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# Anesthesiologists' Approach to Preoperative Fasting Durations: A Survey

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## Abstract:

**Objective**: Anesthesia remains a critical component of modern surgery, yet complications such as pulmonary aspiration of gastric contents can occur. Guidelines have specified that preoperative fasting periods minimize the risk of aspiration; however, prolonged fasting and dehydration increase the risk of hypoglycemia and dehydration, especially in those with metabolic comorbidities. The purpose of this study was to evaluate the current practices and attitudes toward preoperative fasting intervals among anesthesiologists in Turkey through a survey study.

**Material and Methods**: An electronic internet survey was administered to anesthetists in Turkey during 2023. Participants were asked about their fasting guidelines, recommendations on consuming clear fluids and solid foods, and the reasons and consequences if these guidelines were not followed.

**Results**: Among 484 anesthesiologists who participated, 55% were female and 45% were male, with an average age of 40.04 (±10.53) years. Participants reported adhering to fasting guidelines in approximately 77.69% of cases, although only 68.60% actively followed the updated recommendations. Of the participants, 47.93% were aware of oral carbohydrate solutions, yet only 3.72% reported their use. Additionally, only 4.13% of participants reported using preoperative gastric ultrasound.

**Conclusion**: While the traditional 8-hour fasting duration remains a widely practiced norm, modern research and guidelines support shorter fasting intervals as safe and effective. Anesthesiologists should tailor preoperative fasting protocols based on patient characteristics, type of surgery, and the patient's risk factors. Adherence to updated protocols is essential for optimizing patient comfort and safety.

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## Introduction

Pulmonary aspiration of gastric contents is a potentially life-threatening complication of anesthesia, associated with serious morbidity including pneumonia, chemical pneumonitis, and airway obstruction[1]. Although rare in healthy individuals estimated at 1.1 per 10,000 in adults and 1.3 per 10,000 in children it carries a significant risk of mortality and long-term damage when it occurs. Prior research indicates that 57% of aspiration events result in death, whereas 15% lead to permanent disability.[2]

To mitigate this risk, the practice of preoperative fasting was introduced by Mendelson in 1946, aiming to reduce gastric volume and acidity before anesthesia induction[3]. For decades, the "nil per os after midnight" policy had been considered standard, despite limited empirical evidence supporting its necessity in all patient populations.[4] However, advances in perioperative care and growing understanding of gastric emptying physiology have led major anesthesia societies to revise fasting guidelines.

Contemporary recommendations from the American Society of Anesthesiologists in 2023 and the European Society of Anaesthesiology in 2011 endorse a more evidence-based and patient-centered approach: clear fluids should be consumed up to two hours before anesthesia induction, while solid foods should be restricted for at least six hours[1,5]. Numerous studies indicate that patients often experience unnecessarily prolonged fasting typically between 9–12 hours which may cause discomfort, dehydration, insulin resistance, or hypoglycemia, especially in vulnerable populations with metabolic comorbidities.[5]

Moreover, applying fasting durations indiscriminately for solids and liquids overlooks their differing gastric emptying profiles. Clear fluids typically drain rapidly, while solid meals take longer. Recognizing this, updated protocols now emphasize individualized fasting strategies based on patient-specific factors, including age, comorbidities, and surgical risk[5].

In addition to the revised fasting intervals, modern enhanced recovery after surgery (ERAS) programs promote the use of preoperative oral carbohydrate-rich clear fluids. Such interventions can help reduce perioperative insulin resistance and improve patient outcomes. However, these newer practices are not widely implemented across institutions and among clinicians, particularly in nonacademic settings[6].

Importantly, several international surveys have evaluated anesthesiologists' knowledge and attitudes toward preoperative fasting guidelines; however, these studies have primarily focused on guideline awareness rather than real-world implementation, and have shown considerable variability across regions and healthcare systems. Moreover, data from low- and middle-income countries remain limited, and national-level evidence reflecting institutional barriers, daily clinical decision-making, and adherence to newer strategies—such as differentiated fasting for solids versus liquids and the use of preoperative carbohydrate loading is scarce[5,6,7].

Given these challenges, evaluating current clinical practice is essential. Therefore, the primary objective of this study was to assess the current fasting management strategies among anesthesiologists in Turkey, compare these practices with international recommendations, and identify the factors contributing to the discrepancies between guidelines and clinical practice.

## Material and Methods

A web-based survey was conducted among members of the Turkish Society of Anesthesiology and

Reanimation. The questionnaire, consisting of 31 closed-ended questions, was developed based on the existing literature and included dichotomous (yes/no), multiple-choice, and multiple-response items. The study was administered to anesthesiology assistants and specialists across various clinics nationwide in Turkey. Neither patients nor the public were involved in this research. Ethical approval for this study was obtained from the Ethics Committee of Istanbul Medipol University (16/02/2023-10840098-604.01.01-1371).

The questionnaire was reviewed by a panel of experienced anesthesiologists to ensure content validity and clarity prior to dissemination. A pilot test was conducted with a small group of anesthesiologists, and minor revisions were made based on their feedback to improve comprehensibility and relevance. To minimize response bias, participation was voluntary and anonymous, no incentives were offered, and unique survey links were used to prevent duplicate responses.

The study was administered between March 2023 and April 2023, with invitations sent to registered members via email. Each instance of the survey had a unique link to prevent duplicate responses, ensuring each hospital only received one valid link during the study period. All survey questions were required for submission, and a reminder was sent after 2 weeks if the survey was incomplete. Respondents were asked to fill out the survey for each hospital location within their organization's inpatient care facilities. Responses were considered as consent for participation and were handled anonymously. All responses and feedback were statistically analyzed and recorded.

The questionnaire consisted of 31 structured questions organized into three sections: demographics and professional background, preoperative fasting practices, and perceived barriers and supporting practices (institutional barriers, patient compliance, scheduling problems, use of oral carbohydrate drinks, use of gastric ultrasound).

### Statistical analysis

Data from this survey were analyzed using Statistical Package for the Social Sciences. (SPSS) 24.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize the data. To assess whether the data followed a normal distribution, the Kolmogorov–Smirnov test was applied. Significant differences between measurements were analyzed using the Wilcoxon test, with results considered statistically significant at a 95% confidence interval (p-value<0.05 ).

## Results

The survey was distributed via the Turkish Society of Anaesthesiology and Reanimation and was emailed to a total of 9,448 registered members. A total of 484 anesthesiologists participated in the survey. Among participants, 55% were female and 45% were male. The average age was 40.04 (±10.53) years. A total of 61.16% worked in university hospitals, while 17.36% held associate professor or professor titles, and 45.87% had more than 11 years of professional experience (Table 1).

**Table 1** Demographic characteristics and academic attributes of the participants

| w Variable | n (%) or Mean±S.D. |
|---|---|
| Total participants | 484 |
| Age (years) | 40.04±10.53 |
| Sex | |
| Female | 266 (55%) |
| Male | 218 (45%) |
| Institution type | |
| University hospital | 296 (61.16%) |
| Academic title | |
| Associate professor/professor | 84 (17.36%) |
| Specialist/other | 400 (82.64%) |
| Professional experience | |
| >11 years | 222 (45.87%) |
| ≤11 years | 262 (54.13%) |

S.D.=standard deviation

### Preoperative fasting practices

#### Adult patients

- For adults, 51.24% of participants reported recommending "nil per os after midnight" (including water), whereas 48.35% did not.
- Regarding solid foods, 54.55% recommended a 6-hour fasting period and 42.98% recommended an 8-hour period.
- For clear liquids, 69.83% of respondents recommended a 2-hour fasting duration (Table 2).

#### Pediatric patients

In pediatric practice, most participants recommended guideline-consistent fasting intervals:

- 84.30% for clear liquids (2 hours),
- 71.90% for solid foods (6 hours), and
- 79.34% for breast milk (4 hours) (Table 2).

Compliance with Guidelines: Overall Adherence: 77.69% of participants reported adherence to preoperative fasting recommendations. However, only 68.60% actively followed updated recommendations in the latest guidelines.

Adherence by Profession: Academics (associate professors/professors) demonstrated higher adherence to guidelines compared to others (92.86% vs. 63.50%). They were also less likely to recommend fasting after midnight (28.57% vs. 56%) (p-value<0.0001).

University hospital staff followed guidelines more closely than private hospital staff (73.65%; p-value<0.01).

Private hospital anesthesiologists were more likely to recommend shorter fasting durations for clear liquids (43.24%).

Adherence by experience level: Participants with more than 11 years of experience recommended shorter fasting durations for clear liquids and were more likely to follow guidelines (74.77%; p-value<0.0001).

Oral Carbohydrate Solutions: 47.93% of participants were aware of the use of oral carbohydrate solutions in preoperative care. Despite this awareness, only 3.72% reported incorporating them into practice.

Use of Gastric ultrasound: Only 4.13% of participants reported using preoperative gastric ultrasound as part of their assessment protocol.

## Discussion

This national survey highlights strengths and limitations in the implementation of preoperative fasting protocols among anesthesiologists in Turkey. While a majority report adherence to guidelines, substantial variability remains regarding how recommendations are interpreted and applied, particularly concerning clear fluid intake. Similar gaps between guideline awareness and actual clinical practice have been reported in international

**Table 2** Recommended preoperative fasting durations according to survey results

| Patient Group | Intake Type | Recommended fasting duration | Percentage (%) |
|---|---|---|---|
| **Adults** | Nil per os after midnight (incl. water) | Yes | 51.24 |
| | | No | 48.35 |
| | Solid foods | 6 hours | 54.55 |
| | | 8 hours | 42.98 |
| | Clear liquids | 2 hours | 69.83 |
| **Pediatric** | Clear liquids | 2 hours | 84.30 |
| | Solid foods | 6 hours | 71.90 |
| | Breast milk | 4 hours | 79.34 |

surveys from Europe and North America, indicating that this issue reflects a global implementation challenge rather than a country-specific problem[8].

The continued recommendation of the "nil per os after midnight" practice by 51.24% of participants persists despite strong evidence that this approach may be obsolete or counterproductive[9,10]. Current guidelines—including those from the American Society of Anesthesiologists and the European Society of Anaesthesiology —advocate for clear liquid consumption up to two hours before anesthesia[1,5]. However, inertia in clinical culture, institutional policy, and perceived medicolegal risks may underlie the reluctance to update practices[4]. These factors have also been identified as key barriers in international studies, supporting the consistency of our findings with the broader literature.

Barriers to adherence, including concerns about patient compliance (36.36%) and surgical scheduling unpredictability (12.81%), reflect system-level issues. Research has shown that structured fasting protocols combined with patient education materials can significantly enhance compliance and reduce fasting times without compromising safety[11]. Hospitals should be encouraged to adopt standardized institutional guidelines to support the role of preoperative coordinators in managing logistics.

The study found that academic practitioners and those working in university hospitals were significantly more compliant with the current preoperative fasting recommendations. This observation aligns with the existing literature, which suggests that exposure to continuing education and academic involvement enhances the uptake of evidence-based practice[12]. Similarly, clinicians with more than 11 years of experience were more likely to implement the updated guidelines. These findings challenge the common belief that seasoned practitioners are more resistant to change. Instead, they highlight the value of clinical confidence and refined judgment developed over time in prompting adherence to best practices.

In pediatric anesthesia, adherence to the 2–4–6 fasting rule (2 hours for clear fluids, 4 hours for breast milk, and 6 hours for solids) was notably high among participants. This encouraging trend reflects global efforts to reduce unnecessary fasting in children. Similar adherence patterns have been reported in multinational pediatric anesthesia studies, and it also aligns with studies showing that shorter preoperative fasting intervals can significantly improve children's comfort and psychological well-being[12,13].

Adoption of oral carbohydrate solutions—although well-supported by ERAS protocols was reported by only 3.72% of participants. Previous studies have demonstrated that these solutions reduce insulin resistance, enhance gastric emptying, and improve postoperative outcomes.[14–18] International surveys indicate that the uptake of carbohydrate loading remains limited outside academic and high-resource centers, suggesting that restricted access and lack of institutional endorsement may explain the low utilization observed in this study[7]. Limited awareness or access to these products may be key limiting factors, indicating a need for broader institutional endorsement and training.

Only 4.13% of respondents reported the use of gastric ultrasound, a noninvasive and increasingly validated technique for assessing gastric volume and aspiration risk[18–20]. While its use is more common in high-risk populations and emergency settings, its limited adoption in routine preoperative evaluation suggests a lack of training and infrastructure. Integrating focused ultrasound education into the anesthesiology residency curricula could promote its utility in developing individualized fasting strategies.

### Limitations

This study is limited by its reliance on self-reported data, which may be subject to recall and social desirability bias. In addition, the sample size of 484 respondents, although drawn from across Turkey, represents a small proportion of the national anesthesiology workforce and may

not fully reflect regional or institutional variability, thereby limiting generalizability. The absence of objective data, such as institutional fasting protocols or patient outcomes, should be addressed in future studies.

## Conclusion

Bridging the gap between guidelines and clinical practice requires more than education alone. Key strategies include institutional leadership, protocol standardization, integration of ERAS principles, and investment in technologies, such as gastric ultrasound. Future research should explore institutional barriers, patient outcomes associated with fasting durations, and the real-world implementation of updated protocols. Multicenter prospective studies may offer stronger causal insights and support the development of evidence-based policies.

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## Conflict of interest

The authors declare that there is no conflict of interest to disclose.

### Ethical standard

No human or animal experimentation was conducted during the course of this research.

### Declaration of generative AI and AI-assisted technologies in the writing process.

There was no usage of generative AI or AI-assisted technologies in the writing.

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