

# Preoperative Fasting Guidelines and their Importance for Children's Health

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## ABSTRACT

Children, similar to adults, are required to fast before general anesthesia in order to reduce the volume and acidity of stomach contents. It is thought that NPO regulations reduce the risk of regurgitation and aspiration of gastric contents during surgery. Recent developments have encouraged a shift from the standard 'nil by mouth from midnight' fasting policy to more relaxed regimens. Preoperative NPO status for each patient must be regulated according to his/her age and timing of the surgery, the night before the operation (2 hours for clear fluids and 4-6 hours for solid foods and milk before the surgery, considering his/her age).

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## Introduction

Fasting preoperatively, is food and fluid restriction (NPO) prior to general anesthesia, that is vital for patient safety. Induction of general anesthesia or sedation \ results in a depression of the air way and swallow reflexes that normally protect the airway; consequently, anesthesia places patients at risk of pulmonary aspiration, pneumonia and even death in case regurgitation of gastric contents or vomiting occurs (1). For many years, patients were prohibited from consuming foods and drinks 8-12 hours prior to anesthesia induction or sedation (1). In order to reduce the risks associated with aspiration of gastric contents during general anesthesia, each child should be NPO prior to being transferred to the operating room (2).

## Literature review

According to articles prolonged preoperative fasting can be an unpleasant experience for children and result in serious medical complications (3). Meta-analysis of randomized clinical trials has shown that intake of clear fluids 2 hours before the induction of

anesthesia or sedation poses no risks for the patient, improves the patient's well-being, and reduces post-operative nausea and vomiting(4). Apparently, the amount of fluids does not influence patients' residual gastric volume or pH; therefore, patients can have unlimited amounts of water and other clear fluids up to 2 hours before anesthesia induction or sedation (4).

In terms of intraoperative gastric volume and pH, there is no evidence that children who are denied oral fluids for more than 6 hours before the operation benefit any differently from those permitted unlimited fluids up to 2 hours prior to surgery (5). Children taking oral fluids have a more comfortable preoperative experience in terms of thirst and hunger. This evidence applies only to children who are considered to be at normal risk of aspiration/regurgitation during anesthesia (5).

Children, similar to adults, are required to fast before general anesthesia in order to reduce the volume and acidity of stomach contents. It is thought that NPO regulations reduce the risk of regurgitation and aspiration of gastric contents during surgery. Recent developments have encouraged a shift from the standard 'nil by

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mouth from midnight' fasting policy to more relaxed regimens (5).

Application of this guideline has been slow due to doubts about the duration of total fasting and type/amount of permitted intake (5). However, studies have shown that postoperative nausea is associated with prolonged fasting (6). Some other studies have suggested that short periods of fasting are safe for children and even allow children to consume clear fluids and solid foods 2, 4 and 6 hours prior to operation, respectively (7, 8).

Despite the changes in fasting guidelines, most children, who are candidates for surgery, have yet to withstand long periods of fasting. If we could simply take some non-pharmacological steps to keep children alert after the surgery (e.g., by following fasting guidelines without prolonged fasting), we could decrease postoperative complications (9).

As one survey claimed, preoperative hydration of patients is significantly effective in patient's recovery since it reduces complications (e.g., nausea and vomiting) and results in earlier hospital discharge (10). This study also showed that administration of a carbohydrate-containing serum prior to the operation is significantly effective in patient's recovery after the operation (10). In another study, Seyedhejazi and colleagues (11) reported that infiltration of bupivacaine and clonidine in children, undergoing tonsillectomy, is more effective than single intravenous injection of fentanyl in terms of reducing intraoperative and postoperative pain; this approach is also safer regarding the intraoperative complications.

Another study stated that shorter preoperative fasting duration, along with suitable, controlled feeding in patients has a significant effect on reducing postoperative pain; this intervention could increase patients' resistance (particularly children) to postoperative nausea and vomiting (12). A meta-analysis of randomized controlled trials demonstrated that intake of clear fluids 2 hours before the induction of anesthesia or sedation poses no risks for the patient (13), improves patient's well-being and reduces postoperative nausea and vomiting (14).

The amount of fluids does not appear to have an impact on patients' residual gastric volume or pH (15); therefore, children may have

unlimited intake of water and other clear fluids up to 2 hours before anesthesia induction or sedation (4).

The majority of patients, especially children, fast for longer periods, compared to the fasting duration recommended by the guidelines of Association of Anesthetists of Great Britain and Ireland (AAGBI), American Society of Anesthesiologists (ASA), Royal College of Anesthetists (RCOA) and Royal College of Nursing (RCN).

## Conclusion

In fact, anesthesiologists, surgeons or operating room nurses are not inclined to revise their schedules or order a light meal/fluid, whenever the surgery is delayed. Anesthesiologists, surgeons and nurses need to revise and discuss the scheduled lists every day in the operating room and resuscitate the patients, accordingly. In addition, their awareness should be raised regarding the current problems and adverse effects of prolonged fasting (16).

In our center, Tabriz Children Hospital, anesthesia residents ensure an appropriate preoperative NPO status for each patient according to his/her age and timing of the surgery, the night before the operation (2 hours for clear fluids and 4-6 hours for solid foods and milk before the surgery, considering his/her age).

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