: Pediatric Airway**  
Anatomy of pediatric airway



# PHYSIOLOGY

- The infant uses oxygen at a rate 4x the adult patient
- Your saturations will drop 4x faster than in the adult
- The infant and child are more likely to experience emesis with laryngeal manipulation
- The vagal response is more pronounced in kids

**Figure 2: Infant,  
Poor First Impression**  
Sick infant with poor  
muscle tone, nasal  
flaring, retractions



## ➤ Signs of impending respiratory failure

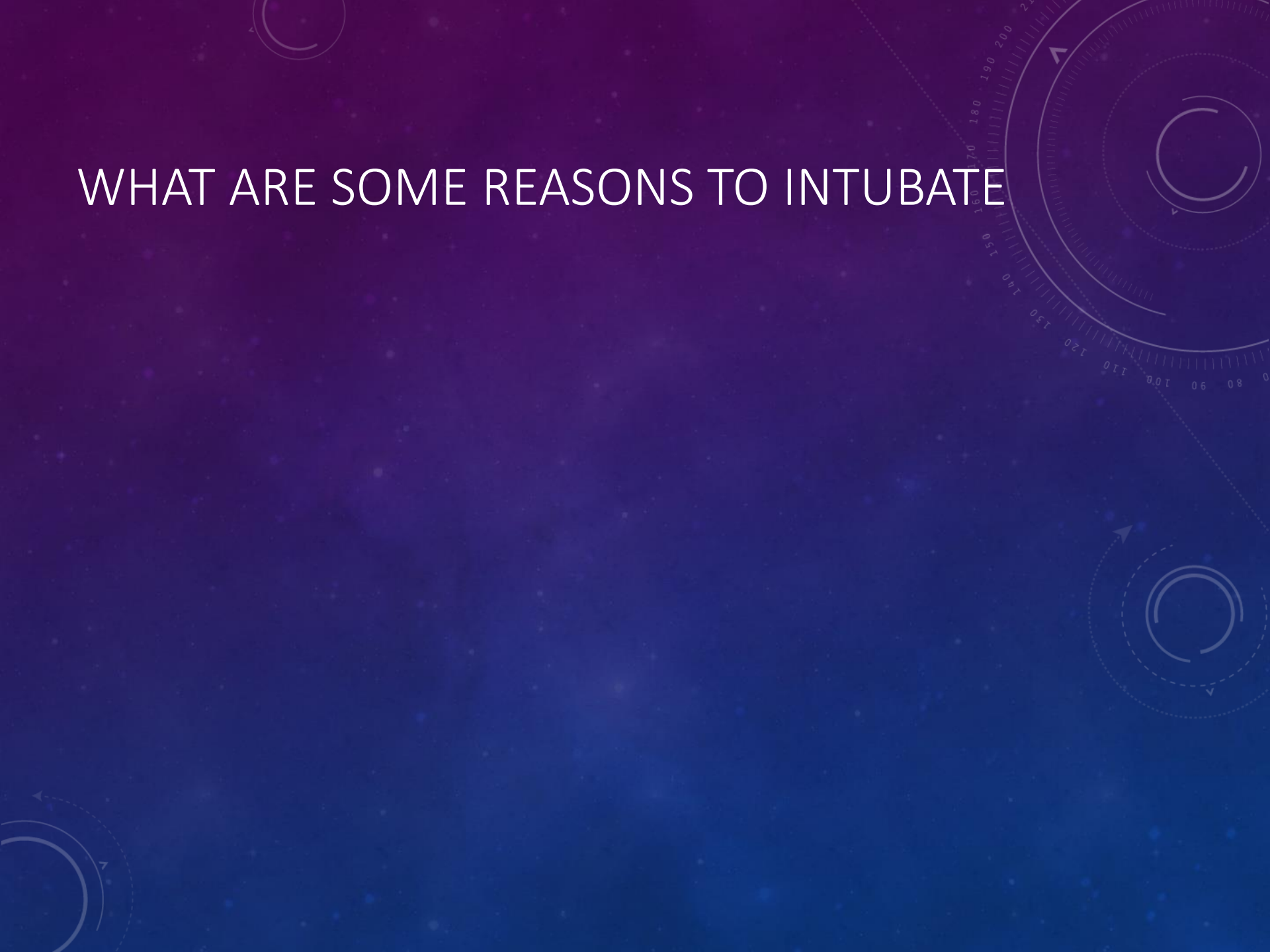
- Increased respiratory rate
- Nasal flaring
- Use of accessory muscles
- Cyanosis



# WHAT IS YOUR GOAL?

- When intubating what are you hoping to achieve?

WHAT ARE SOME REASONS TO INTUBATE



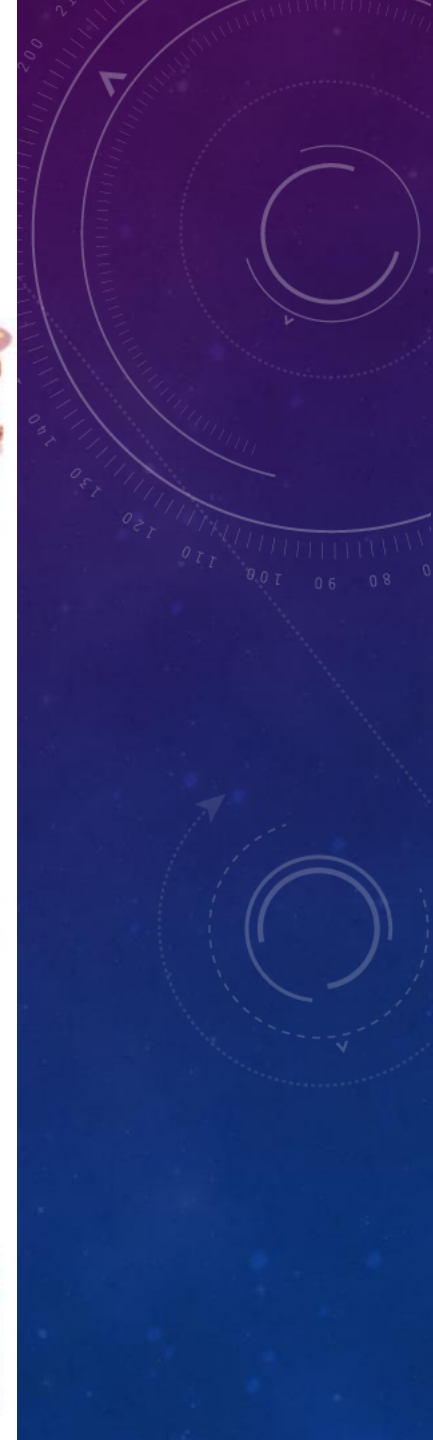
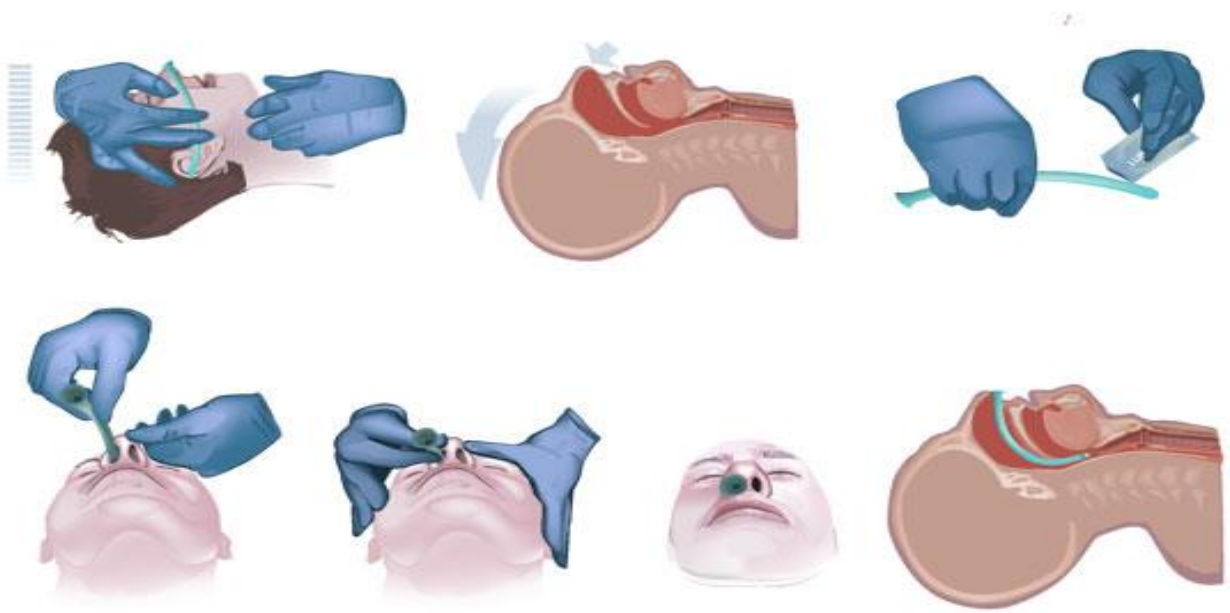
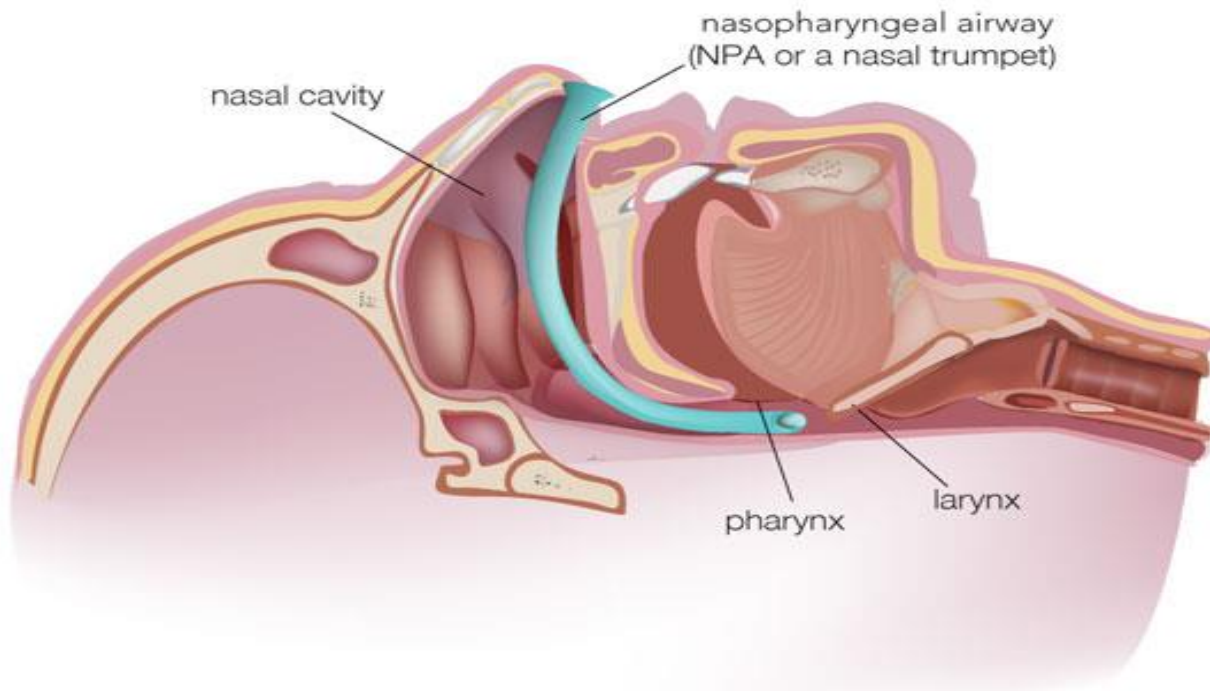
# WHAT ARE SOME REASONS TO TAKE OVER VENTILATION



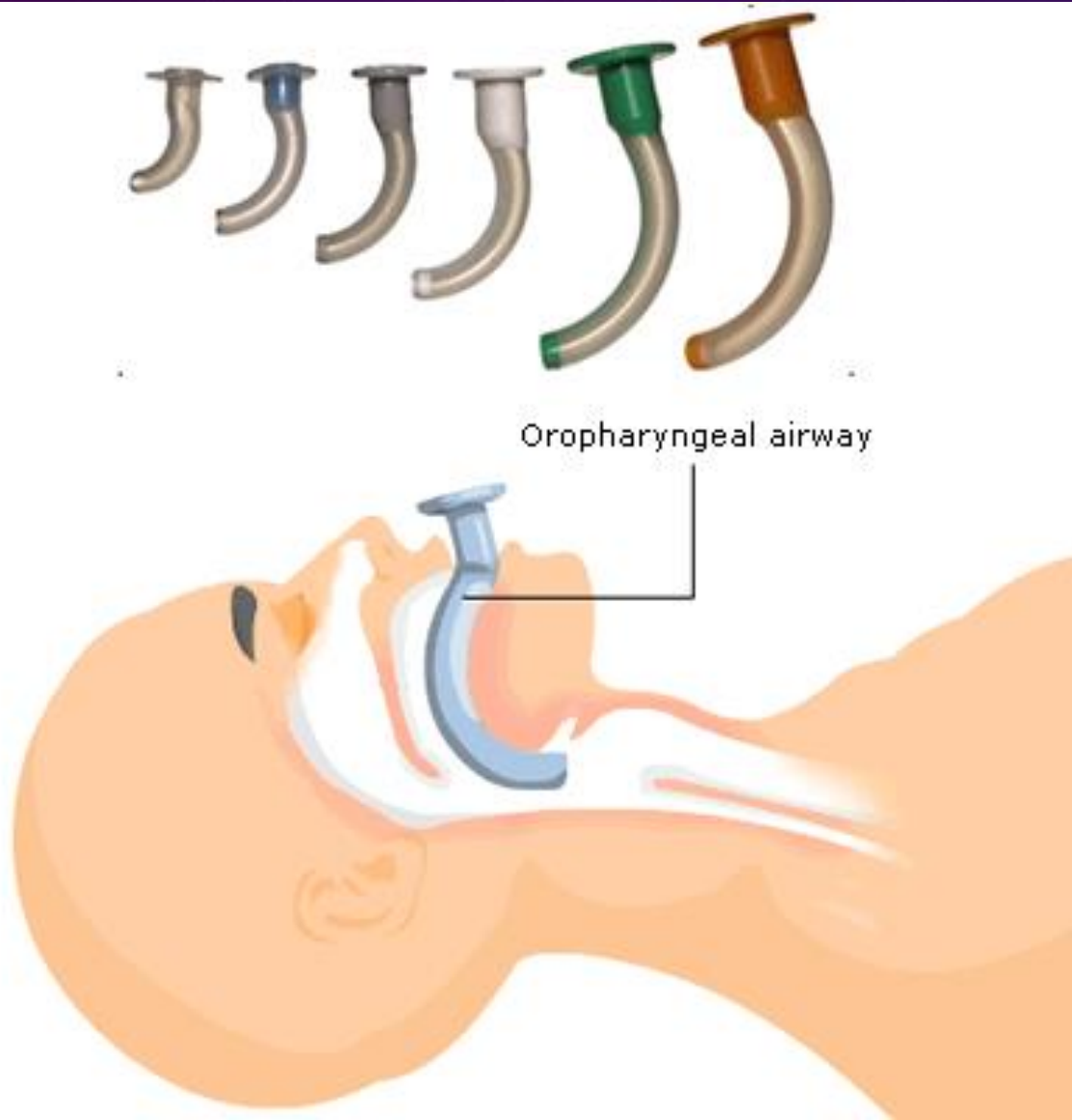


# NASAL AIRWAY





# ORAL AIRWAY



# SIZING THE ORAL AIRWAY

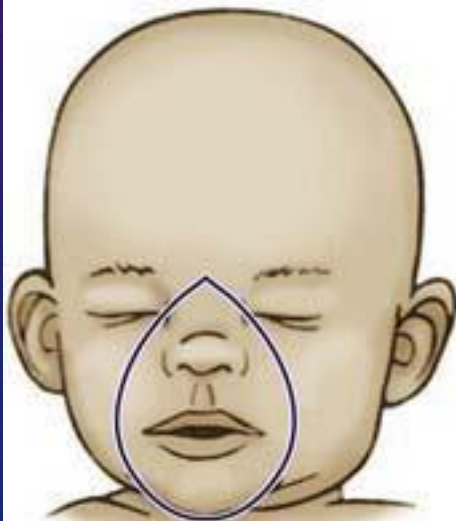








**Correct**  
Covers mouth, nose, and  
chin but not eyes



**Incorrect**  
Too large: covers eyes  
and extends over chin



**Incorrect**  
Too small: does not cover  
nose and mouth well



# INTUBATION

## ➤ Rule of 4's:

Add 4 to the patient's age divided by 4

$$\text{ETT} = 4 + (\text{age}/4)$$

- Ex 1): 12 year old needs what size ETT?
  - Answer: 7
- Ex 2): 6 year old needs what size ETT?
  - Answer: 5.5
- Ex 3): A 2 year old needs what size ETT?
  - Answer 4.5

# RULE OF “FINGER”

- Poor man’s way of figuring what ETT to use is the patient’s little finger
  - Look for a tube that is similar in diameter
    - Go smaller if needed

# TO CUFF OR NOT TO CUFF

- Cuffed ETTs are now the standard of care for all ages
- Inflated to the minimal pressure required to prevent auscultation of air leak

# Paediatric ET Tubes

Some of the sizes available (mm)

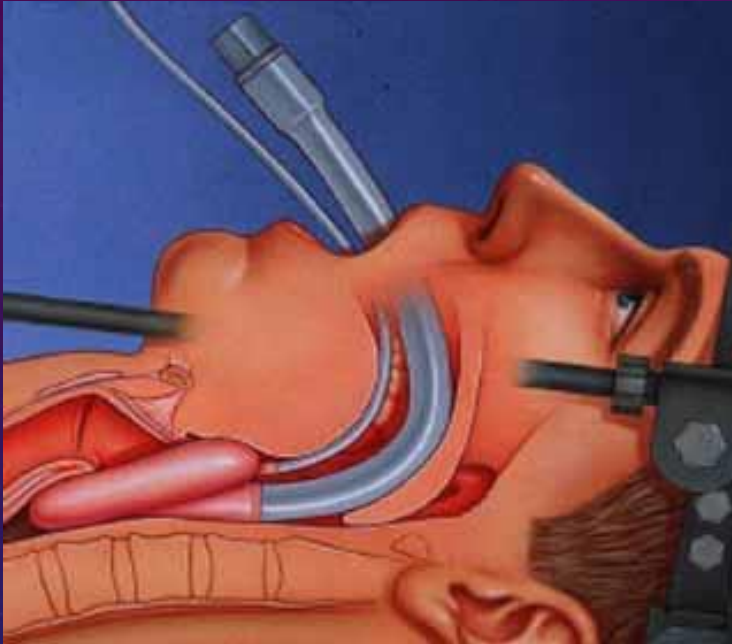




# BLADE SELECTION

<u>AGE</u>	<u>BLADE</u>
0- 1year old	1
1-10 year old	2
11-16 year old	3
>16 year old	4

# LARYNGEAL MASK AIRWAY

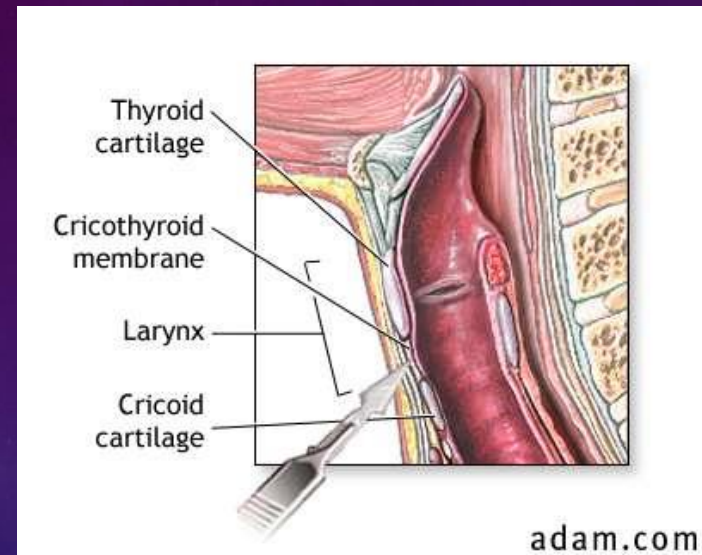






# TRACHEOTOMY

- Cricothyroidotomy is difficult b/c of small membrane and flexibility
- Early complications
  - Pneumothorax, bleeding, decannulation, obstruction, infections
- Late complications
  - Granuloma, decannulation, SGS, tracheocutaneous fistula



# INTRASSEOUS PLACEMENT

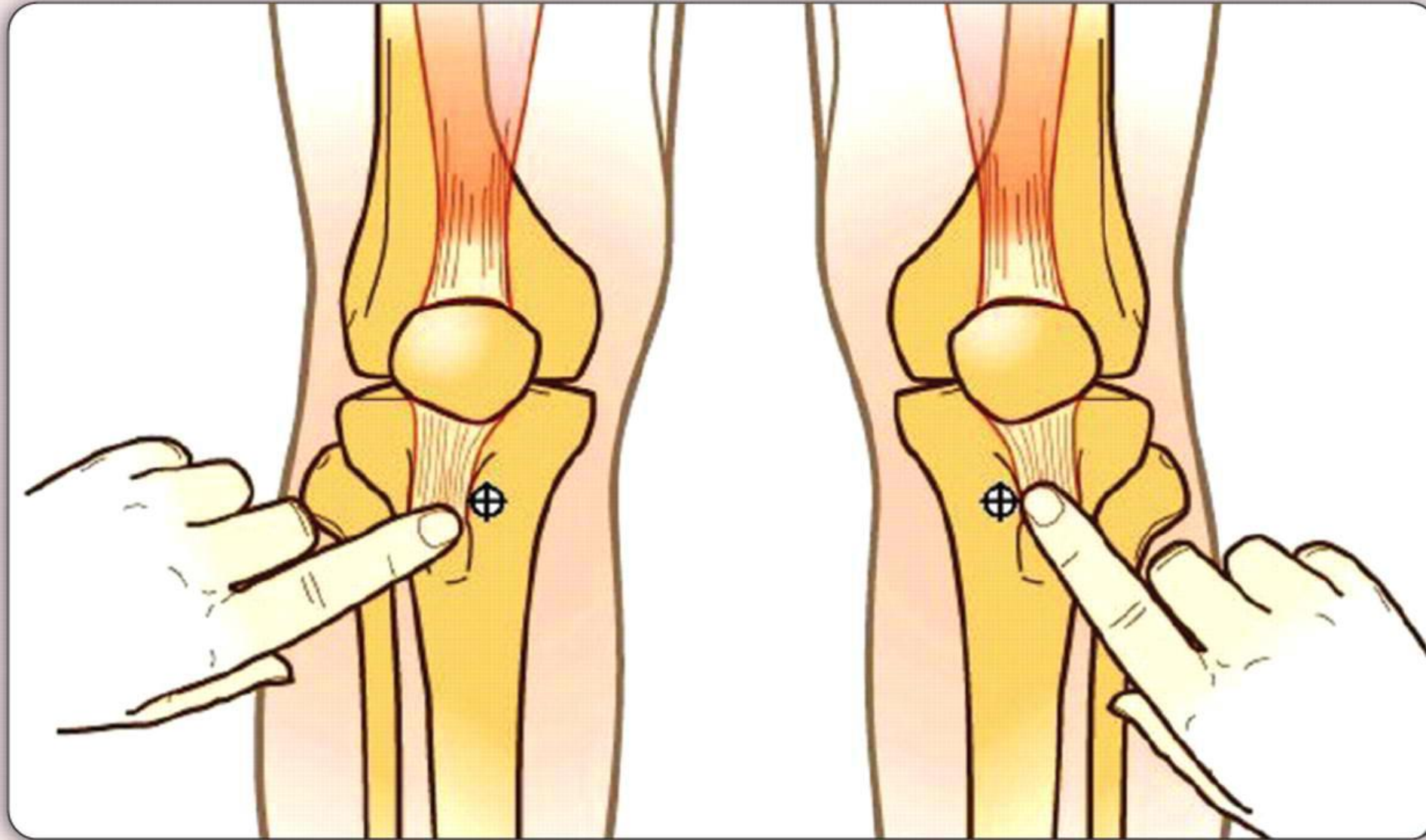
- Reasons to place?

# IO FAQs

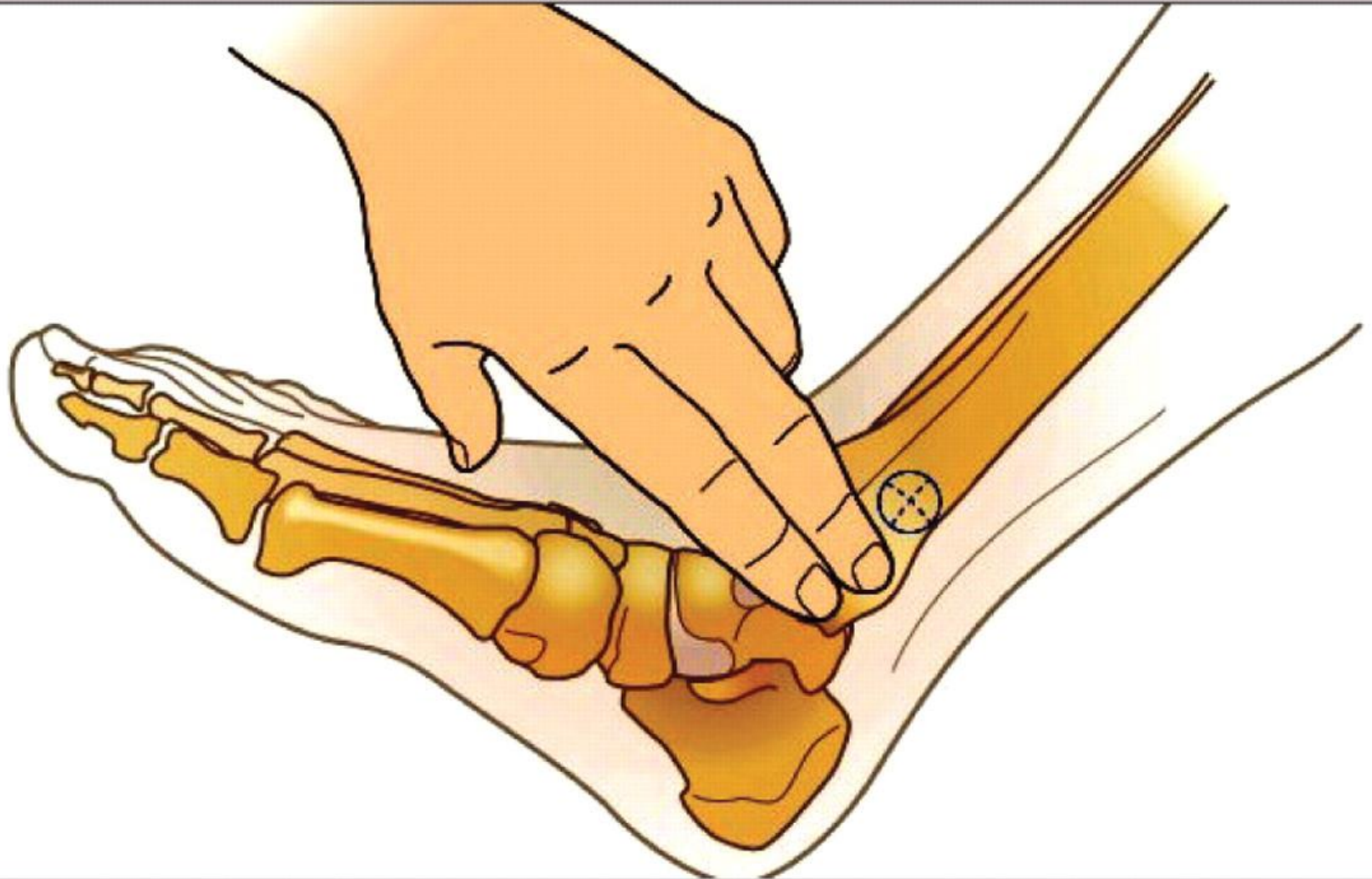
- It's position is appropriate when....
  - Stable to gentle manipulation
  - You can easily infuse through it
  - You don't see localized swelling with infusion
    - You can aspirate blood/marrow rules in; but doesn't RULE OUT
- What can you infuse through an IO?
  - ANYTHING YOU CAN PUT THROUGH AN IV
- What is the risk of complications from an IO?
  - Very, very, very low



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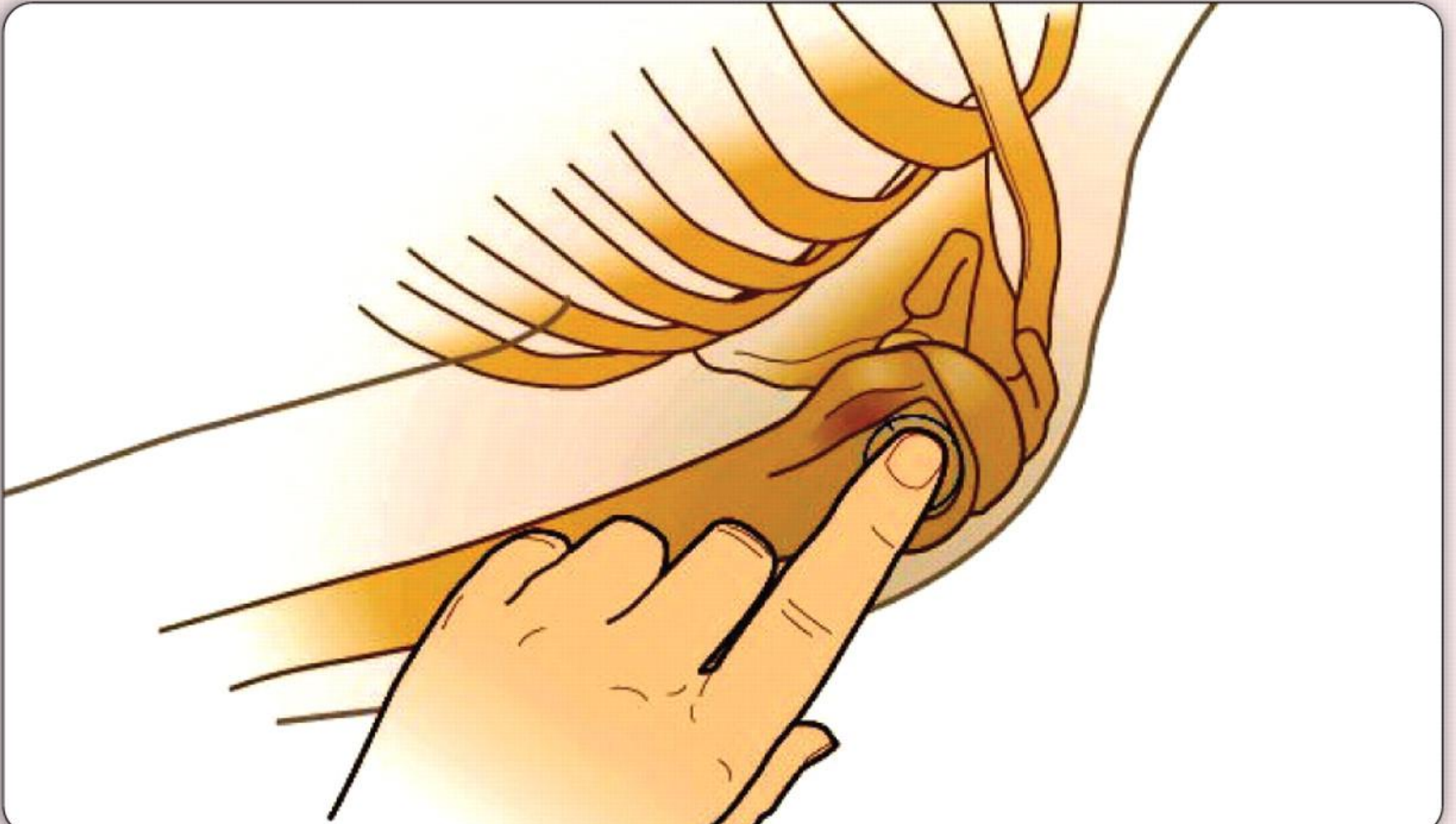


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# INSERTION SITES



# IO GUN

