

FASTING GUIDELINE FOR CHILDREN HAVING GENERAL ANAESTHESIA - CHW

PRACTICE GUIDELINE[®]

DOCUMENT SUMMARY/KEY POINTS

- The aim of this practice guideline is to minimise prolonged fasting in children presenting for elective and minor emergency surgery/anaesthesia.
- Preoperative fasting is an important measure for reducing the risk of pulmonary aspiration under anaesthesia.
- There is evidence that liberalising clear fluid fasting times in suitable patients does not increase the risk of pulmonary aspiration under anaesthesia and can help to reduce the adverse effects of prolonged fasting, such as hypoglycaemia, ketosis and dehydration.
- Patients who meet the inclusion/exclusion criteria outlined in this guideline are suitable for 1 hour clear fluid fasting.
- Patients who are suitable for 1 hour clear fluid fasting will be commenced on a 'clear fluid protocol' and allowed to drink up to 3 ml/kg of clear fluids on an hourly basis.
- Definitions for clear fluids, other fluids and solids as well as appropriate fasting times are outlined in this guideline.
- Patients with type 1 diabetes mellitus and metabolic disorders have special fasting requirements and the relevant specialist care team (Diabetes and Metabolic teams) should be consulted prior to fasting for surgery/anaesthesia.
- Fasting times in this guideline may be adjusted by the anaesthetist to account for individual circumstances, pre-existing medical conditions or any therapies that adversely affect gastric emptying times

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure & Guideline Committee	
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Team Leader:	Anaesthetic Registrar	Area/Dept: Surgical and Anaesthetics

CHANGE SUMMARY

READ ACKNOWLEDGEMENT

- Medical, surgical and nursing staff caring for children who are planned for surgery or a procedure under general anaesthesia should read and acknowledge that they understand the contents of this document.

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1 Background

- Preoperative fasting is an important measure intended to minimise the risk of regurgitation and pulmonary aspiration under anaesthesia.
- Although aspiration under anaesthesia can result in significant morbidity and mortality, it is a rare event in children (incidence of approx. 2 to 4 in 10,000)
- Risk factors for aspiration primarily include; full stomach/inadequate fasting, gastrointestinal pathology (e.g. bowel obstruction), pathology or drugs causing delayed gastric emptying and inappropriate anaesthetic management (e.g. inadequate depth of anaesthesia, inappropriate airway management) [1-5].
- Current understanding of gastric emptying of clear fluid suggests rapid exponential elimination (first order kinetics). For example, a 1 hour fast after ingestion of 3ml/kg of clear fluid will yield a residual gastric volume similar to an overnight fast [6].
- There is evidence that liberalising clear fluid fasting does not increase the risk of pulmonary aspiration under anaesthesia [7, 8].
- A 2017 audit of actual fasting times resulting from the previous fasting guidelines of 2 hours for clear fluid and 6 hours for solids/formula at The Children's Hospital at Westmead revealed [9]:
 - Mean solid fasting time was approximately 12 hours (longest time almost 24 hours).
 - Mean clear fluid fasting time was approx. 6 hours (longest time almost 20 hours).
 - Prolonged fasting is associated with hypoglycaemia, ketosis, dehydration, thirst/hunger and irritability, particularly in younger children [10].
 - The aim of this fasting guideline is to minimise prolonged fasting in children presenting for elective and minor emergency surgery/anaesthesia by implementing a fasting protocol that is consistent with current recommendations for good clinical practice [11, 12].

2 Inclusion/exclusion criteria for 1 hour clear fluid fasting

2.1 Inclusion criteria

Children fasting for general anaesthesia are suitable for 1 hour clear fluid fasting if they are presenting for:

- **Elective** surgery/anaesthesia,

OR

- **Minor non-urgent emergency** surgery/anaesthesia (for example minor lacerations repair, lumbar punctures, medical imaging),

AND

- **DO NOT** meet the **exclusion criteria** outlined below.

2.2 Exclusion criteria

The following groups of children are **NOT** suitable for 1 hour clear fluid fasting:

- Children presenting with an acute or chronic condition that results in:
 - **Delayed gastric emptying**, or
 - **Impaired swallowing**, or
 - **Nausea and vomiting**,

OR

- Children undergoing **airway surgery** (e.g. LBO, laryngotracheal reconstruction),

OR

- Children requiring **oral contrast** for medical imaging (see "Oral medications"),

OR

- Children deemed unsuitable by the anaesthetist.

2.3 Delayed gastric emptying and impaired swallowing

Delayed gastric emptying can result from conditions such as:

- Recent major injury or trauma (e.g. supracondylar fractures),
- Gastrointestinal pathology (e.g. appendicitis, bowel obstruction),
- Moderate-to-severe pain requiring opioids,
- Drugs such as opioids,
- Gastroparesis,
- Renal failure,
- Critical illness (e.g. sepsis).

Impaired swallowing can result from conditions such as:

- Major central neurological disorders
- Identified syndromes
- Severe cerebral palsy
- Oesophageal dysfunction (e.g. stricture, achalasia)

The decision regarding fasting times for children with delayed gastric emptying or impaired swallowing will be made by either the **anaesthetist for the case** or the **duty anaesthetist**. If a staff member is in any doubt as to whether a patient meets the inclusion criteria, please contact the anaesthetist for the case or the duty anaesthetist.

3 Definitions for fasting

Definitions for fasting	
Fasting time	Time of last oral intake
Solid foods	Includes: <ul style="list-style-type: none"> • All solid foods • Lollies • Chewing gum • Jelly • Pulp-containing juices
Other fluids	Any carbonated drinks or fluids with protein and/or fat content, such as: <ul style="list-style-type: none"> • Broth • Coconut water • Soft drinks e.g. lemonade, coca cola
Clear fluids	Includes: <ul style="list-style-type: none"> • Water • Clear apple juice (without pulp) • Cordial diluted with water • 5% and 10% dextrose/glucose • Carbplus and other similar clear carbohydrate drinks • Icy pole iceblocks

4 Fasting times for general anaesthesia

4.1 Fasting for children who meet the inclusion criteria

Fasting times for children <u>> 6 MONTHS OLD</u>	
6 hours	Solid foods Other fluids Gastric tube feeds Infant formula Non-human milk (e.g. cow, soy, almond)
4 hours	Breast milk (including via gastric tube)
2 hours	Transpyloric feeds(TPT position must be confirmed by x-ray within last 24 hrs)
1 hour	Clear fluids

Fasting times for children <u>≤ 6 MONTHS OLD</u>	
6 hours	Solid foods Other fluids Gastric tube feeds
4 hours	Infant formula (including via gastric tube)
3 hours	Breast milk (including via gastric tube)
1 hour	Clear fluids (5% dextrose recommended for neonates)

4.2 Fasting for children who **DO NOT** meet the inclusion criteria

- Children who **do not** meet the inclusion criteria are permitted to have **clear fluids up to 2 hours before anaesthesia**, unless otherwise directed by an Anaesthetist.
- Fasting times for solids, other fluids, gastric/transpyloric feeds, formula and all types of milk remain unchanged, unless otherwise directed by an Anaesthetist.

5 Documentation of fasting status and instructions

- **Fasting instructions** – the anaesthetist for the case or duty anaesthetist is responsible for providing fasting instructions to nursing staff. Fasting instructions should be documented in the electronic medical record (eMR).
- **Fasting status** – nursing staff should ensure that the current fasting status of children awaiting anaesthesia/surgery is kept up to date in the electronic medical record (eMR).

6 Clear fluid protocol

- The 'clear fluid protocol' will be initiated in all children who meet the inclusion criteria except if their procedure is due to commence in less than 1 hour, or unless otherwise directed by an Anaesthetist.
- Children can be offered clear fluids every hour on the half hour (i.e. 0830, 0930, etc.).
- Each hour children may drink up to 3 ml/kg of clear fluids to a maximum of 150 ml, or unless otherwise directed by an Anaesthetist.
- The anaesthetist for the case or the duty anaesthetist will be responsible for instructing nursing staff on when to cease the 'clear fluid protocol'.

7 Medications during fasting for general anaesthesia

Many patients are on regular medications that are important to continue during the preoperative fasting period, for example anti-epileptic drugs. Generally routine medications can be taken during the fasting period with a small sip of water.

Medication type	Recommendations
Routine medications	Generally continued during the fasting period Medications can be taken with a small sip of water
Medications required to be taken with food	Individualised decision to be made by the caring team and/or Anaesthetics
Medications that may impact on the surgery or anaesthetic	E.g. anti-hypertensives and anti-coagulants Consult Anaesthetics and the surgical team
Oral contrast for CT imaging	2 hours fasting for ALL clear fluids*

*NB: Please refer to the policy document *Medical Imaging Procedures - CHW*. Due to the significant volume of oral contrast required (e.g. up to 100mls for children ≤1 year old), any child having oral contrast must be fasted at least 2 hours for all clear fluids.

8 Special patient groups

8.1 Type 1 diabetes mellitus

- Please refer to CHW policy document “Fasting and Surgery – Type 1 Diabetes Mellitus” for all type 1 diabetic patients
- Type 1 diabetic patients should be scheduled as the first case on either morning or afternoon lists.
- The Diabetes team should be contacted preoperatively to assist with perioperative insulin management for all type 1 diabetic patients.
- Type 1 diabetic patients need to be continued on insulin perioperatively to avoid developing diabetic ketoacidosis.
- For long procedures (>2 hrs), major surgery or anticipated prolonged fasting, type 1 diabetic patients should be on an intravenous insulin/dextrose infusion with hourly blood glucose monitoring.
- Blood glucose monitoring via fingerprick/glucometer testing should be performed hourly from the time of the **first missed meal**.
- Continuous glucose monitoring (CGM) devices **should not** be used for blood glucose monitoring perioperatively and should be removed preoperatively.
- Aim to maintain blood glucose levels between 5 – 10 mmol/L.
- Hypoglycaemia should be promptly treated with oral carbohydrate containing clear fluids or intravenous dextrose.

8.2 Metabolic disorders

- For all patients with a metabolic disorder, the Metabolic team **MUST** be contacted prior to fasting for any elective or emergency surgery/anaesthesia
- Patients with metabolic disorders may have very limited tolerance to fasting.
- Patients can have a diverse range of errors in metabolic pathways, so any perioperative fasting plan needs to be individualised for each specific patient.
- Specific intravenous fluids including dextrose and lipids may be required during fasting and this requires liaising with the Metabolic team to arrange appropriate prescription.
- Appropriate intravenous fluids as specified by the Metabolic team should be commenced if prolonged fasting occurs or is anticipated.

8.3 Intubated patients in PICU and NICU

- Many PICU/NICU patients who are intubated and ventilated are fed enterally via gastric or transpyloric tubes.
- Enteral feeds can generally be continued in intubated patients awaiting anaesthesia/surgery except in the circumstances described below or unless otherwise directed by an Anaesthetist.
- Enteral feeds will need to be ceased prior to anaesthesia/surgery if the patient is planned for:
 - An airway procedure (e.g. LBO),
 - Extubation or change of endotracheal tube,
 - Surgery or procedure that requires fasting (e.g. GI surgery, endoscopy).
- Fasting times for intubated patients who require cessation of enteral feeds prior to anaesthesia/surgery are as specified in 'Fasting instructions for children who DO NOT meet the inclusion criteria' (see above).

9 References

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