Infant and Young Child Feeding Guidelines for Sri Lanka

Introduction

Over the years there has been a steady decline in the prevalence of stunting and underweight among children less than five years of age. Despite this decline, undernutrition among children in this age group remains to be a major problem with 29.4% underweight and 13.5% stunted. Further, wasting which is 14% has remained stagnant for a long period. Nearly 30% of children less than five years of age suffer from iron deficiency anaemia.

Early nutrition, especially in-utero and during the first two years is crucial to be healthy adults. The first two years of life is a period of rapid physical growth and mental development. Hence infants are more vulnerable to nutritional insults during this period and consequently it has a great bearing on health as adults; development of non communicable diseases, reduced work capacity, reduced IQ, and complications during delivery and LBW with regard to women etc. These factors seriously affect human development which will have negative implications on national development.

DHS 2000 data indicate that during infancy nutritional problems appear around the sixth month and shows a steady rise continuing in to the second year implicating that incorrect complementary feeding practices as an important cause for undernutrition in this particular age group.

Therefore the following guidelines are issued by the Family Health Bureau of the Ministry of Healthcare and Nutrition to all health personnel in order to ensure uniformity in the messages given related to infant and young child feeding.

Why is it Important to Introduce Complementary Feeding?

1. To meet the increasing nutritional needs of the growing infant that cannot be met by breast milk alone.

2. To train the children to eat foods with different tastes and consistency and teach them to munch food thereby getting them accustomed to eat family foods by one year

3. To train children to eat on their own on reaching two years, by stimulating their feeding skills appropriate to their development.

1. Duration of Exclusive Breast Feeding and age of introduction of Complementary Food

It is extremely beneficial to exclusively breast feed (EBF) infants from birth until the completion of six months (180 days) and complementary foods (CF) introduced thereafter while continuing to breast feed for a period of two years or more. Therefore those mothers who are able to EBF until 180 days should be encouraged and supported to do so and complementary feeding introduced from beginning of seventh month.

Rationale for introducing complementary food on completing six months:

WHO recommends Exclusive Breast Feeding until completion of six months (180 days) due to the following benefits to the infant (1, 2, 3, 4).

1. There is evidence to show that the nutrient needs of full-term infants with normal birth weights can be met by breast milk alone till completion of the first six months
2. Reduced incidence of diarrhoea due to the protective effect of breast milk against infant gastrointestinal infections and reduced incidence of respiratory tract infections and otitis media
3. There is evidence that motor and cognitive development is enhanced by exclusive breast feeding for six months

In addition there is evidence that

4. Introducing complementary foods before six months can cause adverse effects in later life including higher risk of allergies (5, 6).

However introducing complementary feeding earlier than 6 months i:e after 120 days can be considered under the following conditions.

1. If growth faltering is present despite adequate and correct breast feeding 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

Complementary foods **should not be introduced too early i:e before completing four months (120 days)** as it could be harmful to the child (due to the fact that the child is physiologically and developmentally not ready for CF). Delay in introducing CF too is not recommended as it could have an adverse impact on nutrition, growth and development of the child as well as problems in consuming family foods at one year.

2. Maintenance of breast feeding

- Frequent, on demand breast feeding should be continued within first year of life while giving Complementary Foods appropriately. Initially Complementary Food should be offered to children when they are hungry and breast milk given afterwards.

- Mothers who are employed should be encouraged and supported to express breast milk (EBM) for their babies. EBM can be kept in room temperature for 8 hours, in the refrigerator for 24 hours and in the freezer compartment for 3 months. This could be fed to the baby using a clean cup or cup and a tea spoon.

- Family foods should be the main meals after the first year. Breast feeding should be continued during the second year up to two years or beyond, given after the three main meals. It is important to note that milk in any form should not replace the main meals during the second year and thereafter and should be given after/in between meals only.

3. Amount of CF, meal frequency and energy density

Complementary foods should always be introduced **in the thick form from the very beginning** as it will provide more energy and nutrients in a comparatively smaller quantity.

It is also recommended to start with 2-3 teaspoons and gradually increase the quantity and number of meals as child gets older. A child should get a minimum of two main meals at the beginning of complementary feeding. Appropriate number of meals depends on

- the energy density of the meal given
- amount consumed at each meal

It is also important to use 1-2 teaspoons of oil to prepare food in order to increase the energy density.

After complementary feeding is established, meal times should be consistent and as far as possible in keeping with family meal times.

Energy requirements of children <u>from complementary food</u> and minimum number of meals to be given during first two years:

Age in months	Texture/type of food	Frequency	Amount
7-8 (200 kcal/d)	Well mashed foods. Start with mashed rice. Continue introducing pulses, fish/sprats/meat, vegetables, green leafy vegetables, egg yolk etc	2-3 meals/day plus frequent breast feeds. (Depending on child's appetite 1-2 snacks)	Start with 2-3 tea spoonfuls per feed, increasing gradually to a little bit more than 1/2 a tea cup at each meal
9-11 (300 kcal/d)	Coarsely chopped or mashed foods and foods baby can pick up (finger foods)	3-4 meals plus breast feeds. Depending on child's appetite 1-2 snacks may be offered	about 3/4 of a tea cup at each meal
12-23 (550 kcal/d)	Family foods (chopped or mashed coarsely if necessary)	3-4 meals plus breast milk after meals. Depending on child's appetite one to two snacks may be offered	1 tea cup or a little bit more than a tea cup at each meal

standard tea cup = 200 ml

Boiled cooled water can be offered after meals.

4. Nutrient content of CF

Children have a higher energy and nutrient requirement in relation to their body size due to the fact that they are growing and active.

A good supply of iron, calcium, vitamin A and protein are important during this period

- **It is important to feed a variety of food** to ensure all nutrient needs are met. However one new food item has to be introduced at a time and continued for 3- 4 days before introducing another new item in order to get the child accustomed to different tastes and textures. Occasionally children may develop allergies to certain foods and this will also help to identify and localize foods to which the child develops any allergies.

Some manifestations of allergies to look for are;

Excessive crying, urticaria, vomiting, colics, diarrhoea, wheezing.

Some of these manifestations are quite non-specific and may lead to restrictive diets; hence, should be interpreted with caution.

- **It is essential that iron rich foods** are included in the **daily** diet **as early as possible** (from the beginning of 7th month) . Fish, sprats, poultry, meat, liver which are rich sources of iron should be eaten daily or as often as possible and should be introduced to the complementary foods early. However vegetarian families can improve their daily iron requirement by including iron rich foods such as Gotukola, Sarana, Thampala, Soya, green gram, cowpea etc in their daily diet. Bioavailability of iron in such food can be increased by adding or including in the same meal a source of vitamin C (lemon, lime, nelli, guava, banana, papaya etc). Further, the bio availability of iron in pulses can be increased by soaking, germinating or fermenting pulses. Therefore include pulses in the daily diet

- Fruits available locally should be included daily. Fruits should be given in the mashed or pulped form and not in the form of juices. However when giving citrus foods like orange, mandarin a minimal amount of water can be added.

- Liver, egg yolk, yellow pumpkin, yellow sweet potatoes, carrots, papaw, mangoes, dark green leaves are **rich in Vitamin A.** Therefore such food items should be preferably included in the daily diet or given as often as possible.

- Egg yolk can be introduced from the seventh month and should be given well cooked (either boiled or fried until firm). Egg white can be introduced from the ninth month. It is important to encourage feeding eggs as it is a cheap source of good quality protein and can be given daily.

- **Foods with an adequate fat content should be provided.** Coconut milk or 1-2 tea spoonful of coconut oil (per meal) can be used when cooking food or 1-2 teaspoonful of margarine or butter could be added to the cooked food. Amount of fat to be added depends on the weight of the child (a child with inadequate weight will need more fat). Adding fat will also make food softer and palatable and therefore easier for the child to eat.

- Milk based products such as yoghurt and curd can be given to the child as snacks from seventh month. Curd should be given without adding sugar or honey.
- It is preferable to introduce locally available, low cost nutritious food (rich in energy, proteins, vitamins and minerals) than processed, packeted food
- Avoid adding sugar or salt in the preparation of food during the first year.
- Avoid foods that can choke child. Eg. small, rounded, hard pieces of cooked vegetables, **whole** nuts/pulses which are hard in consistency.
- Avoid blending or straining of food after 8 months.
- If children have growth faltering, introduce energy rich snacks (eg. biscuit / bread with butter or margarine)/ increase amount of food fed at a time/give an extra meal/ increase energy density of food by adding a source of fat.
  (refer annex for examples of snacks)

Recommended minimum food intake per day (servings): see annex
(**raw** amounts for the **whole day** is given for the 1-5 year age group)

Food group	**7 - 9 months**	**9+ - 12 months**	**12+ - 24 months**	**2+ - 5 years**	
Cereals	2-3	3-4	3-4	4 or more servings	230g/d
* Breast milk	As desired	As desired	After meals as desired	After meals as desired	
Milk products e.g. yoghurt, curd, cheese	½ - 1	1	1	1-2	
Fish, meat and eggs	1	1-2	1-2	2 small	50g/d
Lentils, pulses, nuts,	1	1	1-2	1-2	60g/d
Fruits	1	1-2	1-2	1-2	100g/d
Vegetables,	1	1-2	1-2	1-2	50g/d
Green leafy vegetables	1	1	1	1	50g/d
Fat based foods	One teaspoon /meal	1-2 teaspoon /meal	Small amounts	Small amounts	30ml/d
Sugar based foods Eg. sweets	-	-	A small amount after mealtime	A small amount after mealtime	25g/d
* in case of formula fed infants	500 – 600ml	500-600ml	2	2	400ml/d

5. Practice responsive feeding

- Mothers or caregivers need to feed infants up to 8-9 months. Foods that can be held and eaten by the child (finger foods) can be introduced when the child is around 8-9 months. 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 using foods liked by child

- Minimize distractions 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.

6. Safe preparation and storage of CF

Practice good hygiene and proper food handling by

- Washing caregivers' hands with soap and water before preparation of food and feeding and washing children's hands before feeding
- Storing cooked food well covered and serving food immediately after preparation
- Using clean utensils to prepare and serve food
- **Using clean cups, bowls and spoons to feed children – these utensils should not be** used for any other purposes
- Avoiding the use of feeding bottles

7. Food Consistency

- Introduce well cooked rice mashed to a soft paste in the form of a semi solid which is thick in consistency (mix a little breast milk initially for taste) as the first complementary food.

- Introduce coarsely mashed foods at the end of 7th month and gradually increase food consistency and size of pieces as the child gets older

- Introduce finger foods (eg. a small piece of bread/hoppers, a thin slice of fruit etc) when the child is developmentally ready –around 8-9 months of age - but must be vigilant to prevent choking

- Start feeding with cup and spoon and later switch to fingers according to the consistency of food.

- A child should be able to eat family foods (with less spice) by one year of age

8. Use of Vitamin – mineral supplements or fortified products for infants and mothers

- Use fortified Complementary Foods (provide Thriposha to infants with growth faltering or underweight from the completion of 6 months until they reach one year and thereafter accordingly – refer guidelines dated 01.09.2006 issued by the Thriposha Programme).
  Vitamin mineral supplements for infants are to be given on medical advice.

- Vitamin A mega dose (100 000 IU) should be given at 9 months with measles vaccine, 18 months with fourth dose of OPV/DPT/Hep.B and three years with Measles and Rubella vaccine. Avoid Vitamin A containing supplements if Vitamin A mega dose has been given within past 6 months. Multivitamin syrups are not recommended unless medically indicated.

- All Breast feeding mothers should be provided with Micronutrient supplements (Iron, folic acid, Vitamin C and Calcium) and Thriposha for a minimum period of six months. All postpartum mothers should receive Vitamin A mega dose 200,000 IU before discharge from hospital after delivery/ within two weeks of delivery.

- It is beneficial to provide iron supplementation to infants from completion of 6 months to at least one year (preferably up to 2 years); 2mg/kg body wt/ day (9, 10,11).

(In community based supplementation programmes, a daily dose of 12.5mg of elemental iron is recommended for a period of 2 months for this age group. 12.5mg every other day for a period of 4 months was found to be equally effective, the benefit lasting for about one year after the completion of supplementation (9, 10,11, 12).)

- All preterm and low birth weight infants should be given iron supplements from two months onwards. Therefore, it is recommended to provide iron supplementation (with vitamin C) from two month to until at least one year (preferably up to 2 years) to babies born preterm / with LBW and babies of anaemic mothers; A daily dosage of 2mg/kg body weight of elemental iron (liquid preparation)(11).

9. Feeding during and after illness

It is important to maintain the nutrition of infants and children during a bout of illness to prevent growth faltering. Children's nutritional needs increase during illness while their appetite may decrease. Therefore feeding including breast-feeding has to be continued and an extra meal has to be given during illness. This extra meal has to be continued at least for 2 weeks when they are recovering from the illness. If they have growth faltering due to ill health, the extra meal has to be continued for at least 2 weeks after their weight returns to the original growth potential. Fluid intake has to be increased during illness while increasing the frequency of breast feeding. Children should be encouraged to eat if their appetite is poor. Offer children their favourite foods and foods which are soft, varied and appetizing. Small meals (about 3-5 table spoons) which are energy dense will have to be offered frequently (every 2-3 hourly). Oil can be added to make food more energy dense (also margarine, butter, ghee).

10. Growth monitoring and promotion

It is imperative that infants and young children are weighed regularly and weight recorded correctly in the CHDR to determine their nutritional status and their mothers or caregivers counselled accordingly. Children up to two years of age (24 months) should be weighed monthly and thereafter once in three months up to five years. However, children with any problem related to growth (underweight, growth faltering, over weight) should be weighed monthly irrespective of age. It is recommended that children up to 6 months to be weighed at clinics and after 6 months at field weighing posts. However whenever a child comes to the clinic for any reason he/ she should be weighed at the clinic.

Length should be measured correctly at 4, 9 and 18 months and after two years the height every 6 months and recorded in the height for age graph. If the child is stunted or at risk of stunting, length should be measured once in every two months up to two years and height every three months thereafter.

This document was developed by a panel of experts from the Family Health Bureau, Health Education Bureau, Medical Research Institute, Nutrition Co-ordination Division, Sri Lanka College of Paediatricians, Nutrition Society of Sri Lanka and Unicef and has been reviewed by an expert panel on infant and young child feeing from the World Health Organization, Geneva, Switzerland.

Reference:

1. PAHO & WHO 2002, Guiding principals for Complementary Feeding of the Breastfed Child

2. Kramer M S & Kakuma R, 2002, Optimal duration of exclusive breast feeding (Cochrane Review). Cochrane Database Syst. Rev

3. Kramer M S et al 2003, Infant growth and health outcomes associated with 3 compared to 6 months of exclusive breast feeding, American Journal of Clinical Nutrition, vol. 78, pp. 291-295

4. Dewey KG, Cohen RJ, Brown KH, Landa Rivera L 2001, Effects of exclusive breast feeding for 4 vs 6 months on maternal nutritional status and infant motor development: results of two randomized trials in Honduras, Journal of Nutrition, vol. 131, pp. 262 – 267

5. Mohrbacher N & Stock J 2003, The Breast Feeding Answer Book, 3rd ed. La Leche League International Inc, Illinois

6. Koletzko B, Dodds P, Akerblom H, & Ashwell M, 2005, Early Nutrition and its Later Consequences: New Opportunities - Prenatal Programming of Adult Health – EC supported research, Springer Science + Busines Media Inc. New York

7. WHO, 2000, Complementary Feeding:-Family Foods for Breast fed Children. Dep. Of Nutrition for Health & Development, WHO, Geneva

8. Ministry of Healthcare 2002, Food based Dietary Guidelines,

9. Stoltzfus.R.J. & Dreyfuss M. L. 1998, Guidelines for the use of iron supplements to prevent and treat iron deficiency anaemia, International nutritional anaemia consultative group (INACG)

10. Iannotti, L.L. Tielsch, J.M. Black, M.M. & Black, R. E. 2006, Iron supplementation in early childhood: health benefit and risks, *American journal of Clinical Nutrition*, vol. 84, no. 6, pp. 1261-1276

11. WHO & UNICEF 2001, Iron Deficiency Anaemia: Assessment, Prevention and Control, A guide for programme managers, WHO, Geneva, pp 58-59

12. Hyder, S. M. Z. et al. 2007, Effects of daily versus once weekly home fortification with micronutrient Sprinkles on haemoglobin and iron status among young children in rural Bangadesh, *Food and Nutrition Bulletin,* vol. 28, no. 2, pp. 156-164.

Annex

*Definition of a snack – a **small** quantity of **energy dense** food or drink usually taken in between main meals (breakfast, lunch and dinner) which is relatively quick and easy to prepare. It is intended as a food/ drink to provide a brief supply of energy for the body and to temporarily tide a person's hunger*

Types of foods that can be given as snacks — yoghurt, bread/biscuit with margarine/ butter and banana, boiled tempered gram/green gram, boiled potatoes/ sweet potatoes or any other yam with scraped coconut, fried potatoes/sweet potaoes/ash plantains etc, thriposha or similar products, fruits. After one year, traditional foods like helapa, sago pudding, weli thalapa, aggala, etc also can be given

Serving sizes:

Rice, bread, other cereals

- 1/2 a tea cup of cooked rice/cooked cereal/pasta
- 1 slice of bread (450g bread in to 9 slices)
  1/2 tea bun
- 2 egg sized potatoes
- 1 egg size sweet potatoes
- 3 crackers
- 3 table spoons breakfast cereals

Milk & diary products

- 100ml milk
- 1 cup of yoghurt/curd
- 1 small match box size piece of cheese
- 3 heaped tea spoons of milk powder

Meat, fish & alternatives

- 3 table spoons cooked dhal
- 1 hen's egg
- ½ duck's egg
- 25-50 g of cooked fish/ chicken/ lean meat = (a piece the size of a match box), 6 sprats

Fruits

- 1 medium banana, orange

Vegetables

- 3 tablespoons of cooked fruit vegetables
- ½ tea cup of cooked leafy vegetables

a standard tea cup = 200ml