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Keynote Address:

**The Role of Breastfeeding in Child Survival and
Development in Sub-Saharan Africa**

**Meeting of Chairpersons of University Medical Schools
and Nursing Colleges in East, Central & Southern Africa**

Nairobi, Kenya: April 9-13 1995

Professor Michael C. Latham
Professor of International Nutrition
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Consultancy to Prepare and Deliver

Keynote Address:

**The Role of Breastfeeding in Child Survival and
Development in Sub-Saharan Africa**

**Meeting on Integration of Breastfeeding and Child Feeding
into Pre-Service Training**

Co-sponsored by

**The Commonwealth Regional Health Community Secretariat
and Wellstart International**

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Appendix 1: "The Role of Breastfeeding in Child Survival and Development in Sub-Saharan Africa

Executive Summary

The Consultant prepared a paper which formed the basis for the Keynote Address. This is attached as Appendix 1 and is entitled "The Role of Breastfeeding in Child Survival and Development in Sub-Sahara Africa." It is a comprehensive review some 40 pages in length. This keynote address was for the Commonwealth Regional Health Community Secretariat Meeting of Departmental Chairpersons of Pediatrics and Child Health; Obstetrics and Gynecology; and Community Health of University Medical Schools and Nursing Training Colleges in ECSA to discuss integration of Breastfeeding and Childfeeding Issues into pre-service training curriculum. The meeting was co-sponsored by Wellstart International. As well as presenting this keynote address at the opening plenary session of the meeting (opened by the Kenyan Minister of Health) the Consultant served as Chairperson and Moderator for the morning plenary Seminar on Tuesday April 11 1995. The Consultant served as an overall resource person and assisted the meeting as a whole and individual country teams to develop their curricula outlines, and to prepare plans of action for the future. The meeting's participants agreed without dissent that issues related to breastfeeding were of great importance, that they should figure more prominently in the curricula for training doctors, nurses, nutritionists and others; that follow-up in the Africa Region was important to see that these curricula changes were made; and that those professionals trained be well qualified to protect, support, and promote breastfeeding, and where necessary, to better manage lactation problems. A detailed report of the agenda, objectives, attendees, and outcome will be included in a SARA report by Dr. Ellen Piwoz.

Preparation of Paper and Keynote Address

Paper Preparation

The consultant prepared a detailed paper (see Appendix 1) entitled *The Role of Breastfeeding in Child Survival and Development in Sub-Saharan Africa* which was made available to participants, and formed the basis for the keynote address given. The paper outlines the advantages of breastfeeding; the problems of alternative feeding methods; the properties and values of breastmilk; trends in infant feeding; the problem of insufficient milk; the relation of breastfeeding to fertility; the economic disadvantages of bottle-feeding; protection, support, and promotion of breastfeeding; the Baby Friendly Hospital Initiative; breastfeeding and mothers' work away from home; breastfeeding and AIDS; and international commitment in favor of breastfeeding.

The paper draws both on research conducted by the author and also from papers and publications by him. (See list of references.)

Meeting on Breastfeeding

The paper was prepared at Cornell University in Ithaca New York from 4-6 April 1995.

Keynote Address

The Consultant delivered the Keynote Address entitled "The Role of Breastfeeding in Child Survival and Development in Sub-Saharan Africa." This was given at the plenary opening ceremony attended not only by participants, but by invited representatives of the Kenyan Government, USAID, WHO, UNICEF and other institutions. The Keynote Address followed the Opening Address by the Guest of Honor, the Hon. Joshua Angatia, Minister of Health of Kenya, and remarks by some of the invited representatives of agencies.

Meeting on Breastfeeding

Plenary Sessions

The Meeting on Integrating Breastfeeding and Child Feeding Issues with Pre-Service Training Curricula for Commonwealth Medical Schools, Nursing and Nutrition Training Institutions for East, Central, and Southern Africa (ECSA) consisted of plenary sessions and working groups.

The Consultant participated in all the plenary sessions and chaired the morning-long plenary session on Tuesday April 11 1995. These sessions dealt with the current situation of infant feeding in the region; with the current situation of curricula in medical schools, nursing colleges and nutrition institutions in the countries represented; with the Wellstart Lactation Management Curriculum and the Kenya Nutrition Hospital Curriculum and their relevance and use for other institutions. In addition there were more specific presentations such as two from WHO: Training in Breastfeeding Counselling, and the Global Nutrition Database on Breastfeeding Prevalence and Duration; as well as a presentation on Breastfeeding and HIV. A field visit was made to the Kenyatta National Hospital Lactation Management Unit. The Consultant participated actively in all these sessions and events.

Working Groups

For some portions of the meeting, the participants broke up into working groups, first by discipline, and later by country. The main objectives were to discuss curricula for each of the disciplines (pediatrics; obstetrics and gynecology; community health; nursing; and nutrition), and then to produce curricula guidelines for the countries that had significant representation (Kenya, Uganda, Tanzania, Malawi, Zimbabwe and Zambia).

In the disciplinary working group the Consultant was asked to assist and participated fully in the group on Community Health. For the country working groups the Consultant served as a resource person, and discussed issues with groups for the various countries represented.

Conclusions

The meeting was very useful and the main objectives were met. These will be described in detail in the SARA report by Dr. Ellen Piwoz.

The Consultant was impressed by the level both in seniority and knowledge of the participants from the countries in the Region. It was impressive that Heads of Departments of Pediatrics, Obstetrics and Gynecology; Community Health; Nursing; and Nutrition could take off almost a week to participate. The participants were in general well informed and committed to improving the training on breastfeeding and related topics in their institutions. During the meeting serious attempts were made to outline new curricula for their institutions and to recommend realistic follow-up actions.

*Appendix 1: The Role of Breastfeeding in Child Survival and
Development in Sub-Saharan Africa*

Invited Keynote Address at:
Meeting of Chairpersons of
University Medical Schools
in East, Central and Southern Africa
April 10-14, 1995, Nairobi, Kenya

"The Role of Breastfeeding in Child Survival
and Development in Sub-Sahara Africa"

by

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"The Role of Breastfeeding in Child Survival"

by
M. C. Latham

In most traditional societies in Asia, Latin America and Africa, breastfeeding from time immemorial was the usual, natural and satisfactory way to feed a young infant. Consider these lines from the epic poem "Song of Lawino" by the Ugandan poet Okot p'Bitek. The poem satirizes Westernization in Africa, and these lines suggest correctly that traditional breastfeeding on demand, in sickness and in health, is best for the baby.

When the baby cries

Let him suck

From the breast.

There is no fixed time

For breastfeeding.

When the baby cries

It may be he is ill:

The first medicine for a child

is the breast.

Give him milk

And he will stop crying.

Yet in almost all countries there are many babies who are not breastfed or are breastfed for a relatively short time.

Advantages of breastfeeding over other feeding methods

For most of human history nearly all infants have been breastfed and there has usually existed good local knowledge about breastfeeding, although practices have varied from culture to culture. Extensive studies comparing the composition and relative benefits of human milk and breast-milk substitutes have been published over the last 50 years. Although we have known for many years about the advantages of breastfeeding and a good deal

about human lactation, there has in the past decade been an avalanche of publications on this topic. Most of the new research has strengthened our view of the many advantages of breastfeeding over other methods of infant feeding. It is widely recommended that only breastmilk be fed to infants for the first four to six months of life. Certainly in developing countries where the risks of complementary feeding usually outweigh any possible advantages, breastfeeding alone up to six months of age may be advised.

In recent years there has been an increased interest in breastfeeding. This is in part due to the much publicized controversy over the issue of bottle feeding replacing breastfeeding, and the relationship of this to aggressive promotion of manufactured breastmilk substitutes by multinational corporations and the resurgence of breastfeeding in the industrialized countries of the North. The womanly art of breastfeeding has been rediscovered in Europe and to a lesser extent in North America. Unfortunately, however, an increasing use of bottle-feeding continues to be seen in many nonindustrialized countries of the South. The most serious consequences of this shift from breast to bottle are seen among poor families in Africa, Asia and Latin America.

The advantages of breast over bottle-feeding include:

- (1) breastfeeding is convenient, the food is readily available for the infant, and no special preparations or equipment are needed;
- (2) breastmilk provides a proper balance and quantity of nutrients ideal for the human infant;
- (3) both colostrum and breastmilk have anti-infective constituents that help limit infections;
- (4) bottle-feeding enhances the risk of infections from contamination with pathogenic organisms in the milk, the formula, the water used in

preparation, as well as bottles, teats, and other items used for infant feeding;

(5) economic benefits from breastfeeding when compared with the cost of purchasing infant formula or cows' milk, the bottles and teats, and the fuel necessary for sterilization;

(6) breastfeeding prolongs the duration of postpartum anovulation, assisting mothers to space their children;

(7) enhanced bonding and relationship between mother and infant is fostered by breastfeeding; and

(8) an apparent lowered risk of allergies, obesity, and certain other health problems in breastfed compared with artificially-fed infants.

Several of these eight advantages will be discussed in more detail below.

There is now overwhelming evidence of the health advantages of breastfeeding in terms of reduced infant morbidity and mortality when compared with artificially-fed infants. These advantages accrue mainly to the two-thirds of the world's population who live in poverty, although some studies have shown lower rates of diarrhoea and other infections, and less hospitalization of breastfed compared with formula-fed infants even in affluent communities. There is now evidence that women who breastfeed their infants have a reduced risk of breast cancer, and perhaps of uterine cancer, than do women who do not.

Problems with bottle feeding or feeding breastmilk substitutes

An infant who is not breastfed, or even one who is not exclusively breastfed for the first 4-6 months of life, loses many or all of the eight advantages of breastfeeding mentioned above. The commonest alternative to breastfeeding is bottle-feeding, usually with a manufactured infant formula,

but not infrequently with cows' milk or with other liquids. Less commonly an infant in the first 4 to 6 months of life is fed solid foods in place of breastmilk. Some mothers do use a cup and spoon, rather than a bottle to provide cows' milk, infant formula or gruel to young babies. That has some advantages over bottlefeeding, but is much less satisfactory than breastfeeding.

Whereas breastmilk is protective, alternative infant feeding methods increase the risk of infection, mainly because contamination leads to the increased intake of pathogenic organisms. Poor hygiene, particularly with bottle-feeding, is a major cause of childhood gastroenteritis and diarrhoea. Infant formula and cows' milk are good vehicles and culture media for organisms. It is incredibly difficult to provide a clean, let alone sterile, feed to an infant from the bottle under the following circumstances:

- (a) when the family water supply is a ditch or a well contaminated with human excrement; very few households in the developing countries have their own safe supply of running water;
- (b) when household hygiene is poor and the home environment is contaminated by flies and faeces;
- (c) when there is no refrigerator or other safe storage space for a reconstituted formula or for cows' milk;
- (d) when there is no turn-on stove and on each occasion someone has to gather fuel and light a fire to boil some water to sterilize a bottle;
- (e) when there is no suitable equipment for cleaning the bottle between feeds, and where the bottle used may be of cracked plastic or an almost uncleanable soda bottle; and
- (f) when the mother is relatively uneducated and has little or no knowledge of the germ concept of disease.

There are also two ways by which artificial feeding may contribute importantly to protein-energy malnutrition (PEM), including nutritional marasmus. First, as discussed earlier, formula-fed infants are more likely to get infections including diarrhoea which then contributes importantly to poor growth and PEM in infants and young children. Second, infant formula is often overdiluted by mothers in poor families. Because of the high cost of breastmilk substitutes, the family will purchase too little, and try to stretch this by using less than the recommended amounts of powdered formula per feed. The infant may be given the correct number of feedings and the recommended volume of liquid, but each feed may be too low in its content of energy and other nutrients to sustain optimal growth. The result is first growth faltering and then perhaps the slow development of nutritional marasmus.

There are many reasons for a decline in breastfeeding or for the unnecessary use of breastmilk substitutes. These vary from country to country. The promotional practices of the manufacturers of breastmilk substitutes is one such cause. These have now been regulated in many countries, but the manufacturers continue to circumvent the accepted codes of conduct and to promote their products, even though this may contribute to infant morbidity. Another group of factors that has contributed to a reduction in breastfeeding has been actions by the medical profession. In general, health care systems in most countries have not been adequately supportive of breastfeeding. Even in many developing countries doctors and other health care professionals have played a negative role, and have contributed to reduced levels of breastfeeding. This situation is changing, but many health professionals are relatively ignorant about breastfeeding.

Breastfeeding often declines when rural women move to urban areas, when

traditional practices get replaced by "modern" living or are influenced by westernization. The breast may become regarded as a dominant sex symbol and women may then not wish to breastfeed their baby in public, or they may falsely come to believe that breastfeeding will "spoil" the appearance of the breasts. The female breast is accentuated in books and magazines, by the media, especially television, and in women's clothes. Women enter the employed work force away from home in factories and offices and come to believe that they cannot combine this with breastfeeding, and labor conditions and labor laws may also make it difficult for women to hold a job and breastfeed. At the same time a belief may develop that it is superior, chic and sophisticated to bottle-feed. Breastfeeding becomes regarded as a "primitive" practice, and the feeding bottle becomes a status symbol. Yet bottle feeding is responsible for a great deal of morbidity and mortality in babies.

Breastmilk: Its properties and value

The famous paediatrician, Paul György, said "Cows' milk is best for baby cows and human breastmilk is best for human babies." No one can deny the truth of that statement. It is increasingly therefore viewed that every mother has the right to breastfeed her baby and every infant has the right to be breastfed. Any obstacles placed in the way of breastfeeding then become an infringement of these rights.

It is true that science and industry have combined to produce breastmilk substitutes which attempt to mimic breastmilk in terms of quantities of known nutrients present in mothers' milk. These products, often called infant formulas, are the best alternative to breastmilk, for those few babies who cannot be breastfed. However, these manufactured products are very expensive. All are based on mammalian milk, usually cows' milk, and these milks unlike

human milk, may be responsible for health problems not caused by mothers' milk. Also even if they contain the known nutrients needed, they do not include nutrients not yet identified, nor the anti-infective properties including live cells present in breastmilk (see page).

Immediately after giving birth to a baby, a mother produces first colostrum and within a few days, milk from both breasts. The quantity increases and generally is mainly influenced by the demands of her baby and the amount of sucking which stimulates breastmilk secretion. So from about 100-200 ml on the third day, the amount will often be 400-500 ml by the time the baby is ten days old, and then can increase to as much as 1000 to 1200 ml. Healthy infants of average weight and growing normally at around four months of age will, if exclusively breastfed, be receiving 700 to 850 ml of breastmilk in 24 hours. It is important to appreciate that good breastfeeding is usually infant-driven. It is often the feeding that was traditionally practiced, and includes feeding on demand, day and night, by a mother who is relaxed, confident, and happy to be with her baby, and whose baby is deciding when to feed, how long to suckle, how hard to suck, and when to sleep. The mother and baby form what has been termed a dyad.

Colostrum, which is produced by the breast for the first few days, is straw-coloured or even yellowish in colour. In most societies, it is recognized as not being breastmilk because of its colour and its creamy consistency. In many parts of the world mothers do not feed colostrum to their babies and wait until "white" breastmilk is secreted from the breast. This is unfortunate because colostrum is highly nutritious and it is rich in anti-infective properties. It could be said that living cells, immunoglobulins, and antibodies in colostrum constitute the infant's first immunization. Some mothers (and grandmothers) in the first days after birth,

think that the newborn infant should receive other fluids or foods--this may be tea given to Indian newborns, jamus or medicinal potions to Indonesian babies; or sugar water in many Western hospitals. These are not needed, and in fact are contraindicated. The baby at birth is well hydrated (has adequate body water and fluids) and has enough nutrients, so the only feeding needed is colostrum and then breastmilk for the first four to six months of life.

The milk in the breasts is produced in large numbers of sac-like structures called the alveoli, and is carried in milk ducts to the nipple. The nipple has nerves and is sensitive to stimuli. Around the nipple is a roundish pigmented area called the areola, beneath which are glands which produce oil to keep the nipple and areola surface healthy. Milk production is influenced by hormones, particularly prolactin and oxytocin, and by reflexes. The stimulation of the infant sucking at the nipple stimulates the anterior pituitary gland in the brain to produce prolactin. This influences the alveoli to secrete milk (sometimes called the "milk secretion reflex"). Sucking also influences the posterior pituitary gland to release the hormone oxytocin into the blood. It travels to the breasts and causes contractions around the alveoli and the ducts to "let down" or "eject" the milk. This oxytocin effect is often termed the "let down reflex". Oxytocin also has another action in that it stimulates the uterine muscles to contract, so soon after the delivery of an infant, these uterine contractions reduce haemorrhage.

One liter of breastmilk produces about 750 calories and contains approximately the following:

Water	90 g
Carbohydrate (lactose)	70 g
Fat	44 g

Protein	10 g
Calcium	300 mg
Iron	1.5 mg
Zinc	3 mg
Vitamin A	500 μ g
Thiamine	0.2 mg
Riboflavin	0.4 mg
Niacin	2 mg
Vitamin C	40 mg

In contrast, cows' milk provides about three times more protein, four times more calcium, but only about 60 percent of the carbohydrate present in human breastmilk.

Most studies now clearly indicate that the nutrients present in human milk from a healthy, well nourished mother satisfy all the nutritional needs of the infant if that infant is consuming enough milk. So even though the iron content of human milk is low, the iron in breastmilk is sufficient and well enough absorbed to prevent anaemia during the first 4-6 months of life. Cows' milk is even lower in its iron content, is not very well absorbed by the baby, and so infants fed cows' milk are very likely to develop iron deficiency anemia.

There is a widely held belief that the composition of breast milk varies enormously. This is not so. Human breast milk has a fairly constant composition, and is little affected by the diet of the mother. The carbohydrate, protein, fat, calcium and iron contents do not change much even if the mother is short of these in her diet. But a mother whose diet is deficient in thiamine, vitamin A and vitamin C produces less of these in her milk and, with thiamine at least, this can lead to a deficiency disease in her

infant (infantile beriberi, see page).

Again contrary to some beliefs, the milk in both breasts has the same composition. Frequently mothers, or more often grandmothers, think that the milk from one breast is not good and, much to the disadvantage of both mother and infant, only one breast is ever used. In general the effect of very poor nutrition on a lactating woman is to reduce the quantity rather than the quality of breast milk.

Breastmilk of course may vary somewhat between persons, and probably to some minor extent in different parts of the world. It also is different at the beginning and end of each feed (the so-called foremilk being more water and containing less fat) compared with the latter part of the feed when the milk is somewhat thicker and whiter in appearance, and is more energy-dense because it contains more fat.

Of particular importance is the presence in colostrum and breastmilk of anti-infective factors (not present in infant formula). These include:

(1) antibodies and immunoglobulins, some of which work in the baby's intestines and prevent disease-causing organisms from getting into the baby and causing an infection;

(2) living cells, mainly white blood cells, which may produce important substances such as interferon (which may fight viruses), IgA, lactoferrin, lysosomes and others.

(3) other factors such as the bifidus factor which helps the growth and proliferation of certain friendly bacteria such as lactobacilli in the infant gut. These bacteria help ensure an acid environment, from lactic acid, in the intestine, and this discourages the growth of harmful organisms.

In simple terms breastmilk, as opposed to infant formula, leads to an environment in the intestine of the baby that is harmful and unfriendly to

disease-causing organisms. The stool of a breastfed infant is different in appearance to that of a formula-fed baby.

Breastmilk, and particularly the immunoglobulins in breastmilk, seems to protect babies against allergies. More importantly, the non-human and cow proteins present in breastmilk substitutes, and other substances which enter infant formulas during manufacture, may provoke allergies. The important end result is a greatly increased rate of eczema, other allergies, colic and so-called sudden infant death syndrome in formula-fed compared with breastfed infants.

Infant feeding trends

The percentage of mothers who breastfeed their infants and the duration of breastfeeding varies among countries and within them. Exclusive, or near exclusive breastfeeding for the first 4-6 months of life, and then continued breastfeeding for many more months while other foods are introduced, is considered optimum infant feeding. This ideal does not exist in any country, north or south. Although there are many exceptions, traditional societies, particularly in rural areas in developing countries, still often have a high prevalence and long duration of breastfeeding. Few practice exclusive breastfeeding, and many do not provide colostrum to their babies.

In contrast over a period of years there was a very marked decline in breastfeeding in many European and North American countries, which reached its lowest level in the 1950s and 1960s when fewer than 15 percent of American babies two months of age were being breastfed. During these years a marked decline was being reported from some Asian and Latin American countries (see Table 7.1). Now in the mid-1990s there has been a modest resurgence of breastfeeding in the industrialized countries of the North, especially among better-educated mothers, and a variable situation in poor Asian, African, and

Latin American countries. Not infrequently breastfeeding rates there are low in urban areas, and higher among less-educated rural areas.

In many areas of the world, despite all the recent efforts in favour of breastfeeding, there is a continuing decline. What is the nature of that decline? The World Health Organization (WHO) some ten years ago described a typology of three phases and eight stages in the breastfeeding situation in countries around the world. This is presented in Table 7.2. The WHO model suggests a sequential progression through these eight stages, with declines occurring within each country first within groups of high socioeconomic status (SES) urban women (the lead group), followed by their lower SES urban counterparts, and finally the rural poor. In contrast, the resurgence phase in industrialized countries is characterized by high SES returning to breastfeeding first and in larger numbers.

This WHO model is useful, but there are many exceptions. In the USA the resurgence seems to have halted and some poor developing countries have halted the decline. The WHO typology is based entirely on statistics which provide data on the prevalence and duration of breastfeeding. The assumption is that mothers of infants 0-6 months of age are either breastfeeding their babies or are bottle-feeding using a breastmilk substitute. Our work in Kenya, Thailand, and Colombia showed that many mothers of very young infants are bottle-feeding, while continuing to breastfeed. This has been termed "triple nipple" infant feeding. So, for example, poor urban women in Kenya had a high prevalence and long duration of breastfeeding (WHO Phase 1, Stage 1), but that bottle-feeding was also commonly introduced very early. So at age 3-4 months, over 95 percent of infants were being breastfed, but 55 percent were also receiving breastmilk substitutes regularly. So the common pattern of infant feeding is not "traditional" in the sense of being the

feeding method practiced by their ancestors who did not have access either to feeding bottles or infant formula.

A problem, then, with the WHO typology is that it classifies countries and communities based entirely on breastfeeding prevalence and duration. This ignores the situation where breastfeeding is prolonged, but where these same mothers feed breastmilk substitutes to their infants at a dangerously early age while continuing to breastfeed. Under these circumstances a very young infant fed both from the breast and from the bottle receives some of the advantages of breastfeeding, but many of the disadvantages of bottle-feeding. The unnecessary very early partial replacement of breastmilk with breastmilk substitutes from a bottle introduces risks and sometimes serious problems for the infant, the mother and the family. These include a greater likelihood of infections including those from contaminated bottles and infant formula; the possible problem of overdilution of the breastmilk substitute; the economic disadvantages because of the high cost of formula, and finally the increased risk of an early pregnancy for the mother because the period of lactational anovulation may be significantly reduced by partial breast feeding.

Policy decisions based on a country's closest fit to one of the WHO typology stages and the assumption of sequential stage progression may be misleading. The policy recommendations in a situation where breastfeeding is frequently continued for more than 12 months, but where it is also common to introduce significant alternative feedings before 3 months of age, are likely to be different from those where total early abandonment of breastfeeding was common.

Data on exclusive breastfeeding from most countries are not available. Yet this is considered important for the first few months of life.

Management of breastfeeding

If at all possible breastfeeding should begin within minutes of delivery (or certainly within one hour), be this on the hospital delivery table or in the mother's home. The baby is often wide awake, the so-called sucking reflex is present, the breasts have colostrum, and bonding can begin. But this early suckling has physiological advantages, because it raises the levels of the hormone, oxytocin, secreted into the mother's blood, and oxytocin causes uterine contractions which first will help expel the placenta, and then will play an important role in reducing blood loss.

Then after a minimum of cleaning up (there is no need really to do much more than wipe the baby clean; there is no need to provide a long sterile bath), the mother and her baby should be together in bed in the home or in the hospital ward. In the past it was "normal" but highly undesirable to take the baby to a nursery ward and the mother to a separate ward in modern hospitals. Wherever "rooming in" is not the current hospital practice, this needs to be changed. It is absolutely safe for the baby to sleep in the same bed as the mother. There are very few contraindications (serious illness in the mother or infant) to rooming in or breastfeeding.

In the days after delivery, and as the baby gets older, breastfeeding should be done "on demand". That is, the baby should be breastfed when he or she wants to be fed, and not as used to be common in Western countries, on a scheduled basis, such as every 3 or 4 hours. Demand feeding will stimulate the nipple and a greater production of milk, and it will help prevent breast engorgement. The duration of each feed will vary, and in general should not be limited. Usually a baby feeds for 8 to 12 minutes, but there are fast and slow feeders, and both usually get an adequate quantity of milk. Some mothers believe that the milk from the left breast is different from the right. That is not so, and the baby should feed from both breasts more or less equally.

Almost all experts now agree that the infant should be exclusively breastfed for the first 4 to 6 months. An adequate gain in weight is the best way of judging the adequacy of the diet. No water, juices, or other fluids are needed for a baby getting adequate breastmilk even in hot humid or hot arid areas of the tropics. With diarrhoea (see p.) breastfeeding should continue, but other fluids such as local preparations or oral rehydration solutions may be needed.

My long experience in East Africa, and my shorter time in Asian and Latin American countries, suggests to me that most mothers living in extended families in traditional societies are very successful, often very expert breastfeeders, and failure of lactation is uncommon.

Mothers should be advised not to give the infant any supplementary foods until he is 4 months of age, provided that he is gaining weight normally and appears healthy. After this, supplementary foods should be introduced by the sixth month at the latest, but breastfeeding should continue. Supplements should include foods rich in iron (without which the infant may become anaemic), foods containing vitamin C, and foods that provide good quantities of calories for growth and for the extra energy that the infant now expends. As soon as the supply of breastmilk is reduced, it is vitally important to include other protein-rich foods in the infant's diet.

At clinics, time is often wasted in teaching mothers how to breastfeed a baby properly. These lessons are frequently given by women who have not themselves had children, and who try to pass on western textbook ideas about breastfeeding. Insistence on burping, on timing of feeds, on frequently washing and cleansing the nipples, on breast support, or on positioning the baby for the feed are all out of place in Africa. Breastfeeding is not a complicated, difficult procedure. The low rate of successful breastfeeders in

North America and Western Europe is an indication of how poor western-style teaching has been. Rules and strictures have had the effect of giving breastfeeding a magical, mythical aura, and this has had grave psychological effects which have often resulted in failure of lactation.

Babies in the few days after birth usually lose weight, so that a 3000 gm (3 kg) baby at 5 days of age may be 27750 gm (a loss of up to about 10 percent is not unusual) but by 7 to 10 days should have regained or overtaken the birth weight.

Some women in all societies do have problems with breastfeeding, but many of these are solvable or can be relieved. It is important that she can easily get good advice and support. Many books are available which deal with lactation and related problems. Lactating mothers should be encouraged to attend a clinic or health center or local primary health care facility with their babies on a regular basis after delivery. The baby should be examined and weighed, a schedule for immunizations established, and advice given to the mother. The mother's health status should also be assessed, if possible her haemoglobin level determined, and discussion begun about the mother's intentions with regard to her desire for future pregnancies, and how she wishes to control these.

Common breastfeeding problems include inverted nipples, short nipples, or nipples that do not seem to be very protractile; nipples considered too long which may interfere with feeding, because some babies suck only the nipple and not the areola; refusal to feed which needs to be checked in case the baby is ill or has a mouth problem such as a cleft palate; sore breasts which may be cracked nipples or full-fledged mastitis or a breast abscess requiring antibiotics and good medical care; so-called insufficient milk which is discussed below; and leaking breasts which may cause embarrassment, but is

usually self-limiting and can be dealt with by self-expression of milk and using an absorbent pad to prevent wetting of her clothing.

Complete lactation failure

In a very few instances there is complete, or near complete, lactation failure. This occurs in fewer than 3 percent of mothers. If the mother has these serious difficulties, is seeking help and really wants to breastfeed her very young baby, then some heroic methods may be necessary. The mother may need to be admitted to hospital and placed in a ward where other women are successfully breastfeeding. She and her infant should be examined for any physical reason for not being able to breastfeed. She should be given plenty of fluids, including milk. All these are mainly psychological inducements aimed at encouraging the resumption of lactation. In some societies local foods or potions are considered to be lactagogues, or substances that stimulate breastmilk production. There is no harm in trying these. A knowledgeable doctor or senior health worker may prescribe one of two drugs which are sometimes effective in improving or stimulating milk production. The newer of these is metoclorpramide, 10 mg three times a day, and the older tranquilizer is chlorpromazine, 25 mg three times a day by mouth.

In general, the important basis for treatment is to try to help the mother to be relaxed, to assist her getting the baby to suck at the breast, and to make certain that while relying as much as possible on the breast, the baby is not losing weight. The dilemma is that the more suckling at the breast, the greater stimulation to milk production and let down, and the more supplementary foods given to the infant, the less sucking the baby will want to do.

If breastfeeding remains unsuccessful in an infant 0-3 months of age, the mother should be taught to feed infant formula or milk to the baby either

with a cup and spoon or with a feeding bowl. Some means should be found to provide her with adequate infant formula, fresh milk or full-cream milk powder if she cannot afford to buy it, which will often be the case. A cup and spoon are easier to keep clean than are a bottle and teat. The infant should attend the clinic regularly. This method of feeding also applies to the infant of a mother who dies in childbirth. It is then desirable to admit to hospital with the child whichever female relative is to be responsible for feeding him. An alternative is to find a lactating relative or friend to breastfeed the infant and to act as a wet nurse. Sometimes a friend or relative will be willing and able.

Failure of lactation or death of the mother after the infant is 4 months of age calls for a different regime. The child can be fed a thin gruel of whatever is the local staple food. To this should be added adequate quantities of milk or milk powder. It is advantageous to provide some extra fat in the infant's diet. A relatively small quantity of groundnut, sesame (simsim), cottonseed, red palm, or other edible oil will markedly increase the energy intake without adding too much to the bulk. If milk or milk powder is not available then any of the protein-rich foods, such as legumes, eggs, ground meat, fish or poultry, may be used.

Insufficient milk production

Much more common than lactation failure is the belief by a mother that she is not producing enough breastmilk to satisfy her baby. This is very commonly reported by mothers in industrialized countries. It may be that the baby is crying a lot, or the mother feels that the baby is not growing adequately, or any of a number of other causes. In medicine this common condition is termed the "insufficient milk syndrome". It often at first is a psychological concern rather than a serious condition, but it may rapidly lead

to a real problem of milk production. Too often physicians, nurses and friends of the mother provide exactly the wrong advice to the mother concerned about her milk production.

In many studies, especially in industrialized countries, "insufficient milk" is cited as the commonest reason given by mothers for their early termination of breastfeeding or for early supplementation with other foods, especially formula. This "insufficient milk syndrome" has not been adequately studied nor is it well understood either in research circles nor by practicing doctors and paediatricians. It is all too easy to assume simply that many women are incapable of producing enough milk to feed their young infants.

But why should this be the case, when most women in traditional societies and rural areas do usually produce adequate quantities of milk? The view is then expressed that the stresses of modern life and the loss of the support system found in the villages are the cause of lactation failure. Because these views are commonly held, the busy practitioner's answer, when faced with a mother complaining of insufficient milk, is simply to advise her to supplement her breast milk with bottle feeds. But this may be exactly the wrong advice to give.

Lactation is dependent on two hormones, namely oxytocin and prolactin. Oxytocin is responsible for the letdown reflex in breastfeeding. Prolactin both stimulates milk synthesis and secretion, and also seems to repress ovarian activity. Suckling at the breast encourages the release of prolactin. The maintenance of lactation is dependent on adequate nipple stimulation by the suckling infant. It is now evident that diminishing amounts of breast milk production result from reduced nipple stimulation.

The cause of "insufficient milk" may therefore often be that alternative feeding has replaced breastfeeding to a variable degree. Therefore, advice to

provide a supplement, or more supplement, is almost always going to contribute to a reduction in breast milk production. Supplementary bottle feeds for the infant is used as a "cure" for insufficient milk when in fact it is the "cause".

The most appropriate treatment for the insufficient milk syndrome, in a mother who wishes to breastfeed, is to try to increase milk production by advising her to put the infant to the breast more frequently, and in this way increasing stimulation of the nipples. The common medical advice of suggesting more bottle feeds is likely to worsen the situation leading to a further decline in milk production, and eventual cessation of lactation. This is not to condemn supplementary feeding especially after the infant is 6 months of age, but it is only to suggest that its use will almost inevitably contribute to a decline in milk production.

There is no doubt that insufficient milk is a frequently given reason for early discontinuation of breastfeeding and for supplementation of the infant during the first 4 to 6 months of life. Several determinants, some associated with modernization, westernization and urbanization, contribute to this phenomenon by placing a distance between mother and infant with reduction of suckling and then of milk production. Bottle feeding, especially in early infancy, may seriously interfere with lactation, and reduce the quantity of milk produced, and in this way may be a major cause of insufficient milk.

Maternal employment away from home is frequently quoted as the most important reason for a decline in breastfeeding. However, published surveys seldom cite work as an important reason either for not initiating breastfeeding or for early weaning from the breast. But clearly employment out of the home for more than a few hours a day does place constraints on the opportunity to breastfeed, and does provide a reason for supplementary

feeding. It may therefore contribute to the development of insufficient milk. But working mothers can continue to breastfeed successfully and can maintain good levels of lactation. Nipple stimulation from adequate suckling during the time they spend with their infants is particularly important for them..

There is a need for labour laws and work conditions that recognize the special needs of lactating mothers in the labour force. Conventions of the International Labour Organization, officially subscribed to by most governments, provide for two half-hour nursing breaks per day and the provision of creches or nurseries in places where women are employed. Very few nations enforce such policies. But as Margaret Mead has argued "if breastfeeding were accepted as necessary and usual practice by governments and employers, then arrangements must be made for a woman's baby to be near her for the first six months of life."

The value of breastfeeding on demand, of close contact between mother and child, and of various support systems for the mother are recognized adjuncts to satisfactory lactation. Successful breastfeeding may be more difficult in modern urban societies but is not impossible. Countries like Sweden, with a large percentage of the population living in modern cities, have reported a major increase in breastfeeding over the last decade. China, where a very high proportion of women are in the paid work force, is a country where by far the majority of mothers still breastfeed. Certainly cultural attitudes and practices may be important in contributing to the insufficient milk syndrome in some societies.

Past and present promotional practices by manufacturers of breastmilk substitutes may be an important contributing factor to the problem of insufficient milk. It is attractive to the companies to influence both the public and the medical profession to believe that supplementary bottle feeding

is the answer to insufficient milk.

The best and easiest way to judge whether or not a baby is getting enough breastmilk, when no other feeding is provided, is to weigh the baby regularly. Normal or near-normal weight gain provides the best evidence of adequate breastmilk production.

Breastfeeding, fertility and birth spacing

For a very long time the traditional wisdom of many societies included a belief that breastfeeding reduced the likelihood of an early pregnancy. Often this belief was regarded as an old wives' tale. Scientific evidence now proves beyond question a positive relationship between on the one hand intensity, frequency and duration of breastfeeding, and on the other the length of postpartum amenorrhoea, anovulation and reduced fertility. From the mother's point of view what is noticed is that there is a relatively long period after birth before menstruation resumes if she is intensively breastfeeding. This is in contrast to a short interval between birth and onset of monthly periods in women who do not breastfeed their babies. The physiology of this phenomenon is now reasonably clear, and is related to hormones produced as a result of sucking stimulation of the nipple.

This knowledge has important implications in terms of birth spacing and population dynamics. In many developing countries, breastfeeding is now contributing more to child spacing and in prolonging intervals between births than are the combined use of the contraceptive pill, the IUD, condoms, diaphragms and other modern contraceptives. Therefore the fertility controlling benefits of breastfeeding should now be added to its other advantages. Recent data from Kenya and elsewhere suggest that women who continue to breastfeed for a long time, but who also introduce bottle-feeding in the first few months of the infant's life, may have a reduced length of

postpartum amenorrhoea compared with women who do not practice early mixed breast and bottle-feeding. Therefore, the use of breastmilk substitutes in the first few months of life reduces sucking at the breast, which in turn lowers prolactin blood levels and leads to an earlier return of ovulation and to menstruation even for a mother who may breastfeed for a year or more. Bottle-feeding of babies is contributing to a narrower spacing between births.

This so-called lactational amenorrhoea method (LAM) of natural family planning is now being widely and successfully used. If a mother has an infant under 6 months of age, is amenorrhoeic (no vaginal bleeding from 56 days postpartum), and is exclusively (or very nearly fully) breastfeeding her infant, then she is said to be 98% protected against pregnancy. She does not need to use any artificial family planning method.

Economic disadvantages of bottle-feeding

A very important disadvantage of formula feeding is the cost for the family and for the nation. Breastmilk is produced in all countries, infant formula is not. Infant formula is a very expensive food, and if countries have to import it, their foreign exchange is unnecessarily spent. There are therefore serious economic advantages for families and for poor countries in choosing breastfeeding over bottle-feeding.

Infant formula is a better product for a 1-month-old baby than is fresh cows' milk or whole milk powder. Dried skimmed milk and sweetened condensed milk are contraindicated. But infant formula is extremely expensive relative to the incomes of poor families in developing countries. In Kenya, India, and Indonesia it would cost a family 70 percent or more of the average laborer's wage to purchase adequate quantities of infant formula for a 4-month-old baby. The purchase of formula, as substitutes for breastmilk, diverts scarce family monetary resources and increases poverty. Usually mothers will not, or

cannot, use the money it requires to purchase adequate amounts of formula. So frequently less is purchased. It gets overdiluted, and the baby becomes malnourished. Cows' milk, either fresh or powdered, may be cheaper, but still costs more than most poor mothers can afford.

A baby 3-4 months of age needs about 800 ml of milk per day or perhaps 150 litres in the first 6-7 months of life. In the first 4 months of life a baby of average weight would need about 22 kg or 44 half-kilo cans of powdered formula. Health workers and those providing advice on infant feeding in any country should go to local shops, find the price of locally available breastmilk substitutes, estimate the cost per month or per 6 months to feed that product in adequate amounts. This information should be publicised, made available to government officials and to parents, and used as far as possible to illustrate the economic implications for poor mothers not breastfeeding.

For many countries which do not manufacture infant formula a decline in breastfeeding means an increase in the importation of manufactured breastmilk substitutes and of the paraphernalia needed for bottle-feeding. These imports may lead to a worsening of the already horrendous foreign debt problems for many developing countries. Even where formula is locally made, the manufacture is frequently controlled by a multinational corporation, and profits are exported. Therefore, the preservation of breastfeeding or a reduction in artificial feeding is in the economic interests of most Third World countries. Economists and politicians may be more inclined to support programmes to promote breastfeeding when they appreciate that such measures will save foreign exchange. This is often of more interest to them than arguments about the health advantages of breastfeeding.

Breastfeeding and AIDs

Human immunodeficiency virus (HIV) infection is now a major health

challenge worldwide. Once infected, often some years later there is progressive disease characterized eventually by immunosuppression and a syndrome in which various infections often with diarrhea and pneumonia and malignancies such as Kaposi's sarcoma may develop and eventually lead to death. In many developing countries HIV infections are almost as common in females as males. Increasing numbers of infants and young children appear to be infected from their mothers. The exact mechanisms of transmission from mother to the foetus or infant is not known. Transmission could occur in utero through passage of the virus across the placenta; around the time of delivery by the viral transmission through exposure to vaginal secretions, ingested maternal blood, or maternal-foetal transfusion during labor and delivery; and in infancy through the virus in breastmilk. In many countries it has been reported that 25 to 45 percent of infants born to mothers who test positive to HIV, themselves develop the disease.

There is evidence to suggest that HIV can be transmitted from infected mothers to their uninfected infants through breastmilk. The virus has been isolated from human breastmilk. It was thought that the fragile virus might be destroyed by gastric acid and enzymes in the infant's gut, and that the stomach and intestines of infants might be relatively impervious to the virus. This is probably largely true, and by far the majority of babies breastfed by HIV-infected mothers do not become infected through breastmilk.

It has been difficult, in a particular infant, to determine whether HIV infection occurred prior to delivery, at the time of delivery, or through breastfeeding. This, in part, is because both infected and uninfected infants acquire HIV antibodies passively from their infected mothers, but the presence of antibodies (in standard HIV tests) cannot be interpreted to mean active infection.

Current views are that transmission from mother to infant through breastmilk is relatively rare, and that unknown factors may influence this, which explains apparent higher rates of transmission in some groups of women from certain countries, and much lower rates elsewhere.

A WHO/UNICEF Consultation is clear in its recommendation, despite the current evidence of HIV transmission through breastmilk. The statement says:

"Where infectious diseases and malnutrition are the main cause of infant deaths and the infant mortality rate is high, breastfeeding should be the usual advice to pregnant women, including those who are HIV-infected. This is because their baby's risk of HIV infection through breast milk is likely to be lower than this risk of death from other causes if it is not breast-fed."

Many infants in Africa, Asia, and Latin America live in settings where gastrointestinal infections are prevalent, poor hygiene exists, and water supplies are suspect. In these circumstances the many advantages of breastfeeding far outweigh the risk to the infant by AIDS infection through breastmilk from their HIV positive mother. Only where the common causes of morbidity and mortality in infancy are not due to infectious diseases should public policy advise the use of bottle feeding in place of breastfeeding to reduce the possibility of AIDS transmission. Individual mothers seen by a doctor or a trained health worker should, of course, where feasible, be counselled and cautioned about the relative risks to their infant of breastfeeding or alternative feeding methods in terms of disease and survival. This will allow the mother to make an informed decision.

The protection, support, and promotion of breastfeeding

Two factors stand out as being major reasons for a decline in breastfeeding. So if these influences could be adequately dealt with or controlled, then in theory breastfeeding would be the norm. These factors are first, the promotion of breastmilk substitutes by their manufacturers, particularly the multinational corporations, and second, the failure of the health profession to advocate, protect and support breastfeeding. In the 1950s and 1960s a small group of physicians, paediatricians and nutritionists working in developing countries were drawing attention to the dangers of bottle-feeding and decrying the role of industry in the decline of breastfeeding. During that time, advertising of breastmilk substitutes was widely used in newspapers and magazines, and on radio and later on television. The corporations were using "milk nurses" to push their products in health facilities; free samples and glossy literature on their products were provided to mothers soon after delivery; and a number of other hard-sell tactics were being used.

Public outrage in the 1970s began to develop over these tactics, and an increased understanding developed over the very harmful effects of bottle feeding in developing countries. Most doctors and health workers both in countries of the North and the South were at best unsupportive of the growing public pressure to rein in the promotional activities of the corporations, and at worst doctors sided with the manufacturers against the critics of the corporations.

In 1979, unable to resist the pressure, WHO and UNICEF organized a meeting in Geneva at which a handful of experts met with representatives of industry, of non-government organizations (NGOs), and of delegates from selected countries, to discuss possible regulations to control the promotion of breastmilk substitutes. This meeting probably would not have taken place

had it not been for the tireless efforts of certain NGOs and their enthusiastic staff. At the 1979 Geneva conference, despite rearguard actions by the major manufacturers, a decision was made to develop a Code of Conduct and some of the main principles of a Code were agreed upon. Several meetings followed to develop wording for the Code. On 21 May 1981 the World Health Assembly overwhelmingly adopted the International Code of Marketing of Breastmilk Substitutes. Only one country, the United States, voted against the Code. The Code applies to the marketing of breastmilk substitutes, and its most important article stated that "there should be no advertising or other form of promotion to the general public of breastmilk substitutes and other items mentioned in the Code". Other details dealt with provision of samples at sales points; contact between marketing personnel and mothers; the use of health facilities for the promotion of infant formula; and the labelling and quality of products.

The Code is surely a minimum requirement, and was a compromise between industry and those who believe that all promotion of infant formula should be barred. The major provisions of the Code include:

- No advertising in health care facilities
- No free samples
- No promotion in health care facilities
- No inducement or unscientific promotion to health workers
- No free or low-cost supplies to maternity wards and hospitals
- Factual rather than promotion-oriented literature
- Non-promotional labels that state the superiority of breastfeeding and the hazards of the bottle.

Many formula manufacturers violate the Code, and they interpret the different provisions to suit their marketing strategies so as to maximize sales and

profits, and have little conscience about ignoring the spirit of a Code, that they played a role in developing.

The Code is not binding on member states but it suggests that governments should take action to give effect to the principles and aims of the Code. In practice, the Code (coupled with actions such as the Nestlé boycott) has resulted in almost complete cessation of advertising of breastmilk substitutes to the public by the large manufacturers. Many countries have introduced legislation based on the international Code. The use of samples has declined but has not been halted. Many Ministries of Health are now more supportive of breastfeeding than in the past. But it is often forgotten that the Code was a compromise agreement, that it was the very minimum needed to address a small part of a large problem, that all codes have loopholes, and that industry has worked hard to circumvent the Code.

It is believed that the major manufacturers are still spending very large sums to promote infant formula. Though advertising to the public has ceased, they are continuing to advertise to health professionals; they have worked in many countries to weaken or prevent codes from becoming law; and they are increasing advertising to the public the use of their manufactured weaning foods for consumption by very young babies.

Free formula is still provided by many manufacturers to hospitals in many countries. In exchange, the hospitals hand out free formula together with company literature to mothers after delivery of the baby as they leave the hospital. This gives the mother the impression of medical endorsement of formula feeding. Corporations try to purchase support from paediatricians, senior health officials, and others by giving funds for travel, for society meetings, for research and for other purposes. All of this is promotion.

The World Health Assembly passage of the Code, and of some other

resolutions very supportive of breastfeeding has led to some complacency and to a false belief that the problem has been solved. Those who worked for the Code knew that it could at best solve only a part of the problem, yet support for actions to deal with other important causes of breastfeeding decline is now more difficult to obtain. There is currently a need to strengthen and broaden the Code, by making it applicable to manufactured weaning foods as well as breastmilk substitutes, and to prevent advertising to health professionals as well as to the general public. More support is needed for NGOs involved in monitoring the Code and in their work to protect, support, and promote breastfeeding.

The attitude of health professionals with regard to breastfeeding has improved over the last two decades. However, there is still much ignorance, and as a result the medical and health profession often has a negative impact on breastfeeding. The first need then is to educate all future health workers about breastfeeding and to re-educate existing professionals. This requires improvements in training of doctors, nurses, midwives and other health professionals. In some countries major efforts are underway, using seminars and refresher courses to educate existing health workers about sound infant feeding practices.

Steps should be taken to try to ensure that in all health institutions the infant is put to the breast as soon as possible after birth, preferably within the first hour. The advantages include beneficial effects on the mother's uterus, promotion of mother-infant bonding, supply of immune substances to the newborn, and a positive influence on subsequent successful breastfeeding. In many communities in Africa, Asia, and Latin America very early breastfeeding is discouraged, and in many cultures colostrum is discarded because it is not considered to be good for the baby. This is one

of the few instances where traditional practices related to breastfeeding are not ideal. Efforts should be made to influence mothers about the benefits of early feeding and of colostrum fed to their infants.

The importance of rooming-in, which allows some women after delivery in hospital to remain with their infants, is now accepted but not practiced everywhere. No hospitals should remain where rooming-in is not the norm. Health professionals need to guard against influence on them by formula manufacturers, and should avoid becoming obligated to the corporations by accepting favours, donations or even research grants from them. If the multinational corporations wish to support research or projects dealing with infant feeding they should not provide grants directly to scientists, but rather should give the funds to organizations such as WHO or UNICEF, or to national professional bodies who can then allocate the funds to scientists on a competitive basis following peer review processes.

In order to assist mothers and their infants with the rights to breastfeeding, and to empower women, there are three levels or categories of activity which need to be a part of the strategy in a country or community. These are:

- (1) Protection of breastfeeding, which includes policies, programmes and activities which shield women, already breastfeeding or planning to breastfeed, against forces which might influence them to do otherwise.
- (2) Support of breastfeeding through activities, both formal and informal, which may help women to have confidence in their ability to breastfeed. This is important for women who have a desire to breastfeed but have anxieties or doubts about it, or who face conditions which seem to make breastfeeding seem difficult.

- (3) Promotion of breastfeeding through activities that are designed

mainly to influence groups of women to breastfeed their infants when they are disinclined to do so or have not done so with their previous babies.

Although all three categories of activity are important, the relative effort put into each should depend on the current situation in each country. Thus, where traditional breastfeeding practices are the norm but where infant formula is just beginning to make inroads, protection is the policy deserving highest priority. In contrast, in a country where the majority of women are not breastfeeding at all, the major efforts should be on promotion. To use a health analogy it can be said that protection and support are preventive measures, and promotion is a curative approach to the problem.

Protection of breastfeeding. This aims to guard women who normally would successfully breastfeed, against those forces which might cause them to alter this practice. All actions which prevent or curtail promotion of breastmilk substitutes, baby bottles and teats will have this effect. A strong Code properly enforced and monitored will help protect breastfeeding. Also, measures which reduce the availability of infant formula in places where poor women shop will be useful. Other forms of formula promotion also need to be curtailed including: that aimed at health professionals; the giving out of samples, calendars and promotional materials; and hospital visits by corporation staff. Legislative measures to curb these practices may be needed. Papua New Guinea has placed infant formula on prescription as a means to protect breastfeeding. New measures need to be adopted in some countries to reduce the promotion of manufactured weaning foods and items such as glucose for child feeding.

Support of breastfeeding. What should be done in each country depends on those factors or problems which are making breastfeeding more difficult. In many urban areas paid employment away from home is one such factor. In

this case, legislation to provide women with two or three months of maternity leave, and job security if they take unpaid leave, may be called for. Also adequate lunch-breaks to allow breastfeeding or creches to permit babies to be fed at the work site are supportive measures. A second set of factors is related to maternal morbidity, including breast problems during lactation. Unless the health workers are supportive of breastfeeding, it is often found that mothers unnecessarily resort to breastmilk substitutes when they face such problems. A third important issue includes current health facility practices. As stated, these sometimes discourage successful breastfeeding whereas they should be supportive. Hospital regulations and practices which ensure rooming-in and on-demand breastfeeding, very early placing of the infant on the breast after delivery, and a variety of educational and other activities by health workers aimed at mothers before, during and after delivery, should all be routine practice in support of breastfeeding. Doctors need to understand that very few health conditions are absolute contra-indications for breastfeeding. In many industrialized and non-industrialized countries private voluntary agencies and non-government organizations are playing very useful roles in support of breastfeeding. La Leche League in the US and breastfeeding information groups in other countries have been important.

Promotion of breastfeeding. This includes motivation or re-education of mothers (or potential mothers) who otherwise might not be inclined to breastfeed their babies. In theory, promotion is the most difficult and certainly the most costly of the three options. But in some societies, it is an essential approach if breastfeeding is to become the preferred method of infant feeding. Mass media and education campaigns to make known the disadvantages of bottle-feeding and the advantages of breastfeeding are the

usual approaches. It is important to know the factors that have led to the decline in breastfeeding in an area and to understand how women regard breast and bottle-feeding. A lack of such understanding has led to failure of many promotional campaigns. Social marketing techniques, properly applied, have a greater chance of success. Promotion should address not only the health benefits, but also the economic and anti-fertility advantages of breastfeeding. Often it is first necessary for politicians to be educated about these matters. Both a strong political will and an ability to implement new policies are necessary ingredients of any plan to protect, support and promote breastfeeding.

The Baby Friendly Hospital Initiative (BFHI)

In March 1992 UNICEF and WHO launched a new initiative to help protect, support and promote breastfeeding by addressing problems in hospitals. These included hospital practices that were not supportive of breastfeeding, for example separation of the mother from her infant, and others that directly influenced mothers to formula-feed, for example free formula packs given to mothers. This new activity has been termed the Baby Friendly Hospital Initiative (BFHI). It is designed to make hospitals help mothers and babies achieve their rights to breastfeeding and it recognizes that hospitals and health professionals have often not fostered breastfeeding. It addresses the prevalent problem of hospitals being a major source of misinformation about breastfeeding, and that practices in hospitals and approved by physicians and others often undermine breastfeeding.

The two major objectives of the BFHI as enunciated in 1992 were then (a) to end the distribution of free or low-cost supplies of breastmilk substitutes, and (b) to ensure hospital practices supportive of breastfeeding. The first goal should have been relatively easy to achieve. UNICEF believed

that the major infant formula manufacturers had agreed to end free distribution of their formula in all hospitals. As in the past, agreements apparently reached with those corporations are not adhered to, or exceptions are sought. Profits are paramount, and the health of babies takes second place. So, in fact, the second goal of improving hospital practices has made great progress in many countries, but formula manufacturers continue to promote their formula using free supplies.

The practices that hospitals are expected to undertake in order to be considered baby-friendly have been termed the "ten steps to successful breastfeeding". These are that every facility providing maternity services and care for newborn infants should:

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 breast milk, 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.

The relevance of the BFHI for countries and communities where most babies are born outside the hospital setting has been questioned. Certainly it may be less important there, and it may be less influential in maternity hospitals in large cities in developing countries, where babies are discharged within 24 or 36 hours of delivery. But the BFHI if successful removes misinformation about infant feeding from one of its most important sources, namely the hospitals, which are also the trend-setters and the places where health professionals are trained. If hospitals become places which promote rather than deter breastfeeding, this can have an influence beyond the hospital.

Breastfeeding and mother's work away from home

In most countries north and south, most mothers have to make difficult decisions in an attempt to fulfill their dual responsibilities to provide proper childcare and to work. All mothers work, and therefore their breastfeeding as part of optimal childcare impinges on their work. Often the challenge is greater for those who have paid employment away from home.

Some countries have made it easier for working women to breastfeed and some employers of female labor have facilitated breastfeeding for mothers. But these are exceptions, and yet should be the rule. The Declaration from the FAO/WHO International Conference on Nutrition held in 1992 acknowledges the "right of infants and mothers to exclusive breastfeeding" and the final report states that governments and others should:

"Support and encourage mothers to breastfeed and adequately care for their children, whether formally or informally employed or doing unpaid work. ILO

conventions and regulations covering this subject may be used as a starting point."

The ILO Convention recognizes the rights of women to maternity leave and to breastfeed their infants.

However in many countries serious obstacles are placed in the way of mothers' rights to breastfeed. Just as child labor is illegal, the world should move to a view that hindering a woman's right to breastfeed is also intolerable. Among the common obstacles are very short maternity leaves, or no maternity leave for casual employees; loss of jobs for those who do take maternity leave; a lack of child care facilities which could be available in places where large numbers of women are employed; a failure to provide breastfeeding breaks for women who could breastfeed during a long work shift; and open targeting of working women by formula companies to persuade them to formula-feed rather than breastfeed their infants.

What can be done? In the first place, governments and the general public should ensure that at a very minimum the terms of the ILO Convention are adhered to, and never infringed. Those include 12 weeks of maternity leave with cash benefits of at least 66 percent of previous earnings; two 30-minute breastfeeding breaks during each working day; and prohibition of dismissal during maternity leave. Other actions that can be taken include:

- ensuring that in every country there is legislation to protect working women's rights to breastfeed and that these are implemented.
- increase public awareness of the very great benefits not only to infants, but to society as a whole, of combining work and breastfeeding.
- take concrete steps to make as many work places as possible mother-friendly and baby-friendly.

- use workers' associations, groups and trade unions to advocate and insist on a set of entitlements related to maternity leave and breastfeeding.
- encourage the establishment of childcare facilities in the work place or close to it where infants can be safely kept and where mothers can visit to breastfeed.

For the individual mother who in the weeks after delivery needs to return to a work place away from home, it is important to maintain breastfeeding, and if possible for the infant to receive only breastmilk for the first 4 to 6 months of life. In the days before returning to work many mothers learn how to express breastmilk, to store it, and to teach a caregiver how to feed it to the baby from a cup while the mother is away. The mother then breastfeeds her baby normally during the 16 hours in the day when she is not away at the workplace. She may breastfeed more at night and in the early morning than do other mothers. In some societies support groups are formed for child care, cooperative strategies are developed for working women, and occasionally women agree to breastfeed babies other than their own, while the infant's mother is away.

Figure 7.1 is taken from the 1993 World Breastfeeding Week action folder produced by the World Alliance for Breastfeeding Action (WABA). It illustrates the requirements of time, space, and support.

International commitments in favour of breastfeeding

In the nine years between 1981 and 1990 there have been many international actions or pledges in support of breastfeeding. These range from the World Health Assembly in May 1981 adopting the International Code of Marketing Breastmilk Substitutes, to the 1990 Declaration of the World Summit on Children, where the heads of state of nearly 100 countries met together and

pledged to assist children worldwide. Excerpts from some of these documents are quoted below:

**International Code of Marketing of Breastmilk Substitutes
(and subsequent WHO resolutions on infant feeding)**

"Affirming the right of every child and every pregnant and lactating woman to be adequately nourished ..." and

"conscious that breastfeeding is an unequalled way of providing ideal food for the healthy growth and development of infants."

"...[breastmilk substitutes] should not be marketed or distributed in ways that may interfere with the protection and promotion of breastfeeding..."

Adopted by World Health Assembly 21 May 1981

Innocenti Declaration on the Protection, Promotion and Support of Breastfeeding

"As a global goal for optimal maternal and child health and nutrition, all women should be enabled to practice exclusive breastfeeding and all infants should be fed exclusively on breastmilk from birth to 4-6 months of age. Thereafter, children should continue to be breastfed, while receiving appropriate and adequate complementary foods, for up to two years of age or beyond."

Developed and adopted by 32 governments and

10 UN agencies on 1 August 1990

Convention on the Rights of the Child

"To ensure that all segments of society, in particular parents and children, are informed, have access to education and are supported in the use of basic knowledge of child health and nutrition, [and] the advantages of breastfeeding ..."

Adopted by the United Nations 20 November 1989

Came into legal force September 1990

Declaration of the World Summit on Children

"There is no cause which merits a higher priority than the protection and development of children, on whom the survival, stability and advancement of all nations--and, indeed, of human civilization--depends."

Adopted by heads of state/governments on

30 September 1990

In addition the Ten Steps to successful breastfeeding given on page __ was provided as a joint WHO/UNICEF statement in July 1991.

Finally, the World Declaration and Plan of Action for Nutrition which was approved at the FAO/WHO International Conference on Nutrition held in Rome in December 1992 includes these words under the heading "Promoting breastfeeding":

"Breastfeeding provides infants and young children with the ideal nutrition. Together with its many beneficial effects, such as those on child spacing and the prevention of disease, it is the most inexpensive form of infant

feeding. All women should be enabled to breastfeed their babies exclusively for the first four to six months, and, while giving appropriate supplementary food, to continue breastfeeding for up to two years or more. In order to do so, the international community needs to create awareness and provide maximum support to women to breastfeed, and governments and concerned parties of the private sector should:

- (a) Support and encourage mothers to breastfeed and adequately care for their children, whether formally or informally employed or doing unpaid work. ILO conventions and regulations covering this subject may be used as a starting-point for the States that agree with these conventions and regulations.
- (b) Make all efforts to have maternity facilities take part in the "Baby Friendly Hospital Initiative" of WHO and UNICEF, incorporating the good practices described in the joint WHO/UNICEF statement on protection, promotion and support of breastfeeding through improved maternity services. These sound practices should also be used as a guideline as adapted to home deliveries.
- (c) Encourage and support collaboration between health care systems and mother-support networks including the family and the community, if necessary by promoting the establishment of mother-support groups.
- (d) Take actions to give effect to the principles and aim of the International Code of Marketing of Breastmilk

Substitutes, as adopted by the 1981 World Health Assembly and reconfirmed by subsequent World Health Assembly resolutions.

- (e) Ensure that health and other care providers receive high quality training in breastfeeding issues, using updated training material, and that they are informed about relevant national marketing regulations or policies.
- (f) Ensure as far as possible that information dissemination on the feeding of infants and young children is consistent and in line with current scientific knowledge and take steps to counteract misinformation on infant feeding.
- (g) Consider with utmost care issues regarding breastfeeding and human immunodeficiency virus (HIV) infection on the basis of the most up-to-date, authoritative scientific advice and referring to the latest WHO/UNICEF guidelines, and request that WHO, in close cooperation with UNICEF, breastfeeding and other experts, convene technical meetings on a regular basis to review the latest scientific publications on these issues and update the guidelines."

References

- (1) Bitek, O. p' "Song of Lawino," pp. 30-31, London, Longman, Green and Co. (1960).
- (2) Hofvander, Y. and Hillerrik "Breastfeeding in Swedish Hospitals," World Health Forum 16, 95-99 (1995).
- (3) Latham, M. C. "Human Nutrition in Tropical Africa," FAO, Rome (1965).
- (4) American Academy of Pediatrics. "Encouraging breastfeeding," Pediatrics 65(3), 657 (1980).
- (5) Cunningham, A. S. "Breastfeeding and morbidity in industrialized communities: An update," Advances in International Maternal and Child Health 1, 128-168 (1980).
- (6) Anon. "A warm chair for breastfeeding," Lancet 344, 1239-1241 (1994).
- (7) Greiner, T., Almroth, S. and Latham, M. C. "The economic value of breastfeeding," Cornell International Nutrition Monograph Series No. 6, Cornell University, Ithaca, New York (1979).
- (8) Latham, M. C. "The relationship of breastfeeding to human fertility." In "The Decline of the Breast," Cornell International Nutrition Monograph Series No. 10, Cornell University, Ithaca, New York (1982).
- (9) Potts, M., Thapa, S. and Herbertson, M. A. "Breast-feeding and fertility," J. Biosocial Science Supplement No. 9, 1-173 (1985).
- (10) Grant, J. "The State of the World's Children 1995," UNICEF (1995).
- (11) Cohen, R. J., Brown, K. H., et al. "Effects of age of introduction of complementary foods on infant breast milk intake, total energy intake and growth: a randomised intervention study in Honduras," Lancet 344, 288-293 (1994).
- (12) Almroth, S. and Latham, M. C. "Rational home management of diarrhoea," Lancet 345, 709-711 (1995).

- (13) WHO "The prevalence and duration of breast-feeding: A critical review of available information," WHO Statistics Quarterly 2, 192-216 (1982).
- (14) WHO "The dynamics of breast-feeding," WHO Chronicle 37(1), 6-10 (1983).
- (15) Latham, M. C., Elliott, T. C., Winikoff, B., Kekovole, J. and Van Esterik, P. "Infant feeding in urban Kenya: A pattern of triple nipple feeding," J. Trop. Pediatr. 32, 276-280 (1986).
- (16) WHO "Report on a consultation on infants who cannot be breastfed," WHO, Geneva (1986).
- (17) Latham, M. C. "Insufficient milk and the World Health Organization Code," E. African Med. J. 58, 87-90 (1982).
- (18) Latham, M. C. "Nutritional problems of Tanganyika." In Proceedings of 6th International Congress of Nutrition, Edinburgh. Published by Livingstone and Co., Edinburgh (1964).
- (19) Jelliffe, D. B. and Jelliffe, E. F. P. "Human Milk in the Modern World," Oxford University Press, London (1978).
- (20) WHO "International Code of Marketing of Breast-milk Substitutes," WHO, Geneva (1981).
- (21) Greiner, T. "Infant feeding policy options for governments," Report for Infant Feeding Consortium, Cornell University, Ithaca, New York (1982).
- (22) Berg, A. "The Nutrition Factor," Brookings Institution, Washington, DC (1973).
- (23) Van Esterik, P. "Women, work and breastfeeding," Cornell University International Nutrition Monograph Series No. 23 (1992).