

# Strengthening action to improve feeding of infants and young children 6-23 months of age in nutrition and child health programmes

Geneva, 6-9 October 2008

REPORT OF PROCEEDINGS



World Health  
Organization





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The UNICEF logo, which consists of a stylized figure of a mother holding a child, set against a globe and surrounded by a laurel wreath.

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# Acknowledgements

The Departments of Child and Adolescent Health and Development and Nutrition for Health and Development of the World Health Organization in collaboration with the Nutrition Section of UNICEF organized the informal consultation on *Strengthening action to improve feeding of infants and young children 6-23 months of age in nutrition and child health programmes*, as part of their efforts to promote and facilitate implementation of the *Global strategy for infant and young child feeding*. The consultation was attended by over 50 experts involved in research, programme implementation, and monitoring and evaluation of infant and young child feeding interventions. All experts declared no conflict of interest.

The Report of Proceedings was prepared by Dr Peggy Henderson, who declared no conflict of interest. Participants reviewed two draft versions of the report and provided feedback, which was considered and incorporated into the final report. Staff from the Departments of Child and Adolescent Health and Development and Nutrition for Health and Development of the World Health Organization and from the Nutrition Section of UNICEF were technically responsible and provided oversight to all aspects of the development of this Report of Proceedings.

# Abbreviations and Glossary of Terms

**AFASS:** Acceptable, feasible, affordable, sustainable and safe

**Behaviour change communication:** the strategic use of communication to promote positive health outcomes, based on proven theories and models of behaviour change. It employs a systematic process beginning with formative research and behaviour analysis, followed by communication planning, implementation, and monitoring and evaluation.

**Complementary feeding:** the process starting when breast milk alone or infant formula alone is no longer sufficient to meet the nutritional requirements of infants, and therefore other foods and liquids are needed, along with breast milk or a breast-milk substitute. The target range for complementary feeding is generally taken to be 6 to 23 months.

**Complementary foods:** any food, whether manufactured or locally prepared, suitable as a complement to breast milk or to a breast-milk substitute, when either becomes insufficient to satisfy the nutritional requirements of the infant.

**Counselling:** listening to clients and helping them decide what is best for them among various options or suggestions; in addition, helping them to have the confidence to carry out their decisions.

**DHS:** Demographic and Health Survey(s)

**Education:** activities that impart knowledge or skill. In this context, education usually involves the delivery of specific messages by health care providers or community health workers during clinic, outreach or home visits.

**EFA:** Essential fatty acid(s)

**Essential Nutrition Actions (ENA) framework:** a framework for managing the advocacy, planning and delivery of an integrated package of preventive nutrition actions encompassing infant and young child feeding, micronutrients and women's nutrition. Multiple programme opportunities and communication channels are used at both the health facility and community levels to deliver life cycle-appropriate nutrition messages at broad scale to mothers and other child caregivers using behaviour change techniques.

**Formative research:** planning research, specifically a combination of rapid, interactive information-gathering methods with mothers and other key people, through which important information and key cultural and personal concerns are examined and negotiated to arrive at feasible, acceptable and effective strategies and practices that lead to improved health and nutrition.

**Fortification:** the addition of one or more essential nutrients to a food, whether or not it is normally contained in the food, for the purpose of preventing or correcting a demonstrated deficiency of one or more nutrients in the population or specific population groups.

**Fortification at point-of-use (home fortification):** adding a micronutrient formulation or a micronutrient-rich, lipid-based nutrient supplement to the infant's or child's prepared food just before consumption in order to fill in the nutritional gaps of the local diet.

**IMCI:** Integrated Management of Childhood Illness

**Lipid-based nutrient supplements (LNS):** Family of ready-to-use food products with high energy and nutrient content. Lipids are the main source of energy. Products range from those providing minimal energy (kcal) to those supplying a substantial proportion of energy; all provide multiple micronutrients and essential fatty acids, as well as macronutrients. Those products that provide minimal energy may be used in small amounts as a fortificant of the local diet at the point of use, for prevention of malnutrition. Those that provide very substantial energy are suitable as a temporary replacement of the local diet, for treatment of severe acute malnutrition.

**Malnutrition:** a broad term commonly used as an alternative to undernutrition, but technically it also refers to overnutrition. People are malnourished if their diet does not provide adequate calories and protein for growth and maintenance or they are unable to fully utilize the food they eat due to illness (undernutrition). They are also malnourished if they consume too many calories (overnutrition).

**Micronutrient (MN) powder:** a powdered formulation of vitamins and minerals intended to be used in home fortification.

**Micronutrient "plus plus" powder:** a micronutrient powder that, in addition to vitamins and minerals, contains protein, milk powder and/or essential fatty acids.

**MICS:** Multiple Indicator Cluster Survey(s)

**Programme Implementation Pathway (PIP):** the pathway from an intervention input through programmatic delivery, household and individual utilization to its desired impact. Analysis of the process from input to impact is the basis for planning, training, supervision and evaluation.

**ProPAN:** "Process for the promotion of child feeding" (in the original Spanish, Proceso para la Promoción de la Alimentación del Niño), a manual and software package that describes a step-by-step process, beginning with the quantitative identification of nutritional and dietary problems, and the collection of qualitative information on why these problems occur, and ends with the design of and evaluation plan for an intervention to address the problems identified.

**Supplementary feeding:** providing additional foods to vulnerable groups, including moderately malnourished children.

**Trials of improved practices (TIPS):** Trials of improved practices, a formative research tool to help programme planners select and "pretest" the actual practices that a programme will promote. Mothers and other family members actually try out and sometimes modify a menu of possible improved practices prepared on the basis of previous community research.

**Undernutrition:** the outcome of insufficient food intake and repeated infectious diseases. It includes being underweight for one's age, too short for one's age (stunted), dangerously thin for one's height (wasted) and deficient in vitamins and minerals (micronutrient malnutrition).

**WHA:** World Health Assembly



# Executive Summary

Over 50 researchers, programme implementers, infant feeding experts and representatives of WHO and UNICEF headquarters departments and regional offices gathered in Geneva in October 2008 in order to discuss how to fill the gap between the progress that has been made in defining principles for appropriate feeding for infants and young children from 6 to 23 months and translating these into specific policies and programmes.

Participants recognized that there are not enough examples of well-documented, large-scale programmes that have successfully improved feeding practices in children 6-23 months of age and resulted in improved health outcomes. Therefore, there are important weaknesses in the evidence base for effective actions. Nevertheless, the evidence is strong to support the following conclusions:

## The context

- Recommendations for optimal infant and young child feeding include that infants should be exclusively breastfed for the first 6 months of life to achieve optimal growth, development and health, and thereafter, they should receive nutritionally adequate and safe complementary foods while breastfeeding continues up to 2 years or beyond.
- The *Global strategy for infant and young child feeding*, endorsed by WHO Member States and the UNICEF Executive Board in 2002, provides the overall framework for actions needed to protect, promote and support appropriate feeding practices in infants and young children 0-23 months of age, including giving effect to the principles and aim of the International Code of Marketing of Breast-milk Substitutes and subsequent relevant Health Assembly resolutions in their entirety.
- The *Planning Guide* that accompanies the *Global Strategy* is intended to assist country teams to develop national plans of action to improve child nutrition. The *Guide* outlines what needs to be done to protect, promote and support breastfeeding; however, it should be updated to give further clarity on what is needed to strengthen complementary foods and feeding practices in children 6-23 months of age.
- Acknowledging the critical contribution of continued breastfeeding to child nutrition, the meeting focused mostly on evidence-based and feasible options to improve the quality of complementary foods and on caregivers' practices to enhance their intake.

## Effective interventions

- Appropriate nutrition in children 6-23 months of age requires interventions across the life span, from pregnancy into the first 2 years of life. They include support for maternal nutrition<sup>1</sup>, early initiation of breastfeeding, exclusive breastfeeding for 6 months, and the introduction of adequate complementary foods at 6 months with continued breastfeeding for 2 years of age or beyond.

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<sup>1</sup> Although not addressed at this meeting, other practices, such as delayed umbilical cord clamping to enhance newborn body iron stores and micronutrient supplementation and nutrition during pregnancy, are also very important for young child nutrition.

Influencing appropriate feeding practices is as critical as influencing availability and use of adequate foods.

- Quality counselling of mothers and caregivers, and appropriate behavioural change communication to other family and community decision-makers, are essential for improving infant and young child feeding practices. They should be at the centre of any strategy to improve infant and young child nutrition.
- Similarly, strategies should maximize the utilization of locally produced foods in any given setting, and consider the promotion of additional products only if they can fill a critical gap in nutrients in an acceptable, feasible, affordable, sustainable and safe way, as a complement to continued breastfeeding and the local diet, not as a replacement.
- Where locally available foods alone will not satisfy nutritional requirements, various types of products offer promise. They may include centrally produced fortified foods, micronutrient powders, and lipid-based nutrient supplements. Further research and carefully monitored applications at scale are needed to generate more evidence on which product is best for which circumstance, how best to promote their correct utilization, and their contribution to improving nutritional, developmental and health status in different circumstances.

### Effective programme design and delivery

- Effective programming should be based on sound information about the setting. It should follow a systematic approach that includes a situation assessment, formative research to identify locally appropriate feeding recommendations and solutions to barriers, development and pre-testing of a limited set of key messages that promote do-able actions, and dissemination of the messages through multiple channels and contacts, including individual counselling and behaviour change communication directed at the wider social environment and key decision-makers. Effective programming should also consider how to create demand among different stakeholders (politicians, health care providers and parents) for good child nutrition to enhance programme uptake.
- A variety of tools are available to support the listed steps in programme design, implementation, evaluation, and research, but there is a need for a more detailed framework and user-friendly toolkit to guide assessment, prioritization and planning of interventions for children 6-23 months of age. New methods, such as linear programming and ProPAN, should be built into such a toolkit.
- To strengthen the evidence base for effective interventions and programmes, especially for improving feeding in children 6-23 months of age, there is an urgent need for large-scale effectiveness studies and well-designed evaluations that also include measures of cost. In addition, a standard set of criteria on design, documentation and evaluation of programmes is needed to facilitate comparisons of process, impact and costs. Although the focus should be on effectiveness studies, efficacy research is needed as well to answer key questions.
- To promote production and utilization of food supplements or fortified complementary foods in settings where they are needed, collaboration with the private sector is usually necessary. There is a need for standards for product formulation which may require collaboration with the private sector. Any collaboration however needs to be carried out in such a way that conflicts of interest are minimized and those that cannot be avoided are adequately dealt with. The efforts must benefit public health and be compliant with the International Code of Marketing of Breast-milk Substitutes and subsequent relevant World Health Assembly resolutions (the Code).

# Introduction

Infant and young child feeding is critical for child health and survival. WHO and UNICEF recommend that infants be exclusively breastfed for the first 6 months of life and thereafter receive adequate complementary foods in addition to continued breastfeeding until 2 years of age or beyond (1, 2).

Appropriate complementary feeding is critical for the achievement of healthy growth and development and mere survival of young children. Considerable progress has been made in defining standards and indicators for appropriate feeding, notably with the publication of the *Guiding principles for complementary feeding of the breastfed child* (3), and the *Guiding principles for feeding of non-breastfed children 6-24 months of age* (4), as well as the development of the *Indicators for assessing infant and young child feeding practices* (5). However, the process of translating these principles into specific policies and programmes that respond to the needs of the setting in which they will be applied is less well developed. WHO and UNICEF organized an informal consultation in Geneva in October 2008 to fill this gap and initiate development of programme guidance on complementary feeding for decision-makers and programme planners, in order to reach many more mothers and children with effective interventions. The meeting was preceded by an informal consultation on management of moderate malnutrition that aimed to assess what diets should be recommended to feed moderately malnourished children (6). Participants in both meetings strongly emphasized the continuum of care that is required to provide infants and young children with adequate nutrition and hence, to prevent and manage malnutrition in this vulnerable period of life.

# Objectives

The overall objectives of the consultation were to:

- Discuss a framework to translate the *Guiding principles for complementary feeding of the breastfed child* and the *Guiding principles for feeding non-breastfed children 6-24 months of age* into context-specific interventions and intervention combinations; and
- Recommend how to promote accelerated and strengthened action for infant and young child feeding, in particular for children 6-23 months<sup>1</sup>, in low-income countries.

Specific objectives were to:

- Review effective interventions and delivery approaches to optimize feeding of infants and young children 6-23 months of age, considering various scenarios of food security;
- Discuss how best to integrate effective interventions and delivery approaches into existing programmes to accelerate service delivery;
- Identify existing tools to facilitate the implementation of the framework and agree on priorities for new tools; and
- Identify operational research priorities and means to address them.

These objectives were addressed by the more than 50 researchers, programme implementers, and representatives of non-governmental and governmental organizations, UNICEF and WHO headquarters, regional and country offices who participated in the consultation (see **Annex 1** for a complete list of participants).

Over the course of four days, the participants approached the objectives through formal and informal presentations, panel discussions and group work (see **Annex 2** for the agenda).

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<sup>1</sup> In this report, age groups are described in intervals of months completed. For example, a child 6-23 months has completed 6 months but has an age less than 2 years.

# Why is it important to accelerate action now?

Undernutrition is responsible for at least 35% of under-5 deaths (7). It is also a direct cause of mortality, and a major disabler preventing children who survive to reach their full developmental potential. An estimated 32% of children less than 5 years of age in developing countries are stunted and 10% are wasted. Lack of appropriate breastfeeding and complementary feeding practices are main causes of undernutrition. Inappropriate breastfeeding and complementary feeding practices can also initiate the problem of overweight and obesity that may only become most apparent in children beyond the age of 2 years. Many countries suffer from the double burden of both types of malnutrition.

The critical window for improving child nutrition is from pregnancy through the first 24 months of life. The deficits acquired by this age are difficult to reverse later. Many countries experience a sharp increase in the prevalence of malnutrition for this age group. Strategies to improve developmental and growth outcomes in children should include interventions to improve the nutritional status of pregnant and lactating women; delayed umbilical cord clamping to improve the infant's iron status; early initiation of and exclusive breastfeeding for 6 months; support for continued breastfeeding along with appropriate complementary feeding from 6 months up to 2 years and beyond; support to ill and malnourished children; and micronutrient (MN) supplementation and fortification.

Approaches to increase intervention coverage include counselling mothers during antenatal care and just after birth, and giving further counselling and support for breastfeeding and complementary feeding practices at critical points in a child's life thereafter. They require national level advocacy, the adoption of relevant policies, professional training, revision of norms and guidelines and the curriculum, changes in hospitals and health facilities, and community-based approaches to improve care for children. Approaches to make high quality supplements or fortified blended foods accessible at affordable prices may be needed as well.

High rates of exclusive breastfeeding during the first 6 months of life and continued breastfeeding with complementary feeding can potentially prevent 13% and 6% respectively of under-5 deaths each year (8). Specific strategies are required for feeding in exceptionally difficult circumstances, such as when a mother is HIV-infected or in situations of high food insecurity.

The evidence for effective interventions to improve feeding in children 6-23 months of age has been strengthened considerably in recent years. Results from efficacy and effectiveness trials have demonstrated the positive effects of community-based behavioural change approaches to improve breastfeeding and complementary feeding practices (9, 10, 11, 12). New food technologies to improve the diet of children 6-23 months of age have been developed and tested. Hence, important new information is now available on what works, which is most timely in an era where increased numbers of families and children are at risk of undernutrition due to rising food and fuel prices in many countries, at the same time as overweight and obesity are on the rise.

# What do we know about effective interventions?

Over the past two decades, evidence and experience have accumulated on effective interventions and delivery approaches to protect, promote and support breastfeeding. Actions at health facility, community and national levels have started bearing results in some countries where exclusive breastfeeding rates have improved. Nevertheless, much more needs to be done to reach high coverage of early initiation and exclusive breastfeeding for 6 months, and of continued breastfeeding up to 2 years or beyond. Recently, increasing emphasis has been placed on exclusive breastfeeding for infants up to 6 months of age as an important factor for child survival, growth and development. However, continued breastfeeding is also very critical to improve feeding in children 6-23 months of age, as breast milk is an important source of energy and nutrients in the child's diet and has numerous other beneficial effects (3).

The evidence and experience for what works to improve the utilization and intake of adequate complementary foods are more limited. Results from 42 efficacy trials and effectiveness studies on complementary feeding interventions were recently compiled (13). They indicated that there is no single universal "best" package of interventions to improve complementary feeding because both the needs of and the options for accessing appropriate foods in the target population vary greatly. The review noted that the initial prevalence of malnutrition, the degree of household food insecurity, the energy density of locally available complementary foods and the availability of micronutrient-rich local foods are all factors that affect the impact of interventions.

The review concluded that carefully designed programmes that include pre-tested educational messages provided through multiple channels had an effect in improving complementary feeding. A greater impact was seen when animal-source foods were specifically promoted in the messages or when food supplements were provided as well. In particular, the use of nutrient-rich, animal-source food had beneficial effects on growth and developmental outcomes.

Taking into consideration the review and other experiences, participants concluded that education approaches, including counselling and behaviour change communication, are essential to improve infant and young child feeding practices. They should be at the centre of any strategy to improve infant and young child feeding.

These education activities are especially needed to impart knowledge and develop skills to maximise use of locally-available, high-quality foods, as well as to improve infant and young child feeding practices. Food safety, cultural beliefs and intra-family food distribution should also be a focus of education and counselling for this purpose.

Depending on the local situation and the needs of the population, additional approaches to enhance the accessibility, availability and use of additional high-quality foods and food products may be necessary. Local circumstances and formative research should assess the overall acceptability, feasibility, affordability, sustainability and safety of their production, delivery and use. This assessment would then determine whether such products should be introduced, how they should be promoted, what their composition should be, and how demand can be created. Care should be taken that the promotion of such products does not displace breast milk or the use of locally available nutritious foods. Marketing needs to be

carefully controlled and monitored, in compliance with the International Code of Marketing of Breast-milk Substitutes and subsequent relevant WHA resolutions (14).

Effective approaches to improve the quality of the diet include (i) increasing dietary diversity using locally available nutritious foods, in particular animal-source foods where feasible; (ii) point-of-use fortification or enrichment of the local diet; and (iii) the use of appropriately fortified food products.

In addition to education and counselling to support continued breastfeeding and improve use of locally available, nutritious foods, targeted social programmes should focus on ensuring access to and affordability of these foods for the poorest groups of the population.

Point-of-use fortification<sup>1</sup> is intended to improve the nutritional quality of the child's meal at the time of consumption. Products include MN formulations, MN formulations enhanced with soy or milk powder (which can also provide essential fatty acids - EFAs), and lipid-based nutrient supplements (LNS) that include lipids and essential fatty acids. LNS in particular, used in small amounts (less than 20 grams per day), have been shown to improve both growth and developmental outcomes (14). Products can be based on locally produced ingredients, but they must generally be manufactured and distributed centrally to ensure quality and distribution to low-income or hard-to-reach families and communities. A number of studies are being implemented and planned to assess the impact of these types of products on a wider scale. Participants felt that these products were suitable for wider application in programme settings provided the experiences were carefully documented and monitored in order to assess the effects and possible impact.

Fortified foods can also be effective to enhance the nutrient quality of the young child's diet. In many resource-poor settings, targeted improvement of the local diet between 6-11 months is likely to be needed when available foods do not meet nutrient requirements at an affordable cost.

The decision as to which product to promote should be based on formative research that assesses acceptability, feasibility, affordability, sustainability and safety. Appropriate social marketing is important for any product.

Fortification at point of use<sup>2</sup> may have an advantage over centrally fortified foods in achieving adequate intake by the child of the intended MN dose and, in the case of LNS, EFAs. Intake of a targeted dose of micronutrients is less likely to be achieved by fortified foods because the amount of micronutrients consumed is a function of the amount of foods consumed and is highly variable, depending on the age of the child, breast-milk intake and other foods consumed. LNS have an advantage over micronutrient sachets in that they provide essential fatty acids, and over fortified foods in that the energy content is low and so are less likely to displace breast milk. Also, fortified foods can have very different macronutrient compositions with likely effects on consumption and biological impact.

In general, the energy content of the daily ration of such products should be low (less than 200 kcal/day for children 6-11 months of age) in order not to displace breast milk and other nutritious locally available foods (3). Cost and cost-effectiveness need to be considered in selecting the products and approaches most suitable for a particular population.

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<sup>1</sup> The term 'enrichment' was preferred, but for consistency with existing documents already in use by programme staff, it was suggested to use the term 'fortification'.

<sup>2</sup> Adding a micronutrient formulation or a lipid-based nutrient supplement to the infant's or child's prepared food just before consumption.

In situations where children are not breastfed, where food security is a major problem, or children need extra food for catch-up growth, there may be a need to provide energy as well as nutrients. This is particularly important in settings with high HIV prevalence, where often enhancing availability of complementary foods has to be considered in addition to HIV and infant feeding counselling. However, there is no need for high-protein diets, even in these settings.

Participants acknowledged that the available evidence addressed selected dimensions of the *Guiding Principles*, in particular as they related to the amount of complementary food needed, meal frequency and energy density, nutrient content and the use of MN supplements or fortified products. There is less programmatic experience in the practical application of other dimensions of the *Guiding Principles* that might show good results in the future. Examples include maintenance of breastfeeding, responsive feeding, safe preparation and storage of complementary foods, and feeding during and after illness.

The meeting did not consider the needs of infants of mothers who are HIV-infected in particular. Further consultation will be required on how best to support appropriate feeding of HIV-exposed infants, especially in the age range of 6 to 11 months.



# What do we know about effective delivery channels and programmes?

Knowledge of effective delivery channels and programmes related to complementary feeding is based on limited experience, but supplemented by consistent findings from extensive experience with breastfeeding (16, 17).

In general, successful programmes should be supported by appropriate national policies, commitment by governments to implementation, adequate funding from a variety of sources, and appropriate monitoring and evaluation activities. They should be based on findings of formative research of what interventions and delivery channels are likely to be effective, acceptable, feasible, affordable and safe in the specific setting. They should promote a limited set of consistent do-able actions, communicated through key messages delivered by multiple channels.

Successful education approaches for improved complementary feeding, including counselling and behaviour change communication, are characterized by:

- Use of formative research to assess enabling factors and barriers to behaviours and behavioural change, develop feasible feeding recommendations and messages, and identify effective delivery channels;
- Promotion of a limited set of consistent, practical (do-able) actions communicated through key messages via multiple channels and multiple contacts;
- Emphasis on the use of nutrient-rich, animal-source foods;
- Creation of demand for improved feeding practices, in part through identifying meaningful benefits to the target population;
- Integration of the interventions into existing primary health care platforms such as Integrated Management of Childhood Illness (IMCI), Integrated Management of Pregnancy and Childbirth (IMPAC) and other community-based health and nutrition programmes that provide a relevant contact point to provide nutrition support to young children and their mothers;
- Use of delivery platforms provided by sectors other than health, e.g. agriculture, education or social security schemes.

The importance of community-based initiatives, especially regarding the second and the last two points above, was stressed.

Messages chosen for broad dissemination should be consistent with the *Guiding Principles*, but will need modification to be specific to the setting. Prioritization of messages is required, and it will not be possible to influence all dimensions of appropriate feeding at the same time.

To effectively influence feeding practices, education approaches must go beyond the audience of caregivers and families, to also address the perceptions of health workers, opinion leaders, programme managers and decision-makers.

In spite of the evidence discussed in previous sections, participants recognized important gaps in information on what works best and when. They called for large-scale effectiveness studies and well-designed evaluation to provide further evidence and information, not only on interventions, but also to learn about their implementation at scale. More clarity is needed about the most effective approaches (and their cost) for counselling and behaviour change communication, sustaining performance of health professionals, integration of interventions in primary health care services, required policy instruments and the promotion of additional food products when needed.

While successful interventions to improve complementary feeding are likely to be specific to the setting, some general principles are likely to apply. It will be critical to identify the general principles, at the same time as identifying the specifics and the characteristics of their settings. Therefore, a standard set of criteria on design, documentation and evaluation of programmes is needed to facilitate comparison of process, impact and costs.

# A framework for planning and evaluation

Participants acknowledged the limitations associated with the paucity of evidence on what works at scale to improve feeding in children 6-23 months of age. Based on available evidence and learning from breastfeeding programmes that have been operating at scale, key steps for planning were identified. Planning should follow a systematic process that includes:

- A detailed situation assessment that uses existing qualitative and quantitative data, including from Demographic and Health Surveys (DHS), and Multiple Indicator Cluster Surveys (MICS), and collects new data as necessary;
- Identification of acceptable, feasible, affordable, sustainable and safe approaches to overcome barriers to appropriate feeding and use opportunities for reinforcing good practices;
- Development of appropriate complementary feeding recommendations, in line with the *Guiding Principles*, and defined by priorities from the situation assessment. An assessment of nutrient adequacy of the draft recommendations using linear programming or other similar techniques is relevant at this stage;
- Trials of improved feeding practices (TIPS) (including among health workers) for testing new recommendations;
- Participatory development and pre-testing of practical, action-oriented messages; and
- Identification of multiple channels and multiple contacts for delivery of messages, including mutually reinforcing approaches within the health system and in communities.

Formative research incorporating the above aspects is essential. It is also necessary to assess the extent to which the proposed complementary feeding recommendations are likely to ensure dietary adequacy, and to identify feasible modifications to improve them when necessary. Promising tools, such as ProPAN<sup>1</sup> and those based on linear programming or diet modelling, can play a useful role to guide the organization and analysis of data from multiple sources to carry out these tasks.

Programme planning should include the design of a detailed monitoring and evaluation plan, including a programme implementation pathway (PIP)<sup>2</sup> or similar design that describes the mechanisms and assumptions that link programme inputs to outputs, outcomes and impact. Impact assessment should not only consider growth but also developmental and other functional outcomes.

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<sup>1</sup> The ProPAN manual may be downloaded at: <http://www.paho.org/English/AD/FCH/NU/ProPAN-index.htm>.

<sup>2</sup> See Douthwaite B et al. Participatory impact pathways analysis: a practical application of program theory in research-for-development. *The Canadian Journal of Program Evaluation*, 2007, 22(2):127-159; Bergeron G et al. *Monitoring and evaluation framework for title II development-oriented projects*. Washington DC, Food and Nutrition Technical Assistance Project, Academy for Educational Development, 2006; and Bergeron G et al. *Evaluating title II development-oriented multi-year assistance projects*. Washington DC, Food and Nutrition Technical Assistance Project, Academy for Educational Development, 2006.

Facilitative supervision and quality assurance during implementation are important for success. These aspects should be included during planning and resource allocation, so that human resources, time and funds are available. The recent availability of a more complete set of indicators to assess infant and young child feeding will permit better monitoring of progress on the various dimensions of appropriate feeding practices at the population level (5).

The new growth standards that are now being introduced by countries provide an opportunity to review and strengthen the national strategy for infant and young child feeding. The process is an entry point to reformulate messages included in child health cards, develop capacity for nutritional assessment and counselling, and identify the need to introduce new policies essential to protect and support infant and young child feeding.

Finally, participants emphasized the importance of planning for adoption, implementation and/or monitoring of relevant policies and legislation. In particular, any marketing of food supplements or fortified foods should be carefully controlled and monitored in order to use these opportunities to promote and protect optimal breastfeeding, and moreover to avoid undermining exclusive and continued breastfeeding and the use of locally available nutrient-rich foods. Companies must comply with the International Code of Marketing of Breast-milk Substitutes and subsequent relevant WHA resolutions, while governments should implement relevant and appropriate legislative frameworks based on the above (if they have not already done so).

# Tools for supporting planning and implementation

An inventory of tools that could assist programme planners and managers to strengthen actions to improve feeding of infants and young children has been developed by WHO, and can be accessed on request<sup>1</sup>. The inventory includes tools related with policies and strategies, advocacy, assessment and planning, norms and standards, training, research and references, and monitoring and evaluation.

These tools have not been brought together into one framework with an user-friendly interface. In addition, there is need for specific guidance on prioritization of feasible interventions, in particular as they relate to the introduction and choice of food supplements or fortified foods. There is also an urgent need for guidelines on product formulation. Better tools for monitoring of intervention delivery and outcomes are needed, as well as for programme evaluation.

Presently there are inconsistencies in the way that current scale up efforts are documented and reported. In order to better consolidate the evidence, it would be helpful to develop and promote the use of a standardized format to report on programme design, in order to facilitate the comparison of inputs, outputs, outcomes and results across various implementation sites and develop a better understanding of what works, why it works and how much it costs.

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<sup>1</sup> Contact [cah@who.int](mailto:cah@who.int) or [nutrition@who.int](mailto:nutrition@who.int)

# Research priorities

Participants identified a number of research priorities, including:

## Intervention development

- How much does breast milk contribute to total energy intake in children 6-23 months of age, at various age ranges?
- What are the optimal nutrient requirements of infants and young children?
- What are the key limiting factors in children's diets that lead to stunting?
- What is the optimal composition for maximum efficacy of various products to enrich children's diets (i.e. MN powders, LNS, fortified foods)?
- What are longer-term impacts of MN powders and enhanced micronutrient products on health outcomes in pregnant and lactating women and on children's linear growth and developmental outcomes?
- Are there adverse effects of receiving iron in point-of-use fortification?
- What food options are presently available to help replace breast milk for non-breastfed HIV-exposed children after 6 months of age, and are there better alternatives that could be developed?
- What is the balance of risk of continuing versus cessation of breastfeeding to achieve the best 18-month HIV-free survival of HIV-exposed infants, and how can these risks be minimized?

## Programme implementation

- What are the minimum characteristics of programmes that are effective to improve feeding practices and health outcomes? What are the minimum programme inputs needed to ensure results?
- What are effective strategies to increase demand for infant feeding interventions?
- What are feasible strategies to reach and sustain high rates of continued breastfeeding?
- What is the comparative effectiveness of various behavioural change approaches and counselling strategies, e.g. group versus individual counselling, to improve feeding practices and health outcomes?
- Is counselling around a growth trajectory more effective than delivering a small set of setting-specific messages regardless of the growth pattern?
- What are the best methods of dietary fortification at point of use in programme settings, in terms of effectiveness to improve nutritional intake and health outcomes, and appropriateness for rapid scale-up?
- What is the extent of intra-household sharing of products promoted for complementary feeding, and what are effective strategies to increase the intake by targeted children?
- What are the effects of promoting a new 'product' in changing infant and young child feeding practices compared to promoting local foods only?

Programme costs and cost-effectiveness should be assessed for any of the tested interventions.

# Recommendations for next steps

The meeting participants agreed on the next steps for putting the conclusions and recommendations into practice:

- Develop the evidence base necessary to promote and implement effective interventions to improve complementary feeding at scale, including the promotion, protection and support of continued breastfeeding up to 2 years or beyond (responsible: all participants).
- Advocate and mobilize resources for large-scale effectiveness studies and well-designed evaluations to provide further evidence and information about effective interventions and delivery channels to improve infant and young child feeding with emphasis on children 6-23 months of age, their effects, impact and the costs (responsible: all participants).
- Provide better guidance on integrated planning for breastfeeding and complementary feeding interventions, including preparing a summary framework for action document, updating the *Planning guide for implementation of the global strategy on infant and young child feeding* (18) and developing an instrument to prioritize options for improving the nutritional quality of complementary foods (lead: WHO and UNICEF).
- Prepare a toolkit for the development of a national strategy and action plan on complementary feeding and provide guidance on its use. Form a small working group to develop the methodology and prepare instruments for global application, including for monitoring and evaluation (lead: WHO, UNICEF, other partners).
- Ensure close collaboration with the technical working group formed as a result of the moderate malnutrition meeting<sup>1</sup> to prepare standards for formulation of fortified blended foods and products for enrichment at point of use (6) (lead: WHO).
- Develop tools on activity-based costing of various interventions for infant and young child nutrition (following the model currently under development by USAID and FANTA-2 on activity-based costing for Community-based Management of Acute Malnutrition) (19) (lead: USAID).
- Strengthen approaches for working with the private sector on formulation of products for complementary feeding, while ensuring private sector adherence to the International Code of Marketing of Breast-milk Substitutes and subsequent relevant WHA resolutions (lead: UNICEF).
- Address specifically the nutritional needs of non-breastfed children 6-23 months of age, through research, a review of state-of-the art evidence of feasible feeding options, and a technical consultation to develop recommendations (lead: WHO).

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<sup>1</sup> See also Dr Briend's presentation in this report on the WHO/UNICEF/WFP/UNHCR informal consultation on the dietary management of moderate malnutrition in under-5 children, 30 September-3 October 2008.

- Strengthen action to monitor marketing of products to adhere to the International Code of Marketing of Breast-milk Substitutes and subsequent relevant WHO resolutions (lead: WHO, UNICEF, IBEAN).
- Evaluate the use of existing tools to improve infant and young child feeding, and monitor what is working (responsible: all partners).
- Disseminate research priorities identified in the meeting and facilitate investment in relevant studies (responsible: WHO).



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# Annex 1

## List of participants

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\* Unable to attend.

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Dr Francesco Branca

Dr Maria del Carmen Casanovas

Dr Mercedes de Onis

Dr Adelheid Onyango

Ms Randa Saadeh

# Annex 2

## Agenda

### Monday 6 October

<b>Objective:</b>	Review effective interventions and delivery approaches to optimize feeding of infants and young children 6-23 months of age, considering various scenarios of food security
<b>Chairpersons:</b>	Margaret Parlato, Kim Michaelsen
09.00 - 09.45	Welcome of participants (Elizabeth Mason, Francesco Branca, Werner Schultink) Objectives of the meeting (Bernadette Daelmans, Nuné Mangasaryan) Introduction of participants
09.45 - 10.30	Evidence for effective interventions to improve feeding in children 6-23 months of age and reach better health outcomes (Kathryn Dewey)
Break	
11.00 - 11.30	Discussion
11.30 - 12.30	Evidence for effective delivery approaches and opportunities to scale-up interventions (Chessa Lutter) Discussion
Lunch	
14.00 - 14.30	Guiding Principles for Complementary Feeding of the Breastfed Child and Guiding Principles for Feeding Non-breastfed Children: constraints to implementation (Jose Martines) Discussion
14.30 - 15.30	Behaviour Change Communication in interventions to improve infant and young child feeding (Gretel Pelto, Peggy Bentley) Discussion
Break	
16.00 - 16.15	Recommendations from the moderate malnutrition meeting (André Briend)
16.15 - 17.45	Panel discussion: Effective approaches to deliver infant and young child feeding interventions (facilitator: Victoria Quinn) Country case studies: Ethiopia (Agnès Guyon) Guatemala (Elena Hurtado) India (Nita Bhandari) Peru (Hilary Creed) HIV and infant feeding (Mickey Chopra)

## Tuesday 7 October

<b>Objective:</b>	Discuss how to integrate effective interventions and delivery approaches into existing programmes to accelerate service delivery
<b>Chairpersons:</b>	Dominic Schofield, Eunyong Chung
09.00 - 09.15	Summary of Day 1 by chairpersons
09.15 - 10.00	Planning for effective interventions and delivery approaches using ProPan (Helena Pachon) Discussion
10.00 - 10.30	Linear programming: a key instrument for identifying adequate feeding recommendations (Elaine Ferguson) Discussion
Break	
11.00 - 11.40	Nutrition guidelines for children living with HIV Discussion (Nigel Rollins)
11.40 - 12.30	Strengthening country actions to improve infant and young child nutrition - experiences from GAIN Discussion (Sandy Huffman)
Lunch	
14.00 - 14.30	Repositioning children's rights to adequate nutrition in the Sahel (Victoria Quinn, Sara Wuehler) Discussion
14.30 - 17.30	Introduction to group work: <i>Identifying evidence-based interventions and delivery approaches to improve locally available foods and feeding practices among infants and young children</i>  Group 1: Improving dietary diversity and food quantity and quality using locally available approaches and resources - experiences, opportunities and way forward (facilitator: Rae Galloway)  Group 2: Home fortification of complementary foods - experiences, opportunities and way forward (facilitator: Kathryn Dewey)  Group 3: Commercial fortification of complementary foods - experiences, opportunities and way forward (facilitator: Dominic Schofield)  Group 4: Improving caregiver feeding practices through behavioural change approaches - experiences, opportunities and way forward (facilitator: Peggy Bentley)

## Wednesday 8 October

<b>Objectives:</b>	Discuss the framework to translate the Guiding Principles into context specific interventions and intervention combinations and identify existing tools to facilitate the implementation of the framework
Chairpersons:	Marie Ruel, Victor Aguayo
09.00-10.30	Feedback from group work Discussion
Break	
11.00 - 11.45	A draft framework of program actions and decision tree for prioritizing interventions to improve feeding of infants and young children (Nuné Mangasaryan) Discussion
11.45 - 12.30	Inventory of tools to facilitate planning and implementation of IYCF interventions in children 6-23 months of age (Carmen Casanovas) Discussion
Lunch	
13.45 -14.00	Introduction to group work: <i>Review the draft decision trees for prioritizing interventions and the framework for program actions. Make suggestions for how to strengthen them, and identify tools to support its implementation</i>
14.00 - 16.00	Participants work in three groups
Break	
16.30 - 17.30	Feedback from the groups  Summary of Day 3 by chairpersons

## Thursday 9 October

<b>Objectives:</b>	Promote accelerated and strengthened action for infant and young child feeding, in particular for children 6-23 months, in low-income countries and identify operational research priorities and means to address them
Chairpersons:	Nuné Mangasaryan, Jose Martines
09.00 - 09.45	Actions to strengthen policy and regulatory frameworks for improved IYCF feeding, including the International Code of Marketing of Breastmilk Substitutes and the Codex Alimentarius (Francesco Branca) Discussion
09.45 - 10.30	The framework for priority actions on nutrition and HIV (Randa Saadeh) Discussion
Break	



11.00 - 11.45	Using the introduction of the new growth standards as an opportunity for accelerating country action Discussion (Mercedes de Onis/Adelheid Onyango)
11.45 - 12.30	Monitoring and evaluation: New and updated indicators for assessing infant and young child feeding practices (Bernadette Daelmans)  Update on efforts to identify indicators for assessing responsive feeding (Hilary Creed de Kanashiro)  Results from early application of updated indicators Discussion (Randa Saadeh)
Lunch	
14.00 - 15.15	Parallel tracks Demonstration of ProPan and Linear Programming tools (Helena Pachon, Elaine Ferguson, André Briend)  Rapporteurs from various groups finalize conclusions and recommendations of the meeting
Break	
15.30 -16.30	Presentation and adoption of the conclusions and recommendations
16.30	Closing

# Annex 3

## Session summaries

### OPENING PRESENTATIONS

#### Welcoming addresses

**Dr Elizabeth Mason, Director, Department of Child and Adolescent Health and Development, WHO, Geneva**

Dr Mason welcomed the participants, noting that the critical window of opportunity for providing appropriate nutrition interventions to ensure infants have the best start in life is from birth to 2 years of age, that the *Global strategy for infant and young child feeding* provides a framework for action in this area, and that there is a range of tools to support its implementation. The *Global Strategy* reflects the developments of the past decades, where we have acquired more evidence on appropriate infant and young child feeding, have gained knowledge on delivery mechanisms, and now know the importance of early initiation and the optimal duration of exclusive breastfeeding. While these have mainly related to breastfeeding, we are now ready to learn more about complementary feeding. Within the age group 6–23 months, there are many children who are not breastfed, some of whom are HIV-exposed, which presents even more challenges. During the complementary feeding period, undernutrition rates rise. In 1998, WHO issued the “Green book”<sup>1</sup> which reviewed the evidence to improve complementary feeding in developing countries, and in 2001, a global consultation on complementary feeding contributed to the development of the *Guiding principles for complementary feeding of the breastfed child*. The two *Lancet* series, on child survival and nutrition, gave further impetus to this work, in particular as they articulate the burden of morbidity and mortality associated with inappropriate breastfeeding and complementary feeding, and list universal coverage of appropriate interventions as among the most effective, with estimated lives saved of 13% and 6%.

This consultation was to review the evidence on effective interventions for complementary feeding and come up with operational guidance to improve feeding practices and provide adequate nutrient intake in young children. Dr Mason said she was very appreciative of colleagues in UNICEF for working closely on this consultation.

She noted that we can’t wait for all the evidence to be in place, but should look at what we have and also at what additional information we need. She noted that there was a consultation on moderate malnutrition the previous week. This issue is of particular concern, as with the rise in food prices, there is a rise in malnutrition. There is thus a special need to prevent children from becoming malnourished. The challenge is to see how to adequately nourish the child, including specifying the quantities needed and the content.

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<sup>1</sup> WHO and UNICEF. *Complementary feeding of young children in developing countries: a review of current scientific knowledge*. Geneva, World Health Organization, 1998.

**Dr Werner Schultink, Chief, Nutrition Section, Programme Division, UNICEF, New York**

Dr Schultink also welcomed the participants, noting that the combination of last week's meeting on moderate malnutrition and the present consultation was particularly fortunate. He noted some examples from countries of why this meeting was timely. In India, complementary feeding is not generally done well, with it being provided late and of poor quality. In Ghana, while coordination between organizations is strong, clearer programme guidelines are needed. He noted recent improvements in breastfeeding in several countries, but stated that complementary feeding interventions are more difficult because they depend on food availability, and there are places with chronic food emergencies.

Dr Schultink hoped that the meeting would lead to integrated community-based programmes at a large scale to reduce malnutrition. He noted that there was an increased interest in the issue of malnutrition in UNICEF, and also elsewhere. For instance, the United Nations General Assembly recently deliberated on the food crisis. There is acceptance that the solution lies not just with agriculture but also with the nutrition sector. The Irish Hunger Task Force puts emphasis on nutrition for women and children, and a Task Force on the food crisis is headed by the Secretary General.

**Dr Francesco Branca, Director, Department of Nutrition for Health and Development, WHO, Geneva**

Dr Branca noted the good collaboration with others in preparation for this meeting. He was pleased with the renewed effort in the area of nutrition, but said it was challenging, and we were unlikely to meet the Millennium Development Goals for nutrition. Work on breastfeeding seemed to be on track, but there was need to look better at nutrition throughout the life cycle, with complementary feeding being part of the continuum of good nutrition. He also noted the double burden of malnutrition and disease.

Dr Branca observed that there were now better tools to help with this work. About 86 countries had adopted the new growth standards, and the growth velocity standards would be available soon.

The increased interest in nutrition was due in part to the recent *Lancet* series, which showed the expanding evidence base. He noted that well-documented work had led to the evidence on which we now had developed good complementary feeding indicators. Scaling-up will require integrated food and nutrition policies, not just small packages. To support these integrated packages, there are funds made available by the Spanish government for maternal and child nutrition. The good collaboration between WHO and UNICEF does not exclude others.

**Dr Nuné Mangasaryan, Senior Adviser, Infant and Young Child Nutrition, Nutrition Section, UNICEF, New York**

Dr Mangasaryan explained that the rationale for convening this meeting was to strengthen and support globally programmes for improved complementary feeding, which is the weaker and more difficult component of infant and young child feeding interventions to implement. This situation is exacerbated by the current global food crisis. Complementary feeding is very important since it targets the age group of 6-23 months, during which a window of opportunity for prevention of malnutrition, irreversible at later ages, exists and significantly influences survival, growth, and development. Globally, there are not many successful complementary feeding programmes. Some good initiatives are on-going in Latin America, but there is still a large gap. The *Global Strategy*, the *Planning Guide* and the *Guiding Principles* are all useful and utilized. However, there is a need for further programming and planning guidance in this area. Planning for complementary feeding needs to be carried out in a comprehensive manner,

including adoption of national policies, systems strengthening and community-level delivery at large scale, and with sustainable strategies to reach best results. Countries generally are cognisant of programmatic needs, strategies and interventions for protection, promotion and support of breastfeeding, but have questions on ways to plan and implement complementary feeding interventions. Many tools are available that can be consolidated for use in this area, but there may be some more specific ones needed for countries. There are numerous research gaps to provide fuller guidance to countries for comprehensive programming, including the use of additional food-based approaches to prevent undernutrition. This gap should not be an obstacle for providing intermediate advice to countries to take action while research informs further directions.

Dr Mangasaryan noted that there is significant advancement of the child survival agenda in many countries. It is important to integrate infant and young child feeding into this work, and to make sure that it is part of national policy in a joint effort between donors and government. There is no comprehensive or best model of a complementary feeding programme, but it is possible to bring together experiences from different countries to make appropriate recommendations.

**Dr Bernadette Daelmans, Medical Officer, Newborn and Child Health, Department of Child and Adolescent Health and Development, WHO, Geneva**

Dr Daelmans presented the agenda, noting the objectives of each day and the presentations and other work that would support the group to achieve them.

## **OBJECTIVE 1: REVIEW EFFECTIVE INTERVENTIONS AND DELIVERY APPROACHES TO OPTIMIZE FEEDING OF INFANTS AND YOUNG CHILDREN 6-23 MONTHS OF AGE, CONSIDERING VARIOUS SCENARIOS OF FOOD SECURITY**

### **Evidence for effective interventions to improve feeding in children 6-23 months of age and reach better health outcomes**

**Dr Kathryn Dewey, Director, Program in International and Community Nutrition, University of California, Davis, California, USA**

Dr Dewey presented a recent systematic review of the efficacy and effectiveness of complementary feeding interventions. The scope of the review covered interventions in developing countries that targeted children 6-23 months of age. Outcomes measured included: growth, morbidity, child development, and micronutrient intake and status. Studies that assessed only the impact on feeding practices were not included. The review generally focused on reports from 1996-2006. A total of 29 efficacy trials and 13 effectiveness studies or programme reports were included. Intervention strategies were categorized as education as the main treatment; complementary food or a food product offering extra energy (with or without added micronutrients) provided as the only treatment; provision of food combined with some other strategy, usually education for mothers; fortification of complementary foods (central or home fortification) with micronutrients (with no difference in energy provided to intervention versus control groups); or increased energy density and/or nutrient bioavailability of complementary foods via simple technologies.

Examining the evidence for various interventions on child growth, Dr Dewey reviewed efficacy and effectiveness studies including programme reports. Education about child feeding had a modest effect on weight and linear growth; provision of a complementary food had a significant impact, but the

results were somewhat inconsistent; food plus another intervention also had an impact; fortification of complementary foods with micronutrients had no significant impact; and two of five efficacy trials to increase energy density of complementary foods showed improved growth.

With regards to the impact of complementary feeding interventions on morbidity, only 10 of 42 papers presented data. Of these, most showed no impact, but they were generally not designed or powered to evaluate morbidity as a primary outcome. Of the four papers that reported data on development outcomes, one in Ghana showed that home fortification improved gross motor development, and another in Indonesia showed that the provision of extra energy to the group with low initial length-for-age increased mental scores. Education and fortification strategies had a clearer impact on micronutrient intake in various studies. The conclusions from the studies were that there was no universal “best” package of components in complementary feeding interventions, and that the impact is context-specific, depending on the initial prevalence of malnutrition, the degree of household insecurity, the energy density of traditional complementary foods, and the availability of micronutrient-rich local foods.

Dr Dewey presented more detailed conclusions for the impacts on growth, morbidity, development, and micronutrient intake and status. Her overall conclusions were that educational approaches can be effective, but in many situations a greater impact may be seen when food or food supplements are provided. Animal-source foods in particular have beneficial effects. To be most cost-effective and avoid displacement of breast milk, the amount of food provided should be modest: no more than 200 kcal/day at 6-11 months. The quality of foods provided may be more important than quantity, particularly as regards micronutrient adequacy, lipid content and the inclusion of milk. Dr Dewey also postulated that growth may not be the most sensitive indicator of impact and that functional indicators, such as for development, should be assessed in future studies.

The discussion brought out various issues including the quality of the studies, geographic representation and age groups covered. Information on the costs was not available, although trials related to this are currently planned. Very little was mentioned on feeding of the sick child. An important theme was whether sharing within households was taken into account adequately.

### **Evidence for effective delivery approaches and opportunities to scale-up interventions**

**Dr Chessa Lutter, Regional Adviser, Food and Nutrition, WHO Regional Office for the Americas, Washington DC, USA**

Dr Lutter reflected on the observation and concern that the limited evidence base in complementary feeding tells us more about “what” to do to improve complementary feeding than “how” to do it. The “how” relates to the mechanisms or platforms for delivering interventions at scale as well as to the content of programmes (what we want health providers and mothers to do). Health care workers such as physicians, nurses, auxiliary nurses and health technicians have far more contact with mothers, young children and other caregivers of young children than nutritionists ever will. To reach the broadest number of mothers and children, interventions to improve complementary feeding and foods must be integrated or mainstreamed into programmes that reach them, especially in primary health care services and community-based initiatives. However, the evidence for programmes that are effective is still relatively weak.

Leveraging knowledge of “what works” into high quality programmes with broad coverage is usually the main obstacle to improving young child nutrition in low-income countries. Primary health care services are often weak, and this is especially true where complementary feeding interventions are most needed. We know very little about the optimum delivery of complementary feeding interventions within different community and health systems contexts. The limited evidence base on how to effectively deliver complementary feeding programmes coupled with limited commitment and institutional capacity to deliver, manage and evaluate these programmes is a serious obstacle to achieving improved child nutrition during the complementary feeding period.

To achieve results at scale, attention must be given to 1) increasing access to scientific information supporting evidence-based practices that improve complementary feeding and young child nutrition and addressing the skills needed to implement the recommended practices; 2) establishing and communicating global, national and local policies and guidelines for implementation in conjunction with advocacy and synchronization with other young child health care efforts; 3) reorganizing primary care services so that nutrition is included as a core function of services and not as an adjunct activity to be implemented by lower level health professionals or only when time permits; and 4) monitoring and evaluation.

Additional challenges to scaled-up action to improve complementary feeding include 1) identifying entry points and creating demand; 2) building the evidence base for effective interventions; and 3) simplifying complementary feeding messages to ensure consistent delivery through multiple channels. Simplifying messages is particularly challenging in complementary feeding given that recommended complementary foods are setting- and age-specific; access to appropriate foods is not always a given; recommended practices include many dimensions, as described in the 10 *Guiding Principles*; the quantity of food children need depends on breast-milk intake; and, responsiveness to child cues has to be balanced with the need to give clear information to health workers and mothers.

Nonetheless, Dr. Lutter argued that now is a very propitious time to scale up action. There is new evidence about what works, promising new food supplements such as LNS and indicators to assess complementary feeding on a broad scale. There are also new opportunities resulting from the *Lancet* series, interest in the donor community and interest in “delivery science” about how to better deliver efficacious interventions. We can also build on the very successful efforts to promote breastfeeding.

She reviewed the evidence on the effectiveness of counselling in IMCI and in community-based programmes, described how counselling is integrated into growth monitoring activities, and presented some elements of successful behaviour change communication programmes. She proposed key characteristics of effective delivery strategies within primary health care:

- Based on behaviour-change models and formative research;
- Consistently delivers small number of priority messages;
- Uses multiple delivery channels;
- Integrated with existing nutrition, child survival and/or relevant non-health programmes;
- Pays attention to creating demand;
- Includes activities in community mobilization;
- Includes a strong communications component;
- In many situations, includes a food component.

## Guiding Principles for Complementary Feeding of the Breastfed Child and Guiding Principles for Feeding Non-breastfed Children: constraints to implementation

**Dr Jose Martines, Team Coordinator, Newborn and Child Health, Department of Child and Adolescent Health and Development, WHO, Geneva**

Dr Martines compared the guiding principles for breastfed and non-breastfed children, noting similarities but a few key differences mainly related to the need for other milks, fluids and micronutrients. He noted that there were several implementation challenges related to foods (cultural, resources, problem nutrients) and feeding, but also that there were effective interventions available. He listed the challenges to implementation at high coverage as:

- Creating political will, commitment and resources;
- Assessing critically the situation;
- Identifying feasible interventions that combine food-based approaches with approaches to promote improved practices (and sustain breastfeeding);
- Delivering efficiently - integrating the interventions into multiple points of service delivery for mothers and young children;
- Delivering services at scale while ensuring equity and universal coverage;
- Monitoring access, quality and coverage;
- Evaluating impact, showing benefits and sustaining efforts.

To address these challenges, Dr Martines suggested building on opportunities and lessons of intervention programmes; checking the adequacy of feeding recommendations and identifying options to fill gaps; identifying target groups and adopting approaches suited to improving their access and utilization of adequate foods and their feeding practices; monitoring progress; tracking costs and making an investment case for cost-benefit; and evaluating, looking at benefits beyond nutritional status.

Participants raised issues related to finding how to achieve a balance between the context, the complexity of the situation, and applying the *Guiding Principles*; and the role of the private sector. In response to a question on how IMCI could be better used for improving complementary feeding, Dr Martines noted that guidance was not provided on quantities, and therefore national adaptation to date also kept quantities generic. However, this situation can be improved. He also stated that further efforts had to be made to ensure improved counselling.

## Behaviour change communication in interventions to improve infant and young child feeding

**Dr Gretel Peltó, Division of Nutritional Sciences, Cornell University, Ithaca, New York, USA and Dr Margaret Bentley, Professor of Nutrition, University of North Carolina School of Public Health, Chapel Hill, North Carolina, USA**

Dr Peltó began her presentation by illustrating that the *Guiding Principles* can be interpreted in terms of behaviours. Throughout the world, caregivers engage in many behaviours that are not optimal from the perspective of the principles.

All complementary feeding interventions, including those that are aimed at improving quality, require behaviour change. However, until recently, there has been very little detail on the processes of behaviour change components in infant and young child feeding interventions. The basic issue to be addressed now is how to create context-specific behaviour change interventions within programmes.

Feeding behaviours are just one part of a bundle of activities and behaviours. They exist in relation to all of the other activities that go on within a household, and don't have any privileged status. The behaviours that are involved are similarly set within a larger social-cultural context. This situation means that the intervention content has to be locally appropriate, not just in terms of food but also in terms of the social and cultural context of child care.

Dr Peltó gave some examples from general experience and from her work in Mexico. She illustrated how behavioural analysis of the programme pathway could identify multiple points that need to be addressed to support behaviour change, including economic resources to support health worker training, economic resources to families and other constraints. A difficult issue is how to design the behaviour change component of an infant and young child feeding intervention within the constraints and realities of actual programmes.

In comments sent to Dr Peltó by participants before the meeting, this issue was described:

- Too little attention is given to the practical steps needed to “translate” the *Guiding Principles* into practical advice that poor, illiterate mothers can adopt;
- How can the formative research be carried out quickly and inexpensively to identify barriers and opportunities to improve complementary feeding?
- Too little attention is given to practical behaviour change communication training for community and health workers to better support mothers to adopt optimal complementary feeding practices;
- What is [are] the absolutely essential message[s] to pass to mothers?
- How do we do all the above ‘at scale’?”

Dr Peltó concluded her presentation by raising three questions:

- What needs to be done to strengthen the capacity of infant and young child feeding programmes to support necessary behaviour change?
- What are the constraints faced by programmes that prevent them from meeting their behaviour change goals?
- What process could be used to obtain answers to these questions?

Participants raised issues during the discussion period related to the problems of carrying out formative research when there is little capacity in some settings, and how to build this capacity; how much specificity we need regarding geographic area, language, culture and beliefs; and whether there are key messages within the *Guiding Principles* that we can propose to always be included when interacting with caregivers.

## Conclusions from the moderate malnutrition meeting

**Dr André Briend, Medical Officer, Department of Child and Adolescent Health and Development, WHO, Geneva**

Dr Briend reported on the meeting on moderate malnutrition convened by WHO in Geneva from 30 September to 3 October. For the purpose of the meeting, moderate malnutrition included all children with weight-for-age  $<-2$  SD and/or with growth faltering, and excluded those who need therapeutic feeding (weight-for-height  $<-3$  SD or low mid-upper arm circumference or oedema). Four background papers were prepared for the meeting: adequate nutrient intake for children with moderate malnutrition;



foods adequate to feed moderately malnourished children; a review of existing programmes on management of moderately malnourished children based on dietary counselling; and a review of existing programmes on management of moderately malnourished children based on food supplements.

Based on these papers, next steps were proposed. For the area of ensuring adequate intake, it was proposed to formulate tentative estimates of adequate intake for moderately malnourished children and to have WHO create an expert advisory committee to define specifications of food supplements adapted for management of moderately wasted children. With regards to adequate foods, key questions were how to determine the minimum level of animal-source foods needed by moderately malnourished children, and the maximum tolerable levels of antinutrients and dietary fibres. Dr Briend said that there is an urgent need to have this examined by WHO and the Codex Alimentarius Commission. There is also a need to explore technologies to improve plant-based diets.

It was agreed that dietary and health counselling was always needed, even when food supplements are provided for moderately malnourished children, but counselling specific to the situation would have to be developed. The meeting also proposed formulating quantitative recommendations, and checking their nutritional adequacy.

Dr Briend noted that there had been one commonly used food supplement for 30 years, but now 30 new food supplements are proposed every year. As a result, there is some confusion, and a lack of data does not allow a clear view of what to recommend. There is a need for rigorous evaluation of products being proposed, and future specifications for food supplements for moderately malnourished children should be regularly updated.

The discussion highlighted that while the issue of stunted children was not covered in the meeting, prevention of stunting was a high priority. It was also noted that participants in the moderate malnutrition meeting recognized a clear need for integration of preventive and treatment interventions into one strategy to address child nutrition.

### **Panel discussion: Effective approaches to deliver infant and young child feeding interventions**

**Facilitator: Dr Victoria Quinn, Senior Vice President, Programs, Helen Keller International, Washington DC, USA**

The experts on the panel were requested to describe the interventions in terms of the approach, achievements, steps taken and lessons learned.

#### ***Country case studies***

### **Improving nutrition practices through the Essential Nutrition Actions Framework in Southern Nationalities, Nations, and Peoples region, Ethiopia, 2003-2008**

**Dr Agnès Guyon, Senior Child Survival and Nutrition Advisor, Academy for Educational Development, Washington DC, USA**

Dr Guyon stated that the goal of the Essential Services for Health in Ethiopia (ESHE) project was to reduce under-five mortality and morbidity. It was an integrated project within the Ethiopian government health structures, with nutrition as one component among other child survival interventions. The population covered was about 15 million. Some of the challenges included the assumption that

malnutrition was due only to lack of food; limited knowledge at all levels on infant and young child feeding; and lack of endorsement by the Ministry of Health of the community component.

Research showed that complementary feeding practices varied greatly within the region, including:

- Too early or too late introduction of complementary foods;
- Thin gruels given;
- High rate of bottle feeding;
- Cow milk widely used;
- Little food diversity;
- High rates of continuation of breastfeeding.

Nutrition was implemented through the Essential Nutrition Actions (ENA) framework on multiple levels (through health facilities, communities and families), and multiple contacts at the clinic and community levels (during pregnancy, delivery, the postnatal period and through family planning, immunization, growth monitoring and promotion, sick child contacts and via deploying a large cadre of volunteers to reach families). Key inputs were advocacy and partnerships at the regional level, capacity building of more than 1600 health providers and 20,000 community volunteers, and behaviour change with action-oriented messages based on formative research and supported by simple tools. The interventions reached more than 51% of mothers through community support and mobilization. By 2008, infant and young child feeding and ENA indicators, including the newly developed complementary feeding indicators, were significantly improved when compared to baseline figures and to non-project areas.

Lessons learned included:

- Dietary diversity is the major challenge to improve infant and young child feeding;
- A community component with a large number of actors and contacts is critical for success;
- Infant and young child feeding can be implemented at scale using the ENA framework.

### **Strengthening actions to improve feeding of infants and young children 6-23 months of age in Guatemala**

**Dr Elena Hurtado, Behaviour Change and Nutrition Advisor, USAID, Guatemala City, Guatemala**

Dr Hurtado explained that Guatemalan infant and young child feeding recommendations are included in various national strategies. Delivery approaches include counselling to mothers in growth monitoring sessions and health services; follow up home visits; educational sessions, demonstrations and talks; radio spots and programmes; and training materials, printed job aids for health providers and materials for mothers.

An evaluation in 2007-2008 showed that the nutritional status of intervention children was worse than that of comparison children after controlling for confounding variables. However, there was frequent contact with the health system; mothers were more knowledgeable; and there was positive change in a few practices. Counselling was found to be deficient.

Lessons learned from scaling up showed that several factors affected the programme:

- politics;
- quality of processes (training, counselling);

- problems with coaching/supervision and monitoring;
- rotation of community personnel;
- little use of data due to weakness of the local information system;
- external factors (poverty, rising food prices, low education, lack of water and poor sanitation, large families).

### Promoting appropriate infant and young child feeding practices in Haryana, India

**Dr Nita Bhandari, Society for Applied Studies, New Delhi, India**

Dr Bhandari explained that the intervention centred around key feeding messages that were based on an adaptation of the IMCI food box using “nutritionally adequate”, locally available and acceptable foods. The messages included information on the types of foods to be fed at different ages, amounts and how many times; and “help”, hygiene and feeding during illness.

To deliver these messages, health workers, traditional birth attendants, private providers and mothers’ club members received hands-on training in counselling and communication skills, and received post-training follow up visits.

Evaluation showed significant improvements in various aspects of complementary feeding, and an impact on length but not on weight gain.

The characteristics of the planning process included:

- District leaders in health and nutrition, non-governmental organizations (NGOs) and representatives of workers involved at each stage;
- Key decision-making meetings with representatives from each category of workers, NGOs and senior government functionaries;
- NGO partnership;
- Roles of each partner clearly defined;
- Careful intervention development, locally acceptable solutions, repeated pre-testing of materials;
- Intervention delivery at community and household levels in addition to at the facility;
- Community involvement in intervention development, feedback and pre-testing.

Dr Bhandari listed the lessons learned as:

- Careful planning is key;
- Multiple channels at community level led to higher coverage, and message consistency and repeated contact increased behaviour change;
- Home visits and community activities were of major importance;
- Partnership with an NGO helped sustain community activities;
- Both internal and external technical support was required;
- New ideas are needed for changing doctors’ behaviour;
- A significant proportion of the target population was still not reached (~30-45%).

## **An education intervention delivered through the health services to improve nutrition in infants and young children, Trujillo, Peru**

**Dr Hilary Creed de Kanashiro, Institute of Nutritional Research, Lima, Peru**

Dr Creed described an intervention in a peri-urban coastal population with a stunting rate of 17%, with access to markets, low-cost, micronutrient-rich foods and local health facilities. The feeding problems addressed included inadequate nutrient intakes from complementary foods; dilute preparations and low animal-source food intake; and mothers' concerns in feeding their children.

The principal intervention components were delivery of three key age-appropriate messages in all paediatric services; participatory infant food demonstrations; anthropometric assessment and explanation of child's growth; provision of infant food recipe flyers; growth and development monitoring in groups; and multi-disciplinary problem-solving sessions.

Dr Creed noted that the intervention prevented 11.1 cases of stunting per 100 children at a marginal intervention cost of US\$6.12 per child reached, or US\$55.16 per case of stunting averted. The key steps in planning involved coordination with regional health authorities; formative research; team training; team work; and accreditation of a Pioneer Centre for Infant Nutrition.

Many lessons were learnt for implementation at scale:

- Ministry of Health (MoH) authorities were committed and infant nutrition was perceived as a problem, so that it became part of MoH goals;
- Education interventions need to start early, before 6 months, to prevent growth retardation;
- Key standardized messages are needed;
- Message delivery with use of education materials should include benefits of changes and a "checking" question;
- Everyone in contact with children needs to give a nutrition message;
- Doctors should minimally explain the growth trend and give one message;
- Multiple players and components lead to greater caregiver exposure;
- Demonstrations were successful through "learning by doing" and observing other infants eat;
- Planning is required to provide resources for demonstrations of recipes;
- Concrete tasks are feasible, e.g. delivery of key messages, demonstrations;
- Integrated training of teams (doctors, nurses, auxiliaries) together led to a collaborative spirit;
- There is a need to focus on the service, not on individuals, to address the problem of staff turnover;
- Group counselling was a more efficient use of time for nurses and led to a higher-quality service that mothers liked, but it was complex to implement.

## **HIV and infant feeding: three-country review**

**Dr Mickey Chopra, Director, Health Systems Research Unit, Western Cape, South Africa**

Dr Chopra reported on a review covering Kenya, Malawi and Zambia which was commissioned by UNICEF's East and Southern Africa Regional Office. He reviewed findings from relevant research studies on HIV and breastfeeding coming from the region, and noted that a key challenge is the operationalization of recommendations for nutrition to become an integral part of HIV interventions and programmes.

The lives of HIV-exposed infants living in low-income settings are threatened by the combined risks of HIV transmission and malnutrition due to insufficient and poor quality nutritional intake. Avoidance of breast milk eliminates the risk of HIV transmission but places the infant at increased risk of morbidity and mortality. Health systems therefore need to help HIV-infected mothers balance these risks and guide them in making decisions on how to feed their infants in order to reduce HIV transmission risk and also promote normal growth and development. Current recommendations on prevention of postnatal transmission of HIV state that HIV-exposed infants should breastfeed unless it can be demonstrated that a mother's circumstances are acceptable, feasible, affordable, sustainable and safe (AFASS) and would enable her to adequately feed her child.

The review involved documenting country experiences through looking at relevant documents and field visits. Challenges and positive factors were identified for key programme areas, including:

- Health sector policy and strategic management:
  - integrated systems for planning and management
  - integrated HIV and infant feeding policies
  - inter-sectoral action and partnership for health between government and civil society.
- Health service delivery:
  - management and technical guidance
  - human resource management and quality
  - integration of supplies and information systems.

The review revealed that delivery of interventions on HIV and infant feeding was generally problematic, with some issues at all levels, lack of clarity among health workers, and ineffective counselling. Since the review, the countries have taken action to remedy the situation. Kenya has used a grant from the Global Fund for AIDS, Tuberculosis and Malaria to employ extra nutritionists, and Malawi is planning to employ a cadre of community-based health workers for nutrition. Dr Chopra concluded by emphasizing that it is possible to access resources for support for infant feeding counselling.

**Dr Quinn summarised the presentations from the panel members:**

- The project case studies gave examples from Africa, Asia and Latin America, with urban/peri-urban and rural areas included;
- Some projects entailed provision of food while others did not;
- The presentations represented a range of situations from randomized control studies to 'real-life programmes on the ground';
- All the projects were health-sector based, apart from Guatemala which included conditional cash transfers;
- Some projects used growth monitoring and promotion while others did not (e.g. Ethiopia);
- Multiple delivery channels are very important to reach the target group, in order to achieve as high coverage as possible;
- All projects used formative research to identify constraints/barriers and formulate messages, and used interpersonal counselling/negotiation with mothers/caregivers;
- The focus was placed on a selected set of key complementary feeding messages;
- Many health workers and community workers were trained (e.g. in Ethiopia and Guatemala).

The discussion brought out other key points:

- Collaboration is essential: between governments, donors, NGOs, private sector and beyond;
- Advocacy is key to create a culture of ‘infant and young child feeding’;
- Behaviour change communication strategies played a central role;
- Capacity building, especially of service providers and community workers, is key, but a future challenge in scaling up is to do so while maintaining quality;
- Rigorous monitoring and evaluation is a ‘must’, but we don’t always encounter it as resources for this purpose are often scarce;
- If our goal is ‘going to scale’ to reach public health impact, then we need to reach coverage of over 80% for complementary feeding and over 90% for breastfeeding practices (according to the *Lancet* child survival series calculations), so the challenge is immense and requires firm commitment, adequate resources and unflinching attention;
- Multiple programme opportunities and contact points extend/broaden coverage widely.

## **OBJECTIVE 2: DISCUSS HOW TO INTEGRATE EFFECTIVE INTERVENTIONS AND DELIVERY APPROACHES INTO EXISTING PROGRAMMES TO ACCELERATE SERVICE DELIVERY**

### **Planning for effective interventions and delivery approaches using ProPAN (Process for the Promotion of Child Feeding)**

**Ms Helena Pachon, CIAT, Cali, Colombia**

Ms Pachon explained that ProPAN employs a conceptual framework where the *Guiding Principles* are translated into 12 ideal feeding practices (covering breastfeeding and complementary feeding) - some of these practices correspond directly with the *Guiding Principles* that were published after ProPAN was completed. Analysis is done to assess whether the practices are being followed, and if not, why not, and how could this be changed. Based on this analysis, recommendations are formulated, assessed for feasibility and potential impact, strategies proposed, and converted into the design of an intervention, including monitoring and evaluation.

ProPAN consists of four modules<sup>1</sup>: I Assessment; II Recipe creation and trials of recommendations; III Design of an action plan; and IV Monitoring and evaluation. The Assessment module is a guide to gathering and analysing qualitative and quantitative information on infant feeding practices. It looks at diet and feeding problems in a particular context and proposes recommendations. Module II involves creating and testing nutritious recipes, as well as behaviour change recommendations, that are feasible and acceptable. Module III helps to decide on strategies for an intervention, and the action plan to be followed using those strategies. The last module helps in specifying objectives and identifying inputs, outputs, results, impact and benefits, as part of a comprehensive monitoring and evaluation plan.

According to Ms Pachon, the advantages of using the ProPAN approach are that it:

- Jointly considers breastfeeding and complementary feeding practices;
- Operationalizes aspects of six *Guiding principles* for complementary feeding;

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<sup>1</sup> The manual in English can be downloaded at <http://www.paho.org/English/AD/FCH/NU/ProPAN-index.htm>.

- Has two of eight core feeding indicators;
- Integrates quantitative and qualitative methods;
- Explains how to analyse information;
- Offers guidelines on how to convert data into an implementable programme.

She provided information on the software aspect of ProPAN, and gave examples of where and how it had been used, which is primarily in Latin America but also in other parts of the world. Dr Creed gave some specific information on how she had been involved in ProPAN's use.

Ms Pachon noted that updating is needed, primarily to incorporate the new feeding indicators, the new WHO growth standards, and to provide case studies and examples from outside Latin America to make the tool more global.

Discussion included questions as to whether the tools would be practical outside Latin America and when going to scale. It was explained that ProPAN was a flexible approach that could be used "cafeteria" style, using different modules according to what was needed in a particular place.

### **Linear programming: a key instrument for identifying adequate feeding recommendations**

**Dr Elaine Ferguson, London School of Hygiene and Tropical Medicine, London, UK**

Dr Ferguson described a recently developed mathematical modelling approach based on linear programming that can be used to help formulate complementary feeding recommendations, test the recommendations and identify the need for complementary intervention strategies when local foods and dietary practices are unlikely to ensure nutritional adequacy. Thus, it may be used to help achieve *Guiding Principle #8* – Nutrient content of complementary foods; *#9* – Use of vitamin-mineral supplements or fortified food products; and *#5* – Amount of complementary food needed. Other potential uses include comparing alternative complementary feeding recommendations in terms of their cost implications and ability to ensure dietary nutritional adequacy, and to identify likely key problem nutrients in local diets. In the future, a mathematical simulation model will likely be incorporated into the approach to predict changes in the population prevalence of nutrient inadequacy that are likely to occur after successful adoption of a set of recommendations. Dr Ferguson illustrated the approach with examples.

One of the barriers to using this approach is the technical expertise required to set up and run models. To help overcome this barrier, a user-friendly interface will be developed to simplify the process. Once it is successfully developed, this approach will be useful for evaluating food-based recommendations and for nutrition programme planning and advocacy.

During the discussion, it was pointed out that linear ProPAN and programming can be complementary - one helps to assess current dietary practices, while the other helps evaluate recommendations. Both approaches contribute to the formulation of recommendations. In response to a question about the time frame and financial requirements for using the linear programming approach in countries, it was noted that in Tajikistan, it took 2-3 months to develop models, 3-6 months for field testing and about 2-3 years for the whole process. It cost about US\$ 30,000 to start up in three sub-regions.

## Nutrition guidelines for children living with HIV

**Dr Nigel Rollins, Medical Officer, Department of Child and Adolescent Health and Development, WHO, Geneva**

Dr Rollins began his presentation by highlighting differences between sub-Saharan Africa and Europe or North America as regards HIV and nutrition. In Africa, populations at risk for HIV/AIDS are also at high risk of food insufficiency; there is poor quality of food as well as limited quantity; a higher burden of infectious diseases and therefore need for effective antioxidants; and chronic malnutrition in the general population which introduces complex issues of equity and distribution. He reminded the group that nutrition is not just food, but encompasses access to food of suitable quantity and quality; choices on how to use limited resources; and how the child eats, or is helped to eat, including during illness.

Dr Rollins described the WHO response to this situation, which has been a review of the evidence base on nutrition and HIV; a technical consultation in Geneva in May 2003; and the provision of estimates of energy and micronutrient requirements of people living with HIV/AIDS.

He presented the *Guidelines for an Integrated Approach to the Nutritional Care of HIV-infected Children* (6 months – 14 years). This work is a direct response to the participants' statement from a consultation in Durban on HIV and Nutrition which requested WHO to "Develop standard and specific guidelines for nutritional care of individuals and implementation of programmes at health- facility and community levels" and also to the WHA Resolution 59.11 on Nutrition and HIV/AIDS requesting WHO "to provide support for development and dissemination of science-based recommendations, guidelines and tools on nutritional care and support for people living with HIV/AIDS". They also respond to a lack of knowledge among health care providers on the specific nutritional needs of HIV-infected patients.

The Guidelines consist of a Handbook, Chartbooks and an adaptation guide, and:

- Provide clear and concise advice that can be easily implemented in programme settings;
- Are based on the best available evidence from research on HIV-infected individuals as well as other non-HIV nutritional research and evidence where appropriate;
- Refer to, and link with, other standard guidelines including the Management of Children with Severe Malnutrition, IMCI and Integrated Management of Adult Illness;
- Are organized in such a way as to be easily updated with new data and recommendations as they become available;
- Are structured such that each section builds on earlier sections, yet is meaningful when read alone.

There are three parts to the Guidelines: Assess, Classify and Develop a Nutritional Care Plan; Implementing the Nutrition Care Plan; and Children with Special Considerations. Dr Rollins illustrated some of the steps and charts for various aspects of care, and highlighted some of the issues around adaptation. The Guidelines will be released as a draft, and it is planned to convene a technical consultation after about 12 months to review experiences and update/finalize them.

Issues arising in the discussion included whether an approach such as ProPAN would be appropriate to develop feeding recommendations for this group of children, and how to build on the experience of complementary feeding in general. It was also noted that the challenges associated with feeding of HIV-affected and infected children may be similar to those linked to moderate malnutrition.



## Strengthening country actions to improve infant and young child nutrition - experiences from GAIN

**Dr Sandy Huffman, Global Alliance for Improved Nutrition (GAIN), Shanghai, China**

Dr Huffman explained that GAIN endeavours to harness and assess market-based approaches to serve lower-, middle-income and poor children. GAIN's infant and young child nutrition programmes centre on the *Global Strategy*. Fortification of complementary foods is the entry point around which other guidelines are promoted. GAIN's activities include landscape analyses in priority countries, and granting funds to private-public partnerships. Dr Huffman described some specific country activities which involved improving the social and policy environment; increasing availability/access to high quality, low cost products; improving the quality of products; and increasing production of higher quality products.

Dr Huffman illustrated GAIN's work through an example from a project in China. Surveys found that the use of yoghurt and other milk beverages in China is high, and many brands are on the market, but nutrient content of many of these is low and added sugar high. They also found that snack consumption of processed foods is high, but the nutrient content of snacks is poor. Sources of EFAs in diets are limited, and even with rapid development, anaemia rates are still a problem in China. Based on this information, GAIN joined with the Centers for Disease Control in China and the Bai Le Mai Company to produce a fortified soy-based product, Ying Yang Bao, and work on social marketing of improved feeding practices. A previous efficacy trial showed impacts on growth, micronutrient status and child development. The plan is for health workers to encourage the use of Ying Yang Bao for infants and children from 6-23 months.

GAIN also tries to generate success stories through monitoring and evaluation, for example through reports of impact and cost of country programmes; documentation of commercial markets; and inclusion of new WHO complementary feeding indicators in market research and evaluations.

Dr Huffman completed her presentation by suggesting how the different pieces of work fit together to provide what is needed for planning:

- How to reinforce links between protecting exclusive breastfeeding to 6 months and promotion of appropriate complementary feeding with breastfeeding from 6 months (for national advocacy);
- What has been shown to be effective for improving micronutrient status and/or for improving growth (for formulation of guidelines);
- Likely average and ranges in consumption of products to set fortification levels (from market surveys and research);
- Costs to companies to establish prices (to work with companies on product development and distribution);
- Willingness to pay, in order to establish prices or need for subsidies (from market surveys, research and discussions at local level);
- Impact on feeding practices and nutritional status (from research).

Discussion following the presentation concentrated on issues related to promoting a particular product to improve complementary feeding and the potential conflict of interest that this may generate in working with the private sector. There is a clear need to have the companies involved in production and marketing of infant foods comply with the International Code of Marketing of Breast-milk Substitutes and subsequent relevant WHA resolutions, and for countries to strengthen national legislation. A related issue was the inclusion on GAIN's Board of Directors of a global infant food manufacturer that

has been reported by civil society as not always in compliance with the Code. GAIN's position was that there is need to have a better engagement in the hope that the process will help understanding and ensure compliance of laws and regulations. Not all participants agreed. WHO/UNICEF have tried previously to bring together industry and civil society without good results. It would be useful to look at that experience to examine what was lacking and learn from those sessions.

Another issue was the concern of some participants that breastfeeding advocates and complementary feeding advocates sometimes appeared to be in disagreement. All agreed that this situation should be followed up to find out the reasons and address them.

## Repositioning children's rights to adequate nutrition in the Sahel

**Dr Victoria Quinn, Senior Vice President, Programs, Helen Keller International, Washington DC, USA and Dr Sarah Wuehler, Helen Keller International, Washington DC, USA**

Although countries of the Sahel region of sub-Saharan Africa are working toward achievement of the Millennium Development Goals, Dr Wuehler showed that most of these countries are not on target to reach them. Therefore, an initiative was developed with the goal of repositioning children's right to adequate nutrition in the Sahel. An initial step was to conduct a situation analysis, to obtain a comprehensive collection of data that was available in each country regarding infant and young child nutrition, feeding practices and health, and the effectiveness of many donor-funded strategies to improve these practices. These data are being compiled and evaluated to determine where there are gaps, with the goal of developing strategies that will speed progress toward adequate nutrition for infants and young children.

The countries included in the situation analysis are Burkina Faso, Chad, Mali, Mauritania, Niger and Senegal. Local experts with strong networking skills have collected data from the governmental agencies most critical to infant and young child nutrition, the Ministries of Health and Agriculture and the governmental system for data collection, as well as from national and international organizations that conduct infant and young child nutrition work. The key topics of interest for this analysis were derived from the ENA framework and from the key risk factors described by the recent *Lancet* series on maternal and child malnutrition, including anything related to prevention, assessment and treatment of malnutrition.

While reviewing national policies, strategies and plans of action, key questions were whether key infant and young child feeding practices were specifically addressed and whether they conformed to international recommendations. For programmes, researchers looked at whether they conformed to infant and young child feeding guidelines and written national policies, and tried to confirm whether research was conducted prior to implementing the programmes and whether there were built-in evaluations. For evaluations, the design, timing, methods and utilization were reviewed.

Preliminary results indicate that nearly all key breastfeeding practices are being addressed in national policies, and they were consistent with internationally-recommended best practices.

Programmes exist in all countries to address almost all the key infant and young child feeding practices, although the status and quality of implementation could not be assessed. Most countries had some sort of evaluation of the practice itself, either before or after programme implementation, or at least on a regular basis (such as DHS and MICS), and evaluations usually assessed how well the programme was being implemented and what proportion of the target population was being reached. Evaluations are usually conducted in collaboration between the government agency and one or more

non-governmental agencies. Similarly, some research had been conducted to assess the reasons behind the listed infant and young child feeding practices. However, not all the documents describing the programmes were easily accessible, and many programmes were not based on formative research.

The next steps for the initiative are to complete the analysis, and hold a regional symposium to address key stakeholders from the six included countries, in order to encourage county-level action to fill gaps and to continue to support existing quality programmes.

One goal of the initiative is to help countries to develop well-defined goals and plans of action that can then be used to seek financial and technical support from international aid agencies.

During the discussion, participants suggested creating a forum to help bring together information on the current situation and the state-of-the-art in complementary feeding. The current food crisis is a good opportunity for strengthening coordination with the agriculture sector.

### **OBJECTIVE 3: DISCUSS THE FRAMEWORK TO TRANSLATE THE GUIDING PRINCIPLES INTO CONTEXT SPECIFIC INTERVENTIONS AND INTERVENTION COMBINATIONS AND IDENTIFY EXISTING TOOLS TO FACILITATE THE IMPLEMENTATION OF THE FRAMEWORK**

#### **Integrating complementary feeding strategies into national infant and young child nutrition policy and programming**

**Dr Nuné Mangasaryan, Senior Adviser, Infant and Young Child Nutrition, Nutrition Section, UNICEF, New York**

Dr Mangasaryan began by reminding the participants of current rates of breastfeeding and other indicators, and giving specific examples of changes in countries. These were illustrative of the programmatic challenges she identified:

- Limited information on status of complementary feeding practices to set and measure objectives and programmes;
- Food insecurity;
- Family food distribution and poverty;
- Cultural/traditional beliefs and practices;
- Knowledge gaps among providers and caregivers;
- Time for counselling, food preparation and feeding;
- Need for comprehensive, high-scale, efficient, sustainable strategies delivered through the best available mechanisms;
- Delivery modes and models for the proven interventions need to be validated in different settings and situations.

The *Planning Guide* provides a good framework for action, but the specifics for complementary feeding programming need to be developed. She suggested that programming needs to start with comprehensive national and/or sub national situation assessments (including data gathering, assessing practices, quality of complementary foods, etc.) together with the use of available tools such as ProPAN and linear programming for appropriate analysis of locally available foods and the potential to cover children's needs with these foods. The national policies and strategies then need to be developed and

tailored to identified gaps and opportunities. In particular, the main objectives to be reached by the national programmes are improved feeding practices, improved quality of complementary foods through use of locally available ingredients, and additional interventions to cover nutritional needs not possible to cover by local foods.

She especially focused on equity gaps based on recent analysis of stunting rates among poor and rich percentiles of populations from DHS. This analysis showed significant differences, indicating that poverty and affordability of food is an important issue to consider for improvement of quality local food consumption by the poorest groups of the population. For this reason, additional strategies may be designed either as blanket interventions in populations with a high prevalence of poverty, or as targeted activities supporting the poorest groups in other settings. Therefore, both the availability of local food and its affordability are important considerations in developing relevant interventions for improving access to quality complementary foods for all children 6-23 months of age.

While emphasizing the importance of evaluation, Dr Mangasaryan showed a conceptual framework illustrating immediate, underlying and basic factors contributing to child growth at different levels, demonstrating how different types of causal factors play a role. Similarly, the outcomes of effective child feeding programmes should be measured based on practices, and not always on nutritional status since it is dependent on many other factors, such as frequent childhood diseases.

She also gave an example of a decision-making framework for selecting interventions in order to improve access to quality food and nutrients. The framework is meant to help countries and those supporting them to decide on the most appropriate course of action given local circumstances, such as the food security situation and whether there are nutrient-rich local foods available. This tool was being presented as a draft for discussion in the working groups.

Topics raised during the discussion were what the aim of decision-making frameworks should be, and how this type of tool could be used in populations that have a high prevalence of obesity in children.

## **Inventory of tools to facilitate planning and implementation of infant and young child feeding interventions in children 6-23 months of age**

**Dr María del Carmen Casanovas, Department of Nutrition for Health and Development, WHO, Geneva**

Dr Casanovas described an inventory of tools being compiled by WHO. The aim of the exercise is to assist programme planners and managers in identifying tools that can be useful to create awareness; assess the situation; identify potential interventions; identify delivery channels; develop a strategy and action plan; implement; and monitor and evaluate.

The inventory includes sections on:

- Policy and strategy;
- Advocacy;
- Assessment and planning;
- Norms and standards;
- Training;
- Research and reference materials;
- Monitoring and evaluation.

She gave examples of the way the inventory is organized, and described some of the tools in each section. She explained that some of the tools would be useful for more than one step of the planning process.

During the discussion, it was noted that there were also useful tools developed at the country level. Dr Casanovas said she could make available a list that she had compiled from information given at a previous meeting. Participants suggested the inclusion of relevant communications tools, and ones appropriate to settings where obesity is a problem.

#### **OBJECTIVE 4: PROMOTE ACCELERATED AND STRENGTHENED ACTION FOR INFANT AND YOUNG CHILD FEEDING, IN PARTICULAR FOR CHILDREN 6-23 MONTHS, IN LOW-INCOME COUNTRIES AND IDENTIFY OPERATIONAL RESEARCH PRIORITIES AND MEANS TO ADDRESS THEM**

##### **Actions to strengthen policy and regulatory frameworks for improved infant and young child feeding, including the International Code of Marketing of Breast-milk Substitutes and the Codex Alimentarius**

**Dr Francesco Branca, Director, Department of Nutrition for Health and Development, WHO, Geneva**

Dr Branca explained that the main policy frameworks relevant to complementary feeding were the Convention on the Rights of the Child, the Convention on the Elimination of Discrimination against Women and the *Global Strategy*. These frameworks should lead to national actions to define a national policy on infant and young child feeding and care, with a detailed plan of action; 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; and develop locally appropriate feeding recommendations and programmatic guidelines for their implementation.

Dr Branca described a checklist of actions for successful complementary feeding:

- Written policy communicated to all health care staff about complementary feeding;
- Local feeding guidelines based on research;
- Train all health-care and community workers in skills necessary to implement the policy and guidelines;
- Inform caregivers and parents about benefits and management of complementary feeding;
- Help mothers initiate complementary feeding at 6 months, while giving adequate support to sustain breastfeeding;
- Show mothers how to safely prepare and offer complementary foods, while maintaining and supporting breastfeeding, according to the age and circumstances of the child;
- Teach mothers about feeding frequency, food variety, and adequate quantities for growing children;
- Counsel mothers how to maintain adequate feeding during and following illness and loss of appetite;
- Establish infant feeding and care support groups and refer mothers to them;
- Refer all mothers and children who are malnourished, sick, or living in families with special circumstances to health care and available family support services.

He presented the European Second Action Plan on Food and Nutrition Policy as an example of a regional policy framework.

The International Code of Marketing of Breast-milk Substitutes and the Codex Alimentarius Commission are examples of regulatory frameworks. Among Codex's work is the development of standards for processed cereal-based foods for infants and children, and guidelines on formulated supplementary foods for older infants and young children. There is currently a proposal for new work by Codex on revision of the guidelines on formulated supplementary foods, which would involve revising Section 6 (nutrient specifications) and the Annex (reference daily requirements for vitamins and minerals).

Dr Branca explained the steps needed to develop and strengthen policies, which should include implementation and monitoring mechanisms and take into account implications for other policies, such as agriculture, trade, health and social sectors.

He noted that programme guidance is needed in several areas:

- Quality and quantity of food by age;
- Home made versus locally made versus industrially prepared food;
- Home/community/industrial fortification;
- Use of fortified complementary foods in countries using staple food fortification;
- Mineral and vitamin supplements;
- Foods in special situations (HIV, emergencies, malnutrition).

He also listed various areas which should be regulated, including: ingredients; nutrient content; nutrient density; processing techniques; packaging; labelling; health claims; additives and contaminants; and quality control. Dr Branca ended by describing actions required at global level, such as revisions of the Code to specifically include follow-on formulas and recommendations on marketing of foods to children.

During the discussion, participants emphasized the importance of agreeing on standards for some new products. WHO should also maintain its independence given possible conflict of interest in the area of infant and young child feeding.

## **The framework for priority actions on nutrition and HIV**

**Ms Randa Saadeh, Scientist, Department of Nutrition for Health and Development, WHO, Geneva**

Ms Saadeh described the situation as regards the large number of HIV infections in the world, especially sub-Saharan Africa, and how nutrition is often a major concern in their care. Given this situation, a framework on nutrition and HIV is needed to reflect the scientific evidence; ensure coordination and collaboration between all partners and actors to comprehensively address nutrition and HIV; provide guidance for action; spell-out key actions that will make a difference; and identify responsibilities and obligations. She reviewed current knowledge related to nutrition and HIV, including the recommendations for feeding of HIV-exposed infants and young children.

The objectives of the framework are to outline key actions that should be part of Member States' and partners' response on HIV/AIDS; provide guidance on the components of such a response; and create an environment that encourages improved food, nutrition and feeding practices for those infected

and affected by HIV. The audience includes national policy-makers, programme managers, public health authorities, United Nations staff, professional bodies, NGOs and community groups.

The five priority action areas for governments are to:

- Integrate nutrition and HIV/AIDS into currently existing policies and guidelines;
- Improve and maintain the nutrition of people infected and affected by HIV/AIDS;
- Integrate nutrition care and support into prevention of mother-to-child transmission programmes;
- Improve food security;
- Support monitoring, evaluation and research in the area of nutrition and HIV/AIDS.

Within each action area, several activities are suggested, and tools are available to support these.

Ms Saadeh spelled out the role of United Nations agencies in assisting governments to implement actions: advocate the five priority actions; support research; convene technical consultations and provide technical guidance; assist in mobilizing resources; and support capacity development. Other partners can assist in mobilizing resources for these priority actions; implementing and supporting government policies and guidelines; and contributing to governments' periodic reporting. She noted that a great deal of work is taking place or planned to implement relevant activities.

She discussed how the development of the framework might be relevant to feeding for HIV-exposed infants, as this is a major issue which needs to be “unpacked” in many ways. The issue may not be so difficult for the infected child, in part because of the level of care that may be available and the fact that the messaging on breastfeeding is less complicated than the messages for feeding the HIV-exposed child. Issues that could be detailed as priority actions for HIV-exposed children include:

- Understanding the current evidence regarding the balance of risk of continuing breastfeeding versus cessation and what might be acceptable, feasible, affordable, sustainable and safe mean for these children;
- What are the maternal risk factors, e.g. CD4 cell count, for transmission and how should these be included in counselling considerations;
- What food options are available to help replace breast milk in this group;
- Are there alternative approaches that could help bridge the time when complementary feeding is introduced, e.g. heat treatment of breast milk or anti-retroviral drugs to mothers or infants;
- How to develop simple and clear counselling approaches to address this transition period;
- Monitoring of outcomes to learn from experiences.

Participants expressed interest in developing a similar framework for complementary feeding. The results of an evaluation of the utilization of the *HIV and infant feeding framework for priority action* in countries in WHO's Regional Office for Africa next year should provide information on the utility of this approach.

## Using the introduction of the new growth standards as an opportunity for accelerating country action

**Dr Adelheid Onyango, Department of Nutrition for Health and Development, WHO, Geneva**

Dr Onyango introduced the growth standards by explaining that they were based on the Multicentre Growth Reference Study, in which participants were selected according to a prescriptive approach to lead to optimal infant and child growth. The feeding recommendations included exclusive breastfeeding during the first months of life, introduction of complementary feeding by 6 months of age, and continued breastfeeding to 12 months or beyond. Only compliant children were included in the standard sample. As regards complementary feeding, guidelines for appropriate complementary feeding for the study were developed, based on local guidance where this was available.

In general, the standards have been well received in countries, and they have provided an opportunity to redefine and revitalize actions to promote child growth and development. About 70 countries are in the process of adopting the standards, and 84 are already using them or have officially adopted them. One of the motives for adopting the standards is to monitor the double burden of malnutrition, that is, stunting and overweight.

Various resources and tools are available to support implementation of the standards, including a training course. Several regional and sub-regional workshops have been held to build capacity. This course is for health care providers responsible for measuring and assessing the growth of children, and teaches skills and knowledge to measure weight and length/height of children; assess growth; and counsel mothers and caregivers about growth and feeding. The training includes discussion of local complementary feeding practices. One module is on counselling, with the objectives being to: inform a mother or caregiver about the results of a child's growth assessment; give appropriate feeding recommendations for a child's age; and interview a mother to investigate causes of undernutrition or overweight and give advice. Job aids, case studies, role plays and practical sessions help in the training. Feedback from course participants indicates that they appreciate the counselling content and that they observe that mothers appreciate health workers' interest in their children. However, they thought that more time should be allocated to counselling in the course.

During the discussion, participants were anxious to learn more about the growth velocity standards and also requested that recommendations from this meeting be incorporated into future training. It was also highlighted that the training materials for the WHO child growth standards include orientation, assessment and management of infants and young children with overweight and obesity.



## Monitoring and evaluation

### New and updated indicators for assessing infant and young child feeding practices

**Dr Bernadette Daelmans, Medical Officer, Newborn and Child Health, Department of Child and Adolescent Health and Development, WHO, Geneva**

Dr Daelmans reminded the participants of the recommended core indicators:

- Early initiation of breastfeeding;
- Exclusive breastfeeding under six months;
- Continued breastfeeding at one year;
- Introduction of solid, semi-solid or soft foods;
- Minimum dietary diversity;
- Minimum meal frequency;
- Minimum acceptable diet;
- Consumption of iron-rich or iron-fortified foods.

The recommended optional indicators include:

- Children ever breastfed;
- Continued breastfeeding at two years;
- Age-appropriate breastfeeding;
- Predominant breastfeeding under six months;
- Duration of breastfeeding;
- Bottle feeding;
- Milk feeding for non-breastfed children.

She recognised the team involved in developing the indicators, and gave a history of their development. These indicators are intended for population-based measurement, not individual screening. She noted that the definitions should not be translated directly into messages for caregivers, and that they should not be assessed in isolation but should be considered together.

Some noteworthy modifications to previous indicators are that oral rehydration solution consumption is allowed in the definition of exclusive breastfeeding, “timely complementary feeding” has been replaced by “timely introduction of solid, semi-solid and soft foods”, and the time period for this indicator is now 6-8 months.

A document on indicator definitions is available, and an operational guide is being developed. An analysis of DHS data from 54 countries using the new definitions is also in progress. Once the supporting documents on the indicators are available, these will be disseminated to countries and partners. The indicators will also be incorporated into DHS and considered for MICS, either as core or optional modules, and their use in country programming and implementation will be promoted.

## Update on efforts to identify indicators for assessing responsive feeding

**Dr Hilary Creed de Kanashiro, Institute of Nutritional Research, Lima, Peru**

Dr Creed described a protocol to assess ways of eliciting information on responsive feeding from caregivers of infants and young children 6-23 months of age. The objectives are to find the best way to obtain such information, as a complement to information as frequency of feeding meals, dietary diversity, milk feeding frequency for non-breastfed children, and consumption of iron-fortified foods. This work should contribute to establishing indicators for responsive feeding that can be assessed through surveys.

The work involves comparison of proposed instruments with a “gold standard”, and validating feeding style questions against observations of behaviours. The focus is on recording responses from “yesterday”. A recent meeting was held in Montreal to review current research on responsive feeding and interventions, with studies from various parts of the world represented. A framework for the validation of key feeding style behaviours was proposed.

A Consortium for Responsive Feeding and Care for Growth and Development has been formed, whose mission is to develop and communicate scientific evidence, indicators and programmatic and policy applications of responsive feeding, based on the third of the *Guiding Principles* and the recommendations in the Care for Child Development module. A unique characteristic of this Consortium is that it is bringing together scientists studying feeding style from different perspectives: in populations where there is obesity and other populations where more physical help for feeding is required.

Dr Creed explained that the proposed activities of the group are to:

- Share information related to feeding style via a list serve;
- Maintain a website;
- Look for opportunities to promote attention to feeding style through symposia, meetings, etc.;
- Promote collaboration on feeding style among members with shared interests.

Interested participants are invited to join in the Consortium’s activities.

## Results from early application of updated indicators

**Ms Randa Saadeh, Scientist, Department of Nutrition for Health and Development, WHO, Geneva**

Ms Saadeh explained that the Global Databank on infant and young child feeding had recently been revised and updated in response to the *Global Strategy* and to include indicators considered in the assessment tool. The indicators in the databank cover information on practices (breastfeeding, complementary feeding, infant feeding and HIV); policies (Baby-friendly Hospital Initiative, national implementation of the International Code of Marketing of Breast-milk Substitutes); programmes (education and capacity building); additional country information (e.g. infant feeding in emergencies); and health facility indicators. She gave examples of the data that is available for countries in the databank.

In conclusion, Ms Saadeh noted that it was a big step forward to have new complementary feeding indicators, but that careful attention should be given to assisting countries in interpreting new data in relation to the data that were generated using the previous set of indicators. Similarly, there will be need for adjustment in reporting global trends as some of the indicators have now refined definitions and results therefore cannot be directly compared (e.g. timely complementary feeding rate and introduction of solid, semi-solid or soft foods rate).

The discussion of the three presentations on monitoring and evaluation highlighted the need to standardize terminology on infant and young child feeding, and the importance to consider the need to integrate new indicators.

### Demonstrations of ProPAN and linear programming tools

**Ms Helena Pachon, CIAT, Cali, Colombia; Dr Elaine Ferguson, London School of Hygiene and Tropical Medicine, London, UK; and Dr André Briend, Medical Officer, Department of Child and Adolescent Health and Development, WHO, Geneva**

A demonstration of both PROPAN and of linear programming was provided for participants. ProPAN is useful for collecting information on food and dietary intake. Linear programming is useful to test the extent to which food-based recommendations are likely to ensure nutritional adequacy. Both approaches appear complementary.

ProPAN software is based on Epi-Info. The conceptual framework of ProPAN preceded the *Guiding Principles*, but there are many overlaps in the two in terms of providing guidance on dietary intakes for infants and young children. ProPAN is modular, and the modules can be used with respect to needs, e.g. it has been used in Laos to conduct formative research, and in Peru to train health care workers. ProPAN can be used to develop recipes with adequate dietary intake for infants and young children. The ProPAN program is based on DOS and is a stand-alone program that is compliant with most operating system platforms with the exception of Windows Vista.

The linear programming approach is carried out using a series of complex EXCEL spreadsheets. In the future an interface will be developed to simplify the process from the users' perspective. Currently, a less sophisticated, easy-to-use linear programming model is available and can be carried out in Nutrisurvey, a program that can be downloaded from: <http://www.nutrisurvey.de/lp/lp.htm>.

The demonstration of the linear programming approach showed the format of the EXCEL spread sheets that are used to run the models. They included a list of foods, and for each food its average portion size and frequency of consumption per week; the average food patterns of the target population, the desired energy and nutrient content of the modelled diets and the desired diet cost (optional). It showed the structure of the mathematical models used to formulate and test food-based recommendations, including their objective functions, decision variables and model constraints. It demonstrated the way in which each model selects a specific diet based on the defined parameters. The demonstration highlighted its role in determining whether local foods are likely to ensure a nutritionally adequate diet. As an example, it showed that local foods alone would not ensure dietary requirements for iron were met for a theoretical target population.

Software that will make the approach user friendly is likely to be under development soon. A simulation model is currently being developed that will refine the process of evaluating or comparing alternative food-based recommendations. It will simulate the expected population prevalence at risk of nutrient inadequacies once the recommendations are successfully adopted to allow before and after or between recommendation comparisons.

Linear programming and ProPAN are not competing programs per se and can be complementary, for instance the linear programming approach could be integrated as one of the modules in ProPAN. Neither program currently addresses the issue of nutrient bioavailability except through their choice of nutrient requirements, i.e. assumed level of bioavailability. In the future, bioavailability could be modelled.

# Annex 4

## Group work summaries

### GROUP WORK 1

#### **Group 1: Identifying evidence-based interventions and delivery approaches to improve locally available foods and feeding practices among infants and young children**

##### **Identify effective interventions to improve quality and quantities for infant and young child feeding, building on locally available resources (NGOs)**

Through the discussion, the group identified five projects that appeared to be effective:

- MICAH Project, Malawi
- Freedom From Hunger, Ghana
- Save the Children, Bolivia
- Save the Children, Positive Deviance/Hearth, Viet Nam
- Self Help International, Nicaragua.

These projects used combinations involving income generation, microcredit, education, promotion of quality crops, and achieved improvements in practices, morbidity and nutrition status.

##### **Identify effective interventions to improve quality and quantities for infant and young child feeding, building on locally available resources (studies)**

Relevant effective studies were identified from Ethiopia, India (Andra Pradesh and Haryana), Malawi and Peru. The studies increased micronutrient intake through improving local methods of food processing or educating on food selection, dietary diversity and use of animal-source foods. They showed positive results.

##### **Identify effective interventions to improve quality and quantities for infant and young child feeding, building on locally available resources (national)**

Interventions in Bangladesh, Ghana, Honduras, Mozambique, Nicaragua, Tanzania, Thailand and Zimbabwe were identified, involving various combinations of sale, provision or promotion of nutritious foods and enriched flours, income generation, home gardens, growth promotion and education. Most of the interventions had positive impacts on nutritional status.

### Identify constraints

The group identified the following constraints to successful interventions:

- The quality of children's diets is limited by the variety of the food supply, culture, family income and seasonality of food products;
- A change in practices may not be sustained (indicating underlying constraints);
- Influential people in the family or community are not reached;
- Insufficient institutional capacity or commitment to sustain the intervention;
- Nutrition is not integrated into important ministries (e.g. agriculture);
- Evaluation is often not conducted on small but innovative approaches;
- Funding is not available for scaling up or it is not possible to mainstream into existing systems.

### Propose concrete steps in the process of programme planning action and scaling up of interventions

The group proposed the following steps for planning and scale up:

- Review and assess existing data (prevalence, food availability, infant and young child feeding practices, current programmes);
- Synthesize results to "make the case" for nutrition in general, but with priority on infant and young child nutrition and micronutrients;
- Obtain commitment and ownership from the government (i.e. at least from one ministry) and identify a champion to drive the process;
- Obtain commitment and buy-in from relevant ministries, partners and civil society;
- Develop or strengthen a national strategy to improve infant and young child feeding and micronutrient status with priorities, costs, roles and responsibilities of different ministries and partners;
- Develop a detailed implementation plan, including identifying good programme approaches, carrying out formative research on locally available food and practices, designing and costing the plan, with defined roles and responsibilities for implementation, and monitoring implementation to identify constraints and good practices.

### What do we know about costs?

The group members contributed examples of costs of various interventions:

- Bangladesh, BINP (food supplementation): US\$ 9/child/year;
- Peru (Trujillo): US\$ 15/child reached, US\$ 55/case of stunting prevented;
- Honduras/AIN: US\$ 6-7/child/year (the community-based health and nutrition programme was 11% of the cost of a similar programme through the health services);
- Rehabilitation: US\$ 50/child;
- Community-based nutrition without food: <US\$ 10/child/year;
- Community-based nutrition with supplemental food: ~ US\$ 30-50/child/year.

## Identify research or operations research needs

Research questions identified included:

- Identify solutions to barriers such as culture, lack of food availability, cost, seasonal availability of food, time and illness;
- Identify the bottlenecks for scaling up;
- Analysis of successes to determine the “inside story” leading to success;
- More information on the limiting dietary factors for stunting (e.g. EFAs, phosphorus);
- Behaviours: What are the constraints for sustaining optimal practices?
- Behaviours and other programme components: How often to investigate in the programme context?
- Are local foods more effective in changing practices than a “product”?
- Minimum programme inputs needed to ensure results of small pilot projects;
- Programme cost and cost-effectiveness.

## Discussion

Participants asked about the definition of “effective” in identifying successful interventions, noting that since most NGOs don’t carry out rigorous evaluations, their experiences are not published. They also suggested that research would be useful around whether the *Guiding Principles* have affected the way programmes are designed.

## Group 2: Home fortification of complementary foods – experiences, opportunities and way forward

### Definitions

The group began by clarifying that the expression “home fortification” may cause confusion, and would use the term “fortification/enrichment at the point of use” to describe the addition of less than 20 grammes per day of product to food for a targeted person at the time of consumption for the express purpose of increasing the nutritional value of the food.

They also divided these products into three types: MN powders (solely micronutrients, such as Sprinkles); MN powders “plus plus” (can include protein, milk powder and/or EFAs, such as complementary nutritional sachets); and LNS (less than 20 g given per day, such as Nutributter).

### Identify the most promising approaches (products) for home fortification and assess their readiness for wider application in national programmes

The group found that the best approach for fortification at the point of use depended on the objective. For example, evidence is available that micronutrient powders may reduce anaemia and improve developmental indicators, while LNS have been shown to be effective in improving growth and developmental outcomes, as well as reducing anaemia. All three approaches are highly promising. The breastfeeding and milk consumption practices in a population are important to consider when deciding on an approach. All these products are ready to be used in pilot programmes in various contexts that should be carefully monitored and evaluated.

## Propose concrete steps for introducing the most feasible approaches (delivery systems) in country programmes

Some of the options suggested include introduction into:

- Government facility-based programmes (such as in Bolivia and Mongolia);
- NGO programmes (such as in Kenya, Bangladesh and Zambia);
- Community-based programmes (e.g. a pilot project in Kyrgyzstan);
- Private sector/commercialisation (e.g. a pilot project in Kenya);
- Cross-subsidization (selling a product to those with a higher income and using the profits to help provide it to those who cannot afford to purchase it) (e.g. Bolivia with tablet supplementation).

The group recommended carrying out pilot projects with a potential to scale up these options, with careful monitoring and evaluation.

### What do we know about costs?

Some estimates for the costs of various types of products were given:

- MN powders: US\$ 0.015 per daily dose
- MN powders “plus plus”: US\$ 0.11 - 0.13 per daily dose
- LNS: US\$ 0.11 per daily dose

### Identify research needs

The group identified several areas needing research:

- Effects of giving vitamin A at one recommended daily allowance in the form of point-of-use fortification simultaneously with high-dose vitamin A campaigns;
- Possible adverse effects of receiving iron in point-of-use fortification;
- Extent of sharing and/or effectiveness of reaching target children (especially in the case of MN “plus plus” powders and LNS);
- Longer-term studies to assess the impact of these products, especially the effect of MN powders and MN powders “plus plus” on length/linear growth;
- Accelerated research on the use of these products in pregnant and lactating women;
- Pilot projects with potential for scaling up use of these products with a rigorous evaluation component;
- Food science-focused research on optimal composition for maximum efficacy of LNS and MN powders “plus plus” for adding Type II nutrients, EFAs, etc.

### Conclusions

The group noted that evidence for the improvement in anaemia can be used as a selling point for the integration of point-of-use fortification in the form of micronutrient powders, but rigorous monitoring should be incorporated to gather more evidence on the ability of these products to impact growth. If they do not impact growth, then the use of a more complete point-of-use fortificant should be phased

in. The group also emphasized that there is no “magic bullet”, and these micronutrient products must be implemented simultaneously with improvements in feeding practices, hygiene, maternal health, water and sanitation, etc. The focus is on complementary feeding as a key component in a larger, multi-faceted approach.

The group expressed a need for a standard, simple guide giving recommendations to governments, such as a statement on the use of all three products. For LNS, the standard can be to use the dose (with slight modifications) previously used in Ghana, Malawi and Niger. Currently there is a technical advisory group for developing guidelines for use of micronutrient powders based on current evidence.

## **Discussion**

Participants commented that when analysing the various products, their original purpose should be considered, and that it was important to consider how these interventions integrate into existing/other interventions to avoid verticality.

### **Group 3. Commercial fortification of complementary foods – experiences, opportunities and way forward**

#### **Review current experiences with commercial fortification of foods targeted at infants and young children, including working in public-private partnership**

The group observed that in the 1970s this work was largely led by NGOs, emphasizing large-scale general fortification of staple foods (e.g. corn-soya blend) that don't meet the needs of young children. More recently, various alliances, agencies and groups have been pioneering the public-private partnership concept for more appropriate complementary foods.

#### **Develop criteria for when public health authorities recommend fortified blended foods or multiple micronutrient powders and how to ensure Code and Codex compliance**

While the need for targeted fortification is context-specific and should be informed by a detailed assessment, the group stated that in many circumstances, targeted fortification is necessary to improve the micronutrient quality of the diet and intake, in particular for infants 6-11 months of age. The need thereafter is more dependent on the setting. “How” is as important as “when”, and should be included within a broader strategy of infant and young child feeding. How fortificants are delivered and which ones will be context specific (e.g. because of possible adverse effects of iron to iron-replete children, the mode of delivery of iron is important).

The public health system should offer complementary consumer education about infant and young child feeding. Any decision on a fortificant should be made at the family level, based on cost and convenience, supported by public education and training of influencers.



## Propose concrete steps to advocate for commercial fortification of foods for infants and young children and promote their use

The group proposed the following steps:

- Step 1.** Agree standards on formulations and labelling (what is the minimum specification) – in collaboration with the WHO/FAO leading expert group, as with Guidelines on Food Fortification with Micronutrients.
- Step 2.** Develop a briefing packet on guidelines for standards for national delegations to the Codex, the relevant Codex subcommittees, large procurers and qualifying producers (both international procurers such as UNICEF and national regulatory authorities) – WHO/FAO leading expert group.
- Step 3.** Build regional and national regulatory and monitoring capacity. At the regional level, this would include third party certification, strengthening national capacity, establishing mechanisms for public/consumer education and support to companies (for compliance with standards and regulations, and quality control), and recognition of good practice by companies.

In addition, the group made the following points:

- Complementary feeding should not be promoted in isolation. All activities should be comprehensive and promote optimal feeding as a whole (i.e. exclusive breastfeeding from 0 to 6 months, and continued breastfeeding from 6 months to at least 2 years with nutritionally adequate complementary feeding). Therefore, the need for promotion of fortified, blended complementary foods must be planned under the umbrella of the *Global Strategy*.
- When is the right time to start talking about complementary feeding in the context of infant feeding counselling? The group suggested 3 to 6 months, but what information is needed and how it should be sequenced was not settled. While caregivers should be aware early about the time periods for the various infant and young child feeding practices, discussions about the specifics of complementary feeding probably are best started after the infant has completed 5 months, but in time for families to start preparing for the infant's needs for additional foods besides breast milk.

### What do we know about costs?

The group noted that costs are very dependent on ingredients, with milk and fats increasing costs.

There is a need to find a balance between optimal packaging and affordability, and a need for mechanisms to ensure access to these products by the population in the bottom income quintile.

### Identify research needs

The research priorities listed by the group included:

- Effectiveness and cost-effectiveness studies of products with or without milk, and with different levels of milk and types of milk, and also Nutributter and Plumpy-Nut;
- More evidence at country level about nutrient adequacy of combinations of available foods;
- Determining the minimum/maximum acceptable levels of anti-nutrients and fibre;
- The optimal time to start talking about complementary feeding in the context of infant feeding counselling.

Discussion of the group's presentation included consideration of whether commercial products should be treated as a drug or as food, because of the implications for production, taxes and marketing, and for whether the products can be distributed widely in shops where fast-moving consumer products are available, or are restricted to pharmacies. Participants also noted that advertising for these products had to be appropriate and that publicly-funded general consumer education was a universal need to supplement product-specific advertising.

#### **Group 4. Improving caregiver feeding practices through behaviour change approaches - experiences, opportunities and way forward**

##### **Identify effective approaches to use behaviour change communication for improved infant and young child feeding and improved feeding practices**

The group began by giving an example of inappropriate infant and young child feeding practices, to illustrate why behaviour change approaches were necessary. They then described how they approached the work, by listing effective approaches for behaviour change communication in infant and young child feeding. The channels they identified through this process included:

- caregiver clubs with repeated contacts and social support;
- community outreach workers;
- mass media.

The methods identified were:

- modelling behaviours, using real-life examples;
- applying adult learning principles, such as skills building and problem solving.

##### **Describe the factors that may facilitate the scaling-up of these approaches in public health programmes**

There is a need for action-oriented, clear messages that focus on the health workers/providers. These messages should be integrated across various sectors and programmes, using a theory-based approach. Community mobilization and advocacy are also needed, as is understanding of behaviours and contexts at ALL levels: policy-makers, health workers and caregivers.

##### **Propose concrete steps to plan the introduction of behaviour change interventions in public health programmes, including monitoring of outcomes**

The group proposed various steps for introducing behaviour change interventions:

- Formative research;
- Development of an implementation and monitoring and evaluation plan, including behaviour change communication theory;
- Identify priorities;
- Decide on delivery channels;
- Estimate costs;

- Build cross-sectoral integration and harmonization of messages;
- Train front-line workers, using motivation and skills building.

The group illustrated this process through a road map, based on a social-ecological model of spheres of influence for identifying behaviours and channels.

The group emphasized that formative research is not negotiable, but must be done to understand behaviours in context. Tools exist for this purpose, but they may need simplification for use in regional or country programmes. Tools are also available for designing and implementation planning; training of an assessment team, front-line workers and counselling strategies; development of materials, including visual, audiovisual and job aids; monitoring and evaluation and documentation. Some adaptation or simplification may be required.

There are barriers to the use of these tools and myths to overcome, regarding expense, selection of appropriate tools, time needed and human resources.

Problems and opportunities in implementation include: supportive leadership and political will; sustainability; behaviour change communication is often an ‘add on’ but should be a core part of any infant and young child feeding programme; lack of success stories, documentation, and monitoring and evaluation results to use for advocacy. They also noted that the *Lancet* series on child survival was a good start for advocacy, and wondered if it would be possible to do something similar on behaviour change.

### Identify research needs

The major research needs identified were:

- Cost-benefit of behaviour change programmes: how much does it cost, and what is the cost if it is not done?
- How can we document success stories to move to action/advocacy?
- Why is there a lack of political support and leadership for infant and young child feeding?
- Is growth monitoring and promotion better or equal to growth promotion (without monitoring)? How to move beyond simply weighing and measuring?
- The contribution of breast milk to total energy intake in the context of promotion of complementary feeding from 6-23 months;
- Programme delivery, e.g. what works in counselling strategies?

### Discussion

Some participants questioned the use of the term “behaviour change communication”, because of varying connotations, but alternatives seemed inadequate. They also noted the need to take into account the special requirements of HIV-infected children for all the issues discussed in the different working groups, and also to provide orientation for the HIV-exposed child who may be at high risk of inappropriate feeding practices.

## GROUP WORK 2

### Group 1: Review the steps in the planning framework

The group discussed the *WHO/UNICEF Planning guide for national implementation of the global strategy for infant and young child feeding*. Several specific queries were raised, including clarifying who the audience is for this tool. It was noted that in West Africa, the *Planning Guide* has already been used to develop national strategies. A balance has to be achieved between emphasizing infant and young child feeding and specifically complementary feeding. It was recommended to review each step of the guide to ensure that relevant tools are referenced.

After further discussion, the group was in favour of not inventing new steps, but had suggestions for modifications and additions to objectives, outcomes, activities, tools and examples under each. Some specific ideas included:

- Need to be integrated in presenting breastfeeding and complementary feeding information within an infant and young child feeding framework, but being sure to highlight complementary feeding themes;
- Importance of reflecting concerns of overnutrition and undernutrition;
- Defining terms at the beginning;
- While the tool has steps, there is a need to communicate that there can be some flexibility in the order the steps are taken at the country level;
- Add a new tool, PIP<sup>1</sup>, to visualize the conceptual framework, identify bottlenecks and gaps, and guide monitoring and evaluation;
- Indicate when and how to conduct formative research to obtain more local level information;
- Have the users used the planning materials successfully? Have concrete implementation plans been developed?

To have an equal emphasis between breastfeeding and complementary feeding, more assessment tools on specific complementary feeding practices may be necessary. There is a need to emphasize the use of the tool in a comprehensive way, connected to a larger strategy.

Several additional specific suggestions for modifications were made, in the event that the tool can be updated and revised.

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<sup>1</sup> See Annex 5 for more guidance on PIP.

## Group 2. Review the draft decision tree for prioritizing interventions

The group discussed a possible decision tree, or framework, to prioritize interventions according to context-specific criteria. The framework would be for Ministries of Health, NGOs, bilateral agencies and financial institutions, and addresses different levels of decision makers. The tool could be used to:

- Guide thinking about options so that they are evidence-based;
- Advocate and/or use as a planning tool;
- Aid in population-based decisions;
- Guide decisions about subsidies.

A similar approach could be used at individual level, but that is not the primary purpose. Concerns were that such a framework should not be too “product” oriented and prescriptive. It should be used to guide a process for consensus building. A suggested title was “Planning framework for analysis of options for improving the nutrient quality of the diet of children 6-23 months of age”. The framework could be presented in the context of improving feeding practices; maximizing use of local foods; and participatory learning.

In fact, two different decisions are required: what is needed (nutritional considerations); and how is it delivered?

The group noted that available options that should be reflected in the tool could include:

- Local foods;
- Local foods with amylase;
- Micronutrient powders;
- Micronutrient powders with amylase;
- Lipid-based nutrient supplements;
- Fortified complementary foods;
- Conditional cash transfers;
- Other.

Suggestions for contextual factors to be added were named as:

- Breastfeeding and use of local foods throughout the framework;
- Age;
- Seasonality;
- Consideration of foods available at the household versus what is given to the young child;
- Targeting (geographic based on poverty/food insecurity levels);
- Cultural considerations;
- Delivery mechanisms.

The group considered whether a “decision-tree” format was the most useful, or whether a matrix format would be more helpful. They thought it would be important to work through different country scenarios to show how a framework could be helpful. If a matrix were used, the pros and cons of different options could be used to capture contextual factors.

Some specific elements to be added were suggested:

- Include breastfeeding and use of local foods throughout;
- Provide questions to answer at each point in the tree;
- Influence of the type of staple food on the decision;
- Programmatic response (targeted, blanket).

### **Information needed to make informed decisions**

The group thought that information needed for decision-making included:

- Assessment of needs;
- Information on poverty indicators and government priority geographic areas (context specific);
- Prevalence of overweight;
- Questions to answer at each point in the tree.

In summary, the group recommended providing clarity on the purpose and audience for a decision tree; adding information on contextual factors to make the framework less prescriptive; including examples from India, Africa and Latin America, a description of different options, information on the evidence base and costs of different options, and a matrix on the pros and cons of the different options.

### **Group 3. Discuss effective mechanisms for scaling-up of the interventions and reaching coverage**

The group noted that there was a range of materials that could be useful for advocacy, including the *Lancet* series, the country profiles being adapted in the light of the *Lancet* series; the films *Formula for Disaster*<sup>1</sup> and *Foundation for Development*; and others.

### **Influencing politicians, decision-makers and other stakeholders**

The group considered whether programmes should be integrated or free-standing, and noted that it may depend on whether the role of nutrition agencies is advocacy or implementation.

Planning, monitoring and oversight are important to be able to influence decision-makers. It is necessary for malnutrition to be seen as a failure of the political system, and to create incentives for politicians to take action on nutrition. In general, solutions to malnutrition are usually seen as food alone, and governments do not feel they have the time and resources to deal with nutrition comprehensively.

Proposed solutions to these problems included:

- Sectoral work (e.g. analysis of need for investment);

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<sup>1</sup> This film is about the Philippines and documents how companies' marketing strategies can affect health workers' behaviours and thus undermine breastfeeding and complementary feeding practices.

- Influencing at all levels (in some cases, through technical updates):
  - Politicians
  - Technical ministries
  - Finance
  - Regional/State/District and community level;
- Taking advantage of activities of different programmes;
- Focusing on Millennium Development Goals 4 and 5 and others, instead of just MDG 1;
- Identifying a champion, either within or outside the government structure;
- Developing a call for action on infant and young child feeding.

### **Mobilizing resources**

Proposed solutions for mobilizing resources included first of all, analysing the need. Once this is done, evidence-based agreement on what to invest in and how to sustain it needs to be reached. A social marketing approach can be used, utilizing all opportunities available through different initiatives that are put forward (e.g. if talking about childbirth, relate it to late clamping of the cord and the impact on anaemia).

Resources may come from a variety of sources:

- New/non-traditional partners;
- Millennium Development Goal Fund;
- Leveraging of resources.

The nutrition community needs to engage in various current initiatives, such as Maternal Child Health - Child Survival, Poverty Reduction Strategies and HIV. There is a need to clarify what the package we are promoting is, that is, whether it is all of nutrition, only infant and young child feeding, or only complementary feeding.

### **Sustaining commitment**

To sustain programmes, needed elements are resources, commitment at all levels, programmes covering the continuum of care, and good results in the form of success stories.

Proposed solutions to sustainability include long-term inter-agency action plans; documentation of all nutrition actions; sustaining advocacy; implementation of the Code and related legislation; media attention from civil society; and having a line item in the government budget.

### **Monitoring progress**

In addition to a focus on impact (e.g. anthropometry), more process indicators are needed. However, there are limited resources for monitoring, and limited and un-standardized tools and methods.

Proposed solutions include defining process indicators; tracking coverage; and measuring knowledge and practices. There is a need to carry out more rigorous programme evaluation, and to define a monitoring system, put it in place, and have regular and rigorous reviews.

## **Tracking costs**

There is a need to have more information on the cost of overall nutrition programmes, and possible costs with fortified foods. Products such as Nutributter cost about US\$ 3.00 - 5.00 per kilogramme. Assuming a daily dose of 20 g is given, the cost per day per child would be US\$ 0.06 - 0.10. For a year, this translates into about US\$ 21.00 - 36.50 per child, or US\$ 21 - 36 million per million children per year.

Another item to be tracked is the percent of the investment from government, and trends in this figure.

## **Discussion**

The participants asked whether the groups discussed the cost of doing nothing. It was noted that PROFILES was discussed, and this approach includes the cost of malnutrition.



# Annex 5

## Notes on the Programme Implementation Pathway

The ideas leading to the term “Programme Implementation Pathway” (PIP) were initially developed by evaluation scientists as a tool for evaluating programme impacts. They described it with the phrase, “programme theory”. An extensive discussion can be found in Rossi et al. (2004). Further elaboration can be found in Roger (2000), Chen and Rossi (1992) and Weiss (2000). A full discussion, with illustrations, of the application of the concept for programme planning is found in Bartholomew et al. (2006), who describe it as “an intervention mapping approach”. The application of PIP for evaluation of nutrition interventions is described in Habicht et al. (2006), Roberfoid et al. (2007), and Leroy et al. (in preparation). Its use in a nutrition programme is illustrated in Loechl et al. (2009). For a paper describing methods for applying it in development projects, see Douthwaite et al. (2007), who add a participatory research component.

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Appropriate breastfeeding and complementary feeding are among the most effective interventions to promote child health, growth and development. In the past decades, the evidence for essential actions to promote exclusive breastfeeding has been strengthened considerably. More recently, progress has been made in defining standards for complementary feeding. However, the process of translating these standards into specific policies and programmatic actions is less well developed.

WHO and UNICEF organized an informal meeting to fill this gap. This report summarizes the proceedings of the meeting and provides operational guidance for policy-makers and programme managers on how to improve complementary feeding, in the context of the implementation of the *Global Strategy for Infant and Young Child Feeding*.

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