

Nutrition and quality food standards for paediatric patients in Victorian hospitals







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Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.

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In this document, 'Aboriginal' refers to both Aboriginal and Torres Strait Islander people.

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Monash Health is acknowledged for kindly providing some of the images in this document.

ISBN 978-1-76096-603-4 number (online/PDF/Word)

Available at <<https://www.health.vic.gov.au/hospitals-and-health-services/quality-safety-and-service-improvement>>.

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Acknowledgements

The Victorian Department of Health commissioned the Royal Children's Hospital and Monash Health (Monash Children's Hospital) to develop nutrition and quality food standards for menu items for paediatric patients in Victorian public hospitals. The project team included:

- Heather Gilbertson – Manager, Nutrition and Food Service, The Royal Children's Hospital
- Mary Anne Silvers – Head of Nutrition and Dietetics, Monash Health
- Kathy Faulkner and Mary-Kate Inkster – project leaders.

A steering committee was established to provide expertise and guidance in developing these Standards. Members included:

- Rita Alvaro – Department of Health
- Nikki Collins – Monash Health (Monash Children's Hospital)
- Sophie Crotti – The Royal Children's Hospital
- Kate Crowley – consumer representative
- Kathy Faulkner – The Royal Children's Hospital
- Heather Gilbertson (co-chair) – The Royal Children's Hospital
- Mary-Kate Inkster – Monash Health (Monash Children's Hospital)
- Suzannah Jackson – Alfred Health
- Gerard Malcolm – Ballarat Health Services
- Kathryn Marshall – Western Health (Joan Kirner Women's & Children's Hospital)
- Elizabeth Mount – Monash Health (Monash Children's Hospital)
- Leanne Ross – Monash Health
- Mary Anne Silvers (co-chair) – Monash Health
- Tina Smith – Northern Health
- Wendy Swan – Goulburn Valley Health
- Jaecy Wong – The Royal Children's Hospital.

Written feedback was also received from:

- The Austin Hospital
- Mercy Health
- Northern Health
- NorthEast Health Wangaratta
- Peninsula Health
- Wimmera Health Care Group.

Veronica Graham, State Public Health Nutritionist/Accredited Practising Dietitian, Department of Health provided statewide oversight and final nutrition content endorsement of these Standards.

The participation, contribution and expertise of all staff and departments from Victorian health services and the consumer representative who provided feedback on the development of this document are gratefully acknowledged.

Overarching purpose

Food and nutrition are fundamental aspects of optimal patient recovery. Infancy, childhood and adolescence are times of rapid growth and significant development. Therefore childhood (across the age spectrum) encompasses different nutritional and dietary requirements compared with adulthood. Hospital menus have an important role in ensuring children (and their families) are given the opportunity to select food and drink that is appealing, meets their nutritional requirements, is appropriate to their stage of development, and demonstrates healthy eating patterns.

Fundamentally, hospitals have a duty of care to provide paediatric patients with food and drink that is safe, nutritious and appropriate to their nutritional and developmental needs.

Throughout this document, the term 'children' will be used to describe the age spectrum that is infancy through to adolescence.

In addition, 'the Paediatric Standards' is used to describe this complete document and 'the Standards' refers to the specific recommended best practice standards relevant to paediatric patients (as outlined in the Standards).

1. Background



1. Background

Providing food and drinks to paediatric patients presents unique challenges.

A 2015 study by White et al.¹ describing rates of nutrition risk in paediatric patients across a number of metropolitan and regional hospitals found that:

- 15 per cent were malnourished, of which 5.5 per cent experienced severe malnutrition
- 18.7 per cent were overweight/obese
- 44 per cent were at high nutritional risk requiring further nutritional assessment.

Prevalence of malnutrition and nutrition risk was much higher than seen in the wider community, while rates of overweight/obesity were lower. However, it is worth noting that rates of obesity (alone) were 9.9 per cent, which is higher than community findings.²

This indicates that the hospital population exists within the extreme ends of the spectrum, with higher rates of malnutrition (both undernutrition and obesity) than exists in the wider community.

Those most likely to be malnourished included younger children, patients at regional hospitals and those with an underlying chronic illness.¹ Notably, multiple studies into rates of malnutrition in hospitalised children have found that the nutritional status of patients further deteriorates the longer they stay in hospital.^{3,4,5}

In the community, there is a significant gap between children's dietary intakes and the recommended serves of food groups as specified by the Australian Dietary Guidelines⁶ (ADGs). For all age groups, very few children meet the recommended serves for vegetables (other than infants). Interestingly, the intake of fruit is closest to meeting the recommended serves per day for all age groups. While dairy appears to be well accepted in the younger age groups, intakes drop off in adolescence. In addition, children aged 2–3 years are eating three serves of discretionary foods every day, escalating to six serves a day by the time they reach 14–18 years. Also, children and adolescents in the community are eating almost three times the recommended intakes for sodium.⁷

Food served to the paediatric population is an important aspect of their clinical care. Patients have the right to expect that the food served in hospital will maintain their nutritional status as a minimum and, further, aid and promote health and recovery. In addition, hospital menus provide a valuable opportunity to support children and their families to adopt healthy eating patterns.

Although hospitals have a responsibility to support healthy eating principles, it needs to be acknowledged that hospitalised children have different immediate nutritional needs compared with 'healthy' children in the community.

1.1 Application

The Paediatric Standards apply to paediatric menu development and review. They apply to all aspects of food service involved in providing food and drink to paediatric patients.

1.2 Intended audience

The Paediatric Standards are relevant to:

- all staff involved in providing meals to hospitalised children including hospital food service managers, chefs/cooks, dietitians and other allied health professionals (for example, speech pathologists), nurses and hospital purchasing/procurement staff
- any organisation/area involved with providing meals to hospitalised children including central production kitchens (CPKs), private catering organisations, hospital kitchens (receiving and cook-fresh) and procurement.

1.3 Scope

The Paediatric Standards apply to:

- paediatric patients and day patients aged from infancy to 18 years across all Victorian public hospitals
- paediatric patients who require texture modified diets.

The Paediatric Standards do not apply to or address the following:

- Patients requiring therapeutic diets. The NSW Government Agency for Clinical Innovation provides detailed specifications for therapeutic diets <<https://aci.health.nsw.gov.au/projects/diet-specifications/paediatric>> including information about the type and quantities of suitable foods required to meet paediatric patients individual needs.
- Food procurement. HealthShare Victoria facilitates health service access to consumable goods used in preparing and providing food and beverages via its catering supplies contract. Health service procurement is conducted in compliance with organisational food procurement policies and HealthShare Victoria's health purchasing policies.
- Food safety. It is not within the scope of these standards to extensively describe the requirements for safely producing food in health services.
- Food brought from home or external delivery services. This should be addressed by hospitals' food safety policies and processes.

Where possible it is preferable that hospitals provide a stand-alone paediatric menu. However, it is recognised that for most adult-based hospitals providing paediatric inpatient services, this is not feasible, especially where numbers of paediatric inpatient beds are limited. In these instances, it may be common for a short order menu to be integrated into the main menu to cater for paediatric patients. Both integrated short order menus and stand-alone paediatric menus should meet the Paediatric Standards outlined in this document. Please refer to 'Paediatric short order menu example' in Appendix 1.

Alignment with adult hospital menus

The *Nutrition and quality food standards for adults in Victorian public hospitals and residential aged care services (2021)* ('the Adult Standards') incorporate a 'banding' system to help categorise foods and meals according to nutrient profile. The Paediatric Standards do not include the banding system. They are based on the ADGs and Nutrient Reference Values for Australia and New Zealand (NRVs), which ensures food offered to children in hospitals is nutritious and meets their nutrient requirements.

The criteria applied within the adult banding system for (in particular) kilojoules, protein and sodium does not apply to the paediatric age spectrum. However, it is recognised that adult hospitals providing paediatric inpatient facilities will have a predominantly adult 'banded' menu. This document provides specific guidance on how to integrate the Paediatric Standards into an adult 'banded' menu for hospitals that offer integrated services across the lifespan. Please refer to Appendix 2: Case study demonstrating how an adult 'banded' menu can cater to paediatric patients.

For more information on menus for adult patients and residents please refer to the Adult Standards.

1.4 Guiding principles

The Paediatric Standards align with relevant national quality and safety frameworks⁸, as outlined in section 1.1 'Quality frameworks' of the Adult Standards.

The Paediatric Standards are underpinned by the ADGs⁶ and NRVs.⁹

Each public hospital in Victoria will offer a menu that:

- is designed to facilitate opportunities for patients to consume the age-appropriate number of serves from each of the food groups as outlined in the ADGs⁶
- supports patients to consume a variety of safe, nutritious, good-quality and, where possible, locally sourced, seasonal food that is appealing and enjoyable
- will cater to the patient's medical, cultural, ethical and religious requirements
- considers the developmental needs of the child
- caters to patients with increased nutritional requirements as a result of disease state, age and/or impact of treatment
- provides an opportunity to promote and consume a healthy and nutritious diet in line with the ADGs
- considers cost control, quality and choice.

1.5 Profile of Victorian hospitals providing paediatric inpatient services

Victorian public hospitals that provide paediatric patient services fall into five main categories:

- **Metropolitan tertiary paediatric specialist hospitals:** There are two specialist paediatric hospitals in Melbourne – The Royal Children's Hospital and Monash Children's Hospital.
- **Metropolitan tertiary suburban hospitals:** These hospitals can include more than one paediatric ward and occasionally a mother and infant ward.
- **Regional tertiary hospitals:** These hospitals usually offer one paediatric ward.
- **Sub-regional hospitals:** These may have one paediatrician on site but rarely provide a designated paediatric ward.
- **Rural hospitals:** These hospitals rarely get paediatric admissions; they tend to cater to short-stay and older patients.

1.6 Nutritional profile of paediatric patients in Victoria

There are two major categories of paediatric hospital patients:

- patients who are nutritionally well – these patients are often admitted with minor illness or for elective surgery, resulting in a short-stay (for example, less than three days)
- patients who are nutritionally at risk – patients under five years of age, long-stay patients, frequently admitted patients and those with an underlying chronic illness.

The Paediatric Standards are intended for all paediatric patients in Victorian public hospitals, including patients who are nutritionally well and those who are nutritionally at risk.

1.7 Specific needs of infants, children and adolescents compared with adults

Early childhood is a time of rapid growth and nutritional vulnerability.¹⁰ Compared with adults, children have a lower tolerance for periods of minimal nutritional intake due to their high growth requirements, lower energy stores and smaller appetites. This is especially true in younger children and infants. The first 1,000 days (from the point of conception to around the child's second birthday) are especially crucial.¹¹

Developmental and behavioural considerations for providing food

Infants

Age	Typical developmental and behavioural considerations for providing food
0–6 months	<p>Breastfeeding is the physiological norm and most beneficial way of providing infants with the nutrients required for optimum growth and development.¹² If an infant is not breastfed, commercial infant formulas should be used as an alternative to breastmilk until 12 months of age.</p> <p>It is of utmost importance to provide an environment that actively promotes, supports and encourages mothers to breastfeed in hospital.</p> <p>At around age 6 months, stores of iron and other nutrients begin to reduce, and infants show developmental signs that they are ready to consume more than breastmilk or infant formula alone.</p> <p>Introducing complementary feeding may occur during the 'window of tolerance' between 4 and 7 months¹³ in conjunction with breastfeeding or infant formula feeds.</p> <p>Foods can be introduced in any order, although iron-rich foods should be offered first – for example, plain meats, poultry, fish and egg (all sources of haem iron), iron-fortified infant cereal, tofu and legumes (at required/appropriate texture), followed by other nutritious foods (e.g. fruit and vegetables).</p> <p>Salt and sugar should not be added to foods because it may lead to a preference for high-salt and high-sugar foods.¹⁴ Also, infant kidneys are immature and cannot excrete excess salt.¹⁵</p> <p>Breastfeeding/formula feeds should continue as the main source of nutrition as solid foods are introduced.¹⁴</p> <p>Considerations for menus:</p> <ul style="list-style-type: none"> • Menus should provide 'tastes' (approximately one tablespoon) of: <ul style="list-style-type: none"> – iron-fortified infant cereals – a variety of plain smooth foods (as above) with no added salt or sugar (see below). • Drinks other than breastmilk, infant formula or water are not recommended in this age group. • Avoid ready-made foods that are not made specifically for infants, such as breakfast cereals or adult-intended puree, because these can be high in salt and/or sugar. • Infants in rural hospitals can be managed on a case-by-case basis. • There is a wide range of commercially available infant food on the market. Refer to Food Standards Australia New Zealand (FSANZ) Standard 2.9.2 Food for Infants <https://www.foodstandards.gov.au/code/Documents/2.9.2%20Food%20for%20infants%20v157.pdf>, which describes the compositional and labelling requirements of food intended for infants.

Age	Typical developmental and behavioural considerations for providing food
7–12 months	<p>Breastmilk or infant formula should continue while introducing solid foods.</p> <p>From 6 months of age, infants should be offered smooth pureed foods and then mashed foods, progressing to minced and chopped foods and, finally, by 8 months, most infants can manage 'finger foods'.¹⁵</p> <p>Exposure to soft lumps is an important developmental step in the ability to safely prepare children for swallowing.^{16,17,18}</p> <p>Introduce a variety of foods in any order, although iron-rich foods should be offered first (refer to 0–6 months above), followed by other nutritious foods (e.g. fruit and vegetables).</p> <p>Infants will require close supervision and assistance when feeding.</p> <p>Considerations for menus:</p> <ul style="list-style-type: none"> • Avoid foods that are high in salt and sugar. • Menus need to provide a range of textures from minced and moist foods to easy-chew, cut-up and finger foods. • Menus need to include foods from all food groups. • Cow's milk is not an appropriate drink under 12 months but suitable to use as a component within food.

Children

Age	Typical developmental and behavioural considerations for providing food
1–3 years	<p>Up to 5 years of age, it is common for children to have varying appetites and growth rates.¹⁹</p> <p>Toddlers who drink too much milk are at risk of inadequate iron and fibre intakes, often due to reduced intakes of other foods.²⁰</p> <p>Considerations for menus:</p> <ul style="list-style-type: none"> • Children in this age group tend to prefer simply prepared, mild and singularly plated food items. • Encourage a variety of fresh fruit and vegetables, incorporating crunch and colour. • Encourage water from a cup. • Offer small, frequent, nutrient-dense meals and snacks (bite-size pieces, soft and moist foods, and finger foods) from the different food groups. • Full cream milk can be introduced as a drink from 12 months of age. • Milk intakes should not exceed 500 mL in 24 hours.²¹ • Low fat diets are not recommended in this age group, and children under 2 years of age should not be offered low fat milk. <p>A note on choking:</p> <ul style="list-style-type: none"> • Choking is a preventable but common cause of morbidity and mortality, with children aged under 3 years at greatest risk.²² • Toddlers should always be supervised when eating and drinking.
4–8 years	<p>Periods of growth spurts and subsequent variable appetites continue through this age group.</p> <p>Considerations for menus:</p> <ul style="list-style-type: none"> • Make nutrient-dense mid-meal snacks available to meet variable appetites: plain milk, yoghurt, cheese, fruit and sandwiches. • Continue supervision at mealtimes. • Make available familiar foods from the five food groups. • Encourage water as the main drink for thirst, with milk available. • Offer a choice of full cream and reduced fat milk to children aged over 2 years. • Small serve sizes should be available.
9–13 years	<p>Throughout these years, growth spurts can place increased demands on the nutritional requirements of children.⁶</p> <p>Calcium in childhood and adolescence is crucial in attaining peak bone mass and preventing osteoporosis in later life. Requirements increase during times of growth spurts.⁹</p> <p>Adolescent girls are at particular risk of iron deficiency due to the effects of continued growth, menstrual losses coupled with reported reduced intakes.</p> <p>Considerations for menus:</p> <ul style="list-style-type: none"> • Offer food from all five food groups. • Nutrient-dense mid-meal snacks should be available where possible: plain milk, yoghurt, cheese, fruit and sandwiches. • Large serve sizes should be available. • Encourage water as the main drink, with milk available. • Offer a choice of full cream and reduced fat milk to children aged over 2 years.

Adolescents

Age	Typical developmental and behavioural considerations for providing food
14–18 years	<p>Throughout these years, growth spurts can place increased demands on the nutritional requirements of teenagers.⁶</p> <p>Calcium in childhood and adolescence is crucial in attaining peak bone mass and preventing osteoporosis in later life. Requirements increase during times of growth spurts. While calcium requirements are increased, calcium intakes in Australian children have been found to be particularly low in adolescent girls and boys.⁹</p> <p>Girls in this age group continue to be at risk of iron deficiency.⁹</p> <p>Considerations for menus:</p> <p>Offer food from all five food groups.</p> <ul style="list-style-type: none">• Larger portion sizes should be available for older teenagers. They may prefer to choose from the adult menu.• Encourage water as the main drink, with milk available.

It needs to be acknowledged that there is individual variation in meeting developmental milestones, with possible regression with hospitalisation.

1.8 Nutrient recommendations

The ADGs have been used as the basis for developing the Paediatric Standards. Specific nutrient goals are available for reference in Appendix 3 and are based on the NRVs.⁹ These nutrients have been identified (with respective evidence) as essential for optimal growth and development of children and adolescents and are intended as a reference in menu analysis and review.

Expected outcomes

Each public hospital providing paediatric inpatient services in Victoria should offer a menu that:

- meets minimum menu choice set within the Paediatric Standards
- reflects the dietary needs of the population profile of each hospital including menu cycle and level of choice.

2. Standards



2. Standards

The following Standards represent best practice and are based on the evidence and rationale found in sections 1 and 2 of the Adults Standards, along with alignment to National Safety and Quality Health Service (NSQHS) Standards.⁸ There may be flexibility in how individual health services implement and achieve the Standards.

The terms 'recommended' and 'suggested' are used to identify the evidence justification for each of the Standards.

- If a Standard is '**recommended**', there is strong evidence supporting its implementation.
- If a Standard is '**suggested**', there is emerging evidence or expert opinion supporting its implementation.

2.1 Continuous quality improvement

Governance

It is recommended that:

A nutrition steering committee is appointed, to meet six times annually, to monitor and progress food and nutrition quality and safety.

There is allocated EFT for a food service dietitian (ongoing or intermittently) with governance and reporting responsibilities within food services.

Quality assurance

It is recommended that:

Feedback-driven quality assurance activities are undertaken, with documented evidence of outcomes and actions for communication, review and audit purposes.

There are quarterly (at a minimum) internal tray-line and/or point-of-service quality audits (presentation, accuracy, temperature, portion weight, taste and texture compliance).

There are six-monthly (at a minimum) internal food consumption and waste audits.

There are quarterly (at a minimum) point-of-service patient/family satisfaction surveys.

There are quarterly (at a minimum) patient/family feedback sessions, representing the health service population and including taste testing for existing and/or new dishes.

Services undertake responsive community consultation, including with local culturally diverse community groups.

Quality audit tools be used as part of a Continuous Quality Improvement (CQI) cycle, with documented evidence of changes for communication, review and audit purposes. (Refer to Appendix 9 of these Paediatric Standards for advice on quality audit tools).

Patient and family feedback mechanisms

To ensure alignment with NSQHS Standards, it is recommended that:

There are clear internal processes for managing food service-related feedback and complaints, which may result in menu changes, with documented evidence of actions taken, for communication, review and audit purposes.

Patient/family representation reflects the health service population, with relevant cultural representation given the opportunity to provide input/feedback throughout the CQI cycle.

Equitable access to providing feedback be available via interpreters (language or relay for people who are blind, deaf or hard-of-hearing) to allow patient/family involvement.

Timely communication of action/inaction taken in response to patient/family feedback be given to participants.

Menu planning and review

It is recommended that:

- Menu planning is led by a food service dietitian and food service manager, in collaboration with other key stakeholders including patient/family representation, to ensure the needs of the health service population are met.
- There are annual (at a minimum) full menu reviews for hospitals.
- Menu and recipe creation activities have documented evidence of the impact of the specific food service and menu ordering systems to do with taste, presentation and texture.
- Consideration is given to using electronic and/or flexible menu ordering systems to enable orders of preferred foods and fluids as close as possible to delivery times.
- Menus are designed to meet the nutritional requirements of most of the health service population, with documented evidence of demographic, clinical, cultural, religious, psychosocial, average length of stay and patient/family preference considerations.
- All menu items have documented standardised recipes and/or product specifications with serve sizes that have been endorsed by a food service dietitian and are followed by chefs/cooks and food service staff.
- All recipe or product changes or substitutions are approved by a food service dietitian.
- Meal presentation is included in documented recipes and product sheets, incorporating decanting, garnishing and any piping/layering/moulding requirements for texture modified meals.
- Seasonal menus with genuine changes to dishes, fruit and snacks based on seasonal produce and patient/family feedback are routinely considered.
- Menu items have commonly accepted and understood names and/or a description that accurately reflects the contents of the dish for ease of patient/family recognition.
- Pictorial and translated menus are available where there is an identified need in the health service population assessment.

2.2 Menu choice

It is recommended that:

- A variety of meal choices are provided, as depicted in the Minimum menu choice tables for paediatric patients.

2.3 Meal environment

It is suggested that:

- Distractions during mealtimes be avoided where possible (e.g. medical ward rounds/activities).
- Children are given appropriate supervision when eating.
- Smaller, developmentally appropriate child-friendly cutlery and crockery is available as a means of encouraging safe, independent eating.
- Packaging is easy to open.

2.4 Staffing

It is recommended that:

- Staff are allocated to all patients who need help with eating. Staff include nurses, personal care assistants, allied health assistants and trained volunteers.
- Regular training for food safety in alignment with FSANZ, the International Dysphagia Diet Standardisation Initiative (IDDSI) framework⁴¹ and the National Allergy Strategy is undertaken and documented for all staff involved in producing and delivering meals.
- Regular training on providing assistance with eating, including risk management of dysphagia and food allergies, is undertaken and documented for all staff undertaking this support service.
- Meal ordering assistance is provided to patients who need extra help.
- Regular consumer engagement training is provided to all food service staff (chefs, kitchen staff and food delivery staff including personal services and care assistants) who interact with patients.

It is suggested that:

- Regular nutrition training (basic principles) be provided to all staff involved in patient meal delivery – for example, chefs/cooks, food service assistants, menu monitors, tray-line staff, delivery people (this could include personal services or care assistants) and nurses. (Note: this is different from malnutrition screening training required for nursing staff).

2.5 Sustainability and food procurement

It is suggested that:

- Food waste management plans integrate with the Victorian Government's *Sustainability in Healthcare – Environmental sustainability strategy 2018–19 to 2022–23*.
- Health services minimise the number of packets on a meal tray – for example, decanting cereals into a bowl and juice into a glass from bulk sources. There would be exceptions to this to ensure food safety, and management of allergies and specific diets.
- Health services ensure that, where possible, foods are seasonal and sourced from local or Victorian producers.
- Health services consider developing an organisational local food procurement policy.

Refer to Appendix 4 for further information on sustainable food waste reduction strategies.

3. General food service considerations



3. General food service considerations

Choking

It is important to recognise and minimise the risk of choking in children. Supervision is essential at all times when children are eating and drinking. Discourage children from eating while walking, running or playing. The menu should avoid tough and stringy foods, and any bone and gristle should be removed from chicken and fish. The way food is prepared can also influence the risk for choking. Cutting up food into small pieces, cooking and mashing foods can help mitigate the risk.²³ There are some foods that, when served whole, uncooked or in certain shapes, are more likely to block the airway and cause choking. Examples of these include lollies, popcorn, all nuts, seeds, dried fruit and dry hard biscuits. A list of potential choking hazards for young children is available at from the CDC website <<https://www.cdc.gov/nutrition/InfantandToddlerNutrition/foods-and-drinks/choking-hazards.html>>.²⁴

Hot food and drink

There is risk of burns and scalding with hot fluids. Appropriate serveware and supervision should be provided.

Food access

- There must be no more than 14 hours between the last meal or nourishing snack of an evening and the first meal or snack the following day.²⁵
- Nutrient-dense, familiar snacks from the five food groups (e.g. plain milk, yoghurt, cheese, fruit, sandwiches) should be available and accessible at all times - for example, in the pantry supply.
- Tap water must always be available and is the preferred drink for all children. Cooled, boiled water is recommended for children under 12 months of age.

Serve sizes

Access to small (0.5 × standard serve) and large (1.5 × standard serve) serves is necessary to meet the needs of all paediatric patients. It is important to note that in some instances it is difficult to include a range of serve sizes and at times the option for a double serve will be the most appropriate.

Guidelines for food preparation

- Low fat diets are not appropriate for a large proportion of hospital patients.²⁶
- Use poly- and mono-unsaturated fats in cooking.
- Use low or reduced sodium products (e.g. gravies/stocks, baked beans and bread) in cooking.
- Herbs, spices, onion, garlic and lemon juice should be used to flavour food instead of added salt.

Juice

Fruit juice (no added sugar) should be offered no more than once per day.

- Note: In line with the ADGs, fruit juice is acidic and can increase the risk of dental erosion so should be treated as an occasional drink. It also has less fibre and other healthy nutrients than the whole fruit provides.⁶
- Overconsumption of juice/cordials and soft drinks that are nutrient-poor can lead to dental caries and early satiety.²⁷ They are also associated with an increased risk of overweight and obesity.²⁸

Caffeine

Caffeine occurs naturally in food such as coffee, tea and cocoa. It has a long history of use as a mild stimulant. Caffeinated drinks are not recommended for children. An FSANZ expert working group concluded there was evidence of increased anxiety levels in children at doses of around 3 mg/kg body weight per day. Foods containing added caffeine (and guarana) must carry a statement.²⁹

4. Minimum menu choice tables for paediatric patients



4. Minimum menu choice tables for paediatric patients

The minimum menu choice tables are intended to inform the menu development for both paediatric specialist hospitals and generalist hospitals that provide a supplemental paediatric short order menu. These tables do not go into the specifics of menu cycles; rather, individual facilities have the flexibility to assess and adapt their menus to meet the needs of their local population.

The basis for paediatric menu design is underpinned by healthy eating principles. In order for hospitals to meet the varying age-specific, developmental, cultural and increased dietary requirements, it is expected that hospitals assign a proportion of their menu according to the following **menu options**: 'nourishing', 'vegetarian', 'culturally diverse', 'easy-chew' and 'paediatric finger food', according to local population needs.

These menu options are defined as:

- nourishing – higher in energy and protein (refer to the nutrient profiles described in the tables below)
- vegetarian – based on lacto-ovo vegetarian allowances
- culturally diverse – reflective of the cultures prevalent in the local population
- easy-chew – as per the IDDSI definition⁴¹ – normal, everyday foods of soft/tender textures that are developmentally and age-appropriate
- paediatric finger food – food served in a way that it can be conveniently eaten with fingers. It promotes independence in children who are learning to eat and/or have difficulty using a knife and fork independently.

Where possible, serve sizes are based on the serve sizes of foods in the ADGs.⁶ However, due to practical considerations, it is necessary to recognise catering agreements and therefore, where this is relevant, the nominated portion control serve has been used. Where required, this has been identified in the tables below.

To help align a paediatric menu within an adult 'banded' menu, corresponding bands have been highlighted against relevant nutrient profiles within the tables below. In most instances, 'the nourishing option' correlates to Band 2 in the Adult Standards. For more information about the banding system, please refer to the Adult Standards.

It is important to note that the number of choices expressed within these tables are considered a minimum. Hospitals are encouraged to extend their meal service and offer additional choices based on the needs of their local patient population.

Note: Product brand names used in this document do not imply endorsement by the Victorian Government.

4.1 Breakfast items

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Fruit	Fresh fruit	150g Examples: 1 medium banana, apple or orange 2 small apricots, mandarins or kiwi fruits 1 cup (150 g) diced fruit	1	0.5	0.5	1	1	Use developmentally appropriate texture modification where required. Offer cut-up fruit because it is easier to hold and eat and more enticing to young children. Offer a variety of fruit at consecutive meals.
	Canned fruit	1 cup	1	1	1	1	1	Canned in natural juice (not syrup) or water.
	Fruit juice	~ 125 mL	Not appropriate for default menu	Max. 1	Max. 1	Max. 1	Max. 1	100% fruit juice (no added sugar). Offer no more than once per day.

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Cereal	Cold cereal Nutrient profile: Less than 30 g sugars per 100 g sugars	30–45 g Examples: Muesli Corn flakes Wheat biscuits	2	1	1	1	Up to 2	Ensure cereal choices are developmentally appropriate. Large (double) serves should be available for older teenagers. More than 1 cereal offered must contain more than 3 g fibre per serve. Higher fibre option should be provided as default.
	Hot cereal	120 g cooked weight Examples: Porridge Semolina Congee	1	0.5	1	1	1	No added sugar. No added salt.
	Milk for cereal Soy milk Nutrient profile: 100 mg calcium per 100 mL minimum	PC serve ~ 140 mL	2	1 PC	1 PC	1 PC	Up to 2 PC	Offer only full cream milk to children aged 1–2 years. Offer a choice of full cream and reduced fat milk to children aged over 2 years. Calcium-fortified soy milk should be available on request as an alternative to dairy. Rice milk may be available to cater to food allergies but should not be offered on the standard menu. Rice milk is less nutritious than cow's and soy milk.
Protein at breakfast	Nourishing option Nutrient profile: 700 kJ per serve minimum 5 g protein per serve minimum Aim for 600 mg sodium per serve maximum (Band 2)	Examples: 1 egg with toast soldiers 75 g baked beans with toast Congee with 1 egg Pancakes with fruit	1	1	1	1	Up to 2	A hot breakfast is recommended. A hot breakfast has been found to assist those more nutritionally at-risk patients to meet their energy and protein needs (in the adult population). ³⁰ Eggs must be well cooked to reduce risk of salmonella. Offer a vegetarian option at every eating occasion. Vegetables (e.g. grilled mushrooms, cherry tomatoes) can be offered for variety and can be counted towards dietary vegetable serves.

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Toast/bread	Bread Nutrient profile: 400 mg per 100 g sodium maximum	30–45 g Example: 1 slice/roll (~ 40 g)	2	1	2	2	2	Offer at least one choice of wholemeal or wholegrain bread. White bread can be available. Wholemeal or wholegrain bread should be the default choice. For variety offer a small bread roll, raisin bread, crumpets or English muffins.
Spreads	Margarine	PC serve: Margarine ~ 10 g	1	1 PC	Up to 2 PC	Up to 2 PC	Up to 2 PC	Offered at all meals with bread. Poly- or mono-unsaturated margarine should be the default choice and always be available. Butter (PC ~ 7 g) may be offered on request.
	Spreads	Preferably portion control Examples: Honey ~ 13 g Jam ~ 13 g Vegemite ~ 5 g Peanut butter ~ 11 g	3	1 PC	Up to 2 PC	Up to 2 PC	Up to 2 PC	Include a selection of jams, Vegemite and honey. Offer peanut butter and other nut spreads according to hospital allergy policy. Artificially sweetened jams and spreads are not indicated in this population group and not deemed necessary for patients with diabetes. ³¹
Beverages	Cow's milk	PC serve ~ 140 mL	2	1 PC	1 PC	1 PC	2 PC	Offer only full cream milk to children aged 1–2 years. Offer a choice of full cream and reduced fat milk to children aged over 2 years Calcium-fortified soy milk should be available on request as an alternative to dairy.
	Soy milk Nutrient profile: 100 mg calcium per 100 mL minimum							
	Hot drinks	~ 250 mL	–	–	–	–	–	Providing hot drinks is at the discretion of the individual hospital policy. Note: Hot drinks present a risk for burns and scalds; caffeinated drinks are not recommended for children.
Sugar	Sugar and sugar substitutes	PC serve: Sugar sachet ~ 4 g	Not appropriate	–	–	–	–	Sugar is not necessary and should not be offered on the standard or default menu. It may be available on request. Note: Sugar substitutes are not necessary. ³¹

4.2 Lunch and dinner items

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Soup	Nourishing option Nutrient profile: 400 kJ per serve minimum 5 g protein per serve minimum Aim for 600 mg sodium per serve maximum (Band 2)	~ 180 mL Examples: Creamy pumpkin Pea & ham Moroccan lentil Chicken tom yum	1/day	0.5	1	1	1	<p>Providing soups to young children is at the discretion of the individual hospital.</p> <p>Maintain variety at consecutive meals.</p> <p>Soup presents a good opportunity to provide vegetables, fluid and protein in an 'easy-to eat' form for nutritionally at-risk children.³²</p> <p>Broth can be offered as a fluid source and for appropriate therapeutic diets.</p> <p>Note: Not all soups need to meet the nourishing nutrient profile. It is at the discretion of the individual hospital to nominate the proportion of 'nourishing' soups on the menu.</p>
	Variable nutrient value option Nutrient profile: Not specified Included for dietary variety	~ 180 mL Examples: Tomato Pumpkin Miso Soba noodle						
Bread	Bread Nutrient profile: 400 mg sodium per 100 g maximum	30–45 g Example: 1 slice/roll (~ 40 g)	2/meal	1	1	1	Up to 2	<p>Offer at least one choice of wholemeal or multigrain bread. White bread can be available.</p> <p>Wholemeal or multigrain bread should be the default choice.</p> <p>For variety, offer a range of different breads: garlic bread, naan, roti, chapati and pita.</p> <p>Bread offered should match main meals.</p>
Spreads	Margarine	PC serve: Margarine ~ 10 g	1/meal	1 PC	1 PC	1 PC	Up to 2 PC	<p>Poly- or mono-unsaturated margarine should be the default choice and always be available.</p> <p>Butter (PC ~ 7 g) may be offered on request.</p>

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Hot main meals	<p>Nourishing option</p> <p>Nutrient profile: 700 kJ per serve minimum 10 g protein per serve minimum* Aim for 600 mg sodium per serve maximum</p> <p>Variable nutrient value option</p> <p>Nutrient profile: Not specified Included for dietary variety</p>	<p>Plain cooked meat:</p> <p>Red meat 50 g minimum (beef, lamb, kangaroo)</p> <p>White meat 70 g minimum (pork, poultry)</p> <p>Fish 90 g minimum (fresh or canned)</p> <p>Examples:</p> <p>Roast meat</p> <p>Grilled fish/chicken</p>	2/meal	0.5	0.5	1	Up to 1.5	<p>Include a variety of proteins (meat, fish, egg, tofu, legumes) and types of meals at consecutive meals and on consecutive days.</p> <p>Recipes should be oven-baked, grilled or steamed in preference to frying with oil.</p> <p>Ideally fish should be offered twice a week.</p> <p>Offer a vegetarian option at every eating occasion.</p> <p>* If vegetarian main meals don't meet the minimum protein per serve, ensure adequate protein is offered over the day, such as through nourishing side dishes or mid-meals.</p> <p>* The Adult Standards recommend Band 2 main meals, including vegetarian meals, have a minimum of 15 g protein per serve.</p> <p>Note: Portion sizes can vary significantly. Dishes can include a number of different protein sources (e.g. meat & legumes) and therefore the onus is on the nutritional profile of the meal and not the weight of singular protein sources.</p> <p>Note: Variable nutrient value options should not comprise more than 20% of the menu</p>

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Hot main meals (con'd)		Mixed dish Examples: Casserole Dahl Curry Chilli con carne Stir-fry Fried rice Spaghetti bolognese Pasta bake Risotto Eggplant parmigiana Frittata Cottage pie						
		Paediatric finger foods Examples: Fish fingers Steamed dumplings Meat balls Veggie patties Sushi Zucchini slice Mini quiche Okonomiyaki Pizza Corn fritters Falafel wrap Spanakopita						

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Starch items	Cooked grains or potato	<p>~ ½ cup or 75–120 g cooked</p> <p>Examples:</p> <p>Rice</p> <p>Pasta</p> <p>Noodles (egg/soba/ rice)</p> <p>Couscous</p> <p>Quinoa</p> <p>Polenta</p> <p>Potato (mashed/ roast/steamed/ scallop, hot chips (60 g))</p>	1–2/meal*	1	1	1	Up to 2	<p>Starch should be matched to the main dish (e.g. roast potato with roast meat).</p> <p>Aim to include a variety within consecutive meals and on consecutive days.</p> <p>To enhance menu cultural diversity and interest, offer a variety of grain dishes such as rice pilaf, Moroccan couscous, quinoa & black beans, polenta chips.</p> <p>Where possible offer lower GI rice varieties (e.g. basmati or doongara).</p> <p>Hot chips can be offered occasionally for variety.</p> <p>* Where a mixed dish is offered, it is understood that the starch component of the meal may be included within the dish, therefore a single starch/grain choice is sufficient.</p>

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Vegetables	Cooked vegetables	~ ½ cup or 75 g cooked Examples: Roast pumpkin Grilled capsicum strips Sweet potato wedges Corn on the cob Cauliflower gratin Edamame Beans Ratatouille Stir-fried Chinese broccoli Steamed peas	2/meal	1	2	2	2	Vegetables should be matched with main dishes. Aim to include variety (including at least 2 different colours) within a meal, as well as across consecutive meals and on consecutive days. Where possible use seasonal vegetables. In the hospital setting, vegetables often result in high levels of wastage. To improve acceptance, vegetables can be enhanced either through presentation (roasted wedges/bites, grilled strips) or combined with a sauce or gravy, or using garnishes and herbs and spices. Note: Soup and other mixed dishes with high vegetable content can contribute to the daily vegetable requirement.
	Raw vegetables or side salad	1 cup (or 75 g raw) Examples: Snow peas Cherry tomatoes Raw vegetable sticks Lettuce Baby spinach Canned beetroot Canned corn, baby corn	1 per day	1	1	1	Up to 2	Offer a variety of a minimum 3 coloured vegetables within the salad. Offer unsaturated fat PC salad dressings. Raw vegetables/salad can be offered as an alternative to cooked vegetables. Where possible use seasonal fresh vegetables. Chopped raw vegetables can provide a good finger food option. To improve acceptance, serve with a nourishing dip such as hummus or tzatziki. Note: Soup and other vegetable-based mixed dishes should contribute to the total daily vegetable requirement.

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Condiments	Gravy/sauce	According to the size of the meal	According to the dish	0.5	0.5	1	Up to 1.5	Gravy and/or sauces may be offered when deemed an appropriate accompaniment to a dish such as roast meat and vegetables.
	Portion controlled sauce	PC serve Examples: Tomato sauce Mayonnaise Tartare sauce Soy sauce	According to the dish	1 PC	1 PC	1 PC	Up to 2 PC	A range of condiments may be offered as an accompaniment to a dish. Condiments should be offered to match the dish.
	Salt	PC serve: 1 g sachet	Not appropriate	0	0	0	0	Not available on the standard or default menu. Available on request.

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Sandwiches/ wraps	<p>Nourishing option</p> <p>Nutrient profile: 800 kJ per sandwich minimum 8 g protein per sandwich minimum (Band 2)</p>	<p>4-point sandwich or 25 cm wrap</p> <p>Suggested portion of sandwich filling: Egg x 1 Cheese (20 g minimum) Meat/chicken/fish 50g minimum Hummus 30 g Falafel 50 g</p> <p>Examples: Egg & lettuce Chicken & avocado Cheese & tomato Falafel & hummus</p>	<p>2/day</p> <p>Minimum 1 nourishing option per day</p>	0.5	1	1	Up to 2	<p>Include a variety of sandwiches at consecutive meals and on consecutive days.</p> <p>Include a variety of breads and wraps – wholemeal, wholegrain, white, sourdough, roti.</p> <p>Use mono- or poly-unsaturated margarine spreads or use avocado or hummus as an alternative spread.</p> <p>Wholemeal or wholegrain bread is the default choice.</p> <p>Cut into wedges for a finger food option.</p> <p>Toast sandwiches/wraps to improve acceptance/interest.</p> <p>Half sandwiches can be included as a snack option for patients.</p> <p>Sandwiches should be readily available on the ward for patient access.</p>
	<p>Variable nutrient value option</p> <p>Nutrient profile: Not specified Included for dietary variety</p>	<p>4-point sandwich</p> <p>Examples: Vegemite Salad</p>						

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Fruit	Fresh fruit	150g Examples: 1 medium banana, apple or orange 2 small apricots, mandarins or kiwi fruits 1 cup (150 g) diced fruit	1/meal	0.5	0.5	1	1	Offer cut-up fruit. It is easier to hold and eat. Offer a variety of fruit at consecutive meals.
	Canned fruit	1 cup	1	1	1	1	1	Offer a variety of canned fruit at consecutive meals. Canned in natural juice (not syrup) or water.
Desserts	Nourishing option Nutrient profile: 500 kJ per serve minimum 4 g protein per serve minimum (Band 2)	Examples: Apple strudel Crème caramel Fruit crumble with custard PC serve: Creamy yoghurt 150 g minimum Dairy dessert (e.g. Fruche) 150 g minimum Custard 150 g minimum	4/meal Minimum 1 Nourishing option/meal	2	2	2	2	Offer a variety of nourishing desserts on consecutive days. Desserts can be a beneficial means of assisting those more nutritionally at-risk patients to meet their energy and protein needs. Note: Portion sizes can vary. The onus is on the dessert meeting the nutritional profile.

Menu item	Type and nutrient profile	Serve size and examples	Minimum choice	Age-appropriate serve				Nutrition and menu design considerations
				1–3 years	4–8 years	9–13 years	14–18 years	
Desserts (con'd)	Variable nutrient value option Nutrient profile: Not specified Included for dietary variety	Examples: Chocolate brownie Banana/carrot cake Apple & cinnamon muffin PC serve: Ice cream 100 mL minimum Jelly 110 g minimum						Included for ease of consumption, familiarity and ready uptake by children in hospitals. Note: Despite jelly having a low nutritional profile, hospitals offer it as an option for therapeutic reasons.
Beverages	Cow's milk	PC serve ~ 140 mL	2	1 PC	1 PC	1 PC	2 PC	Offer only full cream milk to children aged 1–2 years. Offer a choice of full cream and reduced fat milk to children aged over 2 years. Calcium-fortified soy milk should be available on request as an alternative to dairy.
	Soy milk Nutrient profile: 100mg calcium per 100 mL minimum							
	Hot drinks	~ 250 mL	–	–	–	–	–	Providing hot drinks is at the discretion of the individual hospital policy. Note: Hot drinks present a risk for burns and scalds; and caffeinated drinks are not recommended for children.

4.3 Mid-meals

Children (younger children in particular) have a physiological need for small, regular meals and snacks. They have a smaller stomach capacity and lower energy stores, but due to the demands of growth, children use energy at a higher rate than adults.⁶ Adolescents also require regular meals and snacks to meet their increased energy and nutrient demands at a time of rapid growth.³³ In hospitals it is well recognised that children have poorer appetites due to a range of reasons including unfamiliarity of the environment, unfamiliar food, age-appropriate fickle appetites and purely as a consequence of being unwell. It is also well recognised that patients miss meals because of medical/clinical appointments.

Mid-meals provide a cost-effective approach to assisting children in meeting their nutritional requirements for a number of reasons.^{34,35} The opportunity to choose at the point of service gives patients a sense of autonomy and results in better intakes by the patient (and less food waste, which is known to be a significant problem for hospital food services).³⁶ This approach of providing small, frequent meals has been promoted and implemented in the UK and advocated in the Scottish 'Food in Hospitals' Standards.^{37,38}

Therefore, it is strongly recommended that mid-meals are offered at least twice per day and that at least one offering includes nourishing options as part of the standard menu that is offered to all patients.

Mid-meal item	Type and nutrient profile	Examples (including serve)	Minimum number of times offered	Minimum number of choices	Nutritional considerations and menu design comments
Cold beverages	Milk	PC Serve ~ 140 mL	2 per day	2	Only offer full cream milk to children aged 1–2 years. Reduced fat and full cream milk to be available. Calcium-fortified soy milk should be available on request as an alternative to dairy.
	Soy milk Nutrient profile: 100 mg calcium per 100 mL minimum				
	Water	N/A	Unlimited	N/A	Water should be made readily and easily available at all times. Tap water is preferred.
Standard snacks	Fresh fruit	150 g Examples: 1 medium banana, apple or orange 2 small apricots, mandarins or kiwi fruits 1 cup (150 g) diced fruit	2/day	2	Use developmentally appropriate texture modification where required. Offer a number of different types of fruits to ensure variety. Cut-up fruit is easier for young children. Where possible offer seasonal fruit.

Mid-meal item	Type and nutrient profile	Examples (including serve)	Minimum number of times offered	Minimum number of choices	Nutritional considerations and menu design comments
High-energy and nourishing snacks	Nutrient profile: High-energy option 500 kJ per serve minimum Nourishing option 500 kJ per serve minimum 5 g protein per serve minimum (Band 1)	Cheese (~ 20 g) & biscuits (2–3) Dip (~ 30 g) & veggie sticks Frozen yoghurt Yoghurt (~ 160 g) Custard (~ 150 g) Flavoured milk (~ 150 mL) Sweet biscuits (2–3) Fruit cake* (~ 40 g) Plain cake with icing (~ 40 g) Small muffin* (~ 40 g) Savoury/sweet scone (~ 40 g) Muesli/breakfast bar* (~ 30 g) Half sandwich Dried fruit* (30–40 g) Nuts (~ 30 g)* ^	1/day	2 Offer a minimum of 1 nourishing mid-meal option	Use developmentally appropriate texture modification where required. Offer a variety of snack options on consecutive days. * Avoid dry and hard biscuits, nuts, dried fruit, potato crisps and popcorn to minimise the risk of choking in children under 3 years of age. ^ Provision of nuts depending on individual hospital policy.

5. Special nutrition considerations for specific patient groups



5. Special nutrition considerations for specific patient groups

This section describes nutrition issues for specific groups of patients and is informed by the peer-reviewed literature, government reports and monitoring and observations from nutrition and food service professionals working with these groups.

5.1 Infants (aged 4–12 months)

Considerations for menu planning

Offer three meals per day.

Snacks should be available on the ward for on-demand access.

Baby diet / first foods / baby puree

(Expected normal age progression 4–7 months)

Commercial infant-specific foods or made in-house:

- infant iron-fortified cereals
- cooked pureed plain fruit
- cooked pureed plain vegetables (potato, sweet potato, peas, broccoli, carrot, pumpkin)
- cooked pureed plain meats (chicken, beef, lamb)
- cooked pureed plain tofu, legumes, beans.

Appropriate snacks on the ward:

- infant iron-fortified cereal sachets (PC)
- infant fruit/vegetable puree.

Bigger baby diet / baby mince

(Expected normal age progression 7–9 months)

Ensure solid foods are of appropriate texture: textures progress to minced/mashed.

Full cream milk is not appropriate as a main drink before 12 months (can be available to mix with cereal).

Cow's milk products including full-fat yoghurt and custard may be given.

Breakfast options:

Plain yoghurt, wheat-biscuit cereal (soaked in full cream milk), well-cooked porridge, congee, semolina.

Infant iron-fortified cereal should continue to be available.

Do not provide fruit juice.

Commercial infant-specific foods or made in-house:

- minced/mashed plain fruit (banana, avocado, mango and cooked mashed fruit)
- minced/mashed plain vegetables (potato, sweet potato, peas, broccoli, carrot, pumpkin)
- minced/mashed plain meats (chicken, beef, lamb)
- minced/mashed plain tofu, legumes, beans.

Appropriate snacks on the ward:

- wheat-biscuit cereal (PC) with full cream milk
- porridge sachets (PC)
- minced/mashed plain fruit
- baby rusks (PC).

Bigger baby diet / paediatric finger foods

(Expected normal age progression 9–12 months)

Ensure solid foods are of appropriate texture: textures progress to soft, easy-chew, wet dishes and cut-up finger foods. Meals should be derived from the main 'standard' menu.

Avoid the following foods: honey, full cream milk as a main drink (can be available to mix with cereal), fruit juice, whole nuts, dried fruit, popcorn, lollies, hard raw vegetables such as carrot (which can be par boiled), celery.

Foods such as cherry tomatoes and grapes should be cut up.

Breakfast options:

Plain yoghurt, wheat-biscuit cereal (soaked in full cream milk), iron-fortified infant cereal to continue to be available, well-cooked porridge, congee, semolina and toast fingers with spreads.

Egg dishes: scrambled, omelette, hard boiled, etc.

Lunch and dinner options:

- sandwiches with a soft filling such as minced chicken and avocado, cream cheese, hummus
- soups as per site policy
- all finger foods
- all soft/wet, easy-chew mixed dishes.

Appropriate snacks on the ward:

- soft fruit (banana, avocado, mandarin, kiwi and stewed fruit)
- baby rusks (PC)
- plain yoghurt
- wheat-biscuit cereal (PC) and full cream milk
- bread and spreads.

A note on food safety for texture modified meals made in-house

Due to the extra handling involved in preparing texture modified food, there is an increased potential for cross-contamination. In conjunction with the Victorian Food Act 1984 requirements for food safety programs³⁹ and FSANZ Standard 3.3.1⁴⁰, food businesses involved in producing these meals for vulnerable people must ensure adequate cleaning and sanitation of equipment. For further information refer to FSANZ *Food safety programs for food service to vulnerable persons: a guide to Standard 3.3.1* (2008) <<https://www.foodstandards.gov.au/code/userguide/Documents/Std%20331-Food%20Safety%20Prog%20Vul%20Pers-guideFNL1.pdf>>.

5.2 Patients with dysphagia

Background

Dysphagia affects about 8 per cent of the general population.⁴¹

While the rate of feeding disorders in typically developing children is estimated to be 25–45 per cent, the actual incidence of dysphagia in children is unknown.⁴²

The most common cause of dysphagia is underlying medical or physical conditions. Related consequences include chest infection (pneumonia), malnutrition and dehydration.

Texture modified foods and thickened fluids can help to reduce the risk of choking and aspiration.

In November 2017 the IDDSI framework was published. It describes international standardised terminology and definitions for texture modified foods and thickened liquids used for people of all ages with dysphagia, in all care settings. It contains a continuum of eight levels of food and fluid definition.⁴¹

It is important to note that speech pathology or medical assessment is required to diagnose dysphagia and to prescribe an appropriate texture modified diet.

Considerations for menu planning

The hospital menu needs to accommodate patients with dysphagia requiring texture modification.

Texture modified menus for dysphagia patients should align with the minimum menu choice standards (refer above) including nourishing nutrient criteria, serve size and number of serves.

Hospitals must work with the local speech pathologist to ensure appropriate diets are provided to their patient cohort.

Consider moulded texture modified meals to improve plate presentation and increase patient acceptance.

Note that texture modified foods for dysphagia may differ from those required for standard infant developmental texture modification.

Note that differences between adult and paediatric IDDSI definitions exist for the following diets:

- level 6 – soft and bite-sized
- level 5 – minced and moist.

Note that recommended and standardised abbreviations are available for food service computer programs on the IDDSI website <<https://iddsi.org>>.

A note on food safety

Due to the extra handling involved in preparing texture modified food, there is increased potential for cross-contamination. In conjunction with the Victorian *Food Act 1984* requirements for food safety programs³⁹ and FSANZ Standard 3.3.1⁴⁰ food businesses involved in producing these meals for vulnerable people must ensure adequate cleaning and sanitation of equipment. For further information refer to *FSANZ Food safety programs for food service to vulnerable persons: a guide to Standard 3.3.1* (2008) <<https://www.foodstandards.gov.au/code/userguide/Documents/Std%20331-Food%20Safety%20Prog%20Vul%20Pers-guideFNL1.pdf>>.

5.3 Long-stay and frequently admitted patients

Background

According to the Victorian Agency for Health Information (VAHI), during the 2019–20 financial year, 6 per cent of all paediatric patients had a hospital admission longer than 7 days.⁴³ Of these:

- 93 per cent were admitted to metropolitan hospitals
- less than 1 per cent of patients were admitted to a rural hospital
- 47 per cent were older teens.⁴³

Admissions for rehabilitation incurred the longest average length of stay.

Patients with multiple readmissions within a year are becoming more prevalent within the hospital system.⁴⁴ Both long-stay and frequently admitted patients are known to suffer menu fatigue, reporting the lowest satisfaction with hospital food.⁴⁵

Furthermore, multiple studies into paediatric malnutrition have found that longer hospital admissions are positively correlated with a higher risk for both having and developing undernutrition.^{40,46}

Considerations for menu planning

The following strategies should be considered to maintain interest in the menu and if the results from individual hospital demographic study identify a need:

- Maintain a good number of choice within the menu.
- Provide an extensive short order menu.
- Include seasonal fruit and vegetables.
- Keep a record of dietary preferences for patients who have frequent admissions.
- Include special theme days (e.g. celebrate culturally important days).
- Offer well-liked, easy-to-eat foods such as nutrient-dense soups, easy-chew options, finger foods and nourishing desserts.
- Ensure a variety of high-energy and nourishing options are available at mid-meal times.
- Provide ready access to familiar foods (from the five food groups) on the ward such as milk, cheese, wheat biscuits, porridge sachets, fresh fruit, yoghurt, dry wholegrain crackers, wholegrain bread and spreads.

5.4 Day patients, emergency department and out-of-hours food service

Background

Day patients include those patients who regularly attend hospital for a medical procedure such as chemotherapy or dialysis and then return home in the evening.

According to VAHI, during the 2019–20 financial year 55 per cent of all paediatric admissions to Victorian public hospitals were for day procedures.⁴³ They were distributed as follows:

- 81 per cent metropolitan
- 11 per cent regional
- 6 per cent sub-regional
- 2 per cent rural.⁴³

Compared with overnight admissions:

- There were more day admissions across all age groups except in children aged under 1 year.
- The definition of day patients could also be extended to the emergency department where people are not expected to stay longer than 4 hours without further processing such as discharge or admission. However, this 4-hour limit is aspirational, and there is usually a percentage of patients who stay beyond the 4-hour period. Refer to the VAHI website <<https://vahi.vic.gov.au/emergency-care/length-stay>> for details on individual Victorian hospitals.
- Feedback from patient satisfaction surveys routinely finds that while meals once admitted are regular and timely, meals in emergency departments are not as available.⁴⁷

Limited out-of-hours access to food is another recurring theme from consumer feedback interviews and focus groups.

Considerations for menu planning

Default menus can be used to accommodate short-stay patients.

A short order menu can be useful in providing appropriate choices for the shorter stay or day patients.

Access to nutritious food and drink items is encouraged to ensure out-of-hours patient access.

In practice it can be difficult for food service systems to cater to these services, especially if they have not been part of the original service agreement. Consider alternative meal provision:

- vending machine (inclusive of complete frozen meals, snacks and drinks) – find out more from the Healthy Eating Advisory Service website <<https://heas.health.vic.gov.au/healthy-choices/healthy-vending/healthy-vending-ideas>>
- pantry supply (including a range of healthy and nourishing and/or allergen-free snacks)
- ward snack boxes (can be used in lieu of pantry supply based on need and feasibility).

5.5 Vegan patients

Background

Hospitals need to provide suitable meals to patients who follow a vegan diet.

The American Academy of Pediatrics and the Academy of Nutrition and Dietetics advocate for appropriately planned vegetarian and vegan diets as healthful and nutritionally adequate for individuals during infancy, childhood and adolescence.⁴⁸ A vegan diet without medical and dietary advice can carry the risk of a number of nutrient deficiencies, including vitamin B12, calcium, iron, zinc and high-quality protein, which can have potentially devastating health effects.⁴⁹ A sufficient amount of vitamin B12 cannot be found in plant-foods and, as such, consuming vitamin B12-fortified products or a vitamin B12 supplement should be mandatory for all vegans. Due to the serious consequences associated with vitamin B12 deficiency in childhood, it is the responsibility of the treating medical team to ensure any vegan patients are adhering to these recommendations or, if deemed necessary, a referral be made to a dietitian for appropriate assessment and review of the patient's diet.

Considerations for menu planning

The vegan diet is not nutritionally adequate unless fortified foods (e.g. cereals and soy beverages) are included.

Hospital food services acknowledge challenges in providing adequate variety to this patient group.

High-protein plant foods must be available at each meal. Legumes and tofu are good sources of protein, iron and zinc.

Offer a source of vitamin C at each meal (e.g. fresh fruit) to improve iron absorption.

While a range of alternative milks exist, soy milk is preferred due to its higher protein content. Soy milk must contain a minimum of 100 mg calcium per 100 mL.

Strategies to promote nutritional adequacy and variety on the menu include the following:

- Offer main meals based on lentils (red, puy), peas (split peas, chickpeas), beans, (kidney, black, cannellini, fava), textured vegetable protein (TVP) and tofu.
- Offer a variety of sandwich/wrap fillings such as baked beans, falafel, hummus, Mexican bean, soy cheese and peanut butter.
- Use commercially available soy and sesame-based dressings and dips.
- Offer commercially available snacks such as fortified soy/coconut yoghurt and soy cheese (non-animal rennet).

Take care to avoid ingredients of animal origin such as casein, whey, lactose, gelatine, collagen, lard, ghee, suet, tallow, butter, dripping, honey, albumin, globulin, rennet (that does not specify non-animal), oleic/linolenic acid, additive E120, cochineal, carmine and vitamin D3 derived from lanolin.

In the absence of any clear trend, it would be sensible to ensure vegan options are suitable to a range of cultures, particularly those most represented in individual hospital demographic studies.

5.6 Patients from diverse cultural and religious backgrounds

Background

Victoria is among the fastest growing and most diverse states in Australia. At the 2016 Census,⁵⁰ of Victoria's total population:

- 28.4 per cent were born overseas in more than 200 countries
- 26 per cent spoke a language other than English at home
- 59 per cent followed one of more than 130 different faiths, down from 67.5 per cent in 2011 and reflecting a national trend.

While the above 2016 Census shows 0.8 per cent of the Victorian population identify as being of Aboriginal and/or Torres Strait Islander origin, in 2017–18, 1.6 per cent of Australian hospital admissions reported as being of Aboriginal and/or Torres Strait Islander origin.⁵¹

While Christianity had the highest following, Islam had the second highest and had experienced a significant increase in the 5 years between 2011 and 2016. Buddhism, Hinduism and Sikhism also experienced an increase. Judaism was ranked 13th, which is consistent with previous years.

The largest increases in migration to Victoria were noted for those born in Pakistan, China, India, Philippines, Sri Lanka and Malaysia.

According to VAHI, during the 2019–20 financial year 94 per cent of all paediatric patients admitted to hospital in Victoria were born in the Oceania and Antarctica region (Australia). It should be noted that their parents might have been born elsewhere. In addition, 2.9 per cent of paediatric patients were of Aboriginal and/or Torres Strait Islander origin.⁴³

Metropolitan hospitals had the highest proportion of patients born overseas followed by rural hospitals.

Considerations for menu planning

Judaism and Islam adhere to particular dietary requirements. Due to these specific requirements, it is likely that hospitals will need to source foods from external suppliers.

Food suppliers can voluntarily provide this kind of information on the labels of their food products (e.g. 'halal', 'kosher').⁵²

The following websites provide useful tools and resources to assist in developing appropriate menus and sourcing culturally appropriate foods:

- Kosher Australia <www.kosher.org.au>
- Kosher Authority <<https://www.ka.org.au/understanding-kosher/guide-kashrut>>
- Jewish Australia <<http://www.jewishaustralia.com/food.htm>>
- Islamic Council of Victoria <<https://www.icv.org.au/about/about-islam-overview/what-is-halal-a-guide-for-non-muslims/>>
- religious events calendar <<http://www.faithvictoria.org.au/resources/religions>>.

In providing a multicultural menu, it helps to be aware of cultural celebrations. Also, offer a range of:

- culturally diverse condiments (e.g. soy vinegar, soy sauce)
- staple foods (e.g. rice, polenta, couscous, noodles)
- types of dishes (e.g. stir-fries, curries)
- culturally appropriate cutlery and crockery (e.g. chopsticks).

It is important to seek consumer input, especially if demographic data highlights a specific culture. Refer to Section 5 of the Adults Standards for more information.

5.7 Patients with a food allergy

Background

In Australia food allergies affect 10 per cent of infants up to 1 year of age, and 8 per cent of children up to 5 years of age.⁵³

Hospital admissions for severe allergic reactions (anaphylaxis) have doubled over the past decade and admissions for anaphylaxis due to food allergy in children aged 0–4 years have increased five-fold over the same period.⁵³

Nine foods cause 90 per cent of food allergic reactions: including cow's milk, egg, peanut, tree nuts, sesame, soy, fish, shellfish and wheat. Other triggers such as fruits and vegetables have been described, and almost any food can cause an allergic reaction.⁵³

Food allergies can develop at any age but are most common in children under 5 years old.

Health services should ensure allergen management aligns with the Victorian *Food Act 1984*³⁹ and FSANZ Food Standards 3.2, 3.3 and any mandatory declarations required under 1.2.3 – 4 and Schedule 9.⁵⁴ This is to be guided by each health service's locally developed food safety program and management of food allergy policies. The allergy management policy, which includes a process for identifying patients with food allergies, and the preparation of allergen-free foods and fluids, is to be documented and audited both internally and as part of a third-party food safety audit.

Considerations for menu planning

The Food Standards Code, 1.2.3 – 4 and Schedule 9 describes the requirement for mandatory declaration of allergens and other high-risk food components including crustacea (specific name declared), egg, fish, milk, soybeans, tree nuts (each specific nut declared), peanuts, sesame, cereal containing gluten and their products (wheat, rye, barley, oats, spelt), lupin and added sulphites (≥ 10 mg/kg).^{54,55}

'May contain' statements are voluntary statements made by food suppliers and manufacturers. The Food Standards Code does not regulate them.⁵³

All about Allergens for Hospitals is a program developed out of the National Allergy Strategy aimed at helping hospitals provide appropriate meals to patients with food allergies. This nationally standardised training for food allergy management in hospitals includes four different courses based on the needs and responsibilities of hospital staff including kitchen managers and supervisors, kitchen staff, ward managers, nurses and ward support staff.

All about Allergens for Hospitals <<https://foodallergytraining.org.au/>> also provides links to simple policy templates, audit tools, allergen free recipes and ingredient substitution tools.

Food allergen management in food service: a best practice guideline <https://www.nationalallergystrategy.org.au/images/doc/Food_Allergen_Best_Practice_Guideline.pdf> was developed by Queensland Health in partnership with the National Allergy Strategy. It provides links to supportive evidence and healthcare-specific governance.

Find out more about food allergen awareness <<https://www.health.vic.gov.au/food-safety/food-allergen-awareness>>.

5.8 Poor/fussy eaters

Background

'Fussy' or 'picky' eating behaviours are prevalent in young children – up to half of toddlers are picky eaters.⁵⁶

It is widely known that toddlers and young children can be particularly fussy when they are in unfamiliar environments such as a hospital, feeling unwell and out of their usual routine.

Patients are considered 'poor eaters' if they do not regularly eat all their meals. 'Fussy eating' on the other hand is characterised by low dietary variety and an unwillingness to eat either familiar or novel foods.^{57,58} Both patient groups are considered at a greater risk of malnutrition on admission to hospital.

Malnutrition is associated with increased mortality, morbidity and length of stay, delayed recovery and the associated increases in healthcare costs.⁶

Food intake under 50 per cent of estimated needs has been linked to increased risk of malnutrition in hospitalised children.⁵⁹

There is a need for flexible, responsive food service delivery to improve satisfaction with meal choices and to improve overall oral intake.⁶⁰

Quality audits into hospitalised paediatric food service provision finds that children report better satisfaction and oral intake when they have more control over meals and more autonomy concerning the timing of meals.⁶¹

Considerations for menu planning

Implementing opportunities to choose foods between meals, at the time of hunger, may be a key strategy to improve oral intake.

Where possible offer:

- choice at the time of consumption
- nourishing mid-meals (suitable items could include cheese and biscuits, full cream yoghurts, nourishing sandwiches)
- well-liked, easy-to-eat foods such as nourishing soups, wet dishes, finger foods and nourishing desserts
- milk-based drinks in preference to water or juice
- desserts because they are often well accepted and can be a beneficial means of increasing the energy and protein intakes of children
- a hot breakfast (this can be a well-accepted, high-energy, high-protein meal)
- smaller-sized portions – younger children in particular may find larger serves unappealing or overwhelming.

Aim to:

- avoid reduced fat dairy products and encourage a minimum of two glasses of full cream milk per day
- limit low-energy foods (broths, low-joule jelly)
- avoid artificially sweetened products.

5.9 Breastfeeding mothers

Background

Due to the nature of paediatric hospitals in providing care to infants it is likely there will be a small but consistent number of breastfeeding mothers staying with their infant who would also be requiring meals. Their role in providing nourishment to their infant should be acknowledged and supported.

Breastfeeding is well recognised as the physiological norm and most beneficial method for feeding infants. It provides immediate and long-term health outcomes for mother and infant, and hospitals are encouraged to create an environment that protects and promotes breastfeeding.¹⁵

In recognition of this, it is recommended that hospitals provide meals to breastfeeding mothers.

Breastfeeding mothers have higher energy requirements than non-breastfeeding women. The physiological state of lactation requires additional fuel to support milk production. There is an increased requirement of approximately 2–2.1 MJ energy per day,⁹ and it is preferred that this additional energy is achieved through consuming vegetables, legumes and grains (cereal – mostly wholegrain).⁶

Considerations for menu planning

Where adult-based serves are not available, adolescent-sized meals are most appropriate for this group.

Any medically recognised allergies should be catered to.

Access to simple and nourishing snacks would assist in meeting nutritional requirements.

Hospitals are encouraged to adopt a baby-friendly hospital program <<https://www.who.int/activities/promoting-baby-friendly-hospitals>>.

5.10 Food from home

Background

Children who are unwell will often prefer the familiarity of meals from home and, when provided, will have a better intake than if presented with a meal from the hospital menu.

While most hospitals provide facilities that allow patients to bring in and store food from external sources (including food from home), hospitals cannot take responsibility for this food but have an overarching duty of care to the patient to ensure their safety. Hospitals must comply with the Victorian *Food Act 1984*³⁹, FSANZ Food Standard 3.3.1⁴⁰ and their individual food safety programs. Hospitals undergo an annual external food safety audit against these programs. They are further subject to audits by the local council.

Considerations for menu planning

Hospitals will have their own food from home policy based on individual food safety programs.

6. Continuous quality improvement and patient/family engagement



6. Continuous quality improvement and patient/family engagement

All menus and food service systems should undergo a CQI process to ensure high-quality food and fluids that are nutritionally adequate, safe and appropriate for paediatric patients are provided in Victorian public hospitals. Please refer to 'Quality frameworks' and 'Continuous quality improvement' in Section 1 of the Adult Standards.

The *Charter on the Rights of Children and Young People in Healthcare Services in Australia* was developed to specifically cover the rights of children when receiving health care. Three key principles underpin the Charter:

- The primary consideration should be the child's best interests.
- All children are to be listened to and taken seriously.
- The family is recognised as the fundamental decision-making unit in a child's life.⁶²

Health services are obliged to meet key requirements for partnering with consumers under the NSQHS Standards⁸. Children and their families have a vital role to play in planning, developing and evaluating the health service. Feedback from consumers are drivers of change.

In addition to the widely recognised barriers to patient engagement (cultural diversity, language, individual patient health experience/history, injury/disability), engagement in paediatric health sectors presents its own set of challenges: the busyness of parenting, work schedules, diverse family structures, developmental challenges and ethical considerations.⁶³

Participation and level of involvement in healthcare delivery involves negotiation with the child, adolescent, family and/or community to ensure their contribution is delivered in a way in which they feel comfortable or can engage with, should they wish to. Appropriate engagement strategies will vary according to the age, maturity and ability of the child and their family to participate.

There is a paucity of literature around the best ways to involve this population. A 2019 scoping review by Flynn et al.⁶³ identified that qualitative methods such as focus groups, meetings, interviews and working groups were most effective. These methods should be used in conjunction with standard and accepted healthcare feedback mechanisms (e.g. surveys, advisory groups, interviews). Focus groups should encourage children to express their opinions in a comfortable and familiar environment and should allow for discussion with and between children. Interviewing techniques that incorporate focused activities into the session can provide variety and interest and stimulate thinking and discussion. Mapping exercises can be used to understand children's perceptions of their environment, which may be useful in expanding on a child's verbal account.⁶⁴

7. Using the Paediatric Standards in menu development and revision



7. Using the Paediatric Standards in menu development and revision

The goal of hospital menu planning and revision is to ensure appropriate food is provided to meet the nutritional needs of the patients. In a paediatric hospital, these nutritional requirements are impacted further by age and clinical condition. Hospital menu design is a significant contributing factor to outcomes such as adequacy of nutritional intake and food wastage. Menu development and revision must be a collaborative process between key stakeholders, food service providers, patients (consumers) and clinical staff. For more information on this process, please refer to 5.3 'Establishing the menu planning/review working group' in the Adults Standards.

The process of using the Paediatric Standards in menu revision and assessment is shown in the case study below. A 188-bed hospital with a cook-freeze food service system was used as the basis for this menu review example. The data required to undertake each step in the menu revision process is outlined in tables found in Appendix 5.

7.1 Steps to menu development

Step 1: Identify the patient profile or hospital demographic

Before developing the menu, it is essential that the patient profile or demographic of the hospital be established and documented. This allows for an accurate determination of the nutritional needs of that population. Gender, age, cultural and religious background and length of stay are all key factors in ensuring accurate and relevant menu revision.

To accurately describe the patient profile of the hospital, Tables 5.1 and 5.2 in Appendix 5 can inform the relevant demographic data to be collected for the preceding 3 (or more) months. The hospital Electronic Medical Records (EMR) or Inpatient Management System (IPM) area should be contacted to request the required data. Computerised menu systems (where available) can also provide useful demographic data.

Findings

The case study revealed:

- a high proportion of adolescent and respiratory long-stay patients
- older adolescents represented the highest admissions according to age groups and had the longest length of stay
- infants aged under 1 year had the fewest admissions
- 28 per cent of all admissions had a food allergy
- 18 per cent of all admission were aged 1–3 years
- 6 per cent of patients were vegetarian
- 5 per cent of patients were born in Pakistan
- 2 per cent of all patients were born in Afghanistan.

Step 2: Specify the proportion of menu options for each menu item

Based on the demographic findings from step 1, it is expected that hospitals assign a proportion of their menu according to the following menu options: 'nourishing', 'vegetarian', 'easy-chew', 'finger food' and 'culturally diverse' meals according to local population needs.

Findings

Based on the patient profile identified in Step 1 above, the following proportions of menu options were assigned:

- 50 per cent of the menu should be nourishing to cater to long-stay adolescent patients.
- 25 per cent of the menu should be culturally diverse, ideally with a representation of Afghani and Pakistani cultural foods, many of which should be halal meals (this could include the vegetarian option).
- A minimum of one vegetarian meal per eating occasion (as per the minimum menu choice standards), with consideration for culturally diverse preferences (Afghani and Pakistani).
- 25 per cent of the menu should be easy-chew or finger food to accommodate children aged 1–3 years.
- A 'long-stay' menu cycle is advised for the adolescent, rehabilitation and respiratory units.
- A comprehensive allergen-free menu is required to cater to the high rates of patients admitted with a food allergy.

Step 3: Identify the food service system

It is important to identify and thoroughly understand the hospital's food service system because this may determine any challenges with meeting the Paediatric Standards and minimum menu choice tables. To establish a strong understanding of a hospital's food service system, liaise with the hospital food services manager and team. Refer to Tables 5.3, 5.4 and 5.5 in Appendix 5 for suggested information points to collect about the food service system.

Findings

The hospital food service uses a cook-freeze system and offers three meals and two mid-meals daily. The system provides meals in individual portion size containers of a set size.

Meals are selected via the in-room patient entertainment system.

Patient meal orders can be placed up to 1.5 hours before service.

It is an à la carte menu offering meals from a CPK with the addition of fresh sandwiches, salads and fruits.

Step 4: Nutritional analysis of meals

All meals and snacks on a menu require nutritional analysis to enable categorisation according to the different menu options. All recipes and their respective ingredients must be documented and, where possible, use the product specification sheet available from the manufacturer to ensure accurate description of serve size and/or number of portions. Refer to Appendix 6: 'Conducting a nutritional analysis of a recipe'.

Findings

The nutritional analysis was conducted by the CPK dietitian using the nutrient analysis computer software program Xyris FoodWorks Professional.

Step 5: Gap analysis against the minimum menu choice tables

The purpose of this case study is to determine how the current menu meets the minimum menu choice within the Paediatric Standards and to identify any areas for improvement. Refer to Table 5.6 in Appendix 5 for an example of how to complete this comparison.

Findings

- The menu provides a wide range of options to meet different therapeutic, developmental, cultural and ethical needs.
- The menu offers 100 per cent fruit juice too frequently.
- Due to the cook-freeze food service system, the menu is currently unable to provide options for age-appropriate serve sizes for certain items such as hot meals and soup.
- While the menu provides adequate options for age-appropriate texture modification in infants including a baby puree and minced menu, it does not provide options for developmental grading beyond minced meals such as cut-up and finger foods.

Step 6: Gap analysis of menu against the selected macro and micronutrient goals

The nutrient checklist has been developed to assess macro and micronutrients goals (found in Appendix 3) and identify areas for improvement. To assess the practicality of the Paediatric Standards and their ability to meet nutritional targets, default or test menus should be developed as examples of a patient selection from the menu. These menus are then compared with the nutrient requirements of each age group (using the nutritional analysis of meals and snacks previously obtained).

Where feasible, devise a minimum of three test menus that are representative of each age group. An average of the nutritional composition of these three menus should then be compared against the macro and micronutrient goals. Refer to Appendix 7 for paediatric example test menus and Appendix 5 for an example of how to complete this gap analysis.

Findings

The hospital menu successfully meets the nutrient requirements for children aged 1–18 years.

However, for children aged 4–8 years the menu provides well in excess of (in particular) their protein and sodium requirements.

Overall summary of findings from the case study

The hospital menu successfully meets the requirements for children aged 1–18 years. However, it is important to note that due to the lack of flexibility in the serve size of hot meals and soups, the younger children (aged 4–8 years) are at risk of having well in excess of (in particular) their protein and sodium requirements. Offering age-appropriate serve sizes for children aged 4–8 years, as specified in the minimum menu choice tables for paediatric patients (refer to 'Hot main meal' and 'Gravy/sauce' in Minimum menu choice tables for paediatric patients) would assist with reducing protein and sodium. This may involve modifications to the food service system to accommodate different serve sizes for certain menu items for paediatric patients.

While the menu provides adequate options for age-appropriate texture modification in infants including a baby puree and minced menu, it does not provide options for developmental grading beyond minced meals such as cut-up and finger foods.

It is recommended that the menu reduce its offering of fruit juice to no more than once per day (preferably at breakfast).

While the menu has a number of culturally diverse options, it would benefit from a stronger representation of Pakistani and Afghani cultures.

For more information on using the Paediatric Standards to adapt an adult 'banded' menu to cater for paediatric patients, please refer to Appendix 2.

Appendices



Appendix 1: Paediatric short order menu example

<p>Breakfast items:</p> <ul style="list-style-type: none"> Plain (unfortified) porridge made with milk Iron-fortified wheat-biscuit cereal Hard-boiled egg and toast Congee Baked beans Tinned spaghetti 	<p>Fruit (seasonal fruit):</p> <ul style="list-style-type: none"> Mandarin Banana Mango Watermelon Strawberries
<p>Lunch/dinner items:</p> <ul style="list-style-type: none"> Plain omelette Beef strips Grilled chicken strips Cheese and tomato toastie Sandwiches or wraps: ham/cheese/vegemite/chicken avocado (limit to one protein filling) Steamed wonton Chicken nuggets Baked fish fingers Pasta napoli/bolognese/pesto Noodle cup 	<p>Sides:</p> <ul style="list-style-type: none"> Plain rice Pasta Lemon Greek yoghurt Veggie sticks
<p>Mid-meals:</p> <ul style="list-style-type: none"> Small portion sweet biscuits Milo/Akta-Vite Dip cup with veggie sticks and crackers Frozen yoghurt Plain milk Sultanas 	<p>Desserts:</p> <ul style="list-style-type: none"> Custard (PC) Ice cream (PC) Plain yoghurt (PC)

Note: Product brand names used in this document do not imply endorsement by the Victorian Government.

Appendix 2: Case study demonstrating how an adult 'banded' menu can cater to paediatric patients

Approach

Three days were selected from the seven-day menu grid in the *Nutrition and quality food standards for adults in Victorian public hospitals and residential aged care services* (refer to Appendix 8) and a paediatric short order menu (refer to Appendix 1). A daily selection was undertaken for the three days, replicating a child's experience of self-selection from an adult hospital with the additional paediatric short order menu. The following age groups are represented: 1–3 years, 4–8 years, 9–13 years and 14–18 years. These selections are detailed below, with nutrition analysis based on selection, not a predetermined consumption level.

Recipes were derived from the three-day menu selection in Appendix 11 of the Adult Standards and used as the basis for this menu analysis. It should be noted that modifications were made to some serve sizes and, where this has occurred, it is clearly described below. Where an appropriate recipe could not be sourced (for a specific day), a recipe from the paediatric short order menu was used instead.

Nutrition reference values

The selected three-day menu was compared against the nutrient goals outlined in Appendix 3 to ensure that the menu was able to provide adequate nutrition for the various age groups listed above.

Food group serves

The five food groups, as recommended by the Australian Dietary Guidelines are vegetables, fruit, grains/cereal, meat/meat alternatives, and milk/dairy and alternatives. Eating a variety of foods from each of these groups daily contributes to meeting the nutrient requirements essential for good health. For the purpose of this nutrition analysis, the number of serves for each of the five food groups is described for each age group. Where gender differences exist in an age group, the higher value has been adopted to ensure the nutrient needs of all children and adolescents in the age group are met.

Note: Product brand names used in this document do not imply endorsement by the Victorian Government.

Age group 1–3 years menu selection

Menu course	Day 1	Day 2	Day 3
Breakfast	(Paed) Vita Brits (40 g) & milk (150 mL) Milk (PC) Mandarin	(Paed) Vita Brits (40 g) & milk (150 mL) Milk (PC) Mandarin	(Paed) Vita Brits (40 g) & milk (150 mL) Milk (PC) Mandarin
Morning tea	Strawberries (diced)	(Paed) Watermelon (85 g)	Mango
Lunch	(Paed) Baked beans with toast (Paed) Sultanas (PC) Water	(Paed) Boiled egg with toast (Paed) Sultanas (PC) Water	(Paed) Pasta bolognaise (Paed) Sultanas (PC) Water
Afternoon tea	(Paed) Dip cup with veggies	(Paed) Dip cup with veggies	(Paed) Dip cup with veggies
Dinner	0.5 serve Roast chicken & 0.5 serve gravy Full serve roast potato Full serve buttered corn Water	(Paed) Beef strips (65 g) (Paed) Greek yoghurt (40 g) Full serve wedges Full serve green beans Water	0.5 serve Salmon teriyaki Full serve soba noodles Full serve cauliflower Water
Supper	Milk (PC) 150 mL	Milk (PC) 150 mL	Milk (PC) 150 mL

Nutrient	Nutrient goal	Test menu	% of goal
Energy (kJ)	4,200	5,516	131
Protein (g)	14	62	443
Saturated fat (g) based on < 10% total energy	11	16	145
Sodium (mg)	500	1,205	241
Fibre (g)	14	25	179

Nutrient	RDI	Test menu	% RDI
Calcium (mg)	500	755	151
Folate (µg)	150	349	233
Iron (mg)	9	9	100
Vitamin C (mg)	35	136	389
Zinc (mg)	3	8	267

Food group	Goal	Test menu	% of goal
Vegetables	2.5	2.7	108
Fruit	1	2	200
Grains	4	4	100
Meat & alternatives	1	1.5	150
Milk & alternatives	1.5	2	133

The menu meets the energy requirements for this age group. Overall, the food groups are met. Fruit, in particular, while higher than the recommended serves, provides an opportunity to promote fruit consumption and reflects a preference in this age group for fruit.

While the menu is excessive in protein and sodium and high in folate, there are difficulties in providing adequate iron requirements. It is recommended that paediatric short order menus offer an iron-fortified breakfast cereal and sultanas to assist in meeting iron requirements for this age group. It is understood that the menu reflects choice rather than intake and that in this age group appetite and intake is highly variable.

Age group 4–8 years menu selection

Menu course	Day 1	Day 2	Day 3
Breakfast	Wheat biscuits & milk Mandarin Milk (PC)	Bran flakes with sultanas & milk Mandarin Milk (PC)	Full serve pancakes with maple syrup Cut-up fruit Milk (PC)
Morning tea	Strawberries (diced)	(Paed) Watermelon (85 g)	Mango
Lunch	(Paed) Tomato soup (Paed) Cheese & tomato toastie Water	Creamy tomato soup (Paed) Chicken & avocado wrap Water	Tomato lentil soup 0.5 serve Falafel grazing plate Water
Afternoon tea	(Paed) Dip cup with veggies & crackers	(Paed) Dip cup with veggies & crackers	(Paed) Dip cup with veggies & crackers
Dinner	0.5 serve Roast chicken & 0.5 serve gravy Full serve roast potato Full serve buttered corn Full serve peas Full serve pear crumble Water	0.5 serve Curried lentil patties Full serve wedges Full serve roast pumpkin Full serve green beans Full serve fruit salad & ice cream Water	0.5 serve Salmon teriyaki Soba noodles Soybeans Cauliflower Yoghurt (PC) Water
Supper	(Paed) Milo with milk (180 mL)	(Paed) Milo with milk (180 mL)	(Paed) Milo with milk (180 mL)

Nutrient	Nutrient goal	Test menu	% of goal
Energy (kJ)	5,500	6,826	124
Protein (g)	20	69	345
Saturated fat (g) based on < 10% total energy	15	23	153
Sodium (mg)	1,400	1,826	130
Fibre (g)	18	33	183

Nutrient	RDI	Test menu	% RDI
Calcium (mg)	700	879	126
Folate (µg)	200	349	233
Iron (mg)	10	11	110
Vitamin C (mg)	35	183	523
Zinc (mg)	4	9	225

Food group	Goal	Test menu	% of goal
Vegetables	4.5	4.5	100
Fruit	1.5	2.5	167
Grains	4	4.5	113
Meat & alternatives	1.5	1.5	100
Milk & alternatives	2	2.2	110

The menu exceeds the RDIs for all nutrients outlined above. It was excessively high in protein. All food groups were able to be met in this age group. The menu was modified to allow for some paediatric, smaller (½ serve) portions and more lunch options, which are taken from the paediatric short order menu.

Age group 9–13 years menu selection

Menu course	Day 1	Day 2	Day 3
Breakfast	Wheat biscuits & milk Mandarin Wholemeal bread & jam (PC) & margarine (PC) Milk (150 mL)	Bran flakes with sultanas & milk Mandarin Wholemeal bread & jam (PC) & margarine (PC) Milk (150 mL)	Full serve pancakes with maple syrup Cut-up fruit Milk (150 mL)
Morning tea	Strawberries (diced) (Paed) Cheese & biscuits	Pear (Paed) Cheese & biscuits	Mango (Paed) Cheese & biscuits
Lunch	(Paed) Tomato soup (Paed) Cheese & tomato toastie Milk (PC) 150 mL	Creamy tomato soup (Paed) Chicken & avocado wrap Milk (PC) 150 mL	Tomato lentil soup Falafel grazing plate Milk (PC) 150 mL
Afternoon tea	(Paed) Dip cup with veggies & crackers	(Paed) Dip cup with veggies & crackers	(Paed) Dip cup with veggies & crackers
Dinner	Full serve roast chicken & gravy Full serve roast potato Full serve buttered corn Full serve peas Full serve pear crumble Custard (PC)	Full serve curried lentil patties (x2) Full serve wedges Full serve roast pumpkin Full serve green beans Full serve fruit salad & ice cream	Full serve salmon teriyaki Full serve soba noodles Full serve soybeans Full serve cauliflower Yoghurt (PC) Peaches (PC)
Supper	(Paed) Milo with milk	(Paed) Milo with milk	(Paed) Milo with milk

Nutrient	Nutrient goal	Test menu	% of goal
Energy (kJ)	7,500	9,434	126
Protein (g)	40	100	250
Saturated fat (g) based on < 10% total energy	20	34	170
Sodium (mg)	2,000	2,332	117
Fibre (g)	24	42	175

Nutrient	RDI	Test menu	% RDI
Calcium (mg)	1,300	1,293	99
Folate (µg)	300	654	218
Iron (mg)	8	14	175
Vitamin C (mg)	40	211	528
Zinc (mg)	6	11	183

Food group	Goal	Test menu	% of goal
Vegetables	5.5	5	91
Fruit	2	2	100
Grains	6	5.5	92
Meat & alternatives	2.5	2.2	90
Milk & alternatives	3.5	3.5	100

The menu meets all the RDIs for the nutrient goals. Despite the menu providing 250 per cent of the RDI for protein, the serve size is clearly more in line with the requirements of this age group. Vitamin C is at 528 per cent of the RDI. However, because there is no upper limit for vitamin C, this may not be of significant concern and reflects the good intake of fresh fruit and vegetables. Intakes of both fruit and vegetable serves meet over 90 per cent of the recommended amounts. More of the adult 'banded' menu has been included at lunch and dinner, but snacks and some lunch items remain paediatric-specific.

Age group 14–18 years menu selection

Menu course	Day 1	Day 2	Day 3
Breakfast	Mango smoothie Wholemeal bread × 2 & jam (PC) × 2 & margarine (PC)	Berry smoothie Bran flakes with sultanas & milk (PC) Wholemeal bread & jam (PC) & margarine (PC)	Full serve pancakes with maple syrup & fresh fruit Milk (PC) 150 mL
Morning tea	Strawberries (diced) (Paed) Cheese & biscuits	Pear (Paed) Cheese & biscuits	Mango (Paed) Cheese & biscuits
Lunch	(Paed) Tomato soup (Paed) Cheese & tomato toastie Banana Milk (PC) 150 mL	Creamy tomato soup Full serve beef rissole (× 2) Full serve mash potato Full serve garlic mushrooms Milk (PC) 150 mL	Tomato lentil soup Full serve falafel grazing plate Peaches (PC) Milk (PC) 150 mL
Afternoon tea	(Paed) Dip cup with veggies & crackers	(Paed) Dip cup with veggies & crackers	(Paed) Dip cup with veggies & crackers
Dinner	Potato & leek soup Full serve roast chicken & gravy Full serve roast potato Full serve buttered corn & peas Full serve pear crumble Water	Full serve curried lentil patties Full serve wedges Full serve roast pumpkin Full serve green beans Full serve fruit salad & ice cream Water	Full serve salmon teriyaki Full serve soba noodles Full serve soya beans & cauliflower Full serve apple & berry crumble Custard (PC) Water
Supper	Vanilla yoghurt	Frozen yoghurt	(Paed) Milo with milk

Nutrient	Nutrient goal	Test menu	% of goal
Energy (kJ)	9,400	10,383	110
Protein (g)	65	105	162
Saturated fat (g) based on < 10% total energy	25	37	148
Sodium (mg)	2,300	2,522	110
Fibre (g)	28	45	161

Nutrient	RDI	Test menu	% RDI
Calcium (mg)	1,300	1,369	105
Folate (µg)	400	687	172
Iron (mg)	15	16	107
Vitamin C (mg)	40	231	578
Zinc (mg)	13	12	92

Food group	Goal	Test menu	% of goal
Vegetables	5.5	5.5	100
Fruit	2	3	150
Grains	7	7	100
Meat & alternatives	2.5	2.5	100
Milk & alternatives	3.5	4	114

The menu exceeds the RDIs for all nutrients outlined above with the exception of zinc, which was close at 92 per cent (within 10 per cent of the RDI). The menu was again high in protein but not nearly as excessively high as for other age groups, clearly indicating that the nutritional needs of these age groups are more closely aligned with adults. All food groups could be met in this age group. The menu was modified to allow for some paediatric mid-meal and lunch options, which are taken from the paediatric short order menu. The serve size of main meals did not require modification of the adult menu in this age group.

Conclusion

The menu analysis shows that, with some small and realistic amendments, the adult 'banded' menu is able to meet the nutritional and developmental needs of children aged 1–18 years.

Recommendations as a result of this analysis point to the importance of providing smaller serves at main meals and that adult-labelled Band 2 meals are preferable to Band 1, as these tend to be too high in protein and energy. The consideration for a paediatric short order menu, especially for younger children, was highlighted through this analysis. In fact, meeting the nutritional requirements of children across the paediatric spectrum was contingent on using this short order menu. These foods were mainly incorporated at lunch and mid-meals. In addition, 'standard' or 'continental' breakfast options are preferred for a paediatric population, and dessert should be limited to once a day in this cohort.

Despite these adjustments to the menu, there were still some limiting and excessive nutrients. Protein was excessive in the younger age groups, with 443 per cent of the RDI for protein provided to children aged 1–3 years. It is acknowledged that protein-dense foods are also nutrient-dense, often providing key nutrients such as calcium and iron. As a result, overconsumption of protein, especially in the younger years, is also seen in the community.⁶⁵

Appendix 3: Macro and micronutrient goals

The National Health and Medical Research Council's Nutrient Reference Values (NRVs)⁹ were used as the basis for developing these macro and micronutrient goals. The goals were divided into five groups: infants; children 1–3 years; children 4–8 years; children 9–13 years and children 14–18 years, which allowed for differentiation between ages and different needs for growth and development. Nutrient goals were based on the NRVs. Where available, the recommended dietary intake (RDI) values were used, otherwise the adequate intake (AI) values were used. The upper level of intake (UL) value was used for vitamin A. Where gender differences exist in an age group, the higher value has been adopted to ensure the nutrient needs of all children and adolescents in the age group are met. These goals can be used to compare a standard menu against the recommended nutrient intakes of the various age groups from infancy through to adolescence.

Macronutrient goals

Infants

Age	Nutrient	Goal	Rationale
0–6 months	Energy	2,700 kJ/d	Breastmilk or infant formula is the key source of energy in the diet. Breastfeeding is the physiological norm and most beneficial way of providing infants and young children with the nutrients required for optimum growth and development. ⁶⁶
	Protein	10 g/d (AI) (1.43 g/kg body weight)	Breastmilk or infant formula is the key source of protein in the diet. Introduction of complementary feeding may occur during the 'window of tolerance' between 4 and 7 months. ⁶⁷
	Fat	31 g/d (AI) Omega-6 (n-6) = 4.4 g/d Omega 3 (n-3) = 0.5 g/d	Breastmilk or infant formula is the key source of fat in the diet. AI set from assumption of 0.78 L per day of breastmilk. ⁹ Introduction of complementary feeding may occur during the 'window of tolerance' between 4 and 7 months. ⁶⁷
	Carbohydrate	60 g/d (AI)	Breastmilk or infant formula is the key source of carbohydrate in the diet. AI is set based on the average carbohydrate (mostly lactose) content of breastmilk, assuming an average daily breastmilk intake of 0.78 L per day. ⁹
	Dietary fibre	No AI has been set	Breastmilk contains no dietary fibre, so no AI has been set.
	Fluid	0.7 L/d (AI)	Exclusively breastfed infants do not require additional fluids up to 6 months of age. ¹⁵ For formula-fed infants, cooled boiled tap water may be used if additional fluids are needed.

Age	Nutrient	Goal	Rationale
7–12 months	Energy	3,500 kJ/d	<p>The energy goal is based on the estimated energy requirement of a 12-month-old male infant and an estimated intake of 1,700 kJ per day (~ 600 mL) from breastmilk or infant formula.⁹</p> <p>At around age 6 months, stores of iron and other nutrients laid down during pregnancy begin to reduce and infants show developmental signs that they are ready to consume more than breastmilk alone, so it is appropriate developmentally to introduce solids at this time.</p> <p>Breastfeeding should continue until 12 months and beyond for as long as the mother and child desire. If the infant is not breastfed, age-appropriate formula must be available.</p>
	Protein	14 g (AI) 1.60 g/kg body weight	<p>The introduction of solid foods at around 6 months should include protein foods such as iron-enriched infant cereals, pureed meat, poultry and fish (all sources of haem iron and protein), or cooked tofu and legumes.¹⁵</p> <p>Breastfeeding should continue until 12 months and beyond for as long as the mother and child desire. If the infant is not breastfed, age-appropriate formula must be available.</p>
	Fat	30 g/d (AI) Omega-6 (n-6) = 4.6 g/d Omega-3 (n-3) = 0.5 g/d	<p>Breastmilk or infant formula is the key source of fat in the diet. AI set from an assumption of 0.6 L per day breastmilk.⁹</p>
	Carbohydrate	95 g/d	<p>Digestible carbohydrates are one of the main sources of dietary energy in infancy and childhood and are essential for growth and development.</p>
	Dietary fibre	No AI has been set	<p>There are no functional criteria for dietary fibre. Human milk contains no dietary fibre, so no AI has been set.</p>
	Fluid	0.8 L/d (AI)	<p>For infants of 7–12 months, the breastmilk intake is assumed to be 600 mL per day. This would supply 0.52 L water per day. An amount of 0.32 L per day is added for water from complementary foods as estimated to give a total of 0.84 L per day rounded to 0.8 L per day.⁹</p>

Children

Age	Nutrient	Goal	Rationale
1–3 years	Energy	4,200 kJ/d	Children should be encouraged to consume enough of a wide variety of nutritious foods to support normal growth and development. Food intake may drop off during the second year of life, when parents' encouragement and example may be needed. ⁶
	Protein	14 g/d (1.08 g/kg) (RDI)	Protein is required to repair cells and to synthesise enzymes and hormones. It provides the body with the appropriate amount and type of amino acids required for maintenance and growth, in addition to optimising wound healing. ⁹
	Fat	Ideally no more than 10% of energy should be from trans/saturated fats	Restriction of dietary fat is not recommended in infants and children under 2 years of age. ⁶ Children need fats in their diets. It supplies essential fatty acids and aids in the absorption of fat-soluble vitamins A, D, E and K. It is a substrate for producing hormones and mediators and, especially in infancy, is essential for neurological development and brain function. ⁶⁸
	Dietary fibre	14 g/d (AI)	Adequate dietary fibre is essential for proper functioning of the gut and has been related to risk reduction for a number of chronic diseases including heart disease, certain cancers and diabetes. ⁹
	Fluid	1.0 L/d (AI)	The body needs water to help maintain body temperature, make bodily fluids and for day-to-day functioning. Young children are more at risk of becoming dehydrated than adults.
4–8 years	Energy	5,500 kJ/d	Children should be encouraged to consume enough of a wide variety of nutritious foods to support normal growth and development.
	Protein	20 g/d (0.91 g/kg) (RDI)	Protein is required to repair cells and to synthesise enzymes and hormones. It provides the body with the appropriate amount and type of amino acids required for maintenance and growth, in addition to optimising wound healing. ⁹
	Fat	Ideally no more than 10% of energy should be from trans/saturated fats	Children need fats in their diets. It supplies essential fatty acids and aids in the absorption of fat-soluble vitamins A, D, E and K. It is a substrate for producing hormones and mediators and, especially in infancy, is essential for neurological development and brain function. ⁶⁸
	Dietary fibre	18 g/d (AI)	Adequate dietary fibre is essential for proper functioning of the gut and has been related to risk reduction for a number of chronic diseases including heart disease, certain cancers and diabetes. ⁹ Due to a number of reasons including reduced movement, poor fluid intakes, limited food choices and medications, patients in hospital often experience constipation. Adequate fibre (with adequate fluid intakes) can reduce the need for interventions.
	Fluid	1.2 L/d (AI)	The body needs water to help maintain body temperature, make bodily fluids and for day-to-day functioning. Young children are more at risk of becoming dehydrated than adults.

Age	Nutrient	Goal	Rationale
9–13 years	Energy	7,500 kJ/d	Children should be encouraged to consume enough of a wide variety of nutritious foods to support normal growth and development.
	Protein	40 g/d (0.94 g/kg) (RDI)	Protein is required to repair cells and to synthesise enzymes and hormones. It provides the body with the appropriate amount and type of amino acids required for maintenance and growth, in addition to optimising wound healing. ⁹
	Fat	Ideally no more than 10% of energy should be from trans/saturated fats	Children need fats in their diets. It supplies essential fatty acids and aids in the absorption of fat-soluble vitamins A, D, E and K. It is a substrate for producing hormones and mediators and, especially in infancy, is essential for neurological development and brain function. ⁶⁸
	Dietary fibre	24 g/d (AI)	Adequate dietary fibre is essential for proper functioning of the gut. ⁹ Due to a number of reasons including reduced movement, poor fluid intakes, limited food choices and medications, patients in hospital often experience constipation. Adequate fibre (with adequate fluid intakes) can reduce the need for interventions. ⁶⁹
	Fluid	1.6 L/d (AI)	Ideally fluid intakes consist mainly of water and milk. The body needs water to help maintain body temperature, make bodily fluids and for day-to-day functioning. Young children are more at risk of becoming dehydrated than adults.

Adolescents

Age	Nutrient	Goal	Rationale
14–18 years	Energy	9,400 kJ/d	Children should be encouraged to consume enough of a wide variety of nutritious foods to support normal growth and development. ⁶
	Protein	65 g/d (0.99 g/kg) (RDI)	Protein is required to repair cells and to synthesise enzymes and hormones. It provides the body with the appropriate amount and type of amino acids required for maintenance and growth, in addition to optimising wound healing. ⁹ Protein is important during adolescence because this is a time of rapid growth and development.
	Fat	Ideally no more than 10% of energy should be from trans/saturated fats	Children need fat in their diets. It supplies essential fatty acids and aids in the absorption of fat-soluble vitamins A, D, E and K. It is a substrate for producing hormones and mediators and, especially in infancy, it is essential for neurological development and brain function. ⁶⁸
	Dietary fibre	28 g/d (AI)	Adequate dietary fibre is essential for proper functioning of the gut and has been related to risk reduction for a number of chronic diseases including heart disease, certain cancers and diabetes. ⁹ Due to a number of reasons including reduced movement, poor fluid intakes, limited food choices and medications, patients in hospital often experience constipation. Adequate fibre (with adequate fluid intakes) can reduce the need for interventions. ⁶⁹
	Fluid	1.9 L/d (AI)	Ideally fluid intakes consist mainly of water and milk. The body needs water to help maintain body temperature, make bodily fluids and for day-to-day functioning. Young children are more at risk of becoming dehydrated than adults.

Micronutrient goals

Infants

Age	Nutrient	Goal	Rationale
0–6 months	Calcium	210 mg/d (AI)	<p>Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.¹²</p> <p>Breastmilk or infant formula is the key source of calcium in the diet. Breastfeeding is the physiological norm and most beneficial way of providing infants and young children with the nutrients required for optimum growth and development.⁹</p> <p>Formula-fed babies require additional intakes in the vicinity of 350 mg per day because calcium is less bioavailable in formula.¹²</p>
	Iron	0.2 mg/d (AI)	<p>Iron is an essential micronutrient that is involved in many functions in humans because it plays a critical role in the growth and development of the central nervous system, among others.</p> <p>The birth iron endowment from the mother provides iron for growth and protects breastfed infants against iron deficiency in the first 4–6 months of life.²⁰</p> <p>Breastmilk or infant formula is the key source of iron in the diet. Breastfeeding is the physiological norm and most beneficial way of providing infants and young children with the nutrients required for optimum growth and development.</p>
	Zinc	2.0 mg/d (AI)	<p>Zinc plays a major role in various aspects of physiology, immunity and skeletal growth.⁷⁰</p> <p>Breastmilk or infant formula is the key source of zinc in the diet. Breastfeeding is the physiological norm and most beneficial way of providing infants and young children with the nutrients required for optimum growth and development.⁹</p> <p>Zinc binds to protein, therefore the amount of protein in the diet contributes to the efficiency of zinc absorption.</p>
	Sodium	120 mg/d (AI)	<p>Sodium is a nutrient that is ubiquitous in the food supply and plays an essential role in human physiology.</p> <p>The only source of sodium intake should be breastmilk and/or infant formula.</p>
	Vitamin C	25 mg/d (AI)	Vitamin C is an essential micronutrient required for normal metabolic functioning of the body.
	Vitamin A	250 µg/d (AI) 600 µg/d (UL)	Vitamin A is a fat-soluble vitamin that helps maintain normal reproduction, vision and immune function. An adequate supply of vitamin A also plays a role in preventing morbidity and mortality from infectious disease, particularly in children. ⁹
	Folate	65 µg/d (AI)	<p>Folate helps to form DNA and RNA and is involved in protein metabolism. Folate is also needed to produce healthy red blood cells and is critical during periods of rapid growth.⁹</p> <p>Food manufacturers are required to add folic acid to foods commonly eaten, including breads, cereals, pasta, rice and other grain products, to reduce the risk of neural tube defects.</p>

Age	Nutrient	Goal	Rationale
7–12 months	Calcium	270 mg/d (AI)	<p>Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.⁹</p> <p>Breastmilk or infant formula is the key source of calcium for infants.</p> <p>Some dairy-based foods may contribute to calcium intakes in this age group (e.g. yoghurt).</p>
	Iron	11 mg/d (RDI)	<p>The birth iron endowment from the mother provides iron for growth and protects breastfed infants against iron deficiency in the first 4–6 months of life.²⁰ At around age 6 months, stores of iron laid down during pregnancy begin to reduce and infants show developmental signs that they are ready to consume more than breastmilk alone. It is therefore appropriate developmentally to introduce solids at this time.</p> <p>Iron is critical for brain development, and case control studies have shown a consistent association between iron deficiency anaemia in infancy and poor neurodevelopment, suggesting it is important to prevent iron deficiency anaemia in infants.⁷¹</p>
	Zinc	3 mg/d (RDI)	<p>Zinc plays a major role in various aspects of physiology, immunity and skeletal growth.⁷⁰</p> <p>Zinc absorption is higher from animal foods rather than plant sources, so vegetarian infants will require more.</p> <p>The main source of zinc in this age group would be breastmilk.</p>
	Sodium	170 mg/d (AI) No UL set	<p>Sodium is a nutrient that is ubiquitous in the food supply and plays an essential role in human physiology. Excess sodium intakes have been associated with increased chronic disease risk and, in particular, high blood pressure.⁹</p> <p>The main source of sodium would be breastmilk or infant formula and in any processed complementary foods (e.g. bread).</p>
	Vitamin C	30 mg/d (AI)	<p>Vitamin C is an essential micronutrient required for normal metabolic functioning of the body.</p> <p>The main source of vitamin C for this age group would be breastmilk or infant formula, citrus fruits, broccoli and potatoes.</p>
	Vitamin A	430 µg/d retinol equivalents (AI) 600 µg/d (UL)	<p>Vitamin A is a fat-soluble vitamin that helps maintain normal reproduction, vision and immune function.⁹ An adequate supply of vitamin A also plays a role in preventing morbidity and mortality from infectious disease, particularly in children.</p> <p>The main source of vitamin A for this age group would be breastmilk or infant formula, lean meats, poultry, oily fish and egg yolks.</p>
	Folate	80 µg/d (AI)	<p>Folate helps to form DNA and RNA and is involved in protein metabolism. Folate is also needed to produce healthy red blood cells and is critical during periods of rapid growth.</p> <p>The main source of folate in this age group is breastmilk or infant formula, fortified breads and cereals and green leafy vegetables.</p>

Children

Age	Nutrient	Goal	Rationale
1–3 years	Calcium	500 mg/d (RDI)	<p>Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.⁹</p> <p>Calcium requirements are largely determined by skeletal needs and these increase during periods of rapid growth (e.g. childhood).</p> <p>Pasteurised cow's milk is an excellent source of protein, calcium and other nutrients and may be introduced as a drink at around 12 months of age. It can be continued throughout the second year of life and beyond.</p>
	Iron	9 mg/d (RDI)	<p>Iron is critical for brain development.</p> <p>Iron-fortified foods and meat or iron-rich alternatives should be offered to this age group.</p>
	Zinc	3 mg/d (RDI)	<p>Zinc plays a major role in various aspects of physiology, immunity and skeletal growth.⁷⁰</p> <p>The main sources of zinc in this age group are dairy foods, meat and cereals.</p>
	Sodium	200–400 mg/d (AI) 1,000 mg/d (UL)	<p>Sodium is a nutrient that is ubiquitous in the food supply and plays an essential role in human physiology. Excess sodium intakes have been associated with increased chronic disease risk and, in particular, high blood pressure.⁹</p> <p>Processed foods such as bread, sauces, meats and cereals are generally high in salt.</p>
	Vitamin C	35 mg/d (RDI)	<p>Vitamin C is an essential micronutrient required for normal metabolic functioning of the body.</p> <p>Good sources of vitamin C are raw tomato, broccoli, oranges and potatoes.</p>
	Vitamin A	300 µg/d (RDI) 600 µg/d (UL)	<p>Vitamin A is a fat-soluble vitamin that helps maintain normal reproduction, vision and immune function. An adequate supply of vitamin A also plays a role in preventing morbidity and mortality from infectious disease, particularly in children.⁹</p> <p>Good sources of vitamin A in this age group are carrots, sweet potato and spinach.</p>
	Folate	150 µg/d (RDI)	<p>Folate helps to form DNA and RNA and is involved in protein metabolism. Folate is also needed to produce healthy red blood cells and is critical during periods of rapid growth.</p> <p>Good sources of folate are dark spinach, asparagus, broccoli and fortified breads and cereals.</p>

Age	Nutrient	Goal	Rationale
4–8 years	Calcium	700 mg/d (RDI)	<p>Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.⁹</p> <p>Calcium requirements are largely determined by skeletal needs and increase during periods of rapid growth (e.g. childhood).⁶¹</p> <p>Good sources of calcium include dairy foods and calcium-fortified alternatives (e.g. soy milk).</p>
	Iron	10 mg/d (RDI)	<p>Iron is critical for brain development.</p> <p>Iron-fortified foods and meat or iron-rich alternatives should be offered to this age group.</p>
	Zinc	4 mg/d (RDI)	<p>Zinc plays a major role in various aspects of physiology, immunity and skeletal growth. Children with low energy consumption are at risk of zinc deficiency, and zinc depletion is associated with reduced taste acuity.⁷⁰</p> <p>The main sources of zinc in this age group are dairy foods, meat and cereals.</p>
	Sodium	300–600 mg/d (AI) 1,400 mg/d (UL)	<p>Sodium is a nutrient that is ubiquitous in the food supply and plays an essential role in human physiology. Excess sodium intakes have been associated with increased chronic disease risk and, in particular, high blood pressure.⁹</p> <p>Processed foods such as bread, sauces, meats and cereals are generally high in salt.</p>
	Vitamin C	35 mg/d (RDI)	<p>Vitamin C is an essential micronutrient required for normal metabolic functioning of the body.</p> <p>Good sources of vitamin C are raw tomato, broccoli, oranges and potatoes.</p>
	Vitamin A	400 µg/d (RDI) 900 µg/d (UL)	<p>Vitamin A is a fat-soluble vitamin that helps maintain normal reproduction, vision and immune function. An adequate supply of vitamin A also plays a role in preventing morbidity and mortality from infectious disease, particularly in children.⁹</p> <p>Good sources of vitamin A in this age group are carrots, sweet potato and spinach.</p>
	Folate	200 µg/d (RDI)	<p>Folate helps to form DNA and RNA and is involved in protein metabolism. Folate is also needed to produce healthy red blood cells and is critical during periods of rapid growth.</p> <p>Good sources of folate are dark spinach, asparagus, broccoli and fortified breads and cereals.</p>

Age	Nutrient	Goal	Rationale
9–13 years	Calcium	1,300 mg/d (RDI)	<p>Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.⁹</p> <p>Calcium requirements are largely determined by skeletal needs and increase during periods of rapid growth (e.g. childhood).⁶⁰</p> <p>Good sources of calcium include dairy foods and calcium-fortified alternatives (e.g. soy milk).</p>
	Iron	8 mg/d (RDI)	<p>Iron is critical for brain development.</p> <p>Good sources of iron are meat, eggs, legumes and wholemeal bread.</p>
	Zinc	6 mg/d (RDI)	<p>Zinc plays a major role in various aspects of physiology, immunity and skeletal growth⁹. Children and adolescents with low energy consumption are found to be at risk of zinc deficiency and zinc depletion is associated with reduced taste acuity.⁷⁰</p> <p>The main sources of zinc in this age group are dairy foods, meat and cereals.</p>
	Sodium	400–800 mg/d (AI) 2,000 mg/d (UL)	<p>Sodium is a nutrient that is ubiquitous in the food supply and plays an essential role in human physiology. Excess sodium intakes have been associated with increased chronic disease risk and, in particular, high blood pressure.⁹</p> <p>Processed foods such as bread, sauces, meats and cereals are generally high in salt.</p>
	Vitamin C	40 mg/d (RDI)	<p>Vitamin C is an essential micronutrient required for normal metabolic functioning of the body.</p> <p>Good sources of vitamin C are raw tomato, broccoli, oranges and potatoes.</p>
	Vitamin A	600 µg/d (RDI) 1,700 µg/d (UL)	<p>Vitamin A is a fat-soluble vitamin that helps maintain normal reproduction, vision and immune function. An adequate supply of vitamin A also plays a role in preventing morbidity and mortality from infectious disease, particularly in children.⁹</p> <p>Good sources of vitamin A in this age group are carrots, sweet potato and spinach.</p>
	Folate	300 µg/d (RDI)	<p>Folate helps to form DNA and RNA and is involved in protein metabolism. Folate is also needed to produce healthy red blood cells and is critical during periods of rapid growth.</p> <p>Good sources of folate are dark spinach, asparagus, broccoli and fortified breads and cereals.</p>

Adolescents

Age	Nutrient	Goal	Rationale
14–18 years	Calcium	1,300 mg/d (RDI)	<p>Calcium is required for the normal development and maintenance of the skeleton as well as for the proper functioning of neuromuscular and cardiac function.⁹</p> <p>Calcium requirements are largely determined by skeletal needs and increase during periods of rapid growth (e.g. adolescence).⁶¹</p> <p>Good sources of calcium include dairy foods and calcium-fortified alternatives (e.g. soy milk).</p>
	Iron	15 mg/d (RDI)	<p>Iron is critical for brain development.</p> <p>Good sources of iron are meat, eggs, legumes and wholemeal bread.</p>
	Zinc	13 mg/d (RDI)	<p>Zinc plays a major role in various aspects of physiology, immunity and skeletal growth. Adolescents with low energy consumption are at risk of zinc deficiency, and zinc depletion is associated with reduced taste acuity.⁷⁰</p> <p>The main sources of zinc in this age group are dairy foods, meat and cereals.</p>
	Sodium	460–920 mg/d (AI) 2,300 mg/d (UL)	<p>Sodium is a nutrient that is ubiquitous in the food supply and plays an essential role in human physiology. Excess sodium intakes have been associated with increased chronic disease risk and, in particular, high blood pressure.⁹</p> <p>Processed foods such as bread, sauces, meats and cereals are generally high in salt.</p>
	Vitamin C	40 mg/d (RDI)	<p>Vitamin C is an essential micronutrient required for normal metabolic functioning of the body.</p> <p>Good sources of vitamin C are raw tomato, broccoli, oranges and potatoes.</p>
	Vitamin A	700 µg/d (RDI) 2,800 µg/d (UL)	<p>Vitamin A is a fat-soluble vitamin that helps maintain normal reproduction, vision and immune function. An adequate supply of vitamin A also plays a role in preventing morbidity and mortality from infectious disease, particularly in children.⁹</p> <p>Good sources of vitamin A in this age group are carrots, sweet potato and spinach.</p>
	Folate	400 µg/d (RDI)	<p>Folate helps to form DNA and RNA and is involved in protein metabolism. Folate is also needed to produce healthy red blood cells and is critical during periods of rapid growth such as adolescence.</p> <p>Good sources of folate are dark spinach, asparagus, broccoli and fortified breads and cereals.</p>

Appendix 4: Sustainable food waste reduction strategies

The following information is presented as a guide to sustainable ways to reduce food waste in health services. The information is relevant to:

- organisational management
- facilities or non-clinical support management
- food service management
- chefs/cooks
- food service dietitians.

Background

Halving global food waste by 2030 is Goal 12.3 of the United Nations (UN) Sustainable Development Goals (SDG). To support collective action required to meet this SDG, the Australian Government published the *National food waste strategy* in 2017, which aligns with the sustainable consumption and production patterns outlined by the UN strategy. It is well evidenced that hospital food services can contribute significant carbon emissions at each stage of the food supply chain, having potential adverse environmental impacts. When excess food is sent to landfill, the resources involved in getting the food from paddock to plate are also wasted. This includes growing, processing, transporting, refrigeration and cooking. Health services should look at reducing waste at every stage of the food supply chain, not just addressing food waste within their service.

Victorian public health services are required to have a whole-of-organisation environmental management plan that aligns with the *Climate Change Act 2017* (Vic) in order to reach the target for net carbon zero production by 2050. As a minimum, health services are required to publicly report on environmental performance data relating to carbon, energy, water, waste and transport. Health services should consider setting up an environmental sustainability committee, including (at minimum) senior management representatives, facilities or non-clinical support management, operations, purchasing, OH&S representatives, and anyone else required to lead and support effective and sustainable waste management practices in the health service.

Environmental sustainability strategy

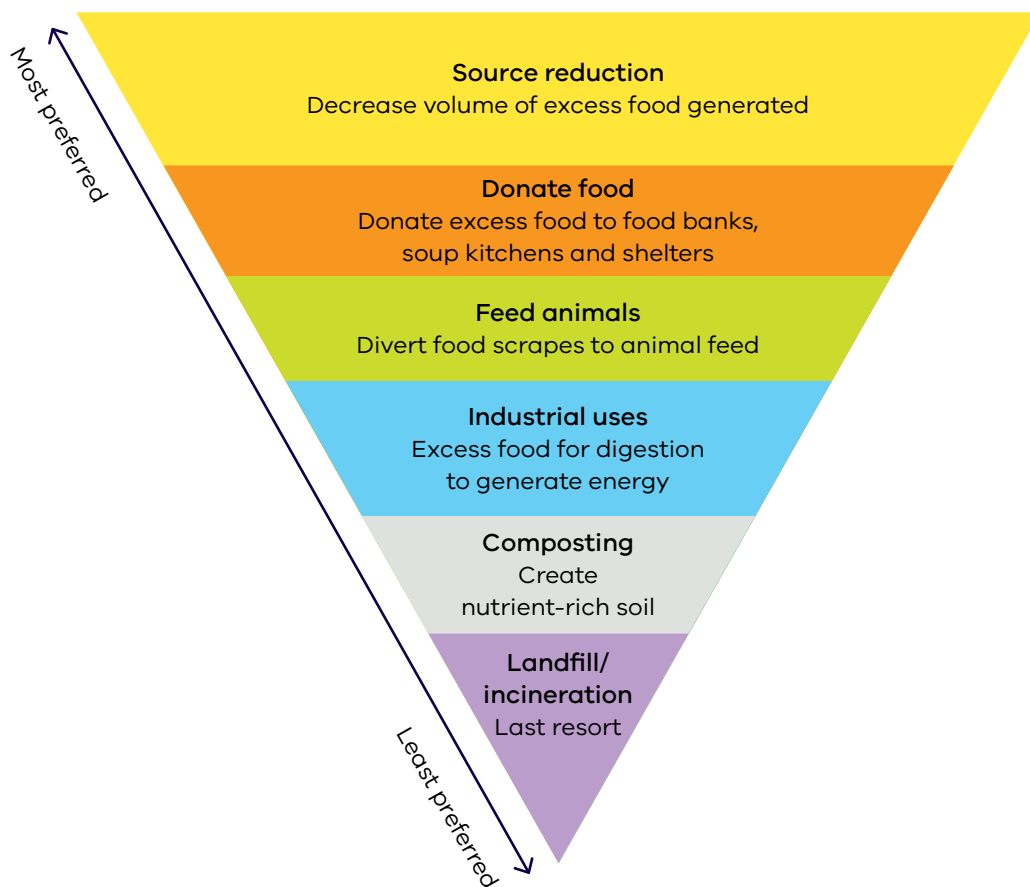
The Victorian Government's *Sustainability in Healthcare – Environmental sustainability strategy 2018–19 to 2022–23* commits to supporting health services to adapt and further improve their sustainability practices through some of the following approaches:

- developing a sustainable procurement policy and action plan to embed sustainability into health sector procurement
- working with HealthShare Victoria to improve waste management practices and recycling opportunities across the public health system
- working with the Victorian Health Building Authority to develop strategies to divert organics (e.g. food waste) away from landfill. A number of Victorian hospitals have already managed to successfully divert organics from landfill, with support from the Victorian Health Building Authority and Metropolitan Waste and Resource Recovery Group.

Food recovery hierarchy

The food recovery hierarchy, shown in Figure 4.1, prioritises different methods for managing surplus food. The top levels of the hierarchy represent the best strategies for diverting or preventing food waste because they create the most benefit for the environment, society and the economy.

Figure 4.1: Food recovery hierarchy



Adapted from the United States Environmental Protection Agency

Health services should assess their current waste management practices to better understand the type of waste produced and what can be done to potentially divert it from landfill. Table 4.1 outlines methods for managing surplus food based on the food recovery hierarchy.

Table 4.1: Methods for management of surplus food based on the food recovery hierarchy

Hierarchy level	Methods
Source reduction	<ul style="list-style-type: none"> • Conduct a waste audit to identify the amount, type and reason for generating wasted food • Change menus/recipes based on unpopular meals • Review production and handling methods to prevent and reduce preparation waste • Ensure food is stored properly • Reuse excess food produced by adding it to new dishes (e.g. using stale bread for croutons or fruit as dessert toppings) <p>Resources on conducting food waste audits:</p> <p>Waste audit guidelines <https://www2.health.vic.gov.au/hospitals-and-health-services/planning-infrastructure/sustainability/waste/audit-guidelines></p> <p>Consensus pathway food waste audit <https://onlinelibrary.wiley.com/doi/10.1111/jhn.12928?af=R></p>
Donate food	<ul style="list-style-type: none"> • This is a good option if there is sufficient quantities of good quality and fresh food on a regular basis that cannot be used or served in time. • Food charities will not collect food that is not suitable for human consumption. • The <i>Wrongs & Other Acts (Public Liability Insurance Reform) Act 2002</i> offers indemnity to organisations who donate safe food to charities. <p>Victorian Government guide to donating food <https://www.health.vic.gov.au/food-safety/donating-food></p> <p>Victorian food donation charities:</p> <p>Foodbank <https://www.foodbank.org.au/support-us/make-a-donation/donate-food/?state=vic></p> <p>OzHarvest <https://www.ozharvest.org/food/give-food/></p> <p>Food for Change <https://foodforchange.org.au/rescue/donate-food/></p> <p>FareShare <https://www.fareshare.net.au/></p> <p>SecondBite <https://www.secondbite.org/donate-food></p> <p>A good resource for smaller kitchens is www.askizzy.org.au/food, a directory of local food-related charities searchable by post code and program type, that may be able to take food donations.</p> <p>Check with your local council for the closest food donation charity to your health service.</p>
Feed animals/worms	<ul style="list-style-type: none"> • Discuss these specific options for diverting organics away from landfill with the waste management provider linked to your health service, or the Victorian Health Building Authority. <p>Worm farm</p> <p>Worms are natural food recyclers. They digest, burrow and turn over food, creating two natural by-products: worm juice and worm manure (castings). These by-products are excellent for returning nutrients from the food and worms back to the soil.</p> <p>Victorian Government: <i>Victorian food organics recycling guide</i> (pp. 19–21) <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/victorian-food-organics-recycling-guide></p>

Hierarchy level	Methods
Industrial uses	<p>Discuss these specific options for diverting organics away from landfill with the waste management provider linked to your health service, or the Victorian Health Building Authority.</p> <p>Anaerobic digestion system</p> <ul style="list-style-type: none"> • Happens in an enclosed space in the absence of oxygen • Relies on microorganisms eating their way through biodegradable material in the absence of oxygen • Produces biogas (which can be used for energy) and digestate (a nutrient-rich residue that can be used as a fertiliser or soil) • Most complicated option for processing food waste <p>Victorian Government: <i>Victorian food organics recycling guide</i> (pp. 25–27) <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/victorian-food-organics-recycling-guide></p>
Composting	<p>Discuss these specific options for diverting organics away from landfill with the waste management provider linked to your health service, or the Victorian Health Building Authority.</p> <p>Dehydrating unit</p> <ul style="list-style-type: none"> • Removes moisture through the dehydration of food waste • Produces a dry biomass that can be used as a compost for gardens or generates energy through incineration • Useful for health services with a large production of food waste <p>In-vessel composting</p> <ul style="list-style-type: none"> • Involves using an enclosed vessel to speed up decomposition and energy (electricity or gas) for temperature control and monitoring • Good for sites with moderate to large and regular quantities of food and/or garden waste <p>Victorian Government: <i>Victorian food organics recycling guide</i> (pp. 19–25) <https://www2.health.vic.gov.au/about/publications/policiesandguidelines/victorian-food-organics-recycling-guide></p>
Landfill/ incineration	<ul style="list-style-type: none"> • Least preferred option • Usually involves incineration without producing a useful end-product • Food waste may go to sewer

For more about waste reduction strategies, refer to the below resources or speak to the department that manages waste at your health service.

- *Sustainability in Healthcare – Environmental sustainability strategy 2018–19 to 2022–23* <<https://www2.health.vic.gov.au/about/publications/policiesandguidelines/environmental-sustainability-strategy-2018-19-to-2022-23>>
- Health service environmental requirements and environmental planning <<https://www2.health.vic.gov.au/hospitals-and-health-services/planning-infrastructure/sustainability/planning-reporting>>
- *Victorian food organics recycling – a guide for small-medium food services organisations* <<https://www2.health.vic.gov.au/about/publications/policiesandguidelines/victorian-food-organics-recycling-guide>>
- The Metropolitan Waste and Resource Recovery Group <<https://www.mwrrg.vic.gov.au/>>
- *National waste strategy: halving Australia’s food waste by 2030* <<http://www.environment.gov.au/system/files/resources/4683826b-5d9f-4e65-9344-a900060915b1/files/national-food-waste-strategy.pdf>>
- United Nations Sustainable Development Goals <<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>>

Note: For a full list of the sources used to develop this section, please refer to the Adult Standards.

Appendix 5: Tools for menu revision (specific to the paediatric population)

These tables are amended from the NSW Agency for Clinical Innovation's *Nutrition and mental health toolkit* <https://aci.health.nsw.gov.au/__data/assets/pdf_file/0008/257552/ACI_Nutrition_and_Mental_toolkit_guideline-web.pdf>.

Note that these tools apply to children aged over 1 year.

Hospital and patient information

Table 5.1: Site information

Information required	Reasons/prompts
Date:	Evidence of: <ul style="list-style-type: none"> • compliance • change over time • governance • collaboration • quality improvement cycle
Name of hospital:	
Name and role of person conducting the audit:	
Name of facility nutrition care committee: (dietitian, speech pathologist, nurse, quality representative, consumer representative, food service manager and food safety officer)	
Date of last menu review:	
Type of facility (specialist paediatric hospital, metro, regional, subregional, rural):	Provides essential insight into paediatric patient numbers, which can help to inform the need for a paediatric-specific menu
Number of paediatric overnight beds:	
Number of paediatric day beds:	

Table 5.2: Demographic information (request this information from your hospital ICT for the last 3 months)

Information required	Reasons/prompts
Describe the number (or percentage) of admissions according to age groups	Helps identify the age groups for which the menu needs to cater
Describe the average length of stay and lengths of stay more than 7 days according to age groups	Helps determine the length of the menu cycle and/or menu choice available on the short order menu
<p>If there are multiple paediatric units: Which units recorded the longest admissions (more than 7 days)?</p> <p>Which units had the highest rates of admissions?</p>	Helps determine the need to focus and provide more options to specific units / age groups
Describe any cultural or religious needs	The menu needs to be culturally appropriate
What are the most common therapeutic diets the site(s) requires?	Needs to be considered into menu design to ensure food/fluid items are available either on request or incorporated into the full menu
From this information, have you assigned an appropriate number of meal options ('nourishing', 'vegetarian', 'cultural' and 'paediatric finger foods')?	Helps ensure the menu reflects the needs of the population and provides goals for menu review

Table 5.3: Food service information

Information required	Reasons/prompts
Who is the food service provider (e.g. external provider, central production kitchen, internal food service department)?	Need to identify all stakeholders and ensure everyone works together to review the menu
Who is responsible for providing all menu review information (e.g. nutritional breakdown, costing detail)?	
Who is the key contact for the food service provider at the site?	
Is there a food service dietitian (e.g. associated with a central production kitchen or external provider if not available through the hospital)?	

Table 5.4: Food service systems: menu design, production and delivery

Information required	Reasons/prompts
How many hours/days in advance does the menu need to be completed?	Impact on forecasting, meal production and kitchen ordering Orders longer in advance have a negative impact on patient satisfaction, plate and production waste
What is the current length of the menu cycle?	Do some units need different lengths?
Is the current length of the menu cycle appropriate for the site?	
How is food delivered to consumers (e.g. bulk and plated at point of service, plated in the kitchen and tray service)?	Potential practical considerations may arise
What is the type of food service at the facility (e.g. cook-chill, cook-fresh, cook-freeze, pre-packaged meals and/or combination)?	Impact on meal production, kitchen ordering, storage and stock levels Consideration for menu options/limitations (e.g. cook-chill works best with wet dishes but poorly with grilled/ crispy meals)
Have recipes been analysed and ingredients documented (including documentation of allergens)?	Evidence of meeting: <ul style="list-style-type: none"> • nutritional profile for different meal options • nutrient goals for specific age groups • allergen management safety protocols
Are there other potential food service-related considerations for the site (e.g. BBQ days, assisted daily living kitchen, special events catering, cooking programs)?	Impact on kitchen ordering and possibly in revising the menu

Table 5.5: After-hours service

Information required	Reasons/prompts
Is there less than 14 hours between serving the last meal of the day and the first meal of the following day?	This is the recommended maximum timeframe and may affect food service and nursing staff
Do patients have access to food after hours (e.g. sandwiches, fruit, milk)?	Consider patients with admissions after hours or after a meal service Consider patients who miss a meal due to a procedure or nap
Does the site provide access to additional foods for patients who are hungry or require large serves?	Consider younger patients in particular who have smaller, less predictable appetites and may require access to small snacks throughout the day and also teenagers who are experiencing growth spurts and require larger serves

Minimum menu choice gap analysis

Table 5.6: Minimum menu choice gap analysis

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Fruit Fresh, canned or dried	1 medium banana, apple or orange 2 small apricots, mandarins or kiwi fruits 1 cup (150 g) diced/canned fruit 30–40 g dried (e.g. 4 prunes or PC sultanas)	1/meal Offered at all meals	0.5–1	Developmentally appropriate texture Cut up where possible for younger children; canned fruit in natural juice (not syrup) or water Variety at consecutive meals Local, seasonal and fresh preferred		
Juice	~ 125 mL	1/day Not appropriate for the default menu	1	100% fruit juice No added sugar 1 per day maximum		
Hot cereal Examples: porridge, semolina, congee	120 g cooked weight	1/breakfast meal	0.5–1	No added salt or sugar		
Cold cereal Examples: muesli, corn flakes, wheat biscuits	30–45 g	2/breakfast meal	1–2	Cereals to contain \leq 30 g sugar / 100 g \geq 1 cereal should contain at least 3 g fibre per serve Higher fibre option should be provided as default Large (double) serves available for older teenagers		
Milk for cereal	PC serve ~ 140 mL	2/breakfast meal	1–2 PC	Children aged under 2 years only offered full cream milk Offer a choice of full cream and reduced fat milk to children aged over 2 years Soy milk on request with \geq 100 mg calcium / 100 mL		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Protein at breakfast Continental or traditional cooked	Examples: 1 egg with toast soldiers 1 egg with congee 75 g baked beans on toast Pancakes with fruit	1/breakfast meal	1–2	Vegetables offered for variety Note: They can be counted towards dietary vegetable serves Eggs must be well cooked to reduce risk of salmonella Nutrient profile: • ≥ 700 kJ per serve minimum • ≥ 5 g protein per serve minimum Aim for ≤ 600mg sodium per serve maximum		
Bread Toast/bread or bread roll	30–45 g Examples: 1 slice bread 1 bread roll	2/meal Offered at all meals	1–2	Offer at least one choice of wholemeal or multigrain bread; white bread can be available Wholemeal or wholegrain bread should be the default choice For variety offer small bread roll, raisin bread, crumpets, English muffins, wraps, roti, naan bread Nutrient profile: • ≤ 400 mg sodium / 100 g		
Margarine	PC serve Margarine ~ 10 g	1/meal Offered at all meals with bread	1-2 PC	Poly- or mono -unsaturated margarine is the default choice Butter (PC ~ 7 g) may be offered on request		
Spreads	PC serve Honey ~ 13 g Jam ~ 13 g Vegemite ~ 5 g Peanut butter ~ 11 g	3/breakfast meal	1–2 PC	Include a selection of jams, Vegemite and honey Peanut butter and other nut spreads offered according to hospital allergy policy Artificially sweetened spreads are not offered		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Cold beverage – milk	PC serve ~ 140 mL	2/meal Offered 6 times over the day: twice at breakfast; once at all other meals and mid-meals	1–2 PC	Offer only full cream milk to children aged 1–2 years. Offer a choice of full cream and reduced fat milk to children aged over 2 years Calcium fortified soy milk should be available on request as an alternative to dairy Nutrient profile (soy milk): • ≥ 100 mg calcium / 100 mL minimum		
Sugar and sugar substitutes	PC serve Sugar sachet ~ 4 g	Not available on the standard or default menu	0	Not available on the standard menu Not provided on default menu Available on request Sugar substitutes are not necessary		
Soup	~ 180 mL	1 soup / day	0.5–1	Soups for young children are offered according to hospital policy A proportion of 'nourishing', 'vegetarian', 'culturally diverse', 'easy-chew' has been nominated according to hospital population need Broth can be offered as a fluid source and for appropriate therapeutic diets Variety is maintained at consecutive meals 'Nourishing option' nutrient profile: • ≥ 400 kJ per serve minimum • ≥ 5 g protein per serve minimum Aim for ≤ 600 mg sodium per serve maximum		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Hot main meal (lunch and dinner)	<p>Plain cooked meat:</p> <ul style="list-style-type: none"> • Red meat 50 g minimum (beef, lamb, kangaroo) • White meat 70 g minimum (pork, poultry) • Fish 90 g minimum (fresh or canned) <p>Portion sizes can vary; the onus is on meeting the specified nutritional profile</p>	4 hot dishes per day (2/meal) as per pre-determined local need	0.5–1.5	<p>Variety of hot meals offered as per pre-determined hospital need including nourishing, vegetarian, paediatric finger food, easy-chew and culturally diverse options (one meal can incorporate different options)</p> <p>Include a variety of proteins (meat, fish, egg, tofu, legumes) and types of meals at consecutive meals and on consecutive days</p> <p>Oven-baked, grilled, or steamed cooking techniques used in preference to frying with oil</p> <p>A vegetarian option is available at every eating occasion</p> <p>Fish is offered twice a week</p> <p>Nourishing option nutrient profile:</p> <ul style="list-style-type: none"> • ≥ 700 kJ per serve minimum • ≥ 10 g protein per serve minimum • Aim for ≤ 600mg sodium per serve maximum <p>If vegetarian main meals don't meet the minimum protein per serve, ensure adequate protein is offered over the day (e.g. nourishing side dishes or mid-meals)</p> <p>Variable nutrient value nutrient profile:</p> <ul style="list-style-type: none"> • not specified; included for variety <p>Variable nutrient value should not comprise more than 20% of the menu</p>		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Starch/ grains	Serve ~ ½ cup or 75–120 g cooked Hot chips (60 g serve)	1–2/meal Note: some mixed dishes do not require additional starch	1–2	Starch should match the main dishes (e.g. roast potato with roast meat) Variety is included within consecutive meals and on consecutive days A variety of grain dishes are offered to enhance menu cultural diversity and interest Lower GI options are offered (e.g. basmati or doongara rice) Hot chips are only offered occasionally for variety		
Vegetables	Serve ~ 75 g cooked weight or 1/2 cup	2 different coloured vegetables with hot main meal offered twice per day	1–2	Vegetables should match the main dishes Variety is included with consecutive meals and on consecutive days Seasonal vegetables are used where possible Presentation and flavour of vegetables are enhanced (e.g. roasted/grilled, finger food options or with herbs and spices or sauces) Note: Soup and other mixed dishes with high vegetable content can contribute to the daily vegetable requirement		
Side salad or raw vegetables	Serve ~ 1 cup raw vegetables (75 g)	1/day	1–2 serves	A minimum of 3 coloured vegetables provided within the salad Offer unsaturated fat PC salad dressings Raw vegetables/salad can be offered as an alternative to cooked vegetables Seasonal vegetables are used where possible Note: Soup and other mixed dishes with high vegetable content can contribute to the daily vegetable requirement		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Condiments	Gravy/sauce: according to the size of the meal	According to the dish	0.5–1.5	Gravy and/or sauces may be offered when deemed an appropriate accompaniment to a dish (e.g. roast meat and vegetables)		
	PC condiment/ sauce	According to the dish	1–2	A range of condiments may be offered as an accompaniment to a dish Condiments should be offered to match the dish		
	PC serve Salt sachet = 1 g	Not available on the standard or default menu	0	Salt is not deemed necessary and shouldn't be offered on the standard or default menu, but it may be available on request		
Sandwiches/ wraps	1 serve = 1 sandwich / wrap Nourishing fillings: Egg × 1 Cheese (20 g minimum) Lean meat / chicken / fish (50 g minimum) Hummus ~ 30 g Falafel ~ 50g	2/day 1 nourishing option / day minimum	0.5–2 sandwich	A variety of sandwiches are offered at consecutive meals and on consecutive days A variety of breads and wraps included (e.g. wholemeal, wholegrain, white, sourdough, roti.) Mono- or poly- unsaturated margarine, avocado or hummus are used as spreads Sandwiches made on wholemeal or wholegrain bread are the default choice Sandwiches are presented as wedges for a paediatric finger food option Sandwiches and wraps are toasted to improve acceptance/interest Large (double) serve available for older children Half sandwiches are offered to younger children and as a snack option for all patients Sandwiches are readily available on the ward for patient access Nourishing nutrient profile: <ul style="list-style-type: none"> • 800 kJ per sandwich minimum • 8 g protein per sandwich minimum Variable nutrient value nutrient profile: <ul style="list-style-type: none"> • not specified; included for variety 		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
Desserts	<p>Nourishing option: Portion controlled serve: 150g minimum Creamy yoghurt Dairy dessert (e.g. Fruche), custard</p> <p>Variable nutrient value option Portion control serve: Ice cream 100 mL minimum Jelly 110 g minimum</p> <p>Portion sizes can vary; the onus is on meeting the specified nutritional profile</p>	<p>4/meal</p> <p>1 nourishing option / meal minimum</p>	2	<p>Offer a variety of nourishing desserts on consecutive days</p> <p>Nourishing nutrient profile:</p> <ul style="list-style-type: none"> • ≥ 500 kJ per serve minimum • ≥ 4 g protein per serve minimum <p>Variable nutrient value nutrient profile:</p> <ul style="list-style-type: none"> • not specified; included for variety 		
Standard snacks	<p>Fresh fruit:</p> <ul style="list-style-type: none"> • 1 banana • 1 medium apple • 2 apricots • 2 kiwi fruits 	2/day	0.5–1	<p>Developmentally appropriate texture modification is considered</p> <p>A number of different types of fruits are offered to ensure variety</p> <p>Where possible seasonal fruit is offered</p>		

Menu item	Serve size	Minimum choice	Range of age-appropriate serve available	Nutrition Standards & menu design considerations	Meets the Standards (Yes/No)	Minimum menu choice gaps identified
High-energy and nourishing snacks	High-energy examples and serve sizes: Fruit cake ~ 40 g Small muffin ~ 40 g Small muesli/ breakfast bar ~ 30 g Cheese (~ 20 g) & biscuits (2–3 savoury) Flavoured milk ~ 150 mL Yoghurt ~ 160 g Portion sizes can vary; the onus is on meeting the specified nutritional profile	1/day		A variety of snack options is offered on consecutive days High-energy snacks nutrient profile: • ≥ 500 kJ per serve minimum Nourishing snacks nutrient profile: • ≥ 500 kJ per serve minimum • ≥ 5 g protein per serve minimum At least one snack option is a nourishing option (e.g. high protein)		
Water		Unlimited	N/A	Water is readily and easily available at all times Tap water is preferred		

Macro and micronutrient gap analysis

Table 5.7: Children 1–3 years – macronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Energy	4,200 kJ			
Protein	14 g			
Fat	Ideally no more than 10% energy from saturated or trans fatty acids			
Fibre	14 g			

Table 5.8: Children 1–3 years – micronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Vitamin C	35 mg			
Folate	150 µg			
Calcium	500 mg/d			
Iron	9 mg			
Zinc	3 mg			
Sodium	1,000 (UL)			

Table 5.9: Children 4–8 years – macronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Energy	5,500 kJ/d			
Protein	20 g			
Fat	Ideally no more than 10% energy from saturated or trans fatty acids			
Fibre	18 g			

Table 5.10: Children 4–8 years – micronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Vitamin C	35 mg			
Folate	200 µg			
Calcium	700 mg			
Iron	10 mg			
Zinc	4 mg			
Sodium	1,400 mg (UL)			

Table 5.11: Children 9–13 years – macronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Energy	7,500 kJ			
Protein	40 g			
Fat	Ideally no more than 10% energy from saturated or trans fatty acids			
Fibre	24 g			

Table 5.12: Children 9–13 years – micronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Vitamin C	40 mg			
Folate	300 µg			
Calcium	1,300 mg			
Iron	8 mg			
Zinc	6 mg			
Sodium	2,000 mg (UL)			

Table 5.13: Children 14–18 years – macronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Energy	9,400 kJ/d			
Protein	65 g			
Fat	Ideally no more than 10% energy from saturated or trans fatty acids			
Fibre	28 g			

Table 5.14: Children 14–18 years – macronutrient gap analysis

Nutrient	Macronutrient goal	Average daily menu comparison	Average daily menu comparison (% of RDI met by menu)	Identified areas for improvement
Vitamin C	40 mg/d			
Folate	400 µg			
Calcium	1,300 mg			
Iron	15 mg			
Zinc	13 mg			
Sodium	2,300 mg/d			

Appendix 6: Conducting a nutritional analysis of a recipe

The following information is presented as a general guide to analysing the nutritional content of a recipe using a computer software program incorporating food composition databases.

It is best practice to have an appropriately qualified dietitian with food service experience conduct nutrition analyses on recipes, in collaboration with chefs, food service managers and production managers.

All meals served at your health service should have standardised recipes to ensure consistency in taste, texture, presentation, serve size and nutritional content.

Steps for conducting a nutritional analysis of a recipe

Step 1: Select a nutrition analysis software and food composition database

- Select a nutrition analysis software with food composition databases that are appropriate for your health service.
- Use the same software and food composition databases across the health service's menu to ensure consistency of the nutrient analysis.
- FoodWorks contains the most comprehensive and up-to-date collection of Australian food composition databases and is used in almost every major hospital and university across Australia. FoodWorks enables multiple food composition databases to be selected, providing extensive produce and branded foods for building and/or analysing recipes – for example, AusNUT, AusBrands and AusFoods. Refer to Appendix 9 for links to more information about FoodWorks.

Step 2: Document the ingredients of the recipe

- There are many fresh and processed products available in food composition databases from which the ingredients for a specific recipe can be selected, with some already accounting for preparation methods.
- It is important that you understand the details of the ingredients in your recipe in order to ascertain the outcome of each and the impact this has on your analysis. For example, where possible, weigh ingredients in their prepared form (skin, bone waste, stones, fluid removed).
- The accurate analysis of macro and micronutrients in a recipe can be improved by ensuring sufficient detail in the individual ingredients – for example, cut and/or trim of meats, size of eggs, products in brine or springwater, drained or not, specific brands, salt-reduced, sugar-free.
- If the brand of a pre-produced ingredient is not available in the food composition database, then create a new item and use the Nutrition Information Panel (NIP) or the manufacturer's website to collect the specific nutrients. Once created, this ingredient can then be entered into your recipe along with the other ingredients.
- Where in-house products are used as an ingredient in another recipe (e.g. white sauce in penne pasta carbonara), a recipe analysis should be conducted for that in-house product/ingredient separately. It can then be entered as an ingredient in the analysis of other recipes.
- Enter each of the ingredients from the recipe and specify the weights and measurements.

Step 3: Enter the recipe

- For each menu item, create a recipe using the selected software and food composition database(s).
- Enter each recipe ingredient into the software program, ensuring accurate weights and measurements are included.
- Enter the ingredients in their raw form unless they are pre-packaged/processed ingredients – for example, fat-trimmed raw beef, raw broccoli, canned kidney beans (drained), canned tomatoes (no added salt).
- Fresh and dried herbs/spices are typically not entered unless they contribute a significant nutrient. For example, seasonings such as Mexican or Moroccan spices and some curry powders can be high in sodium so should be entered.

Step 4: Calculate the yield and number of serves

- The recipe yield is the total amount of food the recipe produces (the weight of the final product). This needs to be accurate to enable the number and size of each serve to be calculated.
- Weighing the cooked recipe during the testing phase of recipe development is the most accurate method of determining the yield.
- To determine the size/weight of each serve, divide the yield (cooked weight) by the number of serves the recipe specifies.
- Where the calculated serve size differs from that stipulated in the recipe, there may be inaccurate ingredient weights, or the recipe does not accurately reflect production methods and anticipated cooking losses.
- Recipe analysis software allows the user to adjust ingredient weights and preparation methods, as well as the overall yield percentage and either the weight or number of serves. This enables the true outcome of the tested recipe to be entered to guide required adjustments to the standardised recipe, and also for nutrient analysis.

Consider both ingredient weight changes and nutrient retention impacts resulting from the preparation and cooking methods. For some recipes it may be more accurate to enter cooked ingredients (e.g. boiled pasta, steamed broccoli, deep-fried chicken) to account for these impacts on both weight and nutrient retention.

The weight of an ingredient can increase during the cooking process due to the absorption of water or cooking oils/fat, or decrease due to moisture evaporation or fat rendering.

Nutrient retention for ingredients varies greatly, depending on both the nutrient of concern and also the specific method of preparation and cooking. It is always best to calculate the weight change of your specific recipe or ingredient where possible by calculating raw and cooked weights of a recipe or ingredient.

Consider these variable factors when conducting a recipe analysis. Appendix 9 provides links to commonly used weight change and nutrient retention factor tables for many foods.

Note: For a full list of the sources used to develop this section, please refer to the Adult Standards.

Appendix 7: Paediatric example test menus

Infants 4–6 months

Menu 1: Three meals plus breastmilk or 600 mL formula

Breakfast	600 mL infant formula 2 tablespoons infant rice cereal (5 g)
Lunch	60 g pureed broccoli, pumpkin & potato
Dinner	60 g pureed broccoli, potato & carrot

Infants 6–12 months

Menu 1: Three meals plus breastmilk or 600 mL infant formula

Breakfast	600 mL infant formula 2 tablespoons rice cereal Baby custard 120 g
Lunch	Pumpkin, potato, beef & peas Natural yoghurt 120 g
Dinner	Potato, chicken, broccoli & carrot Banana

Menu 2: Three meals plus breastmilk or 600 mL formula

Breakfast	600 mL infant formula 1 slice wholemeal bread Margarine 10 g Vegemite 4.8 g serve Banana
Lunch	Pumpkin, potato, lamb & broccoli Natural yoghurt 120 g
Dinner	Pumpkin, potato, broccoli & fish Baby custard 120 g

Children 1–3 years

Menu 1: Breakfast, sandwich and hot meal plus two mid-meals

Breakfast	110 mL orange juice 2 wheat biscuits with 150 mL full cream milk Strawberry yoghurt 175g
Lunch	1 egg & mayonnaise sandwich Vanilla custard
Dinner	Spaghetti bolognaise Chocolate mousse
2 mid-meals	20 g sweet biscuits Pureed fruit 120g

Menu 2: Breakfast, 2 sandwiches plus two mid-meals

Breakfast	110 mL orange juice Cornflakes with 150 mL full cream milk Strawberry yoghurt 175 g
Lunch	1 ham & cheese sandwich Vanilla custard
Dinner	Tuna & mayonnaise sandwich Apple pie
2 mid-meals	Banana Crackers 12 g & tasty cheese 20 g

Menu 3: Breakfast, 2 hot meals plus two mid-meals

Breakfast	100 mL apple juice 1 slice wholemeal bread with butter (10 g) & honey (14 g) Rice Bubbles & 150 mL full cream milk
Lunch	Roast beef, potato & vegetables Vanilla custard
Dinner	Fried rice, vegetables & tofu Sticky date pudding & custard
2 mid-meals	Apple Dairy dessert (e.g. Fruche) 150 g serve, vanilla

Children and adolescents 14–18 years

Menu 1: Breakfast, sandwich and hot meal plus two mid-meals

Breakfast	110 mL orange juice 2 wheat biscuits Strawberry yoghurt 175 g 150 mL full-cream milk 1 slice wholemeal bread Margarine 10 g Vegemite
Lunch	1 egg, mayonnaise & lettuce sandwich Vanilla custard
Dinner	Spaghetti bolognese Chocolate mousse
2 mid-meals	20 g sweet biscuits Pureed fruit 120g

Menu 2: Breakfast, 2 sandwiches plus two mid-meals

Breakfast	110 mL orange juice Cornflakes Strawberry yoghurt 175 g 150 mL full-cream milk 1 slice wholemeal bread Margarine 10 g Vegemite
Lunch	1 ham & cheese sandwich Vanilla custard
Dinner	Tuna & mayonnaise sandwich Apple pie
2 mid-meals	Banana Crackers 12 g & tasty cheese 20 g

Menu 3: Breakfast, 2 hot meals plus two mid-meals

Breakfast	100 mL apple juice 2 slice wholemeal bread Margarine 10g × 2 Honey 14 g serve × 2 Rice Bubbles 150 mL full cream milk
Lunch	Roast beef, potato & vegetables Vanilla custard
Dinner	Fried rice, vegetables & tofu Sticky date pudding & custard
2 mid-meals	Apple Dairy dessert (e.g. Fruche) 150 g serve, vanilla

Note: Product brand names used in this document do not imply endorsement by the Victorian Government.

Appendix 8: Seven-day menu grid for regular texture adult menu

The following table detail example seven-day menu grids for regular texture adult menu choices taken from Appendix 10 of the Adult Standards.

Regular texture seven-day menu grid

Band 1	Band 2	Unbanded						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
Breakfast								
Hot protein	Scrambled eggs	Cheesy baked beans	Baked eggs with vegetables & cheese	Pancakes with maple syrup & fresh fruit	Cheese croissant	Poached eggs with hollandaise sauce	Savoury rice porridge with chicken/egg	
Hot cereal	Porridge made with fortified milk	Porridge made with fortified milk	Porridge made with fortified milk	Porridge made with fortified milk	Porridge made with fortified milk	Porridge made with fortified milk	Porridge made with fortified milk	
Cold protein 1	Banana smoothie (180 mL)	Mango smoothie (200 mL)	Berry smoothie (180 mL)	Muesli with Greek yoghurt	Muesli with high-protein yoghurt	Avocado & 30 g feta	Iced coffee – 250 mL full cream milk topped with whipped cream	
Cold protein 2	Yoghurt	Yoghurt	Yoghurt	Yoghurt	Yoghurt	Yoghurt	Yoghurt	
Cold cereals	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	Wheat biscuits Muesli Corn flakes Puffed rice Bran flakes Full cream milk Low fat milk Soy milk	

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Bread/toast	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey	Wholemeal Multigrain White English muffin Margarine Butter Jam Peanut butter Vegemite Honey
Fruit	Peach cup	Pear	Apple or orange juice	Banana	Orange	Nectarine	Apple or orange juice
Snack							
Fruit	Apple	Strawberries	Orange	Mango	Pear	Dried apricots	Apple
Snack	Strawberry yoghurt	Cheese & crackers	Choc chip mini muffin	Low fat blueberry yoghurt	Muesli bar	Mixed unsalted nuts	Frozen yoghurt
Lunch							
Soup 1			Beef, barley & vegetable	Spicy black bean	Roast pumpkin & chickpea	Spicy chicken, lentil & cauliflower	
Soup 2		Creamy mushroom	Creamy tomato	Tomato & red lentil			Spicy lentil & quinoa
Main 1	Lamb curry	Beef Stroganoff	Salmon pasta mornay	Roast pork with apple sauce	Beef potato-topped pie	Chicken Caesar salad with dressing	Fish curry
Main 2	Cheese & asparagus quiche	Grilled fish with tartare sauce & lemon	Beef rissoles with gravy	Spicy chicken & coconut curry	Tofu & legume stir-fry	Cheese & spinach filo pie	Beef lasagne
Starch 1	Spiced rice	Boiled rice	Mashed potato	Roast potato	Fried rice	Olive speciality bread	Boiled rice
Starch 2	Scallop/gratin potato	Jacket potato	Green lentil salad	Boiled rice	Corn cob	Jacket potato with cheese	Herbed oven baked potato

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Vegetable 1	Salad with honey dressing	Salad with Caesar dressing	Garden salad	Coleslaw	Green beans	Chargrilled vegetable mix	Carrots
Vegetable 2	Carrots	Broccoli	Garlic mushrooms	Honey carrots	Capsicum (all colours)	Peas	Green beans
Vegetable 3	Peas	Roast pumpkin	Silverbeet	Broccoli	Cabbage	Garden salad	Spinach
Sandwich or wrap	Chicken & salad	Spicy tofu & salad	Cheese, refried beans & avocado with salad	Falafel with hummus & lettuce	Roast beef with salad – with or without mustard	Tuna, mayo & salad	Chicken, avocado & salad
Dessert 1	Cheesecake	Banana cake with cream	Crème caramel	Vanilla thickshake (200 mL)	Fruit & cheese platter with crackers	Lemon tart with cream	Chocolate mousse with strawberries
Dessert 2	Pear crumble with ice cream	Caramel milkshake (100–150 mL)	Apple strudel with yoghurt	Chocolate & orange cake	Berry pavlova with cream	Banana milkshake (100–150 mL)	Jelly & ice cream
Snack							
Fruit	Mango	Dried apricots	Pear	Fruit salad cup	Mixed berries	Apple or orange juice	Banana
Snack	Scone with jam & cream	Mini quiche	Caramel slice	Hummus, crackers & vegetable sticks	Chocolate milkshake	Cheese scone	Greek yoghurt
Dinner							
Soup 1	Spicy chicken, lentil & cauliflower	Tofu & egg					Beef, barley & vegetable
Soup 2	Tomato & basil				Potato & leek	Tomato & red lentil	
Main meal 1	Beef & mushroom casserole	Roast chicken with gravy	Roast lamb with mint sauce	Salmon & teriyaki	Chicken with honey & apricots	Beef & red wine casserole	Chicken & cashew nut stir-fry
Main meal 2	Vegetarian chilli con carne (TVP & beans) with yoghurt	Lamb potato-topped pie	Curried lentil patties	Spaghetti bolognese	Grilled fish with tartare & lemon	Vegetarian cheesy lasagne (made with TVP)	Baked eggs with cheese & legumes

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Starch 1	Boiled sweet potato	Roast potato	Wedges	Soba noodles	Sweet potato oven baked chips	Mashed potato	Rice noodles
Starch 2	Boiled rice	Buttered corn	Rice salad	Boiled potato	Jacket potato with yoghurt	Boiled rice	Roast sweet potato
Vegetable 1	Broccoli	Coleslaw	Roast pumpkin	Cauliflower	Garden salad with vinaigrette dressing	Pumpkin	Peas
Vegetable 2	Zucchini	Cauliflower in cheese sauce	Green beans	Zucchini in cheese sauce	Carrot & parsnip mash	Broccoli with cheese sauce	Cauliflower
Vegetable 3	Green beans	Peas	Side garden salad	Soybeans (shelled edamame)	Silverbeet	Spinach	Salad with honey dressing
Sandwich or wrap	Tuna, mayo and salad	Ham, cheese & tomato	Egg & lettuce	Chicken, cheese & avocado	Cheese & salad	Turkey & salad	Corned beef & salad with or without mustard
Dessert 1	Fortified baked custard	Chocolate mousse	Trifle	Apple & berry crumble	Fortified baked custard	Crème caramel with cream	Banana cake with cream
Dessert 2	Apple & berry strudel with cream	Pear crumble	Fruit salad & ice cream	Passionfruit cheesecake	Chocolate cake with cream	Fresh fruit salad with cream	Strawberry milkshake (100–150 mL)
Supper							
Fruit	Orange	Two fruits fruit pack	Strawberries	Apple	Banana	Peach fruit pack	Prunes
Snack	Cheese & crackers	Vanilla yoghurt	Frozen yoghurt	½ egg & lettuce sandwich	Sliced apple & nut butter	Anzac biscuit	½ ham, cheese & tomato sandwich

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Daily extras							
May be offered on the menu at each meal and mid-meal as appropriate	Tea	Tea	Tea	Tea	Tea	Tea	Tea
	Coffee	Coffee	Coffee	Coffee	Coffee	Coffee	Coffee
	Milk	Milk	Milk	Milk	Milk	Milk	Milk
	Milk alternative	Milk alternative	Milk alternative	Milk alternative	Milk alternative	Milk alternative	Milk alternative
	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar	Sugar
	Sweetener	Sweetener	Sweetener	Sweetener	Sweetener	Sweetener	Sweetener
	Pepper	Pepper	Pepper	Pepper	Pepper	Pepper	Pepper
	Salt	Salt	Salt	Salt	Salt	Salt	Salt
	Tomato sauce	Tomato sauce	Tomato sauce	Tomato sauce	Tomato sauce	Tomato sauce	Tomato sauce
	Margarine	Margarine	Margarine	Margarine	Margarine	Margarine	Margarine
Butter	Butter	Butter	Butter	Butter	Butter	Butter	

Appendix 9: Useful links

Links valid at time of publication.

<p>National standards, guidelines and resources</p>	<p>National Safety and Quality Health Service (NSQHS) Standards Australian Commission on Safety and Quality in Health Care <https://www.safetyandquality.gov.au/standards/nsqhs-standards></p> <p>Food Standards Food Standards Australia New Zealand (FSANZ) <https://www.foodstandards.gov.au/code/Pages/default.aspx></p> <p>FSANZ food safety programs for food service to vulnerable persons: a guide to Standard 3.3.1 (2008) <https://www.foodstandards.gov.au/code/userguide/Documents/Std%20331-Food%20Safety%20Prog%20Vul%20Pers-guideFNL1.pdf></p> <p>Food safety Victoria State Government <https://www.health.vic.gov.au/public-health/food-safety></p> <p>Nutrient Reference Values for Australia and New Zealand National Health and Medical Research Council and NZ Ministry of Health <www.nrv.gov.au/></p> <p>Australian Dietary Guidelines and Australian Guide to Healthy Eating National Health and Medical Research Council and Australian Government Department of Health <www.eatforhealth.gov.au/guidelines></p>
<p>Texture modified and mealtime assistance resources</p>	<p>International Dysphagia Diet Standardisation Initiative (IDDSI) IDDSI framework <https://iddsi.org/framework/></p> <p>Communicating safe eating and drinking – best practice guidance Safer Care Victoria <www.bettersaferecare.vic.gov.au/sites/default/files/2020-06/Guidance%20_%20Communicating%20safe%20eating%20and%20drinking.pdf></p> <p>Dysphagia, safe swallowing, and mealtime management NDIS Quality and Safeguards Commission <https://www.ndiscommission.gov.au/sites/default/files/documents/2020-11/practice-alert-dysphagia-safe-swallowing-and-mealtime-management.pdf></p>

<p>Menu and quality audit tools</p>	<p>Tools, resources and links, enabling health services to establish an audit schedule.</p> <p>Menu review</p> <p>Refer to Appendix 5 – Tools for menu revision (specific to the paediatric population).</p> <p>Tray-line and point of service</p> <p>(Review of accuracy, texture compliance, presentation, taste and temperature)</p> <p>Queensland Health: Meal Quality Audit Tool <https://www.health.qld.gov.au/__data/assets/pdf_file/0025/646054/fs_mqat.pdf></p> <p>Consumption and food waste audits</p> <p>NSW Government: Love food hate waste – Business food waste review. <https://www.lovefoodhatewaste.nsw.gov.au/BusinessFoodWasteReview></p> <p>Meal environment audits</p> <p>Canadian Nutrition Society: Mealtime Audit Tool <https://nutritioncareincanada.ca/sites/default/uploads/files/MealtimeAudit.pdf></p> <p>Patient feedback activities</p> <p>Point-of-service satisfaction</p> <p>Queensland Health: Acute Hospital Food Satisfaction Questionnaire <https://www.health.qld.gov.au/__data/assets/pdf_file/0037/655849/fs_achfpsq.pdf></p> <p>Patient feedback sessions</p> <p>Safer Care Victoria, Victorian Agency for Health Information: Partnering with consumers – a guide for health services <https://www.bettersafecare.vic.gov.au/support-and-training/partnering-with-consumers/health-services></p> <p>Creative Victoria, Victorian Government: Run a focus group <https://creative.vic.gov.au/toolkit/articles/run-a-focus-group></p> <p>NSW Agency for Clinical Innovation: Participant experience: focus groups facilitation guide <https://aci.health.nsw.gov.au/__data/assets/pdf_file/0006/333861/Participant-experience-focus-group-guide.pdf></p> <p>Community consultation – Aboriginal and Torres Strait Islander communities</p> <p>Victorian Government, Department of Health: Aboriginal community engagement and partnership framework <https://www2.health.vic.gov.au/about/health-strategies/aboriginal-health/engagement></p> <p>Community consultation – culturally diverse communities</p> <p>Centre for Culture, Ethnicity and Health: Consumer participation strategies <https://www.ceh.org.au/wp-content/uploads/2017/05/consumer-participation-strategies.pdf></p>
<p>Food allergy management</p>	<p>Food allergy awareness</p> <p>Providing resources on food allergies for the community, food services and health professionals, including specific All about Allergens for Hospitals online training modules.</p> <p>The Food Allergy Awareness project <www.foodallergyaware.org.au/> is supported by the following entities:</p> <p>National Allergy Strategy <https://nationalallergystrategy.org.au/></p> <p>Allergy & Anaphylaxis Australia (A&AA) <https://allergyfacts.org.au/></p> <p>Australasian Society of Clinical Immunology and Allergy (ASCIA) <https://www.allergy.org.au/></p> <p>Victorian Department of Health food safety food allergen webpage <https://www.health.vic.gov.au/food-safety/food-allergen-awareness></p>

Cultural diversity	<p>These websites provide useful tools and resources to assist in developing appropriate menus and sourcing culturally appropriate foods:</p> <p>Kosher Authority <https://www.ka.org.au/understanding-kosher/guide-kashrut></p> <p>Jewish Australia <http://www.jewishaustralia.com/food.htm></p> <p>Islamic Council of Victoria <https://www.icv.org.au/about/about-islam-overview/what-is-halal-a-guide-for-non-muslims/></p> <p>Kosher Australia <www.kosher.org.au></p> <p>Religious events calendar <http://www.faithvictoria.org.au/resources/religions></p>
Breastfeeding	<p>Eat for health: infant feeding guidelines information for health workers</p> <p>National Health and Medical Research Council and Australian Government Department of Health <www.nhmrc.gov.au/about-us/publications/infant-feeding-guidelines-information-health-workers></p> <p>Baby-friendly hospitals</p> <p>Hospitals are encouraged to adopt a baby-friendly hospital program <https://www.who.int/activities/promoting-baby-friendly-hospitals>.</p>
Sustainable waste reduction tools	<p>Refer to Appendix 4 for tools, resources and links supporting sustainable strategies to reduce food waste in your health service.</p>
Nutrition analysis tools	<p>FoodWorks</p> <p>Xyris Pty Ltd</p> <p>Product information <https://xyris.com.au/resources/></p> <p>User guides <https://support.xyris.com.au/hc/en-us/categories/200366565-Using-FoodWorks-Professional></p> <p>Training videos <https://support.xyris.com.au/hc/en-us/articles/360001361816-Tutorial-Videos-for-FoodWorks-Professional></p> <p>Weight change factors</p> <p>Food Standards Australia New Zealand <https://www.foodstandards.gov.au/industry/npc/Pages/weight-change-factors.aspx></p> <p>Nutrient retention factors</p> <p>United States Department of Agriculture <https://www.ars.usda.gov/northeast-area/beltsville-md-bhnrc/beltsville-human-nutrition-research-center/methods-and-application-of-food-composition-laboratory/mafcl-site-pages/nutrient-retention-factors/></p> <p>Weight yield and nutrient retention factors</p> <p>Federal Research Center for Nutrition and Food (Germany) <http://www.fao.org/uploads/media/bognar_bfe-r-02-03.pdf></p>

Glossary

Term	Definition
Adult Standards	Refers to the <i>Nutrition and quality food standards for adults in Victorian public hospitals residential aged care services</i> .
à la carte menus	Contain individually prepared dishes that don't form part of the standard daily set menu. For some health services this is how the short order menu list is used.
Australian Dietary Guidelines (ADG)	Provides guidance on foods, food groups and dietary patterns that protect against chronic disease and offer nutrients required for optimal health and wellbeing.
Australian Guide to Healthy Eating (AGHE)	Food selection guide, visually representing the proportion of the five food groups recommended for consumption each day.
adequate intake (AI)	A value based on observed or experimentally determined approximations of nutrient intake by a group (or groups) of healthy people.
Australasian Society of Clinical Immunology and Allergy (ASCI)	The peak clinical body of allergists and immunologists in Australia and New Zealand.
banding	Banding or 'the bands' refers to the method of classifying menu items with respect to nutritional content and density. The bands define nutrition profiles within each of the menu categories, as outlined in section 4 the Adults Standards.
central production kitchen (CPK)	A kitchen space used to produce meals before they are sent to different locations for plating and serving to customers.
children	Throughout this document, the term 'children' is used to describe the age spectrum that is infancy through to adolescence.
continuous quality improvement (CQI)	Systematic process of progressive incremental improvements to the quality of care and services. It is a continual and ongoing effort to achieve measurable outputs and outcomes in response to the needs of service users.
default menu	Facility-selected menu (not chosen by patients).
dietitian	A person specifically trained in the nutritional needs and clinical nutritional care of people, and who is credentialed as an Accredited Practising Dietitian (APD) with Dietitians Australia.
serveware	Refers to the plates, cups, bowls, glasses, cutlery and other tableware used to serve a meal.
discretionary food and drinks	As defined in the ADGs, these food and drinks tend to be high in saturated fat and/or added sugars, salt and alcohol and low in fibre. Examples include biscuits, cakes, pastries, pies, processed meats, commercial pizza/burgers and fried foods, crisps, chocolate, confectionery, sugary drinks and alcohol. They are deemed not essential for a healthy diet.
dysphagia	A medical term that refers to difficulty swallowing. Signs and symptoms can include difficulty initiating a swallow, coughing, choking, a wet voice, excessive saliva production and repeated episodes of pneumonia. People living with dysphagia may require texture modified food or thickened fluids to mitigate the risk of aspiration.

Term	Definition
expert opinion	Consensus from the steering committee and working groups that developed the Paediatric Standards.
family	May include parents, siblings, other relatives, guardians, carers or friends. If the child/or patient is capable, family is who they define it to be.
Food First, food fortification	For the purpose of this document, food fortification refers to macronutrients only and is the process of enriching the energy, protein and/or fibre density of a food item by using another food item.
food service dietitian	Dietitians with food service training, skills and experience.
generalist hospitals	Any hospital offering generalist services across the age spectrum.
glycaemic index (GI)	A way that carbohydrates in foods and drinks are ranked according to how quickly they raise the glucose level in the blood.
health services	Within this document, the terms hospitals and health services are used interchangeably.
HealthShare Victoria	Established on 1 January 2021 (merging of Health Purchasing Victoria and Melbourne Health Logistics) as an independent public sector and commercially oriented provider of supply chain, procurement and corporate services to partner with Victoria's public health services and suppliers in delivering best-value health-related goods and services.
hospital	A public hospital in Victoria.
International Dysphagia Diet Standardisation Initiative (IDDSI) Framework	Common terminology for describing food textures and fluid thickness to improve safety for people with swallowing difficulties. The framework also provides testing methods for each texture and thickness.
National Health and Medical Research Council (NHMRC)	A statutory authority and the primary agency of the Australian Government responsible for medical and public health research.
National Safety and Quality Health Service (NSQHS) Standards	The NSQHS Standards aim to protect the public from harm and to improve the quality of health service provision. They provide a nationally consistent statement of the level of care consumers can expect from health services. The NSQHS Standards were developed by the Australian Commission on Safety and Quality in Health Care, in collaboration with the Australian Government, states and territories, the health sector, patients and carers.
Nutrient Reference Values (NRVs)	A set of recommendations for nutritional intake based on currently available scientific knowledge.
Nutrition Steering Committee	Committee comprising senior representatives from dietetics, food services, medical, nursing, speech pathology and a consumer representative, with consideration of pharmacy and risk and quality personnel. For food/fluid provision this committee has oversight of: quality improvement initiatives; alignment to state and national safety and quality standards; food service policy/procedure changes; and works within the health service's existing governance structure.
oral nutrition supplements (ONS)	Provide both macronutrients and micronutrients. Predominantly prescribed by dietitians to supplement nutrition intake in the clinical treatment of people who cannot meet their nutrition requirements through food alone, or as part of a treatment plan for specific medical conditions.

Term	Definition
Paediatric Standards	Refers to this complete document (encompassing the Minimum menu choice tables plus the Standards).
patient	A person receiving care or medical treatment in a public hospital in Victoria.
portion control (PC)	Any single-serve food product that can be consumed directly in its entirety by the patient/consumer.
recommended dietary intake (RDI)	Average daily dietary intake level that is sufficient to meet the nutritional requirements of nearly all (97–98 per cent) healthy people in a particular life stage and gender group.
short order menu	These items can be ordered as a replacement, or in addition, to the daily set menu choices. This can be useful for long-stay patients to add variety, and can also be used to provide paediatric and additional vegetarian options.
spoken menu	Where the menu options are read out to patients and selections entered on their behalf. Generally undertaken by food service personnel but may be assigned to other staff.
suggested dietary target (SDT)	Daily average intake from food and beverages for certain nutrients that may help prevent chronic disease.
texture modified (TM) food and fluids	Where the consistency of food or fluids has been altered to enable a person to chew and swallow safely, without choking.
textured vegetable protein (TVP)	Meat alternative suitable for vegetarian and vegan meals. TVP is a processed, dehydrated product made from the remaining soybean flour after soybean oil has been extracted. High in protein, and low in fat, TVP is suitable for meals such as spaghetti bolognese, shepherd's pie and chilli con carne. TVP is not suitable to puree.
Standards	Refers to the specific recommended best practice standards relevant to paediatric patients outlined in this document.
therapeutic diet	A food and fluid plan where the nutrient profile has been modified to meet the nutritional needs of a patient. This forms part of their medical treatment to prevent symptoms and/or improve nutrition status. Examples include clear fluids, low-residue, renal, gluten-free and low-salt.
upper level of intake (UL)	The highest average daily nutrient intake level likely to pose no adverse health effects to almost all people in the general population. As intake increases above the upper level, the potential risk of adverse effects increases.
Victorian Agency for Health Information (VAHI)	A division of the Victorian Department of Health established to collate, analyse and publish data and information on the performance of Victoria's healthcare system.

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