Intra-operative Pulmonary Aspiration

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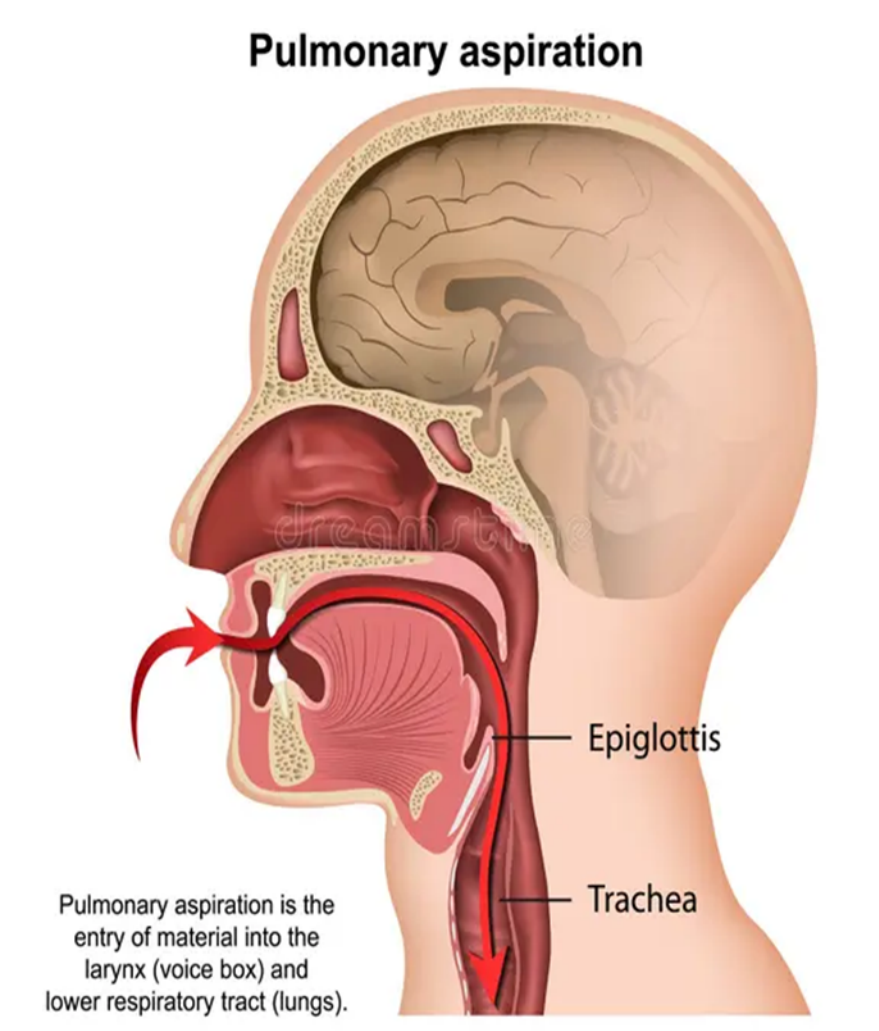
Objectives

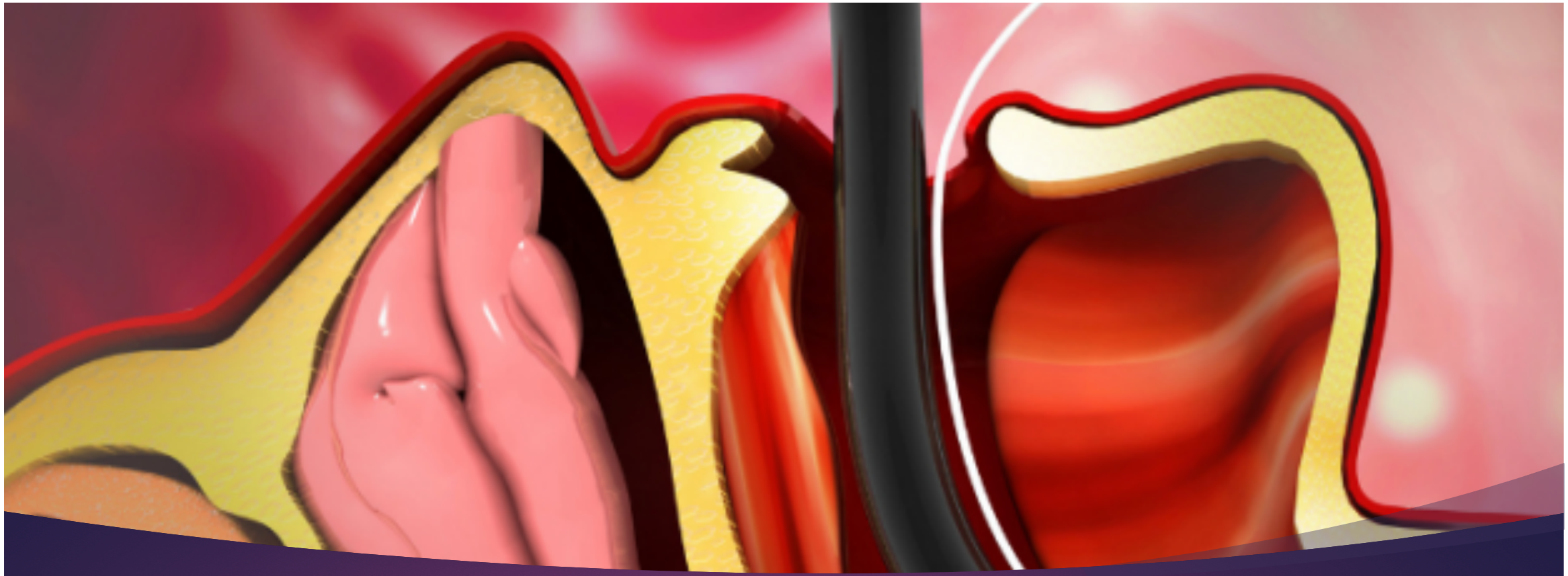
At the end of this presentation the CRNA will be able to:

- Discuss pathophysiology of aspiration
- Identify risks associated with aspiration
- Identify individuals at increased risk of aspiration
- Discuss prevention measures to reduce the risk of aspiration
- Discuss ASA recommendations to reduce risk of aspiration
- Discuss management of aspiration



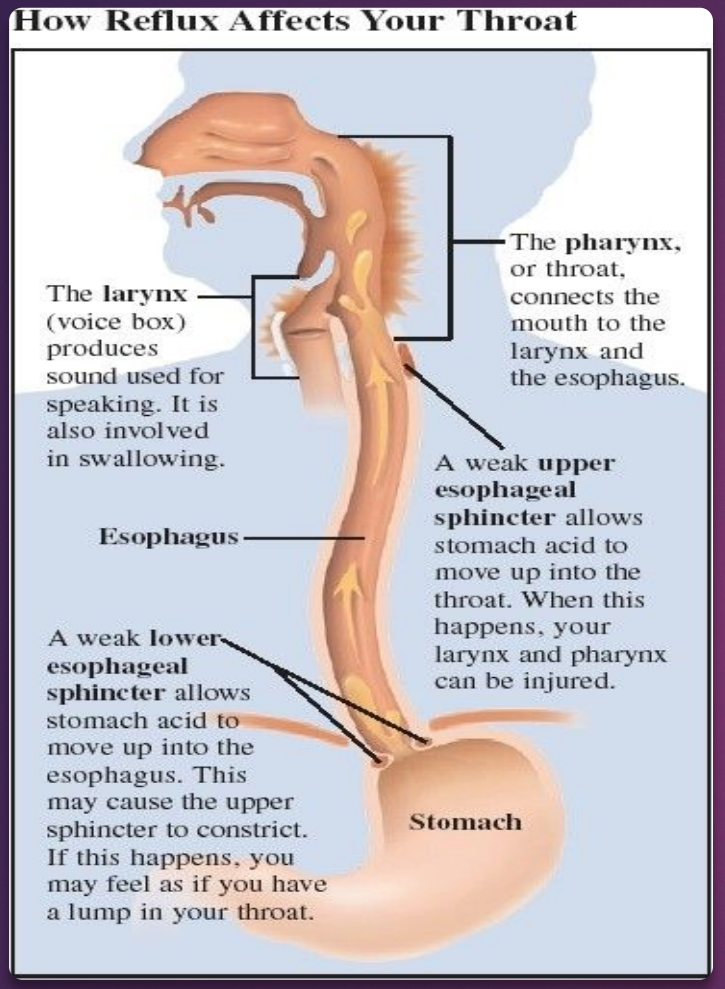
Definition

THE INHALATION OF OROPHARYNGEAL SECRETIONS OR GASTRIC CONTENTS INTO THE LARYNX AND RESPIRATORY TRACT.



Incidence

1 IN 350,000 GENERAL ANESTHETICS



GI/Airway Pathway to Aspiration

Anesthetic Plan Considerations

- Procedure/Case
- Type of Anesthetic Planned
- NPO Status
- Medical History/Neuromuscular Diseases
- Pregnancy
- Mobility
- Weight
- Medications
- Age

Anesthesia Risk Factors

Patient

Inadequate Fasting Time

Full Stomach/GLP-1 Meds

Emergency

Obstruction

History: GERD/DM/CRD/Dyspepsia, Incompetent lower esophageal sphincter, Hiatal Hernia

Opioids

Previous Surgery: GI

Pregnancy

Elderly

Neuromuscular Diseases

Surgical

Upper Gastrointestinal Surgery

Positioning: Head Down, Lithotomy

Laparoscopic

Cholesystectomy

Anesthesia

Depth of Anesthesia

Type of Supra glottic Airway

2nd generation recommended

Positive Pressure

Length of Surgery

Difficult Airway

RSI Maneuvers

Evaluation of Patient History

Prevention: Reduce Risks

Pre-operative Plan

Avoid general when feasible

Use 2nd generation Supraglottic Airways

Use Regional Anesthesia where appropriate

Premedicate if appropriate PPI/H2 Antagonists

Intubate all emergency cases

Consider intubating obese, ascites, masses, individuals

Use RSI maneuvers when appropriate

Determine if safe to move forward

Plan Extubation

Identify risk pre-operatively

If RSI consider waking patient on their side

Emerge patient on side or sitting up positions

Extubate when patient awake and reflexes return

Use Recommended Statagies

ASA NPO Guidelines

American Society of Anesthesiologists NPO Guidelines for 2025

- Clear Fluids 2 hours
- Breast Milk 4 hours
- Infant Formula 6 hours
- Non-Human Milk 6 hours
- Light Meal 6 hours
- Heavy Meal 8+ hours

Management

- Suction
- Head down 30 degrees
- Increase O2
- Intubate (if not done already)
- Suction via ETT prior to ventilating
- Bronchoscopy ASAP
- CXR ASAP

References

Hayashi R, Maeda S, Hideki T, Higuchi H, Miyawaki T. Pulmonary Aspiration During Induction of General Anesthesia. Anesth Prog. 2020 Dec 1;67(4):214-218. doi: 10.2344/anpr-67-02-03. PMID: 33393603; PMCID: PMC7780261. https://doi.org/10.2344/anpr-67-02-03

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