NATIONAL GUIDELINES ON OPTIMAL FEEDING OF INFANTS AND YOUNG CHILDREN

Health Protection Agency
Ministry of Health
Republic of Maldives

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Foreword

The first 2 years of a child's life are particularly important, as optimal nutrition during this period lowers morbidity and mortality, reduce the risk of chronic disease, and fosters better development overall. Malnutrition remains an issue for the Maldivian population despite improvements in other areas of health and socioeconomic development of the country. Infant and young child feeding is a key area to improve child survival and promote healthy growth and development.

Low prevalence of exclusive breastfeeding and inappropriate complementary feeding practices of infants and children are considered the major factors contributing to the continued problem of under nutrition in children. According to MDHS, 98% of children are breastfed, however less than half (47.8%) of the children are exclusively breastfed up to 6 months and the average duration of exclusive breastfeeding is only 2.2 months.

Past studies have shown that percentage of children under 5 years who are underweight has gradually declined from 43% in 1996 to 17.3% in 2009. Similarly, stunting declined from 30% in 1996 to 18.9 % in 2009; wasting declined from 17% in 1996 to 10.6 % in 2009. The increased prevalence of overweight and obese children is also an emerging problem.

This National Guidelines on Optimal Feeding of Infants and Young Children are anchored on the policy directions of Integrated National Nutrition Strategic Plan [INNSP 2013-2017], Health Master Plan 2016-2025, Child Health Strategy, the National Breast Milk Substitutes Code (Regulations on Import, Produce and Sale of Breast milk Substitutes in the Maldives). Recognizing the need to fulfill the targets specific to IYCF, this comprehensive national IYCF guideline is formulated. It provides an opportunity for healthcare providers and all relevant stakeholders to work together to promote and protect breastfeeding and optimal feeding of infant and young children.

This document is intended for use by healthcare providers, managers and others who are involved in the provision of maternal and child health as well as reproductive health services. It gives guidance on the appropriate IYCF practices in most situations in the country. I therefore call upon all stakeholders in IYCF to utilize these policy guidelines to the maximum.

I would like to acknowledge the wealth of technical assistance, enduring commitment and provision of other resources by United Nations Children's Fund (UNICEF) and World Health Organization (WHO).

I sincerely express my gratitude and appreciation to all individuals, partner agencies and collaborating institutions for their support and valuable contributions made during the process of developing this document. Addressing infant and young child nutrition is a national priority.

Dr. Sheeza Ali
Director General of Health Services
Ministry of Health

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Acknowledgement

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Maldives Food and Drug Authority

Maldives Medical Association

Maldives Nurses Association

MNDF Medical Service

Society for Health Education

List of Abbreviations

ANC :	Antenatal Care
ARV :	Anti retroval virus
BFHI:	Baby Friendly Hospital Initiative
BMI:	Body Mass Index
BMS:	Breast milk substitute
ELBW:	Extremely Low Birth Weight
HIV:	Human Immunodeficiency Virus
HPA:	Health Protection Agency
INNSP:	Integrated National Nutrition Strategic Plan
IYCF:	Infant and Young Child Feeding
LBW:	Low Birth Weight
MDHS:	Maldives Demographic Health Survey
MNS:	Micronutrient Survey
PMC:	PubMed Central
PMTCT:	Prevention of Mother to Child Transmission
TB:	Tuberculosis
UNICEF:	United Nations Children's Fund
VLBW:	Very Low Birth Weight
WHO:	World Health Organization

Definitions

Appropriate Complementary food: Nutrient dense foods that is made from locally grown and available ingredients to suit the infant's developmental age and needs[3].

Breastfeeding initiation – An infant's first intake of breast milk (or colostrum)[22].

Breast milk substitutes (BMS): Any food being marketed or otherwise represented as a partial or total replacement for breast milk, whether or not it is suitable for that purpose[5].

Complementary feeding: the process starting when breast milk alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk. The transition from exclusive breastfeeding to family foods – referred to as complementary feeding – typically covers the period from 6 - 24 months of age, even though breastfeeding may continue to two years of age and beyond[5].

Complementary foods: any nutrient-containing foods or semi-solid given to infants in addition to breast milk or commercial infant formula. It is not recommended to provide any solid, semi-solid or soft foods to children less than six months of age[5].

Early initiation of breastfeeding: Provision of mother's breast milk to infants within one hour of birth[9].

Exclusive breastfeeding (EBF): Infant receives only breastmilk (including breastmilk that has been expressed or from a wet nurse) and nothing else, except for ORS, medicines and vitamins and minerals[5].

Infant and Young Child Feeding (IYCF): Infants are all children from birth to 12 months of age and young children are persons from the age of more than 12 months to the age of three years (36 moths)[15].

Infant Formula: a breast-milk substitute formulated industrially in accordance with applicable Codex Alimentarius standards, to satisfy the normal nutritional requirements of infants up to between four and six months of age, and adapted to their physiological characteristics. These are artificial milks for babies made out of a variety of products, including sugar, animal milks, soybean, and vegetable oils. They are usually in powder form, to mix with water[5]. Infant formula may also be prepared at home, in which case it is described as "home-prepared" [6].

Low Birth Weight (LBW): Weight at birth less than 2500g[16].

Mixed feeding: Infant receives both breast milk and any other food or liquid including water, non-human milk and formula before 6 months of age[5].

Solid foods: All foods other than liquids includes semi-solid/ pureed foods, finger foods and family foods[22].

Very Low Birth Weight (VLBW): Birth weight less than 1500g[16].

Executive Summary

National Guidelines on Optimal Feeding of Infants and Young Children is developed by Health Protection Agency of the Maldives to implement focused, evidence based nutrition interventions to improve the nutritional status of the Maldives. This set of recommendations should be applied by the users of this guideline to make informed decisions to standardise the correct norms of infant feeding. The National guideline will assist in addressing poor practices related to infant feeding and will aid in changing programme approaches while aiming to fulfil the right to health and nutrition in pregnant women, infants and young children.

The Maldives Demographic Health Survey states that, 19% of the children under the age of 5 years are stunted, 10% wasted and 6% of the children are overweight. These values are too high when compared to other socio economic indicators. Low prevalence of exclusive breast feeding and inappropriate feeding practices of infants and young children are considered the major factors contributing to the continued problem of undernutrition of children under the age of 2 years.

This guideline is consistent and contributes to the achievement of national goals and targets set in the Health Master Plan 2016-2025 and Integrated National nutrition Strategic plan 2013 – 2017 by ensuring that the caregivers practice appropriate IYCF practices by promoting and protecting breastfeeding and introduction of appropriate complementary food for all infants and young children.

The guideline consists of the following components:
Maternal Nutrition - Improve health and wellbeing of pregnant women and the growing child by reducing pregnancy complications and micronutrient deficiencies in pregnant women.

Breastfeeding - To encourage, support and promote exclusive breastfeeding for the first six months and continue breastfeeding till the child is 2 years and beyond.

Complementary feeding - To provide safe, appropriate and adequate complementary food for children under the age of 3 years with special focus on children under the age of 2 years.

Feeding low birth weight or preterm babies - Low birth weight and preterm babies should be provided optimal feeding practices to decrease the risk of infection and death

HIV and Infant Feeding - Ensure appropriate nutrition for children born to HIV positive mothers

Feeding in Specific Situations

- Feeding During illness - Encourage children to drink and eat during illness and provide extra food after illness to help them recover quickly
- Infant feeding during maternal illness - Ensure appropriate feeding practices for the infant during maternal illness
- Infant and young child feeding during emergencies - Promote breastfeeding and nutritious complementary feeding during emergencies
- Infant and young children with special needs - Ensure children with special needs are provided with the best start in life and provided appropriate complementary food as they grow
- Infant and young children living in exceptionally difficult circumstances - Provide all necessary support to enable optimal feeding practices for children living in exceptionally difficult circumstances.

Introduction

Adequate nutrition gives a child the best start in life. When there is an inability in absorbing nutrients consumed from food or when the diet does not contain the right amount of nutrients needed for optimal growth and development, a child becomes malnourished. This imbalance in nutrients can lead to insufficient or excessive energy intake; the former leading to undernutrition in the form of wasting, stunting and underweight, and the latter resulting in overweight and obesity[20]. Malnutrition in children is the consequence of a wide range of factors related to poor food quality, insufficient food intake, and severe and repeated infectious diseases; or frequently, some combinations of the three[20].

Recently, the focus of nutrition interventions related to undernutrition has changed from reducing underweight prevalence to prevention of stunting, due to evidence on effects of stunting on human development and overweight and obesity. Both stunting and overweight and obesity are irrevocably linked, with children who are stunted in early childhood being more likely to be obese in later life with more likelihood of developing non communicable disease. Research shows that stunting is associated with suboptimal brain development, which is likely to have long-lasting harmful consequences for cognitive ability, school performance and future earnings, affecting development potential of individuals and the nation[25]. Recent research has provided a better understanding of the importance of the first 1000 days of a child's life starting from conception till the child is two years of age. Stunting affects 165 million children under 5 years of age worldwide and evidence has shown that key interventions delivered during the critical 1000 days can lead to marked decrease in stunting[25].

To improve child nutrition status, World Health Assembly has adopted new global , voluntary target of reducing the number of stunted children under the age of 5 by 40% by 2025[13] and proposing that there be no increase in overweight among children under 5 years of age from the current level of 7 %. The United Nations Secretary-General has also included elimination of stunting as a goal in his Zero Hunger Challenge, launched in June 2012[30]. This emphasis on stunting has lead to review of national policies, programmes, and strategies to enhance the focus on integrated programmes.

IYCF Practices in Maldives

The Maldives Demographic Health Survey (MDHS) states that, 19% of the children under the age of 5 years are stunted, 10% wasted and 6% of the children are overweight. These values are too high when compared to other socio economic indicators. Low prevalence of exclusive breast feeding and inappropriate feeding practices of infants and young children are considered the major factors contributing to the continued problem of undernutrition of children under the age of 2 years.

According to MDHS, 98% of children are breastfed, however less than half (47.8 %) of the children are exclusively breastfed up to 6 months of age and the average duration of exclusive breastfeeding is only 2.2 months (MDHS 2009). Furthermore, while 95% of the births were attended by a skilled birth attendant, only 64% of the infants were put to the breast within one hour of birth. This clearly shows a missed opportunity for mothers to initiate breastfeeding when they are already in contact with the health system. It is interesting to find that, prelacteal feeding (12%) is practiced more common in urban settings and in Malé (16%). It is also more common among children whose mothers were assisted by a health professional during delivery and those born in a health facility. The above facts indicate the importance of having set guidelines on infant and young children that healthcare professionals can use to promote optimal IYCF practices.

Looking at the current data, the exclusive breastfeeding rate drops as the child gets older. When the child is 4-5 months of age, around three in four babies are receiving some form of supplementation and complementary foods. Among all breastfeeding children under the age of 3, 36% consume infant formula and higher proportions receive other milk (55%) and other liquids (60%). Children age 6-23 months consume foods made from grains more often than foods from any other food group. Among breastfeeding children in this age group, 96 percent ate foods made from grains, and 64% ate fruits and vegetables rich in vitamin A during the day and night preceding the interview.

One of the major findings from MDHS is that the majority (68-80%) of breastfed children age 6-23 months did not consume any food made from roots and tubers, food made from legumes and nuts, or other fruits and vegetables during the 24-hour period before the survey. Roots and tubers include white potatoes, white yams, cassava, or any other foods made from roots. Legumes and nuts include beans, peas, lentils, or nuts. The majority of children age 6-23 months also did not consume cheese, yogurt, and other milk products or food made with oil, fat, or butter. The patterns are similar for non-breastfeeding children. As predicted, non-breastfeeding children consume milk other than breast milk more often than breastfeeding children (87% compared with 62%). Therefore, clear guidelines on complementary feeding is essential to be in place to assist mothers and caregivers in practicing correct feeding behaviours.

Furthermore, the Micronutrient Survey (MNS) 2007 showed that half of the children under the age of five years are still vitamin A deficient (50% vitamin A deficient). Anaemia prevalence among children 6 months to 5 years is 26% and more than half of anaemic children (57%) are iron deficient. This survey also states that 81% of the children had received some form of liquid other than breast milk before the age of 6 months. The analysis of the existing data reveals that wasting is highest among children under the age of 6 months (15.5%) and stunting increases significantly between 6 to 18 months period when children are introduced to complementary foods. Correct infant and young child feeding practices from early childhood are important for optimal physical, mental growth of children and for increased cognitive development to perform well in school.

Rationale

A National Guidelines on optimal feeding of infants and young children is needed to implement focused, evidence based nutrition interventions to improve the nutritional status of the Maldives. This guideline is a document containing set of recommendations to promote optimal infant and young child feeding. This recommendation will inform the intended end-user of the guideline what he or she can or should do in specific situations to achieve the best health and nutrition outcomes possible, either individually and or collectively. This set of recommendations should be apllied by the users of this guideline to make informed decisions to standardise the correct norms of infant feeding. National guideline will assist in addressing poor practices related to infant feeding and will aid in changing programme approaches while aiming to fulfil the right to health and nutrition in pregnant women, infants and young children.

The aim of this guideline is to improve – through optimal feeding –the nutritional status, growth and development, health,and thus the survival of infants and young children.

Objectives

- to improve the quality of care received by improving the infant and child feeding practices.
- to disseminate breastfeeding and complementary feeding recommendations from policy makers to programme managers to communities living in islands.
- to assist in developing interventions to raise awareness and to change behaviours for achieving optimal feeding practices for infant and young children.
- to achieve the national goals for Infant and Young Child Feeding set by the Health Master Plan and Intergrated National Nutrition Strategic Plan to decrease malnutrition in children.

IYCF Policies in Maldives

To achieve the targets specific to IYCF as outlined in the Integrated National Nutrition Strategic Plan 2013-2017, a comprehensive national IYCF guideline is essential. This guideline will assist in achieving the goal of ensuring that the caregivers practice appropriate IYCF practices by promoting and protecting breastfeeding and introduction of appropriate complementary food for all infants and young children.

The main policies/goals/targets related to IYCF are outlined in the figure below:

Health Master Plan 2016-2025

Policies, Goals and Targets related to IYCF practices[22]

Policy Goal	Enhance health and wellbeing of the population of Maldives		
Outcomes/Outputs	**Indicator**	**Current (Year)**	**Target 2020 and 2025**
Outcome 2 : Reduced disease and disability among population	Prevalence of underweight (weight-for-age) in children <5 years of age (%)	17.3 (2009)	Reduce to 15% and maintain below 15%
	Prevalence of wasting children <5 years (weight for height below-2SD)	10.6 (2009)	Reduce by1/3 and Maintain
	Prevalence of overweight children <5 years (weight for height above +2SD)	5.9 (2009)	Reduce by1/3 and Maintain
	Prevalence of stunting (height for age < -2 SD from the median of the WHO child growth standard) among children under 5 years of age.	18.9 (2009)	Reduce by 1/3 and Maintain
Output 5: Enabled a healthy start in life and childhood enabled through the health system	% of children introduced with complementary foods at 6 months	90%(2009)	Increase to 95% and maintain above 95%
	Number of government hospitals compliant with breast feeding hospital initiative(BFHI)	9 (2009)	Increase to 50% and 100% of all govt hospitals
	Proportion of breast milk substitute products registered and sold	35% (2016)	95% and maintain Above

INNSP 2013 - 2017

Policies, Goals and Targets related to IYCF practices[22]

Policies	Goals	Targets
Strengthen health promotion, protection and advocacy for healthy public policies	Ensure care givers practice appropriate IYCF and dietary practices	• <10% of children under 5 years are undernourished
		• <15% stunted
		• <8% wasted
		• <5% of children are obese
		• >95% coverage of monthly growth monitoring in children under 2 years
		• 60% of children exclusively breastfed for 6 months
		• <10% of infants under 6 months fed with BMS
		• 75% of infants fed with the 3 IYCF practices
		• <25% of infants fed with commercial baby food
		• 60% of infants over 6 months to 2 years fed with fruits and vegetables daily;
		• All hospitals confirm to the 10 steps of a Baby Friendly Hospital
		• All marketed BMS and packaged infant food conform to labelling and marketing regulations
		• All food advertisements giving appropriate warnings

National Infant and Young Child Feeding Guidelines

Maternal Nutrition

Improve health and wellbeing of pregnant women and the growing child by reducing pregnancy complications and micronutrient deficiencies in pregnant women.

When planning a pregnancy, pre-pregnant women:

- Must have access to contraceptive services to enable women to plan their pregnancy.
- Should try to attain a normal BMI before pregnancy.
- Must have access to preconception counselling service and should start having folic acid three months before conception.
- Must eat adequate nutritious meals everyday that includes locally available fresh fruits and vegetables, whole grain products, skimmed milk, fish and meat products, nuts, legumes and pulses and try to avoid foods that contain high amounts of fats and oils, salt, sugar and caffeine included drinks.
- Should promote consumption of home cooked nutritious meals.
- Should provide advice to consume 3 nutritious main meals and 2 nutritious snacks.

During pregnancy, pregnant women:

- Must have access to Antenatal Care.
- Should have at least three antenatal visits, preferably one visit every trimester.
- Should continue to have folic acid during the first trimester.
- Must monitor the pregnancy weight gain. Mothers should be advised to maintain a healthy weight during pregnancy In a normal pregnancy, pregnant women should gain about 10-12 kg during pregnancy. Weight gain must also be monitored during the postpartum period. Mothers should be appropriately counseled to reduce excess weight gain during this period. If the mother is underweight, dietary advice should be given to promote healthy eating.
- Should provide nutrition counselling and education that emphasizes the importance of balanced diet that includes macro and micronutrient-rich foods. The Maternal and Child Nutrition Guide and accompanying resource materials developed by Health Protection Agency should be used by all health professionals when providing nutrition counselling.
- Should continue to have adequate nutritious meals (3 meals and 2 snacks) that provides high amount of calcium, iron, zinc, folic acid and should have a healthy breakfast.
- Must take micronutrient supplementation especially iron supplementation tablets as advised by the healthcare provider.
- Must avoid caffeine included food and drinks, and food and drinks that contain high amounts of sugar, salt and oil.
- Advice on preparation of home cooked meals and ensure that foods are thoroughly cooked, special care must be taken when buying perishable foods.
- Should have enough water (2-3 litres) everyday and should be involved in appropriate physical activity and take enough rest.
- Must have access to quality health services to identify, prevent and treat infections and diseases such as anaemia.

- Must be advised to consult a doctor before taking any medicines (including herbal medicine) during pregnancy and lactation.
- Other family members should be counselled on the importance of breastfeeding.
- Their husbands and other caregivers should have access to objective, consistent and complete information about appropriate feeding practices that should emphasise on the importance of breastfeeding and adequate, nutritious complementary food for the infant and their young children.
- After giving birth, mothers must have access to contraceptive services to prevent unwanted pregnancies and improve birth spacing.

Breastfeeding

Encourage, support and promote exclusive breastfeeding for the first six months and continue breastfeeding till the child is 2 years and beyond.

During pregnancy:

- Routine antenatal visits should provide health education on benefits (table 1) and practical aspects of breastfeeding (as detailed in table 2) and the risks of not breastfeeding.

Table 1: Benefits of Breastfeeding[23]

Ensure care givers practice appropriate IYCF and dietary practices	
	Provides superior nutrition for optimum growth.
	Provides adequate water for hydration.
	Protects against infection and allergies.
	Promotes bonding and psychosocial development
Benefits of breastfeeding to the mother	
	Protects mother from illness
	Breastfeeding helps delay the next pregnancy, by giving mother and child time to recover and grow
	Less likely to get breast cancer and other forms of cancers

Table 2: Practical aspects of breastfeeding that should be covered in ANC

• The importance of initiation of breastfeeding within 1 hour of birth, exclusive breastfeeding till 6 months and continued breastfeeding to 24 months and beyond (including the nutritional and protective benefits)
• Correct positioning and latching techniques.
• Basic breastfeeding benefits and management
• Guidance on coping with breastfeeding problems such as engorgement, nipple fissures and delayed 'coming-in' of milk.
• Concept of expressed milk.

During lactation:

- Postnatal breastfeeding support mainly in the form of IYCF counselling should be provided to all mothers' especially good positioning and attachment. During the postnatal visits, support should also be provided to mothers on solving their breastfeeding problems. Mothers should be referred to IYCF counselling centres as and when it is available.
- Active support must be given to all mothers especially for first time mothers to establish and support optimal breastfeeding practices. Breastfeeding support provided by doctors, nurses and health workers should include information on positioning and attachment, expressing milk by hand and key aspects of breastfeeding management such as feeding on demand, recognising feeding cues and importance of exclusive breastfeeding.
- Mothers should be counselled on the flow of breast milk and should be advised that it is normal for the mother to produce less milk in the first 48-72 hours after birth
- Medicines should not be prescribed for mothers to increase production of breast milk

All children must be fed colostrum and it should not be discarded.

> *"Colostrum, the first yellow fat rich 'sticky' milk secreted in the firsts two – three days after delivery is rich in fat, vitamins and antibodies which helps contribute to develop child's immune system. Colostrum contains growth factors, which help the infant's intestine to mature and function effectively. Colostrum is rich in Vitamin A, which helps protect the eyes and reduce infection. Colostrum stimulates the baby to have bowel movements so that meconium is cleared quickly from the gut. This will help reduce jaundice in the baby."*

Timely initiation of breastfeeding

- Breastfeeding must be initiated within one hour after birth for all normal deliveries even if the baby is delivered by caesarean section.
- After delivery, mothers need to make skin to skin contact with the newborn. There is considerable evidence that uninterrupted skin to skin contact will make the child less stressed after birth.
- Mothers should communicate, look into the eyes, touch and caress the baby while feeding.
- Breastfeeding lays the foundation for future feeding behaviors. Babies who feed effectively following delivery are more likely to continue breastfeeding.

Prelacteal Feeding

- Babies should not be fed other foods and fluids such as dates, honey, or water in the first 6 months as breast milk contains all the water and other necessary fluids a baby needs.

Exclusive breastfeeding

- All children should be exclusively breastfed for the first 6 months of a child's life.
- Newborns who needs to be fed by a feeding tube should also be encouraged to give expressed breast milk.
- Expressed milk should be properly stored and the specific guidelines on storage of expressed milk should be followed.

Storage Duration of Fresh Human Milk for Use with Healthy Full Term Infants[33]

Location		Temperature	Duration	Comments
Countertop, table		Room temperature (up to 77°F or 25°C)	4 hours	Individual containers should be used and it should be covered and kept as cool as possible; covering the container with a cool towel may keep milk cooler.
Insulated cooler bag		5-39°F or -15-4°C	24 hours	Keep ice packs in contact with milk containers at all times, limit opening cooler bag.
Refrigerator		39°F or 4°C	72 hours (3 days)	Store milk in the back of the main body of the refrigerator.
Freezer				
	Freezer compartment of a refrigerator	5°F or -15°C	2 weeks	Store milk toward the back of the freezer, where temperature is most constant. Milk stored for longer durations in the ranges listed is safe, but some of the lipids in the milk undergo degradation resulting in lower quality.
	Freezer compartment of refrigerator with separate doors	0°F or -18°C	3–6 months	
	Chest or upright deep freezer	-4°F or -20°C	6–12 months	

- Giving top up feeds for newborns should only be carried out under exceptional circumstances if advised as essential by the child's doctor.
- To prevent botulism, do not feed honey to infants under 12 months of age.
- Breastfeeding on demand should be practiced; mothers must provide breastmilk as often as the child wants, day and night. This also enables the mother to enhance milk production.
- Babies should not be given bottles, teats or pacifiers. This is because the teats and screw tops of bottles are more difficult to clean and can trap harmful bacteria that makes infants prone to illness.
- If alternative feeding is required due to severe maternal illness or baby's condition such as Very Low Birth Weight, preterm babies (for more details refer to acceptable medical reasons for use of breast milk substitute), it should only be given with doctor's consultation and with the mother's/parents/guardians agreement.
- At every home visit, the harmful effects of using breastmilk substitutes, teats and dummies should be reminded to mothers and their family members. During these visits the mothers should be counselled on common breastfeeding challenges and how to overcome them. For example: mothers usually complain of not having enough milk, so mothers should be counselled on overcoming this problem.

- Mother should not offer tea, herbal teas, coffee or sugar-sweetened drinks (soft drinks, cordials) to the infant.
- Health facilities should support the principles of the Baby Friendly Hospital Initiative. A maternity facility can be designated 'baby-friendly' when it does not accept free or low-cost breast milk substitutes, feeding bottles or teats, and as detailed in table 3; 10 specific steps to promote and support successful breastfeeding.
- Mothers who work outside their homes should be provided support and encouraged to exclusively breastfeed their babies for the first six months by providing adequate practical information on expressing breastmilk to all working mothers as needed and lobby for mothers to obtain adequate maternity leave or flexible work schedules to breastfeed their babies. As obliged by civil service guideline and employment act one hour nursing break to be provided for all working mothers till the child is 1 year of age. Working mothers should be provided 60 working days as maternity leave.

Table 3: 10 Steps to Promote and support Successful Breastfeeding - Baby Friendly Hospital Initiative[1]

1.	Have a written breastfeeding policy that is routinely communicated to all health care staff.
2.	Train all health care staff in skills necessary to implement this policy.
3.	Inform all pregnant women about the benefits and management of breastfeeding.
4.	Help mothers initiate breastfeeding within one hour of birth.
5.	Show mothers how to breastfeed and maintain lactation, even if they should be separated from their infants.
6.	Give newborn infants no food or drink other than breast milk, unless medically indicated.
7.	Practice rooming in - that is, allow mothers and infants to remain together 24 hours a day.
8.	Encourage breastfeeding on demand.
9.	Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10.	Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

Complementary feeding

Provide safe, appropriate and adequate complementary food for children under the age of 2 years with special focus on children under the age of 2 years

1. Start feeding additional foods to the child at the age of 6 months.

- After completion of 6 months, appropriate complementary foods must be introduced to the infant's diet with continued breastfeeding. Caregivers must be encouraged to offer energy and nutrient dense homemade foods prepared from locally available ingredients.
- Complementary feeding should be timely, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be adequate, meaning that the complementary foods should be given in amounts, frequency, consistency and using a variety of foods to cover the nutritional needs of the growing child while maintaining breastfeeding. The reasons for introducing complementary food at 6 months are provided in table 4.
- Avoid giving readymade processed commercial baby foods from the market.

Table 4: Why introduce complementary food at 6 months[6]	
By 6 months of age most infants are able to adapt to variety of foods, food textures and modes of feeding. This age has been identified as a time when:	
	Appetite and nutritional requirements for growth and development are no longer satisfied by milk alone
	Breast milk does not have sufficient quantities of essential nutrients such as iron and zinc that is required by infants beyond six months of age and need to be fed other foods
	The digestive system is maturing and the child is ready to digest other foods such as starches

- Sufficient quantity of quality complementary food must be introduced to all children when they are 6 months of age.
- There are problems associated with introducing food too early or too late as detailed in table 5 and therefore, infants must be introduced to appropriate complementary food at the right time.

Table 5: Problems associated with introducing food too early or too late[17]	
Problems associated with introducing solid foods too soon:	
	Mothers' milk production will decline and may lead to malnutrition of the child
	Infants digestive system still developing therefore may increase the risk of food allergies and infections
	Exclusively breastfeeding reduces prevalence of diarrhoeal disease
Problems associated with introducing solid foods too late:	
	Growth faltering as breast milk alone cannot satisfy the nutritional requirement
	Micronutrient deficiencies especially iron and zinc
	Delay in development of motor skills such as chewing action and unwilling to accept new taste

Improved feeding of children under two years of age is particularly important because they experience rapid growth and development and are vulnerable to illness. Therefore, special focus should be given to improving the feeding practices of children under the age of 2 years.

2. Continue breastfeeding up to two years of age or beyond

Continued breastfeeding beyond six months should be accompanied by consumption of nutritionally adequate, safe and appropriate complementary foods that help meet nutritional requirements when breast milk is no longer sufficient for the baby.

3. Start with soft or mushy foods at first that are age appropriate and are not too thin or thick, and gradually shifts to foods of solid consistency

From 6-12 months, breastfeeding (if implemented optimally) should continue to provide half or more of the child's nutritional needs, and from 12-24 months, at least one-third of their nutritional needs. From 12 months onwards, breastfeeding should be done after meals (or in between meals) and milk in any form should not replace other foods.

Appropriate complementary foods can be readily consumed and digested by young child from six months onwards and provides nutrients - energy, protein, fat and vitamins and minerals - to help meet the growing child's needs in addition to breast milk. However, under special circumstances where the child needs additional nutritional requirements, complementary food can be introduced earlier than 6 months (after 120 days) under the following conditions with consultation with a healthcare professional:

1. If growth faltering is present despite adequate and correct breastfeeding practices and absence of ill health
2. Mother has to be away from the baby for long periods and is faced with difficulty in expressing and or storing breast milk

It is important to refer the child to a Pediatrician to rule out any underlying medical conditions before introducing complementary food before the baby is 6 months of age.

* Refer to a Nutritionist/ Dietician if available; for children having feeding difficulties.

Table 6 provides information on approaches that can be used to improve complementary feeding.

Table 6: Approaches that can be used to improve complementary feeding[17]

• Increase nutritional adequacy of complementary foods – locally available foods should be used whenever possible
• Identify vulnerable groups in the population – targeted food based programmes (for example: to target households with children with evidence of growth faltering)
• Education to improved feeding - improved maternal knowledge and feeding practices can lead to increased dietary intake and growth of infants.

To provide more calories from smaller volumes, food must be thick in consistency (that is thick enough to stay on the spoon without running off, when the spoon is tilted).

4. Offer solid or semi-solid foods 2-3 times per day when child is between 6-8 months of age, and 3-4 times per day after that, and offer nutritious snacks 1 or 2 times per day, as desired

Children should be introduced to other foods at the age of six months with small amounts of food at first and the mothers should increase the quantity, variety and consistency of the food as the child gets older, while maintaining frequent breastfeeding till the child is 2 years of age or beyond.

This is detailed below in table 7:

Table 7: Complementary food that can be provided to infants and young children[26, 17]

Age	6-8 months	9-11 months	12-24 months
Meal frequency per day	2-3 times Frequent breastfeeds after meals	2-3 times with nutritious snacks 1-2 times as desired and breast milk after meals	3-4 times with nutritious snacks 1-2 times as desired and breast milk after meals
Meal Texture and consistency and type of foods	Boiled, pureed and then mashed food such as rice, carrots, fruits (banana, mango, apple) sorghum and iron fortified cereal can be mixed with breast milk	Start coarsely chopped foods or foods that the baby can pick up with its fingers (finger foods) can be given. For example, fruits, vegetables, eggs, fish, cheese, peas, beans and dhal. Special care must be taken to avoid any choking hazards from finger foods.	Nutritious food eaten by the rest of the family. Foods from all food groups should be given.
Energy needs from complementary food per day (kcal/day)[9]	200	300	550
Quantity of food that can be given in each meal	Start with 2-3 tablespoons and gradually increase to ½ of 250ml cup	At least half (1/2) of 250ml cup	At least three quarters (3/4) of 250ml cup
Other essential information: • Standard tea cup = 250 ml • Boiled, cooled water can be offered after meals (use a cup)			

- Since infants can only eat small amounts of food, the food that is prepared should be energy dense. To make the food energy dense, fats and oils such as vegetable oil and unsalted butter in small quantity can be added.
- The staple homemade foods must be made calorie and nutrient rich to give the child a balanced diet. This can be done by gradually adding a variety of foods, from all the food groups (grains, roots and tubers, legumes and nuts, animal source foods and fruits and vegetables) and increases in variety and quantity as the child grows. Fruits are best given in the mashed or pulped form and not as juices. Health Professionals should refer to Maternal and Child Nutrition Guide[26] for more details.

- One new food needs to be introduced every 3-4 days before introducing another new item to ensure that the child gets used to new tastes and textures. Occasionally children may develop allergies to certain foods and this time interval will help localize the source of the allergy.
- It is essential to introduce iron rich food into the diet as early as possibly, (from the beginning of the 7th month) give the child iron-rich foods animal source foods such as fish, meat, chicken and liver. It is important to also include legumes such as beans and other grams, green leafy vegetables.
- Including a source of vitamin C in the same meal (lime, lemon, guava, papaya, banana) will help increase bioavailability of the iron.
- Mothers should be discouraged to use commercially prepared baby food by informing them about the risks and dangers of commercially prepared foods.
- For children below 1 year of age salt, honey, sugar should not be added to their complementary foods. Foods that contain high amounts of fat, sugar, salt, food additives and preservatives such as junk food, processed food and commercially available food should be avoided. Example; luncheon meat, sausages.
- Drinks that contain sugar, caffeine and low nutrient value such as sugar added juices, tea, coffee and other similar drinks should also be avoided.
- Infants can be given water when they are 6 months of age. Mothers should be encouraged to use boiled, cooled water or safe bottled water and discouraged to use other water that are marketed commonly as 'baby water' or otherwise represented as suitable for feeding infants and young children.
- Night feeds to be stopped according to the demands of the baby and should be discouraged when the child turns 1 year of age.

> *"Fruit juice offers no nutritional benefit to children under the age of 1 and should not be included in their diets. Instead, babies should be fed breast milk exclusively until 6 months of age. After that, parents should offer the whole fruit in pureed form."*

5. Practice good hygiene in preparation and storage of complementary foods and family foods.

Care must be taken to ensure personal hygiene and proper food handling practices whether the foods for children and/ or family are prepared at home or at an institution.

Practice 5 keys to safer food:

1. Keep clean

- Wash your hands with soap and water before handling food and wash your hands often during food preparation, especially if you are handling raw fish/chicken/meat.
- Wash hands of the caregiver and child with soap and water before feeding the child.
- Wash your hands with soap and water after going to the toilet. If you are taking care of a baby, wash your hands after changing the diaper.
- Wash and sanitize all surfaces and equipment used for food preparation.
- Protect kitchen areas and food from insects, pests and other animals; discard any food particles that may be in the kitchen sink, dispose rubbish from the kitchen daily.

While most microorganisms do not cause disease, dangerous microorganisms are widely found in soil, water, animals and people. These microorganisms are carried on hands, wiping cloths and utensils, especially cutting boards, and the slightest contact can transfer them to food and cause food borne diseases.

2. Separate raw and cooked

- Raw food such as meat, poultry and fish and their juice can contain dangerous bacteria which may be transferred on to other foods during food preparation and storage.
- Separate raw meat, poultry and fish from other from other food. While shopping, keep these separate from other foods. Store these in the refrigerator below cooked or ready to eat food to avoid cross contamination.
- Use separate equipment and utensils such as knives and cutting board for raw meat, poultry and fish. Wash plates used for raw food. Use a clean plate for covered food.
- Store food in containers with lids to avoid contact between raw and prepared food.

3. Cook thoroughly

- Cook thoroughly, especially meat, poultry, eggs and fish. Proper cooking can kill almost all dangerous microorganisms. Special attention need to be given if you are cooking the whole chicken. Make sure that juices are clear, not pink.
- Half boiled egg or eggs partially cooked should not be given to children and should not be consumed during pregnancy and by people with low immunity.
- If you are reheating cooked food, it need to be done thoroughly.
- If you are cooking in microwave, you need to know that microwave ovens can cook unevenly and leave cold spots where dangerous bacteria can survive; you need to make sure that food cooked in a microwave oven is at a safe temperature throughout.
- Some plastic containers release toxic chemicals upon heating. Only microwave safe containers should be used in microwaves.

4. Keep food at safe temperatures

- Keep cooked food covered and do not leave cooked food at room temperature for more than 2 hours.
- Refrigerate promptly all cooked and perishable food (preferably below 5°C).
- Keep cooked food hot prior to serving.
- Do not store food for too long even in the fridge. Leftover food should not be stored in the fridge for more than 3 days and should not be reheated more than once.
- Do not thaw frozen food at room temperature. Thaw in refrigerator or other cool place.
- Keep your refrigerator clean and do not over stock, it will reduce the circulation of cool air and effect proper cooling. Frequent opening of refrigerator/freezer door will affect the inside temperature.

5. Use safe water and raw materials

- Use safe water. Rain water collected in clean tanks is safe as long as tanks are protected from contamination from birds and other animals. In Maldives, contamination of rain water with cat feces is common, leading to a chronic infection called toxoplasmosis. This causes blindness and brain defects in the babies in the mother's womb during pregnancy. Therefore, it is important to make sure it is safe for consumption by proper chlorination, filtration by a microbial filter system or boiling the water.

- It is always better to use boiled rain water for consumption, especially if you are giving it for children or pregnant women. Raw materials including water and ice may be contaminated with dangerous microorganisms and chemicals. Toxic chemicals maybe found in damaged and mouldy food. Taking care in selecting raw materials, washing and peeling could reduce the risk.
- Always wash fruits and vegetables before eating. Safe water should be used to wash these.
- Do not buy food that is damaged or rotten. Do not buy any dented, swollen or rusted canned foods.
- Do not use foods that have gone beyond the expiry date.

6. Use feeding times for interacting with the child, to teach and stimulate social development as well as encourage the child to eat

- The adequacy of complementary feeding (adequacy in short for timely, adequate, safe and appropriate) not only depends on the availability of a variety of foods in the household, but also on the feeding practices of caregivers.
- Feeding young infants requires active care and stimulation, where the caregiver is responsive to the child clues for hunger and also encourages the child to eat (responsive feeding).
- Active or responsive feeding techniques should be applied when providing complementary food to children (discourage feeding in front of screens as it encourages passive eating and unhealthy eating habits). Self feeding must be encouraged.
- Children must be supervised during feeding times to prevent choking and other hazards. Forced feeding, threatening and punishment interfere with development of good feeding habits and this should be discouraged at all times. Feeding times must be made a fun and enjoyable time for the child by providing psychosocial stimulation.

Practical responsive feeding

- Mothers and caregivers need to feed infants 8-9 months, variety of foods that can be held and eaten by the child (finger foods). Older children should be encouraged to self-feed and assisted when they feed themselves. Children should be able to feed by themselves without assistance by about 2 years of age.
- Children have to start learning to eat. Therefore it is important to feed children patiently and encourage them to eat, being sensitive to their hunger and satiety cues. Forced feeding is discouraged at all times.
- Children should be allowed to touch food if they want to do so, provided their hands are washed with soap and water prior to feeding.
- Feeding times are periods of learning and love. Talk to children lovingly and kindly during feeding, maintaining eye to eye contact.
- If children refuse food, experiment with different methods of encouragement and different combinations, tastes, preparations, textures of food.

> *“Minimize distraction during feeding. Have a separate place to feed the child. Gradually try to feed the child together with other family members which will be a learning experience for the child and will also encourage him/her to eat.”*

Growth Monitoring and Promotion

- After birth every child must be given a Child Health Record book and the baby's birth weight, length and all other required information must be duly filled. Before discharge and during PNC visits caregivers must be encouraged to bring the child for regular growth monitoring.
- All infants and young children's growth should be monitored by weighing and measuring their length/height by a health professional every month from birth till the child is 5 years of age. The head circumference of all infants and young children should be measured till the child is 2 years of age.
- Healthcare professionals should guide the caregivers to monitor the developmental milestones and fill the checklist in the child health record. Children reach milestones in how they play, learn, speak, behave, and move (like crawling, walking, or jumping) at different stages and may differ from one another.
- Adequate nutrition education should be provided to the caregiver after growth monitoring on child's development.
- Routine immunisation, deworming and vitamin A supplementation should be provided to all children as detailed in the Child Health Record.
- Health workers should be adequately trained on growth monitoring and promotion to accurately measure the growth charts as well as provide nutrition counselling.

Feeding low birth weight or preterm babies

Introduce to appropriate and nutrient dense food for low birth weight and preterm babies to decrease the risk of infection and death.

Low birth weight (LBW) has been defined by the World Health Organization (WHO) as weight at birth less than 2500 grams[16]. LBW can be a consequence of preterm birth or due to small size for gestational age or due to both. Breast milk is particularly important for preterm infants and the small proportion of term infants with very low birth weight who are at increased risk of infection, long-term ill-health and death.

- Low birth weight (LBW) infants should be fed breast milk.
- Given the small gastric capacity of LBW infants, they may need to be breastfed more often in small amounts.
- LBW infants who are able to breastfeed should be put to the breast as soon as possible after birth when they are clinically stable.
- Pre-term babies unable to breastfeed in the first days or weeks must be given expressed breast milk.
- LBW infants should be exclusively breastfed until 6 months of age.
- Bottles with teats should not be used to feed preterm or LBW babies.
- LBW infants and preterm babies who cannot be fed breast milk can be fed approved and registered breast milk substitute as recommended by a medical practitioner.
- Mothers should be encouraged to participate actively in caring and feeding of the preterm babies and LBW infants.
- All preterm infants to be given iron supplement and calcium.

NOTE: This guidance does not address the feeding of infants with a birth weight less than 1.0 kg (known as extremely low birth weight or ELBW infants) who are often clinically unstable and may require parenteral nutrition (WHO, 2011).

HIV and Infant Feeding

Ensure appropriate nutrition for children born to HIV positive mothers.

Recommendations for infant feeding in HIV exposed and infected infants <6 months of age
• Exclusive formula feeding for the first 6 months of life. In Maldives, HIV positive mothers are also commonly drug users, so it is important to reduce the additional health risk to the infant from ingestion of drugs through breastfeeding;
• Formula milk will be provided to all infants of HIV positive mothers who cannot afford it for the first 6 months of life;
• These mothers or infants caregivers should be taught and trained adequately on how to give feeds using appropriate hygiene measures. They also should be provided with adequate counseling;
• Monitoring infant feeding practices is very important and should be done regularly.
* Refer National PMTCT guideline for further information

All of the following criteria should be met for the mother or caregiver to provide replacement feeding:

- Safe water and sanitation at household and community level.
- Can afford to buy replacement feeding products. If the mother or caregiver cannot afford, the state should provide breast milk substitutes
- Must receive instructions on hygienically preparing breast milk substitutes to reduce the risk of diarrhoea and malnutrition.
- Should exclusively provide replacement feeding for the first six month of the child.
- Must have access to quality health services.

Feeding in Specific Situations

Feeding During illness

Encourage children to drink and eat during illness and provide extra food after illness to help them recover quickly.

During illness, the mother or caregiver should;

- Continue to breastfeed the child.
- Encourage the child to eat soft, varied, appetizing foods.
- Feed small amounts of nutrient rich food more frequently.
- Give a variety of nutritious food that the child likes.
- Feed the child with patience.

During illness, the mother or caregiver should;

- Encourage the child to eat more.
- Give extra breastfeeds.
- Give an extra meal or give extra amounts at each meal.
- Offer nutritious snacks.
- Feed the child with patience.

Infant feeding during maternal illness

- Ensure appropriate feeding practices for the infant during maternal illness.
- Painful or infective breast conditions such as breast abscess or mastitis may require temporary cessation of breastfeeding. These conditions should be treated and breastfeeding should be continued[2].
- Mothers having chronic infections such as hepatitis B, tuberculosis and hypothyroidism should be treated and the mother should continue to breastfeed the infant during and after treatment[4].
- It is inadvisable for mothers to breastfeed if they are on certain drugs such as drugs of abuse, amiodarone, cytotoxic agents, lithium, retinoids and radiopharmaceuticals[8, 28].
- In cases where the mother has died or medically determined to be too ill for breastfeeding, caregivers should provide suitable and safely prepared breast milk substitute that has been approved and registered at Maldives Food and Drug Authority.

Infant and young child feeding during emergencies

- Promote breastfeeding and nutritious complementary feeding during emergencies.
- Infants and children are among the most vulnerable victims of any form of emergencies. In most cases, the risks of infection and malnutrition from inadequate replacement feeding are greater and therefore breastfeeding should be promoted and supported at all times. This is of particular importance in emergencies where psychosocial stress level is high, hygiene poor and replacement feeding methods are unsafe.
- Breastfeeding should not be undermined in emergencies by the inappropriate distribution of breast milk substitutes.
- There will always be a small percentage of infants who has to be provided breast milk substitutes. These children should be identified and mothers should be counselled on safe preparation of breast milk substitutes.
- Feeding bottles, teats should not be distributed due to risk of interference with suckling, reduced caregiver attention while feeding, and contamination with pathogens. Even during emergencies, feeding from an open cup is recommended.
- Commercial milk powder and commercial complementary foods are not recommended for general use in emergencies. Hygienically prepared locally available foods are recommended. Caregivers should have access to uninterrupted, appropriate ingredients with which to prepare and feed nutrition dense food to older infants and young children[18].

Infant and young children with special needs

- Ensure children with special needs are provided with the best start in life and provided appropriate complementary food as they grow.
- Babies with developmental disabilities or birth defects can benefit from breast milk. It should not be assumed that infants with a special need cannot be breastfed. Healthcare providers should assist the caregiver to find the best way possible to provide breast milk and to give appropriate complementary food for the child.

Infant and young children living in exceptionally difficult circumstances

- Provide all necessary support to enable optimal feeding practices for children living in exceptionally difficult circumstances.
- Families and mothers living in difficult situation require extra care and support to feed their children. Families in this situation are more likely to have low prevalence of breastfeeding and the dangers involved in replacement feeding and introduction of inadequate complementary feeding is high. Most of the time, these children are malnourished and they need special attention to prevent severe malnutrition[11].
- Wherever possible, mother and infant should remain together and should be advised to continue frequent breastfeeding without disruption. However, if the mother is on abusive drugs, the mother should be advised to provide safely prepared breast milk substitutes that has been approved and registered at Maldives Food and Drug Authority.
- Special focus should be given to provide these children with quality healthcare and micronutrient supplementation.

Children who are living in state institutions should be provided:

- Routine health checkups.
- Micronutrient supplementation.
- Suitable, safely prepared breast milk substitutes.
- Timely, safe and adequate nutritious complementary food.

Caregivers of children living in state institutions should have access to objective, consistent and complete information about appropriate feeding practices. In particular, they need to know how to safely prepare breast milk substitutes that has been approved and registered at the Maldives Food and Drug Authority; the time of introduction of complementary foods; what types of food to give, how much and how often; and how to feed these foods safely. Healthcare professionals should routinely visit these institutions and provide nutrition counselling for caregivers and provide appropriate support to prevent difficulties (such as feeding fussy eaters) and tips on how to overcome them.

Resources

1. http://www.who.int/nutrition/publications/infantfeeding/breastmilk-substitutes-FAQ2017/en/
2. http://www.who.int/nutrition/topics/exclusive_breastfeeding/en/
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