Complementary feeding

Report of the global consultation

Geneva, 10-13 December 2001

Summary of guiding principles

World Health Organization

Complementary feeding

Report of the global consultation

convened jointly by
the Department of Child and Adolescent Health and Development and
the Department of Nutrition for Health and Development

Geneva, 10-13 December 2001

and

Summary of guiding principles

for complementary feeding
of the breastfed child

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FOREWORD

Nutrition's importance as a foundation for healthy development is often underestimated. Poor nutrition leads to ill-health and ill-health contributes to further deterioration in nutritional status. These effects are most dramatically observed in infants and young children, who bear the brunt of the onset of malnutrition and suffer the highest risk of disability and death associated with it. In 2001, 50–70% of the burden of diarrhoeal diseases, measles, malaria and lower respiratory infections was attributable to malnutrition.

The children who die represent only a small part of the total health burden due to nutritional deficiencies. Maternal malnutrition and inappropriate breastfeeding and complementary feeding represent major risks to the health and development of those children who survive. Deficiencies in the diet of vitamin A, iodine, iron and zinc are still widespread and are a common cause of excess morbidity and mortality. Over 50 million children under age five are wasted, and in low-income countries one in every three children suffers from stunted growth. Indeed, many children never reach this age. The effects of poor nutrition and stunting continue throughout life, contributing to poor school performance, reduced productivity, and impaired intellectual and social development.

Inappropriate feeding practices are a major cause of the onset of malnutrition in young children. Children who are not breastfed appropriately have repeated infections, grow less well, and are almost six times more likely to die by the age of one month than children who receive at least some breast milk. From six months onwards, when breast milk alone is no longer sufficient to meet all nutritional requirements, infants enter a particularly vulnerable period of complementary feeding during which they make a gradual transition to eating family foods. The incidence of malnutrition rises sharply during the period from 6 to 18 months of age in most countries, and the deficits acquired at this age are difficult to compensate for later in childhood.

During the past decade, there has been considerable progress in the implementation of interventions to improve breastfeeding practices. Clear recommendations and guidelines, combined with political commitment and increased allocation of resources, enabled many governments to establish programmes that combined the necessary actions to protect, promote and support breastfeeding. Consequently, improvements in breastfeeding rates have been demonstrated in various settings.

However, similar progress has not been made in the area of complementary feeding. While research and development have contributed to an expanding evidence base for recommendations on appropriate feeding and effective interventions for children after six months of age, translation of new knowledge into action has lagged behind.

To consider this gap and what could be done to fill it, WHO convened a global consultation on complementary feeding (Geneva, 11–13 December 2001). A group of scientists and programme managers was invited to review and update recommendations for appropriate complementary feeding, and to identify actions needed to accelerate programmatic efforts, including priorities for research and development of tools to plan and

implement interventions. Discussing issues relating to foods and feeding, they also considered the intricate links between maternal nutrition and appropriate breastfeeding and complementary feeding practices.

This report presents the proceedings of the consultation; it is meant to guide policy-makers and programme planners at all levels in taking appropriate action to give effect to the Global Strategy for Infant and Young Child Feeding,[1] which the World Health Assembly adopted in May 2002. It is hoped that the information will motivate all concerned parties to make the investments required to ensure that the nutritional needs of infants and young children are met worldwide. At the same time, it is hoped that the results will stimulate research and development to broaden the range of interventions to improve infant and young child feeding.

[1] WHO. *Global Strategy for Infant and Young Child Feeding*. Geneva: World Health Organization. WHA55/2002/REC/1 Annex 2, 2002

REPORT OF THE GLOBAL CONSULTATION

INTRODUCTION

Malnutrition is responsible, directly or indirectly, for over half of all childhood deaths. Infants and young children are at increased risk of malnutrition from six months of age onwards, when breast milk alone is no longer sufficient to meet all nutritional requirements and complementary feeding needs to be started. Complementary foods are often of lesser nutritional quality than breast milk. In addition, they are often given in insufficient amounts and, if given too early or too frequently, they displace breast milk. Gastric capacity limits the amount of food that a young child can consume during each meal. Repeated infections reduce appetite and increase the risk of inadequate intakes. Infants and young children need a caring adult or other responsible person who not only selects and offers appropriate foods but assists and encourages them to consume these foods in sufficient quantity.

Global recommendations for appropriate feeding of infants and young children are:

- Breastfeeding should start early, within one hour after birth.
- Breastfeeding should be exclusive for six months.
- Appropriate complementary feeding should start from the age of six months with continued breastfeeding up to two years or beyond.

Appropriate complementary feeding is:

- *timely* – meaning that foods are introduced when the need for energy and nutrients exceeds what can be provided through exclusive and frequent breastfeeding;
- *adequate* – meaning that foods provide sufficient energy, protein, and micronutrients to meet a growing child's nutritional needs;
- *safe* – meaning that foods are hygienically stored and prepared, and fed with clean hands using clean utensils and not bottles and teats;
- *properly fed* – meaning that foods are given consistent with a child's signals of appetite and satiety, and that meal frequency and feeding method – actively encouraging the child to consume sufficient food using fingers, spoon or self-feeding – are suitable for age.

Precise definitions of appropriate practices have been developed for breastfeeding. Certain determinants that affect the timely initiation, establishment and continuation of breastfeeding have also been identified in families, communities and the health system. These definitions and determinants have formed the basis of international and national guidelines on the protection, promotion and support of breastfeeding, and have resulted in intensive programmatic action to improve breastfeeding practices in many countries. In contrast, appropriate complementary feeding has been more difficult to define in precise operational terms. This has served as a barrier to taking effective action and tracking progress, for example in promoting and measuring improvements in specific behaviours.

The scientific review on complementary feeding[1] that WHO and UNICEF commissioned in 1998 provided age-specific guidance on nutritional requirements from complementary foods in healthy breastfed children. The review's conclusions have been translated into practical guidance for improving caregiver practices, notably in the feeding component of the WHO/UNICEF strategy for Integrated Management of Childhood Illness (IMCI),[2] and the WHO manual *Complementary feeding: family foods for breastfed children.*[3] Since the publication of the scientific review, new estimates have been made for energy and nutrient requirements for infants and young children[4], warranting an update of previous recommendations.

Reducing childhood malnutrition requires a multi-sectoral approach that includes a variety of interventions to address its major causes. There is increasing evidence for the positive impact of feeding counselling on energy and nutrient intakes and growth in children less than two years of age[5]. To support changes in individual behaviour, supplemental interventions will be needed in many settings to ensure the availability and utilization of adequate micronutrient-rich complementary foods. Given the close link between maternal health and child health outcomes, in particular the contribution of low birth weight to childhood malnutrition, interventions should also address the health and nutrition of mothers. Against this background, WHO convened the consultation to:

- update global recommendations for complementary feeding; and
- provide more precise guidance for programme implementers to take these recommendations into action.

DISCUSSION THEMES

The consultation brought together over 60 experts from a variety of disciplines and agencies (Annex 1). Using information in five background papers[6] and various presentations (Annexes 2 and 3), participants reviewed up-to-date information on:

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[1] WHO/UNICEF. *Complementary feeding of young children in developing countries: A review of current knowledge*. WHO/NUT/98.1 Geneva: World Health Organization, 1998.

[2] WHO/UNICEF. *Integrated Management of Childhood Illness: a training course for first-level health workers.* WHO/CHD/97.3.A–L. Geneva: World Health Organization,1997

[3] WHO. *Complementary feeding: family foods for breastfed children*. WHO/NHD/00.1, WHO/FCH/CAH/00.6 Geneva: World Health Organization, 2000

[4] Dewey KG, Brown KH. Update on technical issues concerning complementary feeding of young children in developing countries and implications for intervention programs. *Food and Nutrition Bulletin*, 2003;24(1): 5–28

[5] Santos I, Victora CG, Martines J et al. Nutrition counselling increases weight gain among Brazilian children. *Journal of Nutrition,* 2001, 131 (11): 2866–2873.

[6] The background papers are published in the *Special Issue of the Food and Nutrition Bulletin*, 2003;24 (1). For references, see Annex 3.

- energy and nutrient requirements of infants and young children, and the relative contribution of complementary foods to meeting these needs in healthy breastfed children;
- appropriate caregiver behaviours for complementary feeding and factors influencing them;
- approaches for improving the quality of complementary foods at household and community levels;
- macro-level approaches for ensuring the availability and utilization of adequate complementary foods;
- lessons learned from successful programmes to improve complementary feeding.

Based on the information presented in the background papers and presentations, and on the results of group work, participants formulated conclusions and recommendations regarding appropriate feeding practices and programmatic approaches for their promotion.

CONCLUSIONS

Meeting energy and nutrient requirements

1. New data on energy requirements in infancy endorsed by a FAO/WHO/UNU consultation warrant a revision of recommendations presented in the WHO/UNICEF scientific review on complementary feeding published in 1998.

   The latest estimated energy requirements from complementary foods, assuming an average breast-milk intake, are 200 kcal/day for infants aged 6–8 months, 300 kcal/day for infants aged 9–11 months, and 550 kcal/day for children aged 12–23 months.

2. Scientific and empirical data are not yet sufficiently robust to warrant a change in estimated nutrient requirements from complementary foods described in the scientific review. However, a comparison of average nutrient intakes of children aged 6–24 months and new dietary reference intakes published by the Institute of Medicine, USA shows that the diets of infants and young children in most populations in low-income countries are consistently deficient in some nutrients, including iron, zinc and vitamin B6.

3. Adequate energy and nutrient intakes for this age-group are the result of a balance between appropriate breastfeeding and complementary feeding. There is no evidence of a preferential order between breastfeeding and complementary feeding at a given meal. Support for sustained breastfeeding as part of efforts to improve complementary feeding is critical. Increasing complementary feeding frequency, for example, may impair breastmilk intake with the potential risk of reducing total energy and nutrient intake if not enough attention is paid to sustaining breastfeeding.

4. On a population basis, recommended meal frequencies – assuming a diet with energy density of 0.8 kcal per gram or above and low breastmilk intake – are:

   - 2–3 meals per day for infants aged 6–8 months;
   - 3–4 meals per day for infants aged 9–11 months and children 12–24 months
   - additional nutritious snacks may be offered 1–2 times a day, as desired.

5. Complementary foods should be varied and include adequate quantities of meat, poultry, fish or eggs, as well as vitamin A-rich fruits and vegetables every day. Where this is not possible, the use of fortified complementary foods and vitamin mineral supplements may be necessary to ensure adequacy of particular nutrient intakes.

   As infants grow, the consistency of complementary foods should change from semi-solid to solid foods and the variety of foods offered should increase. By eight months, infants can eat 'finger foods' and by 12 months, most children can eat the same types of food as the rest of the family.

Ensuring availability of adequate complementary foods

6. Access to adequate complementary foods is a necessary condition for improving infant and young child feeding. There is ample evidence that diets, if based solely on unmodified, locally available ingredients, are often inadequate to meet recommended energy and nutrient needs.

7. Approaches to improving the availability of adequate complementary foods include simple technologies that can be applied in the home or community, and larger-scale industrial production of fortified processed foods that can involve both the public and the private sector.

8. Household technologies such as fermentation, soaking, roasting and malting are traditionally used in many societies. They can contribute to improving the safety and quality of complementary foods. However, reaching an adequate nutrient level remains a concern, particularly in diets that are mainly plant-based.

   Specific additional measures may be needed to enrich home-prepared complementary foods. Mixing of micronutrient sprinkles or nutrient-rich pastes has been successfully promoted in some settings, and requires further research. Regular supplementation with micronutrient drops or capsules is another option to fill certain dietary gaps, but it is programmatically challenging to reach coverage.

9. Rapid urbanization and changing social networks affect caregivers' ability to use freshly prepared home-grown foods. Centrally processed fortified foods, which can play an important role in ensuring adequate complementary diets, have been successfully promoted in various settings.

   Public-private partnerships can play an important role in making available nutritionally adequate low-cost processed foods. Such partnerships should be consistent with the

provisions in the International Code of Marketing of Breastmilk and subsequent relevant World Health Assembly resolutions, and applicable Codex Alimentarius standards.

Voluntary third-party certification is a way to stimulate healthy competition among producers, while ensuring quality of products. It requires the establishment of an independent quality control body that certifies products as being suitable for their purpose, as well as promotion of the quality seal to the general public.

Improving feeding behaviours

10. Improving complementary feeding requires attention to foods as well as to feeding behaviour of caregivers. Infants and young children need assistance that is appropriate for their age and developmental needs to ensure that they consume adequate amounts of complementary food. This is called responsive feeding.

    Critical dimensions of responsive feeding are:

    - feeding with a balance between giving assistance and encouraging self-feeding, as appropriate to the child's level of development;
    - feeding with positive verbal encouragement, without verbal or physical coercion;
    - feeding with age-appropriate and culturally appropriate eating utensils;
    - feeding in response to early hunger cues;
    - feeding in a protected and comfortable environment;
    - feeding by an individual with whom the child has a positive emotional relationship and who is aware of and sensitive to the individual child's characteristics, including changes in physical and emotional state.

    Inappropriate feeding behaviours are an important determinant of malnutrition. Caregivers often are unaware of the importance of responsive feeding, or do not know how to practise it. They need support from health professionals and community-based workers to acquire the necessary knowledge and skills.

11. Feeding behaviours are anchored in a wider belief system that influences what, when, where and how people feed their children. The most effective interventions are based on an in-depth assessment of this system; they address major barriers, using various channels and resources to support behaviour change.

    Current knowledge emphasizes the importance of focusing on the family rather than on individual caregivers in designing interventions to improve complementary feeding. Assessing time allocation and time constraints in relation to food preparation and feeding are critical, as is estimating the real costs associated with implementing new feeding recommendations.

12. It is also important to promote safe preparation, feeding and storage of complementary foods in efforts to improve complementary feeding. Contamination and the proliferation of pathogens in food are major underlying causes of childhood diarrhoea.

Strengthening programmatic approaches to improving complementary feeding

13. In spite of the critical importance of appropriate complementary feeding for child growth and development, interventions to improve feeding practices in children 6–24 months of age have received insufficient attention. The Global Strategy for Infant and Young Child Feeding provides a framework for action and calls for concerted efforts to improve complementary feeding together with support for sustained breastfeeding. It stimulates governments, involving all concerned parties, to:

    - adopt a comprehensive national policy on infant and young child feeding, in the context of national policies and programmes for nutrition, child and reproductive health, and related areas;
    - constitute a national body to lead the implementation of the strategy as a coordinated national response;
    - ensure that the health and other sectors are able to protect, promote and support appropriate infant and young child feeding practices;
    - adopt appropriate measures to implement the International Code of Marketing of Breastmilk Substitutes and relevant subsequent World Health Assembly resolutions;
    - enact imaginative legislation to protect the breastfeeding rights of working women.

14. Improving complementary feeding requires a multi-dimensional approach focusing on improved feeding practices, control of childhood diseases and maternal nutrition. When interventions include an emphasis on breastfeeding, particularly exclusive breastfeeding for the first six months, in addition to improved complementary foods, a growth effect is more likely to be observed. Thus, comprehensive approaches that address the full range of infant and young child feeding practices are needed. Disease prevention and control interventions need to be packaged with nutrition interventions to prevent that repeated infections reduce the growth benefits.

15. The effect of interventions to improve feeding practices is variable and depends on the initial nutritional status of the infants and the degree to which other health needs are addressed. Consequently, other measures beyond weight gain or linear growth should be included in measuring the impact of complementary feeding interventions, such as biochemical measures of micronutrient status, changes in morbidity, and neurobehavioral development.

16. There is ample opportunity in current child health programmes and initiatives to improve support for infant and young child feeding by integrating appropriate guidance into the delivery of care. For example, Integrated Management of Childhood Illness, Early Childhood Development, Baby-friendly Hospital Initiative, Expanded Programme for Immunization, and Prevention and Control of HIV/AIDS can all make substantive contributions to the implementation of the Global Strategy for Infant and Young Child Feeding.

An important example of an integrated strategy is the WHO/UNICEF Integrated Management of Childhood Illness which includes interventions that combine the management of common childhood illnesses with individual counselling of caregivers to adopt appropriate child feeding practices. IMCI is effective in improving infant and young child feeding. Its implementation also provides a model for coordination among programmes and sectors towards a common goal.

The essential nutrition actions approach is another useful example of integration. The definition of seven essential nutrition actions and six points of delivery[1] has guided programme managers in designing and implementing a minimum package of activities to improve nutrition in childhood.

17. Policies and programmes to improve complementary feeding require involvement and coordination across sectors, including health, nutrition, agricultural and social welfare. The private sector can also play an important role in improving access to and utilization of safe and adequate complementary foods.

18. Policies and programmes need to respond to the special needs of working women, by ensuring provision of effective maternity entitlements and facilities for working women to sustain breastfeeding.

19. Important lessons can be learned from programmes that were successful in improving infant and young child feeding. Useful points to keep in mind when planning interventions to improve infant and young child feeding are summarized in Annex 4 *Lessons learned from large-scale behaviour change programmes to improve infant and young child feeding*. Similarly, the *Checklist of actions for successful complementary feeding* in Annex 5 provides concrete guidance for staff in health facility and community-based programmes analogous to the *Ten steps to successful breastfeeding*.[2]

20. Investments in the promotion of improved infant and young child feeding need adequate monitoring and evaluation. While a set of global indicators to assess breastfeeding practices was agreed a decade ago and has since been used to assess progress, the absence of indicators for assessing complementary feeding practices has been a barrier to effective programme development.

[1] The essential nutrition actions (ENA) approach is based on taking key nutrition actions associated with improved health outcomes at the most relevant points of health service delivery contact. The seven ENA points include: 1 exclusive breastfeeding from birth to six months; 2. appropriate complementary feeding starting at six months along with breastfeeding up to 24 months or beyond; 3. appropriate feeding of infants and young children during and after illness; 4. adequate nutrition of women; 5. control of vitamin A deficiency; 6. control of anaemia through iron supplements and de-worming of women and children; and 7.control of iodine deficiency disorder. The six key points of health delivery contact include: 1. antenatal care; 2. delivery; 3. post-natal care/family planning; 4. immunization; 5. well-baby clinic; and 6. sick child visits.

[2] WHO. *Protecting, promoting and supporting breastfeeding: a joint WHO/UNICEF statement*. Geneva: World Health Organization, 1989

RECOMMENDATIONS

1. The existing evidence supports moving forward rapidly with programmatic action to improve complementary feeding. The Global Strategy for Infant and Young Child Feeding provides the framework for governments and other concerned parties to fulfill their respective obligations and responsibilities. Given the fundamental importance of childhood nutrition as a basis for healthy development of individuals and nations, the implementation of the strategy should rank among the top public health priorities to be pursued in every country.

2. The *Guiding principles for complementary feeding of the breastfed child,*[1] endorsed by the participants, should be used by programme planners and implementers as a guide to develop locally appropriate feeding recommendations.

3. Complementary feeding is part of a continuum of linked intervention areas, which include maternal nutrition, breastfeeding, micro-nutrient supplementation, psycho-social stimulation, feeding and care during and after illness, and illness prevention and control. Leadership, guidance, coordination and implementation of infant and young child feeding programmes should come from groups best positioned to deal with this cluster of interventions.

4. In promoting improved complementary feeding, all concerned parties should adhere to the provisions of the International Code of Marketing of Breastmilk Substitutes and relevant subsequent World Health Assembly resolutions. The Codex Alimentarius is another important instrument for governments to ensure appropriate and consistent standards for processed complementary foods.

5. To broaden the range of effective interventions and programmatic approaches to improve complementary feeding, further research is needed in priority areas including:

   - estimating energy and nutrient requirements of children living in especially vulnerable circumstances, such as preterm and low birth weight infants, and young children who are HIV-positive;
   - assessing the effects of variations in energy density, feeding frequency, food quantity and food variety on total energy and nutrient intake, including intake of breast milk;
   - determining the optimal amount and type of lipid and fiber intake by children;
   - determining the bioavailability of iron and zinc in locally available foods;
   - assessing efficacy and effectiveness of fortified complementary foods, sprinkles and spreads in addressing dietary gaps, including optimal levels of formulations and ration sizes to improve nutrient intakes;
   - identifying factors affecting children's appetite and appropriate management of anorexia;

[1] Pan American Health Organization, *Guiding Principles for Complementary Feeding of the Breastfed Child*. Washington DC: Pan American Health Organization, World Health Organization, 2003. For a summary, see page 11.

- determining methods and criteria for characterizing the responsiveness of feeding styles in various settings and identifying effective methods for promoting responsive feeding;
- determining the impact of improved responsive feeding on child growth and developmental outcomes;
- developing strategies for sustaining breastfeeding as complementary foods are introduced and the young child progresses to the family diet;
- developing and testing appropriate and effective strategies to ensure safe storage, preparation and feeding of complementary foods for infants and young children;
- examining the use of linear programming for developing context-specific complementary feeding guidelines;
- identifying alternative approaches for demand-creation of affordable and effective processed food products;
- developing and testing indicators and tools for assessing complementary feeding practices, for use in programmes and global monitoring of trends.

6. There is an immediate need to harmonize estimates of nutrient requirements for infants and young children, and to develop precise guidelines for feeding infants and young children who are not breastfed.

7. Immediate actions that governments and international partners can take to move forward include:

At the global level:

- develop guidelines that describes the continuum of essential interventions to improve maternal nutrition, breastfeeding and complementary feeding practices, consistent with the Global Strategy for Infant and Young Child Feeding;
- agree on common definitions and indicators for appropriate complementary feeding;
- develop a clear rationale for investing in complementary feeding interventions based on existing evidence;
- develop detailed guidance for programme planners to plan and implement complementary feeding interventions, building upon key elements that have been identified as critical for inclusion in successful, large-scale programmes;
- move complementary feeding issues onto national and global agendas and incorporate actions into relevant programmes, including for agriculture, education, nutrition, health, and poverty alleviation.

At the national level:

- define a national policy on infant and young child feeding and care, with a detailed plan of action to accompany it;
- increase advocacy for complementary feeding and incorporate actions into relevant programmes, including agriculture, education, nutrition, health and poverty alleviation;
- develop a resource plan to obtain adequate human, financial and organizational resources;

- develop locally appropriate feeding recommendations and programmatic guidelines for their implementation, taking into account the needs of diverse communities and the range of available opportunities for improving infant and young child feeding and nutrition.

CLOSING STATEMENT

The first two years of a child's life are a critical window during which the foundations for healthy growth and development are built. Infant and young child feeding is a core dimension of care in this period. Internationally agreed goals for reduction of malnutrition and child mortality will be achieved only if families receive the support they need to adequately care for their children, including their nutritional needs. This consultation has shown that evidence for effective interventions to support children's nutritional well-being is available and accumulating rapidly. The challenge now is to translate knowledge into action.

SUMMARY OF GUIDING PRINCIPLES[1]

1. **DURATION OF EXCLUSIVE BREASTFEEDING AND AGE OF INTRODUCTION OF COMPLEMENTARY FOODS**: Practice exclusive breastfeeding from birth to six months of age, and introduce complementary foods at six months of age (180 days) while continuing to breastfeed.

2. **MAINTENANCE OF BREASTFEEDING**: Continue frequent, on-demand breastfeeding until two years of age or beyond.

3. **RESPONSIVE FEEDING**: Practice responsive feeding, applying the principles of psycho-social care. Specifically:

   - feed infants directly and assist older children when they feed themselves, being sensitive to their hunger and satiety cues;
   - feed slowly and patiently, and encourage children to eat, but do not force them;
   - if children refuse many foods, experiment with different food combinations, tastes, textures and methods of encouragement;
   - minimize distractions during meals if the child loses interest easily;
   - remember that feeding times are periods of learning and love – talk to children during feeding, with eye to eye contact.

4. **SAFE PREPARATION AND STORAGE OF COMPLEMENTARY FOODS:** Practice good hygiene and proper food handling by :

   - washing caregivers' and children's hands before food preparation and eating;
   - storing foods safely and serving foods immediately after preparation;
   - using clean utensils to prepare and serve food;
   - using clean cups and bowls when feeding children;
   - avoiding the use of feeding bottles, which are difficult to keep clean.

5. **AMOUNT OF COMPLEMENTARY FOOD NEEDED**: Start at six months of age with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding. The energy needs from complementary foods for infants with "average" breast milk intake in developing countries are approximately 200 kcal per day at 6–8 months of age, 300 kcal per day at 9–11 months of age, and 550 kcal per day at 12–23 months of age. In industrialized countries these estimates differ somewhat (130, 310 and 580 kcal/d at 6–8, 9–11 and 12–23 months, respectively) because of differences in average breast milk intake.

[1] Pan American Health Organization. *Guiding Principles for Complementary Feeding of the Breastfed Child*. Washington DC: Pan American Health Organization, World Health Organization, 2003

6. **FOOD CONSISTENCY**: Gradually increase food consistency and variety as the infant gets older, adapting to the infant's requirements and abilities. Infants can eat pureed, mashed and semi-solid foods beginning at six months. By eight months most infants can also eat "finger foods" (snacks that can be eaten by children alone). By 12 months, most children can eat the same types of foods as consumed by the rest of the family (keeping in mind the need for nutrient-dense foods, as explained in 8. below). Avoid foods that may cause choking (i.e., items that have a shape and/or consistency that may cause them to become lodged in the trachea, such as nuts, grapes, raw carrots).

7. **MEAL FREQUENCY AND ENERGY DENSITY**: Increase the number of times that the child is fed complementary foods as he/she gets older. The appropriate number of feedings depends on the energy density of the local foods and the usual amounts consumed at each feeding. For the average healthy breastfed infant, meals of complementary foods should be provided 2–3 times per day at 6–8 months of age and 3–4 times per day at 9–11 and 12–24 months of age. Additional nutritious snacks (such as a piece of fruit or bread or chapatti with nut paste) may be offered 1-2 times per day, as desired. Snacks are defined as foods eaten between meals, usually self-fed, convenient and easy to prepare. If energy density or amount of food per meal is low, or the child is no longer breastfed, more frequent meals may be required.

8. **NUTRIENT CONTENT OF COMPLEMENTARY FOODS:** Feed a variety of foods to ensure that nutrient needs are met. Meat, poultry, fish or eggs should be eaten daily, or as often as possible. Vegetarian diets cannot meet nutrient needs at this age unless nutrient supplements or fortified products are used (see 9. below). Vitamin A-rich fruits and vegetables should be eaten daily. Provide diets with adequate fat content. Avoid giving drinks with low nutrient value, such as tea, coffee and sugary drinks such as soda. Limit the amount of juice offered so as to avoid displacing more nutrient-rich foods.

9. **USE OF VITAMIN-MINERAL SUPPLEMENTS OR FORTIFIED PRODUCTS FOR INFANT AND MOTHER:** Use fortified complementary foods or vitamin-mineral supplements for the infant, as needed. In some populations, breastfeeding mothers may also need vitamin-mineral supplements or fortified products, both for their own health and to ensure normal concentrations of certain nutrients (particularly vitamins) in their breast milk. [Such products may also be beneficial for pre-pregnant and pregnant women.]

10. **FEEDING DURING AND AFTER ILLNESS**: Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more.

ANNEXES

Annex 1

LIST OF PARTICIPANTS

GLOBAL CONSULTATION ON COMPLEMENTARY FEEDING
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Annex 2

AGENDA

GLOBAL CONSULTATION ON COMPLEMENTARY FEEDING
10-13 DECEMBER 2001, GENEVA, ROOM D

Monday, 10 December

9.00 – 9.30 Opening
Introduction of participants
Objectives of the meeting
Expected outcomes

Technical update on issues related to access to adequate and safe complementary foods

9.30 - 10.30 Update on current scientific knowledge regarding energy, protein and micro-nutrients required from complementary foods (Dr Kenneth Brown, Dr Kathryn Dewey)

Discussion

10.30 - 11.00 Tea/coffee

11.00 - 12.00 Approaches for improving the availability of adequate complementary foods on large scale, including conclusions of the technical consultation on fortification of complementary foods (Dr Chessa Lutter)

Discussion

12.00 - 13.00 Household and community-based approaches to improve availability of safe and adequate complementary foods (Dr Rosalind Gibson, Dr Patience Mensah)

Discussion

13.00 Lunch

Technical update of issues related to improving feeding practices

14.00 - 15.00 Improving feeding practices: current patterns, common constraints, and the design of interventions in relation to best practices (Dr Gretel Pelto)

Discussion

15.00 - 15.45 Ensuring safe preparation and storage of foods (Dr Jurgen Schlundt)

Discussion

15.45 Tea/coffee

16.00 Introduction to group work

16.15 -17.30 Participants work in three groups

Tuesday, 11 December

Issues related to programmatic approaches to promote optimal complementary feeding

9.00 - 10.00 Components of successful complementary feeding programmes (Dr Kathryn Dewey)

Discussion

10.00 -10.30 Implementation of interventions to improve complementary feeding: case- study from India (Dr Nita Bhandari)

10.30 Tea/coffee

11.00 -12.00 Implementation of interventions to improve complementary feeding: case study from Peru (Dr Hilary Creed de Kanashiro)

Discussion of case studies

12.00 - 13.00 Experience with implementation of large-scale nutrition interventions (Ms Claudia Rokx)

Discussion

13.00 Lunch

14.00 - 15.00 Assessing complementary feeding practices: towards development of indicators (Dr Marie Ruel)

Discussion

15.00 - 17.30 Group work (continued)

Wednesday, 12 December

9.00 - 10.00 Challenges in promoting interventions to improve complementary feeding: lessons learned and possible solutions (Dr Ellen Piwoz)

Discussion

10.00 - 12.30 Groups develop recommendations and prepare their presentation

12.30 Lunch session: Implementation of interventions to improve infant and young child feeding: a case study from Madagascar (Dr Agnes Guyon)

13.30 - 15.30 Presentation of Group 1: Improving access to adequate and safe complementary foods

Discussion

15.30 - 16.00 Tea/coffee

16.00 - 18.00 Presentation of Group 2: Improving feeding practices

Discussion

Thursday, 13 December

9.00 - 10.30 Presentation of Group 3: Strengthening programmes to promote optimal complementary feeding

Discussion

10.30 Tea/coffee

11.00 - 12.30 Groups finalize their conclusions and recommendations and develop a summary of recommended priority activities

12.30 Lunch

14.00 - 16.45 Presentation of conclusions, recommendations and priority activities

- Improving access to adequate and safe complementary foods
- Improving feeding practices
- Strengthening programmes to promote optimal complementary feeding

16.45 Closing

Annex 3

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Annex 4

LESSONS LEARNED FROM LARGE-SCALE BEHAVIOUR CHANGE PROGRAMMES TO IMPROVE INFANT AND YOUNG CHILD FEEDING

- The development of a comprehensive policy and strategy for infant and young child feeding is critical to support programme actions. This policy should be based on international guidelines and adapted to local circumstances; sufficient resources should be invested in advocacy for its implementation.

- Programme action should be based on local adaptation of generic guidelines, using research to identify appropriate feeding recommendations together with interventions to facilitate their adoption.

- Based on feeding recommendations thus identified, a feasible package of desired behaviours should be designed for caregivers and families. Families should be provided skilled support to develop the skills they need in order to practice these behaviours effectively.

- In addition to caregivers, other family members should be targeted, since it is the family which makes decisions concerning feeding of infants and young children.

- The importance of negotiation should be emphasized in the interaction between a feeding counsellor and a caregiver or family. Interventions should work towards 'incremental' changes in feeding practices: changes should be small and practical, made step-by-step over time.

- Interventions should address a variety of actors that are part of the support network of families, so that consistent messages on infant and young child feeding are given at all levels, in the public and private health system, the media, and in communities.

- Critical knowledge and skills in support of infant and young child feeding should be incorporated into the pre-service training of health and other development professionals, so that sustainable implementation can be ensured.

Annex 5

CHECKLIST OF ACTIONS FOR SUCCESSFUL COMPLEMENTARY FEEDING[1]

Every facility and community programme involved in providing care for children 6–24 months of age should:

1. Have a written policy that is communicated to all health-care staff about complementary feeding.

2. Develop local feeding guidelines based on research.

3. Train all health-care and community workers in skills necessary to implement the policy and guidelines.

4. Inform all caregivers and parents about the benefits and management of complementary feeding.

5. Help mothers initiate complementary feeding at six months, while giving adequate support to sustain breastfeeding.

6. Show mothers how to safely prepare and offer complementary foods, while maintaining and supporting breastfeeding, according to the age and circumstances of the child.

7. Teach mothers about feeding frequency, food variety, and adequate quantities for growing children.

8. Counsel mothers how to maintain adequate feeding during and following illness and loss of appetite.

9. Establish infant feeding and care support groups and refer mothers to them.

10. Refer all mothers and children who are malnourished, sick, or living in families with special circumstances to health care and available family support services.

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WHO convened the Global Consultation on Complementary Feeding to update technical guidelines on complementary feeding and strengthen guidance on programmatic actions for their implementation. Background papers summarized state of the art knowledge on energy and nutrient requirements, factors affecting feeding behaviours, approaches for improving quality and utilization of complementary foods at household and central levels, and lessons learned from efforts to improve breastfeeding practices.

This report summarizes the conclusions and recommendations of the consultation. It includes revised guidelines for appropriate complementary feeding based on new calculations of energy and nutrient requirements, and accumulating evidence on the importance of responsive feeding. This information has been consolidated in Guiding Principles for Complementary Feeding of the Breastfed Child. The report also summarizes lessons learned from large-scale programmes to improve complementary feeding and proposes ten action steps that can be taken in health facilities to ensure that adequate support is provided for complementary feeding, along with support for sustained breastfeeding.

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