
  
 SOCIETY FOR AMBULATORY ANESTHESIA  
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## The 2023 ASA NPO Guidelines A Modular Update of the 2017 Guidelines



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## Objectives

1. Enumerate the 2023 updates to the ASA NPO guidelines
2. Justify the NPO guidelines recommendations
3. Discuss patient characteristics that may impact NPO duration
4. Recommend strategies to prevent pulmonary aspiration

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## Disclosures

- No relevant financial COI to disclose
- Co-Chair the ASA taskforce for the 2023 modular update to the NPO Guidelines

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### ANESTHESIOLOGY


#### Pulmonary Aspiration of Gastric Contents: A Closed Claims Analysis

Mark A. Warner, M.D., Karen L. Meyerhoff, M.D., M.P.H., Mary E. Warner, M.D., Karen L. Posner, Ph.D., Linda Stephens, Ph.D., Karen B. Domino, M.D., M.P.H.  
*Anesthesiology* 2021; 135:284-91

#### What This Article Tells Us That Is New

- In a closed claims analysis of 115 cases of pulmonary aspiration, death occurred in 57% of the claims and severe permanent injury in another 14%
- Sixty-one percent of the patients in the claims had either gastrointestinal obstruction or another intraabdominal process
- Anesthetic practice was judged to be substandard in 59% of the 115 claims

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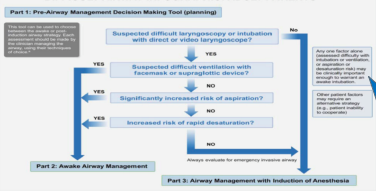
- Aspiration was the single most common primary cause of mortality (rather than cerebral hypoxia per se)
- Aspiration accounted for 8 anesthesia deaths and two cases of brain damage

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## 2022 ASA Guidelines: Part 1

#### DIFFICULT AIRWAY INFOGRAPHIC: ADULT PATIENTS

Part 1: Pre-Airway Management Decision Making Tool (planning)



Part 2: Awake Airway Management      Part 3: Airway Management with Induction of Anesthesia

Any one factor alone (assessed difficulty with intubation or ventilation, or aspiration or desaturation risk) may be clinically important enough to warrant an awake intubation.

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### 2022 American Society of Anesthesiologists Practice Guidelines for Management of the Difficult Airway\*

Jeffrey L. Apfelbaum, M.D., Carin A. Hagberg, M.D., Richard T. Coombs, Ph.D., Basem B. Abdelmalak, M.D., Madhulika Agarwal, M.P.H., Richard P. Dutton, M.D., John E. Flacke, M.D., Robert Greif, M.D., P. Allan Klock, Jr., M.D., David Mercier, M.D., Shella N. Myatra, M.D., Ellen P. O'Sullivan, M.D., William H. Rosenblatt, M.D., Massimiliano Sorbello, M.D., Avery Tung, M.D.  
*ANESTHESIOLOGY* 2022; 136:31-81



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#### PRACTICE PARAMETERS

### Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration: Application to Healthy Patients Undergoing Elective Procedures

An Updated Report by the American Society of Anesthesiologists Task Force on Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration\*

Practice Guidelines for Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration: Application to Healthy Patients Undergoing Elective Procedures: An Updated Report by the American Society of Anesthesiologists Task Force on Preoperative Fasting and the Use of Pharmacologic Agents to Reduce the Risk of Pulmonary Aspiration. *Anesthesiology*, 2017, 126(3): p. 376-393.

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## Detailed NPO Table

Ingested Material	Minimum Fasting Period <sup>2</sup>
Clear liquids <sup>1</sup>	2h
Breast milk	4h
Infant formula	6h
Non-human milk*	6h
Light meal <sup>3</sup>	6h
Regular meal	8h

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## Is There a Downside to Fasting?

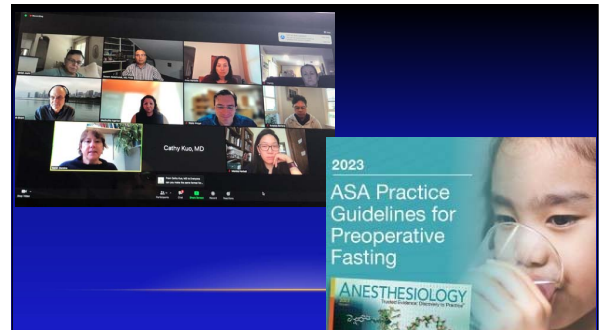
- Prolonged fasting influences patient-related outcomes:
  - Thirst
  - Hunger
  - Anxiety
  - Nausea and vomiting
  - Pain, and reduced feeling of well-being
- **Clinical outcomes:**
  - Dehydration
  - Electrolyte imbalance
  - Hypotension at induction of general anesthesia

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## NPO Foot Notes

- Healthy Individuals of all ages
- Factors that delays gastric emptying:
  - Esophageal disorders such as significant uncontrolled GERD, HH, Zenker's diverticulum, achalasia, stricture
  - Previous gastric surgery such as gastric bypass
  - Gastroparesis; diabetes mellitus;
  - Opioid use
  - Gastrointestinal obstruction or acute intra-abdominal processes;
  - Pregnancy; obesity; and emergency procedures

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**2023 American Society of Anesthesiologists Practice Guidelines for Preoperative Fasting: Carbohydrate-containing Clear Liquids with or without Protein, Chewing Gum, and Pediatric Fasting Duration—A Modular Update of the 2017 American Society of Anesthesiologists Practice Guidelines for Preoperative Fasting<sup>1</sup>**

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 ANESTHESIOLOGY 2023; 138:132–51

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## Recommendation #1

Healthy adults drink carbohydrate-containing clear liquids until 2 h before elective procedures  
 The carbohydrates may be simple or complex

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## Who Do These Recommendations Apply To?

- Patients undergoing elective
  - General anesthesia
  - Regional anesthesia
  - Procedural sedation

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## Recommendation #1 Evidence

- Participants drinking carbohydrate-containing clear liquids had lower patient-rated hunger
- differences were not detected in thirst, preoperative nausea, or patient satisfaction
- Mixed treatment comparisons did not support the superiority of complex carbohydrates over simple carbohydrates with respect to residual gastric volume or hunger

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## How Much Clear Liquid??

- A. Up to 100 mL
- B. Up to 200 mL
- C. Up to 300 mL
- D. Up to 400 mL
- E. Up to 500 mL
- F. Up to 1000 mL

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## Carbohydrates in Patients with Diabetes

- Caution with carbohydrate-containing liquids in patients with diabetes, especially patients who skip or reduce their usual hypoglycemics prior to surgery.
- Home glucometer readings may help guide the patient's choice of a carbohydrate or a non-caloric clear liquid.

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## How Much Clear Liquid?? Evidence

- Up to 400 mL of clear liquids is considered an appropriate volume.
- Trial participants ingested a median of 400 mL of carbohydrate-containing clear liquids (interquartile range: 300 to 400 mL) up to 2 hours prior to anesthesia administration.

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## Recommendation #2 (No Recommendation)

There is insufficient evidence to recommend protein-containing clear liquids preferentially over other clear liquids

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## Recommendation #2 Evidence

- All protein-containing clear liquids in the trials included carbohydrates precluding assessment of liquids containing only protein.
- There was inconclusive evidence concerning residual gastric volume in nonsurgical studies that included comparisons of protein-containing clear liquids compared with carbohydrate-containing clear liquids alone

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## Recommendation #3 Evidence

- Patients chewing gum had a minimally increased residual gastric volume at anesthesia induction compared with fasting
- There was no difference in gastric pH between the groups

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## Recommendation #3 (Suggestion)

Not delaying elective procedures in healthy adults who are chewing gum

Chewing gum should be removed before any sedative/anesthetic is administered

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## Recommendation #4 (No Recommendation)

There is insufficient evidence concerning benefits and harms to recommend pediatric patients drink clear liquids until 1 h versus 2 h before Procedures

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## Recommendation #4 Evidence

- There was no difference in patient-reported hunger or thirst, incidence of aspiration or regurgitation, and gastric pH among pediatric patients fasting for 1 hour compared with 2 hours
- Inconsistent results were reported for residual gastric volume

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## Recommendation #5 (Best Practice Statement)

To avoid prolonged fasting in children, efforts should be made to allow clear liquids as close to 2 hours prior to procedures as possible.  
In children with shorter clear liquid fasting duration, exercise clinical judgment.

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### Ultrasound Assessment of Gastric Fluid Volume in Children Scheduled for Elective Surgery After Clear Fluid Fasting for 1 Versus 2 Hours: A Randomized Controlled Trial

Khaled Abdelfattah Sarhan, MD, DESA, Hossam Hasaneen, Msc, Ahmed Hasanin, MD, DESA,

**CONCLUSIONS:** In healthy children scheduled for elective surgery receiving 3 mL kg<sup>-1</sup> clear fluid, the median GFV after 1-hour fasting was double the volume after conventional 2-hour fasting. These findings should be considered whether weighting the risk/benefit of a liberal approach to preoperative fasting versus the risk of pulmonary aspiration. (Anesth Analg 2023;136:711-8)

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## Recommendation #5 Evidence

- Fasting duration is often substantially longer than recommended irrespective of a 1- or 2-hour clear liquid fasting policy

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## Enteral Tube Feeding and NPO

- Exercise clinical judgment in minimizing feeding interruptions in critically ill patients
- Caveat:
  - Airway is protected with an endotracheal or tracheostomy tube with properly inflated cuff
  - Procedures that does not include reintubation or airway manipulations

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## Summary

- Every effort should be made to minimize the risk of Aspiration
- Please Consider the 2017 ASA NPO Guidelines recommendations
- The 2023 Update
- Recommend Carbs containing clear liquids
- Does not recommend protein containing clear liquids
- Remove the chewing gum, and proceed
- Does not recommend 1 hour fasting for children
- Decrease the prolongation of fasting period for children keeping it close to 2 hours as possible.

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## Education and Implementation

- Robust local efforts at each facility disseminating and discussing information
- Provide necessary education to all patient care teams
- Update related policies, printed literature, and wall posters/charts

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Every life deserves world class care.

Thank you!  
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