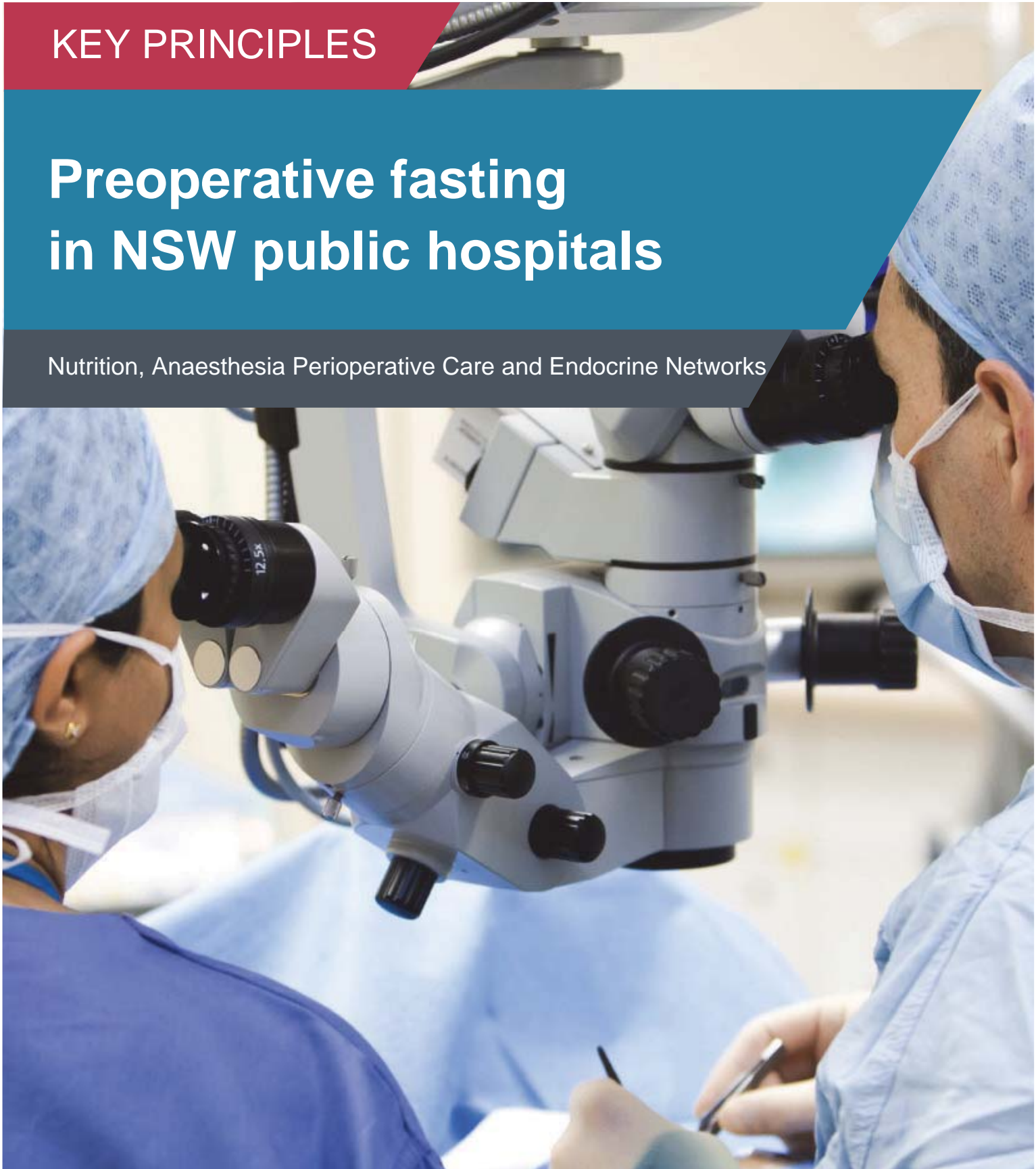


KEY PRINCIPLES

Preoperative fasting in NSW public hospitals

Nutrition, Anaesthesia Perioperative Care and Endocrine Networks



The Agency for Clinical Innovation (ACI) works with clinicians, consumers and managers to design and promote better healthcare for NSW. It does this by:

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A priority for the ACI is identifying unwarranted variation in clinical practice and working in partnership with healthcare providers to develop mechanisms to improve clinical practice and patient care.

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Glossary

Diet specification	A list of foods allowed and not allowed to be offered to people on a particular diet. They also describe the aim of the diet, its characteristics, indications for use, nutritional adequacy and any precautions.
Enteral tube feeding	The delivery of nutrition support into the gastrointestinal tract via a tube (for example nasogastric tube, gastrostomy tube).
Fasting	Abstinence from all food and liquid for a defined period.
Glycaemic control	The typical levels of blood sugar (glucose) in a person with diabetes mellitus.
Nil-by-mouth (NBM)	A medical instruction meaning to withhold oral food and fluids from a patient for a defined period.
Parenteral Nutrition (PN)	Parenteral Nutrition is a sterile solution containing nutrients normally found in food – protein, carbohydrate, fat, water, vitamins, minerals and electrolytes. PN is an intravenous (IV) solution and therefore bypasses the digestive tract.
Perioperative	The time before, during and after an operation.

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1. Introduction

Background

Across NSW, there have been consistent reports and anecdotal feedback from clinicians regarding:

- patients awaiting surgery being fasted for extended periods of time
- cancellations of surgery occurring due to local application of fasting criteria
- differing interpretation of what constitutes a clear fluid
- lack of clarity around information provided and explained to patients regarding their responsibilities for fasting
- concerns over fasting of vulnerable patients, for example older patients awaiting hip fracture surgery or patients with diabetes.

More broadly, debate about fasting (and nil-by-mouth) criteria has also appeared in recent national news reports.¹

As a result of this, the Agency for Clinical Innovation (ACI) has undertaken the following initiatives.

- A review of the existing NSW inpatient diet specification for clear fluids.
- The development of two new diet specifications –
 - Fluids – Preoperative Oral: for patients who are awaiting surgery
 - Fluids – Preoperative Oral Diabetes: for patients with diabetes who are awaiting surgery.

Both these diets can be accessed on the ACI website at

<http://www.aci.health.nsw.gov.au/resources/nutrition/nutrition-food-in-hospitals/nutrition-standards-diets>.

- Implementation advice for clinicians and food services staff to support the use of these diet specifications in NSW public hospitals.
- Key principles for fasting in NSW public hospitals (this document).

A patient flyer outlining general information on fasting is currently being considered.

This work has been undertaken in collaboration with representatives from the Nutrition, Anaesthesia Perioperative Care and Endocrine Networks and the Surgical Services Taskforce.

¹ ABC News, 10 September 2015, Retrieved from <http://www.abc.net.au/news/2015-09-10/is-it-time-to-change-the-nil-by-mouth-protocol/6765312> on 16 November 2015; ABC News, 6 July 2015, Retrieved from <http://www.abc.net.au/news/2015-07-06/anaesthetists-urge-change-to-surgery-fasting/6597128> on 16 November 2015.

2. Key principles

Context

Preoperative fasting is necessary for a range of patient cohorts including inpatients, day of surgery admission, extended day only, day only non-admitted, etc.

Although fasting is relevant to a range of procedural areas in the hospital such as endoscopy or radiology, this document is specific to the operating theatre setting. However, many of the principles will translate to the procedural setting. Specific criteria should be determined by individual procedural units in consultation with their local Department of Anaesthesia.

Fasting information outlined in this document is based on the best evidence.

General principles

1. Fasting is necessary prior to sedation or a general anaesthesia to minimise the risk of regurgitation or aspiration.
2. Fasting guidelines (for solids and fluids) should be determined locally by each hospital, taking into account the surgery performed, different patient cohorts and the patient's individual circumstances.
3. Specific instructions for fasting will be dependent on an individual patient's circumstances and final advice should therefore be determined by an anaesthetist.
4. Generally, patients may have solids until six hours before surgery, approved preoperative oral fluids until two hours before surgery and then should be nil-by-mouth (NBM) until surgery.
5. Preoperative oral fluids exclude all liquids containing fat, protein and insoluble fibre.
6. Enteral tube feeding can continue until six hours before surgery and water can be administered via the tube until two hours before surgery. Patients should then be nil-by-tube until the surgery.
7. Generally, intravenous (IV) parenteral nutrition can continue until surgery however the local policy should be confirmed.
8. Continuing fluids until two hours before a procedure replaces and/or maintain the body's water balance. Evidence shows that preoperative oral fluids can improve postoperative wellbeing and clinical outcomes.
9. A preoperative fluid diet is inadequate in all nutrients and should not be used as the sole source of nutritional support for more than one day.

Example: Procedure scheduled for 12 noon

Timeline	0000	0200	0400	0600	0800	1000	1200
General patients	Solids			Preoperative oral fluids (4hrs)		NBM (2 hrs)	Procedure
People with diabetes	Solids			Preoperative oral fluids – diabetes (4hrs)		NBM (2hrs)	
People with dysphagia and needing thickened fluids	Solids and thickened fluids			NBM (6hrs)			
People needing enteral tube feeding	Enteral nutrition			Water via the tube if appropriate (4 hrs)		NBM/Nil by tube (2hrs)	
People needing parenteral nutrition	Parenteral nutrition (IV)						

Considerations for specific patient groups

Some patient groups may be more vulnerable to fasting and will require more specific management in determining their fasting requirements and/or monitoring them throughout the fasting period. Examples follow.

- Patients with diabetes
 - It is acknowledged that published guidelines do not exclude carbohydrate-containing oral fluids in the preoperative period for people with diabetes. However, it may be difficult to standardise the timing of the diet order, and delivery and consumption of carbohydrate-containing fluids.
 - Therefore, in addition to exclusions listed above in general principles, carbohydrate-containing fluids are also excluded in the *Preoperative Oral Fluids – Diabetes* diet as a strategy to help manage perioperative glycaemia.
 - Perioperative management and use of the Preoperative Oral Fluids diets must be determined by the clinical judgement of the treating endocrinologist/physician, in consultation with the anaesthetist and surgeon.
 - Some patients with diabetes may require small amounts of carbohydrate-containing oral fluids to correct hypoglycaemia. This should be determined on a case-by-case basis following local protocols.
 - A preoperative oral fluid diabetes diet should not be used for more than 12 hours.
- Older patients, particularly those who have presented to hospital with an acute medical condition such as fractured neck of femur.
 - Older patients are generally at high risk of malnutrition and may need additional nutrition support.
- Children
 - Children may be at higher risk of malnutrition and dehydration and may need additional nutrition and hydration support.
- Patients with dysphagia
 - There is insufficient evidence to support the use of oral thickened fluids in the last two hours before surgery.

The ACI Minimum Standards for the Management of Hip Fracture in the Older Person identified that 'hunger clocks' can be an effective tool for nursing teams to measure periods of fasting. Staff can also be authorised to commence re-feeding if the period of fasting is greater than 12 hours and surgery is not imminent.²

3. Development of NSW diet specifications for Fluids – Preoperative Oral and Fluids – Preoperative Oral Diabetes

Developing the diets

The review of the NSW diet specification for clear fluids was undertaken in response to feedback provided to the NSW Health Nutrition and Food Committee via the ACI Nutrition in Hospitals Committee and the Clinical Excellence Commission's Quality System Assessment Program. In particular, it was highlighted that that local application of the existing diet was leading to cancellations of some surgeries and that patients were being unnecessarily fasted.

As a result, a small working party was formed to develop a new diet specification called *Preoperative Oral Fluids*. The new diet allows water, apple juice, other pulp free fruit juice, cordial, lemonade, black tea and coffee, commercial rehydration fluids and commercial high-energy, fat-free, protein-free nutritional supplements. It excludes beverages containing red, blue or purple colouring as well as jelly and chewing gum.

The new diet specification has been developed to reflect the best evidence, and provides clearer guidance for clinicians around implementation, including time frames. In particular, it highlights that preoperative oral fluids can be provided until two hours prior to surgery and that they can improve postoperative wellbeing and clinical outcomes. This statement reflects evidence based guidelines in Europe and the United States.

An accompanying diet, *Fluids – Preoperative Oral Diabetes*, has been developed to support the preoperative management of patients with diabetes for facilities that choose to utilise it based on the considerations listed above.

Both diets will be available in most NSW public hospital menu systems from mid-January 2016. Implementation should be determined locally and will depend on updates to the diet order system and training for relevant staff.

More information on NSW diet specifications is available on the **ACI website**.

Implementation advice

Although the new diets will support best practice across the system, it is important for clinicians to be aware of these changes and also of local implementation processes, such as the local cut off times for ordering a diet (prior to the meal delivery time), to ensure patients receive the appropriate diet at meal times. At the appropriate time, the diet then needs to be changed to nil-by-mouth. A local protocol should be agreed in advance and implemented for situations where a patient is approaching the recommended maximum time on a preoperative oral fluids diet.

² Agency for Clinical Innovation, June 2014. Minimum Standards for the Management of Hip Fracture in the Older Person, 13-14.

4. Evaluation

The ACI will seek participation from hospitals who are interested in evaluating the implementation of these diets. Possible metrics for collection and analysis are:

- Delayed/cancelled surgeries due to inappropriate diets or fasting – pre and post implementation.
- Fasting times (to determine if the use of these diets has affected fasting times).
- Use of the new diets (number ordered, length of time on the diet, time patients are NBM).
- Patient experience.

Pilot sites will be determined.

5. References

- American Society of Anesthesiologists. Committee on Standards and 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 [trunc]. *Anesthesiology*. 2011 Mar;114(3):495-511.
- Lambert, E., and Carey, S. Practice Guideline Recommendations on Perioperative Fasting: A Systematic Review. *Journal of Parenteral and Enteral Nutrition*. 9 January 2015.
- Nygren, J., Thorell, A., and Ljungqvist, O. Are there any benefits from minimizing fasting and optimization of nutrition and fluid management for patients undergoing day surgery? *Current Opinion in Anaesthesiology*. 2007; 20:540–544.
- Smith, I., Kranke, P., Murat, I., Smith, A., O’Sullivan, G., Søreide, E., Spies, C., and in’t Veld, B. Perioperative fasting in adults and children: guidelines from the European Society of Anaesthesiology. *European Journal of Anaesthesiology*. 2011;28:556–569

6. Appendices

Appendix 6.1 NSW Diet Specification: Fluids – Preoperative Oral

Diet: Fluids - Preoperative Oral

Aim: To continue oral fluids until 2 hours before a procedure to replace or maintain the body's water balance and leave minimal residue in the stomach.

Characteristics: Only fluids that are rapidly cleared from the stomach. All liquids containing fat, protein and insoluble fibre are excluded.

Indications: Preparation of patients for procedures involving anaesthesia or sedation. This diet can be used up to 2 hours prior to the procedure. Pre-operative oral fluids can improve postoperative wellbeing and clinical outcomes.

Nutritional adequacy: This diet is inadequate in all nutrients and should not be used as the sole source of nutritional support for more than one day.

Precautions: Patients may not receive a menu. Patients with diabetes should be ordered "Fluids - Preoperative Oral Diabetes". This diet is not suitable for patients on thickened fluids.

Paediatrics: Suitable for use in paediatrics when combined with an age-appropriate diet.

Specific menu planning guidelines:

	ALLOWED	NOT ALLOWED
Hot main dishes	None	
Sauces, gravies	None	
Starchy vegetables / pasta / rice	None	
Vegetables	None	
Soups	None	
Sandwiches	None	
Salads, dressings	None	
Breads, cereals	None	
Spreads	None	
Hot breakfast choices	None	
Fruit	None	
Yoghurt	None	
Desserts	None	
Milk and cheese	None	
Beverages	Water, apple juice, other pulp-free fruit juice, cordial, lemonade Black tea and coffee	All others, including prune juice and beverages containing red, blue or purple colouring (natural or added) Thickened fluids
Biscuits	None	
Miscellaneous	Commercial rehydration fluids Commercial high-energy, fat-free, protein-free nutritional supplements Sugar, sweetener	Products containing red, blue or purple colouring (natural or added) Cream, pepper, salt Commercial supplements with milk or soy protein

Diet: Fluids - Preoperative Oral (continued)

References

1. Smith, I., Kranke, P., Murat, I., Smith, A., O'Sullivan, G., Søreide, E., Spies, C., and in't Veld, B. Perioperative fasting in adults and children: guidelines from the European Society of Anaesthesiology. *European Journal of Anaesthesiology*. 2011;28:556–569
2. American Society of Anesthesiologists Committee on Standards and 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 [trunc]. *Anesthesiology*. 2011 Mar;114(3):495-511.
3. Lambert, E., and Carey, S. Practice Guideline Recommendations on Perioperative Fasting: A Systematic Review. *Journal of Parenteral and Enteral Nutrition*. 9 January 2015.
4. Nygren, J., Thorell, A., and Ljungqvist, O. Are there any benefits from minimizing fasting and optimization of nutrition and fluid management for patients undergoing day surgery? *Current Opinion in Anaesthesiology*. 2007; 20:540–544.

This diet specification is not to be used for patient education.

Date: 16 May 2016

Appendix 2: NSW Diet Specification: Fluids – Preoperative Oral Diabetes

Diet: Fluids - Preoperative Oral Diabetes

Aim: To continue oral fluids for people with diabetes until 2 hours before a procedure to replace or maintain the body's water balance and leave minimal residue in the stomach.

Characteristics: Only fluids that are rapidly cleared from the stomach. All liquids containing fat, protein, and insoluble fibre are excluded. Carbohydrate containing fluids are also excluded to improve perioperative glycaemic control.

Indications: Preparation of patients with diabetes for procedures involving anaesthesia or sedation. This diet can be used up to 2 hours prior to the procedure. Pre-operative oral fluids can improve postoperative wellbeing and clinical outcomes.

Nutritional adequacy: This diet is inadequate in all nutrients and should not be used for more than 12 hours.

Precautions: Patients may not receive a menu. This diet is not suitable for patients on thickened fluids.

Patients without diabetes should be ordered Fluids - Preoperative Oral.

Some patients with diabetes may require small amounts of carbohydrate-containing oral fluids to correct hypoglycaemia.

This should be determined on a case-by-case basis following local protocols.

Paediatrics: Suitable for use in paediatrics when combined with an age-appropriate diet.

Specific menu planning guidelines:

	ALLOWED	NOT ALLOWED
Hot main dishes	None	
Sauces, gravies	None	
Starchy vegetables / pasta / rice	None	
Vegetables	None	
Soups	None	
Sandwiches	None	
Salads, dressings	None	
Breads, cereals	None	
Spreads	None	
Hot breakfast choices	None	
Fruit	None	
Yoghurt	None	
Desserts	None	
Milk and cheese	None	
Beverages	Water Diet cordial and lemonade Black tea and coffee	All others, including juice, regular cordial and soft drinks. Beverages containing red, blue or purple colouring (natural or added) Thickened fluids
Biscuits	None	
Miscellaneous	Carbohydrate-free commercial rehydration fluids Sweetener	Products containing red, blue or purple colouring (natural or added) Cream, pepper, salt, sugar Commercial nutritional supplements

Diet: Fluids - Preoperative Oral Diabetes (continued)

References

1. Smith, I., Kranke, P., Murat, I., Smith, A., O'Sullivan, G., Søreide, E., Spies, C., and in't Veld, B. Perioperative fasting in adults and children: guidelines from the European Society of Anaesthesiology. *European Journal of Anaesthesiology*. 2011;28:556–569
2. American Society of Anesthesiologists Committee on Standards and 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 [trunc]. *Anesthesiology*. 2011 Mar;114(3):495-511.
3. Lambert, E., and Carey, S. Practice Guideline Recommendations on Perioperative Fasting: A Systematic Review. *Journal of Parenteral and Enteral Nutrition*. 9 January 2015.
4. Nygren, J., Thorell, A., and Ljungqvist, O. Are there any benefits from minimizing fasting and optimization of nutrition and fluid management for patients undergoing day surgery? *Current Opinion in Anaesthesiology*. 2007; 20:540–544.

This diet specification is not to be used for patient education.

Date: 16 May 2016

