

# NUTRITION ESSENTIALS

A GUIDE FOR HEALTH MANAGERS



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*\*\* Please note that this PDF version does not contain Figures 1-16 as described throughout the text.*

## ACRONYMS

ARI	Acute Respiratory Infection
BASICS	Basic Support for Institutionalizing Child Survival
BCG	Bacillus of Calmette and Guerin (TB vaccine)
BF	Breastfeeding
BFHI	Baby Friendly Hospitals Initiative
CBD	Community Based Distribution
CBO	Community Based Organization
CHA	Community Health Agent
CHW	Community Health Worker
CIDA	Canadian International Development Agency
DHS	Demographic and Health Surveys
EBF	Exclusive BF
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
ICCIDD	International Council for the Control of Iodine Deficiency Disorders
IDD	Iodine Deficiency Disorders
IEC	Information, Education, and Communication
IMCI	Integrated Management of Childhood Illness
INACG	International Nutritional Anemia Consultative Group
IU	International Unit
IVACG	International Vitamin A Consultative Group
KAP	Knowledge, Attitude, and Practice
LAM	Lactational Amenorrhea Method
MCH	Maternal and Child Health
MDIS	Micronutrient Deficiency Information System
mg	Milligram
MICS	Multiple Indicator Cluster Survey
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
NID	National Immunization Day
OPV	Oral Polio Vaccine
PRA	Participatory Rural Appraisal
TBA	Traditional Birth Attendant
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAD	Vitamin A Deficiency
WHO	World Health Organization

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# CHAPTER 1

## Introduction

### Key Points

- ◆ Malnutrition is the underlying cause of half the deaths for children under 5 years of age; it weakens the immune system and makes illnesses worse.
- ◆ The nutrition of mothers and children is closely linked. Malnutrition often begins at conception and most of the damage from malnutrition is already done by the second year of the child's life.
- ◆ Even mild and moderate malnutrition have severe consequences. More than 80% of deaths associated with childhood malnutrition involve mild or moderate, rather than severe, malnutrition.
- ◆ Deficiencies of specific micronutrients, such as vitamin A, iron, and iodine, are widespread and have significant health effects.
- ◆ The main underlying causes of malnutrition include inadequate access to food and nutrients, inadequate care of mothers and children, inadequate health services, and unhealthy environments.
- ◆ A group of affordable and highly effective nutrition interventions is available to reduce malnutrition. Women, particularly pregnant and BF women, and children under 2 years of age, are priority target groups for this proven package of essential nutrition actions.

Malnutrition, a widespread problem with devastating consequences, weakens immune systems and worsens illnesses. It is a factor in about half the deaths for children under 5 (see figure 1); malnourished children who survive have diminished learning capacity and lower productivity in adulthood. Malnutrition reduces the quality of life and financially drains families, communities, and countries.

All social sector and development programs can successfully improve nutrition in their service areas. However, for many reasons, health programs are especially well suited to undertake efforts to improve nutrition:

- ◆ Effective, feasible, and affordable interventions to improve nutrition are now available, and they work best when combined with interventions to reduce infections.
- ◆ Good nutrition helps protect natural immunity, which is particularly important for health as resistance to drugs increases and new diseases emerge.
- ◆ Health workers can be highly effective in motivating families and communities to improve the care and diets of women and children.

This chapter introduces health managers to important nutrition concepts, explains why they must act on nutrition problems, and outlines the steps they can take. Included in the chapter are:

- ◆ basic facts about malnutrition, including the causes of malnutrition and how maternal and child nutrition are linked;

- ♦ examples of global support for improving nutrition; and
- ♦ the role of health programs in improving nutrition.

## Basic Facts About Nutrition

Adequate nutrition is the intake and utilization of enough energy and nutrients, together with disease control, to maintain well-being, health, and productivity. "Malnutrition" includes generalized malnutrition (which manifests itself as stunting, underweight, and wasting in individuals) and deficiencies of micronutrients, such as vitamin A, iron, iodine, zinc, and folic acid.

The most visible evidence of good nutrition is taller, stronger, healthier children who learn more in school and become productive, happy adults, who participate in society. Too little or too much consumption of energy and nutrients causes health damage. Individuals who are within acceptable norms for body size and biological indicators of micronutrient status are considered adequately nourished.

Malnutrition does not need to be severe to pose a threat to survival. Worldwide, fewer than 20% of deaths associated with childhood malnutrition involve severe malnutrition; more than 80% involve only mild or moderate malnutrition. Although the immediate cause of death in mild and moderately malnourished children may be pneumonia or diarrhea, many children would not die if they were well nourished.

Disease and inadequate dietary intake are the immediate causes of malnutrition in most individuals. Underlying these causes are barriers in the household and family:

- ♦ Insufficient access to food. Families cannot produce or acquire enough food containing needed energy and nutrients. Other problems may include access to land and agricultural inputs, marketing and distribution of foods, income, and other factors.
- ♦ Inadequate maternal and child care practices. Families and communities give inadequate time and resources to taking care of the health, dietary, emotional, and cognitive needs of women and children. Poor caring practices include not feeding sick children appropriately; not using health care facilities for the special needs of pregnant women or adolescent girls; poor hygiene; not supporting mothers to BF adequately; not providing adequate complementary feeding; inadequate diets for women, including food taboos during and after pregnancy; and excessive workloads for women.
- ♦ Poor water/sanitation and inadequate health services. Health services are poor quality, expensive, non-existent, or inconvenient. Indicators of inadequate health services include low immunization coverage; lack of prenatal care; inadequate management of sick and malnourished children; and inadequate water and sanitation facilities.

Figure 2 shows how the underlying and immediate causes of malnutrition interact. Nutritional status is an outcome of processes and structures in a society that regulate access to resources, education, economic assets, and opportunities. Poor nutritional status includes inadequate growth in young children and deficiencies of specific micronutrients, including vitamin A, iron, iodine, and zinc. These deficiencies have greater effects on health and affect more people than previously thought. Vitamin A, for example, is important not only for eyesight but also for resistance to disease; iron and iodine are essential for brain development. Micronutrient deficiencies are determined by a similar set of immediate, underlying, and basic causes, as are the causes of generalized malnutrition or inadequate growth.

Malnutrition often begins at conception. When pregnant women consume inadequate diets, have excessive workloads, or are frequently ill, they give birth to smaller babies with a variety of health problems. Children born to malnourished mothers are more likely to die as infants. If they survive, by the second year of life they may have permanent damage. For this reason, pregnant and BF women and children under 2 years should be priority target groups for nutrition interventions.

The effects of early childhood malnutrition persist into the school years and even adulthood, lowering productivity and quality of life. Small adult women who were malnourished as children are more likely to produce small babies, and the cycle of malnutrition and illnesses continues (see figure 3).

Based on good evidence, malnutrition can be successfully reduced. During the 1970s and 1980s, nutrition interventions reduced the prevalence of malnutrition in many countries, demonstrating what a commitment to nutrition can do.

- ◆ In Thailand, the proportion of underweight children declined rapidly during the 1980s, from around 35% in 1982, to under 20% in 1987, to about 15% in 1990.
- ◆ In Bhutan, salt iodization led to a decline in the percentage of the population affected by goiter from about 65% in 1983, to about 25% in 1992, to 14% in 1996.
- ◆ In Honduras, sugar fortification and vitamin A supplements together reduced vitamin A deficiency from about 40% in 1965 to 15% in 1996.

## **Global Support for Nutrition Interventions**

In recent years, countries have repeatedly emphasized their commitment to reducing widespread malnutrition.

- ◆ At the World Summit for Children in 1990, leaders and scientists from 150 countries pledged to reduce or eliminate vitamin A, iron, and iodine deficiencies, and to improve maternal and child nutrition. They promised to give "high priority" to the rights of children.
- ◆ At the Ending Hidden Hunger Conference in 1991, world leaders pledged to reduce micronutrient malnutrition. At the International Conference on Nutrition in 1992, ministers of health, agriculture, and development from more than 150 countries set goals for a global reduction in malnutrition. National plans of action are being implemented in 132 countries.
- ◆ At the World Food Summit in 1996, with 186 countries participating, a commitment was made to realize the rights of all to adequate food and freedom from hunger.
- ◆ By 1997, more than 190 countries had ratified the Convention on the Rights of the Child, which commits signatory countries to ensuring children's right to the "highest attainable standard" of health, including adequate nutritional care.

Through collaboration, international agencies, governments, and NGO partners are supporting countries in establishing standards and objectives for improved nutrition.

- ◆ At a WHO/UNICEF meeting held in Florence (Innocenti) in 1990, policymakers identified four program targets for supporting BF in the 1990s: high-level national coordination, changes in maternity services, adoption of the International Code of

Marketing of Breast-Milk Substitutes, and legislation protecting the rights of working women.

- ◆ In 1991, UNICEF and WHO began the "Baby Friendly Hospital Initiative (BFHI)," a 10-step program to eliminate barriers to successful BF in maternity services. By mid-1998, about 16,000 facilities in 160 countries met the criteria for BFHI certification.
- ◆ The Universal Salt Iodization (USI) initiative supported by WHO, the International Council for the Control of Iodine Deficiency Disorders (ICCIDD), and UNICEF aims to secure 100% coverage with iodized salt. To date, almost 70% of household salt is adequately iodized in about half the countries where iodine deficiency is a problem.
- ◆ A multi-agency vitamin A initiative supports the elimination of vitamin A deficiency as a public health problem in the next decade. With the support of UNICEF, WHO, USAID, CIDA, various NGOs, and food and pharmaceutical industries, a majority of high-risk children in at least 35 countries now receive adequate amounts of vitamin A through supplements, fortified foods, or improved diets.
- ◆ Integrated Management of Childhood Illness (IMCI), a multi-agency program developed by WHO and UNICEF, is implemented in more than 60 countries. It includes the strengthening of nutritional care of children through health services.

## **The Role of Health Programs in Improving Nutrition**

Health workers are in a strong position to design and implement nutrition programs. They are also powerful motivators who can help change family practices and community beliefs about the care and feeding of women and children. This can be achieved through a combination of a top-down promotion of known beneficial actions together with a more bottom-up approach, which helps communities and families desire for themselves the benefits of taking certain actions.

By focusing on a package of essential nutrition actions, health programs can reduce infant and child mortality, improve physical and mental growth and development, and improve productivity. These essential actions protect, promote, and support the following priority nutrition outcomes:

- ◆ exclusive BF for at least 4 and, if possible, for 6 months;
- ◆ adequate complementary feeding starting at about 6 months with continued BF for 2 years;
- ◆ appropriate nutritional care of sick and malnourished children;
- ◆ adequate intake of vitamin A for women and children;
- ◆ adequate intake of iron for women and children; and
- ◆ adequate intake of iodine by all members of the household.

The interventions that make up this "essential package" for nutrition are relatively inexpensive and proven to be effective in a range of different settings. They need to be incorporated into both child and maternal health services at the community level and in clinics. Primary health care should accompany nutrition interventions at each level.



Table 1 summarizes the main nutrition actions for district health programs. To achieve lasting impact, nutrition activities must be accompanied by other interventions that address the basic causes of malnutrition. For example, additional interventions outside the health sector are needed to alleviate poverty, raise the social status of women, assure food security, and expand education.

**TABLE 1. PRIORITY NUTRITION ACTIVITIES IN DISTRICT HEALTH SERVICES**

<b>District Level</b>	
<ul style="list-style-type: none"> <li>◆ Monitor nutrition problems, identify sub-populations at risk of nutrition problems, and direct additional resources to high-risk areas.</li> <li>◆ Provide resources and tools to implement nutrition activities at health facilities and in communities.</li> <li>◆ Update nutrition policies and protocols.</li> <li>◆ Implement a communications strategy to reinforce priority nutrition messages.</li> <li>◆ Implement special actions to supplement routine services, e.g., campaigns to distribute micronutrients.</li> <li>◆ Provide facilities for management of severe malnutrition and anemia.</li> <li>◆ Form partnerships with private providers in the district.</li> </ul>	
<b>Health Facility Level</b>	
<b>Maternal Health</b>	<b>Child Health</b>
<ul style="list-style-type: none"> <li>◆ Carry out essential nutrition actions at these contacts with women: during pregnancy, at delivery and postpartum, and in the weeks following delivery.</li> <li>◆ Detect, treat/refer severe anemia.</li> <li>◆ Build community partnerships in the catchment area.</li> <li>◆ Train and supply community workers; encourage private providers to follow appropriate guidelines.</li> <li>◆ Implement special actions to achieve coverage targets, e.g., local micronutrient distribution days.</li> <li>◆ Record and monitor the coverage of essential actions; conduct surveillance of nutrition problems.</li> <li>◆ Train and support women's groups, and health and other workers to give key nutrition services.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Carry out essential nutrition actions at these contacts with children: immunization contacts, well-baby consultations, and sick-child consultations.</li> <li>◆ Detect, treat/refer severe malnutrition.</li> </ul>
<b>Community Level</b>	
<b>Maternal Health</b>	<b>Child Health</b>
<ul style="list-style-type: none"> <li>◆ Identify and support a system to follow-up all pregnant women at least through delivery and in the first few weeks postpartum.</li> <li>◆ Train and support birth attendants, women's groups, and other workers to give key nutrition services.</li> <li>◆ Support family planning choices.</li> <li>◆ Make community leaders and families aware of priority nutrition problems and needed actions.</li> <li>◆ Record and monitor key nutrition indicators including the growth of children.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Identify and support a system to follow all infants from birth to 24 months.</li> <li>◆ Train and support women's groups, and health and other workers to give key nutrition services.</li> </ul>

Chapters 2-8 in this guide provides health managers with detailed information and tools to incorporate the package of essential nutrition actions into ongoing health programs.

- ◆ Chapter 2 explains the justification for the 6 groups of priority nutrition interventions. Those familiar with "why" these nutrition interventions are important may go directly to chapter 3.
- ◆ Chapter 3 reviews the steps for developing a nutrition plan for district health programs and provides tools that can be used to develop a strategy.
- ◆ Chapter 4 provides technical guidelines on how nutrition interventions should be implemented as integrated components of health services.
- ◆ Chapter 5 describes options for developing community partnerships to support the essential actions.
- ◆ Chapter 6 reviews the steps for designing communications activities to support the nutrition components of integrated health programs.
- ◆ Chapter 7 discusses the supporting activities and tools that are key to carrying out nutrition activities, such as providing needed supplies, training, supervision, monitoring, and evaluation.
- ◆ Chapter 8 contains current international recommendations and protocols related to the priority nutrition interventions.

Though this guide is dedicated to the topic of nutrition, it also aims to foster integrated programs of nutrition with health. Throughout the chapters, examples are given of how nutrition activities have been incorporated into health programs.

## CHAPTER 2

# Priority Nutrition Interventions

### Key Points

Experience gained during the past two decades suggests that the most cost-effective, widely applicable, and manageable nutrition interventions protect, promote, and support the achievement of six priority nutrition outcomes:

- ◆ Exclusive BF. The best source of energy and nutrients for young infants, exclusive BF prevents deaths from diarrhea and acute respiratory infection (ARI), and benefits mothers and infants in many other ways.
- ◆ Appropriate complementary feeding with continued BF for 2 years. In combination with basic health care, these behaviors can prevent or reduce the high levels of malnutrition and illness found during 6 to 24 months of age.
- ◆ Adequate nutritional care during illness and severe malnutrition. Sick and malnourished children have a high risk of complications, death, and disabilities if their nutritional care is neglected.
- ◆ Adequate vitamin A intake. Vitamin A protects immunity, prevents blindness, and reduces the risk of children dying from the common illnesses of childhood.
- ◆ Adequate iron intake. Iron is essential for supporting the physical and mental capacity of individuals.
- ◆ Adequate iodine intake. Iodine deficiency is the world's greatest single cause of preventable brain damage, and it causes neonatal deaths, stillbirths, and miscarriages.

Both the causes and the solutions of nutrition problems are multisectoral (see figure 2 in chapter 1), as are the benefits of improved nutrition. So, it is not surprising that many interventions in the health, agriculture, and education sectors have been developed and implemented to reduce malnutrition, some more successfully than others.<sup>1</sup>

Increasingly, however, it is clear that a small number of behaviors and nutrition practices aimed at addressing the immediate causes of malnutrition in women and young children have measurable impact on health and nutritional status. Growth failure in children is concentrated into the first 2 years of life. Even in the poorest regions, on average, growth is normal after the age of 2 years. Thus, reduction of child malnutrition levels depends on efforts aimed at the fetus and first 2 years after birth. Interventions to protect, promote, and support the following outcomes are affordable, relevant in a wide range of countries and regions, and can be integrated into ongoing health services. They promote growth, reduce the severity of illnesses, and prevent death, disease and disabilities. Together they form a package of essential nutrition actions for the following priority outcomes:

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<sup>1</sup> For reviews of nutrition interventions and lessons learned see: (a) ACC/SCN 1996, How nutrition improves; (b) ACC/SCN 1991, Managing successful nutrition programmes; (c) Pinstrup-Andersen et al. Eds. 1993, Child growth and nutrition in developing countries: priorities for action; (d) Levin et al. 1993, Micronutrient deficiency disorders, in Disease control priorities in developing countries; (e) Pearson 1993, Thematic evaluation of UNICEF support to growth monitoring, UNICEF; (f) WHO 1998, A critical link-interventions for physical growth and psychological development; and (g) UNICEF 1998, State of the World's Children.

- ◆ exclusive BF for at least 4 and, if possible, for 6 months;
- ◆ appropriate complementary feeding and continued BF for 2 years;
- ◆ adequate nutritional care during illness and severe malnutrition;
- ◆ adequate vitamin A intake;
- ◆ adequate iron intake; and
- ◆ adequate iodine intake.

This chapter discusses interventions supporting these priority nutrition outcomes, describes why they are important, how problems develop, who is at risk, and what measures are needed.

## **Exclusive BF**

Exclusive BF (EBF) means giving the infant only breastmilk - no other liquids or solids, except vitamin or mineral drops and medicines. WHO and UNICEF recommend that infants should be exclusively breastfed for at least the first 4 and, if possible, the first 6 months of life.

Breastmilk is a safe, hygienic source of energy, nutrients, and fluids. It contains disease-fighting substances and vitamins that support the body's natural immune system. Other infant feeding products significantly increase deaths from diarrhea and respiratory diseases (see figure 4). No other substance provides a nourishing, bacteria-free, allergen-free, antibody-containing, digestible alternative to breastmilk, even in developed countries. In a hot climate, exclusive BF provides all the fluid a healthy infant needs to satisfy thirst and to avoid dehydration. No extra fluids are needed.

In addition to being the only food or liquid given, BF in the first several months should be practiced in a way that ensures enough milk is being consumed by the infant to meet the infant's energy needs. This means practicing exclusive, unrestricted BF, day and night, as often and as long as the infant wants. It can include giving the infant expressed mother's milk from a cup if the mother is away.

BF soon after birth helps establish the mother's milk supply, helps her uterus contract, reduces bleeding in the mother, protects the newborn against hypothermia, provides colostrum or first milk that contains infection fighting substances and concentrated nutrients for infants, and has important psycho-social benefits for the mother and infant. Keeping the newborn with the mother (also called "rooming in") and not giving additional formula or glucose water are important to establishing successful BF. Giving additional fluids or foods to newborns or young infants reduces breastmilk supply and creates health problems.

BF is important for diarrhea case management and is one of the most cost-effective interventions for diarrheal disease control. It costs less to prevent diarrhea through BF promotion than through any other intervention. Breastfed children who have diarrhea recover more quickly than non-breastfed children, and they have fewer complications such as dehydration.

BF also has health benefits for the mother. Frequent, unsupplemented BF for about 6 months provides protection from another pregnancy by suppressing fertility in the mother. It helps women control their fertility and is a highly effective method of family planning, when practiced appropriately.

When infants are given other fluids, formula or foods, they cut back on the amount of breastmilk they consume (see figure 5). Even if families can afford to buy and prepare infant formula adequately, formula cannot fully replace the benefits of BF.

### ***Problems in Practicing Exclusive BF***

In many parts of the world, BF problems often begin at birth. Lack of arrangements in health facilities and mistaken beliefs among health workers and family members prevent mothers from establishing successful BF soon after birth. Even when they understand the benefits and are committed to it, women may encounter difficulties in BF effectively, generally because they do not know enough about how BF works and because those around them do not know how to support it. Most health professionals are not trained in the specialized skills of BF counseling. The attitudes of mothers, fathers, other family members, health care providers, and traditional healers all can affect whether and for how long a woman BF.

Women may not begin or may not continue BF for a number of reasons, including the belief that they have "insufficient milk," or they may feel they need to start supplementing because they have to go back to work. These difficulties can be overcome.

### ***Insufficient Milk***

Mothers frequently cite "infant crying" as a sign that their babies are not getting enough milk and then decide to supplement with other liquids or solids, or they give water because they think their baby is thirsty. These responses show misunderstanding of how breastmilk intake is regulated and that infants do not need extra water.

At various stages of growth, the infant's nutritional requirements may briefly outstrip breastmilk intake. This temporary deficit resolves itself if infants are allowed to nurse freely. But, if they do not nurse frequently (perhaps because they are consuming other foods), milk intake will fall. The more they nurse, the more milk will be consumed, although it may take a few days before mothers notice it. All mothers should learn how to express milk manually for times when the infant is unable to withdraw the milk frequently or completely. This will prevent a reduction in the child's intake.

The best early indicator that milk supply is adequate is if infants are passing urine at least 6 times during a 24-hour period, the urine is light in color and does not have a strong smell, and the infant appears satisfied after each BF. Weight gain is another good indicator of adequate breastmilk intake. Infant crying is not a good indicator of poor breastmilk supply.

### ***Mothers Work and BF***

Mothers may introduce fluids and foods too early because they need to work—either in formal work settings or during harvesting and sowing. But, recent studies show that women employed in the formal work force generally do not leave their infants for long periods of time during the first few months after delivery. Exclusive BF can continue to provide vital protection in the most critical early months if mothers who must leave learn how to express breastmilk for use during separations that last more than a few hours. Bottles should not be used to feed infants; they can introduce dangerous bacteria and interfere with successful BF.

### ***Who Is at the Greatest Risk?***

All non-breastfed and inadequately breastfed infants are at risk. The health risks from a lack of exclusive BF are greatest in the first months of life and in communities with high levels of diarrheal disease, poor environmental sanitation and hygiene, and inadequate water supplies.

However, in all settings including the most advantaged, infants who are not breastfed may develop lifelong difficulties such as chronic diseases, allergies, and developmental delays.

### ***What Needs to Be Done***

Unlike many other health and nutrition interventions, BF does not involve an unfamiliar behavior, new product, or a change in basic concepts about its benefits. What is new is the importance of not feeding any other liquid or food, but giving only breastmilk, and feeding in a way that gives the infant adequate breastmilk to meet the infant's energy needs. This can mean following new practices: putting the baby to the breast soon after delivery; not using liquids, teas, or pacifiers; paying special attention to the frequency (or reducing intervals between BFs); BF as frequently and as long as the infant wants; and, in most locations, delaying the introduction of other fluids and foods.

These practices may seem to be inconvenient or not desirable by mothers and those around them, and health workers need to address these incorrect perceptions.

In addition, women need to know how to solve specific difficulties that are commonly experienced while BF, and they need to maintain their own nutrition reserves through diet and supplements.

To be successful, preparation for exclusive BF must begin during pregnancy; health workers need to make sure family members and mothers are ready for exclusive and unrestricted BF soon after delivery, and help make arrangements for mothers and infants to remain together for the first few months. Prenatal counseling and communications messages should include improving the mother's diet and reducing her workload in the last trimester of pregnancy. Preserving the nutritional reserves of pregnant and BF mothers is critical for the growth of the unborn child, for BF, and for the mother's own well-being and work.

The Baby Friendly Hospital Initiative (BFHI), including its related training courses, and the International Code for Marketing of Breast-Milk Substitutes provide detailed guidance on BF promotion through health services. Chapter 8 contains information on these two initiatives. Health staff should be supported to practice the principles of the two initiatives.

## **Appropriate Complementary Feeding and Continued BF for 2 Years**

The prevalence of malnutrition—both generalized malnutrition (inadequate growth, underweight, stunting, and wasting) and micronutrient deficiencies—rises rapidly in infancy, as does the frequency of illnesses. Appropriate feeding can prevent or reduce the effects of these dangerous conditions. Appropriate feeding between 6 and 24 months of age means giving children enough energy and nutrients from a combination of breastmilk and complementary foods that are hygienically prepared and fed, and taking special measures to feed children appropriately during and after illnesses. A recent review of the scientific knowledge and program lessons learned on this topic is given in WHO's review of complementary feeding issues (1998).

### ***Common Feeding Problems***

The feeding of infants in the 6-24 month age group can require special efforts by caregivers and families to make sure that children consume hygienically prepared food containing adequate energy and nutrients. There should be a gradual shift from exclusive BF to a mix of

complementary foods plus BF during 6-24 months of age, and eventually to the family diet with no BF. Care is often not taken to maintain BF for the entire two years after other foods are started.

Families and those who advise caregivers frequently are not aware that the following principles of FADU are key to feeding young children successfully:

- ◆ adequate Frequency of feeds,
- ◆ sufficient Amounts of foods at each feed,
- ◆ use of foods to increase nutrient Density in the diet, and
- ◆ ensuring that the food is Utilized after it is eaten, e.g., by reducing infections from contaminated foods.

To feed a young child successfully, families must ensure that feeding frequency is adequate and must give high quality foods preferentially to the child. Table 2 illustrates the amount and variety of foods necessary. With limited stomach capacity, infants and children cannot eat on an adult schedule but need small, frequent servings; otherwise, they will be full before they have consumed enough. At each feeding sufficient quantities should be eaten. Family foods are generally bulky with low nutrient density and special nutrient-dense ingredients should be added, such as legumes, dried beans, and lentils; animal foods (even small amounts of meat, fish, eggs, liver, and dairy products); fruits; and vegetables. The foods are often readily available but not fed to children often enough and in a way that provides adequate nutrition. Additionally, food preparation and feeding should be hygienic to prevent the spread of bacteria, for example, through unclean hands and utensils. Caregivers need to spend adequate time on the feeding and care of young children.

Starting at about 6 months, when children become more active and exposed to bacteria in the environment, they may experience reduced appetite that makes feeding even more difficult, or they may have a tendency to become distracted by other activities. Caregivers need to recognize these behaviors and take special steps to encourage the child to eat. Even a few days of not eating or sharply reduced eating can cause health and nutrition problems. Careful assessment of the cause of a lack of interest in food or poor appetite by an alert mother or health worker could reveal an underlying infection that should be treated as soon as possible.

### ***Who Is at the Greatest Risk?***

Health risks from poor complementary feeding are greatest in the 6-24 month age group. Diarrhea prevalence peaks during this time, as does the proportion of children who are underweight (see figure 6). Children who are sick or recovering from diarrhea, measles, fever, and respiratory infections are particularly likely to be inadequately fed. During peak seasons of mothers' employment, adequate complementary feeding and other caring practices are likely to suffer due to mothers working long hours away from home or in the home.

**TABLE 2**  
**FEEDING FREQUENTLY ACCORDING TO AGE AND A VARIETY OF FOODS ARE CRUCIAL**

Age (mths)	Daily requirements			Feeding frequency		Food sources
	Total per day	From breast milk	From other foods	No. of complementary feedings/day and form of food	No. of BF's/day and night	Vit A, iron and other micro-nutrients
6-8	685	410	275	2-3 times. Give mashed, semi-solids made of cereal and legume/beans, softened with breastmilk; add ground nuts, small pieces of mashed or shopped animal foods (egg, meat, fish, liver, cheese), and fruits/veg	Freely as the child wants, gradually decreasing from about 8 per day/night at 6 mths	<p>Children need micronutrients from foods or supplements to meet their requirements. For example:</p> <p>Vit A: use vitamin A fortified foods (sugar, cereal flour, oil), liver, eggs, dairy, orange/yellow fruits and veg. When these foods are not available or too expensive, or the prevalence of childhood diseases is high, give oral supplements every 6 mths.</p> <p>Use doses and schedules given in chapter 8.</p> <p>Iron: use iron-fortified foods (cereal flour, not infant formula), meat, fish and vitamin C rich fruits and veg. Because infants typically consume iron deficient diets, preventive doses of iron supplements should be given to all infants starting at 6 mths and to low birth weight infants starting at 2 mths. Use doses and schedules in chapter 8.</p> <p>Note: mothers should use only fortified foods and iodized salt for all family meals where the risk of micronutrient deficiencies exist.</p>
9-11	830	380	450	3-4 times. Similar to the above, also introduce "finger-foods" or snacks and fried foods, increase animal foods and fruits/veg	Freely as the child wants	
12-23	1090	340	750	4-5 times. Same as above. Gradually transfer to chopped or mashed family foods after about 12 mths	Freely as the child wants, gradually to at least once per day/night by 23 mths of age	

SOURCE: Adapted from WHO/NUT/98.1.

In some communities, girl children are discriminated against and receive inferior food and inadequate care even if the family has adequate resources. The health and nutrition of children tend to be better off in families in which mothers have three or more years of schooling and control some of the family's resources; these families are more likely to use available resources for children's care, including better feeding and health practices.

### **What Needs to Be Done**

To improve young children's diets several methods can be used: counseling mothers and other caregivers to provide enough of a variety of foods (see table 2) and continuing BF for at least two years; paying special attention to the needs and interests of children when they are well and during/following illnesses; and teaching mothers special skills such as active feeding to encourage children to eat enough amounts of the needed types of foods. A critical part of feeding children at this age is to support the continuation of BF to at least 2 years of age. All messages and counseling activities related to complementary feeding should support that behavior, and include steps that mothers can take when working away from home and continuing to BF.

All programs need a counselling component and this is discussed below. In some settings a communications effort will be necessary if the program is of sufficient scale and the goal is to create a social norm around a new way of feeding. The use of growth monitoring and food distribution may be useful in some programs as described below.



But the period from 6-24 months is a nutritional challenge for many children and families; the underlying and basic causes of malnutrition discussed in chapter 1 may need to be addressed to prevent inadequate growth and micronutrient deficiencies. Health managers can take several possible actions-UNICEF's Care Initiative (1997) provides information on how to assess and monitor care for nutrition. For a review of lessons learned from complementary feeding programs, see chapter 8 in the WHO monograph on complementary feeding of young children in developing countries.

### *Counseling and "Active Feeding"*

Counseling to improve child feeding involves reinforcing and encouraging good practices, assessing feeding problems, discussing possible solutions, and motivating mothers or caregivers to try at least one or two modifications in how they feed their infants. The use of qualitative research to develop locally specific and feasible guidelines is important; these methods are described in *Designing by Dialogue* by Dickin, Griffiths, and Piwoz (1997). The IMCI program includes adaptation of WHO/UNICEF recommendations to develop local guidelines on counseling; many countries have developed counseling materials to support health workers. In many situations, sufficient foods exist in the home to meet the needs of infants, and health workers can focus on motivating mothers to use the available foods. But, in some situations, it has been necessary to provide special foods for children or add to family food resources.

In addition to the type and amount of foods, how to feed the child is also important. Paying attention to children's desires and helping them get the food they need is key. "Active feeding" is one strategy that mothers have found useful. It can be used to overcome poor appetite, as well as the physical or developmental inability of young children to feed themselves adequately. Active feeding may also develop social and psychomotor skills.

Health workers and others who counsel caregivers about infant feeding should review the following indicators for feeding a child, and encourage families to support these active feeding styles or methods:

- ◆ Caregivers or mothers should feed according to the child's age and abilities. Check: Can the child eat with the implements given (e.g., fingers, spoon, special cup)? The utensils or method used to help a child eat should be appropriate. If the spoon is too large, there is no special bowl, food is very thin, or the child cannot grasp the food, the child will not eat enough.
- ◆ Feeding should be in response to the child's demands or interest in feeding. Ask: Does the caregiver pay attention to the child's signs of interest in food? How well does a caregiver detect or understand the cues of hunger from the child, such as gestures, eye movements, or sounds. The caregiver should not wait for the child to become frustrated or for the child to cry. Some caregivers will feed only on a schedule, or think that children should learn how to deal with hunger. Whereas, this attitude may be appropriate for children above 2 years of age, the younger child needs more frequent and responsive feeding.
- ◆ Caregivers and mothers should encourage the child to eat more at each feeding after he/she has stopped showing an interest in eating. They should encourage the child by hugging, smiling, playing, and giving other rewards for eating more. However, force-feeding (restraining the child, or holding its nose to force open the mouth and pouring or pushing food into the mouth) are dangerous and should be strongly discouraged.

## *Growth Monitoring and Promotion*

Growth promotion is motivating caretakers, families, communities, and health workers to practice behaviors that support adequate growth (height and weight gain) in young children. These behaviors include adequate pre-conception and prenatal nutrition for mothers to build a strong foundation for infant growth; BF and complementary feeding; and preventive health care, such as immunizations and deworming; micronutrient supplementation; timely and appropriate attention to illnesses; and others. Growth monitoring is measuring the weights and/or heights of individual children periodically (e.g., monthly) to see if they are growing adequately. It is good clinical practice to monitor the growth of children; it can help detect underlying medical problems before they become serious and can reinforce good caring practices.

In general, growth monitoring/promotion programs that require frequent, accurate weighing of all children, correct interpretation of measurements, and follow-up action have been difficult to maintain on a large scale in typical health programs in developing countries. The counseling and follow-up activities have been particularly neglected.

IMCI guidelines recommend that health workers should use feeding guidelines as the criteria for assessing whether feeding is adequate and for proposing changes to mothers in how they feed children. Growth faltering can be prevented before it occurs by dealing with feeding problems early. See chapter 8 for more details on IMCI Counsel the Mother guidelines for health workers to assess and counsel on feeding practices.

However, growth monitoring activities can be useful for targeting resources, increasing participation, mobilizing communities, and tracking progress in reducing malnutrition. Health managers should pay special attention to the counseling and follow-up components of growth monitoring activities in their area. Growth monitoring/promotion efforts should focus on young children from birth to 2 years and should ideally begin with monitoring nutrition practices in pregnant women. Growth monitoring activities should be accompanied by immunizations, early detection of infections, detection of risk signs in pregnant women, micronutrient supplementation, and, where needed, malaria prophylaxis, and deworming.

When a child with poor growth is detected, health workers should follow-up with home visits and look for underlying problems, such as inadequate maternal and child care and health practices. When a child continues to grow poorly, there should be a detailed assessment of the causes. UNICEF's Care Initiative (1997) provides guidelines for assessing and dealing with care for women, BF and feeding practices, psycho-social care, food preparation, hygiene practices, and home health care practices. If family resources are insufficient, health workers should consider enrolling the child in a supplementary feeding program (see the section below), refer them for special child care, to a social welfare agency, or provide special medical care. Cases of severe malnutrition (children with edema in both feet, visible severe wasting, or very low weight-for-age) should be admitted for clinical care immediately; and follow WHO guidelines (1999) for their management.

Apart from actions taken for individual children who are not growing well, health workers can use information on children's weights to target supplementary feeding or track changes in a community's nutrition situation. Information can be collected on a representative sample of children in a community every 3-4 months or annually. Information on children's weights has been successfully used to inform community leaders about nutrition trends and has helped program implementers and community workers focus on reducing the number of malnourished children. For guidelines and experiences on successful growth monitoring and promotion programs, see *Promoting the Growth of Children: What Works* by Griffiths, Dickin and Favin (World Bank 1996). Chapter 5 has several examples of successful uses of growth monitoring and child weighing activities. Chapter 7 offers further guidance on

children's weights as an indicator for program evaluation. Also see UNICEF's Information Strategy (1998).

### *Supplementary Feeding or Food-Based Interventions*

In some settings, particularly where malnutrition rates are very high, health programs benefit from an additional supplementary feeding or food distribution intervention. In addition to relieving serious food deficits in families, food mixes can improve nutrient density and provide essential nutrients missing in the family diet. Managers need to take special measures, or collaborate with other agencies, to adequately procure, store, prepare, distribute, and account for food supplies. To have an impact on improving nutrition, they also need to have a system in place to ensure that supplements reach those at risk of malnutrition and that the food is additional to and not just a replacement for family foods.

Successful programs have strict inclusion and exclusion criteria (e.g., only children who are malnourished or have difficult family situations, or continue to falter in growth are enrolled); they often limit the duration of food distributed per family or child, and may include extra food to provide enough for mothers and all children in the family. Monthly or quarterly food distributions have also been used to attract mothers for other health services, such as immunizations, growth monitoring, deworming, and vitamin A supplementation. In some settings (e.g., day care centers or outpatient facilities), supervised daily feeding may be possible.

Care should be taken not to create a dependency on food handouts and to avoid promotion of processed complementary foods as substitutes or replacements for BF. For a detailed review of program experiences, see the WHO publication *Complementary Feeding of Young Children in Developing Countries* (1998).

## **Adequate Nutritional Care of Sick and Malnourished Children**

Childhood diseases, such as pneumonia, diarrhea, measles, HIV/AIDS, malaria, and fevers, cause serious feeding problems and damage the nutritional status of children. Because of increased losses of body stores, low absorption of food from the gut, poor appetite, and low intake, diarrhea results in malnutrition, and the same child is more likely to have severe diarrhea again unless the malnutrition is addressed. Diarrhea is most often caused by faulty infant feeding practices, particularly inadequate BF and contaminated weaning foods. So closely related are malnutrition and diarrhea that diarrhea is sometimes called "a nutritional disease."

Without early detection of feeding problems and appropriate nutritional supplementation, many children with common diseases of childhood die or become disabled or severely malnourished. Severe malnutrition is defined as a child with edema of both feet or a child with severely retarded growth. In IMCI protocols, the indicator for severely retarded growth is visible severe wasting (loose skin, no fat, ribs visible). If measurement of weight and height are available, use these indicators: weighs less than minus 3 standard deviation scores for weight-for-height (or weighs less than 70% of the weight) of the international standard for a child of the same height, or a child whose height is less than minus 3 standard deviation scores for height-for-age (or has a height less than 85% of the height) of the international standard for a child of the same age. For further information about anthropometric indicators, see WHO's *Physical Status: the Use and Interpretation of Anthropometry* (Technical Report 854, 1995).

Severe malnutrition is a medical emergency and these children should be admitted immediately for clinical care. Between 30 and 50% of cases end in death if they are not given appropriate treatment. With proper management case fatality rates can be brought under 10%. Case management for severe malnutrition includes treating dehydration, electrolyte imbalance, nutrient supplementation, therapeutic feeding, treatment for infections, and mental stimulation.

Residential care is essential for initial treatment and for beginning rehabilitation of a child with severe malnutrition. Ideally, the child should be admitted to a hospital, preferably to a special nutrition unit. When the child has completed the initial phase of treatment, has no complications, and is eating satisfactorily and gaining weight (usually 2-3 weeks after admission), he or she can usually be managed at a non-residential or daytime nutrition rehabilitation center. Details of the case management of severely malnourished children are given in WHO's *Management of Severe Malnutrition* (1999).

### ***Why Sick and Malnourished Children Receive Inadequate Nutritional Care***

Sick children lose their appetite; they stop or reduce eating and experience nutritional losses. They may feel too weak or cannot breathe well enough to BF, or they may have difficulty chewing and swallowing their food. Caregivers need to recognize signs of illness and related feeding problems early and take active steps, such as treating the illness and feeding enough fluids and foods. But, traditional caring practices, lack of resources, and outdated advice by health workers frequently lead to inappropriate nutritional care of sick and malnourished children until it is too late. For example, in many communities, children with diarrhea are starved in the mistaken belief that "resting the gut" will cure the diarrhea more quickly. Another common mistake is to displace feeding by unnecessarily using fluids, such as juices, soups, and teas with little or no nutritional value long after the period of severe dehydration.

Very often, sick or malnourished children are admitted to health clinics or hospitals without the mother. Staff may fail to support exclusive BF in young infants, or to re-establish exclusive BF. Instead, health workers may give bottles.

After a child becomes severely malnourished, the cost of and complexity of adequate clinical care are high. Doctors may not be trained to treat severely malnourished children, and faulty practices are common.

### ***Who Is at the Greatest Risk?***

Severe malnutrition is commonly found in children with HIV/AIDS, tuberculosis, pneumonia, prolonged diarrhea, malaria, and measles. The combination of illness and malnutrition puts these children at a high risk of death. Children recuperating from illnesses or with continued poor appetite, and infants who are not breastfed appropriately, are at high risk of malnutrition and death. Children with visible severe wasting, edema of both feet, severe pallor, or eye signs of vitamin A deficiency are at very high risk of death. Most severe malnutrition cases are admitted with complications, such as hypoglycemia, hypothermia, and dehydration, that are life threatening. Malnourished children often have infections; the younger they are the greater their risk of dying.

Severely malnourished children often come from highly disadvantaged families, including single-parent households, adolescent mothers, and others. Health workers may need to work with social workers, women's organizations, food security and food aid agencies, and others to improve the conditions that caused the malnutrition.

## **What Needs to Be Done**

Continuing to feed a child adequately during and after illness and to replenish energy and nutrients through supplements, additional foods, and BF is crucial. Studies show that it is more harmful to stop feeding for any duration than to feed throughout diarrhea case management. In fact, children appear to gain more weight if they are fed immediately upon admission than if they receive only non-nutritive rehydration fluids.

Treatment of infections is a high priority. After the acute phase of an illness is over, the energy and nutrients lost must be made up through increased feeding over a period of several days or weeks. This is important because children who are underweight or who consume less energy are more likely to repeat cycles of malnutrition and illness. All sick and malnourished children need additional micronutrients. Figure 7 summarizes the phases of rehabilitation for severely malnourished children.

### **BOX 1**

#### **DETECTION AND ACTION IN THE COMMUNITY**

Health managers can prevent severe child health and nutritional problems through early detection in communities and adequate care at referral facilities. Community-based workers and caregivers should recognize and act on the following 6 "Triggers for Action":

1. Poor appetite or "child refusing to eat." This frequently precedes weight reductions, and is a timely and easily detected trigger for action. Action: Teach caregivers techniques of "active feeding" to coax children to eat enough food, even when they are sick. For example, giving small frequent feedings, holding the child, distracting the child, offering favorite foods, responding to preferences for sweet or sour foods, can help. Make up for poor appetite after recovery from illnesses by feeding extra food.
2. Perceived "insufficient milk." During the first 6 months of BF, this perception is a risk factor for diarrhea and malnutrition because it is the most common reason mothers give for starting other foods or fluids. Supplementary feeding can cause diarrhea and reduce milk supply. Action: Teach mothers to avoid feeding foods or fluids other than breastmilk and to monitor and increase milk supply. Supply can increase through frequent feeding and emptying of each breast.
3. Use of a bottle to feed infants. This reduces breastmilk supply and can cause diarrhea. Action: Increase BF frequency and the duration of each BF. Gradually replace use of a bottle with a cup and spoon. Gradually reduce and stop other fluids and food if the child is under 6 months of age, at the same time increasing BF. If the child has diarrhea, look for danger signs of dehydration and give oral rehydration fluids.
4. Night blindness in women or children older than 2 years. This is a well-known indicator of VAD in a community. Even a few cases indicate a widespread problem. Action: Provide vitamin A supplements to all children 6-59 months and to women at delivery. Increase the number of times per week that vitamin A-rich foods are eaten by women and children.
5. Pallor, lack of energy/breathlessness, or tiredness in pregnant women or children. This is an indication of severe anemia. In young children and women, severe anemia can be fatal. Action: Give iron supplements; check and treat for parasites. Increase the times per week that foods high in iron and vitamin C are eaten by women and children. Pregnant women with pallor who are 36 weeks or more gestational age should be referred to a hospital with capacity to screen and give blood transfusion.
6. Severe visible wasting (or very low weight) and/or edema of both feet. These signal a very high risk of mortality and need urgent care. Edema often follows a measles episode. Action: Admit to a hospital or health facility immediately and treat according to WHO guidelines (1999).

## **Adequate Vitamin A Intake**

The body's immune system cannot function well without adequate levels of vitamin A. Lack of vitamin A damages the surfaces of the skin, eyes, and mouth, the lining of the stomach, and the respiratory system. A child with vitamin A deficiency (VAD) has more infections, which become more severe because the immune system is damaged. VAD increases the risk that

children will die or become blind. It is the most common cause of childhood blindness in the developing world.

It is estimated that by giving adequate vitamin A, in vitamin A deficient populations, child mortality from measles can be reduced by 50%, and mortality from diarrheal disease by 40%. Overall mortality in children 6 to 59 months of age can be reduced by 23%. Interventions used in various field trials, on which this estimate is based, included food fortification and oral supplements (given either in high doses every 4 to 6 months or weekly/daily in small doses).

### ***How VAD Develops***

VAD results from low body stores of vitamin A. This can occur for a number of reasons. There may be too little vitamin A in the foods consumed, the body may absorb too little vitamin A, or vitamin A may be rapidly used up and then not replaced in time to avoid damage. When body stores of vitamin A are lost, blood levels fall, damaging the immune system. Later, the eyes are damaged (see figure 8). Infants born to women who consume too little vitamin A have low stores at birth. The breastmilk of these women is also low in vitamin A.

### ***Who Has the Greatest Risk?***

Children between the ages of 6 months and 6 years, and women especially during pregnancy and lactation, are most likely to develop vitamin A deficiency. Nightblindness is common in pregnant women. Infants and young children who are not breastfed are at very high risk. Infants and children who do not receive enough breastmilk for at least two years are at high risk; 500 ml of breastmilk provides about 45% of vitamin A requirements in the second year of life. Diseases, such as measles, prolonged or severe diarrhea, and other infections, reduce blood levels and stores of vitamin A.

Children who have a brother or sister with eye signs of VAD are ten times more likely to have severe VAD. Mothers of these children are five to ten times more likely to have night blindness. Children from the same neighborhoods and communities as someone with VAD are twice as likely to have or develop severe VAD.

Families living in certain environments are also at high risk for VAD, including communities where the availability of vitamin A-rich foods is low, where infant mortality levels are high (above 100), under five mortality is high (over 75), or where there is a high prevalence of underweight, stunting, wasting, or high measles case fatality (>1%). Figure 9 shows how vitamin A status can deteriorate sharply during some seasons.

### ***What Needs to Be Done***

BF protects infants against vitamin A deficiency. A single postpartum dose of 200,000 IU vitamin A given to lactating women at delivery increases the vitamin A content of breastmilk in women who are deficient.

Starting at about 6 months of age, additional vitamin-A intake is necessary because frequent infections use up vitamin A stores. Foods rich in vitamin A should be given to children to complement the vitamin A in breastmilk.

The gap between vitamin A needs and intakes in women and children can best be resolved by giving additional vitamin A through a combination of three ways:

- ◆ Dietary diversification: Encouraging more frequent intake of foods that are naturally rich in vitamin A using communications activities and counseling by health workers.
- ◆ Fortification: Adding vitamin A to foods that are commonly consumed by the high risk groups.
- ◆ Supplementation: In areas of VAD risk, giving age-appropriate doses of oral supplements of vitamin A to children and to women (within the first 6-8 weeks) after delivery.

Preventing illnesses and treating them early also protects against decreases in vitamin A stores and contributes to reducing VAD. Measles immunization is particularly important for an effective vitamin A strategy.

In areas at risk of VAD, any channel of frequent contact with young children and women at delivery should be used to distribute preventive doses of vitamin A. Immunization activities are well-suited to reaching young children and infants, in particular. Routine immunization activities usually focus on children under 1; additional channels are required to deliver supplemental vitamin A to other age groups and to include postpartum women. On the other hand, national or local immunization days that reach children up to the age of 59 months have proved to be highly cost-effective for reaching target age children for vitamin A. Several countries conduct local or national distributions for vitamin A alone.

## **Adequate Iron Intake**

The body needs iron to make hemoglobin—a protein in red blood cells that carries oxygen to the brain, muscular system, immune system, and other parts of the body. Without adequate oxygen, the physical and mental capacity of individuals is reduced. A reduction in red blood cells is called anemia.

Iron deficiency during pregnancy is associated with low birth-weight babies, premature delivery, maternal death, and even perinatal and fetal death. Iron deficiency during childhood causes impaired learning and motor development, and lower height/length; it also damages the normal defense systems against infection. In adults, iron deficiency reduces capacity to work. In a study in Indonesia, worker productivity increased 30% when iron supplements were given to iron-deficient workers.

Iron deficiency should be prevented during the period of rapid growth, during pregnancy, and in the first two years of life. Prevention of folic acid deficiency in women is also important to prevent anemia, birth defects and to maintain immunity. Ideally, women should enter pregnancy with good stores of iron and then take enough iron/folic acid in tablets to maintain good stores and normal hemoglobin levels. Iron deficiency is the most common nutrition problem in the world, affecting one-third of the world's population.

### ***How Anemia Develops***

Childhood anemia can begin when mothers have anemia before or during pregnancy, and the infant is born with low iron stores. Iron is stored in the liver, spleen, and bone marrow. Iron deficiency develops as these stores are used up and not replenished either through iron absorbed from food, or through iron given in the form of drops or tablets (see figure 10).

Anemia is often caused by an excess loss of iron from bleeding (e.g., menstruation) or parasites (e.g., hookworm). Deficiencies of folic acid, vitamin A, vitamin C, vitamin B-12, and various minerals can also cause anemia.

Only a small percentage of the iron in food is actually absorbed by the body. To be absorbed, the iron must be in a special form, and much of the iron in food is poorly absorbed. Substances, such as phytates (e.g., in whole grains) and tannins (e.g., in tea), prevent iron absorption. Iron deficiency is common when the diet is mostly grains or starchy roots. But, even small amounts of iron from meat and vitamin C can increase absorption. The level of iron deficiency in a person also affects absorption; the more severe the deficiency, the higher the absorption.

Breastmilk contains low levels of highly absorbable iron that is sufficient until about 6 months of age. After that, iron supplements should be given to infants to maintain normal iron status. Infants born with low birth weights should take supplemental iron starting at 2 months of age.

Iron deficiency is often made worse by blood loss from the gut caused by feeding infants with formula or other forms of animal milk, or in young children and women by infection with hookworm and whipworm. In many programs, supplements will bring little or no improvement in the iron status of women and children unless parasites are also controlled.

### ***Who Is At Risk?***

Pregnant women and children are at greatest risk of iron deficiency because of the iron needed for rapid growth and building of new cells. Infections, such as malaria and hookworm, predispose them to severe anemia.

### ***What Needs to Be Done***

Dietary improvement, fortification of foods (e.g., cereal flour) with iron, iron supplementation, and other public health measures, such as helminth control, malaria control, and improved reproductive health (e.g., longer birth spacing, prevention of HIV/AIDS), can improve iron status. In developed countries, intakes of a broad range of fortified foods have improved iron status. In developing countries, the neediest population groups may not consume fortified foods.

Because of the increased need for folic acid during pregnancy (also needed for red cell production), pregnant women should receive 400 micrograms of folic acid throughout pregnancy. It is easy to combine folic acid with iron tablets and makes it more convenient for women. Giving folic acid before and around the time of conception reduces birth defects called "neural tube defects." This affects a small number of births, but the defects are severe and are seen in most countries. Because most women do not come in contact with health services at the critical time for taking folic acid supplements, it is more important now to encourage women to eat more foods that contain folate (green leaves, beans, groundnuts, and liver/kidney/fish) and foods fortified with folic acid.

### ***Other Public Health Interventions to Reduce Anemia***

#### ***Helminth Control***

In communities where hookworm is endemic, anthelmintic medicines should be given to all anemic persons to eliminate the intestinal worms. In many communities where anemia prevalence is high, it is also advisable to routinely give this medication to all pregnant women and young children until helminths can be prevented. No screening is necessary because treatment is safe and much less expensive than diagnosing hookworm infection. Pregnant women should take anti-helminth medicine only during the second and third trimesters of pregnancy.



### *Malaria Control*

Where *P. falciparum* malaria is endemic, detecting and treating malaria must be an essential part of controlling anemia. Malaria prevention with treated bednets can be highly effective.

### *Reproductive Health*

Iron deficiency anemia can be controlled in women by preventing early pregnancies through family planning, reducing the total number of pregnancies, increasing the time between pregnancies, and increasing BF. Managing complications, such as excessive bleeding during delivery and postpartum periods, protects iron status.

## **Adequate Iodine Intake**

Iodine is essential for the production of thyroxin—a hormone produced by the thyroid gland—and used for a number of vital body functions, such as maintaining body temperature, brain function, growth, and reproduction. Deficiency of iodine during early fetal life can adversely affect fetal neurological development, causing impaired cognitive functions of varying degrees in children. The most severe form is cretinism. Iodine deficiency disorders (IDD), the world's greatest single cause of preventable brain damage, cause a range of nervous system disorders. They affect children's ability to walk, as well as their hearing and intellectual skills. Children who grow up in environments with insufficient iodine have IQ levels at least 10 points lower than their peers. In regions where IDD is widespread, its impact on the local economy is significant.

Iodine deficiency also causes a large number of deaths. It is associated with neonatal deaths, stillbirths, and miscarriages. It is estimated that for every severely iodine deficient person or "cretin" in a community, two other pregnancies have ended in stillbirths, miscarriage, or early neonatal deaths, from IDD.

### ***Causes of Iodine Deficiency Disorders***

IDD occurs where the soil is iodine deficient, resulting in low levels of iodine in locally grown foods and water supplies. Where iodine levels in the environment are adequate, foods can provide enough iodine, including vegetables, milk products, eggs, poultry, and meat. Adding iodine to salt is a simple, low-cost procedure that can replace the shortfall in iodine intake. But, a large number of people in high-risk areas do not regularly consume enough iodine through salt, either because the salt is not iodized at all or does not contain enough iodine.

### ***Who Is at High Risk?***

Populations living in areas with iodine deficient soils are particularly vulnerable to IDD and its effects. Goiter—the most easily seen form of IDD—is common in school-age children and women of reproductive age. But, other, less visible, forms of IDD are widespread and can affect males and females of all ages. Young children and the growing fetus are particularly vulnerable to the damage caused by IDD. Almost 30% of the world's population, including many in developed countries, live in iodine-deficient areas.

Infants who are not exclusively breastfed are at risk of IDD. Where goiter is endemic, lactating women are at high risk of iodine deficiency because the iodine is preferentially used for breastmilk, and these women should receive iodine supplements if adequately iodized salt is not available.

### ***What Needs to Be Done***

The technology for adding potassium iodate to salt during processing and refinement is one of the lowest-cost health and nutrition interventions available. Universal Salt Iodization (USI) is defined as fortification of all salt that is used for human and animal consumption. In the past fifty years, many countries in the Americas, Asia, Europe, and Oceania have successfully eliminated IDD or made substantial progress, largely by ensuring quality and high coverage with iodized salt. Of the six priority nutrition interventions described in this chapter, salt iodization has been the most successful. It offers many lessons that can be applied to other interventions. For example, where it has succeeded, all key players who needed to make changes were systematically involved. Even small-scale salt producers changed their marketing practices in a short time. Advocates mobilized international and national institutions and industry representatives to take the necessary steps. Technical resources and the encouragement of international agencies from outside, and the support of public health authorities within countries, were important. (See "Steps Health Managers Can Take")

Although most countries now produce or import iodized salt, many families in iodine-deficient areas do not consume iodized salt in their daily meals. The main barrier is lack of legislation and/or its enforcement. Problems also remain in assuring a regular supply of iodized salt. Changes are often needed in salt production and marketing procedures. In summary, an array of nutrition interventions are available to address nutrition problems in different settings. Based on experiences in the past two decades, the most cost-effective, widely applicable, and manageable nutrition interventions for primary health care services consist of promoting, protecting, and supporting:

- ♦ exclusive BF for at least 4, and if possible, for 6 months;
- ♦ appropriate complementary feeding and continued BF to 2 years;
- ♦ adequate nutritional care of sick and malnourished children;
- ♦ adequate vitamin A intake;
- ♦ adequate iron intake; and
- ♦ adequate iodine intake.

The interventions are affordable, relevant in a wide range of countries and regions, and can be integrated into ongoing health services. Together with interventions to prevent and control illnesses, they form a package of essential services to address the main causes of childhood mortality. The remaining chapters in this volume discuss how to implement the priority nutrition interventions in integrated primary health care programs.

- ♦ Chapter 3 discusses steps in planning effective nutrition interventions in health programs.
- ♦ Chapter 4 offers guidelines for integrating nutrition interventions into maternal and child health services.
- ♦ Chapter 5 suggests ways of creating community partnerships.
- ♦ Chapter 6 provides guidelines on how to use communications channels in the district to expand coverage and reinforce key nutrition messages.
- ♦ Chapter 7 summarizes the program supports necessary to implement all the above.
- ♦ Chapter 8 contains current international guidelines and protocols on priority nutrition interventions.

Readers may wish to quickly scan the remaining chapters for an overview of the type of information available and then return to the sections most pertinent to their own needs.

## STEPS HEALTH MANAGERS CAN TAKE

### Exclusive BF

- ◆ Adopt policies to support the BFHI and the International Code for Marketing of Breastmilk Substitutes. Support maternities in the district to follow the Ten Steps for Baby Friendly Hospitals (see chapter 8).
- ◆ Train health staff using materials in the one-week WHO/UNICEF BF Counseling course. Also available is the WHO/Wellstart course, "Promoting BF in Health Facilities: A short course for administrators and policy-makers".
- ◆ Set up a system for reaching all women during pregnancy, at delivery, and postpartum. Build the capacity of community-based women's groups, BF mothers' support groups, and traditional practitioners, including birth attendants, to counsel mothers. Support health staff and community-based workers or volunteers to counsel all women at least once during pregnancy, once after delivery, and once in the first one/2 weeks postpartum.
- ◆ Design and implement communications activities to build community-wide support for mothers to BF exclusively in the first half of infancy.
- ◆ Monitor the practices of early initiation of BF, exclusive BF and continuation of BF to 2 years. Monitor and improve the quality and coverage of BF support given to mothers in facilities, at the community level, and through communications materials and activities.
- ◆ In areas where HIV/AIDS is present, provide special guidance to mothers who test positive for HIV. Current international guidelines on infant feeding for HIV+ mothers are in chapter 8.
- ◆ Include Lactational Amenorrhea Method (LAM), which is based on BF, in all family planning activities. See chapter 8 for guidelines.

## **STEPS HEALTH MANAGERS CAN TAKE**

### **Feeding and Care of Children 6-24 Months of Age**

- ◆ Identify priority nutrition care problems in the areas that affect the growth and feeding of children 6-24 months of age. Develop locally specific feeding recommendations.
- ◆ Develop or identify a system, and support community-based workers to carry out feeding assessments and counseling on feeding practices for all children from birth to at least 24 months of age.
- ◆ Train and supervise health workers to teach and support caregivers and community-based workers (e.g., women's organizations, agriculture extension agents, health volunteers) in the following areas:
  - counsel on age-appropriate child feeding practices according to IMCI guidelines, including feeding well children, feeding children during and after illness, continuing breastfeeding for at least two years (details in chapter 8);
  - detect behaviors that signal problems early (e.g., poor appetite, listlessness, or lack of energy) and practice particular skills, such as "active feeding" to prevent and manage common problems;
  - identify and refer families that need social support (e.g., single parents), supplemental food supplies, or child care support; and
  - for mothers who have tested positive for HIV/AIDS, provide support and special guidance on infant feeding options (see chapter 8).
- ◆ Establish communications activities to build community-wide awareness about the importance of adequate complementary feeding and continued breastfeeding for at least two years, and related health care practices.
- ◆ Monitor the quality and coverage of feeding assessments and counseling in health facilities, communities, and communications materials and activities.
- ◆ Work with other sectors, such as agriculture and education, to provide a comprehensive, multisectoral response to problems related to the underlying and basic causes of malnutrition, which is particularly serious in children 6-24 months of age.

## **STEPS HEALTH MANAGERS CAN TAKE**

### **Sick and Malnourished Children**

- ◆ Support increased BF for all sick children 0-24 months of age, day and night; admit mothers and re-establish BF, if necessary. Breastmilk can be given by cup, if necessary, but do not use bottles.
- ◆ Support continuation of foods during illness, and increased variety, frequency, and amounts of foods after illness.
- ◆ Use IMCI protocols (WHO/UNICEF, 1996) for assessment and treatment of children seen at facilities (see chapter 8). Support front-line health workers at facilities to routinely assess and counsel on feeding, and provide vitamin A and iron supplements according to current protocols.
- ◆ Identify common perceptions and caring practices for sick and malnourished children in the local communities, and use this information for counseling and communications activities.
- ◆ Work with community-based workers and organizations to teach caregivers how to detect and seek early intervention for high-risk behaviors for malnutrition and infection, and to maintain feeding according to age-specific child feeding protocols. Box 1 lists 6 triggers for action. Chapter 5 provides guidelines on how to support community actions.
- ◆ Establish at least one high-quality, residential unit for managing severely malnourished children in the area or region, to serve as the referral facility for the district. Use the WHO manual on Management of Severe Malnutrition (1999) to guide policies, protocols, and training.
- ◆ Link the residential facility with a referral system that includes day centers or non-residential centers and community-based workers for proper follow-up.
- ◆ In addition to training, provide follow-up, supervision, supplies, and monitoring to assure the quality of case management of severely malnourished children.

## **STEPS HEALTH MANAGERS CAN TAKE**

### **Vitamin A**

- ◆ In all areas and at all health contacts, encourage the daily intake of vitamin A-rich foods, particularly by young children and women. These foods can be naturally rich sources of vitamin A or they can be foods fortified with vitamin A.
- ◆ Encourage adequate BF in infancy and sustained BF for at least two years.
- ◆ In all areas, at all sick-child contacts, give high-dose vitamin A supplements to children with measles, severe malnutrition, prolonged or severe diarrhea, and other infections.
- ◆ In all areas, train staff to detect and treat clinical VAD (xerophthalmia) with high-dose vitamin A.
- ◆ In populations where VAD is a risk, design a plan for preventive supplementation for children 6-59 months of age every 4-6 months, and all postpartum women. Combining vitamin A supplements with immunization activities is one step that should be included in such a plan.

## **STEPS HEALTH MANAGERS CAN TAKE**

### **Iron**

- ◆ Train health workers and community-based agents to give iron supplements to infants and pregnant women in all areas where anemia is present (this includes almost all settings). For children and women with severe anemia as detected by palmar pallor and, if possible, confirmed through blood tests, give extra iron and treat for parasites.
- ◆ Ensure constant, sufficient supply of iron supplements.
- ◆ Promote the use of iron-rich foods and vitamin C-rich foods, particularly by women of reproductive age, infants, and young children. Include the promoting of iron-fortified foods. However, iron fortified infant formula tends to replace BF and should not be promoted as an anemia control measure.
- ◆ Routinely detect and treat severe anemia in all primary care facilities. With proper training, health workers can detect severe anemia by assessing extreme pallor with reasonable sensitivity and high specificity. IMCI protocols call for routine screening of all sick children under 5 years of age for palmar pallor. Routinely screen women during prenatal visits, after delivery, and at postnatal visits for severe anemia; provide treatment and counseling. Universal screening using blood tests are not practical or cost-effective in most settings.
- ◆ Where severe anemia is relatively common or diseases, such as malaria and other parasites, are common, districts should strengthen preventive measures, such as bednets for malaria and deworming, and have clinical facilities with adequately trained and equipped staff to treat severe anemia.

## **CHAPTER 3**

### **Developing a Plan to Strengthen Nutrition in District Health Services**

#### **Key Points**

- ◆ Strengthening nutrition interventions requires careful planning to ensure results. With limited resources, health managers need to focus on priority interventions, selected by the type of nutrition problems in the district, community members' priorities, gaps in existing services, and the resources available.
- ◆ Managers can use a variety of approaches to obtain the information necessary for planning; these activities should be integrated with ongoing health planning.
- ◆ Useful steps in the planning process are:
  - Identify the priority nutrition problems in the district.
  - Review the coverage and quality of current nutrition activities in health facilities and communities.
  - Define target groups, set nutrition-related program objectives, and identify strategies to strengthen nutrition interventions.
  - Estimate the required resources to improve nutrition interventions in district health programs, and determine what resources are available.
- ◆ An important role that health managers can and should play is mobilizing resources to address nutrition problems. The planning process and plan are tools managers can use to engage other sectors and motivate partners to provide additional resources.

Planning involves selecting interventions that meet the population's needs and making arrangements to implement them effectively. Managers must also decide how to allocate their resources among nutrition and other health priorities. Several priority nutrition activities listed in table 1 (chapter 1) will need to be adapted to local conditions. To make these decisions, district health managers need information about the nutrition problems and services in the district.

Because conditions are constantly changing, developing a plan is not a one-time effort but a continuing process that must be monitored and periodically re-evaluated, particularly if there appears to be a change in the nature or magnitude of nutrition problems, if new resources become available, and during routine health program planning cycles.

This chapter discusses steps for planning nutrition interventions in health programs:

- ◆ identify priority nutrition problems and their causes;
- ◆ review existing nutrition activities in maternal and child health services both in health facilities and at the community level;
- ◆ define target groups, set nutrition objectives as part of MCH program objectives, and identify strategies using national policy guidelines and community priorities;
- ◆ estimate the resources needed and available, and use the plan to mobilize more resources for nutrition.

The steps are listed above in sequence, but they can be conducted in a different order. They should form a part of overall health planning activities. This chapter gives examples of how



these steps have been carried out in different settings. Subsequent chapters discuss how to implement the plan and provide additional tools.

## Identify the Main Nutrition Problems

This step involves collecting information on the major nutritional problems in the area and identifying the causes. Although desirable, no special survey is necessary to begin planning. If infant mortality in the district or region is estimated at approximately 100 or more, malnutrition is likely to be a significant problem. The six nutrition interventions discussed in this guide are probably the ones needed. Even when infant mortality is around 50, vitamin A deficiency and inadequate BF and complementary feeding practices are likely to be common problems.

Eventually, managers should conduct simple, rapid household surveys every three to five years, starting with a baseline survey, to monitor progress in reducing malnutrition in the district. The survey results will help maintain a focus on the most important nutrition problems. In the meantime, managers should assemble existing data on the nutritional status of the population in the district, particularly women in their childbearing years and children. Table 3 illustrates the kinds of data needed. If quantitative estimates are not readily available to start planning, interviews with health staff, exit interviews with caregivers at facilities, and discussions with community-based workers can help confirm that the six priority nutrition interventions are necessary. Health staff can collect information during routine outreach visits to communities and through interviews or measurements at health facilities. The following are some indirect indicators of the most common nutrition problems:

- ◆ diarrheal disease in infants under 6 months in the district (indicates a lack of exclusive BF);
- ◆ mothers report introducing other fluids or foods before 4 months of age (indicates a lack of exclusive BF);
- ◆ children in the 6-36 month age group whose weight is below the lower line on a growth chart (indicates inadequate caring practices, including inappropriate feeding and health care);
- ◆ palmar pallor in women or children under 5 years or high prevalence of malaria or hookworm (indication of anemia);
- ◆ deaths or blindness from measles (vitamin A deficiency);
- ◆ local term exists for nightblindness (sign of vitamin A deficiency); and
- ◆ goiter or cretinism (check for local terms) exists in this or a neighboring district, or was present (signs of iodine deficiency).

While identifying the nature of malnutrition problems, their causes, and the associated nutritional practices within their district, managers should note any major differences that may exist among rural and urban communities, ethnic groups, occupation groups, or other subgroups, such as fishing villages, highland/coastal communities, and others. Various subgroups can have unique practices, very different health and nutrition characteristics, thus, very different needs, making it necessary to target special actions or provide additional resources to high-risk areas.

**TABLE 3**  
**KEY QUESTIONS ON NUTRITION PROBLEMS<sup>2</sup>**

- ◆ What is the prevalence of underweight, stunting, and wasting in children under 3 years of age; and what percentage of children have edema of both feet or visible severe wasting?
- ◆ What is the nutritional status of women, e.g., weight-for-height or low Body Mass Index, or low birth weight infants?
- ◆ How does the current nutritional status of children and women compare with elsewhere in the country (national average and other regions or provinces)? How does the current situation compare with information from past studies or surveys? Has the prevalence of child malnutrition (stunting, wasting, underweight) and malnutrition in women improved, declined, or remained the same?
- ◆ What are the prevalence and severity of anemia, vitamin A deficiency, and iodine deficiency? Do you hear complaints from pregnant women or school age children about not seeing well at night or at dusk/dawn? Is there a local term for nightblindness in this area? Is there anyone with goiter or cretinism in this or a neighboring area? Is there other evidence of micronutrient deficiencies?
- ◆ Compare these conditions with data elsewhere in the country (national average or other regions or provinces). How does the present situation of micronutrient deficiencies compare with information from past studies or surveys. Has the prevalence of anemia, nightblindness, low serum retinol, and iodine deficiency improved, declined, or remained the same?
- ◆ Are the diets of women adequate to meet their needs?
- ◆ What percentage of infants less than 4 months are not exclusively breastfed?
- ◆ What percentage of infants 6-9 months do not receive both breastmilk and complementary foods? What is the quality of complementary feeding?
- ◆ What percentage of children 20-23 months are not BF?
- ◆ Are certain geographic areas within districts, ethnic groups, age and gender groups, household characteristics, or seasons more likely to have these problems? For example, if there is a high prevalence of low birth weights in some seasons or in some communities, is it related to illnesses, such as malaria or seasonal food shortages?

<sup>2</sup> Information on the definitions of nutritional problems and techniques for measuring nutrition indicators is given in the following publications available from WHO and UNICEF: (a) INACG/WHO/UNICEF, 1998, Stoltzfus R. J. and M. Dreyfuss. Guidelines for the use of iron supplements to prevent and treat iron deficiency anemia, ILSI, Washington D.C; (b) WHO/UNICEF/ICCIDD, 1996, Recommended iodine levels in salt and guidelines for their adequacy and effectiveness, WHO/NUT/96.13; (c) WHO/UNICEF/IVACG, 1996, Indicators for assessing vitamin A deficiency and their application in monitoring and evaluating intervention programs, WHO/NUT/96. 10; (d) WHO/UNICEF, 1996, Integrated Management of Childhood Illnesses (IMCI) Chart Book, Sections on assessing nutritional status, breastfeeding, feeding recommendations, and counsel the mother. Child and Adolescent Health and Development Division. Geneva: WHO; (e) WHO, 1999, Management of severe malnutrition: A manual for physicians and other senior health workers, Nutrition Division Geneva: WHO; (f) WHO, 1991, Indicators for Assessing Breast-Feeding Practices, Report of an Informal Meeting 11-12 June 1991, Geneva, Switzerland, WHO/CDD/SER/91.14.

### **Key Questions on the Causes of Malnutrition**

Health managers need to obtain a good understanding of the causes of malnutrition in their district and develop programs to address the most important ones. Addressing some of the underlying and basic causes will require more time than dealing with immediate causes, and will also require collaboration with other sectors, such as agriculture and education (see chapter 1, figure 2).

Table 4 shows an example of the kinds of questions that can be asked to find the key causes in a particular setting. Such questions should also be added to household surveys conducted every three to five years in the district.

If a survey is not possible during the planning stage, managers can work with community-based workers in a selection of communities, which are typical of the district population, to determine the focus of the activities. For example, discussions with experienced community workers can provide answers to questions, such as-Is the availability of food a major constraint? Are feeding and care practices of women and children, rather than food shortages, important causes of the malnutrition observed and if so, which ones? To what extent are frequent illnesses a major problem? Are malaria, hookworm, measles, and HIV/AIDS common? Most health managers will find that improving dietary practices of infants, young children, and women, and reducing infections are key strategies in almost all areas.

**TABLE 4**  
**EXAMPLES OF QUESTIONS RELATED TO THE CAUSES OF MALNUTRITION**

Use the list on this page to select a few critical problems on which to focus the district nutrition activities. The process involves working jointly with community members to conduct a survey of households in the community, in-depth interviews with community leaders, and group discussions. The objective is both to learn about causes of malnutrition and to make community members aware of the multiple actions that need to be taken to reduce malnutrition. Figure 2 in chapter 1 is a useful tool for this activity. Preferably, health staff should work with members of other agencies, such as agriculture, education, and community development, because many actions necessary to address the underlying and basic causes will require their collaboration.

#### **IMMEDIATE CAUSES**

##### **DIETARY INTAKE**

- ◆ What is the amount of food children consume in a day; are children below 24 months adequately breastfed?
- ◆ What types of foods are usually consumed by children?
- ◆ Are the amounts and types of foods sufficient to meet nutritional needs of children for energy, protein, fats, vitamin A, and iron: 0-5 months, 6-11 months, 12-23 months?
- ◆ What is the amount of food women consume in a day? What are common food taboos during pregnancy and lactation?
- ◆ Are the amounts and types of foods sufficient to meet nutritional needs of women for energy, protein, fats, vitamin A, iron, and folic acid: during pregnancy, lactation, and other times?
- ◆ Do women's/children's food intakes vary seasonally?

## DISEASE AND INFECTION

- ◆ What diseases are common among children?
- ◆ What types of diseases are common among women?
- ◆ Are HIV/AIDS, measles, malaria, hookworm and other helminths, or tuberculosis common in this area?
- ◆ Are there seasonal peaks in the incidence of common illnesses?

## UNDERLYING CAUSES

### CARING PRACTICES

#### *Breastfeeding*

- ◆ Are newborns put to the breast immediately after delivery (within the first hour); is colostrum given?
- ◆ How long are they exclusively breastfed?
- ◆ Are children breastfed on demand; approximately how many times in 24 hours?
- ◆ At what age is breastfeeding discontinued?

#### *Complementary Feeding*

- ◆ At what age do children start complementary foods?
- ◆ What type of foods are they given, and how are they prepared and fed (hygiene, dilution)?
- ◆ Do adults supervise and actively encourage children to eat?
- ◆ How much food do children receive at each meal/snack; how many times daily do they eat?
- ◆ Are children fed adequately during and after illness (type, form, frequency, amount)?

#### *Psycho-social Stimulation*

- ◆ Is the caregiver responsive to the child's developmental milestones and cues?
- ◆ Does the child interact positively with the family (playing, being held by family members, talking)?

#### *Care for Women*

- ◆ What is the social status of women and female children?
- ◆ Are mental health problems common among women?
- ◆ What is the degree of autonomy in household decision making?
- ◆ During pregnancy and lactation, are they supported by their families in practicing good nutrition and health?

#### *Hygiene Practices*

- ◆ Are hygiene conditions and practices adequate in the household and community?

#### *Home Health Care*

- ◆ Are appropriate measures taken to prevent illness and to respond to danger signs?

## HEALTH, WATER, AND SANITATION

- ◆ What kind of health infrastructure and facilities exist in the area?
- ◆ What services are performed at these facilities; what is the quality of services?
- ◆ What is the access to water and sanitation facilities; what is the quality?

## FOOD SECURITY

- ◆ What are the staple foods; how do families meet their food needs (grow their own, buy, trade, food subsidies, and others)?
- ◆ What percentage of households spend well over half their income on food purchases?
- ◆ What is the price of nutritionally important foods relative to wages (e.g., main sources of energy or nutrients)?
- ◆ Are production, distribution, and access to markets important constraints to obtaining enough food?
- ◆ What is the dependency ratio of households, i.e., proportion of young children to wage earning adults?
- ◆ How many hours of work are required for adults earners to acquire sufficient food for the entire family?

## BASIC CAUSES

### RESOURCES

#### *Human Resources*

- ◆ What is the current status of, or access to, the following resources by all community members: skills, knowledge, schooling; child care facilities; physical health and nutrition; mental health, self-esteem, self-confidence; innovation and creativity; and trained workers?

#### *Economic Resources*

- ◆ Are the following available and who controls them: household income and assets; workload and time; market channels for supplies?

#### *Organizational Resources*

- ◆ Are the following available and who controls their work: caregivers, community networks supporting women's status, education, and professional organizations of care providers?

## EDUCATION

- ◆ Are education facilities adequate and accessible to all members of the community?

## POLITICAL, ECONOMIC, SOCIAL, AND CULTURAL FACTORS

- ◆ How do institutions and factors influence the control and type of resources available to improve nutrition?

NOTE: This information can be gathered from several sources: existing surveys/studies/ reports; household surveys; participatory approaches, such as rural rapid appraisal conducted jointly with community members; and qualitative research, such as focus group discussions/key informant interviews, and others.

## Review Existing Nutrition Interventions

After the most important nutrition problems and causes are identified or confirmed, the next step is to review ongoing nutrition activities in health services. Managers should get feedback on how well existing nutrition interventions are working.

A useful approach to assessing ongoing nutrition activities is to carry out a rapid program review in co-operation with managers of health facilities, supervisors of health workers, and front-line health workers to find the main difficulties and successes that can aid in planning future efforts. This allows managers to build on their experience and to identify current gaps in coverage and quality of services. It does not provide a quantitative baseline estimate that can be obtained from formal health facilities' surveys.

The information for a program review is collected by visiting a limited number of health facilities and communities, reviewing existing reports, and observing and interviewing health staff, community members including leaders and mothers of young children, and community-based workers. The process takes 2 to 4 weeks, depending on geographic and logistical constraints and the number of sites and communities to be visited. The number of sites, in turn, varies with how many different types of facilities exist within the district.

A program review has the following steps:

1. Make a list of hospitals, health centers and clinics, health posts, health huts, and rural maternities in the district. Include government and private facilities and pharmacies.
2. From the list, select a small number of health facilities and communities in the catchment areas around them, selected to represent all segments of the population (e.g., by using a table or grid) to provide a comprehensive picture of activities in different areas within the district, in large and small facilities, and in diverse communities (e.g., urban and rural).
3. Form two or more teams, including supervisors and front-line workers from the selected facilities. Brief them on the objectives and methods of the program review.
4. Invite key partners working in the district who will be supporting or implementing the follow-up actions to help plan the review.
5. Agree on key questions, definitions, descriptions of terms, and data collection procedures.
6. Use the recommended list of essential actions in chapter 4 (table 7) to guide the review. Develop checklists for each team.
7. Pretest the checklists, orient teams in their use, and collect the information from health facilities, communities, and at district level. A nutrition specialist should orient health teams on technical questions.
8. Invite key partners who support or implement related activities to participate in synthesizing and interpreting the information collected and to plan actions.

Although the specific questions asked will depend partly on the particular district and the kinds of interventions already in place, the general purpose of a program review is to determine the following:

- ♦ whether the program has clear, measurable nutrition targets and whether they are well-understood at each administrative level;
- ♦ whether progress has been made toward those targets, and if not, what the constraints are;

- ◆ whether the program is focused on priority nutrition problems;
- ◆ whether priority groups (i.e., pregnant and lactating women and children 0-24 months) are being reached effectively;
- ◆ whether recording methods and supervision are adequate for nutrition interventions, and, if not, what needs to be done;
- ◆ whether the quality of services is sufficient, and, if not, what should be done;
- ◆ whether supplies are sufficient;
- ◆ whether there is support for the nutrition components of the program at all levels; and
- ◆ whether resources (human, organizational, technical, and financial) are adequate to reach the program objectives.

Table 5 and table 6 contain sample program review questions for use at health facilities and in communities. A more detailed checklist for conducting program reviews Program Review of Nutrition Interventions is available from USAID (Office of Health and Nutrition, Global Bureau, Washington). Panel 1 describes how a program review was conducted in Benin.

## **Define Target Groups, Set Nutrition Objectives, and Develop a Strategy**

To prioritize their activities into a strategy, managers will need to identify target groups and program objectives. District managers will need to work with national policy guidelines and take into account the priorities of the communities they serve. Chapter 5 contains examples of methods used to involve community members in planning. Managers will need to combine top-down and community oriented bottom-up approaches to planning. The guidelines given in this section reflect current global priorities.

### ***Target Groups***

The priority target age groups for nutrition interventions are:

- ◆ children under 2 years of age; and
- ◆ pregnant and lactating women

Within these categories, coverage with the selected nutrition interventions should be universal. For some interventions, the age group covered by interventions and their related indicators may be slightly different. For example, where vitamin A deficiency is a problem, all children 6-59 months should be given supplements.

### ***Nutrition Objectives of Health Programs***

A critical step in planning is defining the expected results of the proposed activities. Many nutrition efforts have failed to make a difference because clear and specific objectives were not defined at the outset; the objectives were not feasible; or staff and supervisors were not encouraged and supported with adequate resources over a long enough period of time to achieve them.

**TABLE 5**  
**EXAMPLES OF PROGRAM REVIEW QUESTIONS FOR HEALTH FACILITIES**

<b>Maternal health</b>	<b>Child health</b>
<ul style="list-style-type: none"> <li>___ Prenatal care</li> <li>___ Delivery care</li> <li>___ Postpartum care for the mother and infant</li> </ul>	<ul style="list-style-type: none"> <li>___ Immunization</li> <li>___ Sick-child care</li> <li>___ Well-child care</li> </ul>
<p>What are the nutrition coverage and quality targets for each of the above? Are they clear and well known to staff? Use the protocols and recommendations in Chapter 8 to determine if nutrition protocols are correctly administered.</p>	
<b>A. Nutrition Content in MATERNAL HEALTH Services</b>	
<p><i>Directly observe the health worker. Observe the management of 2-5 women, talk privately with individual women directly, and record the following:</i></p> <ul style="list-style-type: none"> <li>◆ Do pregnant women receive iron/folate tablets correctly?</li> <li>◆ Do pregnant women receive correct antenatal counseling?</li> <li>◆ Do postpartum women receive support to initiate BF?</li> <li>◆ Do postpartum women receive a dose of vitamin A?</li> <li>◆ Does the maternity comply with all "Ten Steps" of BFHI?</li> </ul> <p><b>Nutrition Supports in MATERNAL HEALTH Services</b></p> <p><i>Interview health workers, directly inspect supplies and equipment, and record the following:</i></p> <ul style="list-style-type: none"> <li>◆ Are there clear, appropriate guidelines for implementing policies related to infant feeding, including implementation of the marketing code for breastmilk substitutes, and policies on HIV and infant feeding?</li> <li>◆ Do protocols include iron/folic acid and postpartum vitamin A supplementation, giving mebendazol for hookworm, prophylaxis for malaria for the first and second pregnancy, and sleeping under bednets for mothers and infants?</li> <li>◆ Are the essential drugs/micronutrients supplies available for nutrition activities on the day of the visit? Have there been any stock-outs of vitamin A capsules, iron, or IEC materials in the past 30 days?</li> <li>◆ Have health workers received training in the past three years that included key nutrition actions?</li> <li>◆ Are supervisory visits being made to the facility; do they include nutrition actions?</li> <li>◆ Do monthly reporting forms for each clinical service include nutrition information?</li> <li>◆ Are health workers aware of the correct way to record nutrition actions?</li> <li>◆ Do health staff adequately support community-based workers in their catchment area?</li> </ul>	
<b>B. Nutrition Content in CHILD HEALTH Services</b>	
<p>Review the content of nutrition for each category of facilities that provides immunizations, treatment for sick children, or well-baby services.</p> <p><i>Directly observe the health worker. Observe the management of 2-5 children, talk privately with individual caregivers directly, if possible, and record the following:</i></p> <ul style="list-style-type: none"> <li>◆ Are caretakers of children under 2 years of age, who are seen for any reason, asked about feeding practices and counseled appropriately, including encouragement of BF to 2 years?</li> <li>◆ Are children receiving immunization services checked for their vitamin A supplementation protocol and given vitamin A correctly?</li> <li>◆ Do sick children have their nutritional status checked (weight, palmar pallor, edema, eye signs of VAD) and feeding assessed (using IMCI recommendations)?</li> </ul> <p><b>Nutrition Supports in CHILD HEALTH Services</b></p> <p><i>Visit health facilities, interview health workers, and directly inspect supplies and equipment, and record the following:</i></p> <ul style="list-style-type: none"> <li>◆ Are all essential drugs/micronutrients and equipments available on the day of the visit; have there been any stock-outs of vitamin A capsules, iron, or IEC materials in the 30 days before the visit?</li> <li>◆ Have health workers received training in the past three years on key nutrition actions?</li> <li>◆ Are supervisory visits being made to the facility; do they include essential nutrition actions?</li> <li>◆ Do monthly reporting forms for each clinical service include information on nutrition?</li> <li>◆ Do health workers support community workers adequately through visits, training, feedback and supplies?</li> </ul>	

SOURCE: BASICS Checklist 1999.



**TABLE 6**  
**EXAMPLE OF PROGRAM REVIEW QUESTIONS FOR COMMUNITY SERVICES**

<b>Sources of Care, Counselling and Commodities in the Community</b>
<p><i>List the types of care providers, counselors, retail outlets, and others, providing these services:</i></p> <ul style="list-style-type: none"> <li>◆ Prenatal health/dietary care, counseling, tonics, drugs</li> <li>◆ Support, care, drugs, tonics for deliveries and after</li> <li>◆ Counseling, care, and preventive medicine or tonics for maintaining good health in infants and children (e.g. guidance on feeding, immunizations, and others)</li> </ul>
<b>Nutrition Components of Care, Counseling, and Commodities in the Community</b>
<p><i>Visit the community health/nutrition site. Observe the management of at least 2-5 women and children; interview the health providers and mothers.</i></p> <p><b>Prenatal care</b></p> <ul style="list-style-type: none"> <li>◆ Do pregnant women receive iron/folate tablets?</li> <li>◆ Do women receive adequate counseling on diet, compliance with iron protocols, and preparation for BF?</li> </ul> <p><b>Deliveries and postpartum care for mothers and infants</b></p> <ul style="list-style-type: none"> <li>◆ Are mothers supported in initiating BF soon after delivery?</li> <li>◆ Do mothers receive postpartum vitamin A?</li> <li>◆ Do assessments and counseling for mothers and family members support adequate exclusive BF?</li> <li>◆ Are women counseled on family planning (including LAM)?</li> </ul> <p><b>Well-child care and advice on feeding</b></p> <ul style="list-style-type: none"> <li>◆ Are the BF and complementary feeding practices of children assessed adequately (according to IMCI guidelines) and is counseling given by community-based workers or other advisors?</li> <li>◆ Is there community-based distribution of vitamin A at least twice per year?</li> <li>◆ Are children regularly weighed in the community? Are vitamin A supplementation, deworming, feeding guidance, or other services linked to weighing sessions?</li> <li>◆ Are priority nutrition behaviours addressed through actions taken by workers from other sectors (e.g. school teacher, agriculture extension worker, social worker)?</li> </ul> <p><b>Sick-child care and advice on feeding</b></p> <ul style="list-style-type: none"> <li>◆ Are BF and complementary feeding practices assessed and appropriate counseling given? Are mothers of sick children admitted with children 0-24 mths and encouraged to increase BF?</li> <li>◆ Are micronutrient supplements given by community-based workers according to protocols for sick and malnourished children?</li> <li>◆ Are sick children routinely screened for visible wasting/edema, palmar pallor, rapid breathing, diarrhea, fever, and measles; are they referred if needed, and given follow-up care?</li> <li>◆ Are severely malnourished and very sick children referred and followed-up appropriately after being discharged?</li> </ul>
<b>Nutrition Supports at the Community Level</b>
<p><i>Visit communities, interview community health workers, and inspect supplies and equipment.</i></p> <ul style="list-style-type: none"> <li>◆ Do families have access to a trained child feeding and prenatal counselor in the community?</li> <li>◆ Is there a source of iron/folate, vitamin A supplements, and iodized salt in/close to the community?</li> <li>◆ Have community workers received integrated health and nutrition training in the past 2 years?</li> <li>◆ Have workers received at least one supervisory visit in the last 4 months that included nutrition?</li> <li>◆ Is there any recording of services given in the community?</li> <li>◆ Are IEC materials used effectively for assessment and counseling on emphasis behaviours?</li> <li>◆ Are other sectors involved in supporting priority nutrition behaviours?</li> <li>◆ Are community leaders aware of and committed to nutrition? Do social/political leaders, teachers, priests, health volunteers, and others know why nutrition is important?</li> <li>◆ In the community, is there a committee or group responsible for health and nutrition?</li> </ul>

Source BASICS Checklist 1999.

Program objectives can be phrased in terms of impact and results or in terms of how the program should be implemented.

***Recommended Program Objectives Related to Impacts or Results:***

- ◆ To reduce the prevalence of stunting, wasting, and underweight in children in the 6-35 months age group.
- ◆ To reduce the prevalence of vitamin A deficiency in children, anemia in women and children, and iodine deficiency in the population.
- ◆ To improve exclusive BF and complementary feeding practices.

The impact on children's heights and weights of nutrition interventions given to pregnant women and children under 2 years are seen more clearly in children 6-35 months of age and in low birth weight than in other age groups. Specific levels of reductions should be tailored to what is feasible. In some areas, other objectives may need to be added (e.g., reducing underweight in women or reducing the prevalence of parasites). In some areas, where nutrition interventions during pregnancy and lactation are not sufficient, all women of reproductive age, including adolescent girls and non-pregnant and non-lactating women, will need nutrition support. Program objectives should reflect that.

**PANEL 1**

**PROGRAM REVIEW OF NUTRITION IN HEALTH SERVICES - BENIN**

The review in Benin was conducted because new donor assistance was available for improving family health in the region.

**Methods**

- ◆ Two days were spent in the following activities: introducing the priority nutrition activities and the process of nutrition strengthening to the health management team, planning for the program review, pretesting the checklists, and field practice/training.
- ◆ Five days were used for data collection, by 2 teams, consisting of a maternity health services supervisor, a child health supervisor, three front-line health workers, and 2 consultants.
- ◆ After field data collection, three days were spent reviewing the information, identifying needs, and prioritizing actions.

The following sites were visited to collect data: district management team, district hospital, 4 health centers, 2 health posts, 2 community-based Bamako Initiative health committees, one NGO, one agriculture department representative, and 6 communities

**Outcomes**

Decisions from the program review and follow-up actions included the following:

- ◆ Qualitative research to develop recommendations on child feeding and compliance with iron/folate tablets.
- ◆ A baseline health facilities survey that includes nutrition and IMCI indicators.
- ◆ Pilot activities to improve vitamin A supplementation with routine immunizations.
- ◆ Steps to improve the quality of BFHI maternities in the district.

To support district health staff in practicing the priority nutrition interventions as part of their usual health activities, health managers developed short orientation sessions on integrating interventions with routine health contacts. The team surveyed modern and traditional communications channels and materials, and implemented a planning workshop for a communications program on emphasis nutrition behaviours. The district health managers identified community-based counselors and workers for counseling pregnant women and child feeding.

### ***Recommended Program Implementation Objectives***

- ◆ To reach universal coverage (or at least 80% coverage to start with) of all pregnant and lactating women, and children under 2 years of age in the district with a package of priority nutrition interventions in combination with primary health care.

Intermediate coverage levels may be used when resources are limited. Determining coverage will require using representative household surveys to collect data on counseling and services received by families. Household and community interviews should be used to determine how well key audiences remember the nutrition messages.

- ◆ To ensure that health workers in facilities and communities meet the standards of quality for nutrition services contained in the current international or national protocols or guidelines for nutrition interventions.

Health facilities surveys, routine records, monitoring and supervision reports, community surveys, and program reviews should be used to determine if health workers have the needed skills, if nutrition supplies are adequate, and if training and supervision are adequate. Then, specific indicators and targets should be developed.

### ***Key Elements of a Strategy***

After program objectives are identified, the next step is to develop a strategy for achieving those objectives - prioritizing among various possible approaches and choosing the best combination of actions to expand and improve the coverage, quality, and sustainability of priority nutrition interventions. An important role for health managers is to advocate for increased resources for health and nutrition; the plan itself can be a useful tool to mobilize additional resources. Eventually the choice of strategies should be determined by what is feasible given the resources available and the time required.

The main components of the strategy will include:

- ◆ activities at health facilities,
- ◆ community-level actions, and
- ◆ communications activities.

Managers will find it useful to review how the priority target groups in the communities come in contact with various government and private health services or agents of other sectors, and who the most influential members in the community are. Figure 11 shows an overview of the various times when families seek guidance and support for the care and well-being of women and children. There are six key points of contact that lend themselves particularly well to including nutrition interventions: during pregnancy, at delivery, in the postnatal period, during immunization contacts, and during well-child and sick-child visits. Some will be in health facilities, but many will be at the community level. Different program strategies and communications channels can be used to reach them.

But, beyond finding existing channels through health and other sectors, managers will frequently need to find ways to reach remote and inaccessible communities through special activities.

The process of developing a strategy to strengthen nutrition interventions is important and should involve front-line health and other sector staff. Managers should conduct participatory exercises for health supervisors and front-line health workers to discuss the common barriers and difficulties they currently face and would encounter at a later date. They should prioritize potential activities and solutions to common difficulties based not only on what the needs are but what is most realistic or feasible to achieve with the resources available or potentially

available. Supervisors and health workers should help to identify solutions to specific problems such as low coverage. Panel 2 shows an example of such a planning activity.

**PANEL 2**  
**EXAMPLE OF JOINT PLANNING TO ADDRESS CAUSES OF LOW COVERAGE**

PROBLEMS AND CAUSES	POSSIBLE SOLUTIONS
<p><b>Drop-outs</b></p> <p>Pregnant women do not come in for the required prenatal visits or too few contacts</p> <ul style="list-style-type: none"> <li>◆ Health workers do not follow-up or explain the importance of completing all necessary visits.</li> <li>◆ Women cannot visit health centers at open times.</li> <li>◆ Lack of awareness of the importance of preventive actions in the community.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Ask the women's organization to provide volunteers who can be trained to conduct follow-up visits to families that drop out.</li> <li>◆ Provide better training and supervision on how to motivate women to return.</li> <li>◆ Provide services at convenient times for women.</li> <li>◆ Teach religious leaders, school teachers and village elders about the importance of nutrition.</li> </ul>
<p><b>Missed opportunities</b></p> <ul style="list-style-type: none"> <li>◆ Health workers only complete nutrition activities at well-baby clinics. They do not use sick-child or immunization contacts and prenatal or postpartum contacts to screen and complete nutrition actions.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Train health workers about the importance of completing protocols and increase supervision.</li> <li>◆ Focus on using all contacts for screening of nutrition actions.</li> </ul>
<p><b>Some families with easy access to the program are never reached</b></p> <ul style="list-style-type: none"> <li>◆ They are unaware of nutrition services.</li> <li>◆ They believe the services are in-effective or contrary to their beliefs.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Train volunteers to conduct education sessions in areas where these families live.</li> <li>◆ Encourage others who attend to emphasize the benefits and give examples from gains made.</li> <li>◆ Use school teachers and students for promotion.</li> </ul>
<p><b>Lack of geographic access</b></p> <ul style="list-style-type: none"> <li>◆ There is no trained counselor and/or a supplier of micronutrients in the community.</li> <li>◆ The health facility is not within walking distance.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Raise funds for a new counselor and to cover expenses for adequate supplies and supervision in these communities.</li> </ul>

A complementary planning tool is a district-wide mapping exercise. Mapping shows the location of communities, major population concentrations, areas of high risk, where different types of health care providers are located, and sources of commodities. It can help managers visualize how coverage targets can be met and who can take responsibility for delivering services in different locations within the district. Figure 12 is an example of a map showing resources in the district. Similarly, risk factors for malnutrition (e.g., seasonal or chronic food shortages, low immunization coverage, poor infrastructure, and lack of access to markets) and measles, malaria, or diarrhea outbreaks can be mapped. The information should be used to direct additional resources and special services to assure coverage of high-risk communities. The high risk areas should be closely monitored.

## Identify Program and Community Resources

Another important step in the planning process is reviewing what resources are available for nutrition actions, determining what is needed, and identifying potential additional resources. Managers need to know the requirements of their planned activities, the various channels through which the chosen priorities can be implemented in their district, and what kind of supports they need to provide. Chapters 4, 5, and 6 provide information on the specific requirements of implementing activities in facilities, communities, and through communications channels. Chapter 7 discusses the various supports required.

Requirements should be matched to the type and amount of government and private resources available at the district level, in health facilities, in the market, and in communities and households in the district. Identifying the kinds of resources available, who controls them, and how they can be used to implement priority actions is an important part of the planning process. This step includes finding how delivery channels can be combined or resources leveraged and new resources mobilized (e.g. NGOs; and agents from other sectors, such as education, and agriculture) to support suitable strategies.

After assessing the gaps between resources needed and those available at various levels, managers may revise their program objectives, choice of strategies, seek additional funding, or invest in building alliances with those with resources (e.g., other sectors, including education and agriculture with more extensive community networks or private providers).

Some managers have found it useful to conduct a special survey of these alternate and complementary resources and develop formal agreements or contracts with them to provide the relevant services.

In summary, to plan a strategy for strengthening nutrition interventions in their district health services, managers should:

- ◆ identify priority nutrition problems in the district and their causes;
- ◆ review existing nutrition activities in maternal and child health services both in health facilities and at the community level;
- ◆ define target groups, set nutrition objectives, and identify strategies;
- ◆ estimate the resources needed and available, and use the plan to generate more resources and to continually re-evaluate needs.

Although only the nutrition components of health planning are described here, all activities should be closely linked and fully integrated with overall health planning.

## **CHAPTER 4**

### **Technical Guidelines for Integrating Nutrition in Health Services**

#### **Key Points**

- ♦ Nutrition interventions should be a part of all health contacts with pregnant and lactating women, and children under 2 years. The most important contacts occur during prenatal care, delivery care, postpartum care for mothers and infants, immunization contacts, well-baby visits, and sick-child visits.
- ♦ At each health contact, relevant nutrition interventions should be included.
- ♦ Managers should take these steps to strengthen nutrition in health services:
  - Update current nutrition policies and protocols.
  - To achieve universal coverage, form community partnerships and expand coverage through communications channels.
  - Review the supports needed by health workers at facilities, by community workers, and for communications activities. Build capacity in community organizations and train health personnel.
  - Obtain a baseline on nutrition status and the quality and coverage of priority nutrition interventions; track progress using these indicators.
  - Frequently implement measures such as supervision, incentives, monitoring, quality assurance for nutrition interventions, and review quality and coverage.

This chapter offers technical guidelines for implementing the parts of the nutrition plan that incorporate interventions into maternal health services and child health services. It discusses the kinds of nutrition interventions needed, where and how they can be incorporated, and where to find the specific protocols. Chapters 5 and 6 discuss the community and communications aspects of the nutrition plan.

This chapter discusses:

- ♦ key steps in integrating nutrition interventions into health services;
- ♦ critical health contacts for integrating nutrition actions;
- ♦ nutrition interventions for maternal health services; and
- ♦ nutrition interventions for child health services.

#### **Integrating Nutrition Interventions in Health Services: Key Steps**

Strengthening nutrition interventions in district health services requires the same approach that makes other health interventions effective. Key steps to follow are outlined in the following pages. But, as in other health areas, one process alone will not always lead to a good outcome. Rather, managers must evaluate their district's particular situation, make choices, learn from that experience, make new choices and learn again, and, at the same time, work with a wide range of partners.

- ♦ Update current policies and protocols for integrating priority nutrition activities in MCH services, particularly at critical health contacts. Use table 7 to determine if key

nutrition protocols are implemented in MCH services in the district. This includes implementing the Ten Steps of BFHI to support BF in maternity services, implementing the Code on marketing of breastmilk substitutes, following infant and child feeding recommendations of IMCI, using micronutrient supplementation protocols correctly, implementing appropriate measures for diagnosing and treating sick and malnourished children, and providing appropriate guidance to HIV+ mothers about feeding options. See chapter 8 for details.

- ◆ Select the most practical approaches for reaching universal coverage of the target population with essential nutrition actions by forming community partnerships and expanding coverage through communications channels. Review the examples and steps in chapters 5 and 6. Many programs will need to undertake special actions to reach coverage targets for the catchment area or to improve the quality of services. Special actions are one-time or limited-duration activities and initiatives that are usually funded with extra resources. Examples include local micronutrient supplementation campaigns, combining nutrition interventions with other health campaigns (e.g., vitamin A with national immunization days), and mass media campaigns to promote priority behaviors or new services.
- ◆ Provide the supports needed by health workers at facilities, community workers, and for communications activities to carry out the needed actions. Build capacity in community organizations, train health personnel, and prepare the necessary materials. Include the needs of community health workers and women's groups, personnel of private health clinics and hospitals, government health facilities, and staff linked to NGO programs. See chapter 7 for more information about supports.
- ◆ Perform an assessment or conduct a baseline survey of nutrition problems and the quality and coverage of priority nutrition interventions, against which to track program progress. See tables 3, 17, 25, and 26 for information on indicators. Use these as sign posts to guide the program towards reaching targets.
- ◆ Implement measures to integrate and strengthen nutrition interventions, and frequently review their quality and coverage. Based on the results of routine program monitoring, periodic evaluations, and community assessments, make revisions in the strategy to reach coverage and quality targets. Revisions in the strategy can include:
  - developing new partnerships or collaborations with other entities in the district;
  - mobilizing additional resources;
  - putting more emphasis on one or two of the main supports necessary for nutrition interventions, such as supervision, recordkeeping, or supplies;
  - focusing on one or two priority nutrition behaviors; or
  - using additional special actions (e.g., campaigns).

## **Critical Health Contacts for Nutrition Interventions**

Nutrition services should be provided to two priority target groups: pregnant and lactating women, and children under 2 years of age. Health workers should give the appropriate nutrition supplements or counseling at all contacts with these target groups in health facilities and during outreach in communities. In addition, health workers should support community-based workers and private providers to reach the priority target groups who are not seen at their clinics at the critical times for their nutritional care. Six kinds of contacts are particularly important: (a) prenatal care, (b) delivery care, (c) postpartum care for mothers and infants, (d) immunization contacts, (e) counseling on infant feeding and well-baby visits, and (f) sick-child care. Table 7 lists the key nutrition interventions for each type of health contact.

**TABLE 7**  
**NUTRITION INTERVENTIONS FOR SIX CATEGORIES OF HEALTH CONTACTS**

<b>Prenatal Care</b>
<ul style="list-style-type: none"> <li>◆ Counsel mothers and other family members (husbands, mothers-in-law, and others) on diet, importance of reduced workload, and BF. Follow guidelines in BFHI (e.g., "Ten Steps"). In HIV areas, use WHO guidelines.</li> <li>◆ Provide iron supplements and counseling where iron deficiency is a risk (in almost all areas); and screen and refer/treat severe anemia.</li> <li>◆ Give mebendazole for hookworm, malaria prophylaxis for first and second pregnancies, and promote the use of bednets by mothers and infants.</li> <li>◆ If possible, monitor weight gain in the second and third trimesters of pregnancy.</li> <li>◆ Explore alternative ways to reach pregnant and lactating women where availability of services or utilization is low..</li> </ul>
<b>Delivery Care</b>
<ul style="list-style-type: none"> <li>◆ Provide BF assistance and counseling: all maternities should follow the "Ten Steps" for Baby Friendly Hospitals, comply with the requirements of the Code for marketing of breastmilk substitutes, and follow the WHO guidelines for HIV-positive mothers.</li> <li>◆ Provide one dose of vitamin A to all postpartum mothers if vitamin A deficiency is a risk.</li> <li>◆ Check iron/folic acid supplementation and continue supplementation for mothers to complete 6 months.</li> <li>◆ Screen mothers for severe anemia and refer/treat.</li> <li>◆ Give guidance on family planning and LAM (use of BF for family planning in the first 6 months).</li> </ul>
<b>Postpartum Care</b>
<ul style="list-style-type: none"> <li>◆ Assess exclusive BF; teach mothers to prevent and manage BF difficulties. Use guidelines in the WHO/UNICEF BF Counseling course.</li> <li>◆ Reinforce good diet and reduced workload for mothers.</li> <li>◆ Screen mothers for severe anemia and refer/treat.</li> <li>◆ Give guidance on LAM and use of family planning methods that do not interfere with BF.</li> </ul>
<b>Immunization Contacts</b>
<ul style="list-style-type: none"> <li>◆ During the infantis tuberculosis vaccine (BCG) contact, check and complete mother's vitamin A supplement (if BCG contact occurs within 8 weeks after delivery) in areas at risk of vitamin A deficiency.</li> <li>◆ During national immunization days, other immunization campaigns, and community outreach for immunizations, give vitamin A supplements in areas at risk of vitamin A deficiency. If possible, reinforce appropriate infant feeding messages.</li> <li>◆ During routine immunization contacts, check and complete infantis vitamin A supplementation status in areas at risk of vitamin A deficiency. Reinforce infant feeding messages.</li> </ul>
<b>Well-baby Visits</b>
<ul style="list-style-type: none"> <li>◆ Assess and counsel on BF. Use guidelines in the WHO/UNICEF BF Counseling course.</li> <li>◆ Assess and counsel on adequate complementary feeding, using locally adapted IMCI recommendations.</li> <li>◆ In areas at risk of these micronutrient deficiencies, check and complete vitamin A and iron supplementation protocols.</li> <li>◆ Weigh all children to see if they are growing adequately, and screen for severe malnutrition.</li> <li>◆ Give deworming medicine where hookworm is a problem; encourage the use of bednets where malaria is a problem.</li> </ul>
<b>Sick-child Visits</b>
<ul style="list-style-type: none"> <li>◆ Assess and counsel on BF and adequate complementary feeding using locally adapted IMCI recommendations.</li> <li>◆ Encourage increased BF and other food after illness for recuperation.</li> <li>◆ Weigh all sick children and see if they are growing adequately; screen, treat, and refer severe malnutrition, vitamin A deficiency, and anemia cases.</li> <li>◆ Give micronutrient supplements according to IMCI, IVACG and INACG protocols.</li> <li>◆ Check and complete vitamin A and iron prevention protocols where VAD or anemia are a problem</li> </ul>

SOURCE: BASICS Chart 1998.



## Nutrition Interventions in Maternal Health Services

The priority nutrition interventions in maternal health services are:

- ◆ give prenatal iron/folate supplements to all pregnant women where anemia or iron deficiency is a risk (almost all areas);
- ◆ promote adequate diets and reduced workloads during pregnancy and after delivery, and, if possible, monitor weight gain during the last two trimesters of pregnancy;
- ◆ implement the Ten Steps of BFHI wherever births take place, and do not accept free or low-cost supplies of breastmilk substitutes, feeding bottles and teats;
- ◆ protect the public and mothers from promotion of products under the scope of the International Code of Marketing of Breastmilk Substitutes (see chapter 8), which includes any food represented as a replacement for breastmilk at any stage;
- ◆ give postpartum vitamin A to women at delivery in areas at risk of vitamin A deficiency;
- ◆ give mebendazole for hookworm, prophylaxis for malaria for the first and second pregnancy, and promote sleeping under treated bednets for mothers and infants; and
- ◆ routinely screen for severe anemia, and treat or refer women for severe anemia.

In addition, health managers should strengthen the quality of prenatal services, delivery, and postpartum care using current WHO guidelines and recommendations from the Safe Motherhood Initiative, including use of appropriate family planning methods, and taking suitable actions to reduce the transmission of HIV/AIDS. UNICEF's Care Initiative provides guidelines on assessment, analysis, and action for improving the care of women and children.

To carry out the essential nutrition actions and reach high coverage, managers need to use a combination of approaches. Where availability or utilization of services is low, health workers should explore alternative ways to reach pregnant and lactating women. Contacts with the formal health system during pregnancy are limited.

In many districts, community-based distribution of iron/folate tablets is necessary to reach coverage targets. It is important for health facilities staff to train, supply, and monitor birth attendants or other workers to carry out this task, particularly in communities where prenatal visits are low. Table 8 provides an overview of how essential nutrition actions can be organized through linking community-based and health facility activities.

In some settings, pharmacies, local medicine vendors, and private nurses or doctors have been included in arrangements with government health facilities to make iron/folate tablets available locally.

Experience also shows that use of communications channels helps health staff reach more women during pregnancy and at or after delivery. When a woman discovers she is pregnant, the first person to know is likely to be the local midwife. A majority of women deliver their infants in the home, often attended by traditional birth attendants (TBAs) and family members. Both the mother's diet during pregnancy and feeding practices of the newborn are influenced by family members and community norms; these may not be beneficial for BF or for the mother's own health and nutrition.

**TABLE 8**  
**ORGANIZING NUTRITION ACTIVITIES IN MATERNAL HEALTH SERVICES**

SERVICE COMPONENT	SERVICES IN THE COMMUNITY	SERVICES AT FACILITIES (FIXED OR MOBILE)
<p><b>What is the intervention or action?</b></p>	<p><b>For pregnant women</b></p> <ul style="list-style-type: none"> <li>◆ Where anemia is a problem (this includes almost all areas) motivate all pregnant women to take iron supplements starting in early pregnancy; provide tablets or tell them where to get them; counsel women to take all their tablets. Ask about works and malaria; give deworming and anti-malaria medicine and/or refer them to the health clinic. Assess and refer if pallor – a sign of severe anemia – is found.</li> <li>◆ Counsel women about eating enough of the right foods during pregnancy and reducing their workload, and prepare them for exclusive BF. If possible, monitor weight gain during pregnancy.</li> </ul> <p><b>At delivery</b></p> <ul style="list-style-type: none"> <li>◆ Support women to start BF immediately after delivery.</li> <li>◆ Give one dose of vitamin A after delivery in areas of vitamin A deficiency.</li> <li>◆ Screen and treat/refer for severe anemia.</li> </ul> <p><b>For women in the first week after delivery</b></p> <ul style="list-style-type: none"> <li>◆ Check and counsel for BF; teach mothers how to prevent and manage BF difficulties.</li> <li>◆ Teach all mothers how to express milk by hand and have it fed from an open cup if they must be away from the infant.</li> <li>◆ Counsel on mothers' diet during lactation.</li> </ul> <p><b>For all women:</b> (a) promote adequate diets for women, including use of fortified foods, and iodized salt; (b) in high prevalence HIV areas test for HIV/AIDS (voluntary, confidential testing) and counsel according to WHO 1998 guidelines on HIV and infant feeding.</p>	<p><b>For pregnant women, at delivery/postpartum, and in the first week after delivery:</b></p> <ul style="list-style-type: none"> <li>◆ Same as community-based services.</li> <li>◆ Assess and treat problems referred by community-based workers.</li> <li>◆ Supply and resupply community-based workers; motivate and supervise them.</li> <li>◆ Screen, treat and refer for severe anemia.</li> <li>◆ Promote the use of adequate diets and use of fortified foods, including iodized salt.</li> <li>◆ Test for HIV/AIDS (voluntary, confidential testing) and counsel according to WHO (1998) guidelines on HIV and infant feeding.</li> </ul>
<p><b>Where are the services given and by whom?</b></p>	<ul style="list-style-type: none"> <li>◆ Outreach clinic sites by health workers.</li> <li>◆ Homes of the community worker or women. Service and counseling given by community-based workers, e.g. TBA, midwife, local doctor, healer, and medicine shops.</li> <li>◆ Group sessions at group leader's home given by women's groups.</li> </ul>	<ul style="list-style-type: none"> <li>◆ At mobile or fixed facilities. Given by health workers, maternity nurses, auxiliaries and trained midwives.</li> </ul>
<p><b>Who will be served?</b></p>	<ul style="list-style-type: none"> <li>◆ Pregnant women, women at delivery, and women within the first one week postpartum.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Clients referred by community workers.</li> <li>◆ Pregnant women, at delivery, and within the first week postpartum who use clinic services.</li> </ul>
<p><b>How often will they be seen?</b></p>	<ul style="list-style-type: none"> <li>◆ For nutrition interventions, at least 4 times: (a) 2 times during pregnancy (if possible 4 times for resupply of iron supplements and other health checks), (b) at delivery, and (c) within 1 to 2 weeks after delivery for BF check or up to 8 weeks postpartum for vitamin A supplements.</li> </ul>	<ul style="list-style-type: none"> <li>◆ As required for referral cases from community workers.</li> <li>◆ At least 4 times for all others.</li> </ul>
<p><b>What is the duration of the intervention?</b></p>	<ul style="list-style-type: none"> <li>◆ From early pregnancy through the first 8 weeks postpartum; continued for as long as the mother needs support.</li> </ul>	<ul style="list-style-type: none"> <li>◆ From early pregnancy through the first 8 weeks postpartum; continue for as long as necessary.</li> </ul>

**TABLE 9**  
**NUTRITION AND JOB AID FOR PRENATAL CARE**

**WHY?** Poor nutrition in pregnant women endangers the lives of mothers and newborns.

**WHAT?** At each prenatal contact with mothers, check and complete the following:

WHO	HOW MUCH/CONTENT	DURATION
<b>All pregnant women</b>	1 iron/folate tablet daily (60mg iron + 400ug folic acid). Counsel on compliance, safety, side-effects.	180 days starting at first prenatal visit and continuing until all 180 tablets are taken.
<b>Pregnant women with pallor (pale lower inner eyelid and palms)</b>	2 iron/folate tablets daily (120mg iron + 800ug folic acid) until pallor disappears, followed by 1 tablet daily (60mg iron + 400ug folic acid). Counsel on side-effects, compliance, safety.	2 tablets daily until pallor is no longer seen or a minimum of 90 days. Then continue taking 1 tablet daily until a total of 180 days or iron supplementation is achieved, continue taking tablets postpartum.
<b>All pregnant women</b>	Assess and counsel to prepare for exclusive BF; counsel for BF immediately after baby is delivered. Use step 3 of the BFHI Ten Steps as guidance.	Counsel and/or reinforce key messages at every prenatal contact.
<b>All pregnant women</b>	Counsel on adding 1 meal and 1 snack per day, more foods rich in vitamins A and C, and taking extra rest. If possible, monitor weight gain in the last two trimesters.	Counsel on improved diet starting as soon as pregnancy is detected and continuing during lactation.

HOW?	
1. Screen each mother for pallor (check eyes and palms).	2. In HIV areas, encourage HIV testing and counsel HIV positive mothers on infant feeding choices. Use WHO 1998 guidelines.
3. Ask each mother when she can return for the next prenatal visit. Count how many tablets she needs until the next visit – use the protocol above. Give her or suggest that she should use old film containers or plastic/poly bags to store iron tablets to prevent their decay from moisture and air.	4. Counsel each mother and her accompanying family members on exclusive BF for at least 4 mths, and if possible, for 6 mths. Answer any questions and refer to mother support groups.
5. Give each mother enough tablets until the next visit. Give her 60 or 90 (or more) tablets if she can only return after 2 or 3 mths (or later). She can take tablets after delivery until all 180 are completed.	6. Counsel each mother and her accompanying family members on taking extra food and rest, particularly in the last two trimesters of pregnancy. Use a list of local, affordable foods and show her how much extra (volume) and what foods (rich in nutrients) she needs to eat. If possible, monitor weight gain in the last two trimesters of pregnancy.
7. Counsel her on side-effects, compliance and safety (keeping tablets away from young children).	8. Record BF counseling given in the mothers' card.
9. On the mothers' card, record the date and number of tablets given.	10. Check and complete immunization schedule; remind the mother about danger signs and her next prenatal visit.
11. On the tally sheet/register make one mark for each mother as she is given tablets. Also, record the number of tablets given.	

**Note:** Many women in your catchment area probably do not come for prenatal visits or come very late. To reach them, work with community midwives (matrons) or TBAs; train, supply, and support them. Also, work with local drug vendors to stock and promote iron tablets for pregnant women. You may be able to provide a supply of tablets to trained community midwives, and obtain their collaboration in referring high risk cases and postnatal follow-up.

**TABLE 10**  
**NUTRITION JOB AID FOR HEALTH WORKERS ASSISTING DELIVERIES**

**WHY?** Building a strong foundation for successful BF and giving vitamin A to mothers increases the ability to fight infections and prevents infant disease and death.

**WHAT?** At delivery and during the first few hours and days postpartum, check and complete the following activities. For HIV+ women, use recommendations in WHO 1998 guidelines.

WHO	HOW MUCH/CONTENT	DURATION
All women	Give the baby unrestricted skin-to-skin contact with the mother immediately after delivery. Help the mother BF within one hour after delivery. Keep the baby with the mother in the same bed or adjacent cot for unlimited BF. Reduce the routine use of pethidine for delivery.	From delivery to the first few months, continue to keep the baby with the mother at all times.
All women	Give no water, glucose water, teas or any fluids to the baby.	From birth until at least 4 mths and, if possible, to 6 mths.
All women	Assess, and if necessary, teach mothers correct attachment: baby should be turned completely toward mother. Chin should touch mother's breast, mouth wide open, lower lip turned outward. More areola visible above than below the mouth. Infant should take slow, deep sucks (these should be audible), sometimes pausing. Show mothers different BF positions.	Once or more until mother is confident.
All women	Counsel mothers on taking an extra meal and snacks rich in energy, protein and vitamins.	For the first 4 to 6 mths after delivery.
All women	In VAD-risk areas, give one 200,000 IU dose of vitamin A as soon as possible after delivery not no later than 8 weeks if the mother is lactating or 6 weeks if she is not lactating.	Once only.

HOW?	
1. Place the newborn on the mother's breast/abdomen immediately after delivery. Do not separate the baby and mother.	2. Record the date vitamin A was given on the mother's card. Also, record BF and diet counseling given.
3. Place the baby in the mother's bed or an adjacent cot for easy access to BF throughout the day and night. Do not give any fluids. Only give medications that are prescribed by the doctor.	4. On the tally sheet/register place a mark for each woman given vitamin A. Also, place a mark for each mother given counseling on diet and BF.
5. Observe BF position and attachment; show mother the correct way.	6. Counsel each mother and her accompanying family members on exclusive BF for at least 4, and if possible, to 6 mths, taking extra food and rest, particularly in the first 4-6 mths after delivery.
7. Give each mother 1 vitamin A capsule of 200,000 IU (or 2 100,000 IU capsules) in VAD-risk areas. Open the capsule and squeeze the contents into the mother's mouth or ask her to swallow it with water in your presence. Do not give her the capsule to take away. Do not give this dose if 8 weeks have passed since delivery. For non-lactating mothers do not give this dose if 6 weeks have passed.	8. Remind the mother about infants' immunizations and give BCG vaccination to infant.

**Note:** For women in your catchment area who do not come to clinics for deliveries, adapt this protocol for use by midwives (matrons) or TBAs in the community, then train, supply and support them.

**TABLE 11**  
**NUTRITION JOB AID FOR POSTPARTUM CARE**

**WHY?** Lack of follow-up to support women in exclusive BF during the first week will often lead to infants receiving other fluids. This, in turn, causes diarrhea, reduction in milk supply, and the danger of another pregnancy.

**WHAT?** In the first week after delivery, contact each mother. Check and complete the following:

WHO?	ASSESS	IDENTIFY DIFFICULTIES	COUNSEL
All women	Ask if there is any difficulty BF. How many times in the past 24hrs was the infant breastfed? Did the infant receive any other fluids or foods after birth to now?	Infants should receive at least 10 BFs in the past 24hrs and no other fluids or foods. Ask about managing separation of mothers from their infants; teach all mothers how to hand express milk.	Increase frequency and duration of each BF. Remind mothers of the importance of no other fluids/foods for at least 4 and if possible, 6 mths. Eliminate use of bottles and pacifiers.
All women	Observe a BF, listen and look at the infant. Clear blocked nose if it interferes with feeding.	Infants should take slow, deep sucks (these should be audible), sometimes pausing.	Teach correct position and attachment.
All women	Check position and attachment; observe the infant.	Infants should be turned completely toward mother. Chin should touch mother's breast, mouth wide open, lower lip turned outward. More areola visible above than below the mouth.	Teach correct position and attachment to mother. Eliminate use of bottles and pacifiers.
All women	Ask about and counsel on preventing sore/cracked nipples, and engorgement; and preparing for any separations.	If infant is passing urine less than 6 times per 24hrs or the urine smells and is dark colored, counsel on how to increase milk intake.	Teach correct position and attachment. Increase frequency and duration of each feed. Stop all other fluids to increase supply. Teach manual expression and storage of breastmilk. Teach cup feeding.
All women	Counsel mothers on taking an extra meal, and on ingredients/snacks rich in energy, protein and vitamins.	Ask about affordable foods, timing of preparing/storing, and consuming the foods.	Use a list of local, affordable foods and show her how much extra of what foods she needs to eat.

HOW?	
1. Ask each mother about BF; observe a feed; listen to and look at the infant; observe position and attachment; show mothers the correct ways. Use WHO 1998 guidelines for HIV+ mothers.	2. Counsel the mother and accompanying family members on exclusive BF for at least 4, and if possible, for 6 mths.
3. Counsel each mother on the importance of continuing BFs without fluids or foods for at least 4, and if possible, to 6 mths, and how to solve common difficulties.	4. Record the date of counseling on the mother's card, and any problems and solutions advised.
5. Counsel the mother and other family members on mothers' diet and rest to build her own reserves.	6. Record the number of women given postnatal counseling on the daily tally/register sheet.
7. Remind about infant's immunizations.	

**Note:** Most women do not come for postnatal visits to clinics or come only for problems. Find out who can follow-up with postpartum mothers to provide counseling within the first week. Work with community agents, such as women's groups, social workers, midwives (matrons), or TBAs. Then train, supply, and support them.

Community-based services and communications activities need to be developed to reach several audiences in the community and in various influential positions.

An important part of the health manager's job is to provide both community health workers and facilities with the tools, supplies, and training they need. Useful tools include copies of the exact protocols for each kind of intervention (see chapter 8) and simple job aids that remind the health worker about important actions, such as screening, dosing, and recording. See the examples in tables 9, 10, and 11. The tools should be pretested and adapted by the district health team.

## **Nutrition Interventions in Child Health Services**

The priority nutrition interventions for child health services are:

- ♦ observe and assess BF, and provide individual counseling for mothers to establish effective exclusive BF, and maintain BF for at least 2 years;
- ♦ assess complementary feeding/and promote continued BF for at least 2 years, and provide individual counseling to ensure that children from about 6-24 months have adequate energy and nutrients;
- ♦ give preventive doses of vitamin A supplements every 4-6 months to all children 6-59 months of age in areas where vitamin A deficiency is a risk;
- ♦ give preventive iron supplements to all low birth weight infants starting at 2 months, and to all infants 6 months or older in areas where anemia or iron deficiency is a risk;
- ♦ weigh all children to see if they are growing adequately; and
- ♦ screen, treat, and refer children for severe malnutrition, severe anemia, and clinical signs of vitamin A deficiency.

Details of counseling on infant feeding are given in the WHO/UNICEF BF Counseling training materials. Health managers should follow guidelines for BFHI in postpartum care of newborns. In addition, health managers should strengthen the quality of sick and well-child care using IMCI guidelines and micronutrient protocols developed by IVACG and INACG. UNICEF's Care Initiative (April 1997) provides guidelines on assessment, analysis, and action for improving the care of women and children.

To reach high coverage with the priority interventions, health workers need to use several channels. The most common reasons that families in low-income communities visit health workers or facilities are to obtain treatment for childhood illnesses and to immunize their children. Thus, these contacts are important opportunities to provide priority nutrition interventions, and health managers should take steps to ensure that staff who vaccinate and those who treat sick children can also provide nutrition services.

Immunization outreach activities provide a good opportunity to deliver some nutrition interventions, but they cannot deliver the full package of essential actions for children. One reason is that routine immunization programs focus on infants under 12 months, whereas many nutrition activities must be continued until at least 24 months and some, such as vitamin A supplementation, until 59 months. Similarly, growth monitoring activities provide an excellent opportunity to give counseling on feeding practices and micronutrient supplements. But, these are often not implemented systematically. Also, caregivers look to family members, community networks, counselors, and workers of many types for advice on feeding and caring of infants. For this reason, health managers need to find communication channels to reach other community members and reinforce the nutrition messages they give mothers.

Private providers of services and supplies must also be part of the effort. This may include pharmacies or chemist shops where iron/folate tablets for pregnant women are sold. It may involve making sure that community-based birth attendants are trained in supporting women in BF after delivery, and they are trained and supplied to give a dose of vitamin A to postpartum mothers. It may involve providing training and education materials to private doctors or nurses, so that they can follow correct procedures for assessing BF and complementary feeding and using the correct micronutrient supplementation protocols.

Table 12 summarizes how health facilities and community-based workers can share responsibility for incorporating essential nutrition actions into child health services. Tables 13, 14, and 15 provide examples of job aids to remind health workers to provide the appropriate interventions at each of the three main types of contacts (immunization, well-baby visits, and sick-child visits). Health workers should use these job aids after adaptation and pretesting. Thus, in Child Health Services, just as in Women's Health Services, delivering priority nutrition interventions requires community-based workers in addition to workers at health facilities. For health managers, forming community partnerships is an important task. Chapter 5 provides information on the difficult - but rewarding- task of identifying potential partners and forming community partnerships.

**TABLE 12**  
**ORGANIZING NUTRITION ACTIVITIES IN CHILD HEALTH SERVICES**

SERVICE COMPONENT	SERVICES IN THE COMMUNITY	SERVICES AT FACILITIES (FIXED OR MOBILE)
<p><b>What is the intervention or action?</b></p>	<p><b>At sick-child visits and well-baby services</b></p> <ul style="list-style-type: none"> <li>◆ Identify women who have recently delivered or have children under 2 yrs.</li> <li>◆ Counsel and help manage common difficulties in exclusive BF, e.g. correct position and attachment, perceived "insufficient milk", and others.</li> <li>◆ Counsel on appropriate complementary feeding and continued BF for ages 6 to 11 mths, and 12 to 24 mths using IMCI guidelines and the WHO/UNICEF BF Counseling course. Help manage common problems, e.g. number and amount of feeds, over-diluted foods, use of enriching foods, active feeding style, safe preparation, and feeding.</li> <li>◆ Counsel on feeding sick children and children with poor appetites.</li> <li>◆ Check and complete 1 dose of preventive vitamin A for children 6 to 59 mths, given every 4 to 6 mths in areas where vitamin A deficiency, and extra vitamin A during children's illnesses.</li> <li>◆ Give iron supplements to infants with low birthweights starting at 2 mths; give iron supplements starting at 6 mths to all infants where anemia is a problem.</li> <li>◆ Screen and refer children to clinics for serious problems (severe anemia, visible wasting, edema of both feet, very low weight-for-age, prolonged diarrhea).</li> </ul> <p><b>At immunization contact</b></p> <ul style="list-style-type: none"> <li>◆ Where vitamin A deficiency is a problem, check and complete mothers' postpartum vitamin A dose</li> </ul>	<ul style="list-style-type: none"> <li>◆ Same as community-based services.</li> <li>◆ Assess and treat problems referred by community-based providers.</li> <li>◆ Supply and resupply community-based workers.</li> <li>◆ Follow IMCI protocols for sick-child care e.g. weigh all children, counsel on feeding practices, and give vitamin A and iron supplements.</li> <li>◆ Screen, refer and/or treat for severe malnutrition, anemia and vitamin A deficiency.</li> <li>◆ Use WHO guidelines for treatment of severe malnutrition.</li> </ul>

SERVICE COMPONENT	SERVICES IN THE COMMUNITY	SERVICES AT FACILITIES (FIXED OR MOBILE)
	<p>during BCG contact, and children's preventive vitamin A doses at all immunization contacts with children from 6 to 59 mths.</p> <p><b>At all contacts</b></p> <ul style="list-style-type: none"> <li>◆ Reinforce age-appropriate infant feeding messages (MCI), and promote the use of iodized salt.</li> </ul>	
<b>Where are the services given and by whom?</b>	<ul style="list-style-type: none"> <li>◆ Immunization outreach sessions in communities, by trained health workers.</li> <li>◆ Counseling in the home of community workers or caregivers. Given by community workers and mother-to-mother support groups.</li> <li>◆ Group sessions at group leaders' home. Given by women's groups, mother support groups, and at other opportunities, e.g. child weighing sessions.</li> </ul>	<ul style="list-style-type: none"> <li>◆ At mobile or fixed facilities.</li> </ul>
<b>Who will be served?</b>	<ul style="list-style-type: none"> <li>◆ Mothers who have recently delivered or who have children under 2 yrs.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Persons referred by community workers.</li> <li>◆ Mother who have recently delivered or who have children under 2 yrs.</li> </ul>
<b>How often will they be seen?</b>	<ul style="list-style-type: none"> <li>◆ At least 6 times from birth to 24 mths: (1) soon after delivery for exclusive BF, (2) at about 6 mths for the child's first vitamin A dose, and for complementary feeding, (3) at about 9 mths for measles vaccination, and to follow-up on complementary feeding, (4) at about 12 mths for complementary feeding, to give a second vitamin A dose, and to check and complete all immunizations, (5) at about 18 mths to follow-up on adequate complementary feeding and to give a third vitamin A dose, and (6) at about 24 mths for complementary feeding and to give fourth vitamin A dose. Plus each time the child is sick, counseling on infant feeding during and after each illness.</li> </ul>	<ul style="list-style-type: none"> <li>◆ As required for referral cases.</li> <li>◆ At least 6 times as shown under community-based services.</li> </ul>
<b>What is the duration of the intervention?</b>	<ul style="list-style-type: none"> <li>◆ From birth through the first 2 yrs of the child's life; continued for as long as mother needs support and program resources permit.</li> </ul>	<ul style="list-style-type: none"> <li>◆ From birth through 2 yrs of age, continued for as long as the mother needs support and program resources permit.</li> </ul>



**TABLE 13**  
**JOB AID FOR GIVING VITAMIN A WITH ROUTINE IMMUNIZATIONS**

**WHY?** Lack of vitamin A reduces the ability to fight infections and causes blindness.

**WHAT?** Vitamin A supplements should be given every 4 to 6 mths. At each immunization contact with mothers and children, check and complete the following:

POSSIBLE IMMUNIZATION CONTACT	AGE GROUP/TIMING	IF USING 100,000 IU CAPSULES	IF USING 200,000 IU CAPSULES
BCG contact (up to 8 wks postpartum).	For mothers up to 8 wks postpartum if BF (up to 6 wks postpartum if not BF).	2 cap.	1 cap.
Measles vaccination contact.	Infants – 9 to 11 mths	Drops in 1 cap.	1/2 drops in 1 cap.
	Children 12 mths or older	Drops in 2 cap.	Drops in 1 cap.
Booster doses, special campaigns, delayed primary immunization doses, immunization strategies for high-risk areas or groups.	Infants 6 to 11 mths.  Children 12 mths or older.	Drops in 1 cap. (every 4 to 6 mths until 59 mths of age).  Drops in 2 cap. (every 4 to 6 mths until 59 mths of age).	1/2 drops in 1 cap. (every 4 to 6 mths until 59 mths of age).  Drops in 1 cap. (every 4 to 6 mths until 59 mths of age).

**Note:** Do not give the child vitamin A if he/she has taken drops in the past 30 days.

HOW?
<ol style="list-style-type: none"> <li>1. Check the dose in the capsules, the child's age (for mothers, the date of delivery), and when the last dose of vitamin A was received.</li> <li>2. Cut the narrow end of each capsule with scissors or a nailcutter and squeeze the drops into the child's mouth. Ask mothers to swallow the capsule in your presence. Do not ask a child to swallow the capsule. Do not give the capsule to the mother to take away.</li> <li>3. To give less than 1 capsule to a child, count the number of drops in a sample capsule when a new batch of capsules is first opened. Give one-half the number of drops from capsules in that batch.</li> <li>4. Record the date of the dose on the child's card and the mother's dose on the mother's card.</li> <li>5. On the clinic or community tally sheet/register, place a mark for each mother dosed and another mark for each child dosed. Make a monthly/quarterly/annual chart of vitamin A coverage the same way as immunization coverage is charted. Report coverage of mothers' dose, first dose for infants, and second dose for infants routinely with immunization coverage.</li> <li>6. Advise the mother when to return for the next doses of vitamin A and encourage completion of the immunization schedule, in addition to vitamin A protocols.</li> </ol>

**TABLE 14**  
**NUTRITION FOR HEALTH WORKERS WHO SEE SICK CHILDREN**

CLASSIFICATIONS	AGE (mths)	MANAGEMENT	FOLLOW-UP
Any sick child without a severe classification	< 59	Assess the child's feedings and counsel the caregiver according to IMCI feeding recommendations in the Counsel the Mother chart. Check and complete the preventive vitamin A dose: 1 age-appropriate dose every 4 to 6 mths.	If there is a feeding problem, follow-up in 5 days. Advise the caregiver about danger signs for when to return immediately.
Measles	0-59 0-5 6-11 12+	Give 2 vitamin A doses: 1 on diagnosis, 1 the next day. Age appropriate dose: Vitamin A 50,000 IU per dose Vitamin A 100,000 IU per dose Vitamin A 200,000 IU per dose	If there is a feeding problem, follow-up in 5 days. Advise the caregiver about danger signs for when to return immediately.
Measles with eye complications, or xerophthalmia	0-59	Give 2 vitamin A doses, 1 day apart, plus a third dose 2 wks later (the third dose can be given at home by the caregiver).	Treat conjunctivitis with tetracycline eye ointment and mouth ulcers with gentian violet. Follow-up in 2 days if complications are present.
Sever anemia or malnutrition		Give a single dose of vitamin A according to the dose schedule above.	Refer urgently to the hospital.**
Anemia, or very low weight, not severe	0-59	Assess the child's feeding and counsel the caregiver according to IMCI feeding recommendations. <b>For anemia: give iron supplements*</b> ♦ Less than 2 yrs, 25mg iron and 100-400ug folic acid for 3 mths ♦ From 2 to 12 yrs, 60mg iron and 400ug folic acid for 3 mths Give antimalarial if high malaria risk. Give mebendazole if child is 2 yrs or older and has not had a dose in the previous 6 mths.	Advise the mother about danger signs for when to return immediately. If pallor, follow-up in 14 days. If very low weight for age, follow-up in 30 days.

\* = Give in the form of drops if possible, or powder ferrous sulfate tablets and give by spoon, mixed with a liquid.

\*\* = Referral hospitals or clinics treating severe malnutrition should follow WHO guidelines for the "Management of Severe Malnutrition", 1999.

HOW?
<ol style="list-style-type: none"> <li>1. Assess, classify, and treat all sick children according to IMCI guidelines. Assess child's feeding, and give nutritional counseling according to IMCI guidelines.</li> <li>2. Give each sick child the recommended vitamin A doses, as noted above. For children who do not have the condition listed above, check and complete their preventive dose (see job aids for well-baby contacts and immunization contacts).</li> <li>3. Vitamin A dosing. Cut open the narrow end of each capsule with scissors or a nailcutter and squeeze the drops into the child's mouth. Do not ask a child to swallow the capsule. To give less than 1 capsule, count the number of drops in a capsule from each new batch of capsules when they first arrive. Give one-half or one-quarter the total number of drops counted.</li> <li>4. Record the classification and treatment given on the child's card. Place a mark on the tally sheet for each child assessed, dosed, counseled, or referred.</li> <li>5. Check and complete immunizations schedule.</li> </ol>

**TABLE 15**  
**NUTRITION JOB AID FOR WORKERS IN WELL-BABY CLINICS**

ACTION	AGE MTHS	AMOUNT OF VITAMIN A		NUMBER OF DOSES
		IF 100,000 IU CAP.	IF 200,000 IU CAP.	
Check and complete vitamin A protocols	6-11	Drops in 1 cap.	1/2 drops in 1 cap.	One dose every 4 to 6 mths from about 6 mths to 59 mths.
	12+	Drops in 2 cap.	Drops in 1 cap.	
Give iron drops	6-24 (start at 2 mths if low birth weight)	AMOUNT OF IRON		One dose daily for 6-18 mths depending upon anemia prevalence.
		12.5mg daily + 50ug folic acid		
Reinforce good practices; assess and counsel for feeding difficulties	0-5	ASSESS AND CLASSIFY		COUNSEL/TREAT
		Assess BF	Congratulate mothers on good practices. Identify difficulties.	
	6+	Assess complementary feeding	Encourage mothers to continue good practices. Identify difficulties: poor appetite, frequency, amount per feed, density, hygiene, feeding style.	Use strategies to correct problems in food content and feeding style. Increase amount and enrichment after illness. Continue BF for at least 24 mths.
Screen for severe anemia.	All ages	Screen for pallor.		For anemia give iron supplements <ul style="list-style-type: none"> <li>◆ Less than 2 yrs, 25mg iron and 100-400ug folic acid for 3 mths.</li> <li>◆ From 2-12 yrs, 60mg iron and 400ug folic acid for 3 mths.</li> </ul>
Screen for inadequate growth and severe malnutrition.	All ages	Screen for severe wasting and edema of both feet. Weigh all children to see if they are growing adequately. Assess reasons for inadequate growth: illness, care, feeding.		Give vitamin A and refer to hospital immediately, if severely malnourished. Treat and counsel on illness, care and feeding.

HOW?
<ol style="list-style-type: none"> <li>1. Assess, classify, and counsel on feeding using IMCI guidelines. Weigh the child and assess growth.</li> <li>2. Check and complete the recommended vitamin A dose.</li> <li>3. Cut open the narrow end of each capsule with scissors or a nailcutter and squeeze the drops into the child's mouth. Do NOT ask a child to swallow the capsule. Do NOT give the capsule to the mother to be given later. To give less than 1 capsule, count the number of drops in a capsule from each new batch when it first arrives. Give half the number of drops counted.</li> <li>4. Assess, refer, or treat/counsel for severe malnutrition (visible severe wasting, edema, very low weight for age); anemia (pallor); and use IMCI screening and assessment protocols.</li> <li>5. Record the date of the vitamin A dose on the child's vaccination or health card; record feeding assessment and counseling on the child's card; record growth.</li> <li>6. Record treatment for severe malnutrition and anemia on the child's card.</li> <li>7. Mark the daily clinic or community tally sheet for vitamin A, feeding assessment/counseling, and treatment.</li> </ol>

## CHAPTER 5

### Forming Community Partnerships

#### Key Points

- ◆ Partnerships can be formed by spending time listening to community members (including mothers of young children, the very poor, and other neglected groups); developing an action plan together; and promoting shared ownership and responsibility for the plan.
- ◆ Initially, forming partnerships with communities is hard work, but it can have many benefits. Key for the success of community activities is engaging mothers of young children, and those who most influence their practices, in planning and setting priorities.
- ◆ Because starting up community partnerships requires resources, managers should be selective about focusing efforts in certain communities where need is high and the community wants to collaborate. As these partnerships mature, new communities can be included.
- ◆ In selecting the types of community-based activities, managers should be creative in using the resources and talents that are locally available, and involve other sectors such as education (school teachers), agriculture, co-operatives, micro-credit programs and others.
- ◆ Ongoing assessment of a few priority nutrition indicators is a good tool for maintaining community interest in reducing nutrition problems.

This chapter discusses how community programs and activities can be implemented. In chapter 4, tables 8 and 12 showed that in both maternal and child health programs, activities at the community level and in health facilities are necessary and should be linked. To achieve nutrition impact, health staff at facilities need to form and support teams to work at the community level.

No single approach can be used to form community partnerships. Because so much depends on the local setting, managers need to develop their own strategies, taking into account cultural and ethnic diversity in their district, the experience and capacity of the district health team in working with communities, resources available, infrastructure and logistics constraints, and numerous other factors.

In this chapter are examples of how to use the broad range of possible approaches. Managers should use these ideas to develop their own activities. They must listen to the needs of community members, particularly the needs of mothers of young children and poor families. Managers should use lessons learned in past experiences with community programs in their district and build on existing community structures.

The chapter discusses:

- ◆ why community partnerships are important;
- ◆ the role of the program manager;
- ◆ options for building partnerships; and
- ◆ types of community-based activities.

## Why Community Partnerships Are Important

A community is a group of people with a common interest, purpose, location, or cultural/ethnic heritage. Community partnerships are working arrangements between outside development agencies and members of a community. In health programs, the partnership is formed to improve health and nutrition. As nutrition actions focus on the priority groups of pregnant and lactating women and young children under 2 years of age, mothers are key members of the community partnership.

To develop community partnerships, health managers need to dedicate significant resources in time, travel, and staff at the outset. Partnership means equal commitment to, and participation in the activities. Although it is hard work, forming partnerships can result in many benefits. For example, programs based on community partnerships:

- ◆ are more accessible to, and better match the needs of, the target population;
- ◆ enable health managers to spend less time mobilizing people and more time providing services; and
- ◆ are more sustainable because community members work with the health team to continue them.

## The Role of the Program Manager

Health managers can play many roles in a community partnership, to include:

- ◆ listening to community members to understand their perspectives about nutrition problems and needs;
- ◆ acting as a resource, providing information, training, links with external networks, as well as supplies, such as micronutrient supplements, weighing scales, training materials, iodized salt testing kits, and others;
- ◆ helping to identify the nature, magnitude, and causes of malnutrition through frequent, joint assessments, and helping the community choose priority target groups;
- ◆ helping to identify potential solutions and facilitating the choice of strategies by community members;
- ◆ helping define what is needed to implement the chosen strategies, bringing in external resources as needed, and providing opportunities to build capacity;
- ◆ facilitating shared responsibility and accountability, identifying the different players, their roles and responsibilities, and what resources they will need to be effective; and
- ◆ facilitating accurate information gathering, appropriate use of the information, and timely reviews of results by community leaders and workers.

At times, health managers and staff play the role of a technical resource, or provide knowledge about what needs to be done, and bring technical supplies that no other person can bring. At other times, health managers function as facilitators of a process in which community members take the lead. For example, health staff may know the importance of nutrition, how to diagnose nutritional problems, and what supplements or counseling are needed. But community members, leaders, local health workers, women's groups, and others know how best to organize the services, who can counsel mothers, and how to approach families.

In a successful nutrition program in Tanzania called the Iringa project, providers of information were called mobilizers and facilitators of community involvement were called animators (see figure 13).

Animators had the following responsibilities:

- ♦ engage villagers in collecting and analyzing basic socioeconomic data to better understand their real situation;
- ♦ identify various socioeconomic groups in the villages and stimulate them to investigate their own needs and problems;
- ♦ assist people in finding solutions through their own resources and networks;
- ♦ assist people in translating possibilities into action programs, in mobilizing required resources, and involving local groups; and
- ♦ link these groups with one another and with appropriate institutions.

To be successful, animators had to identify and work as one with the community. Existing extension agents were considered potentially effective animators because they normally reside in the villages, understand the prevailing problems, and can stimulate interaction among community networks. The criteria for selecting animators in the Iringa project included demonstrated commitment, devotion to people, communication skills, and initiative.

Health managers and workers should learn animation skills and also work with others who are skilled animators. A significant amount of training in the Iringa project focused on developing animation skills in a specially selected group of extension workers. These animators were successful at encouraging community involvement and problem solving.

## **Options for Building Partnerships**

In forming community partnerships, managers can either work directly with community leaders and groups or through NGOs and other organizations that already have partnerships with communities. Where there is a tradition of community involvement and co-operation, partnerships are easier to form. In Zimbabwe, Indonesia, and Thailand, for example, existing community traditions facilitated community mobilization on a national scale:

- ♦ A long-standing spirit of co-operation and community responsibility in Zimbabwean society was an important factor in Zimbabwe's nutritional improvement in the 1980s. This co-operative spirit, reinforced by the activities of a number of NGOs, sustained nutrition projects at grass roots level.
- ♦ In Indonesia, one important advantage for the National Family Nutrition Improvement Program (UPGK) was the extensive grass roots community participation - a natural outgrowth from a tradition of co-operation known as gotong royong. In the early 1980s, the UPGK grew rapidly to cover two-thirds of all villages in Indonesia. This growth was helped by the active participation of a village women's organization known as PKK, which exists in most Indonesian villages.
- ♦ In Thailand, nutrition programs use existing community structures to deliver services. Government staff and community members jointly assess community problems. Community members first receive training in how to do these assessments, and government managers receive training in this new way of working.

## ***Creating Ownership***

Successful community partnerships demonstrate a high level of community ownership. Managers can help build ownership by involving communities in various stages of program planning and implementation. To involve communities, use the following ideas:

- ◆ For program planning, discuss with community representatives the importance of nutrition problems and the need to act on them. Develop a common understanding of what needs to be done and the expected roles and responsibilities of each party.
- ◆ For needs assessment, give responsibility for most needs assessment activities and all program design choices to community representatives.
- ◆ For organization and management, use existing community structures, even if they are not a formal committee, rather than a structure designed from outside. Spend time building the local group's capacity to lead the community in dialogue with external agencies, and build management capacity.
- ◆ For scheduling daily activities, hold meetings with small groups, close to mothers' homes and permit them to bring their children. Hold meetings on days and times when it is most convenient for mothers of young children.
- ◆ For training, use on-the-job, problem-solving, continuous training for community-based workers and community organizations, instead of workshops with lectures and theoretical content.
- ◆ For resource mobilization, do not give all services free unless the community is in extreme distress. This can reduce people's autonomy and freedom of choice, and can weaken future sustainability of programs. Community resources in any form are important - labor, space, knowledge, networks, funds, food, food production inputs, and others.
- ◆ For monitoring, evaluation, and information exchange, use simple indicators that reflect community priorities, and use simple data gathering methods. It is essential to give communities the power to have the information and to use it to make decisions.
- ◆ For maintaining interest and gathering momentum for reducing malnutrition, start small with visible actions that produce visible results of value to community members.

## ***Triple-A Cycle: Assessment, Analysis, Action***

The Iringa Project in Tanzania successfully involved the community in all aspects of program design and implementation (see panel 3). The project used an approach developed by UNICEF, called the Triple-A Cycle, to improve how program and community resources are utilized. The Triple-A Cycle involves assessing the problem, analyzing its causes, and designing and implementing actions. It can be used at household, community, district, or national levels (see figure 14). It is most commonly carried out, however, at community level to plan activities to jointly gather and use information about nutrition problems and causes. It is repeated periodically in cycles, which result in the following steps:

- ◆ Assessment of the problem;
- ◆ Analysis of the causes of the problem;
- ◆ Design and implementation of actions;
- ◆ Re-assessment (monitoring) of the impact;
- ◆ Improved analysis;
- ◆ Better actions; and so on.

## **Participatory Assessments**

Another well-known approach to community involvement is the use of Participatory Rural Appraisal (PRA) techniques for program planning. In its pure form, community development agents using the PRA approach leave all program decisions and priorities for community members to decide. But, PRA can also be done in modified form, in which health managers promote health and nutrition as priorities, but the program activities are based on the needs and interests identified by community members. The initial dialogue focuses on why nutrition and health should be priorities.

In the SSNPR region of Ethiopia, government health staff and community members together used a participatory approach to identify and prioritize health and nutrition problems. The process (summarized in panel 4) helped to build strong partnerships between communities and health centers. Mothers of young children were on the community assessment and analysis teams. After participants identified poor access to health facilities as a critical problem, they developed a plan including strategies to motivate community members to obtain services. More training was provided to community-based and health facility workers especially in counseling, community organization, and participation. Community members wanted to involve existing community groups, such as churches, mosques, and schools, in health work. Some expressed a need for forming additional health and nutrition support groups. The hours of operation of health centers were changed to suit the convenience of community members.

### **PANEL 3**

#### **SOME LESSONS ON ACHIEVING SUCCESS— IRINGA PROJECT, TANZANIA**

The Iringa Project is one of the more successful experiences in improving nutritional status. The challenge was to raise people's awareness that malnutrition was a serious problem and that the problem required multiple solutions. It combined a number of strategies, including community mobilization, routine health services, special actions, and communications. At every stage of program planning and implementation, communities took the lead in making decisions.

- ◆ To keep the program focused on achieving results, the program design was kept flexible. Regular feedback on results was given to key program managers and implementers. Information was used to refine the program every three months. No set strategy was followed that could not be modified, based on actual program experience. Sufficient resources were set aside to measure results, review the results, and make the needed changes. The expected results were clear to all: reduce the number of malnourished children.
- ◆ The UNICEF Causal Model<sup>1</sup> was used for selecting priority interventions. The model motivated community members to discuss various reasons why nutrition may be a problem. It showed that help was needed from many sectors. This made everybody feel important and motivated them to co-operate. It also showed how some actions could produce immediate results and others would show results later.
- ◆ Training was used to motivate key implementers. It was designed to energize rather than give top-down information. Participatory approaches were used.
- ◆ Resources were put into media campaigns and high-level advocacy. Everyone from the country's Prime Minister to members of the press, community leaders, and local politicians attended meetings and events.
- ◆ Actions that helped communities, local managers, and front-line workers own the program included giving the program a name selected by them, and making sure that decisions were made by local residents rather than outside experts. Technical assistance was given through placing a long-term adviser in the district. No key step was handed over completely to outsiders for assessments, management, or monitoring/evaluation.
- ◆ Top priority was given to making a minimum package of services available. This package included not only nutrition but immunization, ORT, and provision of essential drugs. It was one of the first components of the program to be implemented. Communities received services they valued and the program gained visibility and credibility.
- ◆ The system of development committees that already existed in Tanzania at all levels was a great help. The program used a few key pieces of information as criteria for making decisions about program improvements and built a dependable information system to keep the committees supplied with this data.

SOURCE: Adapted from Jonsson 1991.



**PANEL 4**  
**ORGANIZING JOINT COMMUNITY ASSESSMENTS - ETHIOPIA**

PHASE	DURATION	ACTIVITIES AND PROCEDURES	LOCATION
Identifying partners	Completed in advance	<ul style="list-style-type: none"> <li>◆ Logistics planning; finalizing schedules</li> <li>◆ Selection of focus communities</li> <li>◆ Formation of community teams</li> </ul>	HQ
	5 days	<ul style="list-style-type: none"> <li>◆ Training in household survey and participatory methods</li> </ul>	Regional capital
	1 day	<ul style="list-style-type: none"> <li>◆ Public meeting</li> <li>◆ Social mapping</li> <li>◆ Free listing/ranking of child health problems</li> <li>◆ Team meeting</li> </ul>	Selected communities
Selecting priorities	2 days	<ul style="list-style-type: none"> <li>◆ Household survey; hand tabulation of data</li> <li>◆ Prioritizing 3-5 behaviours</li> <li>◆ Matrix ranking and scoring</li> <li>◆ Seasonal calendars</li> <li>◆ Team meeting</li> </ul>	Selected communities
Understanding constraints and motivations	3 days	<ul style="list-style-type: none"> <li>◆ Semi-structured interviews on why some families were able to and others were unable to practice priority behaviours</li> <li>◆ Preparation for public meeting</li> </ul>	Selected communities
Selecting actions	1 day	<ul style="list-style-type: none"> <li>◆ Public meeting</li> <li>◆ Team meeting</li> </ul>	Selected communities
	2 days	<ul style="list-style-type: none"> <li>◆ Further analysis of data and experience</li> <li>◆ Next steps and schedule of follow-up visits</li> </ul>	Regional capital

SOURCE: BASICS Ethiopia Participatory Assessment Report 1997.

## **Types of Community-Based Activities**

Table 16 shows the wide range of activities that can be used to involve communities in health and nutrition programs. These examples illustrate the many ways managers can collaborate with other sectors and non-health institutions to make the best use of local talent and resources.

After priority nutrition actions are identified, managers need to build up the capacity of community-based entities (e.g., women's groups, support groups, health volunteers) to carry them out. Managers may need to replace lost income during the period of assessment and capacity building to obtain adequate participation of the most important players.

Women's groups make excellent partners for nutrition interventions. Other groups that can be involved include:

- ◆ microenterprise programs,
- ◆ day care programs,
- ◆ BF support groups,
- ◆ water and sanitation committees,
- ◆ mothers' clubs,

- ◆ forestry co-operatives,
- ◆ literacy classes, and
- ◆ social and political groups.

Managers need to decide whether to work with existing groups or to organize new support groups around nutrition issues. Both approaches have advantages and disadvantages, depending on the local conditions. Existing groups may be receptive to new information and may be energized by taking on new activities, or they may resist any changes. Newly formed groups may be interested in the nutrition theme, but it may take time for members to learn new skills.

For both kinds of groups, experience shows that even after groups are engaged in nutrition and health partnerships, capacity needs to be built gradually by starting with only a few activities at a time. Health managers also need to build a system for supplies for community-based workers and to provide supervisory support.

In Senegal, existing women's groups were invited to develop partnerships with health centers in the district to carry out monthly weighing and nutrition education activities run by their own members at the neighborhood level. The problem was lack of access to health facilities and limited outreach by clinic staff to carry out essential nutrition actions. Training sessions were used to transfer knowledge on infant feeding and counseling skills to community-based volunteers. The use of women's groups resulted in greater community involvement and ownership of nutrition activities. Coverage increased significantly. The existence of women's groups is an important advantage in carrying out community nutrition activities.

An important step after deciding on the kind of services to be delivered, is to agree on how responsibilities will be shared. In the SNNPR region of Ethiopia, for example, health facilities staff played the lead role in improving services; the community organized groups and volunteers; the district manager planned communications activities; and health center staff and community members shared responsibility for training.

More challenging than dividing up tasks is finding the tools to foster responsibility, commitment, and accountability among the key partners. In an urban diarrhea control program in Nigeria, the division of responsibilities between health facilities, community institutions, and external organizations was spelled out in a formal, written agreement (summarized in panel 5).

The role of community-based groups and their relationship to health centers can take many forms. Two additional examples are given at the end of this chapter in panels 6 and 7.

As community partnerships become self-sustaining, managers can move on to new locations. But, managers should continue to be involved by supporting joint assessments and revisions of activities to maintain a focus on reducing nutrition problems. A common problem in community programs is the lack of continuity and sustained involvement of key players. Continued support from health managers can help overcome this problem. Some programs have found that after program activities are implemented, information on program results can be a powerful tool to maintain a high level of community involvement and commitment for nutrition activities. UNICEF's Triple-A Cycle approach of repeated cycles of assessment, action, and analysis (see figure 14) can be used to provide this information and to prompt ongoing action. Table 17 gives a sample list of the kinds of indicators that can be used to monitor community actions. Managers and community partners should collect information on the relevant indicators, review the results, analyze why the observed trends are taking place, and take action to achieve the desired coverage. They should do this as often as needed and possible.

**TABLE 16**  
**COMMUNITY INVOLVEMENT STRATEGIES - EXAMPLES**

STRATEGY	COUNTRY	DESCRIPTION	TOOLS AND METHODS
NGO partnership grants	Zambia	<ul style="list-style-type: none"> <li>◆ District presents health problems in a public community forum. NGOs are asked to compete for grants to assist with service provision.</li> </ul>	External resources used to fund partnerships. Standardized NGO selection criteria used. Capacity of NGOs developed.
Community health workers (CHW)	Zambia Ethiopia India	<ul style="list-style-type: none"> <li>◆ Community-based CHWs, TBAs, and community-based distributors are trained.</li> <li>◆ CHAs (community health agents) are selected and trained.</li> <li>◆ CHWs, as community representatives, visit health providers to sign contracts for improved case management of illnesses; they monitor compliance and performance.</li> </ul>	Training curricula developed. Flip charts and other CHW teaching aids used. Capacity building of CHWs and local health providers conducted.
Child-to-child/school-to-community	Madagascar Ethiopia	<ul style="list-style-type: none"> <li>◆ Curriculum developed for school children on target behaviours. The objectives are to bring up a generation of health-aware people to spread the word, via children, rest of the community.</li> <li>◆ Small group education sessions using community volunteers are held, including schoolteachers.</li> </ul>	Peer-to-peer education used. Games, stories and experiential learning activities used. Activities carried out to engage children in educating the rest of the community.
Participatory appraisal and planning	Ethiopia Zambia	<ul style="list-style-type: none"> <li>◆ Communities share responsibility for social mapping, data collection, analysis, and developing action plans.</li> </ul>	PRA and anthropological techniques used for needs assessments.
Community role models	Madagascar	<ul style="list-style-type: none"> <li>◆ Community members who are practicing target behaviours are identified and invited to form a network of role models and community resources for other parents: Amis de Sante or friends of health.</li> </ul>	Peers educate peers in the community.
Community volunteers	Haiti Guatemala	<ul style="list-style-type: none"> <li>◆ Volunteer mothers prepare menus used in healthy-child homes, and they feed malnourished children.</li> <li>◆ Volunteer mothers are trained as BF counselors to run mother-to-mother support groups, and they offer individual counseling and referrals.</li> </ul>	Assessments to discover local, affordable foods,. Use of adult learning principles. Self-motivation and sustainability are fostered through careful selection of leaders.
Folk channels of communication	Madagascar Benin Bangladesh	<ul style="list-style-type: none"> <li>◆ Village committees are given health messages and suggested role play; players develop skits around the messages and perform in the community.</li> <li>◆ Volunteers use traditional folk performances in immunization drive.</li> </ul>	Health skits used. Pictorial counseling cards provide themes for skits. Folk drama and songs used.
Cross-sectoral alliances	Madagascar Ethiopia Zambia	<ul style="list-style-type: none"> <li>◆ Village-level coaches are recruited from agriculture, health, education, and others, to train and co-ordinate animation committees.</li> <li>◆ Spring capping carried out with collaboration from water department.</li> <li>◆ Partnership with an agricultural organization to support growing of groundnuts.</li> </ul>	Shared responsibility and problem-solving activities carried out.
Partnerships between private sector and communities	Nigeria	<ul style="list-style-type: none"> <li>◆ Private sector facilities and communities form partnerships and draw up MOU for roles and responsibilities.</li> </ul>	Private sector inventory carried out. Community meetings and MOUs developed.

STRATEGY	COUNTRY	DESCRIPTION	TOOLS AND METHODS
Micro-enterprise projects	Nigeria Zambia	◆ Poultry farming, bednets, and others are designed and managed by the community.	Meetings held to assess needs. Community bank account opened.
Village health or animation committees	Ethiopia Madagascar Zambia	◆ Well-functioning community groups or representatives from existing groups form link between district and community.	Village consensus obtained on who will represent the village in health matters. Existing groups used to increase group's status and ensure credibility.
Referral of mothers between health center and community	Honduras	◆ Collaboration between health center staff and community volunteers to follow-up on mother after she has left health center.	Health center protocol modified.
Political support	Bangladesh	◆ Advocacy is used to involve local leaders (ward commissioners, mayors and others) in getting the message out.	Direct appeals used.
Collaboration with private sector employers	Malawi (Project HOPE)	◆ Collaboration developed to expand clinical services to include preventive care for estate employees and families. Each estate hires a health promoter to provide health education, establish speciality clinics, and improve infrastructure.	Group health talks used. Communities mobilized around water and sanitation, a felt need.

SOURCE: BASICS 1998.

## PANEL 5

### JOINT AGREEMENTS BETWEEN HEALTH MANAGERS AND COMMUNITY ORGANIZATIONS - NIGERIA

There were many different participants in this project in Nigeria. The key players needed well-defined roles so that no critical component of the program would be neglected. A formal agreement was signed and each major partner was held responsible for its specific commitment to the partnership.

#### STAFF AT HEALTH FACILITIES

- ◆ Accept cases of diarrhea.
- ◆ Treat cases of diarrhea.
- ◆ Provide education on diarrhea in clinic/community.
- ◆ Set up an oral rehydration corner.
- ◆ Communicate with community-based organizations on health problems.
- ◆ Plan preventive and promotive education.
- ◆ Refer difficult cases.
- ◆ Follow-up difficult cases.
- ◆ Document cases.

#### COMMUNITY-BASED ORGANIZATIONS

- ◆ Manage cases of diarrhea at home.
- ◆ Refer or report cases of diarrhea.
- ◆ Help serious cases of diarrhea to reach health facility.
- ◆ Organize community awareness campaign on diarrhea.
- ◆ Encourage breastfeeding.
- ◆ Encourage the use of boiled water.
- ◆ Encourage provision of clean neighborhood water supply.
- ◆ Maintain provision of clean water supply.

#### NONGOVERNMENTAL ORGANIZATIONS

- ◆ Provide necessary training to both health facilities and community-based organizations.
- ◆ Provide posters for education.
- ◆ Encourage two-way communication between partners.
- ◆ Provide technical support on documentation, monitoring, and evaluation.

SOURCE: BASICS 1998.

**PANEL 6**  
**COMMUNITY CARE MALNOURISHED CHILDREN IN HAITI,  
VIETNAM, & BANGLADESH – HEARTH MODEL**

The communities in Haiti, Vietnam, and Bangladesh needed to provide care for a significant number of severely malnourished children who did not have access to in-patient, clinical facilities.

- ◆ The program, implemented in partnership with a district-level hospital or clinic, is designed to feed malnourished children while educating and motivating their mothers. The improved condition of children illustrates and convinces other community members as well about the importance and principles of adequate child feeding. The approach is to arrange for volunteer community mothers to feed malnourished children a single nutritious morning meal each day for two weeks. The children are dewormed before the feeding sessions begin. Nutrition educators identify and train volunteer mothers and then motivate them through participation in a supervised feeding program that demonstrates improvements in the condition of malnourished children in two weeks.
- ◆ The feeding program uses local, affordable foods, and menus "discovered" through interviews and observations with mothers of well-nourished children in the community, thereby convincing other mothers that they too can rehabilitate their malnourished children by adopting these "positive-deviant" feeding practices. The volunteer mothers then prepare and serve food each morning for two to six malnourished children each, from families the mothers selected.
- ◆ The feeding program is often integrated with other nutrition and health interventions, such as deworming, growth monitoring, referral to health facility for underlying illness, and micronutrient supplementation. Other programs, such as credit for microenterprise, job creation, and family planning, are introduced by the volunteers after the nutrition program succeeds. Nutrition rehabilitation, which can be accomplished in the relatively short period of two weeks, clearly transforms listless, apathetic children into active, alert children, a result that motivates other mothers.
- ◆ Evaluation studies show significant positive results, especially in Vietnam, where severe malnutrition was eliminated dramatically and sustainable. Haiti showed good results in rehabilitating mild to moderately malnourished children.

SOURCE: BASICS 1997.

**PANEL 7**  
**INTEGRATED HEALTH AND NUTRITION COUNSELING IN THE COMMUNITY - HONDURAS**

In Honduras, a package of health care and nutrition counseling in the community was provided to prevent overloading health facilities.

The Ministry of Health engaged a network of nutrition monitors under the integrated child care program (AIN) in about half the country's communities. Community-based monitors are supported by health facility staff. Monitors and health staff promote the use of early detection and household responses to common childhood illnesses, poor feeding practices, and poor weight gain in children

**Key Features**

- ◆ Community activities are linked with health facilities, e.g., monitors are trained by health center staff.
- ◆ Activities in communities center around monthly weighing of young children.
- ◆ Based on detection, monitors recommend counseling, refer to support groups, or make home visits; some children are referred to health centers.
- ◆ Every four months, community leaders and health staff are expected to jointly review the past four months of progress, using a bar graph that identifies percentages of children weighed, children who gained weight adequately, and children who did not gain weight adequately.
- ◆ Collective community actions are taken to address persistent problems that families cannot deal with themselves.

**Who is Involved?**

- ◆ Nurses from the health facility.
- ◆ School teachers.
- ◆ Three monitors per community.
- ◆ Other community members.

SOURCE: BASICS 1998.

**TABLE 17**  
**COMMUNITY INDICATORS FOR MONITORING NUTRITION**

These indicators should be routinely monitored by health staff with their community partners. The results should be discussed at community meetings to decide on follow-up actions.

- ◆ Percentage of all children 6 to 35 mths of age who are below the recommended weight-for-age, or not growing adequately.
- ◆ Percentage of women and children with pale palms/conjunctiva (signs of anemia).
- ◆ Percentage of children 2 to 11 yrs of age who experience nightblindness; percentage of pregnant women who experience nightblindness.
- ◆ Percentage of infants 0 to 3 mths of age who are not exclusively BF.
- ◆ Percentage of infants 6 to 9 mths who do not receive both breastmilk and complementary foods.
- ◆ Percentage of children 20 to 23 mths who are not BF.
- ◆ Percentage of children 12 to 59 mths who received a vitamin A supplement in the past 6 months and percentage of women who received a dose of vitamin A within 2 mths after delivery.
- ◆ Percentage of households with pregnant women who have iron tablets.
- ◆ Percentage of households with iodized salt.
- ◆ Percentage of mothers who received at least one visit each during pregnancy, at delivery and within the first week postpartum. (The visits included iron tablets, counseling/support to establish successful exclusive BF, and counseling on diet of mothers).
- ◆ Percentage of mothers of children 12 to 23 mths who received at least one visit in the past 3 mths. (The visits included assessment and counseling on appropriate complementary feeding and continued BF for at least 2 yrs, and micronutrient supplementation).

SOURCE: BASICS 1998.

In Tanzania, repeated cycles of child weighing were used to channel resources to the children who needed them most. All community children were successfully enrolled, followed-up, and regularly weighed in this program. Data on weight-for-age was used as a tool to make malnutrition visible, motivate collective community action, and provide special support to high risk children. Children's weights were plotted in green (not malnourished), grey (moderately malnourished), and red (severely malnourished) zones.

At first, priority was given to severely malnourished (red zone) children with extra follow-up, food, frequent counseling sessions, and weekly weighing. But, after the number of severely malnourished decreased, the moderately malnourished children became the program's focus, particularly children in families with limited means. Village leaders and village health workers reviewed the percentage of children weighed and those in the red, grey, and green zones. They reviewed progress during the previous months. Program management at higher levels - ward and district - relied on these data from villages. The program was based on a 100% registration system, and the village councils helped promote high participation. As the number of malnourished children declined over the years, and good child feeding and health practices became the community norm, there was less participation and less need for monthly weighing and tracking.

In summary, managers should develop a special plan for working with communities in their district. Forming partnerships with communities helps strengthen health and nutrition activities by:

- ◆ making services accessible and appropriate to meet the needs of their specific populations,
- ◆ using less of the health managers' time mobilizing people to attend services, and

- ♦ building programs that are sustainable because community members work with the health team to continue them.

An important role for the program manager in community partnerships is to listen to the community and encourage staff to spend time in communities. To make partnerships work, managers and staff should:

- ♦ listen and talk with community members through assessments and informal meetings;
- ♦ choose approaches and interventions that have worked in the past and build on existing structures;
- ♦ clearly define roles and responsibilities, and build the capacity to implement them; and
- ♦ include ongoing data gathering and assessment activities to maintain a high level of community involvement and commitment, and focus activities on reducing nutrition problems.

## **CHAPTER 6**

### **Communications Activities to Improve Nutrition**

#### **Key Points**

- ◆ Managers should plan and implement communications activities to reinforce the work of health staff in facilities and community workers, and to extend the geographic coverage of their program.
- ◆ Audiences who influence priority nutrition behaviors should receive key messages through many different channels.
- ◆ What communications channels to use, the choice of message for each audience, and who should design and implement communications activities depends on the local situation.
- ◆ A district communications program should include these main components:
  - information collection on key audiences and what motivates them;
  - individual counseling of mothers and caregivers by community-based workers and health facility staff;
  - adaptation and dissemination of materials from national communications programs;
  - use of local media, such as drama groups, community radio, and local newspapers;
  - collaboration with NGOs and others; and
  - follow-up to ensure quality and compliance.

Communications activities greatly increase the effectiveness of health and nutrition programs, and they should be part of overall district health planning. Although many communications activities can and should be done by non-health personnel, health staff have an important role to play. District health managers will need assistance from outside for some steps involved in developing and implementing a comprehensive communications program.

This chapter discusses how communications activities can support health and nutrition activities in the district and provides information to help district health managers direct others in designing and implementing communications activities, including:

- ◆ why communications activities are important,
- ◆ the role of the health manager, and
- ◆ how to develop and implement a communications program.

Additional information on this topic is in chapter 7 under training and IEC materials.

#### **Why Communications Activities Are Important**

A communications program can serve a number of objectives. It can educate caregivers and decision makers about key behaviors; motivate caregivers, health providers, and decision makers to change or follow certain practices or policies; and inform the client population about where and when a service is available. Because nutrition problems are not easily visible, and require many participants to play a role, continuous broad-based efforts to increase awareness about the problem are a vital component of any strategy to improve nutrition.



- ◆ To improve nutrition, the perceptions, beliefs, and behaviors of many segments of society need to change, including the most important segment: mothers and other caregivers. But, other family members, community workers, decision-makers, doctors, nurses, and others, also play a crucial role. Different messages and channels of communication are needed to motivate different audiences.
- ◆ Many individuals and groups who can improve nutrition and health in the district may be unaware that nutrition is a problem with serious ill effects for the entire population. A communications program that supports nutrition activities can educate these audiences about the benefits of practicing the priority behaviors. The messages can be repeated through various channels of communication so they are not forgotten.
- ◆ Channels, such as radio, newspapers, local drama groups, communication in schools, and others, can reach higher coverage than health facilities staff and community workers can alone. These channels inform about where and when services are available.
- ◆ Finally, a communications strategy can help managers make the various health and nutrition activities in the district mutually supportive of one another. For example, messages provided by radio, newspapers, village theater groups, agricultural extension agents, school teachers, religious leaders, NGOs, community-based workers, and health workers should reinforce each other.

Managers can use communications activities in many ways. For example, in some countries, vitamin A distributions are every 6 months or once a year (where NIDs for polio eradication are used to distribute vitamin A supplements). In this case, communications activities are carried out just before the distribution days only. But, individual counseling on BF, complementary feeding, and women's diets during pregnancy and lactation is a day-to-day, ongoing activity.

## **The Role of the Health Manager**

District health managers should make sure that their health and nutrition programs are supported by a broad range of communications activities. But health managers do not need to plan and implement all communications activities themselves. They can find experienced partners to do this with them. They should, however, take responsibility to:

- ◆ ensure that messages are technically correct, address priority nutrition problems in the district, and are based on the findings of formative research conducted with mothers of young children;
- ◆ ensure that the individual counseling provided by community and health facility workers to mothers and caregivers is technically correct and of good quality;
- ◆ participate in a range of communications activities (e.g., radio programs, writing for or giving interviews to local newspapers, publicizing and holding special events related to health and nutrition);
- ◆ co-ordinate the planning and implementation of communications activities with supplies and training of health workers; and
- ◆ through ongoing monitoring and evaluation activities in the health program, give feedback to partners involved in communications about the reach and impact of the communications program.

## **Developing and Implementing a Communications Program**

A communications program involves a series of steps that may be taken either by district health staff directly or by collaborating organizations. These steps have been used for many years to conduct communications programs at a national scale. More recently they have proven to be useful for developing sub-national communications programs, such as those at the district or province/state levels, including:

- ◆ selecting a small number of priority behaviors to be the main focus of a communications strategy;
- ◆ collecting information about the priority behaviors, the audiences that need to be reached, and the channels that can reach them to support each selected behavior;
- ◆ selecting communications activities and developing a detailed plan; and
- ◆ implementing, monitoring, and evaluating the planned activities.

To start the program, health managers should review these steps and then spend a week or so reviewing the capabilities of potential partners. For example, to carry out formative research on priority behaviors, an experienced individual or agency should be engaged. For the implementation phase, different partners will be needed for different tasks: local press agents can undertake radio programs and publicity in newspapers and journals; the department of cultural activities or tourism may be able to manage village theater and drama groups; and local advertising agents and NGOs in the district may have relevant experience in designing and pretesting materials.

### ***Selecting Priority Behaviors***

To develop the communications activities, first identify the key nutrition problems and the most critical related behaviors for the focus of the communications activities. The selection should be based on:

- ◆ how serious the problem is in the district;
- ◆ how interested the community is in addressing this problem; and
- ◆ how feasible improvements in behavior are, taking into consideration the resource limitations of families and the health program.

Addressing any nutrition problem requires behavior change on the part of many different people, and a communications program must reach all the audiences involved. Table 18 shows examples of the behaviors that mothers, health workers, and policymakers must practice to address the six priority nutrition themes. Managers should select the most important ones for their communications program.

After the specific behaviors are selected, managers and their collaborators need to define the objectives of the communications strategy. For example, lowering anemia prevalence in pregnant women could require behavior changes by policymakers, village birth attendants, and pregnant women (see table 19).

### ***Collecting Information About Priority Behaviors***

After a small number of priority behaviors and their main target audiences are identified, health managers and others designing the communications program need a research process to obtain good information about how to motivate the target audience. This work should be done by individuals with previous experience in the use of formative research methods: a research

firm, college teachers and students, or government and NGO personnel. The research objective is to obtain a detailed picture of what target groups (particularly mothers) do and why they do it.

Managers should guide the researchers to obtain the following information:

- ◆ the lifestyle context of mothers, including how much control they feel they have, their social expectations and work pressures, and major family and community influences;
- ◆ how easy is it to change practices and what the perceived benefits are;
- ◆ what the most important barriers are to change and how they can be overcome; and
- ◆ what sources of information can have the greatest effect on the target audiences.

Researchers should be experienced in various data collection methods, and choose one or more of the methods outlined in Box 2.

If resources to conduct this research are not available, managers can direct district health teams to discuss the key questions with different community groups using focus groups to obtain rapid feedback.

The results should help managers define the content of messages and how to phrase them, and help refine the list of key audiences who influence key behaviors.

### ***Developing a Detailed Communications Plan***

After information about nutrition problems has been collected, the behavior of target audiences, and the available channels of communication, it is time to develop a plan. This plan should include:

- ◆ the channels of communication to be used for each audience;
- ◆ the specific messages;
- ◆ the materials needed (including what national-level materials can be adapted for local use);
- ◆ how coverage can be expanded through combining different channels;
- ◆ the supports (training, supplies, and others) needed;
- ◆ a plan for phasing in various media and activities;
- ◆ division of responsibilities for materials preparation, training, dissemination, monitoring, and evaluation;
- ◆ arrangements for theater shows, broadcasting, printing, distributing, and displaying materials; and
- ◆ a budget.

**TABLE 18**  
**EXAMPLES OF PRACTICES RELATED TO PRIORITY NUTRITION THEMES**

PRIORITY THEMES	PRACTICES FOR MOTHERS	PRACTICES FOR HEALTH WORKERS	PRACTICES FOR POLICY MAKERS
<b>Exclusive BF</b>	<ul style="list-style-type: none"> <li>◆ Initiate soon after birth.</li> <li>◆ Give only breastmilk.</li> <li>◆ Give frequent, on-demand feedings (incl. Night feeds)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Follow-up with mothers from pregnancy, up to, at least, the first few weeks after delivery.</li> <li>◆ Teach mothers to manage common BF problems.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Support BFHI. Update medical and nursing curricula. Change norms for health facilities.</li> <li>◆ Make into law and give adequate resources for enforcement of the code for marketing of breastmilk substitutes.</li> </ul>
<b>Appropriate complementary feeding practices and continued BF for 2 yrs</b>	<p><b>6-11 mths</b></p> <ul style="list-style-type: none"> <li>◆ Do not feed watery foods.</li> <li>◆ Feed, or add to other foods, nutrient-dense foods such as mashed nuts, fruit, veg and animal products</li> <li>◆ In addition to unrestricted BF, feed 2-3 meals per day at 6-8 mths and 3-4 meals per day at 9-11 mths.</li> </ul> <p><b>12-23 mths</b></p> <ul style="list-style-type: none"> <li>◆ Feed 4-5 meals daily (plus nutrient-dense snacks and breastmilk).</li> <li>◆ Practice good food hygiene, food storage/reheating, hand washing, protection from flies, and not bottles or pacifiers.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Encourage and counsel mothers about specific, relevant and feasible practices.</li> <li>◆ Give mothers advice and suggestions to increase access to recommended foods.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Make sufficient funding available for promotion of these practices.</li> <li>◆ Publicly support the goal of improving young child feeding and care.</li> <li>◆ Support policies and programs dealing with underlying and basic causes of malnutrition in children 6-24 mths.</li> </ul>
<b>Adequate vitamin A intake</b>	<ul style="list-style-type: none"> <li>◆ Give the child vitamin A supplements every 4-6 mths.</li> <li>◆ Feed child and eat some source of vitamin A at each meal (dark yellow/orange fruit, palm oil, animal products, and fortified foods).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Administer the supplements according to protocols, record each dose.</li> <li>◆ Promote the feeding of vitamin A rich foods including fortified foods.</li> <li>◆ Give mothers advice and suggestions to increase access to these foods, e.g. gardening, poultry raising and others.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Assure supplies of supplements.</li> <li>◆ Support training, promotion and other costs.</li> <li>◆ Support legislation requiring fortification and its enforcement.</li> </ul>
<b>Care of sick and malnourished children</b>	<ul style="list-style-type: none"> <li>◆ Continue BF and other feeding if child is sick.</li> <li>◆ Give extra fluids if child has diarrhea or fever.</li> <li>◆ Use active feeding in feeding a sick child with poor appetite. Give small, frequent feeds.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Promote to individuals and groups key feeding practices during illness.</li> <li>◆ Give extra vitamin A to sick children.</li> <li>◆ Carefully diagnose and administer care to severely malnourished children according to WHO guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Include IMCI and WHO guidelines for managing severely malnourished children in medical and nursing curricula.</li> <li>◆ Strengthen capacity in district services to detect and manage severely malnourished children.</li> </ul>

PRIORITY THEMES	PRACTICES FOR MOTHERS	PRACTICES FOR HEALTH WORKERS	PRACTICES FOR POLICY MAKERS
<b>Adequate iron intake</b>	<ul style="list-style-type: none"> <li>◆ Obtain iron tablets for women early in pregnancy.</li> <li>◆ Give iron supplements to infants and young children</li> <li>◆ Take iron supplements as directed (daily , between meals, with citrus drink, but not with coffee or tea).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Promote prenatal care and the importance of iron tablets for pregnant women.</li> <li>◆ Counsel mothers on iron tablets and drops for children.</li> <li>◆ Do not recommend infant formula as a source of iron, reinforce sustained BF.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Provide supplies, training and support systems (supervision, monitoring, information).</li> <li>◆ Develop partnerships with pharmaceutical distributors to provide a range of iron/folic acid and multiple micronutrient supplements.</li> </ul>
<b>Adequate iodine intake</b>	Purchase and use only iodized salt.	<ul style="list-style-type: none"> <li>◆ Monitor the availability and use of only iodized salt in the district; test samples.</li> <li>◆ Promote the purchase and consumption of iodized salt.</li> <li>◆ Advise on storing salt in covered containers.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Support legislation requiring fortification of all salt.</li> <li>◆ If non-iodized salt is locally available, fund promotion of iodized salt.</li> </ul>

**BOX 2**  
**DATA GATHERING METHODS FOR RESEARCHERS**

1. Knowledge, attitude, and practices (KAP) survey. Uses structured questionnaires to determine the prevalence of beliefs and practices. It is best used as a baseline at the end of qualitative research. A KAP survey will generate quantitative information that is representative of the area population from a large sample of randomly selected households.
2. Focus group discussions (FGD). Guided discussion among a small homogenous group of respondents (6-10 in number) on a variety of selected topics. To use FGDs, guidelines (i.e., a list of topics or concepts that will guide discussions) and an accompanying list of probing questions must be developed, and supporting materials selected (e.g., visuals to prompt discussion, notebooks, and tape recorders).
3. Key informant interviews. Community leaders, traditional birth attendants, shopkeepers, and others, thought to be influential and knowledgeable on a particular topic, are interviewed in-depth. Interviews are often used to provide individual variation not obtained from focus group discussions. They differ from structured interviews in that they are open-ended and exploratory. They require asking additional questions to deepen and clarify the information given.
4. Trials of improved practices (TIPS). Conducting a short trial of changes in feeding practices to see if caregivers find them feasible and beneficial. TIPS was developed to improve feeding practices for small children, although the methodology (i.e., consultative research) can be used to test recommendations and negotiate with caretakers on what practices they will accept and use. TIPS is very useful for planning a strategy to modify any repetitive nutrition-related practices in the home. For more information on this method, see *Designing by Dialogue* (a publication of the SARA project and the Manoff Group, Washington D.C., 1996).

Decisions about the first two components of the plan listed above should be based on information collected from target audiences and the other components should follow from these decisions.

***Channels of Communication***

A combination of communications media and channels should be used. The possibilities include mass media, such as newspapers, television, radio, and posters; village drama; and interpersonal communications, including information, motivation, and counseling provided by

community health workers and mothers' clubs. The costs and feasibility of all possible channels should be taken into consideration. Sometimes private sector groups can contribute free radio time, or funds for theater groups, or free advertising. Health managers should be careful about using materials or support offered by companies of infant feeding products, as they may undermine key messages on exclusive BF and duration of BF.

Table 20 contains examples of communications channels that have been used in integrated health and nutrition programs. Panels 8 and 9 provide examples of how communications activities and channels were combined in two programs.

**TABLE 20**  
**EXAMPLES OF COMMUNICATIONS STRATEGIES, TOOLS AND METHODS**

STRATEGY	COUNTRY PROGRAMS	DESCRIPTION	TOOLS AND METHODS
<b>Folk channels of communication</b>	Madagascar Benin Burkina Faso	<ul style="list-style-type: none"> <li>◆ Village committees are given health messages and suggested role play; Players develop skits around the messages and perform in the community.</li> <li>◆ Volunteers use traditional folk performances.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Health skits; pictorial counseling cards provide themes for skits.</li> <li>◆ Folk drama and songs.</li> </ul>
<b>Radio drama</b>	Bolivia Burkina Faso	<ul style="list-style-type: none"> <li>◆ Series of episodes in the life of a family or child used to illustrate the importance of emphasis behaviors.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Radio scripts prepared and tested with key audiences.</li> </ul>
<b>Village health or animation committees</b>	Ethiopia Madagascar Zambia	<ul style="list-style-type: none"> <li>◆ Well-functioning community groups or representatives from existing groups form links between health facilities and communities.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Village consensus on who will represent the village in health matters; use of existing groups increases group's status and strengthen and ensured credibility.</li> </ul>
<b>Child-to-child/school-to-community</b>	Madagascar Ethiopia	<ul style="list-style-type: none"> <li>◆ Curriculum developed for schoolchildren on target behaviors.</li> <li>◆ Small group education sessions are held using community volunteers, including schoolteachers.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Peer education; games, stories, experiential learning activities; activities to engage children in educating the rest of the community.</li> </ul>
<b>Community role models</b>	Madagascar	<ul style="list-style-type: none"> <li>◆ Community members who are practicing target behaviors are identified and invited to form a network of role models and community resources for other parents: Amis de Sante.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Peers educate peers in the community.</li> </ul>
<b>Events to highlight health and nutrition</b>	Tanzania Madagascar	<ul style="list-style-type: none"> <li>◆ Opening ceremonies of training workshops, planning meetings, festivals, competitions, and others are held to attract a large audience. Joint planning and participation builds partnerships with the health team and community groups.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Political leaders and other credible persons invited to lend support, give speeches and others.</li> </ul>

SOURCE: Adapted from BASICS community activities paper 1998.

### Messages

The main technical facts and messages aimed at motivating target audiences should come from the formative research findings about what will motivate key audiences to practice the

desired behaviors. The messages should be creatively developed to make them interesting and clear. For example, special heroes (from sports, movies or mythology) or funny characters can be chosen or a story of a family and its experiences can be used in different ways. Part of the creative strategy is to use unifying phrases, themes, and a consistent tone in all messages and materials. Messages should:

- ◆ clearly specify who should take action,
- ◆ define what action to take,
- ◆ contain motivations (e.g., benefits for the doer), and
- ◆ be easy to understand, interesting, and memorable.

### ***Implementing, Monitoring, and Evaluating Communications Activities***

This step involves 4 main activities: pretesting materials, teaching counseling skills to health workers, implementing other communications activities, and monitoring and evaluating them on an ongoing basis.

#### ***Pretesting Materials***

All materials should be pretested before artists and printers produce them, and before beginning village drama shows or radio broadcasts. The objective is to design messages that are understood, believable, and culturally acceptable by target audiences in the district. They should be practical and motivate listeners or viewers to change their habits. If materials from national programs are used, they should be examined and at least informally pretested to make sure that they will be understood and accepted by the local population in the district.

In-depth interviews and group discussions with a small sample are best for probing deeper attitudes toward the acceptability of messages and images (illustrations, drawings, photos). Mothers, family members (husbands, mothers-in-law), local authorities, and health workers should all be included in pretests. Counseling aids for health or nutrition workers must be tested carefully with both the workers and the mothers they counsel. If the program will use different sets of materials for different cultural and language groups, each set must be pretested with its audience.

Based on the pretest findings, messages and materials should be revised. If major revisions are required, the revised materials should be pretested again. The final messages should be reviewed by communications and technical staff.

#### ***Teaching Counseling Skills to Health Workers***

Individual counseling is a critical component of a communications strategy for nutrition. For example, for BF and complementary feeding, individual help with technique and building confidence are essential. Unfortunately, health workers often do not have the skills to counsel mothers appropriately. Counseling involves listening to and encouraging mothers rather than finding faults with what they are doing and instructing them. The WHO/UNICEF BF Counseling training course provides training and clinical practice in counseling mothers. These skills can be used for counseling on any child health or nutrition topic. Managers should spend adequate time preparing supervisors and health workers to counsel correctly, using these materials.

### *Implementing Other Communications Activities*

In addition to health staff, other sector partners and implementers should incorporate and implement the communications activities in their own work plans. For example, an NGO in the district may need to train its workers and provide them with IEC materials for counseling; shops in the area may need to obtain stocks of iron/folate tablets and put up posters about the importance of taking the tablets daily during pregnancy; and radio stations may need to schedule and then broadcast messages on infant feeding.

Health managers will need to provide IEC supplies and orient staff on how to use counseling cards or other IEC materials, putting up wall charts, giving interviews to local newspapers, and making sure supplies are in stock. Health managers can help co-ordinate the various activities through meetings, joint planning, and follow-up with the key implementers.

A collection of practical field-tested tools to help in implementation is available in *A Tool Box for Building Health Communication Capacity* (USAID/BASICS/HEALTHCOM 1996). A frequent problem in communications activities is not planning for adequate resupply of IEC materials. Managers should routinely budget for reproduction of essential IEC materials.

### *Monitoring and Evaluation*

No special surveys or research is necessary to monitor communications activities. But, managers should have a way to verify that the planned communications activities are being carried out (e.g., the number of radio broadcasts per week at the appropriate time to reach key audiences, number of newspapers or journals printed and distributed to the right audiences, number of school teachers trained and given materials).

As part of routine supervision by health staff, managers should include questions in supervision checklists, such as:

- ◆ Do community workers have difficulty in using the IEC materials appropriately?
- ◆ Is the counseling given by health workers supportive and encouraging for mothers and caregivers?
- ◆ Are all key messages being given?

In addition, exit interviews done at clinics to monitor the quality of health services should include questions, such as:

- ◆ Have you heard about the story of the baby who was not fed actively when he was sick?
- ◆ Have you heard about iodized salt? Where? What did you hear? When?
- ◆ Have you seen this picture, logo, or symbol? What does it mean?

Additional indications that communications activities are working include reports from pharmacists or shop-keepers about the sales of their products and reports from clinic staff about increased demand for supplements or increased visits for child feeding problems, if these were the focus of communications activities.

Finally, changes in behaviors are the best evidence that communications activities are succeeding. Managers should include questions on the priority behaviors selected for the focus of communications activities in household surveys conducted as baseline and for follow-up evaluations. Chapter 7 contains a section on monitoring and evaluation with examples. If the selected behaviors for communications activities are not improving,



managers will need to understand why and determine what actions to take to redirect the communications activities.

In summary, a district communications program should include these main components:

- ◆ information collection on key audiences and what motivates them;
- ◆ individual counseling of mothers and caregivers by community-based workers and health facility staff;
- ◆ adaptation and dissemination of materials from national communications programs;
- ◆ use of local media, such as drama groups, community radio, and local newspapers;
- ◆ collaboration with partner institutions, such as NGOs, agricultural extension programs, schools, and others;
- ◆ follow-up and supervision to ensure the quality of communications within the district health system; and
- ◆ monitoring activities to track coverage and quality of communications messages and media.

#### **PANEL 8**

#### **LINKING HEALTH WORKERS AND COMMUNITIES – MADAGASCAR**

The principal challenge was to support health worker training with a community-based communication and mobilization program. The health workers were trained in Integrated Management of Childhood Illness (IMCI).

#### **Key Features**

- ◆ The communications strategy emphasized improving child feeding practices as part of a broader health program that included immunization and care of sick children. The strategy design was strengthened through qualitative research on locally acceptable feeding behaviors. Seven series of counseling cards were developed to promote beneficial health actions that could easily be carried out by Malagasy families. Sixteen of the 26 cards related to infant and child feeding or nutrition of sick children (others included ARI, immunizations, and diarrhea).
- ◆ The same counseling cards were used by health workers, community leaders, women's groups, and other community groups throughout the project districts. Technical Notes were developed to provide additional information on communication techniques, such as how to launch village theater.
- ◆ Radio spots promoting key infant and child feeding behaviors were continually broadcast on local FM stations. The impact of the spots was strengthened through a rural radio component that featured interviews with parents and village theater.
- ◆ Families practicing beneficial health and nutrition behaviors were selected to be friends of health or Amis de Sante; they served as role models and counseled families with sick children.
- ◆ Low cost (U. S.\$0.06) Gazety which contained the same information as the counseling cards, were printed as inserts in rural journals or magazines, for distribution among community mobilizers. Including reprints, the total number of some editions was more than 100,000 copies.
- ◆ Annual health festivals celebrated successful activities, relaunched activities, and publicly recognized all players.

#### **Who is Involved?**

- ◆ All health workers in the project districts.
- ◆ Selected community leaders; and women's, religious, and other community groups carried out counseling and performed village dramas based on key messages.
- ◆ Amis de Sante, who are recognized as role models for caregivers in the community.

Note: Results from household surveys indicate that emphasis nutrition behaviors improved substantially in a short period of time in the program districts where the program was implemented.

SOURCE: BASICS/Madagascar 1999.

**PANEL 9**  
**LINKING HEALTH WORKERS AND COMMUNITIES – BURKINA FASO**

The challenge was to improve the 250 district health workers' responsiveness to their communities' nutrition and health needs and to find complementary channels to extend communication coverage. Activities included training health staff in counseling techniques, encouraging caregivers to make better use of health worker services, and using extension worker outreach networks and radio broadcasts.

**Main Communications Channels**

- ◆ Health workers were the main channel used to promote maternal and infant nutrition. Steps were taken to make the contacts at health centers supportive by using counseling cards and flip charts. Group talks were given to parents and mothers.
- ◆ Radio reinforced health worker credibility, motivated village-level communication agents, and extended geographic reach to audiences that infrequently visited health centers. A 20-episode radio drama and 12 one-minute mini-drama spots were based on the same story line as the flip charts and counseling cards.

**Secondary Channels**

- ◆ Outreach to men: Agricultural extension agents were given IEC materials and trained to teach improved food production techniques to villagers.
- ◆ Literacy programs: For more than a decade, well-financed literacy programs in Burkina Faso had trained thousands of adults to read; however, graduates had few materials with which to practice their skills. The project developed literacy books from nutrition IEC materials and incorporated them in the literacy programs.
- ◆ Primary school programs: A Teacher's Activity Guide was developed to encourage child- to-child activities and to promote greater collaboration between schools and the community.

**Key Supports**

**Training:** Due to the large number of health workers in the program, for three successive years, 4-6 months were devoted to conducting training-of-trainer and skill-building workshops. Another 3-4 months were spent making follow-up visits to support trainees at work. Each year the MOH moved a substantial number of trained health staff to new posts; as a result new staff had to be continually trained.

**IEC materials:** Examples: drama script for popular theater groups, nutrition counseling handout, color poster, cassettes with nutrition songs, five flip charts, family health card illustrated with key messages, four literacy booklets, and teacher's activity guide.

**Evaluation:** A baseline KAP survey and follow-up survey, after three years, with about 630 persons interviewed, and interviews with 47 front-line health workers were the main evaluation tools. Significant improvements in behaviors were documented.

**SOURCE:** Academy for Educational Development, USAID/NCP Project 1995.

## CHAPTER 7

### Supporting Nutrition Interventions

#### Key Points

Managers should provide adequate supplies and other supports for health staff and community workers to carry out the priority nutrition interventions. These should form a routine part of basic health systems, including:

- ◆ Technical Guidelines and Protocols. Need to be current, consistent, widely distributed, and understood by staff and community workers.
- ◆ Supplies. Included are micronutrient supplements, education and counseling tools, job aids, diagnostic aids, measuring and recording forms, and others. Timely procurement, accurate inventories, and a reliable way to resupply workers are key elements.
- ◆ Training, Supervision, and Incentives. Essential for maintaining high coverage and quality, because programs need well-prepared and motivated workers at clinics and in communities.
- ◆ IEC Materials. Range from wall-charts, posters, and counseling aids, to printed media, drama scripts, comic books for school children, audio and video cassettes, and others.
- ◆ Monitoring and Evaluation Tools. Managers can use recording forms for routine tracking of coverage, quality assessments, surveillance, and periodic surveys to monitor changes in key indicators. They need to keep the program focused on results, and solve operational problems early before they become serious.

Managers should make sure that both community-based and clinic workers in the district are able to carry out priority nutrition interventions.

Staff and community workers who come in contact with priority target groups for nutrition – i.e. pregnant and lactating women and children under 2 years of age - should be prepared to carry out the essential nutrition actions. To do this, they need the skills, motivation, supplies, and tools to implement nutrition interventions.

This chapter offers guidelines for providing this support. Managers should review the material provided here to determine what they need for their program. The supports discussed in this chapter include the following:

- ◆ technical guidelines and protocols;
- ◆ supplies;
- ◆ training, supervision, and incentives;
- ◆ information, education and counseling materials; and
- ◆ monitoring and evaluation tools.

It is useful to address the kinds of supports that will be needed early in the planning process. Chapter 3 described methods for conducting a program review of the existing situation in health facilities and communities, including questions to ask about the adequacy of supports. This allows managers to build on supports already in place and to strengthen them, as needed.

## Technical Guidelines and Protocols

Managers should make the technical guidelines readily accessible and encourage their use. The technical guidelines should encourage good practices by health care providers. Managers should review the current international protocols (in chapter 8 and up-to-date, as of early 1999), as well as national recommendations, to make sure that their program guidelines are current and consistent. If there are differences between national policies and protocols and the international recommendations, district health managers may decide to recommend to national authorities that national protocols and policies be made consistent with current international protocols. After the content of technical protocols is updated and complete, managers should distribute them widely. Managers can choose different ways to make technical guidelines and protocols known to all staff and workers throughout the district, including:

- ♦ Putting up wall-charts, posters, and plastic-laminated cards. The Ten Steps of BFHI should be visible at all places where assisted deliveries take place. Also, EPI staff should have wall-charts or laminated cards showing age-appropriate doses of vitamin A at each immunization contact. All workers who see sick or well children should have the feeding recommendations from IMCI's Counsel the Mother section of the chart book.
- ♦ Distributing job aids. Technical guidelines can be made available to supervisors and health workers through job aids like those shown in chapter 4 (tables 9, 10, 11 and 13, 14, and 15). Simple charts with illustrations should also be made available to community workers.
- ♦ Using supervisory checklists. These should be based on technical protocols and should be used to monitor and encourage compliance with current protocols at each supervision visit.
- ♦ Placing protocols in local newspapers and journals. This is an effective way to reach private practitioners and pharmacists. Another approach is to do direct mailings to health care providers.

Table 8 in chapter 4 contains information on priority nutrition interventions for 6 categories of contacts that can be used as wall-charts, supervisory tools, and monitoring tools by health center staff and managers at district level.

## Supplies

Managers need to ensure that supplies are consistently available for priority nutrition interventions. Technical protocols should guide both the type and the amount of supplies needed in health facilities, for outreach visits, and community-based activities. To order, maintain, and distribute adequate supplies to the different locations where services are given, managers need the following information:

- ♦ The size of the target population in the catchment areas of each distribution site (e.g., district hospital, health centers, health posts, community workers). In particular, it is necessary to know the number of pregnant women in the area (approximately equal to the number of births per year) and the number of children 0-24 months of age in the area (approximately twice the number of births per year).
- ♦ The percentage and number of target groups expected to be covered at each type of contact. For example, women in the catchment area who can be reached during

pregnancy, at clinics, or in communities with iron/folate supplements; measles immunization coverage for estimating vitamin A supplements; women who will be seen at delivery or within the first 6-8 weeks postpartum by clinic or community workers; the estimated number of sick child visits, and so on.

Tables 21, 22 and 23 are checklists of supplies needed for maternal health services and child health services. In determining the quantity needed, an additional 5-10% should be added for wastage and unexpected needs.

In addition to these items, managers should obtain registers, tally sheets, and IEC materials through national organizations or produce them locally. Each UNICEF country office maintains a catalogue with information about supplies, which is periodically updated. Some countries have other suppliers, or co-operatives of collaborating health agencies, who purchase their supplies in bulk together to get better prices.

**TABLE 21**  
**CHECKLIST OF NUTRITION SUPPLIES FOR MATERNAL HEALTH PROGRAMS**

SUPPLIES	QUANTITY PER YEAR FOR 100% COVERAGE
<b>Pharmaceuticals</b>	
__ Tablets for women containing 60 mg. elemental iron, and 400 µg. folic acid @ 180 tablets per pregnant woman (6 months of daily tablets per woman) plus extra for severely anemic.	Estimated number of births per year ' 180 tablets, plus 20% extra for severely anemic.
__ Medicine to reduce parasitic infections (e.g., anti-malarial, anthelmintics). According to national norms.	According to national norms.
__ Vitamin A capsules @ 1 dose of 200,000 IU per woman at delivery.	Estimated number of births per year ' 1 capsule of 200,000 IU (or 2 capsules of 100,000 IU each).
<b>IEC and Training Materials</b>	
__ Posters or wall-charts with Ten Steps (BFHI) for breastfeeding in all maternities, and Essential Nutrition Actions.	Number of maternities or rooms used by postpartum women and number of centers.
__ Breastfeeding counseling training materials (WHO/UNICEF), Helping Mothers to Breastfeed (1992), and job aids or reminders for staff - one for prenatal care, one for delivery/postpartum care, and one for postnatal care.	One per worker and supervisor.
__ Counseling materials, e.g., cards or flip-charts for key messages: one set on iron compliance, diet, and exclusive breastfeeding per prenatal care worker; one set with key breastfeeding messages for maternity attendants and nurses.	One set per worker.
<b>Salt Testing Kits</b>	
__ Salt Testing Kits (for testing iodized salt samples).	One test kit per worker.
<b>Recording and Monitoring Forms</b>	
__ Mothers' cards with space for recording actions: diet counseling and iron tablets given, anthelmintics given, vitamin A capsule given, breastfeeding support, and counseling given.	Estimated number of births per year in the district.
__ Supervisory checklist with nutrition interventions listed.	Number of supervisors x average number of supervision visits per year.
__ Daily tally sheets with space for recording actions taken: counseling, iron tablets given, anthelmintics given, and vitamin A capsule given.	One for each day of the year or about 400. Existing tally sheets can be modified or new sheets added.
__ Monthly reports and graphs showing coverage or percentage of target reached for each intervention, and surveillance of severe anemia in women.	One for each month of the year or 12. Existing forms can be modified or new sheets added.
__ Inventory control, procurement forms that include vitamin A capsules, iron/folate pills, anthelmintics, IEC materials, and mother's cards with space for nutrition interventions.	One for each health facility or post.

**TABLE 22**  
**CHECKLIST OF NUTRITION SUPPLIES FOR CHILD HEALTH PROGRAMS**

SUPPLIES	QUANTITY PER YEAR FOR 100% COVERAGE
<b>Pharmaceuticals</b>	
__ Vitamin A capsules containing 100,000 IU and or 200,000 IU @ 2 doses per child per year plus 20% extra for case management (extra doses are necessary for children with measles, prolonged diarrhea, malnutrition, and infections).	Estimated number of children 6-59 months ' 2 age-appropriate doses plus 20% for case management.
__ Iron drops for sick infants and young children plus 10% extra for treatment of low birth weight and severely anemic.	Estimated number of children 6-24 months ' 180 daily doses plus 10% extra.
__ Parasite medicine (anthelmintics).	According to national norms.
<b>IEC and Training Materials</b>	
__ IMCI's counsel the mother section in health workers' chart book, breastfeeding counseling training materials (WHO/UNICEF), Helping Mothers to Breastfeed (1992), and job aids for clinic-based, community-based, and immunization staff.	One job aid per worker.
__ Feeding assessment and counseling cards or flip-chart based on IMCI feeding recommendations; charts for special feeding problems.	One set per worker.
__ Posters or wall-charts with Essential Nutrition actions for all clinic areas where sick and well children are seen; age-appropriate doses linked to immunization protocols.	One per room where well children or sick children are seen.
<b>Salt Testing Kits</b>	
Salt Testing Kits (for testing iodized salt samples)	One test kit per worker.
<b>Measuring, Monitoring and Recording Needs</b>	
__ Weighing scales and growth charts. Scales = number of areas where sick children and well children are seen.	Growth charts = estimated number of births in the area.
__ Inventory control and procurement forms for vitamin A, iron drops, IEC materials, iodized salt testing kits, growth charts, and scales.	One per health clinic.
__ Daily tally sheets to record vitamin A capsules, iron drops, and counseling given. Surveillance of severe malnutrition, VAD, and anemia.	One sheet per day or 400 total. One set per health center or post.
__ Monthly report and charts to graph coverage of priority interventions.	One set per health center or post.
<b>Supplies for Malnutrition Treatment Units</b>	See table 23

In addition to providing supplies to health facilities, managers need to maintain stocks at the district level and resupply facilities to make sure that there are no stock-outs or shortages between procurements. In many African countries, the Bamako Initiative has increased the opportunity to recover the costs of supplies at government health facilities, dramatically improving access to supplies, such as prenatal iron tablets. Managers should make sure that all supplies for essential nutrition actions are included in cost-recovery schemes, such as the Bamako Initiative and other types of cost recovery or cost sharing arrangements.

There are only a few special storage requirements for nutrition supplies. Vitamin A bottles or containers should be opaque (protected from light) because vitamin A is destroyed by light. Iron/folate tablets should be kept dry because they can disintegrate and turn powdery if they are exposed to moisture. Vitamin A and iron/folate tablets for women should be kept in airtight containers and used up within 6 months after bottles or containers are opened.

Managers also need a system for providing adequate supplies to community-based workers, who like health workers, need to store their supplies in plastic, airtight containers, away from light (in the case of vitamin A capsules or liquid) and moisture (in the case of iron/folate tablets). Some managers use monthly supervision visits or gatherings of community workers

at health centers (e.g., for per diem payments) to re-supply community-based workers with micronutrients, IEC materials, recordkeeping tools, and others.

**TABLE 23**  
**SUPPLIES FOR MANAGEMENT OF SEVERELY MALNOURISHED CASES**

<ul style="list-style-type: none"><li>◆ Oral rehydration salts solution specially mixed for malnourished children (containing less sodium and more potassium than the standard WHO-recommended solution, and with added zinc, magnesium, and copper).</li><li>◆ Intravenous rehydration solution (used only in cases of circulatory collapse).</li><li>◆ Liquid feeds of 100 kcal/100 ml and 75 kcal/100 ml (mix of sugar, cereal flour, vegetable oil, dried skimmed milk, and vitamin and mineral mixes).</li><li>◆ Mineral and vitamin mixes to be added to liquid feed or vitamin/mineral supplements.</li><li>◆ Drugs for treatment of infections (amoxicillin, ampicillin, benzylpenicillin, chloramphenicol, cotrimoxazole, gentamicin, metronidazole, and nalidixic acid).</li><li>◆ Drugs for treatment of tuberculosis (isoniazid, rifampicin, pyrazinamide, and ethambutol).</li><li>◆ Drugs for treatment of helminths (albendazole, levamisole, mebendazole, piperazine, and pyrantel).</li><li>◆ Drugs for treatment of malaria (chloroquine, quinine, pyrimethamine plus sulfadoxine).</li><li>◆ Weighing scales.</li><li>◆ Length board and height measuring tape/rod.</li><li>◆ Growth charts and tables of weight-for-height.</li></ul> <p><b>Where laboratory tests are possible:</b></p> <ul style="list-style-type: none"><li>◆ Blood glucose tests.</li><li>◆ Examination of blood smear by microscopy supplies.</li><li>◆ Hemoglobin or packed cell volume supplies.</li><li>◆ Urine culture supplies.</li><li>◆ Supplies for examination of feces by microscopy.</li><li>◆ Chest x-ray supplies.</li><li>◆ Supplies for skin test for tuberculosis.</li></ul>
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SOURCE: WHO 1999.

An important source of supplies for households who practice the emphasis behaviors is the commercial market, including shops selling fortified foods, sellers of iron/folate tablets and other nutrient supplements, and supplies given by private practitioners. To monitor these supplies, managers need to have health staff visit pharmacies, drug vendors, and food shops.

The most important points in monitoring market supplies include:

- ◆ Do iron/folate tablets sold for pregnant women contain 60 mg of iron and are pharmacists recommending correct doses and schedules?
- ◆ Do food shops sell only iodized salt, and does a sample of salt being sold as iodized salt test positive using a salt-testing kit?
- ◆ Are any breastmilk substitutes, feeding bottles, or teats being promoted, distributed or sold in a way that violates the International Code for Marketing of Breastmilk Substitutes?

## **Training, Supervision, and Incentives**

Managers can choose from a range of activities to promote a high level of motivation, skills, and updated knowledge among health clinic and community-based staff. These activities include, for example, training and orientation seminars or workshops, supervision and on-site problem-solving visits, and incentives.

### ***Training***

Most health workers require training in counseling mothers and an orientation about the specific tasks required to integrate essential nutrition actions in their routine activities. In-service training and orientation should be provided after up-to-date technical protocols and policies have been identified and IEC materials, recording, monitoring tools, and others, have been updated and are available.

Managers should also support revised curriculum in medical and nursing schools to emphasize practical and updated information.

Supervisors of front-line workers should be included in the training or they should be the trainers, particularly supervisors who have served as front-line workers. This will make the follow-up given by supervisors more supportive of what front-line workers learn in training. Managers can choose from the following approaches:

- ◆ Combine training on priority nutrition interventions with ongoing training on other topics. Examples include adding vitamin A supplementation to training of mid-level managers of EPI programs; adding iron/folate supplementation and counseling on mothers' diet and exclusive BF to training on prenatal care; and adding a stronger nutrition counseling component to IMCI training.
- ◆ Conduct focused orientations on how to integrate priority nutrition interventions in ongoing MCH activities. The focus here is on one- to two-day modules designed for clinical practice of nutrition actions at each of the critical health contacts: prenatal care, delivery and postpartum care, postnatal visits, immunizations, well-child, and sick-child contacts. Tables 9, 10, 11 and 13, 14, and 15 list the actions to be practiced in these orientations.
- ◆ Give specialized training courses to selected staff. For some topics, a smaller number of staff in the district need to be trained to provide support to others. For example, each district should have a team of trained BF counselors using WHO/UNICEF's BF Counseling course (one week) and a team of trained experts in case management of severely malnourished children (based on the 1999 WHO guidelines). These courses are crucial for building the capacity for high-quality nutrition interventions in district health programs, and they complement the IMCI training course for front-line staff.

To maintain high motivation for front-line staff, and when resources are insufficient for formal training, managers should use other approaches. For example, distance learning involves sending self-teaching materials (e.g., manuals, audio cassettes, video cassettes) to health workers in outlying areas and following-up through correspondence or other communication for problem-solving and clarifications. Another approach is to send teams of front-line workers to work with colleagues in a neighboring health area facility that is performing well. This motivates and reinforces both teams.



## ***Supervision and Support at Work-Sites***

If front-line workers are to achieve and maintain improved performance, follow-up from supervisors is crucial. Managers need to make supervision more supportive of front-line workers. Managers should use supervisors who have had several years of experience as front-line workers. Reinforcing good practices in addition to resolving problems, spending more time on the most critical aspects of the workers' tasks, and showing a willingness to accept the workers' point of view are often overlooked by supervisors. Many programs find that using supervisors as trainers helps provide continued and consistent support to trainees.

Managers need to review existing supervision routines and checklists and add priority nutrition interventions to them.

## ***Incentives***

Managers who successfully implemented integrated health and nutrition programs have found that special incentives to maintain worker motivation are essential. Incentives can take many forms: monetary; in kind rewards; or public recognition by peers, community members, supervisors, and others. It is a good idea to ask workers what they value in their jobs when deciding what strategies will be used to keep motivation high. This assessment can be done as part of planning activities, during formation of community partnerships, or as part of formative research for communications.

Community-level workers and those who are not formally paid by district health managers will need to be encouraged to collaborate in nutrition efforts through recognition in the community, recognition by superiors, and payment in kind. In some areas, managers permit community workers to collect local fees-for-service. For example, private birth attendants can be given free supplies of iron/folate tablets and vitamin A capsules and permission to sell the supplies at a small fee, in return for keeping accurate records and providing counseling and follow-up to pregnant and postpartum women.

## **Counseling and Education Materials**

Managers need to provide IEC materials to health workers at clinics, community-based workers, and supervisors. These include materials used for training, supervision, counseling, job support, and others. Figure 15 gives one example of counseling cards used to counsel caregivers about infant feeding. The job aids in chapter 4, which list essential nutrition actions at each critical health contact, are also useful IEC materials (see tables 9, 10, 11 and 13, 14, and 15).

IEC materials, such as counseling cards and job aids, are only useful to health workers if they also receive training on how to use them and are provided effective follow-up. Managers need to make sure that health workers who counsel pregnant women and caregivers follow good counseling habits and deliver messages effectively and correctly.

Managers also need to make sure that IEC materials are technically correct and easy to use. Common problems with IEC materials include:

- ◆ materials are not adequately pretested and, therefore, not well adapted to the working environment or local context of the worker who will use them;
- ◆ users receive insufficient training;
- ◆ materials are not updated and revised as technical and program needs change;

- ♦ some IEC materials, e.g., on infant feeding, may be provided by commercial infant feeding products companies and may contain contradictory information to priority messages; and
- ♦ insufficient quantities are produced, and supplies are not replenished leaving health workers to make up their own messages.

Lack of consistency in the content of IEC materials from different organizations can also be a problem in areas with several different sources of materials. In Madagascar, the Ministry of Health (MOH) and partners addressed this issue by forming a task group to develop common messages and materials on priority nutrition interventions and all programs agreed to use the same supplier of counseling cards. See figure 15.

## Monitoring and Evaluation

As in other aspects of their health programs, managers periodically need to review program implementation and performance of nutrition actions, so that problems can be solved in a timely manner by re-allocating program resources and making other necessary changes. In addition, district managers may be part of national data collection, monitoring, and surveillance efforts. This section focuses on the use of monitoring and evaluation for district-level health programs. Additional information on national nutrition indicators and evaluation activities can be obtained from the nutrition departments of UNICEF and WHO headquarters.

### Managers Need Information on 4 Types of Indicators

INPUTS	(staff time, supplies used)
OUTPUTS	(activities completed)
OUTCOMES	(changes in health worker and household practices)
IMPACTS	(improved nutrition and health indicators)

No separate activities need to be conducted to monitor or evaluate nutrition interventions. Nutrition indicators should be built into ongoing monitoring and evaluation of MCH services at health facilities, in communities, and in the district. Routine, ongoing recordkeeping on the quality and coverage of nutrition interventions should be the majority of the monitoring and evaluation efforts of district health managers. But, periodic surveys of nutritional status and priority behaviors or caring practices are a valuable component. Managers should make sure that at least the priority nutrition interventions are included in the list of indicators and questions for overall health monitoring and evaluation. The information should be both easy to obtain and should give a clear idea about what actions front-line workers and supervisors must take to maintain high coverage and quality.

A key feature of successful monitoring and evaluation is using the recorded information to make changes. Successful programs continue to change for the better after they are designed.

Indicators only give clues to what is actually experienced, and they must be interpreted. They also need to be tracked, over time, and/or compared with standards to draw conclusions. District health managers may need specialized assistance from evaluation and nutrition experts to develop and use monitoring and evaluation systems in a useful way.

## Monitoring

Monitoring is the ongoing process of using information that is routinely recorded, usually when providing services, to determine how well activities are being carried out. To use routine recording for monitoring purposes, the registers, health cards, tally sheets, and others that are used in maternal health services and child health services need to be modified to also include the priority nutrition interventions. Table 24 shows the kind of nutrition information that can be included in health cards, tally sheets, and monthly registers. Figure 16 shows health cards with nutrition actions included.

Managers regularly need to review the information collected, and action needs to be taken when problems are found. Supervision visits for this purpose are an essential part of successful monitoring. Such reviews should take place often enough to prevent lapses in coverage, quality, and worker motivation. Many good monitoring activities have failed to be useful because supervisors and managers did not regularly review the recorded information, or failed to ask what difficulties led to inadequate completion of protocols, or did not give feedback to front-line workers, or solve the identified management, or supply problems.

**TABLE 24**  
**EXAMPLES OF ROUTINE RECORDING OF NUTRITION ACTIVITIES**

CONTACT OR SERVICE	NUTRITION ACTIONS RECORDED
Prenatal	<ul style="list-style-type: none"> <li>◆ Counseling on breastfeeding, diet, and iron.</li> <li>◆ Screening for severe anemia.</li> <li>◆ Number of iron tablets given.</li> </ul>
Delivery and postpartum	<ul style="list-style-type: none"> <li>◆ Skin-to-skin contact immediately after delivery.</li> <li>◆ Breastfeeding counseling.</li> <li>◆ Vitamin A given to mothers.</li> <li>◆ Screening for severe anemia.</li> </ul>
Postnatal	<ul style="list-style-type: none"> <li>◆ Attachment and breastfeeding position checked.</li> <li>◆ Counseling/review of difficulties and lactation management skills.</li> </ul>
Immunization	<ul style="list-style-type: none"> <li>◆ Vitamin A given to children.</li> </ul>
Sick child	<ul style="list-style-type: none"> <li>◆ Feeding assessed, counseling given.</li> <li>◆ Vitamin A given to children.</li> <li>◆ Iron supplements given to children.</li> <li>◆ Screening and referral for edema/wasting/ pallor.</li> <li>◆ Growth assessed.</li> </ul>
Well child	<ul style="list-style-type: none"> <li>◆ Feeding assessed, counseling given.</li> <li>◆ Vitamin A given to children.</li> <li>◆ Iron supplements given to children.</li> <li>◆ Growth assessed.</li> </ul>

Other records that should be kept for monitoring purposes include:

- ◆ Inventory/Stocks Reports. Managers should train their staff in charge of supplies and motivate them to maintain accurate records and sufficient supplies. During supervision visits, and at scheduled times for preparing orders from central stores, reasonably accurate estimates of supply needs should be calculated.

Current protocols, the size of the target population, and expected coverage should be the basis for calculating the amount of stocks and supplies needed for a given period. Available stocks should then be compared with what is required. Past records can be used to see if there have been shortages or stock-outs.

- ◆ Surveillance Records. Surveillance is recording events over a period of time to see if the situation is getting better, worse, or staying the same. At a minimum, health staff should maintain information on the number of cases of nutritional problems seen at health facilities on an ongoing basis. In addition, selected communities or sites in the catchment area (e.g., sentinel sites) can be selected for surveillance if the use of health facilities is not widespread enough and if important events might be missed if only facilities are used.

Managers can use surveillance information to target areas or intensify supervision and training when indicators show a worsening situation. Examples of some surveillance indicators include:

- ◆ number of cases of severe malnutrition (severe visible wasting, edema of both feet, very low weight-for-age);
- ◆ number of cases of palmar pallor in women and children (include number of women and children with very low hemoglobin, if appropriate hemoglobin testing is routinely done);
- ◆ number of deaths or eye changes linked with measles (indicator of vitamin A deficiency); and
- ◆ number of diarrhea deaths or dehydration in infants less than 6 months old (indicator of problems with exclusive BF).

## ***Evaluation***

Monitoring and evaluation activities provide different types of information for different purposes. Evaluation is necessary to measure outcomes and impacts; it is conducted less frequently. Monitoring measures the use of resources and outputs or activities implemented and is an ongoing process. Staff at different levels need information for different reasons using both monitoring and evaluation. For an overview of how various information collection activities provide useful information to guide decisions at different levels of staff, see table 25. Note that to assess whether the desired nutrition results are being achieved in their program, managers will need to carry out special evaluation activities from time to time. These should include household surveys, health facilities surveys, and community assessments.

### ***Household Surveys***

For household surveys, managers can conduct specific surveys for the health and nutrition indicators, or they may add health and nutrition indicators to other household surveys being

planned in the district. Table 26 shows the indicators for priority nutrition interventions and examples of how the questions in a household survey should be asked.

To obtain a true picture of nutrition indicators in the district, managers will need to follow some basic sampling procedures to select representative households, mothers, and/or children for the survey. Three sampling options have been used in health programs: random sample surveys of households, cluster sampling (e.g., used for EPI programs), and Lot Quality Assurance Sampling (LQAS) method that uses a random sample of sites to determine if the levels of results found in the survey meet a minimum requirement or standard. An experienced person who knows sampling procedures should guide this selection.

### *Health Facility Surveys*

A sample of health facilities are visited to interview staff and mothers, review records and take inventory, and observe the following:

- ◆ quality of care provided, e.g., whether essential nutrition actions are being taken during routine prenatal, delivery care, postpartum care, immunization contacts, sick-child visits and well-child visits; and whether the quality of counseling is adequate; and
- ◆ availability and adequacy of supports, such as supplies, IEC materials, and supervision and monitoring systems.

In chapter 3, table 5 provides more detailed examples of topics for health facilities surveys on the essential nutrition actions.

### *Community Assessments*

A sample of communities is selected for gathering information using qualitative methods. The information includes understanding how partnerships between health facilities and communities are working in delivering services to priority target groups, and also to understand if local capacity and awareness in child health and nutrition is progressing. The methods include focus groups; in-depth interviews with individual mothers, community-based workers, drug vendors/suppliers and leaders; and observations.

Using the information from the different sources described earlier is often the weakest part of monitoring and evaluation activities. Successful programs have well-defined schedules for periodically reviewing results and making decisions based on the results. In summary, the type of systems supports that managers should provide to implement the priority nutrition interventions are:

- ◆ technical guidelines and protocols;
- ◆ supplies;
- ◆ training, supervision, and incentives;
- ◆ information, education, and counseling materials; and
- ◆ monitoring and evaluation tools.

**TABLE 25**  
**OVERVIEW OF MONITORING AND EVALUATION ACTIVITIES AND INDICATORS**

WHO	WHY	WHAT INDICATORS	SOURCE OF DATA	HOW OFTEN INFO IS RECEIVED
Health facility manager	<ul style="list-style-type: none"> <li>◆ Improve quality of services through supplies, training, and supervision after finding gaps between what mothers and children are receiving (services/supplies) and the recommended protocols and guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Compliance with Ten Steps of BFHI where births take place.</li> <li>◆ Percentage of prenatal women given iron/folic acid tablets.</li> <li>◆ Percentage of women given vitamin A after delivery.</li> <li>◆ Percentage of children 0-23 months seen for any reason, who had their feeding practices assessed and whose caregivers were counseled according to IMCI guidelines.</li> <li>◆ Percentage of children 0-23 months seen for any reason whose weight was measured and recorded accurately.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Clinic or community workers' register and/ or tally sheets.</li> <li>◆ Health facility survey/assessment (HFA).</li> <li>◆ Supervision reports.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Monthly or quarterly review of reports and register/tally sheets.</li> <li>◆ Health facilities survey every 2-3 years.</li> </ul>
	<ul style="list-style-type: none"> <li>◆ Strengthen community-based services and quality of partnerships.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Percentage of communities with trained and supervised child feeding counselors/women's support groups.</li> <li>◆ Percentage of communities with local supply of iron/folic acid tablets.</li> <li>◆ Percentage of communities who regularly monitor key nutrition indicators, such as exclusive breastfeeding and complementary feeding rates, vitamin A supplementation, children's growth, and iodized salt in households.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Community assessment.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Annually</li> </ul>
	<ul style="list-style-type: none"> <li>◆ Remedy supply problems.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Number of iron/folic acid tablets (or vitamin A capsules) in stock at clinics compared with estimated needs until next delivery of supplies.</li> <li>◆ Appropriate IEC materials available on day of visit.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Inventory records and inspection.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Monthly or quarterly.</li> </ul>
District Managers	<ul style="list-style-type: none"> <li>◆ Detect and find solutions for problems in coverage; target additional resources for areas of low coverage.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Indicators of underweight/stunting/wasting, edema of both feet, women's nutrition, breastfeeding, and complementary feeding rates, VAD, anemia, and iodine deficiency.</li> <li>◆ Indicators of coverage (percentage of households who received the appropriate nutrition services at each health contact or through special actions, such as campaigns).</li> <li>◆ Indicators of services quality (compliance with protocols and quality of counseling).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Household survey.</li> <li>◆ Clinic records.</li> <li>◆ Health facilities survey.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Household surveys every 3-5 years.</li> <li>◆ Health facilities surveys every 2-3 years.</li> <li>◆ Quarterly review of clinic records.</li> </ul>

WHO	WHY	WHAT INDICATORS	SOURCE OF DATA	HOW OFTEN INFO IS RECEIVED
Regional and national managers	<ul style="list-style-type: none"> <li>◆ Identify need for additional or different interventions to continue reducing prevalence of malnutrition.</li> <li>◆ Identify and give special assistance to areas/communities needing special assistance.</li> <li>◆ Detect regional trends in indicators of nutrition problems.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Number of cases of severe malnutrition (severe visible wasting, edema of both feet, and very low weight-for-age).</li> <li>◆ Number of cases of palmar pallor in children and women (very low hemoglobin if hemoglobin testing is routinely done).</li> <li>◆ Number of cases of eye signs of vitamin A deficiency.</li> <li>◆ Number of cases of goiter (or low urinary iodine, if this is routinely done).</li> <li>◆ Body weight and height indicators of maternal and child malnutrition.</li> <li>◆ Indicators of exclusive breastfeeding and complementary feeding rates.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Register of cases of malnutrition and deaths.</li> <li>◆ Reports from sentinel sites.</li> <li>◆ Household surveys.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Quarterly and annual reports based on routine surveillance registers.</li> <li>◆ Household surveys every 3-5 years.</li> </ul>
	<ul style="list-style-type: none"> <li>◆ Compare new or modified interventions, delivery channels, etc., to reduce costs and improve effectiveness (by comparing districts, agencies, clinics, NGOs etc.)</li> </ul>	<ul style="list-style-type: none"> <li>◆ Cost per mother for the full package of essential nutrition services.</li> <li>◆ Cost per child 0-23 months for (or whose caretaker received) essential nutrition services.</li> <li>◆ Cost per child prevented from malnutrition.</li> <li>◆ Cost per child with adequate vitamin A.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Special study of costs and cost-effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Every 1-3 years.</li> </ul>

**TABLE 26**  
**EXAMPLES OF HOUSEHOLD SURVEY QUESTIONS FOR PRIORITY NUTRITION INTERVENTIONS**

EXCLUSIVE BREASTFEEDING	INDICATOR	QUESTION
Exclusive breastfeeding	<ul style="list-style-type: none"> <li>◆ Percentage of infants 0-4 months (120 days) of age who are exclusively breastfed.</li> </ul>	<ul style="list-style-type: none"> <li>◆ What did the child eat yesterday? (The interviewer should note if anything other than breastmilk was given except vitamin drops and medicines).</li> </ul>
Complementary feeding and continued BF to 2 yrs	<ul style="list-style-type: none"> <li>◆ Percentage of infants 6-9 months of age given breastmilk and semi-solid complementary foods.</li> <li>◆ Percentage of children 6-23 months of age given breastmilk, vitamin A foods, vitamin C foods, animal products, and energy-dense foods.</li> <li>◆ Percentage of children 6-23 months who are actively encouraged to eat (special foods prepared, caretaker sits with child, and others).</li> <li>◆ Percentage of infants 12-18 months of age given semi-solid or solid complementary foods at least 4 times per day, in addition to breastmilk.</li> <li>◆ Percentage of children 20-23 months of age who are breastfeeding.</li> </ul>	<ul style="list-style-type: none"> <li>◆ What did the child eat yesterday? Was this food liquid, semi-solid, or solid? (Record the number of times the child was fed).</li> <li>◆ What ingredients were in the child's food? (Use a checklist of locally available foods rich in vitamins A and C, local sources of animal products, and energy-dense foods.)</li> <li>◆ Did you actively encourage the child to eat yesterday? If yes, what did you do? (Correct answers: Gave foods liked by the child, sat with the child, and others.)</li> </ul>
Care of sick children	<ul style="list-style-type: none"> <li>◆ Percentage of children 0-23 months of age who were sick in the past 2 weeks, and increased breastfeeding.</li> <li>◆ Percentage of children 6-23 months of age, who were sick in the past 2 weeks, and did not reduce feeding other foods.</li> <li>◆ Percentage of children 6-23 months of age who were sick in the past 2 weeks who were actively encouraged to eat during/after illness (special foods prepared, caretaker sits with child, and others).</li> </ul>	<ul style="list-style-type: none"> <li>◆ Was the child ill in the past 2 weeks?</li> </ul> <p>If yes, did the child breastfeed more, less, or the same ?</p> <p>If yes, did the child eat more, less, or the same amount of other foods?</p> <p>If yes, did you actively encourage the child to eat during or after the illness? (Correct answers: Gave special foods liked by the child, sat with the child, and others.)</p>
Vitamin A	<ul style="list-style-type: none"> <li>◆ Percentage of children 12-59 months who received a vitamin A capsule in the past six months.</li> <li>◆ Percentage of mothers who received a postpartum dose of vitamin A.</li> </ul>	<ul style="list-style-type: none"> <li>◆ In the past six months, did the child (12-59 months of age) receive a vitamin A capsule?</li> <li>◆ When the last child was born, did the mother take a vitamin A capsule? Note: Respondent should be able to point out vitamin A capsules from a sample of various tablets/capsules.</li> </ul>
Iron	<ul style="list-style-type: none"> <li>◆ Percentage of mothers of infants under 6 months who consumed at least 90 iron/folic acid tablets in their last pregnancy.</li> <li>◆ Percentage of women of reproductive age and children with hemoglobin below WHO cut-off levels (11 g/dl for pregnant women and 12 g/dl for others).</li> </ul>	<ul style="list-style-type: none"> <li>◆ For all women with a birth within the past six months:</li> <li>◆ In your last pregnancy did you take iron/folic acid tablets? Note: Respondent should be able to identify iron/folic acid from a sample of various tablets. If yes, how many did you consume?</li> <li>◆ Use Hemocue method for estimating hemoglobin from a finger prick of all women of reproductive age and children under five years.</li> </ul>
Iodized salt	<ul style="list-style-type: none"> <li>◆ Percentage of households using iodized salt.</li> </ul>	<ul style="list-style-type: none"> <li>◆ What salt did you use yesterday for preparing your meals? Check to see if the logo or brand name is known to have iodine in the salt.</li> <li>◆ Test the sample of salt for the presence of iodine (using UNICEF salt testing kits).</li> <li>◆ If possible, take urine samples to estimate urinary iodine levels.</li> </ul>



## CHAPTER 8

### Nutrition Protocols

#### Key Points

- ♦ Managers should identify the protocols that apply to their program and study them in detail.
- ♦ Protocols state how much of what needs to be given or done in different situations for different age groups. They are based on the latest scientific knowledge about what works and what is practical in field programs.
- ♦ District managers should make sure that the technical guidelines they use are consistent with national policies and guidelines or, if there are differences, that the differences are clearly justified.
- ♦ Some protocols will change with new research results. Managers should update protocols from time to time in accordance with information available from UNICEF and WHO country offices.
- ♦ Protocols for priority nutrition interventions are presented in three categories:
  - those best administered as part of women's health services;
  - those that can be provided in both women's and child health services; and
  - those best pursued through child health services.

This chapter provides protocols and international recommendations related to priority nutrition interventions. District managers will find many of them are relevant for their programs. Managers should review them and select those that are useful for their programs to study in greater detail.

Protocols state how much of what needs to be given or done, in different situations, for different age groups, based on the latest scientific knowledge about what works and what is practical in field programs. Many nutrition activities have suffered because they lacked clear information on correct protocols. Use of incorrect protocols not only makes the program less effective but, in some cases, can harm the health of women and children.

Managers should be familiar with current protocols in order to:

- ♦ set quality standards against which to monitor and evaluate programs,
- ♦ provide a basis for procuring supplies,
- ♦ guide the training of health workers and community workers, and
- ♦ help supervisors observe and correct practices.

Health managers need to know which protocols should be used by health facilities staff and which are appropriate for community work. International authorities have jointly prepared the guidelines for nutrition interventions presented in this chapter. They represent broad agreement on technical and programmatic issues among experts from different geographic regions of the world. However, they are presented here as recommendations and should be adapted to fit local needs. In selecting guidelines, district managers should make sure they are consistent with national policies or, if there are deviations, that the differences are clearly

justified. Managers should review each relevant protocol, compare it with currently used district and national guidelines, and decide which to modify and which to adopt without modification.

In some countries, national authorities may not have had the opportunity to participate in the development of international protocols and guidelines, and national guidelines may not reflect new information and scientific knowledge. District managers should alert national authorities to differences between national guidelines and the international recommendations given here. They can become advocates for updating national norms and policies.

Some protocols and recommendations will change with new research results. Managers should update them from time to time in accordance with information available from UNICEF and WHO country offices. To make this task easier, each protocol or recommendation given here is identified by its date and source. They are all current as of early 1999.

In the following pages, protocols and recommendations related to priority nutrition interventions are organized into three parts:

1. Maternal Health, which includes control of anemia, diet during pregnancy and lactation, and vitamin A supplements.
2. Maternal and Child Health, which includes BF-related protocols.
3. Child Health, which discusses assessing and counseling on infant feeding, vitamin A supplements for prevention and treatment, prevention and treatment of anemia, and growth monitoring and promotion.

## **NUTRITION PROTOCOLS**

### **For Use in Maternal Health Services**

1. Iron/Folic Acid Supplements for Pregnant Women to Prevent Anemia, INACG/WHO/UNICEF, 1998
2. Presumptive Treatment for Parasites in Pregnant Women to Prevent Anemia, INACG/WHO/UNICEF, 1998
3. Treatment of Severe Anemia in Women, INACG/WHO/UNICEF, 1998
4. Diet During Pregnancy and Lactation, Adapted from F. Savage King and Burgess, 1996
5. Measuring Undernutrition in Women, Adapted from S. Gillespie, UNICEF, 1997
6. Vitamin A Supplements for Women of Reproductive Age, WHO/UNICEF/IVACG, 1997
7. Lactational Amenorrhea Method (LAM) for Family Planning JHU/WHO/USAID, Essentials of Contraceptive Technology, 1997

### **For Use in Both Maternal Health and Child Health Services**

8. The Ten Steps of BFHI: Recommended Practices for Maternity Services WHO/UNICEF, 1989
9. International Code of Marketing of Breast-milk Substitutes, WHO, 1981
10. HIV and Infant Feeding, WHO/UNICEF/UNAIDS, 1998

### **For Use in Child Health Services**

11. Assessing the Child's Nutritional Status, IMCI, WHO/UNICEF, 1996
12. Assessing the Child's Feeding and Counseling on Feeding, IMCI, WHO/UNICEF, 1996
13. Growth Monitoring and Promotion, Griffiths, Dickin and Favin, 1996
14. Iron Supplements for Children to Prevent Anemia, INACG/WHO/UNICEF, 1998
15. Treatment for Parasites to Prevent Anemia, INACG/WHO/UNICEF, 1998
16. Treatment of Severe Anemia in Children, INACG/WHO/UNICEF, 1998
17. Vitamin A Supplements for Children to Prevent Vitamin A Deficiency, WHO/UNICEF/IVACG, 1997
18. Vitamin A Supplements for Sick Children, WHO/UNICEF/IVACG, 1997
19. Vitamin A Supplements for Uncomplicated Measles Cases (No Eye Signs), WHO/UNICEF/IVACG, 1997
20. Treatment of Xerophthalmia or Measles with Eye Signs, WHO/UNICEF/IVACG, 1997

## 1. Iron/Folic Acid Supplements for Pregnant Women to Prevent Anemia

For All Pregnant Women

PREVALENCE OF ANEMIA IN PREGNANT WOMEN IN THE AREA	DOSE	DURATION
<40%	60 mg iron + 400 µg folic acid daily*	6 months in pregnancy (or if started late, extend to postnatal period for a total duration of 6 months)**
>40%	60 mg iron + 400 µg folic acid daily*	6 months in pregnancy, plus continuing to three months post-partum (or a total duration of nine months)

Notes:

\*.Where iron supplements containing 400 µg of folic acid are not available, an iron supplement with a lower level of folic acid may be used.

\*\*..If six months duration cannot be achieved, increase the dose to 120 mg iron in pregnancy.

SOURCE: INACG/WHO/UNICEF 1998.

## **2. Presumptive Treatment for Parasites in Pregnant Women to Prevent Anemia**

For All Pregnant Women

If hookworms are endemic (20% to 30% prevalence or greater), give anthelmintic treatment once in the second trimester of pregnancy. If hookworms are highly endemic (>50% prevalence), repeat anthelmintic treatment in the third trimester of pregnancy.

The following anthelmintic treatments are effective and safe after the first trimester of pregnancy:

Albendazole: 400 mg single dose

Mebendazole: 500 mg single dose or 100 mg twice daily for three days

Levamisole: 2.5 mg/kg single dose; best if second dose is repeated on next two consecutive days

Pyrantel: 10 mg/kg single dose; best if dose is repeated on next two consecutive days

If *P. falciparum* malaria is endemic and transmission of infection is high, give women in their first or second pregnancies curative anti-malarials at the first prenatal visit, followed by antimalarial prophylaxis according to local recommendations.

SOURCE: INACG/WHO/UNICEF 1998.

### **3. Treatment of Severe Anemia in Women**

#### Definitions of Severe Anemia

1st choice: Hemoglobin <7.0 g/dL, or hematocrit <20%

2nd choice: Blood spot on filter paper, formerly the Talqvist method (kits available from WHO)

3rd choice: Extreme pallor of conjunctiva, palm, or nail beds, or breathlessness at rest (see photo in Protocol 16)

#### Deciding Whether to Treat or Refer Cases of Severe

Criteria for REFERRAL to a specialized clinic, doctor, or hospital:

Pregnant woman beyond 36 weeks gestation (i.e., in the last month of pregnancy).

Any woman with signs of respiratory distress or cardiac abnormalities (e.g. labored breathing at rest or edema).

#### Cases that are not REFERRED should be treated as follows:

Adolescents and adults, including pregnant women - 120 mg iron + 800 µg folic acid daily - 3 months

Note: After completing three months of therapeutic supplementation, pregnant women and infants should continue preventive supplementation regimen, as indicated (see protocols 1 and 14).

#### Follow-up of Treated Cases of Severe Anemia

Individuals diagnosed with severe anemia and treated with oral iron and folic therapy should be asked to return for evaluation one week and four weeks after iron supplementation is begun. The purpose of these follow-up visits is to refer individuals in need of further medical attention.

At that time, individuals should be referred to a hospital if:

their condition has worsened at the one-week follow-up visit

OR

if their condition shows no improvement at the four-week follow-up visit.

SOURCE: INACG/WHO/UNICEF 1998.

#### 4. Diet During Pregnancy and Lactation

Make sure that the woman is eating enough quantities of foods per day to meet her daily energy needs. Then, make sure the types of foods used to prepare her meals and snacks give her enough critical nutrients to meet her daily needs.

	Women	Pregnant Women	Lactating Women
<b>Energy, kcals/day</b>	<b>2,140</b>	<b>2,240</b>	<b>2,640</b>
Examples of amount of cooked foods needed per day to give enough energy and nutrients (raw amounts in parentheses)			
Cereal flour, rice	8 cups (460 grams)	8 1/2 cups (500 grams)	11 cups (600 grams)
Beans, legumes, dal, lentils	3 cups (150 grams)	3 cups (150 grams)	3 1/2 cups (200 grams)
Leafy vegetables	6 spoons (100 grams)	6 1/2 spoons (110 grams)	9 spoons (160 grams)
Yellow/orange or citrus fruit, or vegetables	1/2 cup (100 grams)	1/2 cup (100 grams)	1/2 cup (100 grams)

Notes:

1. Women and adolescent girls who are not pregnant or lactating, but who carry out physically hard activities, should eat extra energy-containing foods, such as meat, fish, oils/fats, fried and sweet foods, avocado, coconut and other oilseeds and nuts, cereal and beans/legumes, cheese, and animal milk.
2. On this diet, women of reproductive age and pregnant women need extra iron from supplements to meet their needs.
3. Use of animal foods, such as meat, fish, and eggs, will reduce the amount of cereal and beans/legumes needed, and provide other essential micronutrients, such as zinc and calcium.
4. 1 cup=200 ml., 1 spoon=10 ml.

Counsel women about their diet. Use encouraging expressions and gestures that show interest in the woman; ask open-ended questions that start with What? Why? How? When? And Where?, not questions that require Yes or No answers. Repeat what the mother says to show that you have heard her and to encourage her to say more. Avoid saying she did something wrong, bad, incorrect, or inadequate. Build her confidence by recognizing good practices; encourage and convince her to try at least one or two new practices.

In addition to counseling women about their diet during pregnancy and lactation, health workers should do the following:

- ◆ Convince important family members such as husbands and mothers-in-law to encourage women to eat enough, particularly during pregnancy and lactation. Women who are pregnant or who have delivered a child within the past two months should not do hard physical work such as many food production/agriculture activities (sowing, transplanting, harvesting, pounding cassava, and others), hauling firewood or water, walking long distances with market wares, or other similar activities.
- ◆ Convince community leaders that making sure that women eat enough food to meet their daily needs and control their physical workload is beneficial in the long run for the productive work women do in the community, as well as for bearing and nurturing healthy children.
- ◆ Help women get education, training and skills to earn respect, gain employment and take care of their own needs.

SOURCE: Adapted from F. Savage Kind and Burgess 1996.

## **5. Measuring Undernutrition in Women**

In some settings, managers may need to monitor indicators that reflect the nutritional status of women. In particular, they should measure undernutrition in women where it is widespread and in areas where the prevalence of undernutrition in women is not known.

Undernutrition in women has severe consequences, including low productivity in women, poor child caring practices, poor physical growth in their children, inadequate mental development in children, higher risk of mortality in infants, greater risk of obstetrical complications and more serious and prolonged illnesses in both women and their children.

Measurements of less than the following cut-offs are serious:

- ◆ Stunting: Height less than 145 centimeters.
- ◆ Thinness: Ratio of weight in kilograms to height in meters squared (or weight/height) is called Body Mass Index or BMI; a BMI of less than 18.5 is considered inadequate nutritional status.
- ◆ Underweight: Weight less than 45 kilograms.
- ◆ Mid Upper-Arm Circumference (MUAC): Less than 21 centimeters in Asia or less than 23.5 centimeters in Latin America and Africa.
- ◆ Pregnancy Weight Gain: Less than 1.5 kilograms per month in the second and early third trimesters, or less than 10.5 kg gained during the full course of pregnancy.

In addition to generalized undernutrition, women of reproductive age may also have a deficiency of specific micronutrients, which are discussed in greater detail in protocols 1, 3 and 6.

To remedy undernutrition, managers should provide the following services: food supplementation and counseling on improved diet, particularly during pregnancy and lactation, and micronutrient supplementation and fortification. See protocol 4 for guidelines on diet during pregnancy and lactation, and protocols 1, 3 and 6 on micronutrient supplementation. In addition, in areas where iodine deficiency is a risk, all family members should use only iodized salt in their meals.

Apart from food and nutrient intakes, improving the care and social status of women; better family planning practices; and improving their access to economic resources, health services, and education can help reduce undernutrition in women.

SOURCE: Adapted from S. Gillespie, UNICEF 1997.



## **6. Vitamin A Supplements for Women of Reproductive Age**

### Prevention Protocol

Immediately after delivery, give all mothers one oral dose of 200,000 IU vitamin A;

#### *How?*

Cut open one capsule of 200,000 IU or two capsules of 100,000 IU or four capsules of 50,000 IU. Squeeze the contents of the capsule into the mother's mouth, making sure all the liquid is squeezed out. You may also give the capsules to the mother and ask her to swallow them in your presence.

#### *Caution:*

Vitamin A must be given to a mother only within the first eight weeks after delivery if she is breastfeeding and only within six weeks after delivery if she is not breastfeeding. Do NOT give any woman vitamin A after eight weeks have elapsed from the date of delivery.

### Treatment Protocol for Night Blindness or Bitot's Spots

Women of reproductive age (pregnant or not) with night blindness or Bitot's spots, give a daily oral dose of 5,000 to 10,000 IU of vitamin A for at least four weeks.

#### *Caution:*

The daily dose should never exceed 10,000 IU, although a weekly dose not exceeding 25,000 IU may be substituted.

### Treatment Protocol for Corneal Xerophthalmia

When severe signs of active xerophthalmia (i.e., acute corneal lesions) occur in a woman of reproductive age, whether pregnant or not:

- ◆ Give her three doses of oral vitamin A of 200,000 IU each, one on the day of diagnosis, one the next day, and one after two weeks have passed.
- ◆ Give her the capsules and teach her how to take them if there is no assurance that you will see her for the next doses.

To treat or prevent a secondary bacterial infection, which would compound corneal damage, topical application of an antibiotic eye ointment, e.g., tetracycline or chloramphenicol, is recommended. Ophthalmic ointments containing steroids should never be used in these circumstances. To prevent trauma to a cornea weakened by ulceration, the eye should be protected by a shield; in the case of young children, it may be necessary to restrain arm movements.

SOURCE: WHO/UNICEF/IVACG 1997.

## 7. Lactational Amenorrhea Method (LAM) for Family Planning

The Lactational Amenorrhea Method (LAM) is the use of breastfeeding as a family planning method in the first six months after delivery. Lactational means relating to breastfeeding. Amenorrhea means not having menstrual bleeding. LAM provides natural protection against pregnancy and encourages starting another family planning method at the proper time.

### Conditions Required for Using LAM

A woman can start LAM at any time if she meets the conditions required for using the method. To determine this, ask the mother, or advise her to ask herself, these three questions:

1. Have your menstrual periods returned?	If YES	The mother's chance of pregnancy is increased. For continued protection, advise her to begin using a complementary family planning method and to continue breastfeeding for the child's health.
2. Are you supplementing regularly or allowing long periods without feeding, either day or night?	If YES	
3. Is your baby more than 6 months old?	If YES	
<b>If the answer to ALL of these questions is NO</b> ↓		↑ <b>When the answer to any ONE of these questions is YES</b>
<b>She can use LAM.</b> There is only a 1% to 2% chance of pregnancy at this time. However, she may choose to use a complementary family planning method at any time.		

### **Explaining How to Use the Method**

A woman who uses LAM should be encouraged to:

Breastfeed often. An ideal pattern is at least 10 to 12 times a day, including at least once at night. No daytime feedings regularly more than four hours apart, and no night feedings regularly more than six hours apart.

**IMPORTANT:** Some babies may not want to breastfeed 10 to 12 times a day and may want to sleep through the night. These babies may need more encouragement to breastfeed enough.

Breastfeed properly. Counsel her on breastfeeding techniques (positioning and attachment) and diet.

Start other foods when the baby is 6 months old. Breastfeed before giving other food, if possible. If the baby's hunger is satisfied first by breastmilk, this will help ensure good nutrition and will encourage breastmilk production.

- ◆ **IMPORTANT:** The baby may breastfeed less after starting to eat other foods. Therefore, LAM may no longer be as effective. An additional family planning method is recommended.
- ◆ Start another family planning method when any of the following occur:  
her menstrual periods return (bleeding in the first 56 days, or eight weeks, after childbirth is not considered menstrual bleeding),  
OR  
she stops fully or nearly fully breastfeeding,

OR  
her baby is 6 months old (about the time the baby starts sitting up),  
OR  
she no longer wants to rely on LAM for family planning.

SOURCE: Adapted from JHU/WHO/USAID, Essentials of Contraceptive Technology 1997.

## **8. The Ten Steps of BFHI: Recommended Practices for Maternity Services**

Every facility providing maternity services and care for newborn infants should do the following:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breastmilk, unless medically indicated.
7. Practice rooming in - allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.
11. Ensure that free and low-cost supplies of breastmilk substitutes, feeding bottles and teats are not accepted by the maternity services.

SOURCE: Adapted from WHO/UNICEF 1989.

## **9. International Code of Marketing of Breast-milk Substitutes**

WHO and UNICEF prepared an International Code of Marketing of Breast-milk Substitutes to encourage appropriate marketing practices by companies that produce and market feeding products. The Code was approved as a recommendation for governments to implement in their own national settings.

### **PREAMBLE**

The Member States of the World Health Organization:

**AFFIRMING** the right of every child and every lactating woman to be adequately nourished as a means of attaining and maintaining health;

**RECOGNIZING** that infant malnutrition is part of the wider problems of lack of education, poverty and social injustice;

**RECOGNIZING** that the health of infants and young children cannot be isolated from the health and nutrition of women, their socioeconomic status and their roles as mothers;

**CONSCIOUS** that breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants; that it forms a unique, biological and emotional basis for the health of both mother and child; that the anti-infective properties of breast milk help to protect infants against disease; and that there is an important relationship between breastfeeding and child-spacing;

**RECOGNIZING** that the encouragement and protection of breastfeeding is an important part of the health, nutrition and other social measures required to promote healthy growth and development of infants and young children; and that breastfeeding is an important aspect of primary health care;

**CONSIDERING** that when mothers do not breastfeed, or only do so partially, there is a legitimate market for infant formula and for suitable ingredients from which to prepare it; that all these products should accordingly be made accessible to those who need them through commercial or non-commercial distribution systems; and that they should not be marketed or distributed in ways that interfere with the protection and promotion of breastfeeding;

**RECOGNIZING** further that inappropriate infant feeding practices lead to infant malnutrition, morbidity and mortality in all countries, and that improper practices in the marketing of breast-milk substitutes and related products can contribute to these major public health problems;

**CONVINCED** that it is important, for infants to receive appropriate complementary foods, usually when the infant reaches four to six months of age, and that every effort should be made to use locally, available foods; and convinced, nevertheless, that such complementary foods should not be used as breast- milk substitutes;

**APPRECIATING** that there are a number of social and economic factors, affecting breastfeeding, and that, accordingly, governments should develop social support systems, to protect, facilitate and encourage it, and that they should create an environment that fosters breastfeeding, provides appropriate family and community support, and protects mothers, from factors that inhibit breastfeeding;

AFFIRMING that health care systems, and the health professionals and other health workers serving in them, have an essential role, to play in guiding infant feeding practices, encouraging and facilitating breastfeeding, and providing objective and consistent advice, to mothers and families about the superior value of breastfeeding, or, where needed, on the proper use of infant formula, whether manufactured industrially or home-prepared;

AFFIRMING further that educational systems and other social services should be involved in the protection and promotion of breastfeeding, and in the appropriate use of complementary foods;

AWARE that families, communities, women's organizations and other non-governmental organizations have a special role to play in the protection and promotion of breastfeeding and in ensuring the support needed by pregnant women and mothers of infants and young children, whether breastfeeding or not;

AFFIRMING the need for governments, organizations of the United Nations system, non-governmental organizations, experts in various related disciplines, consumer groups and industry to co-operate in activities aimed at the improvement of maternal, infant and young child health and nutrition;

RECOGNIZING that governments should undertake a variety of health, nutrition and other social measures to promote healthy growth and development of infants and young children, and that this Code concerns only one aspect of these measures;

CONSIDERING that manufacturers and distributors of breast-milk substitutes have an important and constructive role to play in relation to breast feeding, and in the promotion of the aim of this Code and its proper implementation;

AFFIRMING that governments are called upon to take action appropriate to their social and legislative framework and their overall development objectives to give effect to the principles and aim of this Code, including the enactment of legislation, regulations or other suitable measures;

BELIEVING that, in the light of the foregoing considerations, and in view of the vulnerability of infants in the early months of life and the risks involved in inappropriate feeding practices, including the unnecessary and improper use of breast-milk substitutes, the marketing of breastmilk substitutes requires special treatment, which makes usual marketing practices unsuitable, for these produces;

THEREFORE: The Member States hereby agree the following articles which are recommended as a basis for action.

#### **ARTICLE 1: Aim of the Code**

The aim of this Code is to contribute to the provision of safe and adequate nutrition for infants, by the protection and promotion of breastfeeding, and by ensuring the proper use of breast-milk substitutes, when these are necessary, on the basis of adequate information and through appropriate marketing and distribution.

#### **ARTICLE 2: Scope of the Code**

The Code applies to the marketing, and practices related thereto, of the following products: breast-milk substitutes, including infant formula; other milk products, foods and beverages, including bottle-fed complementary foods, when marketed or otherwise represented to be

suitable, with or without modification, for use as a partial or total replacement of breast milk; feeding bottles, and teats. It also applies to their quality and availability, and to information concerning their use.

### **ARTICLE 3: Definitions**

For the purposes of this Code:

Breast-milk substitute means any food being marketed or otherwise represented as a partial or total replacement for breast milk, whether or not suitable for that purpose.

Complementary food means any food, whether manufactured or locally prepared, suitable as a complement to breast milk or to infant formula, when either becomes insufficient to satisfy the nutritional requirements of the infant. Such food is also commonly called weaning food or breast-milk supplement.

Container means any form of packaging of products for sale as a normal retail unit, including wrappers.

Distributor means a person, corporation or any other entity in the public or private sector engaged in the business (whether directly or indirectly) of marketing at the wholesale or retail level a product within the scope of this Code. A primary distributor is a manufacturer's sales agent, representative, national distributor or broker.

Health care system means governmental, non-governmental or private institutions or organizations engaged, directly or indirectly, in health care for mothers, infants and pregnant women; and nurseries or child-care institutions. It also includes health workers in private practice. For the purposes of this Code, the health care system does not include pharmacies or other established sales outlets.

Health worker means a person working in a component of such a health care system, whether professional or non-professional, including voluntary, unpaid workers.

Infant formula means a breast-milk substitute formulated industrially in accordance with applicable Codex Alimentarium standards, to satisfy the normal nutritional requirements of infants up to between four and six months of age, and adapted to their physiological characteristics. Infant formula may also be prepared at home, in which case it is described as home-prepared.

Label means any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, embossed or impressed on, or attached to, a container (see above) of any produces within the scope of this Code.

Manufacturer means a corporation or other entity in the public or private sector engaged in the business or function (whether directly or through an agent or through an entity controlled by or under contract with it) of manufacturing a product within the scope of this Code.

Marketing means product promotion, distribution, selling, advertising, product public relations, and information services. Marketing personnel means any persons whose functions involve the marketing of a product or products coming within the scope of this Code.

Samples means single or small quantities of a product provided without cost.

Supplies means quantities of a product provided for use over an extended period, free or at a low price, for social purposes, including those provided to families in need.

#### **ARTICLE 4: Information and Education**

4.1 Governments, should have the responsibility to ensure that objective and consistent information, is provided on infant and young child feeding for use by families and those involved in the field of infant and young child nutrition. This responsibility should cover either the planning, provision, design and dissemination of information or their control.

4.2 Informational and educational materials, whether written, audio or visual, dealing with the feeding of infants and intended to reach pregnant women and mothers of infants and young children, should include clear information on all the following points:

- a.the benefits and superiority of breastfeeding;
- b.maternal nutrition, and the preparation for and maintenance of breastfeeding;
- c.the negative effect, on breastfeeding of introducing partial bottle-feeding;
- d.the difficulty of reversing the decision, not to breastfeed; and,
- e.where needed, the proper use of infant formula, whether manufactured industrially or home-prepared.

When, such materials contain information about the use of infant formula, they should include the social and financial implications, of its use; the health hazards, of inappropriate foods or feeding methods; and, in particular, the health hazards of unnecessary or improper use, of infant formula and other breast-milk substitutes. Such materials should not use any pictures or text which may idealize, the use of breastmilk substitutes.

4.3 Donations of informational or educational equipment or materials by manufacturers or distributors should be made only at the request and with the written approval, of the appropriate government authority or within guidelines given by governments for this purpose. Such equipment or materials may bear the donating company's name or logo, but should not refer to a proprietary product that is within the scope of this Code, and should be distributed only through the health care system.

#### **ARTICLE 5: The General Public and Mothers**

5.1 There should be no advertising or other form of promotion to the general public of products within the scope of this Code.

5.2 Manufacturers and distributors should not provide, directly or indirectly, to pregnant women, mothers or members of their families, samples of products within the scope of this Code.

5.3 In conformity with paragraphs 1 and 2 of this Article, there should be no point-of-sale advertising, giving of samples, or any other promotion device to induce sales directly to the consumer at the retail level, such as special displays, discount coupons, premiums, special sales, loss-leaders and tie-in sales, for products within the scope of this Code. This provision should not restrict the establishment of pricing policies and practices intended to provide products at lower prices on a long-term basis.

5.4 Manufacturers and distributors should not distribute, to pregnant women or mothers of infants and young children any gifts of articles or utensils which may promote the use of breast-milk substitutes or bottle-feeding.

5.5 Marketing personnel, in their business capacity, should not seek direct or indirect contact, of any kind with pregnant women or with mothers, of infants and young children.



## **ARTICLE 6: Health Care Systems**

6.1 The health authorities in Member States should take appropriate measures to encourage and protect breastfeeding and promote the principles of this Code, and should give appropriate information and advice to health workers, in regard to their responsibilities, including the information specified in Article 4.2.

6.2 No facility of a health care system should be used for the purpose of promoting infant formula or other products within the scope of this Code. This Code does not, however, preclude the dissemination of information to health professionals as provided in Article 7.2.

6.3 Facilities of health care systems should not be used for the display of products, within the scope of this Code, for placards or posters, concerning such products, or for the distribution of material, provided by a manufacturer or distributor other than that specified in Article 4.3.

6.4 The use by the health care system of professional service representatives, mothercraft nurses or similar personnel, provided or paid for by manufacturers or distributors, should not be permitted.

6.5 Feeding with infant formula, whether manufactured or home-prepared, should be demonstrated only by health workers, or other community workers if necessary; and only to the mothers or family members who need to use it; and the information given should include a clear explanation of the hazards of improper use.

6.6 Donations or low-price sales to institutions or organizations of supplies of infant formula or other products within the scope of this Code, whether for use in the institution or for distribution outside them, may be made. Such supplies should only be used or distributed for infants who have to be fed on breast-milk substitutes. If these supplies are distributed for use outside the institutions, this should be done only by the institutions or organizations concerned. Such donations or low-priced sales should not be used by manufacturers or distributors as a sales inducement.

6.7 Where donated supplies of infant formula or other products within the scope of this Code are distributed outside an institution, the institution or organization should take steps to ensure that supplies can be continued as long as the infants concerned need them. Donors, as well as institutions or organizations concerned, should bear in mind this responsibility.

6.8 Equipment and materials, in addition to those referred to in Article 4.3, donated to a health care system may bear a company's name or logo, but should not refer to any proprietary product, within the scope of this Code.

## **ARTICLE 7: Health Workers**

7.1 Health workers should encourage and protect breastfeeding; and those who are concerned in particular with maternal and infant nutrition should make themselves familiar with their responsibilities under this Code, including the information specified in Article 4.2.

7.2 Information provided by manufacturers and distributors to health professionals, regarding products within the scope of this Code should be restricted to scientific and factual matters, and such information should not imply or create a belief that bottle feeding is equivalent or superior to breastfeeding. It should also include the information specified in Article 4.2.

7.3 No financial or material inducements, to promote products within the scope of this Code should be offered by manufacturers or distributors to health workers or members of their families, nor should these be accepted by health workers or members of their families.

7.4 Samples, of infant formula or other products within the scope of this Code, or of equipment or utensils for their preparation or use, should not be provided to health workers except when necessary for the purpose of professional evaluation or research, at the institutional level. Health workers should not give samples of infant formula to pregnant women, mothers of infants and young children, or members of their families.

7.5 Manufacturers and distributors of products within the scope of this Code should disclose, to the institution to which a recipient health worker is affiliated any contribution, made to him or on his behalf for fellowships, study tours, research grants, attendance at professional conferences, or the like. Similar disclosures should be made by the recipient.

SOURCE: WHO 1981.

## **10. HIV and Infant Feeding A Guide for Health Care Managers and Supervisors**

### **Introduction**

Breastfeeding is a significant and preventable mode of HIV transmission to infants and there is an urgent need to educate, counsel and support women and families so that they can make decisions about how best to feed infants in the context of HIV. Faced with this problem, the objective of health services should be to prevent HIV transmission through breastfeeding while continuing to protect, promote and support breastfeeding as the best infant feeding choice for women who are HIV-negative and women who do not know their status.

Achieving this objective requires organising services that:

- ◆ provide and promote voluntary and confidential HIV counselling and testing. Improved access to HIV counselling and testing is necessary for preventing mother-to-child transmission (MTCT) of HIV, including through breastfeeding. Women can make informed decisions about infant feeding only if they know their HIV status
- ◆ encourage use of antenatal care and strengthen antenatal care services so that they can provide information about prevention of HIV infection, offer referral for HIV counselling and testing, and offer interventions to reduce mother-to-child transmission. These should be provided in addition to the basic package of antenatal care
- ◆ provide infant feeding counselling for all pregnant women and mothers. This includes support of and counselling about breastfeeding for mothers who are HIV-negative or of unknown status, and counselling about replacement feeding for women who are HIV-positive
- ◆ support HIV-positive women in their choice of infant feeding method, whether they choose breastfeeding or replacement feeding. This should include facilitating access to replacement feeds where appropriate
- ◆ prevent any 'spillover' effect of replacement feeding which may undermine breastfeeding among HIV-negative women and those of unknown status and which may weaken commitment among health workers to support breastfeeding
- ◆ prevent commercial pressures for artificial feeding, including protecting parents from inappropriate marketing of breast-milk substitutes and ensuring that manufacturers and distributors of products which fall within the scope of the International Code of Marketing of Breast-milk Substitutes conform to its principles and aim and to subsequent relevant resolutions of the World Health Assembly
- ◆ consider infant feeding as part of a continuum of care and support services for HIV-positive women and ensure that they and their families have access to comprehensive health care and social support
- ◆ provide appropriate follow-up care and support for HIV-positive women and their children, particularly up to the age of two years
- ◆ promote an enabling environment for women living with HIV by strengthening community support and by reducing stigma and discrimination

- ♦ consider HIV and infant feeding in the broader context of preventing HIV infection in women through provision of information, promotion of safer sex, condom availability, and early detection and appropriate treatment of sexually transmitted diseases (STDs).

This Guide is intended to assist mid-level health care managers and supervisors to plan and implement appropriate services. The Guide is generic, in recognition of the fact that different countries are at different stages of the HIV/AIDS epidemic and have varying resources available for dealing with it. It focuses specifically on HIV and infant feeding issues and readers will need to refer to other documents for more detailed information about strengthening some of the services mentioned.

Health care managers will need to adapt the guidelines so that they are consistent with national policies and are appropriate to local circumstances. They will also need to ensure that activities are consistent with the rights described in Box I.

The Guide is organised in three sections. Section 1 provides an overview of MTCT, Section 2 discusses infant feeding options for HIV-positive women, and Section 3 describes practical steps for implementing services.

### **Box 1. Protect, respect and fulfil human rights**

The right of women and men, irrespective of their HIV status, to determine the course of their reproductive lives and health and to have access to information and services that allow them to protect their own and their family's health.

The right of children to survival, development and health.

The right of a woman to make decisions about infant feeding, based on full information and as wide a range of choices as possible, and appropriate support for the course of action she chooses.

The right of a woman and girls to information about HIV/AIDS and to access to the means to protect themselves against HIV infection.

The right of women to know their HIV status and to have access to HIV counselling and testing that is voluntary and confidential.

## **Section 1**

### **Overview: Mother-to-child transmission**

It is estimated that worldwide three million children under the age of 15 years have been infected with HIV. Mother-to-child transmission of the virus - during pregnancy, delivery or breastfeeding - is responsible for more than 90 per cent of HIV infection in children.

Of those infants who are infected through MTCT, it is believed that about two-thirds are infected during pregnancy and around the time of delivery, and about one-third are infected through breastfeeding.

Using the most widely available tests, it is not possible to tell whether a newborn infant has already been infected with HIV. These tests detect antibodies to HIV rather than the virus itself. The child of an infected mother may have maternal antibodies in his or her blood until 18 months of age. Antibody tests cannot identify whether an infant is infected with HIV until after the age of about 18 months, and therefore cannot help with infant feeding decisions.

MTCT rates vary considerably. In the industrialized world, the risk of an infant acquiring HIV from an infected mother ranges from 15-25 per cent, compared with 25-45 per cent in developing countries, and differences in breastfeeding rates may account for much of this variation. The additional risk of infection when an infant is breastfed is around 15 per cent. We know that HIV can be transmitted through breast milk because:

- ◆ the virus has been found in components of breast milk
- ◆ HIV infection has been found in breastfed infants of mothers who were not infected with HIV during pregnancy or at delivery but who were infected while they were breastfeeding, either through receiving an infected blood transfusion or through sexual transmission
- ◆ infants of HIV-negative mothers have been infected through exposure to HIV in unpasteurized pooled breast milk from unscreened donors, and through receiving breast milk from an HIV-infected wet-nurse
- ◆ infants of HIV-infected women who were born without infection, and who were diagnosed as HIV-negative at six months of age, have been found to be infected after this age and breastfeeding was the only risk factor.

### **Factors increasing the risk of transmission**

The risk of MTCT, including transmission through breast milk, is increased by:

- ◆ recent infection with HIV- a woman who has been infected with HIV during pregnancy or while breastfeeding is more likely to transmit the virus to her infant. Unprotected sex during pregnancy and lactation not only places a woman at risk of HIV but also increases the risk to her infant
- ◆ AIDS- a woman who develops AIDS is more likely to transmit HIV infection to her infant
- ◆ infection with certain sexually transmitted diseases (STDs)- maternal STD infection during pregnancy may increase the risk of HIV transmission to the unborn child
- ◆ vitamin A deficiency- the risk of MTCT appears to be greater if an HIV-positive woman is deficient in vitamin A, and increases with the severity of her deficiency
- ◆ breast conditions- cracked or bleeding nipples, or breast abscess, may increase the risk of HIV transmission through breastfeeding
- ◆ duration of breastfeeding- an infant continues to be exposed to the risk of HIV transmission for as long as he or she is breastfed. The longer the duration of breastfeeding, the longer the infant is exposed to the risk of HIV infection. (There is no evidence that colostrum increases or decreases the risk of HIV transmission or that withholding colostrum reduces the risk.)

### **Strategies to prevent and reduce MTCT**

Prevention of breast-milk transmission should be integrated into an overall approach by health services to preventing HIV infection in women and their partners and reducing MTCT.

Specific measures to prevent HIV infection in women and their partners include:

- ◆ providing information about transmission of HIV and STDs
- ◆ promoting safer sex and making condoms widely available
- ◆ providing early detection and appropriate treatment of STDs
- ◆ ensuring the safety of medical procedures such as blood transfusion and
- ◆ ensuring that universal precautions are implemented in all health facilities.

Proven strategies to reduce or prevent MTCT when a woman is known to be infected with HIV include:

- ◆ antiretroviral therapy
- ◆ restricting the use of invasive obstetric procedures such as artificial rupture of membranes and episiotomy to reduce the exposure of the infant to the blood of an infected mother
- ◆ replacement feeding for the infant.

Strategies which may potentially reduce MTCT, but where further studies are needed, include:

- ◆ vitamin A supplementation during pregnancy
- ◆ cleansing of the birth canal with a microbicide during labour and delivery
- ◆ detection and treatment of STDs.

## **Section 2**

### **Infant feeding options**

Breastfeeding is normally the best way to feed an infant. However, if a mother is infected with HIV, it may be preferable to replace breast milk to reduce the risk of HIV transmission to her infant.

The risk of replacement feeding should be less than the potential risk of HIV transmission through infected breast milk, so that infant illness and death from other causes do not increase; otherwise there is no advantage in replacement feeding. The main issues which need to be considered are:

- ◆ nutritional requirements- replacement feeding needs to provide all the infant's nutritional requirements as completely as possible. However, no substitute exactly replicates the nutrient content of breast milk.
- ◆ bacterial infection- breast-milk substitutes lack the properties of breast milk which protect against infections. Bacteria may contaminate breast-milk substitutes during preparation, so it is essential that feeds are prepared and given hygienically. This requires access to clean water and fuel as well as sufficient time. When feeds cannot be kept in a refrigerator or a cool place, they should be made up one at a time to prevent bacteria multiplying if contamination has occurred during preparation. Even where hygiene is good, artificially fed infants suffer five times as many bacterial infections as breastfed infants, and in situations where hygiene is poor, the risk of death from diarrhoea in artificially fed young infants may be 20 times that of breastfed infants. Families feeding their infants with breast-milk substitutes therefore need access to appropriate health care
- ◆ cost- to buy enough of a breast-milk substitute to feed an infant can cost a considerable proportion of family income. In Pakistan, for example, purchasing commercial infant formula costs the equivalent of 31 per cent of the monthly urban minimum wage, and in Kenya the figure is 84 per cent. In addition to formula, the costs of fuel, water and health care need to be taken into account. Families may need help to obtain sufficient quantities of a breast-milk substitute, as there is a danger that they may give other foods that are expensive but also nutritionally less adequate
- ◆ family planning- women who do not breastfeed lose the child-spacing benefits that breastfeeding can provide. Another pregnancy too soon can cause the health of an HIV-

positive woman to deteriorate, and results in more potentially HIV infected children to care for. Thus it is essential that HIV-positive women have access to affordable and appropriate family planning methods

- ♦ psychosocial stimulation- not breastfeeding can be detrimental to mother-infant bonding, resulting in lack of stimulation for the infant.

Steps need to be taken to help mothers ensure that replacement-fed infants receive as much attention as breastfed infants

- ♦ social and cultural factors- where breastfeeding is the norm, women who do not breastfeed may be stigmatized, resulting in a range of other problems. Measures are thus required to provide social support to HIV-positive mothers who use replacement feeding.

## **Feeding options for HIV-positive mothers**

### **BIRTH TO SIX MONTHS**

From birth to six months, milk in some form is essential for an infant. If not breastfed, an infant needs about 150 ml of milk per kg of body weight a day. So, for example, an infant weighing 5 kg needs about 750 ml per day, which can be given as five 150 ml feeds a day.

#### **1. Breast-milk substitutes**

##### **Commercial infant formula**

Commercial infant formula, based on modified cow's milk or soy protein, is closest in nutrient composition to breast milk, though it may lack some substances such as long-chain essential fatty acids present in breast milk. It is usually adequately fortified with micronutrients, including iron.

Formula is usually available as a powder to be reconstituted with water. The instructions on the tin for mixing the formula should be followed exactly to ensure that it is not too concentrated or diluted. Over-concentration can overload the infant with salts and waste amino acids, which can be dangerous, and over-dilution can lead to malnutrition.

Feeding an infant for six months requires on average 40 x 500 g tins (44 x 450 g tins) of formula. Up to at least four, and usually six, months of age, infants who are fed on commercial infant formula do not need complementary foods if they are gaining weight adequately.

Commercial infant formula could be considered as an option by HIV-positive women when:

- ♦ the family has reliable access to sufficient formula for at least six months
- ♦ the family has the resources - water, fuel, utensils, skills and time - to prepare it accurately and hygienically.

##### **Home-prepared formula**

Home-prepared formula can be made with fresh animal milks, with dried milk powder or with evaporated milk. Preparation of formula with any of these types of milk involves modification to make it suitable for infants, and care is needed to avoid over-concentration or over-dilution. Micronutrient supplements are recommended, as animal milks may provide insufficient iron, zinc and may contain less vitamin A, C and folic acid. If micronutrient supplements are unavailable, complementary foods rich in iron, zinc, vitamin A and C and folic acid should be

introduced at four months of age. However, it is unlikely that they will provide sufficient amounts of the required nutrients.

### **Modified animal milks**

Cow's milk has more protein and a greater concentration of sodium, phosphorous and other salts than breast milk. Modification involves dilution with boiled water to reduce the concentration. Dilution reduces the energy concentration so sugar must be added. The milk, water and sugar should be mixed in the following proportions and then boiled to make up 150 ml of home-prepared formula: 100 ml of cow's milk with 50 ml of boiled water and 10 g (2 teaspoons) of sugar. Feeding an infant for six months requires, on average, 92 litres of animal milk (500 ml per day).

Goat's milk is similar in composition to cow's milk and so needs to be modified in the same way. It is deficient in folic acid which infants need to be given as a micronutrient supplement.

Camel's milk is very similar in composition to goat's milk and should be modified and supplemented in the same way.

Both sheep and buffalo milk have more fat and energy than cow's milk. The protein content of sheep milk is very high. Using either for infants would therefore require more dilution than cow's milk, in the following proportions: 50 ml of milk with 50 ml of water and 5 g sugar.

### **Dried milk powder and evaporated milk**

The full cream variety of dried milk powder or evaporated milk should be used. Normally, reconstitution involves adding a volume of boiled water to a measure of powdered or evaporated milk, as instructed on the container or packet. To make up a milk formula that is suitable for infants, however, the volume of water added needs to be increased by 50 per cent and 10 g of sugar added for each 150 ml of the feed. This is the equivalent of the recipe for the modification of cow's milk.

Home-prepared formula could be considered as an option by HIV-positive women when:

- ◆ commercial infant formula is not available or is too expensive for the family to buy and prepare
- ◆ the supply of animal milk or other milk is reliable and the family can afford it for at least six months
- ◆ the family has the resources to prepare it hygienically and can make the required modifications accurately
- ◆ micronutrient supplementation is possible.

### **Unmodified cow's milk**

During the first few months of life, feeding with unmodified cow's milk can cause serious problems, particularly if the infant becomes dehydrated. Infants need to be offered extra water (that has been boiled and cooled) and monitored carefully for dehydration if they have fever, respiratory infection or diarrhoea. To ensure that the infant gets enough milk and that water does not displace milk, drinks of water should be offered after feeds.

Unmodified cow's milk could be considered as an option by HIV-positive women when:

- ◆ commercial infant formula is not available or is too expensive for the family to buy and prepare
- ◆ the supply of cow's milk is reliable and the family can afford it for at least six months



- ♦ the family lacks the resources, time and fuel to modify cow's milk to make home-prepared formula
- ♦ micronutrient supplementation is possible.

## **2. Modified breastfeeding**

### **Early cessation of breastfeeding**

Early cessation of breastfeeding reduces the risk of HIV transmission by reducing the length of time for which an infant is exposed to HIV through breast milk. The optimum time for early cessation of breastfeeding is not known. However, it is advisable for an HIV-positive woman to stop breastfeeding as soon as she is able to prepare and give her infant adequate and hygienic replacement feeding. The most risky time for artificial feeding in environments with poor hygienic conditions is the first two months of life, and family circumstances will therefore determine when the mother is able to stop breastfeeding and start replacement feeding.

Early cessation of breastfeeding is also advisable if an HIV-positive mother develops symptoms of AIDS.

Early cessation of breastfeeding could be considered as an option by HIV-positive women who:

- ♦ find it difficult for social or cultural reasons to avoid breastfeeding completely
- ♦ develop symptoms of AIDS during the breastfeeding period
- ♦ can provide adequate replacement feeds, and can prepare and give these hygienically, only after their infants are a few months old.

### **Expressed and heat-treated breast milk**

Heat treatment of expressed breast milk from an HIV-positive mother kills the virus in the breast milk. Heat-treated breast milk is nutritionally superior to other milks but heat treatment reduces the levels of the anti-infective factors.

To pasteurise the milk in hospital, it should be heated to 62.5°C for 30 minutes (the Holder pasteurisation method). At home, it can be boiled and then cooled immediately by putting it in a refrigerator or standing the container in cold water.

To minimise contamination, heat-treated breast milk should be put in a sterilised or very clean container and kept in a refrigerator or in a cool place before and after heat treatment.

Expressing and heat-treating breast milk is time consuming and women may not find it a practical option for long-term infant feeding at home. However, if they are motivated and have the time, resources, and support, they may wish to consider this option. It may be most useful for sick and low-birth-weight babies in a hospital setting.

## **3. Other breast milk**

### **Breast-milk banks**

In some settings, milk is available from breast-milk banks. Breast-milk banks are generally used as a source of breast milk for a short time, for example, for sick and low-birth-weight newborns. They are not usually an option for meeting the nutritional needs of infants for a long period.

Given the risk of HIV transmission through unpasteurized pooled breast milk from unscreened donors, breast-milk banks should be considered as an option when:

- ♦ they are already established and functioning in accordance with standard procedures and safety precautions
- ♦ it is certain that donors are screened for HIV and that the donated milk is correctly pasteurised (using the Holder method.)

### **Wet-nursing**

In some settings there is a tradition of wet-nursing in the family context, where a relative breastfeeds an infant. However, there is a risk of HIV transmission to the infant through breastfeeding if the wet-nurse is HIV-infected. There is also a potential risk of transmission of HIV from the infant to the wet-nurse, especially if she has cracked nipples.

Wet-nursing should be considered only when:

- ♦ a potential wet-nurse is informed of her risk of acquiring HIV from an infant of an HIV-positive mother
- ♦ the wet-nurse has been offered HIV counselling and testing, voluntarily takes a test and is found to be HIV-negative
- ♦ the wet-nurse is provided with the information and is able to practice safer sex to ensure that she remains HIV-negative while she is breastfeeding the infant
- ♦ wet-nursing takes place in a family context and there is no payment involved
- ♦ the wet-nurse can breastfeed the infant as frequently and for as long as needed
- ♦ the wet-nurse has access to breastfeeding support to prevent and treat breastfeeding problems such as cracked nipples.

### **Unsuitable breast-milk substitutes**

Skimmed and sweetened condensed milk are not recommended for feeding infants under six months of age. Skimmed milk has had all of the fat removed and does not provide enough energy.

Fruit juices, sugar-water and dilute cereal gruels are sometimes mistakenly given instead of milk feeds, but these and milk products such as yoghurt, are not recommended for replacement feeding for infants under six months of age.

### **SIX MONTHS TO TWO YEARS**

After the age of six months, breast milk should normally be an important component of the diet, providing up to half or more of nutritional requirements between the age of 6 and 12 months and up to one-third between the age of 12 and 24 months. An infant who is not breastfed needs replacement feeding which provides all the required nutrients.

After six months of age, replacement feeding should preferably continue to include a suitable breast-milk substitute. In addition, complementary foods made from appropriately prepared and nutrient-enriched family foods should be given three times a day. If suitable breast-milk substitutes are no longer available, replacement feeding should be with appropriately prepared family foods which are further enriched with protein, energy and micronutrients and given five times a day. If possible other milk products, such as unmodified animal milk, dried skimmed milk, or yoghurt should be included as a source of protein and calcium; other animal products such as meat, liver and fish should be given as a source of iron and zinc; and fruit and vegetables should be given to provide vitamins, especially vitamin A and C. Micronutrient supplements should be given if available.

Health workers need to discuss with families how to prepare an adequate diet from local foods and how to make sure that the infant eats enough.

### **Preparing and giving feeds**

Managers and supervisors need to ensure that health workers know what is required to prepare and give feeds and can teach mothers and families how to do this. Particular attention needs to be paid to hygiene, correct mixing and feeding method.

### **Hygienic preparation**

Preparing breast-milk substitutes to minimise the risks of contamination and bacterial infection requires health workers to be able to:

- ◆ teach mothers and families to wash their hands with soap and water before preparing feeds
- ◆ teach mothers and families to wash the feeding and mixing utensils thoroughly or boil them to sterilise them before preparing the feed and feeding the infant
- ◆ ask mothers to demonstrate preparation of a feed and watch them to ensure that they can do it hygienically.

Preparation of safe foods requires health workers to be able to teach mothers and families to follow these basic principles:

- ◆ wash their hands with soap and water before preparing and cooking food or feeding a child
- ◆ boil water for preparing the child's food and any necessary drinks
- ◆ cook food thoroughly until it bubbles
- ◆ avoid storing cooked food or, if this is not feasible, store in a refrigerator or a cool place and reheat thoroughly before giving to the infant
- ◆ avoid contact between raw and cooked foods
- ◆ wash fruits and vegetables with water that has been boiled. Peel them if possible or cook thoroughly before giving to infants
- ◆ avoid feeding infants with a bottle; use an open cup
- ◆ give unfinished formula to an older child, rather than keep it for the next feed
- ◆ wash the cup or bowl for the infant's food thoroughly with soap and water or boil it. Bacteria breed in food that sticks to feeding vessels and utensils
- ◆ store food and water in clean covered containers and protect from rodents, insects and other animals
- ◆ keep food preparation surfaces clean.

### **Correct mixing**

Health workers need to ensure that families have some means for accurate measuring of both the water and the powdered or liquid milk. Health workers need to be able to demonstrate to mothers and families how to mix breast-milk substitutes accurately, and to ask them to show how they will prepare feeds to ensure that they can do this correctly.

### **Feeding method**

Health workers should be trained to show mothers and families how to cup-feed (see Box 2) and to explain that it is preferable to feed infants this way because:

- ◆ cups are safer as they are easier to clean with soap and water than bottles

- ♦ cups are less likely than bottles to be carried around for a long time giving bacteria the opportunity to multiply
- ♦ cup-feeding requires the mother or other caregiver to hold and have more contact with the infant, providing more psychosocial stimulation than bottle-feeding
- ♦ cup-feeding is better than feeding with a cup and spoon, because spoon-feeding takes longer and the mother may stop before the infant has had enough.

Feeding bottles are not usually necessary and for most purposes are not the preferred option. The use of feeding bottles and artificial teats should be actively discouraged because:

- ♦ bottle-feeding increases the risk of diarrhoea, dental disease and otitis media
- ♦ bottle-feeding increases the risk that the infant will receive inadequate stimulation and attention during feeds
- ♦ bottles and teats need to be thoroughly cleaned with a brush and then boiled to sterilise them and this takes time and fuel.

### **Box 2. How to feed an infant with a cup**

Hold the infant sitting upright or semi-upright on your lap.

Hold the cup of milk to the infant's lips.

Tip the cup so that the milk just reaches the infant's lips. The cups rests lightly on the infant's lower lip, and the edges of the cup touch the outer part of the infant's upper lip.

The infant becomes alert and opens his or her mouth and eyes. A low-birth-weight infant will start to take the milk into his or her mouth with the tongue. A full-term or older infant sucks the milk, spilling some of it.

**DO NOT POUR** the milk into the infant's mouth. Just hold the cup to the infant's lips and let him or her take it.

When the infant has had enough, he or she will close his or her mouth and will not take any more. If the infant has not taken the calculated amount, he or she may take more next time, or the mother needs to feed more often.

Measure the infant's intake over 24 hours, not just at each feed.

### **Section 3**

#### **Organising health services**

##### **STEP 1: Assess the situation**

Health care managers should assess the situation, using existing information and data available from health facilities reports and surveys, and by talking to staff. Managers should:

- ◆ find out how many women and children are affected by HIV, and whether this varies between areas or population sub-groups. This will help them to decide how many women and children will need HIV counselling and testing services, infant feeding counselling, and follow-up care and support
- ◆ find out the extent to which people with HIV are stigmatised and whether not breastfeeding will signal to others that a woman has HIV. This will help to determine whether it will be feasible for HIV-positive mothers not to breastfeed, and how much support may be available to them and their families
- ◆ find out about infant feeding practices. Ask about how women currently feed their infants, including those who are HIV-positive. Find out about the prevalence of exclusive breastfeeding and the duration of breastfeeding. Find out how women feed their infants if they do not breastfeed including any tradition of wet-nursing within the family or use of breast-milk banks. This will help to determine common and culturally acceptable feeding practices, and the extent to which it might be necessary to promote and support breastfeeding for HIV-negative women and those of unknown status
- ◆ find out what milks are given to infants, what commercial infant formula is available on the market, what animal milks are available to families and whether these can be modified to make them suitable for infants. Assess the nutritional quality and costs of these milks, including working out the cost of providing enough to meet an infant's needs for six months. This will help to decide what might be the most appropriate and affordable breast-milk substitutes
- ◆ find out what complementary foods are given to infants. Also find out which of these are high in the nutrients lacking in breast-milk substitutes and can be given daily to infants
- ◆ find out about the health and growth of infants fed without breast milk, the main causes of infant illness and death, and the prevalence of malnutrition in infants and young children. Find out whether communities have access to clean water and fuel. Talk to health workers about family capacity and resources for replacement feeding. This will help with decisions about which options might be feasible and whether families will be able to prepare and give feeds in a way that minimises the risk to their infants of infections other than HIV
- ◆ find out if micronutrient supplements can be provided for the infants of women who are using home-prepared formula or unmodified animal milks.

##### **STEP 2: Assess health service and resources**

To address the issue of HIV and infant feeding, health services need to include:

- ◆ community education
- ◆ antenatal care
- ◆ HIV counselling and testing
- ◆ strengthened maternity service to reduce risk

- ◆ infant feeding counselling for HIV-positive women
- ◆ infant feeding counselling for HIV-negative women and those of unknown status
- ◆ support for infant feeding decisions
- ◆ follow-up care for all mothers.

To assess the capacity of existing health services and the potential for integrating these activities, managers need to:

- ◆ find out about national HIV prevention policies including MTCT, HIV testing and counselling, AIDS care, and infant feeding and breastfeeding. This will determine what services can be provided and how they should be implemented
- ◆ find out what education activities related to HIV, MTCT and infant feeding are being conducted in communities and in health facilities
- ◆ assess the capacity of antenatal care services, the proportion of women who attend and how many times, and what would be needed to enable more women to attend
- ◆ assess whether it would be feasible for health services to provide antiretroviral (ARV) therapy for HIV-positive women, and suitable breast-milk substitutes for those who are unable to buy them
- ◆ review available health facilities, their number and
- ◆ location, and consider which may be possible sites for HIV counselling and testing and infant feeding counselling and support. These might include antenatal and family planning clinics or baby-friendly hospitals. Find out who uses these facilities and also how many mothers have no contact with the health services
- ◆ find out what existing HIV counselling and testing services are available, where these are provided, whether they are voluntary and confidential, and who uses them. Assess the capacity for expanding existing services or establishing new ones
- ◆ find out how many staff are available and trained in HIV prevention and care, including pre-test and post-test counselling, and where these staff are located
- ◆ evaluate the availability and reliability of the supply of HIV test kits, and the capacity and quality of laboratory support services
- ◆ find out how many staff have been trained in breastfeeding management and infant feeding counselling, including through the Baby-friendly Hospital Initiative (BFHI), and in their responsibilities under the International Code of Marketing of Breast-milk Substitutes. Find out where these staff are posted, and whether they are available
- ◆ find out about organizations to which HIV-positive women and their families could be referred for follow-up support, for example breastfeeding support groups, AIDS support and self-help groups, community-based homecare programmes organised by communities, churches and NGOs, and social services.

### **STEP 3: Consider activities for implementing services Community education**

Managers should decide:

- ◆ what messages need to be conveyed
- ◆ who the target audience is

- ♦ how education can be effectively conducted.

Messages will be determined by local circumstances but could include information about the risk of HIV transmission through breastfeeding, promotion of safer sex and condom use to prevent transmission between sexual partners, where to find HIV counselling and testing, antenatal care, family planning and STD services, and the importance of breastfeeding for infants of mothers without HIV.

Messages may be directed at the whole community in order to, for example, address stigma and discrimination or to raise awareness of HIV and how it is transmitted between adults and from mother to child. Health care managers may also wish to reach different audiences with specific messages, for example information about antenatal care for pregnant women and their mothers-in-law, and messages for men about preventing HIV transmission to women and children. To avoid stigmatizing women, couples could be targeted concerning promotion of HIV counselling and testing and information about HIV and infant feeding.

Education can be conducted through health facilities or workplaces or in community settings. The specific setting will determine who will carry out education activities, and health care managers should decide what role could be played by primary health care and community workers, nurses and other clinic staff, HIV and infant feeding counsellors and peer educators. The choice of materials and methods will depend on the type of messages, and the target audience and the most effective way to reach it.

### **Antenatal care**

Antenatal care services should be strengthened so that they can:

- ♦ provide information to pregnant women and their partners about MTCT and about how risk is increased if a mother becomes infected with HIV during breastfeeding
- ♦ provide information about the risks of unprotected sex and counselling about safer sex and preventing infection
- ♦ provide information about the benefits of breastfeeding and the risks of artificial feeding
- ♦ counsel women about improving their own nutrition, which may reduce the risk of MTCT
- ♦ refer women and, where possible, their partners for HIV counselling and testing, and explain about measures taken to maintain confidentiality.

### **HIV counselling and testing**

A priority for health care managers should be to ensure that HIV counselling and testing services are available. Access to HIV counselling and testing is essential for women to be able to make informed decisions about infant feeding.

HIV counselling and testing services require:

- ♦ adequate space that provides privacy, security and confidentiality
- ♦ counsellors who have been selected on the basis of their skills and personal qualities and who have been provided with appropriate training
- ♦ procedures to ensure the confidentiality of test results and secure methods for sending blood samples to the laboratory
- ♦ trained staff available to conduct testing, and laboratory staff and facilities
- ♦ regular and adequate supply of reliable test kits including kits for supplementary tests
- ♦ convenient location and opening hours

- ◆ measures for supervision and monitoring to ensure that counselling is adequate and for quality control of testing and laboratory procedures
- ◆ referral for infant feeding counselling and other care and support services
- ◆ support for the staff who provide counselling. The work can be stressful, and staff need opportunities to discuss their own feelings and difficulties, for example in support groups with their colleagues.

Managers and supervisors need to arrange for health workers to receive training in counseling HIV-positive women about infant feeding. Counseling should include discussing:

- ◆ all infant feeding options and their risks
- ◆ whether she has resources for adequate and hygienic replacement feeding
- ◆ what effect buying commercial infant formula or other milk for her infant, will have on the health and nutrition of other family members, especially other children
- ◆ whether she has family and community support for replacement feeding
- ◆ whether her other children, if they have been artificially fed, have grown well and been healthy
- ◆ whether she will be able to attend regularly for follow-up care for this infant
- ◆ whether there are other factors such as social or cultural pressures, fear or violence or abandonment which may influence her choice of feeding method.

Health workers should be able to give HIV-positive women full information about the risks and benefits of breastfeeding and of the various alternatives, and help them to make the most appropriate decision. This will depend on a woman's individual circumstances and the age of her infant, and it may be useful to discuss with her the questions listed below.

In some settings, consideration could be given to providing HIV-positive mothers with free or subsidized commercial infant formula if they are unable to buy it themselves. If this is government policy, formula should be provided for as long as the infant needs it, normally for six months.

If commercial infant formula is available:

- ◆ Does the mother have access to a reliable supply?
- ◆ Does she know how many tins are required?
- ◆ If she has to buy it, what would be the cost of providing complete commercial formula feeding for six months?
- ◆ Can she read, understand and follow the instructions for preparing infant formula?
- ◆ Can she demonstrate how to prepare the formula accurately?

If commercial infant formula is not available:

- ◆ Does she have access to a reliable supply of safe animal milk, at home or from a shop? Is it already diluted?
- ◆ How much does animal milk cost? Can she afford to buy enough to feed her infant for six months (about 92 liters)?
- ◆ Can she make the necessary modifications to animal milk so that it is suitable for her infant?
- ◆ Is sugar available for making home-prepared formula, and can she afford it?

Can she give her infant micronutrient supplements or, if these are not available, appropriate complementary foods after the age of four months to provide some of the nutrients lacking in home-prepared formula?

If using commercial or home-prepared formula:



- ◆ Does she have the utensils to make feeds, an open cup, and the time and facilities to keep these clean?
- ◆ Does she have access to a reliable supply of safe water for mixing or diluting feeds or for preparing drinking water for her infant if needed; and for washing utensils and cups?
- ◆ Does she have access to enough fuel to boil water and to clean mixing and feeding utensils?
- ◆ Can she store prepared feeds safely or make up one feed at a time?
- ◆ Does she have time to prepare feeds safely?
- ◆ What complementary foods would she give to her infant?
- ◆ Can she continue to give formula and give nutrient-rich complementary foods after her infant is 4-6 months old?

If a mother chooses not to use infant formula or animal milk:

- ◆ Can she consider options for modified breastfeeding, such as early cessation of breastfeeding or heat-treated expressed breast milk?
- ◆ Can she consider options for using breast milk from other sources such as breast-milk banks or wet-nursing?
- ◆ Would she be able to provide her infant with adequate replacement food made from family foods five times a day from the age of six months up to at least two years?

Ideally, other family members should be encouraged to decide together about infant feeding because of the financial implications and because the mother will need her partner's and family's support if she decides not to breastfeed. However, the final decision about infant feeding method is the mother's, particularly if she is living without the father of the child or wishes to keep her HIV status confidential.

Having considered all the issues, some HIV-positive women may decide not to breastfeed. Others may decide to breastfeed. A woman's decision and, if she opts not to breastfeed, her choice of breast-milk substitute, should not be influenced by commercial pressures. Once she has made a decision about the feeding method that she feels is best for her and for her infant, she needs support for her decision and advice about the safest way to feed the baby. Health workers should counsel HIV-positive mothers about the need to avoid mixing breastfeeding and artificial feeding, since this exposes the infant both to the risks of infectious diseases and malnutrition and of HIV infection.

### **Breastfeeding counselling for HIV-negative mothers and those of unknown status**

Managers should ensure that health workers continue to protect, promote and support breastfeeding by women who are HIV-negative and those of unknown status. Women who think they may have been at risk of HIV should be offered HIV counselling and testing so that they can make an informed decision about infant feeding.

Information for HIV-negative mothers and those whose status is unknown should include:

- ◆ the benefits of breastfeeding
- ◆ the importance of rooming-in
- ◆ the importance of feeding on demand and of exclusive breastfeeding for at least four months and if possible six months
- ◆ how to ensure enough milk, correct positioning and attachment, and where to obtain help for breastfeeding problems

- ♦ the negative effect on breastfeeding of introducing partial artificial feeding, bottles and pacifiers
- ♦ the difficulty of reversing a decision not to breastfeed
- ♦ the particular importance of avoiding HIV infection while breastfeeding to protect the infant from HIV, and information about safer sex and use of condoms
- ♦ the risks of artificial feeding
- ♦ the costs of artificial feeding.

### **Support for infant feeding decisions**

#### **Support for replacement feeding**

Health care managers should ensure that:

- ♦ HIV-infected women who choose not to breastfeed are not discriminated against, and that they receive help to decide how to deal with difficult questions or situations, especially in settings where breastfeeding is the norm
- ♦ HIV-infected mothers are assisted in private, in fulfilment of their right to confidentiality
- ♦ mothers receive help to prevent breast engorgement. Drugs are not recommended and the preferred method is to leave the breasts unstimulated and well-supported. If they become full, enough milk should be expressed to relieve the fullness and to keep the breasts healthy while the milk naturally dries up
- ♦ health workers teach HIV-positive mothers how to prepare adequate amounts of replacement feeds as safely as possible to minimise the risk of diarrhoea and malnutrition, and to give feeds using a cup. This should include clear instructions, demonstrating how to clean utensils, prepare feeds and cup-feed, and then observing the mother prepare and give at least one feed to ensure that she has understood the instructions. Suitable cups could be provided if families do not have them
- ♦ where possible, other family members are also shown how to prepare and give replacement feeds, especially if the mother is too ill to feed the infant herself. Consistent routines should be emphasised
- ♦ health workers explain that, because of the risk of exposure to HIV, once replacement feeding has begun, no breastfeeds at all should be given
- ♦ health workers can provide support for modified breastfeeding or infant feeding with breast milk from other sources.

#### **Support for breastfeeding**

HIV-positive mothers who decide to breastfeed should be supported in their choice. Measures which can be taken by health services include:

- ♦ making sure that HIV-infected mothers who decide to breastfeed are not discriminated against or blamed by health workers for placing their infants at risk of HIV
- ♦ providing support for exclusive breastfeeding and discussing the option of early cessation of breastfeeding as soon as the mother is able to provide adequate replacement feeding

- ◆ advising an HIV-infected mother how to minimise the risks of HIV transmission through breastfeeding, including seeking treatment promptly for breastfeeding difficulties or infant mouth problems. Health workers need to be trained to prevent and manage breast conditions, especially cracked and bleeding nipples, by helping women to position and attach the infant correctly at the breast, and to treat infant mouth problems such as thrush, ulcers or candidiasis
- ◆ referring mothers to a breastfeeding counsellor or a breastfeeding support group.

### **Preventing spillover to uninfected and untested women**

HIV-negative women and those who do not know their status may decide not to breastfeed because of fears about HIV or as a result of misinformation. This would deprive their infants of the benefits of breastfeeding and put them at risk of other infections and malnutrition.

#### **Box 3. The International Code: health workers' responsibilities**

1. There should be no advertising or other forms of promotion to the general public of breast-milk substitutes and other products covered by the Code-, such as bottles and teats.
2. Mothers should not be given samples (small amounts) of a breast-milk substitute. If HIV-positive mothers are given breast-milk substitutes, they should be given a supply, that is, sufficient milk for as long as their infants need it.
3. There should be no promotion of breast-milk substitutes in the health service. This means that there should be no calendars, pictures or other items which show the brand name of formula, or bottles or teats. Cans of formula should be kept out of sight of breastfeeding mothers.
4. Company personnel should not advise mothers, or show them how to use breast-milk substitutes.
5. Health workers should not accept gifts or free samples from companies.
6. Any information given to health workers from manufacturers should be scientific and factual.

### **Health care practices**

All health workers have a responsibility to protect, promote and support breastfeeding. Possible ways in which managers and supervisors can help to prevent any spillover effect are:

- ◆ ensure that all health education programmes continue to emphasise the benefits of breastfeeding and the dangers of artificial feeding, and that breastfeeding should be the norm for infants of women who are not HIV positive
- ◆ ensure that all health workers know about their responsibilities under the International Code and subsequent relevant World Health Assembly resolutions (see Box 3) and apply these in their work

- ◆ ensure that the Baby-friendly Hospital Initiative (see Box 4) is strengthened and that good practices to support breastfeeding which are consistent with the 'Ten steps to successful breastfeeding' are implemented in health facilities
- ◆ ensure that all staff who counsel mothers on replacement feeding are also trained in breastfeeding counselling, and that breastfeeding counselling is available for all mothers, whatever their HIV status
- ◆ ensure that instructions on the use of replacement feeding are given only to HIV-positive mothers and their family members. Demonstrations of feeding with breast-milk substitutes should be given only by health workers, and they should be given separately from breastfeeding mothers. Group instructions should be avoided. Ensure that mothers are taught to use cups to feed their infants, and that no bottles are given out
- ◆ ensure that any commercial infant formula that is used in the health facility for infants of HIV-positive mothers is kept out of sight of other mothers and pregnant women
- ◆ ensure that measures to protect confidentiality are implemented
- ◆ ensure that exclusive breastfeeding rates are carefully monitored in order to detect spillover effects and take remedial action.

#### **Box 4. The Baby-friendly Hospital Initiative**

Baby-friendly hospitals are hospitals that have changed their practices to support breastfeeding, according to the ten steps below:

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

Baby-friendly hospitals may be one possible place to introduce HIV counselling and testing and counselling about replacement feeding. Some of the ten steps can also benefit and support mothers who are not breastfeeding, for example, encouraging rooming-in and bedding-in (where the infant and the mother share a bed) to promote mother-infant closeness.

## **Management of breast-milk substitute distribution**

If HIV-positive mothers are to be provided with breast-milk substitutes:

- ◆ ensure that, as a rule, breast-milk substitutes made available in health facilities are purchased in the same way as medicines and foodstuffs
- ◆ ensure that breast-milk substitutes are provided only to women who have been tested for HIV and found to be positive
- ◆ ensure that an adequate supply is provided for at least six months or for as long as the infant requires it
- ◆ ensure that the distribution and use of breast-milk substitutes is strictly controlled and monitored, and provided only through an accountable prescription or coupons system, for example dispensed through pharmacies in the same way as medicines, or through social welfare organizations and other available distribution systems
- ◆ ensure that, if possible, breast-milk substitutes for HIV-positive mothers are in generic, non-brand packaging
- ◆ ensure that substitutes are ordered in appropriate quantities for the expected number of HIV-positive mothers and their infants to give an adequate supply without an excess that may be used by other mothers to feed their infants
- ◆ ensure that supplies are stored securely to prevent loss and deterioration and so that they are not seen by breastfeeding mothers
- ◆ ensure that provision of breast-milk substitutes is linked to follow-up visits, ideally at two- to four-week intervals.

## **Follow-up care**

HIV-positive women and their infants need careful monitoring and follow-up care to ensure that they maintain good health.

## **Maternal health and family planning**

Managers need to ensure that:

- ◆ HIV-positive women who do not breastfeed are provided access to family planning counselling and a choice of effective and appropriate contraceptive methods
- ◆ sufficient supplies of contraceptives are available through health facilities and family planning clinics are prepared to deal with the increased demand resulting from the loss of breastfeeding's child-spacing benefits
- ◆ services provide follow-up care for HIV-positive women, including information about good nutrition and treatment for general health problems and opportunistic infections
- ◆ health workers can refer HIV-positive women to other support services, since social, psychological and practical concerns may be as important as the need for medical care

- ♦ if the infant is wet-nursed, both the mother and the wet-nurse attend the clinic or are seen at home.

### **Infant and child health**

Infants given replacement feeds are more likely to get sick, develop malnutrition, grow less well, and may lack the close contact with their mothers that is necessary for full psychosocial development.

Managers need to ensure that:

- ♦ health workers monitor the health and general development of infants of HIV-positive women
- ♦ preparation of feeds and feeding techniques are checked at one week postpartum and subsequently at regular intervals
- ♦ health workers can recognise whether or not an infant is gaining weight and growing well
- ♦ health workers discuss with mothers and families the importance of holding, talking to and playing with their infants to ensure adequate psychosocial stimulation
- ♦ health workers can counsel women whose infants are ill or not growing well and can identify why an infant is not gaining weight, in particular checking that the mother is giving replacement feeds correctly and in sufficient quantities
- ♦ health workers can provide practical assistance to resolve feeding problems. This may include providing mothers with breast-milk substitutes or micronutrient supplements or help to obtain these, and reinforcing earlier teaching about preparation and feeding
- ♦ health workers teach mothers how to treat diarrhoea to prevent dehydration
- ♦ health workers know when to refer a sick child and referral services are available
- ♦ health workers pay adequate attention to the health and nutritional status of other children in the family who may be affected by household expenditure on breast-milk substitutes, as well as by the mother's health.

### **STEP 4: Decide what needs to be done to implement services**

Health care managers should consider what may need to be done to implement necessary services. For example, they may need to:

- ♦ develop messages and materials for community education and information provision within health facilities to provide consistent facts about HIV and infant feeding
- ♦ decide on the role of different types of health facilities, for example antenatal clinics, family planning clinics and primary health care facilities, in providing different services related to HIV and infant feeding
- ♦ identify ways in which antenatal care services can be strengthened and use of care services by pregnant women can be improved

- ♦ decide where HIV counselling and testing services could be made available and how these can be promoted
- ♦ ensure that there is a reliable supply of adequate HIV test kits and laboratory equipment, and establish quality control and confidentiality procedures
- ♦ identify personnel to be trained and specific training needs, and plan and organise training to upgrade skills. This may include training:
  - laboratory staff
  - HIV counsellors for pre- and post-test counselling
  - infant feeding counsellors for both breastfeeding and replacement feeding
- ♦ in addition, ensure all health workers who have contact with mothers and children are trained so that they have a basic knowledge of HIV and infant feeding issues and are able to refer women for HIV counselling and testing and for infant feeding counselling
- ♦ ensure that responsibilities for pre- and post-test counselling, infant feeding counselling and teaching mothers are clearly allocated and included in job descriptions, and that staff have the time to carry out the necessary tasks
- ♦ ensure that health facility premises and timetables are organised so that they can provide private consultations, counselling and infant feeding instruction
- ♦ decide, if commercial infant formula is procured by the government for HIV-positive mothers, how distribution will be managed and what measures to take to prevent spillover
- ♦ consider what organizations outside the health care system might be able to help to counsel HIV-positive mothers about replacement feeding, and perhaps help with the distribution of breast-milk substitutes to HIV-positive mothers who choose not to breastfeed, and with provision of other support. Health care managers also need to consider how HIV-positive women can be referred to such organizations
- ♦ consider how the health care system can provide micronutrient supplements for infants of HIV-positive mothers that are not breastfed and who do not get commercial infant formula
- ♦ consider how the health care system can provide or refer for follow-up care and other services needed by HIV-positive mothers and their infants, including family planning
- ♦ decide who to obtain support from, for example, organizations with expertise in breastfeeding and infant nutrition, political leaders or older women in the community for interventions to prevent HIV transmission through breastfeeding.

### **STEP 5: Prepare a budget**

Prepare a budget by estimating the cost of what needs to be done, based on the coverage of services and the extent to which these are new areas of activity. The budget should be divided into initial set-up costs and running costs once services are established, and should also take account of savings that might be achieved from preventing HIV transmission to infants through breastfeeding. Examples of some of the likely activities that will need to be costed for each of the areas discussed in Step 3 are included below, but this is not a comprehensive list.

### **Community education**

- ◆ training health workers in health education, and their subsequent employment
- ◆ production or purchase of health education materials

### **Antenatal care**

- ◆ training and employment of antenatal clinic workers
- ◆ strengthening referral systems
- ◆ adaptation of premises
- ◆ provision of ARV therapy
- ◆ procurement of condoms
- ◆ provision of STD detection and treatment

### **HIV counselling and testing**

- ◆ training and employment of pre- and post-test counsellors
- ◆ training and employment of laboratory staff
- ◆ upgrading laboratory equipment and procedures
- ◆ procurement of HIV test kits
- ◆ adaptation of premises
- ◆ production of information materials
- ◆ introduction of confidentiality procedures

### **Infant feeding counselling**

- ◆ training and employment of infant feeding counsellors
- ◆ production of information materials
- ◆ adaptation of premises

### **Support for infant feeding decisions**

- ◆ provision of micronutrient supplements provision of breast-milk substitutes and cups
- ◆ training and employment of health workers to teach mothers to prepare replacement feeds
- ◆ adaptation of premises

### **Follow-up care**

- ◆ training and employment of health workers in monitoring, follow-up care and family planning counselling
- ◆ procurement of additional contraceptives
- ◆ procurement of additional oral rehydration salt and other essential drugs for treating sick children.

Health care managers should assess whether the costs can be covered with existing resources or by reallocation of resources, or whether additional resources are required. Consideration should also be given, where resources are limited, to the introduction of activities in a phased manner.

SOURCE: WHO/UNICEF/UNAIDS 1998.



## **11. Assessing the Child's Nutritional Status**

A child seen for any reason by a health worker should be screened for feeding problems and signs of malnutrition as part of an overall integrated assessment for illnesses and nutrition.

Following are checklists / guidelines for diagnosing severe malnutrition.

### **Visual Screening for Diagnostic Malnutrition**

To screen for malnutrition, take these steps:

- ◆ screen visually for severe wasting;
- ◆ screen visually for edema of both feet;
- ◆ check for palmar pallor (details given in Protocol 16); and
- ◆ check for eye signs of severe vitamin A deficiency (details given in Protocol 20).

Described below are signs of severe malnutrition. Any of these signs mean that the child should be immediately given an age-appropriate dose of vitamin A and referred to a facility with trained staff and equipment to provide the care described in WHO's *Management of Severe Malnutrition: a Manual for Physicians and Other Senior Health Workers*, 1999. Health workers are encouraged to confirm visible diagnosis of severe malnutrition with measurements of weight-for-age and weight-for-height. The treatment is costly and an accurate diagnosis is important.

#### **Severe Visible Wasting (Marasmus)**

In this form of severe malnutrition, the child appears to be wasted. If the child looks very thin, has little fat or muscle, and looks like skin and bones, he/she is wasted. Look for wasting particularly of the muscles of the shoulder girdle, arms, buttocks, and legs. The outlines of the child's ribs are clearly visible. This form of malnutrition is called marasmus and requires urgent medical attention.

#### **Edema of Both Feet (Kwashiorkor)**

In this form of malnutrition, the child has edema or swelling of both feet. The swelling is due to fluids building up in the child's tissues. To make sure the swelling is due to fluids, use your thumb to press gently for a few seconds on the upper top side of each foot. If a dent remains when you remove your thumb, the child has edema. Other common signs of kwashiorkor include thin, sparse, and pale hair that falls out easily; dry scaly skin especially on the arms and legs; and a puffy or moon face.

#### **Using Weight and Height Measurements for Diagnosing Malnutrition**

Weight-for-height and height-for-age are used to detect severely malnourished children for urgent clinical care. Weights are also used to categorize children to tailor specific actions such as follow-up. Categories are based on comparing children with the growth of a group of well-nourished children. The weight gain of this well-nourished group is marked in the form of a line or curve on growth charts and the line or curve serves as a reference standard.

When the weight of a group of well-nourished children is plotted against their ages on a graph and the dots connected to make a line, it is called the reference curve on a growth chart. But there are variations in growth even among well-nourished children. So several years ago, a Road to Health was identified on growth charts that represents the growth curves of the middle 50% of children. Many child health cards contain a growth chart with two lines and

the space in the middle is marked Road to Health. In IMCI materials, this band is called Not Low Weight-for-Age or WFA. In IMCI materials, an additional line is marked that separates the children who are Low WFA from those who are Very Low WFA ; this allows health workers to give specific guidance on what actions to take.

These categories (Low WFA or very Low WFA) and other rules are used to help health workers make decisions about what action to take. Follow these steps:

### **Follow These Steps If Weight and Height Can Be Measured**

- ◆ Weigh the child. Take his/her standing height or lying down length. Children who are below 24 months, less than 85 cm tall, or too ill to stand should have their length measured while they are lying down. Others should have their standing height measured.
- ◆ Compare the weight of the child with his/her height on the chart in this protocol. Also compare the height of the child with his/her age. To do this, calculate the age of the child in months.
- ◆ If any readings are three or more standard deviations below the reference median (based on the reference population) the child is severely malnourished. These children need specialized care according to guidelines in WHO's Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers , 1999.

### **Follow These Steps If Only Weight Can Be Measured**

- ◆ Calculate the child's age in months.
- ◆ Weigh the child; the child should be lightly dressed. Ask the mother to help you remove heavy clothing and shoes.
- ◆ Use the weight-for-age chart (shown below) to compare the child's readings with the weight-for-age of reference children.
- ◆ Look at the left hand axis to locate the line corresponding to the child's weight.
- ◆ Look at the bottom axis of the chart to locate the column corresponding to the child's age in months.
- ◆ Locate the point on the chart where the line for the child's weight meets the column corresponding to the child's age.
- ◆ Determine if the point is in the normal, low weight-for-age, or very low weight-for-age area on the chart.

If the child is low weight-for-age or very low weight-for-age, assess the child's feeding and check for the presence of infections. Use the checklist given in Protocol 11 to carry out an integrated assessment of child health. Follow up in 30 days.

SOURCE: WHO/UNICEF, IMCI Chart Book, 1996; and WHO, Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers, 1999.

## ***12. Assessing the Child's Feeding and Counseling on Feeding***

SOURCE: WHO/UNICEF, IMCI Chart Book 1996.

### **13. Growth Monitoring and Promotion**

A growth monitoring/promotion package consists of:

- ◆ Regular assessment of child growth
- ◆ Making decisions about what actions the caregiver should take for the child
- ◆ Making decisions about what the community or programs need to do to support the family
- ◆ Follow-up on the effects of the actions taken.

As noted below, growth monitoring is conducted to detect growth faltering. It should be accompanied by growth promotion which includes actions taken to reinforce good practices or remedies to correct faltering. Growth promotion is a preventive action most appropriate for infants and young children (0 to 23 months or 0 to 35 months of age), to detect problems before they become severe.

A child who is not growing as quickly as a well nourished child of the same age is considered to be faltering in growth, or falling behind in weight for his/her age. Growth faltering is a danger sign, an indicator that action is required from the caregiver or family, and the health worker. In growth promotion programs where children are weighed monthly, health workers see if a child is gaining adequate weight from one weighing to the next, by connecting the two points on a growth chart and observing the direction of the line. How the child's growth (weight gain) is classified will decide what actions to take.

- ◆ Some programs use simple classifications of gaining weight (when child's line is going up), not gaining weight (child's line is straight, neither going up or down), and losing weight (when a child's line is going down). Mothers of children in the last two categories receive additional counseling and/or home visits.
- ◆ Some programs use a more complex system of classification that may also be more sensitive in detecting problems.

For example: A child who is growing at the same rate or faster (as judged by comparing the slope of the child's curve with the slope of the reference curve) than the reference growth curve, regardless of if he/she is in the Road to Health or not, is considered to be growing well. Health workers are expected to encourage mothers of these children to continue to follow good feeding and health practices.

A child who has not gained adequate weight for 1-2 months, but who is within the Road to Health and not currently ill, needs attention to feeding to prevent continuation of inadequate weight gain.

A child who has inadequate weight gain for 1-2 months and is ill needs medical attention for his/her illness. Additionally, if there is lack of appetite, he/she needs special attention to feeding.

A child who has inadequate weight gain for 1-2 months and is below the Road to Health lines, needs more urgent attention (e.g., home visit by a trained worker or enrollment in a supplementary feeding program).

A child who is losing weight or who has not gained adequate weight for 3 months or more is at high risk and his/her situation is really urgent. There may be a serious illness, severe feeding problem, developmental or metabolic problem, or a social problem. Such a child needs urgent medical attention and help for the situation in the home.

A child who is ill, regardless of good growth, needs medical attention.

- ◆ Some programs determine whether weight gain was adequate rather than whether weight was simply gained or lost to classify the growth of children. They give health workers guidelines on what is an acceptable weight gain. For example:

In India (Tamil Nadu), weight gain was considered adequate in children at ages 6-11 months if they were gaining at least 500 grams per month; in children at ages 12-35 months, weight gain was considered adequate if it was at least 165 grams per month (or 500 grams in 3 months)

In the Dominican Republic, these levels of weight gain were considered adequate: at least 500 grams per month for infants 0-8 months old, and at least 200 grams per month for children 12-23 months old.

- ◆ In the management of severely malnourished children, the following criteria should be used: if the child is not gaining at least 5 grams/kg bodyweight per day, classify as failure to respond and take follow-up actions. After recovery, the child is considered out of danger if he/she maintains weight-for-height of at least minus one standard deviation (or 80%) of the reference weight-for-height or weight-for-length. See WHO, Guidelines for Treatment of Severe Malnutrition, 1998, for more details.

See examples of how children can be classified by weight gain in the illustrations below and how program managers can use this information to tailor activities such as health, feeding programs and counseling to meet the child and family's needs.

SOURCE: Adapted from Griffiths et al. 1996.

## 14. Iron Supplements for Children to Prevent Anemia

Children 6-24 Months of Age			
Prevalence of anemia in children 6-12 months:	Dosage (daily)	Birth Weight Category	Duration
<40%	12.5 mg iron + 50 µg folic acid daily	Normal Low Birth Weight (<2500 g)	from 6-12 months of age from 2-12 months of age
>40%	12.5 mg iron + 50 µg folic acid daily	Normal Low Birth Weight (<2500 g)	from 6-24 months of age from 2-24 months of age

Note: Iron dosage for children 2-5 years of age is based on 2mg iron/kg body weight/day.

Individuals over 2 yrs of age	
Group	Dosage (daily)
Children 2-5 years	20-30 mg iron
Children 6-11 years	30-60 mg iron
Adolescents and adults	60 mg iron

Note: Iron dosage for children 2-5 years of age is based on 2mg iron/kg body weight/day.

- ◆ If the population group includes girls or women of reproductive age, 400 µg of folic acid should be included with the iron supplement for the prevention of birth defects in those who become pregnant.
- ◆ Research is ongoing to determine the most cost-effective dosing regimen for iron supplementation to these age groups in different contexts. The efficacy of once- or twice-weekly supplementation in these groups appears promising, and the operational efficiency of intermittent dosing regimens is being evaluated. While policy recommendations are being formulated, program planners should adopt the dosing regimen believed to be most feasible and sustainable in their communities.

SOURCE: INACG/WHO/UNICEF 1998

## **15. Treatment for Parasites to Prevent Anemia**

### **For Children Above Five Years of Age and Adults**

If hookworms are endemic (20-30% prevalence or greater), it will be most effective to combine iron supplementation with anthelmintic treatment for adults and children above the age of 5 years. The following single-dose treatments are recommended to be given at least once yearly.

Albendazole: 400 mg single dose  
Mebendazole: 500 mg single dose  
Levamisole: 2.5 mg/kg single dose  
Pyrantel: 10 mg/kg single dose

If urinary schistosomiasis is endemic, provide annual treatment for urinary schistosomiasis to school-age children who report having blood in their urine:

Praziquantel: 40 mg/kg single dose

SOURCE: INACG/WHO/UNICEF 1998.

## 16. Treatment of Severe Anemia in Children

### Definitions of Severe Anemia

- ♦ 1st choice: Hemoglobin < 7.0 g/dL, or hematocrit < 20%
- ♦ 2nd choice: Blood spot on filter paper, formerly the Talqvist method (kits available from WHO)
- ♦ 3rd choice: Extreme pallor of conjunctiva, palm, or nail beds, or breathlessness at rest.
- ♦ Note: Any child with edema or severe visible wasting should be considered severely anemic (see also notes in the table on treatment below).

### Deciding Whether to Treat or Refer Cases of Severe Anemia

#### Criteria for REFERRAL to a specialized clinic, doctor or hospital :

- ♦ signs of respiratory distress or cardiac abnormalities (e.g., labored breathing at rest or edema)

Cases that are NOT REFERRED should be treated as follows:

Age Group	Dose	Duration
< 2 years	25 mg iron + 100-400 µg folic acid daily	3 months
2-12 years	60 mg iron + 400 µg folic acid daily	3 months
Adolescents	120 mg iron + 400 µg folic acid daily	3 months

Note: After completing 3 months of therapeutic supplementation, infants should continue preventive supplementation regimen, as indicated (see Protocol 15).

Children with edema or severe wasting should be assumed to be severely anemic. However, delay oral iron supplementation until the child regains appetite and starts gaining weight, usually after 14 days.

#### Follow-up of Treated Cases of Severe Anemia

Children diagnosed with severe anemia and treated with oral iron and folate therapy should be asked to return for evaluation one week and four weeks after iron supplementation is begun. The purpose of this follow-up is to refer children who are in need of further medical attention.

At that time, children should be REFERRED to a hospital if:

their condition has worsened at the one week follow-up visit

OR

if their condition shows no improvement at the four week follow-up visit.

SOURCE: INACG/WHO/UNICEF 1998.



## **17. Vitamin A Supplements for Children to Prevent Vitamin A Deficiency**

Infants 6 to 11 months of age*	100 000 IU orally, every 4-6 months**
Children 12 months or older	200 000 IU orally, every 4-6 months**

\* Infants less than 6 months of age should only receive vitamin A if their mothers have not received a postpartum dose at delivery, or if they are not breastfed. The recommended dose for infants below 6 months of age is 50,000 IU orally once. Programs should ensure that infants < 6 months of age do not receive the larger dose intended for mothers or older children.

\*\* Evidence suggests that vitamin A reserves in deficient individuals can fall below optimal levels 3-6 months following a high dose; however, dosing at 4-6 month intervals should be sufficient to prevent serious consequences of vitamin A deficiency

SOURCE: WHO/UNICEF/IVACG 1997.

## **18. Vitamin A Supplements for Sick Children**

TREATMENT FOR CHILDREN WITH PROLONGED OR SEVERE DIARRHEA, ARI, CHICKEN POX, OTHER SEVERE INFECTIONS, OR VERY LOW WEIGHT-FOR-AGE

Give Only One Dose

Infants < 6 months of age	50 000 IU once orally
Infants 6 to 11 months of age	100 000 IU once orally
Children 12 months or older	200 000 IU once orally

Note: Those known to have received a routine high-dose vitamin A supplement within the last 30 days should NOT receive an additional dose.

SOURCE: WHO/UNICEF/IVACG 1997.

### **19. Vitamin A Supplements for Uncomplicated Measles Cases (No Eye Signs)**

Give Two Doses One on diagnosis and one the next day

Infants < 6 months of age	50 000 IU once orally
Infants 6 to 11 months of age	100 000 IU once orally
Children 12 months or older	200 000 IU once orally

SOURCE: WHO/UNICEF/IVACG 1997.

## 20. Treatment of Xerophthalmia or Measles with Eye Signs

Give Three Doses

First Dose:	Immediately on diagnosis:	
	< 6 months of age	50 000 IU
	6 to 11 months of age	100 000 IU
	12 months or more	200 000 IU
Second Dose:	Next Day	Same age-specific dose
Third Dose:	After 2 weeks	Same age-specific dose

ALL these cases & even those known to have received a routine high-dose vitamin A supplement within the last 30 days & should receive the three doses.

Note:

a. Xerophthalmia, includes those with night blindness, conjunctival xerosis with Bitot's spots, corneal xerosis, corneal ulceration, and keratomalacia. Doses should be administered orally, the first dose immediately upon diagnosis of xerophthalmia. Immediately thereafter, individuals with acute corneal lesions should be referred to a hospital on an emergency basis, as they present complex treatment problems.

b. If there is no assurance that the patient will be seen the next day or after 2 weeks, the mother or other responsible person should be given the capsules to take home and taught to open them and administer the dose

### TREATMENT OF CORNEAL XEROPHTHALMIA

This is a medical emergency. Vitamin A must be administered immediately in the same doses as described above. In order to treat or prevent a secondary bacterial infection, which would compound corneal damage, topical application of an antibiotic eye ointment, e.g., tetracycline or chloramphenicol, is recommended. Ophthalmic ointments containing steroids should never be used in these circumstances. To prevent trauma to a cornea weakened by ulceration, the eye should also be protected by a shield; in the case of young children, it may be necessary to restrain arm movements.

SOURCE: WHO/UNICEF/IVACG 1997.