

First Edition 2004
Second Edition 2006

Correct Norms for Infant and Young Child Feeding

- **Initiation of breastfeeding immediately after birth**, preferably within one hour.
- **Exclusive breastfeeding for the first six months** i.e., the infants receives only breast milk and nothing else, no other milk. Food, drink or water.
- **Appropriate and adequate complementary feeding** from six months of age while continuing breastfeeding.
- **Continued breastfeeding upto the age of two years or beyond.**

NATIONAL GUIDELINES ON INFANT AND YOUNG CHILD FEEDING



**MINISTRY OF WOMEN AND CHILD DEVELOPMENT
(FOOD AND NUTRITION BOARD)
GOVERNMENT OF INDIA
2006**



CONTENTS

	Page
Message from MOS (WCD) for Second edition	(i-ii)
Message from HRM	(iii)
Message from MOS (HRD)	(IV)
Foreword	(v)
Introduction	1
Tenth Five Year Plan Goals	5
Objectives of National Guidelines on Infant and Young Child Feeding,	6
A. Appropriate Infant and Young Child Feeding Practices	
Breastfeeding	
Nutritional Superiority of Breast Milk	7
Early Initiation of Breastfeeding	8
Value of Colostrum	9
Exclusive Breastfeeding	10
Counselling for Breastfeeding during Pregnancy	11
Complementary Feeding	
Importance of Complementary Feeding	12
First Food for the Baby	13
Traditional Foods for Infants	14
Modified Family Food	14
Instant Infant Foods	15
Protective Foods	15
Energy Density of Infant Foods	16
Frequency of Feeding	17
Continued Breastfeeding	
Active Feeding	18
Growth Monitoring and Promotion (GMP)	18
Ensuring Safety of Complementary Foods	19
Utilising the Available Nutrition and Health Services	19
Feeding During and After Illness	20

Feeding In Exceptionally Difficult Circumstances

Malnourished Infants	21
Preterm or Low Birth Weight Infants	22
Feeding During Emergencies	22
Feeding in Maternal HIV	23

B. Operational Guidelines for Promotion of Appropriate Infant and Young Child Feeding

Obligations and Responsibilities	25
---	----

Institutional Promotion	26
--------------------------------	----

Nutrition and Health Professional Bodies	26
Nongovernmental Organisations	27
Commercial Enterprises	28
Other Groups	28
International organisations	29

Annexures

Nutrition of Pregnant Women	31
Nutrition of Lactating Mothers	33

MESSAGE

Infant and young child nutrition is extremely important as it is only lays the foundation for good health throughout the life but also provides a good workforce. The Ministry of Women & Child Development (Food and Nutrition Board) formulated the National Guidelines on Infant and Young Child Feeding which were released in August 2004.

These National Guidelines on Infant and Young Child Feeding have been disseminated widely by the Ministry. Strengthening the capacity of the States by developing core trainers and providing skill development training to field functionaries is also envisaged.

The four Regional Consultation Meets on Nutrition organised during 2005 and 2006 gave due emphasis to infant and young child nutrition issues. Advertisement campaigns during World Breastfeeding Week (1-7 August) and National Nutrition Week (1-7 September), as well as broadcasting/ telecasting of audio and video spots on infant and young child feeding promoted the correct norms of infant and young child feeding.

The National Guidelines on Infant and Young Child Feeding have been strengthened incorporating developments in this area as reported by the WHO and other U.N. Agencies.

Ensuring optimal infant and young child feeding practices in the country should be the aim of all those concerned with nutrition, health and developmental programmes. I am confident that these National Guidelines on Infant and Young Child Feeding, being printed in regional languages also, will serve as an important advocacy tool for taking forward the agenda of accelerating national development through improved child nutrition and health.

My best wishes.



(RENUKA CHOWDHURY)

Dated: 14th March, 2006

MESSAGE

The nutritional well being of a population is both an outcome and an indicator of national development. Nutrition is, therefore, an issue of survival, health and development for current and succeeding generations.

It is a matter of pride that the 55th World Health Assembly has adopted a Global Strategy for Infant and Young Child Feeding which conforms to the traditional Indian practice of exclusive breastfeeding for the first six months, introduction of complementary foods after six months through an *annaprashan* ceremony and continued breastfeeding upto the age of two years or beyond. I am happy that efforts have been made to translate the mandate of this global strategy into the National Guidelines on Infant and Young Child Feeding.

It is important that these policy guidelines are disseminated widely through the entire network of development infrastructure in the country. I am confident that various arms of the Government like health and family welfare, education and women and child development infrastructures, training institutions for nutrition, health and family welfare, home science and medical faculties, professional associations and social organisations would utilise this practical instrument of National Guidelines on Infant and Young Child Feeding and dedicate themselves, individually and collectively, to protect, promote and support appropriate feeding of infants and young children.



(ARJUN SINGH)

27th July, 2004

Minister of State for Human Resource Development
(Dept. of Women & Child Development)
Government of India

MESSAGE

Malnutrition in children is more an interplay of female illiteracy, ignorance about nutritional needs of infants and young children and poor access to health care. Appropriate feeding is crucial for the healthy growth and development of an infant.

The Tenth Five Year Plan has set specific nutrition goals for infant and child feeding indicators with a view to bring down the prevalence of under-weight in children. Goals have been set for enhancing early initiation of breastfeeding with a view to provide 'colostrum' to the new born baby, exclusive breastfeeding for the first six months and complementary feeding at six months.

Malnutrition is a national problem and its eradication deserves action by various partners. It is hoped that the National Guidelines on Infant and Young Child Feeding would be useful to the State Governments, district authorities, national institutions and social organisations for creating a movement for achieving optimal infant and young child feeding practices in the country.


(KANTI SINGH)

27th July, 2004

Secretary
Human Resource Development
(Dept. of Women and Child Development)
Government of India

FOREWORD

Child is the chief victim of interplay of nutrition, socio-economic and health factors that cause malnutrition. The steep rise in malnutrition in children during the first two years of life is indicative of poor infant feeding practices. Prof. Amartya Sen has rightly described the nutritional status of children under-5 years as the most sensitive indicator of development of a particular area.

The National Nutrition Policy adopted by the Government of India under the aegis of the Department of Women and Child Development in 1993 laid due emphasis on nutrition and health education of mothers on infant and young child feeding and efforts to trigger appropriate behavioural changes among mothers were considered as direct interventions for reducing malnutrition in children.

The Department has been pursuing the issues concerned with infant and young child nutrition at national and international fora. Now with the adoption of the Global Strategy on Infant and Young Child Feeding by the 55th World Health Assembly in May 2002, and adoption of the Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Amendment Act, 2003 by the Parliament in June 2003, it became imperative that the national guidelines were formulated and disseminated widely.

I would like to compliment Smt. Shashi Prabha Gupta, Technical Adviser, Food and Nutrition Board of this Department for her untiring efforts in protecting and promoting the correct norms of infant and young child feeding and in preparing these National Guidelines.


(REVA NAYYAR)

Dated: the 27th July, 2004

NATIONAL GUIDELINES ON INFANT AND YOUNG CHILD FEEDING

Introduction

Infant and young child nutrition has been engaging the attention of scientists and planners since long for the very simple reason that growth rate in the life of human beings is maximum during the first year of life and infant feeding practices comprising of both the breastfeeding as well as complementary feeding have major role in determining the nutritional status of the child. The link between malnutrition and infant feeding has been well established. Recent scientific evidence reveals that malnutrition has been responsible, directly or indirectly, for 60% of all deaths among children under five years annually. Over 2/3 of these deaths are often associated with inappropriate feeding practices and occur during the first year of life. Only 35% of infants world-wide are exclusively breastfed during the first four months of life and complementary feeding begins either too early or too late with foods which are often nutritionally inadequate and unsafe. Poor feeding practices in infancy and early childhood, resulting in malnutrition, contribute to impaired cognitive and social development, poor school performance and reduced productivity in later life. Poor feeding practices are, therefore, a major threat to social and economic development as they are among the most serious obstacles to attaining and maintaining health of this important age group.

Optimal Infant and Young Child Feeding practices - especially early initiation and exclusive breastfeeding for the first six months of life - help ensure young children the best possible start to life. Breastfeeding is nature's way of nurturing the child, creating a strong bond between the mother and the child. It provides development and learning opportunities to the infant, stimulating all five senses of the child – sight, smell, hearing, taste, touch. Breastfeeding fosters emotional security and affection, with a lifelong impact on psychosocial development. Special fatty acids in breast milk lead to increased intelligence quotients (IQs) and better visual acuity. A breastfed baby is likely to have an IQ of around 8 points higher than a non-breastfed baby.

Breastfeeding is not only important for young child survival, health, nutrition, the development of the baby's trust and sense of security – but it also enhances brain development and learning readiness as well.

The sound practice of breastfeeding suffered a set back because of aggressive media campaign of the multinational companies producing baby milk powder and infant foods. The WHO in late 70s recognised the seriousness of the declining trend in breastfeeding and introduced an International Code for Protection and Promotion of Breastfeeding in 1981. The Indian Government adopted a National Code for Protection and Promotion of Breastfeeding in 1983. The Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act 1992, is being implemented by the Department of Women and Child Development since 1993.

As per the scientific evidence available at that time, an age range of 4-6 months for exclusive breastfeeding of young infants was included in the international as well as national code. The age range was misused by the multinational companies which started promoting their products from the third month onwards. The early introduction of complementary foods was resulting in infections and malnutrition.

The National Nutrition Policy adopted by the Government of India under the aegis of the Department of Women and Child Development in 1993 laid due emphasis on nutrition and health education of mothers on infant and young child feeding and efforts to trigger appropriate behavioural changes among the mothers were considered as direct interventions for reducing malnutrition in children.

The Government of India has always been promoting at the national and international fora exclusive breastfeeding for the first six months and introduction of complementary foods thereafter with continued breastfeeding upto two years which is consistent with the Indian tradition of prolonged breastfeeding and introduction of complementary foods from six months of age through an *annaprashan* ceremony.

Various research studies since early 90s have brought out the beneficial effects of exclusive breastfeeding for the first six months on the growth, development and nutrition and health status of the infant and also for the mother. It was revealed that exclusive breastfeeding not only prevented infections particularly the diarrhoeal infections in the child but also helped in preventing anaemia in child as breast milk has the best bioavailable iron. The appearance of enzyme amylase in the seventh month of the infant was suggestive of desirability of introducing cereal based foods in the diet of infant after the age of six months.

Early initiation of breastfeeding lowers the mother's risk for excess post-partum bleeding and anaemia. Exclusive breastfeeding boosts mother's immune system, delays next pregnancy and reduces the insulin needs of diabetic mothers. Breastfeeding can help protect a mother from breast and ovarian cancers and osteoporosis (brittle bones).

While the scientific community was making efforts to adopt six months as the duration of the exclusive breastfeeding, the commercial influence particularly from the West was resisting this move at international fora namely Codex Committee on Nutrition and Foods for Special Dietary Uses, Codex Alimentarius Commission and the World Health Assembly. However, with the persistent efforts of the Department of Women and Child Development with active cooperation of the Department of Health, a landmark decision was taken in the World Health Assembly in May 2001 and Resolution 54.2 made a global recommendation for promoting exclusive breastfeeding for the first six months, introduction of complementary foods thereafter with continued breastfeeding upto the age of two years and beyond. Further, a new Resolution on Infant and Young Child Nutrition (WHA 55.25) was adopted by the 55th World Health Assembly in May 2002. The resolution endorses a Global Strategy on Infant and Young Child Feeding. The 55th World Health Assembly recognises that inappropriate feeding practices and their consequences are major obstacles to sustainable socio-economic

development and poverty reduction. It also states that Governments will be unsuccessful in their efforts to accelerate economic development in any significant long term sense until optimal child growth and development, specially through appropriate feeding practices, are ensured.

The global strategy gives due weightage to mother and child dyad and advocates that improved infant and young child feeding begins with ensuring the health and nutritional status of women, in their own right, throughout all stages of life.

The persistent efforts of the Department of Women and Child Development helped in enacting the Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Amendment Act, 2003 which came into action from 1st January 2004. The important amendments in the act relate to extending the age of exclusive breastfeeding from 4-6 months to 6 months and bringing infant foods at par with infant milk substitutes in so far as advertising, promotion and other regulations are concerned. India now has one of the strongest legislation to protect breastfeeding from commercial influence.

Tenth Five Year Plan Goals

The Planning Commission recognizing the importance of appropriate infant and young child feeding practices has for the first time included goals for breastfeeding and complementary feeding in the National Nutrition Goals for the Tenth Five Year Plan.

The Tenth Plan has set specific nutrition goals to be achieved by 2007. The major goals are:

1. Intensify nutrition and health education to improve infant and child feeding and caring practices so as to:
 - bring down the prevalence of under-weight children under three years from the current level of 47 per cent to 40 per cent;
 - reduce prevalence of severe Undernutrition in children in the 0-6 years age group by 50 per cent;
2. Enhance Early Initiation of Breastfeeding (colostrum feeding) from the current level of 15.8 per cent to 50 per cent;
3. Enhance the Exclusive Breastfeeding rate for the first six months from the current rate of 55.2 per cent (for 0-3 months) to 80 per cent; and
4. Enhance the Complementary Feeding rate at six months from the current level of 33.5 per cent to 75 per cent.

Objectives of National Guidelines on Infant and Young Child Feeding (NGIYCF)

The new norms of Infant and Young Child Feeding i.e., exclusive breastfeeding for the first six months (replacing the 4-6 months age range of earlier guidelines), introduction of complementary foods at six months while continuing breastfeeding upto the age of two years or beyond are not known to all the professionals, instructors from training institutions and the field functionaries in different parts of the country and for want of this critical information, many still continue to advocate the old norms. It has, therefore, been decided to bring out the National Guidelines on Infant and Young Child Feeding, which will replace the earlier National Guidelines on Infant Feeding brought out by the Food and Nutrition Board, Department of Women and Child Development, Ministry of Human Resource Development, Government of India in 1994 and all other instructional manuals on the subject.

The objectives of the National Guidelines on Infant and Young Child Feeding, , therefore, are:

- to advocate the cause of infant and young child nutrition and its improvement through optimal feeding practices nationwide,
- to disseminate widely the correct norms of breastfeeding and complementary feeding from policy making level to the public at large in different parts of the country in regional languages,
- to help plan efforts for raising awareness and increasing commitment of the concerned sectors of the Government, national organisations and professional groups for achieving optimal feeding practices for infants and young children,
- to achieve the national goals for Infant and Young Child Feeding practices set by the Planning Commission for the Tenth Five Year Plan so as to achieve reduction in malnutrition levels in children.

A. APPROPRIATE INFANT AND YOUNG CHILD FEEDING PRACTICES

"Breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants; it is also an integral part of the reproductive process with important implications for the health of mothers. As a global public health recommendation, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Thereafter, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe complementary foods while breastfeeding continues for upto two years of age or beyond" – WHO, 2002.

Breastfeeding

Nutritional superiority of breast milk

Modern science and technology has not been able to produce a better food for young infants than mother's milk. Breastfeeding is the best way to satisfy the nutritional and psychological needs of the baby.

The exceptional nutritional quality of human milk has been recognised for a long time. Mother's milk is designed for easy digestion and assimilation. Protein in mother's milk is in a more soluble form which is easily digested and absorbed by the baby. Same is the case with regard to fat and calcium in human milk which are also easily absorbable. The milk sugar – lactose in mother's milk provides ready energy. In addition, a part of it is converted into lactic acid in the intestines which destroys harmful bacteria present there and helps in absorption of calcium and other minerals. The amount of vitamins such as thiamine, vitamin A and vitamin C found in mother's milk depends on the diet of the mother. Under normal conditions, breast milk provides reasonable amounts of these vitamins.

The human milk has inherent anti-infective properties which no other milk has. This protective function of human milk is particularly important in developing countries where there is much exposure to infection. Some of the advantages of breastfeeding are:

- Breast milk is the best natural food for babies.
- Breast milk is always clean.
- Breast milk protects the baby from diseases.
- Breast milk makes the child more intelligent.
- Breast milk is available 24 hours a day and requires no special preparation.
- Breast milk is nature's gift to the infant and does not need to be purchased.
- Breastfeeding makes a special relationship between mother and baby.
- Breastfeeding helps parents to space their children.
- Breastfeeding helps a mother to shed extra weight gained during pregnancy.

Early Initiation of Breastfeeding

Early initiation of breastfeeding is extremely important for establishing successful lactation as well as for providing 'Colostrum' (mother's first milk) to the baby. Ideally, **the baby should receive the first breastfeed as soon as possible and preferably within one hour of birth.** The new born baby is very active during the first half an hour and if the baby is kept with the mother and effort is made to breastfeed, the infant learns sucking very fast. This early suckling by the infant starts the process of milk formation in the mother and helps in early secretion of breast milk. In case of caesarean deliveries, new born infants can be started with breastfeeding within 4-6 hours with support to the mother. Newborn babies should be kept close to their mothers to provide warmth and ensure frequent feeding. This also helps in early secretion of breast milk and better milk flow.

It is essential that the baby gets the first breast-milk called colostrum which is thicker and yellowish than later milk and comes only in small amounts in the first few days. Colostrum is all the food and fluid needed at this time – no supplements are necessary, not even water.

During this period and later, the newborn should not be given any other fluid or food like honey, ghutti, animal or powdered milk, tea, water or glucose water, since these are potentially harmful.

The mother, especially with the first birth, may need help in proper positioning for breastfeeding. Breastfeeds should be given as often as the baby desires and each feed should continue for as long as the infant wants to suckle.

Value of Colostrum

The milk secreted after the child birth for the first few days is called 'Colostrum'. It is yellowish in colour and sticky. It is highly nutritious and contains anti-infective substances. It is very rich in vitamin A. Colostrum has more protein, sometimes upto 10%. It has less fat and the carbohydrate lactose than the mature milk. Feeding colostrum to the baby helps in building stores of nutrients and anti-infective substances (antibodies) in the baby's body. The anti-infective substances protect the baby from infectious diseases such as diarrhoea, to which the child might be exposed during the first few weeks after birth. Colostrum is basically the first immunisation a child receives from the mother. Some mothers consider this first milk as something dirty and indigestible. Difference in colour and consistency could be possible reasons for such beliefs.

Delayed initiation of breastfeeding is a common practice in the country and this deprives the new borns from the concentrated source of anti-infective properties, vitamin A and protein available in colostrum. In some communities breastfeeding is started as late as the fifth day for various superstitions and ignorance. In India only 15.8% of the new borns are started with breastfeeding within one hour of birth and only 37.1% within a day of birth.

Late initiation of breastfeeding not only deprives the child of the valuable colostrum, but becomes a reason for introduction of pre-lacteal feeds like glucose water, honey, ghutti, animal or powder milk which are potentially harmful and invariably contribute to diarrhoea in the new born. Late initiation of breastfeeding also causes engorgement of breasts which further hampers establishment of successful lactation.

Educating the mothers and the communities about the value of colostrum would help in ensuring that colostrum is not wasted but fed to the child.

Exclusive breastfeeding

Exclusive breastfeeding means that babies are given only breast milk and nothing else – no other milk, food, drinks and not even water. During the first six months **exclusive breastfeeding** should be practiced. Breast milk provides best and complete nourishment to the baby during the first six months. The babies who are exclusively breastfed do not require anything else namely additional food or fluid, herbal water, glucose water, fruit drinks or water during the first six months. Breast milk alone is adequate to meet the hydration requirements even under the extremely hot and dry summer conditions prevailing in the country.

It is important to ensure exclusive breastfeeding of all babies as it saves babies from diarrhoea and pneumonia. It also helps in reducing specially the ear infections and risk of attacks of asthma and allergies.

Addition of even a single feed of the animal or powder milk, any other food or even water has two disadvantages, firstly it depresses lactation as child will suck less and hence less breast milk will be produced, and secondly addition of any other food or water increases the chances of infections particularly the diarrhoea. Recent WHO studies estimate that death rate in babies can go down four times if they are exclusively breastfed for the first six months.

Exclusive breastfeeding provides babies with the best start in life. It makes them smarter with higher intelligence and helps in optimal development. Exclusive breastfeeding is, therefore, extremely important to prevent infections like diarrhoea and acute respiratory infections in early infancy and thus reduce infant mortality. **It must be remembered that benefits of breastfeeding are reduced if it is not exclusive breastfeeding.**

Counselling for breastfeeding during pregnancy

Practically all mothers, including those with mild to moderate chronic malnutrition, can successfully breastfeed.

Expectant mothers, particularly primiparas, and those who have experienced difficulties with lactation management, should be motivated and prepared for early initiation of breastfeeding and exclusive breastfeeding. This should be achieved by educating them, through a personal approach, about the benefits and management of breastfeeding. In the last trimester of pregnancy, breasts and nipples should be examined and relevant advice given.

Antenatal checkups and maternal tetanus toxoid immunisation contact points should be utilised for promoting early initiation of breastfeeding, feeding of colostrum, exclusive breastfeeding and discouraging prelactal feeds. Advice regarding diet, rest and iron & folic acid supplementation should also be given.

Some tips on nutrition of pregnant women and lactating mothers are given in Annexures I and II.

COMPLEMENTARY FEEDING

Importance of Complementary Feeding

Complementary feeding is extremely essential from six months of age, while continuing breastfeeding, to meet the growing needs of the growing baby. Infants grow at a very rapid rate. The rate of growth at this stage is incomparable to that in later period of life. An infant weighing around 3kg at birth doubles its weight by six months and by one year the weight triples and the body length increases to one and a half times than at birth. Most of the organs of the body grow rapidly, both structurally and functionally during the early years of life and then later on, the growth slows down. Most of the growth in the nervous system and brain is complete in the first two years of life. In order to achieve optimum growth and development, there is an increased demand for a regular supply of raw material in the form of better nutrition.

Breast milk is an excellent food and meets all nutritional requirements of the baby for the first six months. However, after six months of age, breast milk alone is not enough to make an infant grow well, other foods are also needed. This is because the infant is growing in size and its activities are also increasing. As a result the nutritional needs of the infant increase significantly at this age.

Complementary feeding should be started at six months of age. The purpose of complementary feeding is to complement the breast milk and make certain that the young child continues to have enough energy, protein and other nutrients to grow normally. It is important that breastfeeding is continued upto the age of two years or beyond as it provides useful amounts of energy, good quality protein and other nutrients.

Adequate complementary feeding from six months of age while continuing breastfeeding is extremely important for sustaining growth and development of the infant.

Active feeding styles for complementary feeding are also important. Appropriate feeding styles can provide significant learning opportunities through responsive caregiver interaction, enhancing brain development in the most crucial first three years.

First food for the baby

The staple cereal of the family should be used to make the first food for an infant. Porridge can be made with *suji* (semolina), broken wheat, *atta* (wheat flour) ground rice, *ragi*, millet etc, by using a little water or milk, if available. Roasted flour of any cereal can be mixed with boiled water, sugar and a little fat to make the first complementary food for the baby and could be started on the day the child becomes six months old. Adding sugar or jaggery and ghee or oil is important as it increases the energy value of the food. In the beginning the porridge could be made a little thinner but as the child grows older the consistency has to be thicker. A thick porridge is more

nutritious than a thin one. In case a family can not prepare the porridge for the infant separately, pieces of half *chapati* could be soaked in half a cup of milk or boiled water, mashed properly and fed to the baby after adding sugar and fat. Soaked and mashed chapatti could be passed through a sieve so as to get a soft semi-solid food for the infant.

Fruits like banana, papaya, *chikoo*, mango etc could be given at this age in a mashed form. Infants could also be given reconstituted instant infant foods (preparation of which is discussed a little later) at this age.

Traditional foods for infants

Once the child is eating the cereal porridge well, mixed foods including cooked cereal, pulse and vegetable(s) could be given to the child. Most traditional foods given to infants in different parts of the country are examples of mixed foods like *khichidi*, *dalia*, *suji kheer*, *upma*, *idli*, *dokhla*, *bhaat-bhaji* etc. Sometimes traditional foods are given after a little modification so as to make the food more suitable for the child. For instance, mashed *idli* with a little oil and sugar is a good complementary food for the infant. Similarly *bhaat* can be made more nutritious by adding some cooked *dal* or vegetable to it. *Khichidi* can be made more nutritious by adding one or two vegetables in it while cooking.

Modified family food

In most families there is a cereal preparation in the form of *roti* or rice and a pulse or a vegetable preparation. For preparing a complementary food for the infant from the foods cooked for the family, a small amount of *dal* or vegetable preparation should be separated before adding spices to it. Pieces of chapati could be soaked in half a *katori* of *dal* and some vegetable, if available. The mixed food could be mashed well and fed to the baby after adding a little oil. If necessary the mixture could be passed through a sieve to get a semi-solid paste. Thus, rice or wheat preparation could be mixed with pulse and/or vegetable to make a nutritious complementary food for the infant. Modifying family's food is one of the most effective ways of ensuring complementary feeding of infants.

Instant Infant Foods

Infant food mixes can be made at home from foodgrains available in the household. These mixes can be stored atleast for a month and enable frequent feeding of infants. These are *sattu* like preparations which is quite familiar in the Indian community. One can take three parts of any cereal (rice/wheat) or millet (*ragi*, *bajra jowar*), one part of any pulse (*moong/channa/arhar*) and half part of groundnuts or white *til*, if available. The food items should be roasted separately, ground, mixed properly and stored in airtight containers. For feeding, take two tablespoons of this infant food mix, add boiled hot water or milk, sugar or jaggery and oil/ghee and mix well. Cooked and mashed carrot, pumpkin or green leafy vegetables could be added to the porridge, if available. The infant can be fed with this food whenever freshly cooked

food is not available in the family. The infant food mix could also be made into preparations like *halwa*, *burfi*, *upma*, *dalia* etc, and given to the child.

Protective foods

Besides modified family food and reconstituted infant food mixes, protective foods like milk, curd, lassi, egg, fish and fruits and vegetables are also important to help in the healthy growth of the infants. Green leafy vegetables, carrots, pumpkin and seasonal fruits like papaya, mango, *chikoo*, banana etc., are important to ensure good vitamin A and iron status of the child.

Baby needs all foods from six months namely cereals, pulses, vegetables particularly green leafy vegetables, fruits, milk and milk products, egg, meat and fish if non-vegetarian, oil/ghee, sugar and iodised salt in addition to breastfeeding. A diversified diet of the infant alongwith breastfeeding will also improve the micronutrients' status of the child.

Energy Density of Infant Foods

Low energy density of complementary foods given to young children and low frequency of feeding result in inadequate calorie intake and thus the malnutrition. Most of the foods are bulky and a child cannot eat more at a time. Hence it is important to give small energy dense feeds at frequent intervals to the child with a view to ensure adequate energy intake by the child.

Energy density of foods given to infants and young children can be increased in four different ways:

- i) By adding a teaspoonful of oil or ghee in every feed. Fat is a concentrated source of energy and substantially increases energy content of food without increasing the bulk. The false belief in the community that a young child cannot digest fat has to be dispelled with by informing that a young infant digests fat present in breast milk and all other foods like cereals and pulses and that there is no reason to feel that a child can not digest visible fat when added to food.
- ii) By adding sugar or jaggery to the child's food. Children need more energy and hence adequate amounts of sugar or jaggery should be added to child's food.
- iii) By giving malted foods. Malting reduces viscosity of the foods and hence child can eat more at a time. Malting is germinating whole grain cereal or pulse, drying it after germination and grinding. Infant Food Mixes prepared after malting the cereal or pulse will provide more energy to the child. Flours of malted food when mixed with other foods help in reducing the viscosity of that food. Amylase Rich Flour (ARF) is the scientific name given to flours of malted foods and must be utilised in infant foods.
- iv) By feeding thick mixtures. Thin gruels do not provide enough energy. A young infant particularly during 6-9 months requires thick but smooth

mixtures as hard pieces in the semi-solid food may cause difficulty if swallowed. The semi-solid foods for young infants can be passed through a sieve by pressing with a ladle to ensure that the mixed food is smooth and uniform without any big pieces or lumps.

Frequency of feeding

Infants and young children need to be fed 5-6 times a day in addition to breastfeeding. It must be remembered that inadequate feeding of infants and young children during the first two years is the main cause of malnutrition.

CONTINUED BREASTFEEDING

Breastfeeding must be continued upto the age of two years or beyond. Continuing breastfeeding while giving adequate complementary foods to the baby provides all the benefits of breastfeeding to the baby. In other words, the child gets energy, high quality protein, vitamin A, anti-infective properties and other nutrients besides achieving emotional satisfaction from the breastfeeding much needed for optimum development of the child. Breastfeeding especially at night ensures sustained lactation.

In the beginning when the complementary foods are introduced after six months of age, the complementary food should be fed when the infant is hungry. As the child starts taking complementary foods well, the child should be given breastfeeding first and then the complementary food. This will ensure adequate lactation.

Active feeding

Adopting caring attitude while feeding the baby like talking to the child, playing with the child stimulates appetite and development. One-two year old child should be given food on a separate plate and encouraged to eat on its own. Eating at the same time and at the same place also helps in improving appetite and avoids distractions.

Growth Monitoring and Promotion (GMP)

Weighing the child regularly and plotting the weight on the health card is an important tool to monitor the growth of the baby. Infants and young children should be weighed every month in the presence of their mothers and the growth status of the child should be explained to the mother. The growth chart kept in a plastic jacket could be entrusted to the mother. If the child is having malnutrition, the mothers should be advised to provide additional food to the child every day. Malnourished children should be followed up at home and mothers encouraged to come and ask questions regarding the feeding and care of the child.

Ensuring safety of complementary foods

Careful hygienic preparation and storage of complementary foods is crucial to prevent contamination. Personal hygiene plays an important role in feeding infants. If cleanliness is not observed, complementary feeding may do more harm than good to the child by introducing infections to the infant. It is, therefore, important that all foods prepared for young infants are handled in a way that they are free from any germs. Some of the considerations while preparing foods for infants are as under:

- ✓ Hands should be washed with soap and water before handling the food as germs that cannot be seen in dirty hands can be passed on to the food.
- ✓ Utensils used should be scrubbed, washed well, dried and kept covered.
- ✓ Cooking kills most germs. The foods prepared for infants should be cooked properly so as to destroy harmful bacteria present, if any.
- ✓ After cooking, handle the food as little as possible and keep it in a covered container protected from dust and flies.
- ✓ Cooked foods should not be kept for more than one to two hours in hot climate unless there is a facility to store them at refrigeration temperature.
- ✓ The hands of both mother and child should be washed before feeding the child.

Utilising the available nutrition and health services

There are a number of nutrition and health services available for young children in almost all places. The people in the community should be informed about various services which are available for children in the village, at the sub-centre, at the Primary Health Centre, under Reproductive and Child Health (RCH) Programme, Integrated child Development Services (ICDS) Scheme etc. Every effort should be made to encourage the community members to make use of these facilities so as to promote child health.

Feeding during and after illness

During the weaning period, i.e., from six months to two years of age, young children often suffer from infections like diarrhoea, measles, cold, cough etc. If their diet had been adequate, their symptoms are usually less severe than those in an undernourished child. A sick child needs more nourishment so that he could fight infections without using up nutrient reserves of his body. However, a child may lose appetite and may refuse to eat, but the child needs adequate nutrition to get better from illness.

Appropriate feeding during and after illness is important to avoid weight loss and other nutrient deficiencies. The cycle of infection and malnutrition can be broken if appropriate feeding of infant is ensured. Breastfed babies have lesser illness and are better nourished. A breastfed baby should be given breastfeeding more frequently during illness. For infants older than six months, both breastfeeding and complementary feeding should continue during illness. Restriction or dilution of food should be discouraged. Time and care must be taken to help an ill child eat enough food. The infant can be encouraged to eat small quantities of food but more frequently and by offering foods the child likes to eat.

Make sure that children with measles, diarrhoea and respiratory infections eat plenty of vitamin A rich foods. A massive dose of vitamin A could also be given to such children in consultation with the medical officer.

After the illness when the child is recovering, a nutritious diet with sufficient energy, protein and other nutrients is necessary to enable him to catch up growth and replacement of nutrient stores. The nutrient intake of child after illness can be easily increased by increasing one or two meals in the daily diet for a period of about a month or so.

FEEDING IN EXCEPTIONALLY DIFFICULT CIRCUMSTANCES

Malnourished infants

Infants and young children who are malnourished are most often found in environments where improving the quality and quantity of food intake is particularly problematic. To prevent a recurrence and to overcome the effects of chronic malnutrition, these children need extra attention both during the early rehabilitation phase and over the longer term. Continued frequent breastfeeding and, when necessary, relactation are important preventive steps since malnutrition often has its origin in inadequate or disrupted breastfeeding.

Nutritionally adequate and safe complementary foods may be particularly difficult to obtain and dietary supplements may be required for these children. Mothers of malnourished children could be invited in a camp and provided with a fortnight's ration of roasted cereal-pulse mixes with instructions. The children could be followed up every fortnight for growth monitoring, health check up and supply of instant food ration for a period of three months. When malnourished children improve with appropriate feeding, they themselves would become educational tools for others.

Preterm or Low Birth Weight Infants

Breast milk is particularly important for preterm infants and babies with low birth weight (newborn with less than 2.5kg weight) as they are at increased risk of infection, long term ill health and death.

Keep preterm or low birth weight baby warm. Practice Kangaroo care. Kangaroo care is a care given to a preterm baby in which baby is kept between the mother's breast for skin to skin contact as long as possible as it simulates intrauterine environment and growth. This helps the baby in two ways, (i) the child gets the warmth of the mother's body, and (ii) the baby can suck the milk from the mother's breasts as and when required. Such babies may need to suck more often for shorter duration. If the baby is not able to suck, expressed breast milk may be fed with katori or tube.

The unique composition of preterm milk with its high concentration of protective substances makes it particularly suited for preterm babies. Preterm baby should be fed every two hourly during the day and night.

Feeding During Emergencies

Infants and young children are among the most vulnerable victims of natural or human induced emergencies. Interrupted breastfeeding and inappropriate complementary feeding heighten the risk of malnutrition, illness and mortality. Uncontrolled distribution of breast milk substitutes, for example in refugee settings, can lead to early and unnecessary cessation of breastfeeding.

Although breastfeeding is the safest and often the ONLY reliable choice for young infants, one is likely to overlook the basics like breastfeeding for those who need it the most, in the rapid response that is needed to provide relief during emergencies. There is surplus availability of milk powder which is invariably donated liberally. Protecting, promoting and supporting breastfeeding in disaster areas with due focus on the following is essential to ensure child survival, nutrition and health:

- Emphasis should be on protecting, promoting and supporting breastfeeding and ensuring timely, safe and appropriate complementary feeding.
- Pregnant and lactating women should receive priority in food distribution and should be provided extra food in addition to general ration.
- Complementary feeding of infants aged six months to two years should receive priority.
- Donated food should be appropriate for the age of the child.
- Immediate nutritional and care needs of orphans and unaccompanied children should be taken care of.
- Efforts should be made to reduce ill effects of artificial feeding by ensuring adequate and sustainable supplies of breast milk substitutes, proper preparation of artificial feeds, supply of safe drinking water, appropriate sanitation, adequate cooking utensils and fuel.

Feeding in Maternal HIV

The HIV pandemic and the risk of mother to child transmission of HIV through breastfeeding pose unique challenges to the promotion of breastfeeding, even among unaffected families. The absolute risk of HIV transmission through breastfeeding for more than one year – globally between 10% and 20% - needs to be balanced against the increased risk of mortality and morbidity when infants are not breastfed.

Risk factors during breastfeeding that increase transmission includes breast pathology like sore nipples or even sub clinical mastitis, which are preventable problems through good breastfeeding and lactation management support to mothers.

All HIV infected mothers should receive counselling, which should include provision of general information about meeting their own nutritional requirements, and

about the risks and benefits of various feeding options, and specific guidance in selecting the option most likely to be suitable for their situation. The manifold advantages of breastfeeding even with some risk of HIV transmission should be explained to the HIV positive mothers.

If artificial feeding is NOT affordable, feasible, acceptable, safe and sustainable (AFASS), then only exclusive breastfeeding must be recommended during the first six months of life. These guidelines imply that till one can ensure all these 5 AFASS factors, it would not be safe to provide artificial feeding in HIV positive mothers.

The dangers of mixed feeding of infants should be explained to the HIV infected mothers. Sometimes mothers may chose to artificially feed the baby, but under some social pressures they also breastfeed the child. An artificially fed baby is at less risk than the baby who receives mixed feeding i.e., both breastfeeding and artificial feeding. The aim of the counselling for feeding infants in maternal HIV should, therefore, be to avoid mixed feeding. All breastfeeding mothers should be supported for exclusive breastfeeding upto six months. If the woman chooses not to breastfeed, she should be provided support for artificial feeding to make it safe.

To achieve appropriate infant feeding practices in HIV positive mothers, capacity building of counselors and health workers, including doctors and nursing staff, is mandatory to ensure either '**exclusive breastfeeding**' or '**exclusive artificial feeding**' as chosen by the mother.

B. OPERATIONAL GUIDELINES FOR PROMOTION OF APPROPRIATE INFANT AND YOUNG CHILD FEEDING

Obligations and Responsibilities

Central and State Governments, national and international organisations and other concerned parties share responsibility for improving the feeding of infants and young children so as to bring down the prevalence of malnutrition in children, and for mobilising required resources – human, financial and organizational. The primary obligation of Governments is to recognise the importance of improving infant and young child feeding (IYCF) at the highest policy making level and integrate IYCF concerns in existing policies and programmes. An effective national coordination is required to ensure full collaboration of all concerned Government agencies, national and international organisations and other concerned parties. Regional and local Governments also have an important role to play in implementing the national guidelines on infant and young child feeding.

The Departments of Women and Child Development, and Health and Family Welfare have a special responsibility to contribute to optimal infant and young child nutrition. National Guidelines on Infant and Young Child Feeding should form an integral part of nation-wide Integrated Child development Services (ICDS) and the Reproductive and Child Health (RCH) Programme. These need to be effectively operationalised through the programme managers and field functionaries of these on

going programmes. The managers and functionaries of these programmes need to be practically oriented to the correct norms of IYCF. These guidelines should form an essential part of the nursing and undergraduate medical curricula. The medical and para-medical personnel of the Departments of Paediatrics, Obstetrics and Gynecology and Preventive and Social Medicine should actively educate and motivate the mothers and other relatives for adoption of appropriate IYCF practices. In addition, the services of other community level workers and involvement of formal and non-formal education, the media and voluntary organisations is recommended to be utilised for effective implementation of these guidelines.

In this context, due attention needs to be given to the monitoring of the implementation of the Infant Milk Substitutes, Feeding Bottles and Infant Foods (Regulation of Production, Supply and Distribution) Act 1992 and its subsequent amendment(s).

INSTITUTIONAL PROMOTION

Nutrition and Health professional bodies

Nutrition and Health professional bodies, which include Home Science (Food and Nutrition) and medical faculties, schools of public health, public and private institutions for training nutrition and health workers (including midwives, nurses, nutritionists and dietitians), and professional associations, should have the following main responsibilities towards their students or membership:

- Ensuring that basic education and training cover lactation physiology, exclusive and continued breastfeeding, complementary feeding, feeding in difficult circumstances, meeting the nutritional needs of infants who have to be fed on breast-milk substitutes, and the legislation and other measures adopted;
- Training in how to provide skilled support for exclusive and continued breastfeeding and appropriate complementary feeding in all neonatal, paediatric, reproductive health, nutritional and community health services;
- Promoting achievement and maintenance of 'baby friendly' status by maternity hospitals, wards and clinics, consistent with the 'Ten steps to successful breastfeeding' and the principle of not accepting free or low cost supplies of breast-milk substitutes, feeding bottles and teats.

Nongovernmental organisations

The aims and objectives of a wide variety of nongovernmental organisations operating locally, nationally and internationally include promoting the adequate food and nutrition needs of young children and families. For example, charitable and religious organisations, consumer associations, mother-to-mother support groups, family clubs, and child-care facilities all have multiple opportunities to contribute to the implementation of National Guidelines on Infant and Young Child Feeding, for example:

- Providing their members accurate, up-to-date information about infant and young child feeding;
- Integrating skilled support for infant and young child feeding in community based interventions and ensuring effective linkages with the nutrition and health care system;
- Contributing to the creation of mother and child friendly communities and workplaces that routinely support appropriate infant and young child feeding;
- Working for full implementation of the principles and aim of the IMS Act;
- Community based support, including that provided by other mothers, peer breastfeeding counsellors and certified lactation consultants, can effectively enable women to feed their children appropriately. Most communities have self-help traditions that could readily serve as a base for building or expanding suitable support systems to help families in this regard.

Commercial enterprises

Manufacturers and distributors of industrially processed foods intended for infants and young children also have a constructive role to play in achieving the aim of these guidelines. They are responsible for monitoring their marketing practices according to the principles and aim of the IMS Act and the National Guidelines on Infant and Young Child Feeding.

Other Groups

Many other components of society have potentially influential roles in promoting good feeding practices. These elements include:

- *Education authorities*, which help to shape the attitudes of children and adolescents about infant and young child feeding –accurate information should be provided through schools and other educational channels to promote greater awareness and positive perceptions;
- *Mass media*, which influence popular attitudes towards parenting, child care and infant feeding should portray these in accordance with the National Guidelines on Infant and Young Child Feeding. It should help create a climate of nutritional awareness in the country by launching special programmes on Infant and Young Child Nutrition on AIR and Doordarshan;
- *Child-care facilities*, which permit working mothers to care for their infants and young children, should support and facilitate continued breastfeeding and breast-milk feeding.

International organisations

International organisations, including global and regional lending institutions, should place infant and young child feeding high on the global public health agenda in recognition of its central significance for realizing the rights of children and women; they should serve as advocates for increased human, financial and institutional

resources for the universal implementation of these guidelines; and, to the extent possible, they should provide additional resources for this purpose.

Specific contributions of international organisations to facilitate the work of governments include the following:

- Developing norms and standards.
- Supporting national capacity building.
- sensitizing and training policy makers;
- improving women and child development and health workers skills in support of optimal infant and young child feeding;
- revising related pre-service curricula for doctors, nurses, midwives, nutritionists, dietitians, auxiliary health workers and other groups as necessary;
- planning and monitoring the Baby-friendly Hospital Initiative and expanding it beyond the maternity care setting;
- supporting social mobilization activities, for example using the mass media to promote appropriate infant feeding practices and educating media representatives;
- supporting research on marketing practices and the International Code.

These National Guidelines on Infant and Young Child Feeding provide governments and society's other main agents with both a valuable opportunity and a practical instrument for rededicating themselves, individually and collectively, to protecting, promoting and supporting safe and adequate feeding for infants and young children.

~~~~~

### **Nutrition of Pregnant Women**

A pregnant woman needs:

- An adequate nutritious diet
- Adequate rest during last trimester
- Iron and Folic Acid tablets throughout the pregnancy
- Immunization

#### Diet

- Increase food intake.
- Whole gram, pulses and legumes, sprouted pulses, leafy vegetables, jaggery, dates, groundnuts, gingelly seeds are foods of plant origin having good iron content. Include more of these in the daily diet.
- Include green leafy vegetables in daily diet right from the beginning as all foliage provide "folic acid" much needed during early months.
- Consume one seasonal fruit daily.
- Milk, curd, butter milk, egg, meat, fish are helpful.
- Iodised salt should be consumed as pregnant women requires sufficient iodine for brain development of the child in the womb.
- Take plenty of fluids/water.
- Take small and frequent meals.

#### Rest

- Heavy work should be avoided throughout the pregnancy
- Rest (in lying down position) during third trimester is important to enable adequate flow of nutrients from mother to the child
- A woman should gain 10-12kg weight during pregnancy

#### Iron and Folic Acid tablets

- IFA tablets should be consumed throughout the pregnancy
- Iron tablets may cause black stools which are harmless
- Iron and folic acid tablets prevent anaemia and helps a women to deliver a normal healthy baby
- The folic acid deficiency can cause "Neural tube defects" in the new borns

#### Immunisation

- Immunisation of the pregnant woman with tetanus toxoid (TT) given between the 5<sup>th</sup> and 8<sup>th</sup> months of pregnancy in two doses at an interval of 4 weeks is essential.

**Nutrition of Lactating Mothers**

- ❖ A lactating mother requires to eat more than what she was eating during pregnancy.
- ❖ A lactating mother requires 550 calories extra per day to meet the needs of production of mother's milk for the new born baby.
- ❖ A good nutritious diet prepared from low cost locally available foods, family support and care, and a pleasant atmosphere in the family helps improve lactation and ensures health of both the mother and the baby.

Diet

- ❑ Include more of cereal, pulse and green leafy vegetable in daily diet.
- ❑ Take vegetables and one seasonal fruit a day.
- ❑ Take milk, butter milk, fluids and a lot of water.
- ❑ Egg, meat, fish are beneficial.
- ❑ Energy dense foods like ghee/oil and sugar are necessary to meet the increased energy needs. Traditional preparations like panjiri, laddoo are useful.

Rest

- ❑ Breastfeed in a relaxed state. Any type of mental tension decreases milk secretion

IFA tablets

- ❑ Take iron and folic acid tablets for first six months of lactation