Pacific Community
Communauté du Pacifique

Pacific guidelines for healthy infants and children under five years of age

A handbook for health professionals and educators

PHD
Public Health Division

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LIST OF ABBREVIATIONS

C-POND	Pacific Research Centre for the Prevention of Obesity and Non-communicable Diseases
DHS	demographic health surveys
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization (of the United Nations)
FNU	Fiji National University
MICS	multiple indictor cluster surveys
NCDs	non-communicable diseases
ORS	oral rehydration solution
PICTs	Pacific Island countries and territories
SIDS	sudden infant death syndrome
SPC	Pacific Community
USDA	United States Department of Agriculture
UN	United Nations
UNICEF	United Nations Children's Fund
WHA	World Health Assembly
WHO	World Health Organization

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OVERVIEW

PURPOSE AND INTENDED USE OF THE HANDBOOK

The main purpose of this handbook is to provide the scientific background information on the *Pacific guidelines for healthy infants and children under five years of age.*

The handbook is intended for health professionals and educators who provide health advice on maternal, infant and child health issues. It can be used as a policy tool to guide the development of programmes and actions that promote, protect and support healthy feeding patterns and lifestyle behaviours of infants and young children in the Pacific region. It is important that all healthcare professionals and educators who work with mothers, families, caregivers, infants and young children have a thorough understanding of these guidelines.

The guidelines in this handbook are designed to be culturally acceptable and relevant to all families and populations of the Pacific region. They complement the *Pacific guidelines for healthy living: a handbook for health professionals and educators* (SPC 2018) and the *Pacific guidelines for healthy eating during pregnancy: a handbook for health professionals and educators* (SPC 2021) documents by acknowledging the life course approach to health as crucial to achieving better outcomes later in life. There is considerable evidence available now to support the premise that the foundation of one's lifelong health, including predisposition to obesity and certain chronic diseases, is largely set during the first 1000 days of life – the period from conception to two years of age (Moore et al. 2017). Given the high prevalence of non-communicable diseases (NCDs) among the adult population, these guidelines have been developed and are based on the best available scientific evidence and best practices in order to facilitate and support optimum nutrition during the first 1000 days of life. In order to continue strengthening and building an even stronger foundation for life, these guidelines cover not only the first 1000 days, but also the period up to five years of age.

STRUCTURE OF THE HANDBOOK

There are four parts to this handbook, as follows:

- Part I – Background
- Part II – The guidelines and explanatory notes
- Part III – Special topics
- Part IV – Monitoring dissemination and communication

This handbook is one in a series of handbooks that have been developed by the Pacific Community (SPC) in collaboration with a group of nutrition experts from selected Pacific Island countries and territories (PICTs) and regional agencies in order to promote and support healthy living in the Pacific region.

PART I

BACKGROUND

INTRODUCTION

The Pacific region is facing high levels of disease, premature disability and death, which are linked to unhealthy diets and lifestyles. Unhealthy diets are contributing to a triple burden of malnutrition that PICTs are experiencing, in which under-nutrition and micronutrient deficiencies coexist with a growing burden of obesity and related NCDs due to overnutrition (World Bank 2014). The definition of these terms is as follows:

Under-nutrition – A consequence of insufficient intake of nutrient-dense foods, exacerbated by the presence of an underlying illness, poor sanitation and unsafe food-handling practices. Stunting, wasting and undernourishment are common indicators of under-nutrition and are the underlying causes of childhood morbidity and mortality (C-POND 2014).

Micronutrient deficiencies – Often referred to as hidden hunger because their effects are not seen until too late and can have long-term effects across the life course, including education performance and health outcomes. While most PICTs have made progress in reducing childhood mortality over the last 20 years, a few countries and territories still have high levels of mortality in children under five years of age (FAO 2017).

Overnutrition – Are consequences of eating too much high-energy, low-nutrient food, which in turn can lead to increased NCD-related disability and mortality. NCDs are the leading cause of death in most PICTs and cause around 60–80% of all deaths (World Bank 2014). As a result, life expectancy in many PICTs is much lower than otherwise would be the case, and averages in the age range of the low- to mid-60s (and in some cases, even lower).

In addition, rates for exclusive breastfeeding from birth to six months, (without any form of complementary feeding) have declined, alongside general declines in infant and young child feeding practices (C-POND 2014). Infants and young children who are exclusively breastfed in the first six months of life, with continuation after six months, have less risks of infections, or reoccurring ones, thus have a lower risk of deaths due to childhood illnesses.

A WINDOW OF OPPORTUNITY

There is clear evidence to show that the foundation for lifelong health and well-being is formed particularly in the first 1000 days of life, which includes the period of time from conception to two years of age (Harvard University 2010; NSW Department of Health 2019). It is identified as the period with the greatest potential to affect health and well-being over the life course (Moore et al. 2017). Nutrition plays a very important role during this window of time including up to five years of age. Optimum nutrition during this period provides:

- a good foundation for lifelong health;
- the building blocks for brain development, healthy growth and development and a strong immune system;
- better pregnancy outcomes;
- a reduction in the risk of NCDs later in life;
- better learning and earning potential;
- a break in the inter-generational cycle of malnutrition and poverty; and
- better health and economic productivity.

DEVELOPING THE GUIDELINES

Given the high prevalence of premature disability and death due to unhealthy diets and lifestyles, these guidelines have the potential to facilitate and support optimum nutrition during the first 1000 days of life, and up to five years of age, in order to help improve the development and learning capacity of individuals, as well as reduce the risk of NCDs later in life.

Adequate and appropriate feeding practices for infants and young children can contribute to a broad spectrum of short- and long-term benefits including child survival, optimum growth and development, and achievements as adults.

To inform the development of these guidelines, a literature review was conducted of national, regional and international sources (FAO 2007). A questionnaire was also sent to all the SPC member countries to gather information on what is happening in the area, and the types of resources and information that are being used to promote infant and young child nutrition. The guidelines presented in Part II of this handbook are based on the information collected and evidence of best practice available (WHO 2010). These were reviewed by the Pacific Nutrition Expert Group from selected PICTs and regional agencies. In addition, the guidelines are based on the nutrient reference values of Australia and New Zealand because of their proximity to the region and the sizeable Pacific Island populations who reside in these countries (National Health and Medical Research Council 2006).

PART II

THE GUIDELINES AND EXPLANATORY NOTES

The following section provides the technical background information on the guidelines and recommendations on best practice in order to ensure optimum nutrition, and health and development of children under five years of age.

Key guidelines for healthy Pacific infants and children are as follows:

- Breast milk is the best food for infants in the first six months of life
- If the infant cannot be breastfed, age-appropriate infant formula should be provided
- Complementary foods should be introduced at around six months while breastfeeding continues
- Care should be taken to prepare and keep food safe and to ensure food is eaten
- A variety of nutritious foods from the three food groups should be offered in different colours, textures and consistencies
- Small meals and snacks should be offered, which include nutritious foods that are low in salt and sugar
- Infants and young children should be provided with enough fluids to drink
- Family times are important for learning and development of infants and young children
- Children should be active every day
- Children need quality sleep time for healthy development and growth

1. EXCLUSIVE BREASTFEEDING FOR THE FIRST SIX MONTHS OF LIFE

Exclusive breastfeeding is recommended from birth to six months of age for optimal health, growth and development (Horta 2013; Victora et al. 2016). Exclusively breastfed infants receive only breast milk, and no other liquids or solids – not even water – except for oral rehydration solutions (ORS), or drops/syrups of vitamins, minerals, or medicines when medically recommended.

Breast milk is the best food for a baby and provides all the required nutrients for a nutritionally adequate diet in the first six months of life. It contains growth factors, vitamins, proteins and protective factors, including immunoglobulins that protect against infections and diseases such as diarrhoea, asthma, lung infections and eczema (Moossavi et al. 2018; Godhia and Patel 2013; Munblit et al. 2019; Murphy et al. 2017).

Figure 1. Breast milk composition. Source: https://familyandconutrition.com/breastmilk/

Breast milk can be expressed and frozen, in a sterile and airtight container for later use. Good hygiene and proper food-handling practices should be carried out.

Early initiation of breastfeeding within one hour of birth is critical to the establishment of breastfeeding over the long term (UNICEF 2018a; 2018b).

Both the mother and infant benefit from early initiation of breastfeeding. The suckling action of the baby on the breast releases the hormone oxytocin, which increases uterine contractions and improves the expulsion of the placenta and reduces the risk of post-partum bleeding. Oxytocin also plays a role in promoting the bonding between mother and baby as well as stimulating the milk let-down reflex. The infant benefits from receiving the first breast milk, known as colostrum, which has high concentrations of nutrients and immunological substances that protect against illness and promote the baby's gut health (Geddes and Perrella 2019; Godhia and Patel 2013; de Vries et al. 2018).

Breast milk is uniquely tailored to meet the specific needs of the infant as it grows, as shown below in the Table 1.

Table 1. Composition of breast milk

Colostrum	Transitional milk	Mature milk
• Birth to 3–5 days, first milk, low volume, thick, yellow, "liquid gold" • Natural first immunisation for baby, which provides antibodies and other immune factors • Provides complete nutrition for the first few days of life • Contains high levels of immunoglobulin A (IgA), which protects your baby's gastrointestinal tract and establishes healthy gut bacteria • It is a natural laxative, which helps to remove meconium (the waste that collects in the bowels before baby is born, which contains bilirubin) and the laxative effect of colostrum helps to prevent newborn jaundice)	• 3–5 days to 14 days • Mixture of colostrum and mature milk • Milk becomes creamier due to higher fat and lactose content • It's the time when "your milk is coming in" • Baby is feeding more and growing fast • As baby increases feeding, the sucking motion stimulates milk production (the size of mother's breast does not determine the volume of milk produced; however, breast size becomes fuller as milk volume increases)	• From about 14 days • Provides for all the baby's nutritional needs in the first six months of life • Will continue to provide nutrition and protection even as other foods are being introduced • Fat content changes from feed to feed • Foremilk – milk at the start of the feed – contains less fat, looks watery and helps to quench thirst at beginning of feed • Hindmilk – milk at the end of the feed – contain more fat, looks creamy and satisfies hunger

Source: Adapted from the familyandconutrition.com website

The benefits of breastfeeding include supporting and promoting healthy growth and development, as well as reducing the risk of developing NCDs later in life (Horta 2013; Victora et al. 2016).

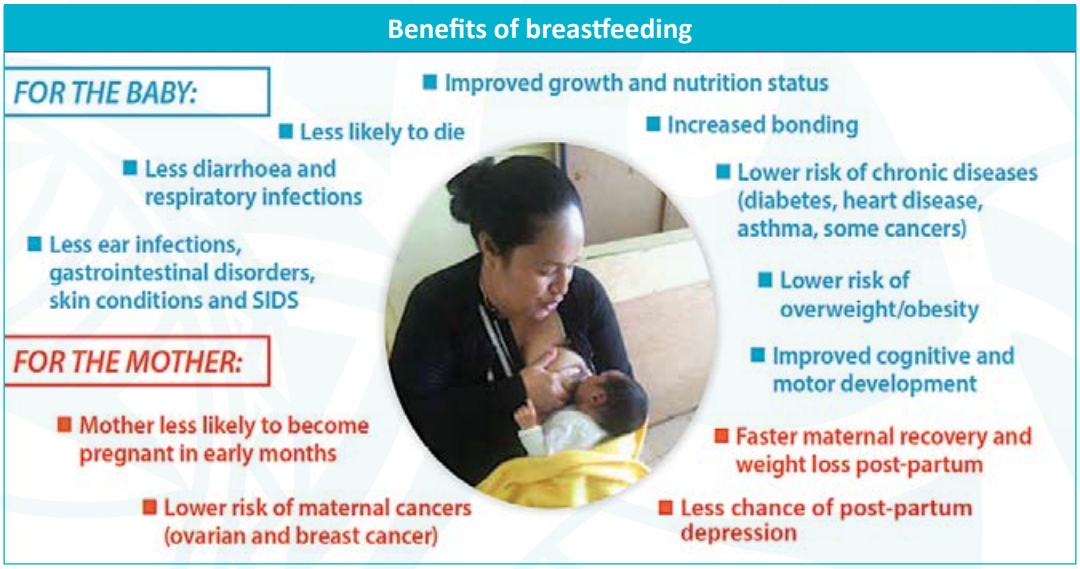


Figure 2. Benefits of breastfeeding

Infants should be **fed often and on demand.** Each child is different as to how much breast milk he or she needs. The mother's milk supply adjusts to the infant's needs, so it is important to feed baby when hungry (Geddes and Perrella 2019). If baby is still hungry after feeding from one breast, offer the other breast.

Baby is receiving enough breast milk if he or she:

- has lots of wet nappies;
- has soft bowel motions (usually at least one a day in the first three months of life);
- generally settles after most feeds;
- has bright eyes and good skin tone; and
- is gaining weight appropriate to their age.

Establishing supportive environments for breastfeeding ensures the mother can breastfeed and continue to do for as long she is able. Factors that may affect a mother's decision whether to breastfeed or not include previous personal experiences, cultural perceptions and practices, traditional health care practices, baby's father and grandmother's perceptions (exceptionally powerful sources of influence), employment and the workplace, peer influence, marketing practices and the availability of breast milk substitutes (WHO 2018).

To support, protect and promote exclusive breastfeeding in health facilities, WHO recommends the following *Ten steps to successful breastfeeding* (refer to *Annex 1*; WHO 2017a).

1. Hospital policies:
   a. Comply fully with the *International code of marketing of breast-milk substitutes* (WHO 1981, 2016, 2017b) and relevant subsequent World Health Assembly (WHA) resolutions.
   b. Have a written infant feeding policy that is routinely communicated to staff and parents.
   c. Establish ongoing monitoring and data management systems.
2. Ensure that staff have adequate knowledge, competence and skills to support breastfeeding.
3. Discuss the importance and management of breastfeeding with pregnant women and families.
4. Facilitate immediate and uninterrupted skin-to-skin contact, and support mothers to initiate breastfeeding as soon as possible after birth.
5. Support mothers to initiate and maintain breastfeeding and manage common difficulties.
6. Do not provide breastfed newborns any food or fluids other than breast milk, unless medically indicated.
7. Enable mothers and their infants to remain together and to practice rooming-in 24 hours a day.
8. Support mothers to recognise and respond to their infant's cues for feeding.
9. Counsel mothers on the use and risks of feeding bottles, teats and pacifiers.
10. Coordinate discharge of the mother so that parents and their infants have timely access to ongoing support and care.

Supporting the mother to initiate and maintain breastfeeding – including helping her to manage the difficulties that she may face – is important, so that she does not stop breastfeeding. Good breastfeeding positioning and attachment is critical for establishing and maintaining exclusive breastfeeding and minimising any discomfort and pain that the mother may experience. Mothers need to be supported throughout the whole process of establishing breastfeeding, which may take several days – especially for first time mothers. Even in emergency situations, breastfeeding mothers should be supported to continue breastfeeding.

Refer to **Annex 2** of this handbook for details on correct positioning and attachment.

Every new mother should be aware of a normal physiological event known as engorgement when milk first comes in. It describes the enlargement and swelling of the breasts that occurs as milk production increases, which is typically on the third to fifth day after birth when breastfeeding has not yet been firmly established, and leads to overfilling of the breasts. It can also occur at any time during lactation (milk production) and it is associated with discomfort and pain for the mother. If not managed effectively, it can increase the risk of infection. To alleviate the discomfort, mothers should be encouraged to express enough milk gently by hand so that the breast is comfortable and soft enough for the baby to attach.

What to avoid when breastfeeding

Breastfeeding mothers are encouraged to avoid smoking, second-hand smoke, alcohol and illicit drugs. When the mother breastfeeds, many substances she eats, drinks, inhales, or injects end up in the breast milk and may harm the baby. The safest option is to avoid these things.

Recommendations

- Initiate breastfeeding within the first hour after birth.
- Breastfeed exclusively for the first six months of life.
- Implement the *Ten steps to successful breastfeeding.*

Suggested actions

Individual mothers, caregivers and families

- Promote, protect and support exclusive breastfeeding for the first six months of life.
- Mothers should not smoke and drink alcohol when breastfeeding.
- Mothers and caregivers should seek help from health professional if assistance is needed with breastfeeding.

Healthcare facilities

- Implement the Ten steps to successful breastfeeding.
- Promote the use of the guidelines for healthy infants and children in the Pacific region in this handbook ("these guidelines").
- Observe and raise awareness on the importance of breastfeeding during World Breastfeeding Week, which is celebrated 1–7 August every year.

Communities

- Promote and support the implementation of the Ten steps to successful breastfeeding.
- Support the promotion and use of these guidelines.
- Organise community activities to promote and support World Breastfeeding Week.

Governments

- Endorse the use of these guidelines for healthy Pacific infants and young children
- Adopt and enforce the implementation of the WHO's *International code of marketing of breast-milk substitute*s (refer to *Annex 3*) and relevant subsequent WHA resolutions to support and promote exclusive breastfeeding.
- Adopt and implement national actions to improve maternal, infant and young child nutrition as recommended in the WHO's *Comprehensive implementation plan on maternal, infant and young child nutrition* (WHO 2014a).

2. IF THE INFANT CANNOT BE BREASTFED, AGE-APPROPRIATE INFANT FORMULA SHOULD BE PROVIDED

While breast milk is the ideal food for baby, there are many reasons why a mother may choose not to or cannot breastfeed her baby; for example, illness, adoption, congenital malformation (e.g. cleft palate), mother refuses to breastfeed, breast conditions (e.g. mastitis, inverted nipples), as well as unsupportive working conditions and environments for breastfeeding (WHO 2009). Parents should be informed of the safe and appropriate alternative ways to feed baby during antenatal visits to ensure baby receives optimal nutrition and parents should be fully aware of the risks (WHO 2003, 2014a). Health professionals have a responsibility to inform and educate mothers and caregivers about formula feeding (WHO 2017a).

Composition

Breast milk substitutes or infant formulas are commercially prepared products that are designed to meet the nutritional needs of full-term babies up to 12 months of age who are not breastfed (Koletzko et al. 2005). All manufactured infant formulas must comply with the *Standard for infant formulas and for special medical purposes intended for infants* (Codex Alimentarius 2017). This standard requires the product label to include expiry date marking, source(s) of protein and instructions for storage after the product is opened.

Selection

Parents and caregivers should choose an infant formula that is based on cow's milk and suitable for newborns and babies up to 12 months of age. The label should always be checked for the age that it is intended for and the "use by date". There is no need to change formula type when baby turns six months of age. The same infant formula should remain as the main drink for baby until they are 12 months of age, even while solids are being introduced at about six months of age.

Infants should be fed according to need (i.e. responsive on demand feeding) whether breastfed or fed with infant formula. If the baby is still hungry and wants more, then more formula should be provided, or an extra feed added. The quantities stated on the package should not be doubled or diluted. It is important that users follow the instructions on the package to ensure nutritional adequacy.

The risk for contamination is high when using infant formula. The manufacturer's instructions on the label should always be followed when preparing infant formula (WHO 2007b). Formula should be made fresh for each feed, even when away from home. The formula and water should be prepared in clean, sterilised containers before leaving the home. The water should only be added to the formula when baby needs a feed and any left-over formula should be discarded. Refer to *Annex 4* for detailed instructions on how to prepare infant formula safely.

Recommendations

- When exclusive breastfeeding is not possible, parents and caregivers should be informed of the benefits and risks of not breastfeeding.
- Always check the label and select the infant formula that is age-appropriate and that the use by date has not expired.
- Educate parents and caregivers on the importance of correctly preparing infant formula and following the manufacturer's instructions, including the correct use of the scoop.

Suggested actions

Individual mothers, caregivers and families

- Follow the formula manufacturer's preparation and use instructions.
- Check the formula label for the intended age and the *use by date.*
- Follow good personal hygiene practices.

Healthcare facilities

- Provide information and counselling on safe and appropriate alternative feeding practices to parents and caregivers during antenatal visits.
- Comply fully with the WHO's *International code of marketing of breast-milk substitute* and subsequent relevant WHA resolutions.
- Promote the use of these guidelines.
- Lead the celebration for the annual World Breastfeeding Week, which occurs 1–7 August every year.

Communities

- Support the implementation of these guidelines.
- Support World Breastfeeding Week activities in the community.

Governments

- Adopt and comply fully with the WHO's *International code of marketing of breast-milk substitute* and subsequent relevant WHA resolutions.
- Endorse the use of these guidelines.
- Adopt and support the first 1000 days framework and initiatives.
- Adopt and support the implementation of the *Global strategy for infant and young child feeding* (WHO 2003).

3. COMPLEMENTARY FOODS SHOULD BE INTRODUCED AT AROUND SIX MONTHS OF AGE WHILE BREASTFEEDING CONTINUES

At around six months of age, the nutritional needs of the baby cannot be met entirely by breast milk or infant formula (Infant Toddler Forum 2014; Tasmanian Government Department of Health 2019; WHO 2009). Additional food is required. Optimal nutritional requirements during this stage are crucial for normal growth and development, particularly for brain development and function (Lozoff 2007). Normal brain development is very vulnerable to any nutrient deficiencies – particularly iron (University of Washington 2019).

To maximise nutritional adequacy of the baby's diet, breast milk or infant formula should continue to be the main source of food while complementary foods are slowly introduced. Breast milk or formula should always be offered first, followed by complementary foods. Iron-rich foods such as iron-fortified infant cereal and cooked pureed beef or chicken should be part of baby's first foods. Failure to meet increasing nutritional and energy needs can result in the child failing to thrive and an increased risk of nutritional deficiencies and malnutrition (WHO 2014a). During the period of complementary feeding, children are at high risk of under-nutrition.

Furthermore, at about six months of age, baby is physiologically and developmentally ready for complementary foods or solids. The digestive system is mature enough to digest the starch, protein and fat in a non-milk diet. Baby is ready for solids when he or she:

- can hold their head up;
- can sit without help;
- regularly puts their hands in their mouth;
- easily opens their mouth when a spoon touches the lips or sees the food being offered; and
- keeps food in the mouth to chew and swallow, instead of spitting it out.

The texture of the food and amounts should be suitable for the child's age and development stage as outlined in table 2.

Table 2. Texture, amounts of foods and frequency of feeds

Age and development stage of baby	Texture	Amounts	Frequency	Foods
Around 6 months Increased strength of suck Can move food from side to side Eruption of teeth	Strained or thin puree Breast milk or infant formula can be used to make puree thin 	2–4 tablespoons The amount is gradually increased as the child gets used to the taste and texture	Breastfeeding or formula feeding on demand is continued and 2 complementary feeds per day are introduced	Iron-rich foods, such as iron-enriched baby cereals, pureed meat, etc. Vitamin A rich foods, such as sweet potatoes, orange-coloured vegetables (carrots, pumpkin) and fruits (papaya, bananas) Dark-green leafy vegetables
7–8 months Can chew softer lumps and keep most food in the mouth Can close lips to clear the spoon Begins to try and feed from the spoon without spilling Begins to drink from closed cup	Mashed consistency (e.g. mashed banana) 	Increased gradually to ½ a 250 ml cup at each meal	Breastfeeding or formula feeding on demand is continued along with 2–3 meals per day	Iron-rich foods, such as iron-enriched baby cereal, beef and lamb Vitamin A rich foods such as sweet potatoes, and other orange-coloured vegetables and fruits. Dark-green leafy vegetables Foods rich in omega-3 fatty acids, such as sardines and other fish

Age and development stage of baby	Texture	Amounts	Frequency	Foods
9–11 months Can bite into harder food when teeth have erupted Begins to drink from open cup	Finely chopped or soft finger foods that baby can pick up 	½ a 250 ml cup	Breastfeeding or formula feeding on demand is continued along with 3–4 meals per day Depending on the child's appetite, at least 1–2 snacks per day may be offered	Variety of foods from the three food groups consistent with the *Pacific Guidelines for Healthy Living*[1]
12+ months Can cope with most textures offered but chewing not yet fully matured By 24+ months, baby can now cope with most foods offered as part of the family meal	Chopped or finger foods   	¾ to one 250 ml cup	3–5 meals per day, along with frequent breastfeeding or formula feeding on demand Depending on child's appetite, 2–3 snacks per day may be offered	Variety of foods from the three food groups, including full-fat dairy products Full-cream pasteurised milk as a drink If baby is not breastfed, give an additional 1–2 cups of infant formula per day along with 1–2 extra meals per day

Source: Adapted from the National Health and Medical Research Council (2012) Infant Feeding Guidelines

The child's digestive system continues to develop as it grows. By four to six months, the infant's kidneys would have developed adequately to cope with eliminating the increasing levels of minerals. The gut enzymes needed to digest non-milk foods are also present.

Introducing a variety of nutrient-dense foods is important as the child grows to ensure nutritional adequacy of the diet. In addition to iron, dietary fat is also an important nutrient in the development and myelination of the central nervous system. Dietary fat is an excellent source of energy and essential fatty acids as well as fat-soluble vitamins. Restricting the intake of dietary fat is not advisable as this may adversely affect growth and brain development; however, care is required when selecting the source of dietary fat.

[1] Foods were categorized into the three main food groups.
Energy foods – foods that are rich in energy, e.g. starchy staples such as yams, taro, cassava, sweet potato, breadfruit and whole grains and cereals, such as rice and bread
Protective foods – all fruits and vegetables, rich in vitamins, minerals and fibre
Body-building foods – foods that are rich in protein, iron, essential fatty acids and other minerals, such as fish, lean meat, chicken, eggs, nuts, dried beans, milk and milk products

The three food group concept has been widely used for nutrition education in the Pacific and forms the cornerstone of all the advice and information about healthy eating in most Pacific countries

Young children have small stomachs and need smaller portions of food. The amounts of food offered should be based on the principles of responsive feeding (Pérez-Escamilla et al. 2017). Infants who are eating a balanced, varied diet do not usually require nutritional supplements except for low birth weight infants who may need special advice from a dietitian or a paediatrician. Each child is different. If parents and caregivers are concerned about baby's appetite, growth or developmental milestones, it is important that they seek medical advice.

Store-bought baby foods have been specially made to meet babies' needs. When baby food is purchased, one should check that it is right for the baby's stage of growth and always follow the storage instructions on the jar or can.

Home-prepared infant foods can be just as nutritious and more economical as store bought foods, and caregivers have more control over the variety and texture of the food that is being prepared. One should take care to select a variety of nutrient-dense foods from the three food groups to ensure an adequate supply of iron, zinc, protein, fat, vitamins and other essential minerals. Extra home-made food can be frozen in ice-cube trays and used within a month. Food should be prepared safely by following the WHO's *Five keys to safer food manual* (WHO 2006).

Recommendations

- Introduce complementary foods from six months onwards to meet increasing nutritional and developmental needs.
- Maintain breastfeeding or formula feeding while gradually introducing complementary foods.
- First foods should be rich in iron.
- Practice good hygiene and safe food handling.

Suggested actions

Individual mothers, caregivers and families

- Continue breastfeeding or formula feeding and gradually introduce complementary foods.
- Try different combinations of foods and encourage the child to eat and enjoy a variety of healthy foods.
- Practice responsive feeding in a safe and relaxed environment.
- Practice good hygiene and proper food handling to ensure food is safe.
- Do not add sugar or salt to baby's food.

Healthcare facilities

- Establish and conduct practical nutrition education sessions for new mothers.
- Develop and implement infant and young child feeding programmes.
- Raise awareness around food safety.

Communities

- Provide safe spaces for mothers and caregivers for feeding children.

- Support the promotion and use of these guidelines.
- Ensure access to safe, clean water and proper sanitation.
- Advocate for policies and legislations that strengthen availability and easy accessibility of local nutritious foods for complementary feeding.
- Support the implementation of ***Global strategy for infant and young child feeding*** (WHO 2003, 2007a) and the recommendation in the ***Guidance on ending the inappropriate promotion of foods for infants and young children: implementation manual*** (WHO 2016).

4. CARE SHOULD BE TAKEN TO PREPARE AND KEEP FOOD SAFE, AND TO ENSURE FOOD IS EATEN SAFELY

All foods and beverages offered to infants and young children must be safe to eat; i.e. free of any contaminants and, thereby, can be eaten safely (WHO 2009).

Safe to eat

Infants and young children are particularly sensitive to disease causing microbes as their immune systems are not yet fully developed. Diarrhoeal diseases are common in children who are six to 12 months of age, and can be dangerous if the child loses a lot of body fluids through diarrhoea or vomiting, which causes dehydration. Extra care must be taken when preparing food for baby. The WHO's ***Five keys to safer food manual*** (WHO 2006) should be followed in order to ensure that food is safe, minimise the risks of cross contamination and prevent foodborne illnesses.

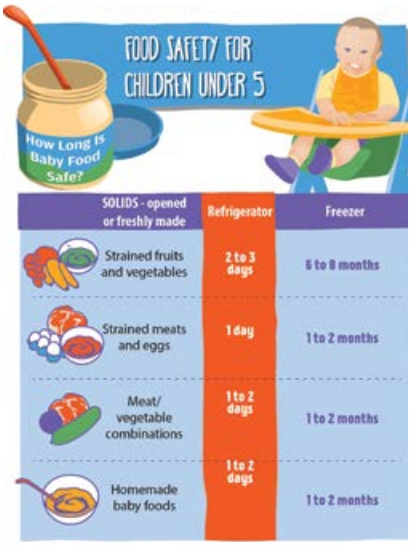
Five keys to safer food
☑ Keep hands and utensils clean
☑ Separate raw and cooked foods
☑ Cook food thoroughly
☑ Keep food at a safe temperature
☑ Use safe water and safe raw food materials

All utensils, such as cups, bowls and spoons, that are used for an infant or young child's food should be washed thoroughly.

Eating by hand is common in many cultures, and young children are sometimes given finger foods to hold and chew on. Their little hands can pick up harmful bacteria, dirt, et cetera, which may be ingested if the hands are not washed before handling the food. It is important for both the caregiver's and the child's hands to be washed thoroughly before eating.

Food preparation

- Caregivers hands should be washed thoroughly before and after preparing baby's food.
- Surfaces where food is prepared should be cleaned before and after preparing food.
- Cracked or chipped utensils should not be used for preparing
- baby's food (these have a higher chance of harbouring germs).
- Raw food, especially meats, should not be mixed with cooked food.
- Any meat should be cooked thoroughly.
- If food needs to be reheated, it should be brought to full boil for a few minutes.
- Any unfinished food from baby's bowl should be discarded.
- Storage areas should be kept pest-free.
- Rubbish bins should be covered properly and emptied regularly.
- Harmful microbes tend to multiply rapidly in warm and moist environments, which increases the risk of foodborne illness. The risk can be minimised by storing the food properly in the refrigerator. When food cannot be refrigerated, it should be eaten soon after it has been prepared (no more than two hours), before bacteria have time to multiply.



Source: USDA Food Safety for Children under five https://www.foodsafety.gov/people-at-risk/children-under-five

Eat safely

To prevent baby from choking, the following should be carried out:

- Always watch baby while he or she is eating to make sure they do not choke.
- Make sure baby is sitting upright and secure, and not slouched over while eating.
- Ensure that the food is properly pureed, mashed or grated so that it is easy for baby to swallow without choking. As baby gets older, food should still be soft, but chunkier and textured to help them learn how to chew properly.
- Encourage children to sit down and take their time while eating and to chew the food well before swallowing.
- Make meal and snack periods a time for sitting down – do not allow children to play or run around while eating and drinking.

Things to avoid

- Hard food such as nuts, raw carrots and apples. These should be grated or cooked until soft.
- Food with small bones. Fish bones should be removed.
- Small, round foods such as grapes and berries. These should be cut into bite-sized portions.
- Leaving young children unsupervised while eating as they can easily choke.

Recommendations

- Follow the WHO's *Five keys to safer food manual* as infants and young children are more susceptible to harmful effects of foodborne illnesses.
- Do not leave young children unsupervised while eating and encourage safe eating habits.

Suggested actions

Individual mothers, caregivers and families

- Prepare and store baby's food safely and follow the WHO's *Five keys to safer food manual*.
- Always supervise young children while feeding and encourage safe eating habits.
- Teach and reinforce good hygienic practices by children, especially washing hands before eating and after using the toilet.

Healthcare facilities

- Promote the use of these guidelines.
- Conduct staff training on the WHO's *Five keys to safer food manual* for antenatal classes.
- Develop and implement food safety programmes.

Communities

- Raise awareness on the importance of food safety.
- Promote the use of these guidelines.

Governments

- Enforce food safety legislation.

5. A VARIETY OF NUTRITIOUS FOOD FROM THE THREE FOOD GROUPS SHOULD BE OFFERED IN DIFFERENT COLOURS, TEXTURES AND CONSISTENCIES

Offering a wide **variety** of foods in different colours and textures from the three food groups will ensure that baby gets a full range of nutrients that are required for growth and development. Eating a variety of foods from these three food groups is a key element of a nutritionally adequate and balanced diet and it is important that this is established early in life.

As the child grows, their diet transitions from a diet that consists predominantly of milk (breast milk and/or age-appropriate infant formula) to one that consists of a variety of solid foods, which then provides the bulk of all foods consumed (Infant and Toddler Forum 2014; National Health and Medical Research Council 2012; WHO 2009).

From 12 months of age onwards, the child should be eating the same food as the rest of the family and be consistent with the recommendations in the *Pacific guidelines for healthy living: a handbook for health professional and educators* (SPC 2018). The whole family needs to eat in a healthy manner, where parents and caregivers model healthy eating behaviours for the child.

The Pacific three food groups

Energy foods

- starchy staples, cereals and grains
- high in carbohydrates, vitamins and fibre
- provide energy

Protective foods

- fruits and vegetables
- rich in protective factors such as vitamins, minerals and antioxidants that protects the body from diseases

Body building foods

- meat, chicken, fish, eggs, beans and dairy products
- great source of protein and iron, which helps to build and repair the body

The **form and texture** of each food should vary with the age of the baby and progress from pureed foods at six months of age to finger foods by 12 months of age, as outlined earlier in guideline number 3 of this section. Offering foods in different textures (as shown in table 3 below) encourages young children to chew, which helps with oral motor development.

Table 3. Food textures

Food groups / Texture	Puree	Mashed	Finger foods
Energy foods	 e.g. pureed kumara	 e.g. mashed potatoes	 e.g. toast fingers
Protective foods	  e.g. pureed apples or pumpkin	  e.g. mashed banana or avocado	  e.g. cut watermelon or cucumbers and tomatoes
Body building foods	 e.g. pureed tuna	 e.g. scrambled eggs	 e.g. meat balls

If a **vegetarian diet** is followed, it is important to consult a dietitian to ensure that the diet provides all the nutrients that are required for healthy growth and development. Nutrients of particularly importance are iron, protein, calcium, vitamin B12 and vitamin D, which all need to be provided by plant sources such as lentils, beans, peas and tofu. The energy and iron content of a vegetarian diet may be low and the fibre content high, compared with a varied non-vegetarian diet. Fruit and vegetables should be provided alongside meat alternatives, as the vitamin C in these foods will help enhance iron absorption.

Vegan diets (i.e. diet with no foods of animal origin) are not recommended for infants and young children as it is difficult for them to obtain all the energy and nutrients that they need. However, if a vegan diet is followed, then extra care must be taken to ensure the nutritional adequacy of the diet.

Recommendations

- Offer children a variety of nutritious foods each day of different colours and textures from the three food groups.
- The whole family need to eat a healthy diet, thereby creating an environment where children learn healthy eating habits.

Suggested actions

Individual mothers, caregivers and families

- Feed children a variety of foods from the three food groups in the appropriate amounts each day, and choose fresh, local products.
- Give vegetables and fruits as snacks.
- Practice good hygiene when preparing and storing food.

Healthcare facilities

- In collaboration with relevant ministries and organisations, develop guidelines for the care of children in day care centres and kindergartens.
- Promote the use of the guidelines.
- Conduct regular growth monitoring programmes for children under five years of age.

Communities

- Support day care centres and early childhood centres to develop and implement healthy food policies.
- Promote production and consumption of healthy local foods, particularly dark-green leafy vegetables and bright coloured vegetables and fruits.

Governments

- Draft and endorse policies that support the production of local foods.

6. SMALL MEALS AND SNACKS SHOULD BE OFFERED, WHICH INCLUDE NUTRITIOUS FOODS THAT ARE LOW IN SALT AND SUGAR

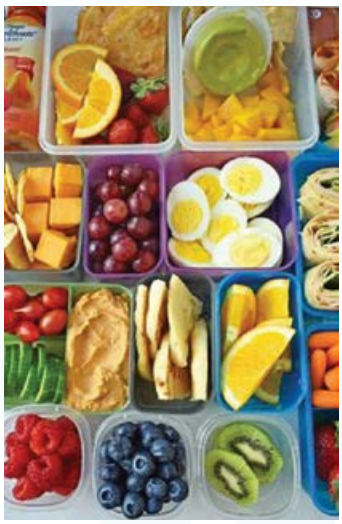
Children need to eat and drink regularly during the day. As children have small stomachs, serve them small amounts of a variety of foods and offer more if the child is still hungry. Their appetite may vary from day to day but continue to offer a variety of nutrient-dense foods to ensure their energy and nutrient requirements are met (National Health and Medical Research Council 2012). They need a balance of protein, carbohydrates, fat, iron, zinc and all the essential nutrients from the three food groups for normal growth and health.

Small, frequent and nutrient-dense feedings of a variety of foods from the three food groups are important to meet nutritional and energy needs during this stage. Young children should be eating a variety of foods consistent with the *Pacific guidelines for healthy living.* Special baby foods or milk are not necessary for healthy children.

Snacking in between meals is important for growing children. A variety of cut vegetables and fruits is great to provide as a snack. Foods that are high in salt and/or sugar like cakes, biscuits, lollies/candy or potato chips should be avoided. Salt should not be added to foods as children's kidneys, at this stage, are not yet mature enough to process the excess salt. High sugar foods and beverages should not be offered to young children either as these are associated with an increased risk of developing dental caries. The introduction of high salt and sugar foods may also contribute to the development of a taste for these kinds of foods early in life, which could lead to poor food choices later in life.

Healthy snack ideas

- Cut fresh fruits – whatever is cheap, available and in season
- Cooked, cut up vegetable sticks – e.g. carrots and cucumber
- Toast fingers and sandwiches
- Hard-boiled eggs, cheese sticks or cubes and yoghurt



Foods to avoid

- Processed foods like sausage rolls, potato chips and corn chips
- Sweet foods like cakes, biscuits/cookies, lollies and sugar-sweetened beverages (SSBs)
- Deep fried foods like hot chips, chicken nuggets, deep fried bread and doughnuts

Fussy eating is common among children. They may refuse to eat because they are tired or not feeling well, or they are full already. The child should choose how much food to eat. Sometimes they only want to eat certain kinds of foods. It is important that patience is employed and that the child keeps getting offered a variety of nutritious foods; this way they will eventually eat it. Children should not be bribed with sweet foods and drinks to force a child to eat.

As they are still developing, young children **can choke on food quite easily** and should be supervised during mealtimes (New Zealand Ministry of Health 2017). Cooked or raw vegetables or fruits should be grated or cut into finger-sized pieces that can be easily picked up by small hands. Skin should be peeled off and fibrous parts of fruits and vegetables removed in order to reduce the risk of choking. Small hard foods such as whole nuts and seeds should be avoided until the child is at least over five years of age.

Recommendations

- Children have small stomachs. Serve them small amounts of a variety of foods from the three food groups.
- Avoid adding salt and sugar to baby's foods.
- Snacking in between meals is important for growing children. A variety of cut vegetables and fruits is great to provide as a snack.
- Avoid bribing children with sweet foods and drinks to force them to eat. Keep offering healthy snacks.

Suggested actions

Individual mothers, caregivers and families

- Offer a wide variety of nutritious foods from each of the three food groups, especially iron-rich foods.
- Serve small amounts of food and offer more if the child is still hungry.
- Avoid adding sugar and salt to foods.
- Be aware of foods that can cause choking and always supervise the child when they are eating.

Healthcare facilities

- Provide appropriate dietary information to parents and caregivers.
- Conduct nutrition education sessions for parents and caregivers.
- Raise awareness on the importance of healthy eating behaviours.

Communities

- Support the promotion of healthy foods in community events.
- Support and reinforce hygienic practices that are carried out by parents and caregivers.
- Support the production and consumption of nutritious local foods, particularly dark-green leafy vegetables and bright coloured fruits.

Governments

- Develop and implement policies to guide and control marketing of foods to children.
- Adopt and endorse the use of these guidelines.
- Adopt and implement the *Global strategy for infant and young child feeding* (WHO 2003).

7. INFANTS AND YOUNG CHILDREN SHOULD BE PROVIDED WITH PLENTY OF FLUIDS TO DRINK

Children need fluids to keep their bodies working properly, particularly when they are active and it is hot.

More of these drinks should be given:

- Breast milk should be exclusively provided from birth to six months of age and continually offered until the child is at least two years of age if mother and child are happy to do so.
- If not breastfed, then infant formula should be provided from birth to 12 months of age.
- Full-cream cow's milk is also a good drink for young children who are 12–24 months of age. This can then be gradually replaced with reduced-fat milk after 24 months of age. It should be served in a cup after a meal or part of a healthy snack in between meals. Cow's milk provides extra energy, protein, minerals and fat-soluble vitamins.
- Water should be introduced from six months of age onwards. Water has no added sugar.

Less of these drinks should be given:

- Fruit juices that contain 100% fruit juice can be offered if diluted with water – at least ½ a cup of water to ½ cup of juice.
- This should be in moderation as part of a healthy diet.
- The drink should be offered in a cup and not in a bottle.

These drinks should not be given:

- SSBs are not recommended for young children as they contain no nutritional value as well as a lot of free added sugar, which is linked to an increased risk of dental caries.
- Sweetened condensed milk.
- Tea, coffee and other caffeinated drinks are not suitable and therefore not recommended for young children. Tea contains tannins, which can interfere with absorption of iron from the diet and can contribute to iron deficiency.
- Coffee contains caffeine, which is a stimulant and can interfere with a child's sleeping patterns.
- Energy drinks containing guarana. They also contain caffeine as well as added sugar.

Recommendations

- Healthy drinks are just as important as healthy foods.
- Breast milk is the best drink and food for infants from birth to six months of age.
- Water is the best drink from six months onwards.
- Full-cream cow's milk is also a good drink from young children who are 12–24 months of age, then it can be gradually replaced with reduced-fat milk after 24 months.

Suggested actions

Individual mothers, caregivers and families

- Continue to breastfeed baby on demand as long as mother and child are happy.
- Provide healthy drinks for children (e.g. clean water/boiled water). Keep a jug of cold water in the fridge.
- Avoid sweetened carbonated drinks and cordials.

Healthcare facilities

- Promote the use of these guidelines.
- Make sure safe drinking water is available.
- Implement comprehensive programmes that reduce consumption of SSBs and unhealthy drinks.

Communities

- Promote "drink water only" policy in schools, workplaces and community events.
- Raise awareness on the importance of maintaining safe, clean water.

Governments

- Adopt and support the implementation of the WHO *Comprehensive implementation plan on maternal, infant and young child nutrition.* (WHO 2014a)
- Ensure safe drinking water is available in all homes.
- Ensure water and sanitation policies and legislations are enforced.

8. FAMILY MEALTIMES ARE IMPORTANT FOR LEARNING AND DEVELOPMENT OF INFANTS AND YOUNG CHILDREN

Source: Vili and the Rainbow/SPC

While nutrition is crucial for the healthy physical development of the brain, emotional well-being and social stimulation are equally as important (Harvard University 2010; Moore et al. 2017; Moore 2018), being in a loving, stable, responsive, caring and safe family environment is also vital for ensuring that children are ready to learn, ready for school and have good life opportunities (Harvard University 2010; UNICEF 2010). Improving children's and young people's mental well-being will have a positive effect on their cognitive development, learning, physical and mental health, as well as their social and economic prospects in adulthood.

Mealtimes provide the opportunity for parents and caregivers to interact and talk with children and support their learning processes (Harvard University 2010; UNICEF 2010). Meals are to be enjoyed and parents who model enjoyment of nutritious dietary practices set the scene for good nutrition throughout childhood and beyond. Children can be very independent and know what they like or dislike. Children should continue to be offered a variety of solid foods from the three food groups to help them learn and accept a range of flavours and tastes.

Young children can sometimes develop problematic eating behaviours during mealtimes, which can be stressful for parents and caregivers. The child simply could be too tired, seeking attention or feeling unwell. The child should not be forced to eat, but rather a parent or caregiver should take the cue from the child and allow him or her to choose. It is important that parents and caregivers do not focus too much on the problem behaviour but look at the positive behaviours, and teach and reinforce them in the child, and provide a safe eating environment where these positive behaviours can be learned and enforced. It is also helpful if a routine for meals and snacks is established.

A pleasant environment should be created for young children to enjoy their food. Parents should provide healthy meals, snacks and drinks for the entire family as children learn from observing parents' behaviours. Children can also be encouraged to help with growing and preparing the food and learn about the different kinds of foods that they can eat.

Source: Vili and the Rainbow/SPC

Girls and boys require the same amount of attention and time for feeding. It is important for parents and caregivers to be informed about child nutrition and be involved in feeding and treating boys and girls equally.

Recommendations

- Offer a variety of solid foods from the three food groups to help the child learn and accept a range of flavours and tastes.
- Do not force the child to eat, but rather take the cue from the child and allow him or her to choose.
- Allow them adequate time to enjoy their mealtimes with very little or no distractions like TV or other electronic devices.

Suggested actions

Individual mothers, caregivers and families

- Model healthy eating behaviour for children. Parents and caregivers are a child's first teacher.
- Serve the healthiest foods first when the child is hungry.
- Do not force the child to eat if he or she is not hungry. Offer the food again later.
- Practice good personal hygiene.

Healthcare facilities

- Implement comprehensive programmes that promote healthy eating.
- Promote the use of these guidelines.
- Provide education sessions on children's health for parents and caregivers.
- Implement and monitor child health programmes.

Communities

- Support the implementation of child health programmes.
- Support and help mothers and caregivers in the proper care and feeding of infants and young children during and after illness.

Governments

- Develop and implement policies that enhance availability of healthy foods.
- Support the implementation of the Guidance on ending inappropriate promotion of foods for infants and young children (WHO 2016).

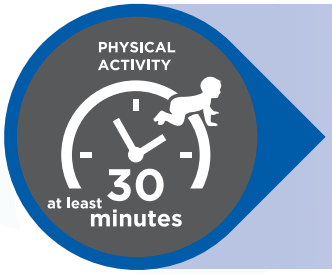
9. CHILDREN SHOULD BE ACTIVE EVERY DAY

Available evidence suggests that lifestyle behaviours such as eating a healthy diet and being physically active are established in early childhood. It is therefore important for children to develop healthy eating and activity patterns early in life to set them on a path towards good health and a healthy weight throughout life (WHO 2019).

Physical activity recommendations

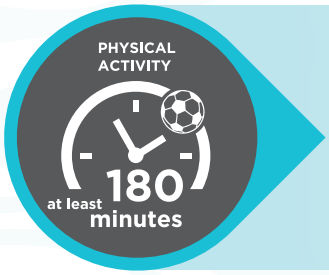
The following recommendations for physical activity for children below 12 months and up to five years of age have been developed by WHO (2019).

WHO recommendations for physical activity



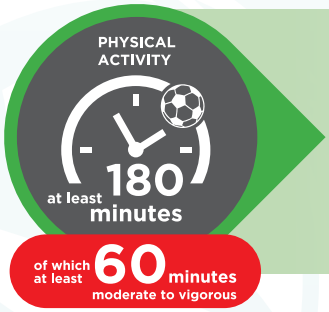
Infants (less than 1 year)

- Infants should be physically active several times a day in a variety of ways, particulalrly through interactive floor-based play; more is better
- Infants that are not yet mobile, should include at least 30 minutes in the prone position (tummy time), spread throughout the day while awake



Children 1–2 years of age

- Children in this age group should spend at least 180 minutes in a variety of physical activities at any intensity, including moderate- to vigorous-intensity physical actvity, spread throughout the day; more is better



Children 3–4 years of age

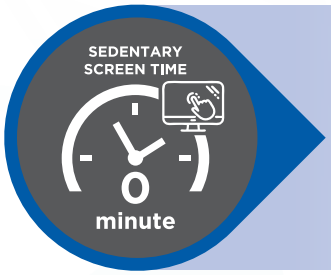
- Children in this age group should spend at least 180 minutes in a variety of physical activities at any intensity, of which at least 60 minutes is moderate- to vigorous-intensity physical activity spread throughout the day; more is better

Regular physical activity and play are important for healthy growth and development, so children should be encouraged to be active in as many ways and as often as possible. Physical activity involves movement and developing basic movement skills (such as running, jumping, throwing and catching), and is important for building confidence, self-esteem, strength and fitness. Children do not naturally develop movement skills; they need to be taught and be given time to practice. This should start with simple skills like learning to walk before running or rolling the ball before throwing and catching. Parents and caregivers can help by giving encouragement and praise when the child practices these skills.

Sedentary screen time

Sedentary screen time is defined as "time spent passively watching screen-based entertainment (TV, computer, mobile devices). It does not include active screen-based games where physical activity or movement is required" (WHO 2019). Children should be encouraged to move and engage in reading or storytelling time when not actively playing rather than watching TV.

WHO recommendations for screen time



Infants (less than 1 year)

- Infants should not be restrained for more than one hour at a time (e.g. prams/strollers, high chairs or strapped on a caregiver's back)
- Screen time is not recommended
- When sedentary, engaging in reading and storytelling with a caregiver is encouraged

Children 1–2 years of age

- Children in this age group should not be restrained for more than one hour at a time (e.g. prams/strollers, high chairs or strapped on a careiver's back)
- Sedentary time is not recommended for children at 12 months of age
- Sedentary screen time should be no more than one hour for two-year-olds; less is better
- When sedentary, engaging in reading and storytelling with a caregiver is encouraged

Children 3–4 years of age

- Children in this age group should not be restrained for more than one hour at a time (e.g. prams/strollers) or sit for extended periods of time
- Sedentary screen time should be no more than one hour; less is better
- When sedentary, engaging in reading and storytelling with a caregiver is encouraged

Recommendations

- Children should be physically active several times a day in a variety of ways.
- When sedentary, encourage reading or storytelling time.

Suggested actions

Individual mothers, caregivers and families

- Provide a safe place for children to be active at home and supervise young children while they play.
- Encourage and allow time for children to play.
- Make playtime a fun time for children.
- Allow time to read and tell stories to children.

Healthcare facilities

- Implement comprehensive programmes to monitor growth and development of infants and young children.
- Provide information to parents and caregivers on physical activity that is appropriate for the child's development state.
- Promote participation in physical activity.

Communities

- Provide a safe space and playgrounds for children to play.
- Organise community-based sports events for families.
- Support school-based physical activity events.

Governments

- Invest in the creation of safely built environments (e.g. sidewalks, community parks and playgrounds) that encourage family participation in physical activity.

10. CHILDREN NEED QUALITY SLEEP TIME FOR HEALTHY DEVELOPMENT AND GROWTH

There is increasing evidence to show that not enough, or poor-quality sleep can negatively affect children's behaviour, learning, health, well-being and weight (Moore et al. 2017). Getting enough quality sleep helps support healthy brain function and maintains physical health. In children and teenagers, sleep is important for growth and development. Insufficient or poor-quality sleep can affect how the child thinks, reacts, works and learns, as well as how they relate to others. Ongoing poor sleep can also increase the risk of some chronic health conditions later in life.

WHO recommendations for quality sleep time

Infants (less than 1 year)

- Infants should have 14–17 hours (0–3 months of age) or 12–16 hours (4–11 months of age) of good-quality sleep, including naps

Children 1–2 years of age

- Children in this age group should have 11–14 hours of good quality sleep, including naps, with regular sleep and wake up times

Children 3–4 years of age

- Children in this age group should have 10–13 hours of good quality sleep, which may include a nap, with regular sleep and wake up times

Bedtime routine

- A regular bedtime routine should be set, which might include a bath, brushing teeth, story time and sleep. This includes regular bedtime and wake up times and helps children to understand when it is time to go to sleep.
- There should be a comfortable sleep environment – a quiet place with no distractions; i.e. no TV or portable devices.
- Light snacks can be offered but late dinner times should be avoided.
- Outside activity during the day should be encouraged as this helps a child to sleep, but not just before bedtime.

Factors that can affect children's sleeping patterns

- Taking a nap later in the afternoon after 4 pm may make it harder for them to go to sleep.
- Being unwell. If a child is not well then it is important that they are made to feel comfortable and that medical help is sought if the child does not get better.
- If the child snores a lot and is not able to sleep well. This should be discussed with a doctor if the snoring gets worse and the child stops breathing while sleeping.

Recommendations

- Children need quality sleep time for growth and development.

Suggested actions

Individual mothers, caregivers and families

- Maintain a calm and regular bedtime routine.
- Encourage the child to go to bed and wake up at the same time each day.

Healthcare facilities

- Provide education sessions for parents as they are the first teachers.

Communities

- Support family friendly events.

Governments

- Create family friendly policies and labour laws that allow for quality family time.

PART III

SPECIAL TOPICS

1. ILLNESS

When children are sick (e.g. if they have diarrhoea, measles or a respiratory infection), they tend to have little or no appetite and they may be too weak to eat, have trouble swallowing, or find it difficult to breastfeed because of a cough or blocked nose. In addition, their bodies do not absorb energy and nutrients from the diet efficiently, which leads to loss of energy stores. Dehydration can also occur if illness causes vomiting or diarrhoea. Repeated bouts of illness over a period of time can lead to malnutrition and micronutrient deficiencies, and impair immunity as well as slowing down or stopping growth. Deficiencies in key micronutrients such as vitamin A and zinc weaken the body's protective mechanisms against infection. Young children are very susceptible to this vicious cycle of illness and malnutrition, which can be dangerous and even fatal if left unchecked (UNICEF 2010).

Appropriate feeding during and after illness is critical. Optimal feeding practices during and after illness require that infants and children receive more frequent breastfeeds and extra energy, and nutrient rich complementary foods. Additional supplement such as zinc may be needed to reduce the severity of the diarrhoea.

It is also important that the weight of the child is monitored during a bout of illness for signs of wasting and undernourishment. If the child experiences repeated bouts of illness, it is important that the child's linear growth (height) is monitored for signs of stunting and to ensure that the child receives the appropriate treatment for the illness.

Diarrhoea

Diarrhoea is as defined when a child passes three or more watery stools a day. It is extremely dangerous for children, particularly if they are also vomiting as severe dehydration can be fatal. It is crucial that as soon as diarrhoea starts that the child is given extra fluids along with regular foods and fluids. Drinking lots of fluids, including breast milk, helps to replace the fluid loss during a bout of diarrhoea and prevent dehydration.

Recommended drinks for a child with diarrhoea include the following:

- Breast milk (mothers should breastfeed more often than usual)
- Oral rehydration salts (ORS) mixed with the proper amount of cooled boiled water
- Coconut water
- Soups
- Rice water

It is important that other underlying factors that may contribute to repeated occurrence of infectious diseases are considered, such as unsanitary living conditions, household food insecurity and natural disasters.

Recommendations

- During an illness, children need additional fluids and encouragement to eat regular meals, and breastfeeding infants need to be breastfed more often.
- After an illness, children need to be offered more foods than usual to replenish the energy and nourishment lost due to the illness.

Suggested actions

Individual mothers, caregivers and families

- Encourage child to drink as often as possible, and offer safe boiled drinking water or fresh coconut juice.
- Breastfeed as often as possible if the child is still being breastfed.
- Offer foods that the child likes, a little at a time and as often as possible.
- Practice good personal hygiene.
- Ensure vaccinations are up to date.

Healthcare facilities

- Ensure an adequate supply of medication and ORS.
- Implement vaccination programmes and ensure 100% coverage.
- Develop protocols for the treatment of common childhood diseases and continue training and updating of health care staff members in the proper implementation of prescribed treatments.
- Monitor child health and growth.

Communities

- Support and promote vaccination programmes.
- Support community clean-up programmes to clear rubbish and breeding sites for vermin and insects (e.g. mosquitoes) that spread diseases.

Governments

- Ensure maternal and child health are on the list of national priorities.
- Invest in ensuring maternal and child health services are adequately equipped to respond.

2. NUTRITION IN EMERGENCIES

The Pacific region is one of the most disaster-prone areas in the world. These natural disasters negatively impact on the underlying socioeconomic causes of malnutrition. Infants and young children are particularly vulnerable in these kinds of situations as they are totally dependent on others for their food and care (Hall et al. 2011).

Breast milk is the most reliable and safest food for young children during emergencies. The mother should be supported and encouraged to continue breastfeeding.

In situations where the child is less than 12 months of age and is not able to be breastfed, formula should be provided and prepared in the safest way possible as infants are vulnerable to infections and diarrhoea. Formula should be fed to the child in a cup and not a bottle. Powdered milk or condensed milk should not be given to young children.

The WHO's *International code for the marketing of breast-milk substitutes* is a global mechanism to protect mothers and children from unethical marketing practices, particularly during times of emergencies. Infant formula manufacturers must comply with the provisions in the Code.

Young children should be fed appropriately and safely with nutritious food types as described in these guidelines. Young children are very vulnerable to infections and malnutrition as they are dependent on others for their food.

Recommendations

- Breast milk is the safest food for infants during times of emergency. Mothers should be encouraged and supported to breastfeed.
- Infant formula should only be provided if breastfeeding is not possible.

Suggested actions

Individual mothers, caregivers and families

- Continue breastfeeding infants and young children of up to two years of age and beyond.
- If using infant formula, prepare formula with clean boiled water according to instructions and feed infants and young children with a cup or spoon.
- Practice good personal hygiene.

Healthcare facilities

- Support and give practical assistance to mothers and caregivers to feed their children appropriately.
- Educate mothers on the necessary resources and safe preparation of infant formula if their child is unable to breastfeed.
- Provide practical advice to mothers and caregivers on the best and safest way to prepare foods for their children.
- Monitor growth of all the children in the area.

Communities

- Support families with young children and ensure they are receiving the care packages that they are entitled to.
- Provide a safe place for mothers to prepare food and feed their children.
- Provide a safe place for children to continue with their education and learning.

Governments (and non-governmental partners)

- Endorse the WHO's *International code for the marketing of breast-milk substitutes* and monitor industry activities.
- If powdered milk is to be provided in the general food ration, then ensure clear information is provided to inform people that it is not appropriate for young children under 12 months of age, and provide clear instructions on how to prepare it safely for the family.
- Endorse emergency preparedness plans for a nutrition response (or an adaptation of it).

PART IV

MONITORING DISSEMINATION AND COMMUNICATION

Assessing behaviour changes that are directly due to the implementation of these guidelines will have to be done using existing mechanisms such as the demographic health surveys (DHS) or multiple indicator cluster surveys (MICS), which collect information on children's and mother's health.

However, not many PICTs are conducting these population health surveys. Therefore, the monitoring and evaluation will focus on the dissemination and communication of the guidelines and, in line with good practice, the use of the guidelines must be reviewed every five years.

To increase awareness, acceptance and usage of the guidelines, they must be effectively disseminated and communicated to all stakeholders. The framework for the regional and national dissemination of these guidelines will follow the same framework that was developed for the *Pacific guidelines for healthy living.*

Phases for dissemination and communication

PHASE 1

- Advocating the guidelines for endorsement at regional and/or national levels
- Adoption or adaption of guidelines at national level

PHASE 2

- Disseminating the endorsed guidelines to PICTs and stakeholders and raising awareness

PHASE 3

- Using the adopted or adapted guidelines at the national level

PHASE 4

- Communicating the messages of the guidelines to relevant stakeholders and the general public

Table 4. Monitoring framework for dissemination and communication of the *Pacific guidelines for healthy infants and young children under five years of age* (the guidelines)

EXPECTED OUTCOMES	ACTIVITIES	INDICATORS
PHASE 1: *Advocating the guidelines for endorsement at the regional and/or national levels Adoption or adaption at national levels*		
• The guidelines endorsed at the regional level	• Present the guidelines at the relevant regional meetings	• Number of relevant regional meetings where the guidelines were presented
• The guidelines adopted or adapted at the national level	• Conduct advocacy meetings to adopt or adapt the guidelines at national level	• Number of advocacy meetings conducted at the national level • Number of PICTs that adopted or adapted the guidelines
PHASE 2: *Disseminating the endorsed guidelines to PICTs and stakeholders and raising awareness*		
• Increased awareness of the guidelines among all relevant stakeholders • The guidelines in place for implementation	• Distribute the guidelines to all relevant stakeholders and partners • Publish articles and news about the guidelines in relevant journals or media, targeting key stakeholders • Conduct awareness campaigns or workshops for relevant stakeholders	• Number of mail outs/ guidelines distributed • Number of articles related to guidelines in newsletters/ media • Number of awareness campaigns or workshops for relevant stakeholders conducted • Percentage of health and non-health agencies that are aware of the guidelines
PHASE 3: *Using the adopted or adapted guidelines at the national level*		
• The guidelines included in the national primary care plans, NCD plans and other relevant health and nutrition programmes	• Incorporate the guidelines into national primary care plans, NCD plans and other relevant health and nutrition programmes	• Number of countries that incorporate the guidelines into primary health care plans and programmes
• Improved knowledge on how to use the guidelines among relevant stakeholders	• Conduct training workshops to train relevant stakeholders on how to use the guidelines	• Number of training workshops conducted targeting relevant stakeholders

EXPECTED OUTCOMES	ACTIVITIES	INDICATORS
PHASE 4: *Communicating the messages of the guidelines to relevant stakeholders and the general public*		
• Increased level of media awareness of key guideline messages • Increased proportion of mothers and caregivers receiving advice/counselling on healthy infant and young child feeding practices • Improved awareness and knowledge of mothers and caregivers on healthy infant and young child feeding practices	• Develop and implement mass media campaigns promoting key guideline messages • Publish articles and news about the guidelines in relevant journals or media, targeting the general public in PICTs • Conduct counselling sessions for new mothers on healthy feeding practices for infants and young children	• Number of national campaigns implemented • Number of media outlets publishing and promoting key messages • Percentage of mothers and caregivers reached with key messages • Percentage of mothers and caregivers receiving healthy infant feeding advice and counselling

Guiding principles for effective dissemination of guidelines at the national level

The guidelines can be adapted and translated into culturally appropriate forms for national-level use, depending on the resources and technical expertise available. The process might involve modifying the pictorial images and translating the recommendation statements into the local vernacular.

The guidelines might also need to incorporate additional information or statements to reflect the burden of diseases that are specific to each country:

The following guiding principles serve as a checklist for effective dissemination of the guidelines at the national level once the guidelines are accepted and endorsed.

- Community leaders, national opinion leaders, health ministers, well-known individuals or celebrities should be engaged to help publicise the guidelines and healthy diet and lifestyle messages to the community. This will enhance the national adoption process, local ownership and relevance of the guidelines.
- Relevant government sectors, and non-governmental, donor, and development agencies should collaborate and work in partnerships to develop strategies to disseminate the guidelines to relevant and interested professionals and groups.
- Multisectoral coalitions should facilitate nationwide dissemination of guidelines through education and training activities.

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ANNEX 1 Ten steps to successful breastfeeding

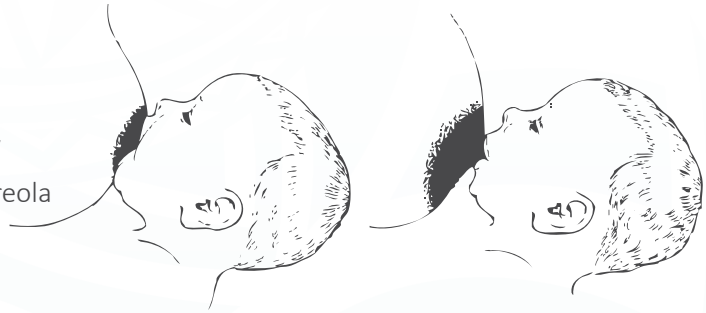
Source: https://www.unicef.org/nutrition/files/breastfeeding-10-steps-infographic.pdf

ANNEX 2 Good breastfeeding positions and attachment

To stimulate milk let-down and ensure adequate supply and good flow of milk, the baby needs to be well attached

Signs of good attachment

- Baby's chin touches the breast
- Baby's mouth is wide open and grasps deeply
- Baby's lower lip turns outward, holds more areola
- Baby's cheeks are round during suckling
- Mother does not feel pain when feeding



Source: WHO 2009. Infant and young child feeding; model chapter for textbooks for medical students and allied health professionals.

Signs of poor attachment

- More of the areola is visible below the baby's bottom lip than above the top lip – or the amounts above and below are equal
- Baby's mouth is not wide open
- Baby's lower lip points forward or is turned inward
- Baby's chin is away from the breast

Breastfeeding positions

To be well attached at the breast, both baby and mother need to be appropriately positioned.

Position of the baby

- Baby's head and body should be in line
- Baby's face should be facing the breast
- Baby should be held closely with head slightly extended
- Baby's whole body should be well supported

Position of the mother

The mother can be sitting or lying down. Whatever the position she chooses, she needs to be comfortable and relaxed.

Sitting

a. Cradle position

- The mother should sit straight, with her back resting on a chair. Her body should slightly lean forward without bending too much of the back and neck. A foot stool can be placed under her feet for support.
- The mother is to cradle or hold the baby across her lap, with the baby lying on his or her side. Baby should be resting on his on her shoulder and hip, with the mouth level with the nipple of the mother.
- Pillows/cushions can be used to lift the baby and support the mother's elbows to bring the baby up to the nipple height, especially during the first few weeks.
- The mother can support her breast using either a "U" or "C" hold, using the hand on the same side of her breast.
- The baby's head will be on the mother's opposite forearm and his or her back will be along mother's inner arm and palm.
- When the mother looks down, she should see her baby's side.
- She can put the baby's head on the breast when he or she widely opens the mouth instead of placing the nipple into it. In good attachment, the baby's lower lip should turn outward and cover the areola below. The chin should indent the breast.
- Be sure that the baby's ear, shoulder and hips are in a straight line. If a newborn, the baby's head and bottom should be at the same level.

b. Under arm position

- When adopting this position, the mother's body should slightly lean forward without too much bending of her back and neck. A foot stool can be placed under her feet for support.
- To facilitate a good control on the baby's position, the mother is to support the baby's head in her hand and the baby's back along her arm beside her. The baby's legs and feet should be tucked under the mother's arm, with his or her hips flexed, and legs resting alongside the mother's back rest. The baby's chest should now be facing the mother's breast, with his or her mouth at nipple height.
- The breast can be supported with a "C" hold, using her hand on the opposite side of the breast.
- The mother can put the baby's head on the breast when he or she widely opens the mouth. In good attachment, the baby's lower lip should turn outward and cover the areola below and should indent the breast. More areola will be seen above the top lip than the bottom lip if the areola is visible.
- If needed, pillows could be used to bring up the baby to the correct height and to reduce the pressure on the mother's arm and wrist. However, to avoid the mother leaning forward excessively, the pillow support should not be placed at a level that is too low.
- Most newborns feel comfortable in this position. It also helps when a mother has a forceful milk ejection reflex (let-down reflex) because the baby can handle the flow more easily.
- This is a good position for a mother who has had a Caesarean birth as the baby is held away from the incision site.

Lying down

a. Laid back position

- The mother is to lean back and be well supported on a bed or couch. When putting the baby on the mother's chest, gravity will keep him or her in position and the body moulded to the mother's body.
- The mother's head, back and elbows should be well supported with cushions/pillows. The baby's cheek can rest somewhere near the mother's bare breast. The whole front of the baby's body should touch the mother's whole front.
- The baby can rest in a position that the mother likes, just making sure that his or her whole front is against the mother's.
- The advantages of this method are that the baby can instinctively take the initiative to find the breast and suckle, while the mother can assist and encourage the baby in a relaxed manner.
- This method is particularly suitable when the mother is a bit tired. But if the mother is exhausted or under the influence of medication after childbirth, it is preferable to have a companion or a family member stay at the bedside to take care of and observe her. This will avoid jeopardising the safety of the baby if the mother falls asleep during feeding.
- If the flow of the mother's milk is too fast, this method can also slow down the rate through gravity.

b. Side lying position

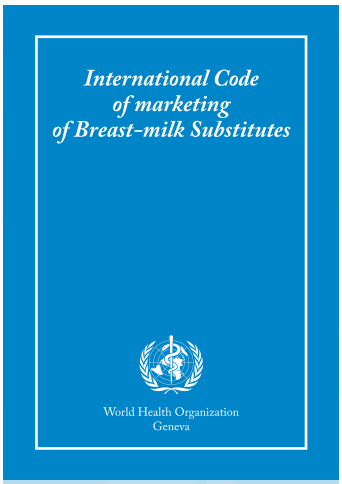
- Lying down is a comfortable position for many nursing mothers, especially at night.
- When using this method, both the mother and baby are to lie on their sides facing each other.
- The mother's head is to be supported. To help her get comfortable, she can use pillows behind her back and bottom or between her knees.
- During the positioning, the mother can use her hand to keep the baby's back in position. To help the baby get milk more easily, the mother can keep the baby's hips flexed and his or her ear, shoulder and hip in one line.
- The breast can be supported with a "C" hold, where the mother uses her hand on the opposite side of the breast.
- As with the laid back position, instead of placing the nipple into the baby's mouth, the mother can put the baby's head on the breast when baby widely opens his or her mouth. In good attachment, the baby's lower lip should turn outward and cover the areola below. The chin should indent the breast. More areola will be seen above the top lip than the bottom lip if the areola is visible.
- After the baby is well positioned and attached to the breast, the mother should remove her supporting hand from the baby's back and rest it beside her own head.

- To prevent the baby from rolling away from the mother, a pillow or rolled blanket can be placed behind the baby's back to support his or her position.
- If this method is used when the mother is very tired or under the influence of medication, it is advisable to have a companion or a family member to stay at the bedside to take care of and observe her. This will avoid jeopardising the safety of the baby if the mother falls asleep during feeding.
- This position is also useful during the daytime.

ANNEX 3 The International WHO's Code for the Marketing of Breast-milk Substitutes (the Code)

"The aim of the Code is to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breastfeeding, and by ensuring the proper use of breast milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution." from Article 1 of the Code.

"Breast-milk substitute means any food being marketed or otherwise represented as a partial or total replacement for breast milk, whether or not suitable for that purpose." from Article 3 of the Code.



What the Code covers

- Formula milk.
- Any food drink or drink that would substitute the breastfeeding process, such as foods or drinks aimed at babies under six months of age, or formula aimed at any age. Complementary foods should not be marketed in ways that undermine exclusive breastfeeding.
- Feeding bottles, teats or nipples.

Who is the Code for?

- Manufacturers, distributors and retailers of any of the items above.
- Healthcare workers, both professionals and volunteers.
- Healthcare facilities – hospitals, clinics, etc.

What must be on the labels?

- Labels must be in the local language.
- Information must include the hazards associated with artificial feeding.
- Labels cannot use idealising language or images such as a happy baby sleeping or protective shield suggesting baby is in a protective bubble against disease.

What is ALLOWED on labels under the Code?

- Use of formula with safe preparation for babies who need it.
- Sale of product with technical information – e.g. 125 ml polycarbonate bottle.
- Scientific and factual information for health professional – e.g. contains certain proteins.
- Accurate information on safe formula preparation is required on the label.

What is NOT ALLOWED on under the Code?

Promotion to parents, advertising or free samples.

Promotion to health professionals, gifts or free samples.

Promotion in health facilities such as posters, gifts or free formula.

Promotion of unsuitable product for babies such as sweetened condensed milk.

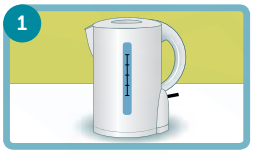
ANNEX 4 Safety considerations for formula-fed babies

QUICK REFERENCE GUIDE

How to prepare infant formula safely

Preparing safe water for formula

Make sure you leave enough time for the boiled water to cool to room temperature (until it no longer feels warm) before it's needed.



Boil enough water to last the day. If you use an electric jug, boil a full jug until it turns off.

- If you use a stove top kettle, boil until it makes a loud whistle.
- If you are boiling water in a pot on the stove, let the water come to a rolling boil for 1 minute.

Pour boiled water into a **sterilised container**, cover and leave to cool on the bench and out of direct sunlight. **Keep only for 24 hours**.

Cleaning

Feeding equipment must be washed and rinsed (by hand or in a dishwasher) before it is sterilised.

Clean the work surface with hot soapy water.

Wash your hands with soap and water.

Wash all feeding equipment well in hot soapy water. Use a bottle brush to clean the bottles and teats.

Rinse all equipment under cold running water before sterilising.

Sterilising

If sterilising by boiling

Fill a large pot with water.

Place the washed feeding equipment into the water. Make sure that everything is completely covered with water and that no air bubbles are trapped.

Put the lid on the pot and bring the water to a rolling boil for 1 minute.

Turn the stove off and keep the pot covered until you need the feeding equipment. Keep children away from boiling water.

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New Zealand Government

MINISTRY OF HEALTH MANATŪ HAUORA

QUICK REFERENCE GUIDE

How to prepare infant formula safely

Preparing a formula feed

Prepare infant formula just before you feed your baby.

Clean a surface on which to prepare the formula feed.

Wash your hands with soap and water, and dry with a clean cloth or paper towel.

Read the instructions on the formula can to find out how much water and how much powder you need.

Pour the correct amount of safe water* into a cleaned and sterilised bottle. *See 'Preparing safe water for formula' over the page.

Using the scoop provided add the exact amount of powder to the water in the bottle.

Holding the edge, attach the teat and collar to the bottle.

Cover the teat with the cap. Gently shake or swirl the bottle until the formula is mixed well.

If you have warmed the formula, drip some of it on the inside of your wrist to check the temperature. It should feel warm but not hot.

Feed your baby. Always hold your baby when feeding.

Use the formula within 2 hours. If there is any formula left after 2 hours, throw it away.

Key things to remember

- Wash and sterilise all feeding equipment until your baby is at least 3 months old. From 3 months, thorough washing and rinsing are enough.
- Use cool water for preparing formula. Until your baby is at least 3 months old (or 18 months if you use bore or tank water), water must be boiled and cooled on the day you use it.
- Prepare the formula just before you feed your baby.
- Never add more or less formula powder or water than recommended. This could make your baby very sick.
- Throw any leftover formula away after 2 hours.

hpa te hiringa hauora HEALTH PROMOTION AGENCY

New Zealand Government

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