



Australian Government
National Health and Medical Research Council
Department of Health and Ageing



EAT FOR HEALTH
**Infant Feeding
Guidelines**

SUMMARY






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Medical Research Council**

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Infant Feeding Guidelines
Information for health workers
SUMMARY



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CONTENTS

How to use this resource	1
Disclaimer	1
Overview	2
Breastfeeding	3
Promotion of supportive social and physical environments for breastfeeding	4
Special considerations	6
When an infant is not receiving breastmilk	7
Other fluids in infant feeding	9
The transition to solid foods	10
After 12 months	12
Caring for infants' food	13
Nutrition in the second year of life	14
Other aspects of infant nutrition	15
Food allergies	15
Colic	15
Constipation	16
Dietary fat	16
Dental caries	17
Diarrhoeal disease	18

How to use this resource

This document provides a summary of the *Infant Feeding Guidelines* from the NHMRC's Eat for Health Program published in 2012.

The *Infant Feeding Guidelines* are aimed at health workers to assist them in providing consistent advice to the general public about breastfeeding and infant feeding. They support optimum infant nutrition by providing a review of the evidence, and clear evidence-based recommendations on infant feeding for health workers.

The main recommendations for infant feeding, including the introduction of solid food, are briefly described in this summary.

The full text of the *Infant Feeding Guidelines* can be downloaded from www.eatforhealth.gov.au.

Disclaimer

The *Infant Feeding Guidelines* and the information in this summary are relevant to healthy, term infants of normal birth weight (>2500g). Although many of the principles of infant feeding described here can be applied to low birth weight infants, specific medical advice is recommended for pre-term and underweight infants.

This document is a general guide to appropriate practice, to be followed subject to the clinician's judgement in each individual case.

The *Infant Feeding Guidelines* are designed to provide information to assist decision-making and are based on the best information available to the date of compilation.

Overview

Australia is a nation in which breastfeeding is protected, promoted, supported and valued by the whole of society.

Breastfeeding provides major public health benefits. The nutrition and growth of infants has an important effect on early morbidity and mortality and there is increasing evidence of the medium and long-term effects on health. Infant growth is now recognised as one of the influences on health and longevity later in life and breastfeeding is the backbone of early nutrition.

All health workers should promote breastfeeding in the community and ensure that best practice in breastfeeding is followed. When mothers choose to use infant formula it is also best practice to provide them with all of the information and support that they need.

The Marketing in Australia of Infant Formulas: Manufacturers and Importers Agreement (MAIF) is based on the WHO International Code of Marketing of Breast-milk Substitutes (the WHO Code) and provides the basis for control of the marketing of infant formula in Australia.

Australia's breastfeeding initiation rate is good at 96%. However, only a small proportion of women achieve the goal of exclusively breastfeeding to around 6 months. The role of health workers in supporting breastfeeding is important to further increase Australia's breastfeeding initiation and duration rates.

This summary provides background information and recommendations that will help health professionals support parents and promote the above objectives.



Breastfeeding

Breastfeeding is the healthiest start for infants. Exclusive breastfeeding confers protection against infection, some chronic diseases including type 1 and type 2 diabetes, coeliac disease and inflammatory bowel disease, is associated with lower cardiovascular disease risk factors including high blood pressure and elevated total and LDL cholesterol and obesity. Exclusive breastfeeding also contributes to improved cognitive development.


There are also maternal benefits, with evidence for a reduced risk of ovarian and breast cancer, as well as a reduced risk of developing type 2 diabetes among women with a history of gestational diabetes.

In Australia, it is recommended that infants be exclusively breastfed until around 6 months of age when solid foods are introduced. It is further recommended that breastfeeding be continued until 12 months of age and beyond, for as long as the mother and child desire.

While many mothers encounter some difficulties with breastfeeding, usually these can be overcome with support and encouragement from health professionals, family and community organisations. Many mothers can also continue breastfeeding if they choose to return to work. While exclusive breastfeeding is ideal, any amount of breastmilk is beneficial to the infant and mother. If mothers express and store breastmilk, it is important to follow correct procedures to ensure food safety and hygiene.

Recommendations

- ▶ Encourage, support and promote exclusive breastfeeding to around 6 months of age.
- ▶ Continue breastfeeding while introducing appropriate solid foods until 12 months of age and beyond, for as long as the mother and child desire.
- ▶ While breastfeeding is recommended for the first 6 to 12 months and beyond, any breastfeeding is beneficial to the infant and mother.



Promotion of supportive social and physical environments for breastfeeding

The active promotion and support of breastfeeding by community health, lay and peer organisations, primary health care services, hospitals, and workplaces will increase the proportion of women breastfeeding (both exclusive and non-exclusive) up to age 6 months. The implementation of the Baby Friendly Hospital Initiative may also improve breastfeeding outcomes.

Appropriate and effective positioning at the breast and correct attachment and milking action are vital for the efficient removal of milk from the breast without nipple pain or trauma. Antenatal education on positioning and attachment technique is recommended to prevent or reduce any nipple pain associated with breastfeeding.

The use of a pacifier before 4 weeks of age may also be associated with a reduced duration of breastfeeding (any, predominant and exclusive).

Recommendations for individuals

- ▶ Provide antenatal information and counselling about the benefits and practical aspects of breastfeeding (and the risks of not breastfeeding) to all potential mothers, fathers and primary carers.
- ▶ Pay particular attention to positioning and attachment when advising on breastfeeding.
- ▶ Take steps to identify breastfeeding difficulties by asking appropriate questions during any health-related visits with the mother. Manage those difficulties if appropriately qualified, or refer to a health professional for management (e.g. lactation consultant).
- ▶ Provide postnatal breastfeeding support information.
- ▶ A pacifier (dummy) may be offered, while placing infant in back-to-sleep-position, no earlier than 4 weeks of age and after breastfeeding has been established.

Recommendations for creating a supportive environment

- ▶ Promote the principles of the Baby Friendly Hospital Initiative.
- ▶ Encourage caregivers to access community-based services supporting breastfeeding families: such services are of increasing importance as the length of hospital stays decrease.
- ▶ Encourage support in the community and workplace for flexible work schedules, suitable environments for breastfeeding, expressing breastmilk, storage of expressed breastmilk and child care. Encourage the use of available paid parental leave schemes and lactation break entitlements.
- ▶ Continue to implement the WHO International Code of Marketing of Breast-milk Substitutes and the Marketing in Australia of Infant Formulas: Manufacturers and Importers Agreement and ensure that all health professionals understand their obligations.





Special considerations

There are very few contra-indications for breastfeeding. Maternal and paternal smoking is negatively associated with breastfeeding duration and predominant or exclusive breastfeeding, but smoking and environmental contaminants are not valid reasons to stop breastfeeding. In households where smoking occurs, infants who are breastfed have lower rates of respiratory infection.

Consumption of moderate amounts of alcohol by breastfeeding women may be associated with increased risk of adverse infant outcomes, but moderate, infrequent use of alcohol is not an indicator for stopping breastfeeding.

Most prescription and over-the-counter drugs, and most maternal illnesses are not indications for discontinuing breastfeeding.

Recommendations

- ▶ Encourage mothers, fathers, primary carers and other household members who smoke to stop or reduce smoking and to avoid exposing the infant to tobacco smoke. Even if parents persist with smoking, breastfeeding remains the best choice.
- ▶ Advise mothers that not drinking alcohol is the safest option. For women who choose to drink, provide advice on the recommended maximum intake level (e.g. two standard drinks or less in any one day) and the optimal timing of breastfeeding in relation to intake.
- ▶ Encourage and support mothers to avoid illicit drugs.
- ▶ Most prescription drugs and medicines are compatible with breastfeeding, but each case should be specifically assessed by a health professional. Statins should not generally be used during pregnancy or breastfeeding.
- ▶ At present, breastfeeding is contra-indicated when a mother is known to be HIV positive (specialist advice is needed for each individual case).

When an infant is not receiving breastmilk

If an infant is not breastfed or is partially breastfed, commercial infant formulas should be used as an alternative to breastmilk until 12 months of age. It is important to prepare and store feeds correctly.

Recommendations

- ▶ Parents should be informed of the benefits of breastfeeding and of the risks of not breastfeeding when a change from breastfeeding is being considered.
- ▶ If supplementary feeding is needed in hospital, it should only be given for specific medical indications and with the mother's agreement.
- ▶ Use cow's milk-based formulas until 12 months of age (note: all infant formulas available in Australia are iron-fortified). Use special formulas only for infants who cannot take cow's milk-based products or because of specific medical, cultural or religious reasons (note: neither soy nor goat milk-based formulas are suitable alternatives for infants with allergies to cow's milk-based formulas and are not recommended).
- ▶ Specialty formulas are indicated only for infants with confirmed pathology: health care professionals should advise parents accordingly.
- ▶ Educate parents on the importance of correctly preparing infant formula and following the instructions carefully, including using the correct scoop and not over-filling or under-filling the scoop.
- ▶ Infants are not at risk from *C. Sakazakii* when formula is prepared with lukewarm (body temperature), previously boiled water and fed within one hour. Infants may be at risk when conditions allow the bacteria to multiply to harmful levels. The problem is encountered through poor storage practices of infant formula (not preparation).

When an infant is not receiving breastmilk (cont)

Recommendations (cont)

- ▶ Cow's milk should not be given as the main drink to infants under 12 months, however small amounts may be used in the preparation of solid foods.
- ▶ As with breastfeeding, bottle feeding according to need is appropriate. It is important for parents to be aware that information on formula packages recommending certain amounts for various ages is a guide only and does not necessarily suit every infant.



Other fluids in infant feeding

For infants over the age of 6 months or for those who are not exclusively breastfed, tap water is preferred (as consistent with the *Australian Dietary Guidelines*) but this should be boiled and cooled for infants until 12 months of age. Consumption of fruit juice may interfere with the intake of nutrient-dense foods and fluids and increase the risk of damaging emerging teeth. Tea, herbal teas, coffee and other beverages are of no known benefit to an infant and could possibly be harmful.

Recommendations

- ▶ Exclusively breastfed infants do not require additional fluids up to 6 months of age.
- ▶ Boil and cool any tap water that is to be given to an infant. Plain bottled water (but not natural or sparkling mineral water or soda water) can be used if unopened to prepare formula, but it is not necessary.
- ▶ A cup can be introduced at around 6 months, to teach infants the skill of sipping from a cup.
- ▶ Fruit juice is not necessary or recommended for infants. Consumption may interfere with their intake of breastmilk or infant formula.
- ▶ Do not offer tea, herbal teas, coffee, soft drinks, cordials or other beverages.
- ▶ Any unmodified milk from non-human species, for example cow's, goat's and sheep's milk is not suitable for human infants, and should not be given as a main drink before 12 months.



The transition to solid foods

At around the age of 6 months, infants are physiologically and developmentally ready for new foods, textures and modes of feeding, and they need more nutrients than can be provided by breastmilk or formula alone. By 12 months of age, a variety of nutritious foods from the Five Food Groups, as described in the *Australian Guide to Healthy Eating*, is recommended.

Recommendations


- ▶ Introduce solid foods at around 6 months, to meet the infant's increasing nutritional and developmental needs.
- ▶ To prevent iron deficiency, iron-containing nutritious foods are recommended to be included in the first foods. Iron containing foods include iron-fortified cereals, pureed meat and poultry dishes. Cooked plain tofu and legumes/beans are also sources of iron. Care needs to be taken particularly with a plant-based diet to ensure that supplies of iron are adequate. This is an important issue because of the neuro-cognitive development implications.
- ▶ Foods can be introduced in any order provided iron-rich nutritious foods are included and the texture is suitable for the infant's stage of development. Cow's milk products including full-fat yoghurt, cheese and custard may be given, but not cow's milk as a main drink before 12 months.
- ▶ Ensure that solid foods are of appropriate texture. The texture of foods that are introduced should be suited to an infant's developmental stages, moving from pureed to lumpy to normal textures during the 6-12 month period.
- ▶ Avoid whole nuts and other hard foods to reduce the risk of choking.
- ▶ Do not add sugar or honey to infant foods as this increases the risk of dental caries.

The transition to solid foods (cont)

Recommendations (cont)

- ▶ Avoid juices and sugar sweetened drinks. Limit intake of all foods with added sugars.
- ▶ Do not add salt to foods for infants. This is an important safety issue as infant kidneys are immature and unable to excrete excess salt.
- ▶ Consumption of nutrient-poor discretionary foods with high levels of saturated fat, added sugars, and/or added salt (e.g. cakes, biscuits and potato chips) should be avoided.





After 12 months

Solid foods should provide an increasing proportion of the energy intake after 12 months of age. Offering a variety of nutritious foods is likely to help meet the need for most nutrients and provide a basis for healthy eating habits.

Recommendations

- ▶ Pasteurised full cream milk may be introduced to a child's diet as a drink at around 12 months of age and be continued throughout the second year of life, and beyond. It is an excellent source of protein, calcium and other nutrients. Do not use unpasteurised cow's or goat's milk.
- ▶ Low-fat and reduced-fat milks (skim milk and milk with 2-2.5% fat) are not recommended in the first two years of life.
- ▶ Soy (except fortified soy products and soy formula where specifically indicated), and other nutritionally incomplete alternate milks or milk substitutes (e.g. goat's milk, sheep's milk, coconut milk, almond milk) are inappropriate alternatives to breastmilk, formula or pasteurised whole cow's milk in the first two years of life.
- ▶ Rice and oat milk can be used after 12 months, as long as a full-fat, fortified variety (at least 100mg of calcium per 100ml) is used and alternative forms of protein and vitamin B₁₂ are included in the diet. These products are suitable when used under health professional supervision.
- ▶ Toddler milks and special and/or supplementary foods for toddlers are not required for healthy children.
- ▶ From 12 months of age and beyond, toddlers should be consuming family foods consistent with the *Australian Dietary Guidelines*.
- ▶ Milk and other drinks should be offered in a cup rather than a feeding bottle.

Caring for infants' food

All foods given to infants should be nutritious and be fed in a safe way. Foods provided to an infant must be free of pathogens and of suitable quantity, size and texture. Infants should be supervised during feeding. Propping the bottle against the infant's mouth and leaving the infant to feed from the bottle without supervision should be avoided as the infant may fall asleep with the bottle's teat still attached to their mouth, increasing the risk of choking, ear infection and dental caries.

Recommendations

- ▶ Store foods safely and prepare them hygienically.
- ▶ To prevent botulism, do not feed honey to infants aged under 12 months.
- ▶ To prevent salmonella poisoning, cook all eggs thoroughly (i.e. until the white is completely set and yolk begins to thicken) and do not use uncooked products containing raw eggs such as home-made ice cream or mayonnaise.
- ▶ Hard, small, round and/or sticky solid foods are not recommended because they can cause choking and aspiration.
- ▶ Ensure that infants and toddlers are always supervised during feeding.
- ▶ Avoid feeding an infant using a 'propped' bottle.

Nutrition in the second year of life

Healthy eating is important in the second year of life and builds on nutritionally sound practices established in infancy. It provides the energy and nutrients needed for growth and development; it develops a sense of taste; an acceptance and enjoyment of different family foods; and instills attitudes and practices that can form the basis for lifelong health-promoting eating patterns.



Other aspects of infant nutrition

Food allergies

Breastfeeding may be associated with a reduced risk of atopic disease in infants with and without a family history of atopy. Introducing a variety of solid foods around the age of 6 months is consistent with reducing the risk of developing allergic syndromes. There is no evidence that delaying the introduction of solid foods beyond this age reduces the risk of atopic disease. Delay in the introduction of solid foods until after the age of 6 months is associated with increased risk of developing allergic syndromes.

Treatment of proven food allergies involves avoiding foods known to cause symptoms.

Recommendations

- ▶ Encourage exclusive breastfeeding for around 6 months. There is no particular order that is advised for the introduction of solid foods or rate that new foods can be introduced, other than first foods should be nutritious and iron-rich.
- ▶ If food choices have to be restricted for medical reasons, seek the advice of a dietitian or appropriate health care professional to ensure that dietary intake continues to meet nutrient and energy needs.

Colic

Changes in diets and restrictions on individual foods have had limited success in the treatment of colic. Research into this common area of concern is ongoing, but at this point no specific dietary recommendations for the treatment of colic can be made.

Recommendation

- ▶ Ensure that any dietary modification or pharmacological intervention is safe and does not result in nutritional deficiencies.



Constipation

True constipation is infrequent in breastfed infants. If parents are concerned, they should consult an appropriate health professional.

Recommendations

- ▶ To avoid unnecessary intervention, inform parents about the wide variation in normal bowel function in infants (particularly those who are breastfed). If parents are concerned, they should consult an appropriate health professional.
- ▶ Health professionals should check that infant formula is prepared according to instructions (i.e. to the correct concentration).

Dietary fat

Dietary fat is an important source of energy. Some fats provide essential fatty acids. Fat is also needed for the absorption of essential fat-soluble vitamins.

Recommendations

- ▶ Restriction of dietary fat is not recommended during the first two years of life because it may compromise the intake of energy and essential fatty acids and adversely affect growth, development, and the myelination of the central nervous system.
- ▶ Consumption of nutrient-poor discretionary foods with high levels of saturated fat (e.g. cakes, biscuits and potato chips) should be avoided.

Dental caries

The prevalence of dental caries is lower where infants and children have access to fluoridated water and by avoiding exposure of teeth to sugar-containing foods and liquids. However excessive fluoride intake can cause dental fluorosis. Frequent consumption of foods containing added sugars in childhood increases the risk of dental caries, as does putting an infant to bed with a bottle.

Recommendations

- ▶ Fluoride supplementation is not recommended.
- ▶ For children between the ages of 6 months and 2 years who are living in areas where the household water supply is not fluoridated, seek advice from a dentist. Advice will relate to the region or state in which the infant lives.
- ▶ Put an infant to bed without a bottle or take the bottle away when the infant has finished feeding or before they fall asleep; don't let the infant keep sucking on the bottle.
- ▶ Avoid leaving an infant unattended with a bottle containing liquids (i.e. no bottle propping).
- ▶ Do not dip pacifiers or bottle teats in sugar, jam, honey or any other sugary substance.
- ▶ Avoid juices and sugar-sweetened drinks and foods and drinks with added sugars.
- ▶ Don't put anything in an infant's mouth if it has been in someone else's mouth to avoid spreading bacteria that cause dental caries.

Diarrhoeal disease

Mild to moderate dehydration associated with gastroenteritis should be managed with continued breastfeeding and, if required, oral rehydration therapy on the advice of a health professional. Formula fed infants may require interruption of formula for rehydration, but this should be resumed as soon as the infant is rehydrated. Lactose malabsorption in formula fed infants may require use of a low-lactose formula. Early reintroduction of food, following a bout of gastroenteritis, is beneficial. Weight loss is the best guide to level of dehydration and any infant suspected of suffering dehydration should be assessed by a medical practitioner.

Recommendations

- ▶ For breastfed infants, continue breastfeeding while supplementing their fluid intake with an oral electrolyte solution as necessary.
- ▶ Manage mild to moderate dehydration with an age appropriate oral electrolyte solution and early re-feeding.
- ▶ For formula fed infants, it may be necessary to briefly interrupt feeding for rehydration.
- ▶ Any infant suspected of suffering dehydration should be assessed by a medical practitioner.



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