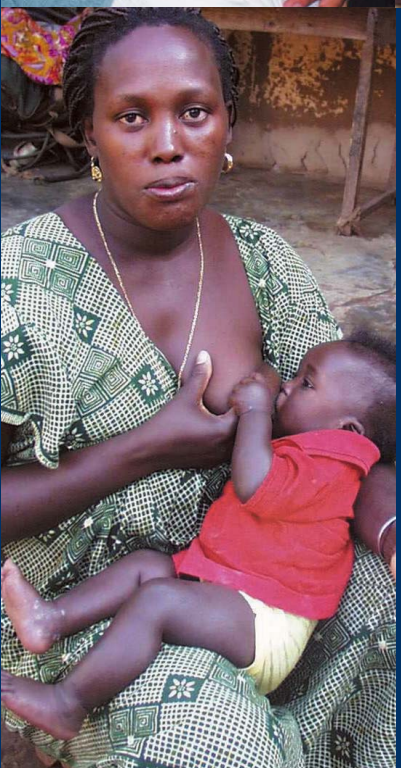
Infant Feeding in Emergencies



Module 2 Version 1.1

for health and nutrition workers in emergency situations

for training, practice and reference

Developed through collaboration of ENN, IBFAN-GIFA, Fondation Terre des hommes, Action Contre la Faim, CARE USA, Linkages, UNICEF, UNHCR, WHO and WFP.

December 2007

Top right: Kent Page, UNICEF, DRC, 2003.
Vertical strip, from top: Mae La camp, Thailand, O.Banjong, 2001.
Guatemala/LINKAGES, Maryanne Stone-Jimenez.
M.Jakobsen,Guinea Bissau, 1987.

The development of this training material would not have been possible without the contributions of time and effort of nutrition and health professionals too numerous to mention. This document draws on existing best practice and published evidence where it exists. Where it does not it draws on extensive experience and a broad base of expert opinion.

This work is the product of interagency collaboration among the following agencies which provided resources in terms of staff time, financial support or both:

UNICEF
UNHCR
WHO
WFP
IBFAN - represented by its Regional Coordinating Office in Geneva (GIFA)
Emergency Nutrition Network (ENN)
Fondation Terre des hommes
Action Contre la Faim (ACF)
CARE USA
LINKAGES

This material is not a formal publication of any of the agencies mentioned above and should be considered a 'living document' for use, comment and further development, and will be updated as necessary.

Comments, additional inputs and experiences of using this material are welcome and should be sent to ENN at the address below.

In response to field feedback to the first version of Module 2, Version 1.1 (December 2007) has incorporated four sections into one booklet. While the content remains essentially the same this reprint provides reference to a number of key materials that have been produced or updated since the module was first produced (see Key Reference Update p.5). In addition, it updates the section on HIV (Section 2, Core Manual) and excerpts from the Operational Guidance on Infant and Young Child Feeding in Emergencies (v2.1, February 2007). It is the first reprint of Module 2 in English. The Interagency Standing Committee (IASC) Nutrition Cluster has funded this update.

The online version is available at
http://www.ennonline.net/ife

Print copies will be made available and should be requested from ENN at the address below.

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Key Definitions

Artificial feeding:
Feeding with breastmilk substitutes.

Breastmilk substitutes (BMS):
Any food being marketed or otherwise represented as a partial or total replacement of breastmilk, whether or not suitable for that purpose; in practical terms this includes milk or milk powder marketed for children under 2 years and complementary foods, juices and teas marketed for children under 6 months.

Complementary feeding (previously called "weaning"):
The giving of complementary foods in addition to breastmilk or infant formula.

Complementary foods:
Any food, whether commercially manufactured, or locally,or home-prepared, suitable as a complement to breastmilk or infant formula when either becomes insufficient to satisfy the nutritional requirements of the infant (from the age of 6 months). Complementary foods marketed for children under 6 months are breastmilk substitutes.
Note: complementary foods should not be confused with supplementary foods which are commodities intended to supplement a general ration and used in emergency feeding programmes for the prevention and reduction of malnutrition and mortality in vulnerable groups.

Commercial baby foods (industrially-formulated complementary foods):
Branded jars or packets of semi-solid or solid foods, teas and juices.

Exclusive breastfeeding:
Only breastfeeding or breastmilk feeding and no other foods or fluids (no water, no juices, no tea, no pre-lacteal feeds), with the exception of drops or syrups consisting of micronutrient supplements or medicines.

Infants:
Children less than 12 months.

Infant feeding equipment:
Bottles; teats; syringes (usually in an institutional setting); or baby cups sometimes fitted with lids.

Infant formula:
A breastmilk substitute formulated industrially in accordance with Codex Alimentarius Standards (joint FAO/WHO food standards programme) to satisfy the normal nutritional requirements of infants up to six months of age. Infant formula may also be prepared at home in which case it is described as "home-prepared".

The International Code:
The International Code of Marketing of Breast-Milk Substitutes, adopted by the World Health Assembly (WHA) in 1981 and all relevant WHA Resolutions, referred to here as "the International Code" (4). The aim of the International 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 breastmilk substitutes (see definition above) when these are necessary, on the basis of adequate information and through appropriate marketing and distribution. The Code and all relevant WHA Resolutions set out the responsibilities of the infant food industry, health workers, national governments and concerned organisations in relation to the marketing of breastmilk substitutes, bottles and teats.

Optimal infant and young child feeding:
Exclusive breastfeeding for the first six months of life, followed by continued breastfeeding with adequate complementary foods for up to two years and beyond.

Other milks:
Dried whole, semi-skimmed or skimmed milk; liquid whole, semi-skimmed or skimmed milk; soy milks.

Relaction:
The re-establishment of breastfeeding after the breastmilk supply has stopped, or is reduced.

Core Manual

Additional parts

Annexes

Overhead Figures for use as transparencies or flip chart

Key Reference Update

The following are key references that have been produced or updated since this module was first printed (along with the chapters they are particularly relevant to). While the module has been updated to include references the content has not been revised, with the exception of updates to the section on HIV and excerpts of the Operational Guidance.

Operational Guidance on Infant and Young Child Feeding in Emergencies, v2.1, February 2007. IFE Core Group. Available at *http://www.ennonline.net/ife (Chapters 8 and 9)*

Technical WHO Guidelines for the safe preparation, storage and handling of powdered infant formula are available at *http://www.who.int/foodsafety/publications/micro/pif2007/en/index.html (Chapter 9)*

Policy of the on the acceptance, distribution and use of milk products in refugee settings (2006). Available in English and French. Download from *http:///www.unhcr.org* or *http://www.ennonline.net/ife* or *email: ABDALLAF@unhcr.org or HQTS01@unhcr.org (Chapter 9)*

WHO HIV and Infant Feeding Technical Consultation Consensus Statement. Held on behalf of the Inter-agency Task Team (IATT) on Prevention of HIV Infections in Pregnant Women, Mothers and their Infants. Geneva, October 25-27, 2006. Available at: *http://www.who.int/child-adolescent-health/publications/NUTRITION/consensus_statement.htm* and Annex 19 *(Chapters 8 and 9)*

Introduction

This is the second of two Interagency Working Group Modules on Infant Feeding in Emergencies (IFE). It is based upon the interagency joint Operational Guidance document of July 2001, given in Module 1. This reprint has updated the references (see Key Reference Update p.5) including quotes to the latest Operational Guidance (v2.1, February 2007), and has updated the section on HIV and infant feeding.

Scope

The title "Infant Feeding in Emergencies" has been chosen as the Modules cover breastfeeding and artificial feeding in natural disasters, complex emergencies, and large-scale population displacements. Major problems are often experienced with infant feeding, increasing the risk of malnutrition and death in this vulnerable age group.

Complementary feeding (giving other foods in addition to breastmilk or artificial feeds) is essential from six months. We do not deal with it fully here because there is little space to describe the technical/basic principles and the time allowed to teach the Module is already short. We hope to develop a third Module in which we will cover complementary feeding in depth.

The challenge

Natural disasters and complex emergencies usually have a devastating impact on peoples' lives. People become homeless and often have to leave their area of origin. In complex emergencies, health systems may have collapsed and access to primary health care services is either limited or completely unavailable.

In emergencies, health and nutrition workers face the daunting task of caring for large numbers of women and infants many of whom are ill, malnourished and traumatised by their experiences. Many women will have lost their children, husbands and/or other members of their families; many suddenly become the heads of households and have to take care of vulnerable family members. The impact on women can be tremendous, mentally as well as physically. So in emergency settings, women, especially those with infants, need extra care and attention.

Health and nutrition workers may know the value of breastfeeding and the difficulty of artificial feeding in such circumstances, but few have received training in these subjects. However, they are likely to see women who are so weak that they seem unable to produce milk, or who have lost confidence in their ability to breastfeed. Other women, who fed their infants adequately with breastmilk substitutes before the emergency, may now be facing the task with limited resources, in a far more difficult environment.

The challenges for these workers are enormous. They must make sure there are appropriate conditions and adequate support for women to breastfeed, know when agreed criteria for artificial feeding are fulfilled, cope with limitations in resources and lack of safe water, and know how to deal with donations of infant foods that might be inappropriate. This is why health and nutrition workers need access to the knowledge and skills to enable them to help women appropriately.

Objectives

Module 1 provides an overall introduction to infant feeding in emergencies, and explains why it is an important concern. It discusses the many challenges, describes relevant aspects of the International Code of Marketing of Breastmilk Substitutes, gives agreed Operational Guidance for emergency relief staff and policy makers, based on Operational Guidance 2001 (the latest version is Operational Guidance v2.1 2007; see Key Reference Update p.5) and suggests how to establish conditions that support breastfeeding and reduce dangers of artificial feeding. It can be used by itself, or as preparation for Module 2, according to the audience.

As part of the Additional Material section, which complements the Core Manual, Module 2 includes information on relactation, and the management of breast conditions. Reflecting realities in the field, and in the context of a lack of guidance on these issues, *Severely malnourished infants less than 6 months old*, and *When children are not breast fed*, are also included as part of the Additional Material.

Module 2 aims to provide health and nutrition workers with the basic knowledge and skills to help both breastfeeding and artificially feeding women. The first task is to support breastfeeding women, so that they do not lose confidence and introduce artificial feeds unnecessarily. The next task is to identify and help women who have feeding difficulties. The aim is to restore the feeding that is most appropriate for their infant or young child. Those caregivers for whom artificial feeding is the only option also need help.

Target audience

For Module 1, the target is all emergency relief workers, including those involved in site management, or responsible for technical tasks such as water, sanitation, and supplies. These people are important in establishing conditions for adequate infant feeding, but may be only indirectly concerned with the care of mothers/caregivers and infants.

For Module 2, the target is health and nutrition workers who are directly concerned with the care of mothers/caregivers and infants. It provides specific practical knowledge about how to help individual mothers and other caregivers with infant feeding.

Module 2 should be used after trainees have studied Module 1. Module 2 does not repeat the content of Module 1.

Limitations of recorded experience

Many important practical questions on infant feeding remain unanswered because they have not yet been asked or examined under field conditions. We hope that this module will encourage workers to record their experience in a more systematic way, so that we can all learn more about the most effective approaches. In the meantime, we know enough to make big improvements to infant feeding.

Options for conducting the training

You can use Modules 1 and 2 to prepare staff for humanitarian assistance work, or to train new workers as they join health and nutrition teams in existing emergencies.

Each Module consists of :

- A Manual to be given to each participant.
- Overhead Figures, for use as transparencies or a flip chart.
- Presenter's Notes (in Module 1).

The Manuals include small copies of all the overhead figures, to make private study easier.

Those studying Module 2 should already have studied Module 1, and should have its Manual available for reference. Module 1 can be rapidly presented in one hour, although it is recommended to allow two or three hours, for a more interactive approach. The Presenter's Notes for Module 1 give plans for one-, two-, and three-hour use.

Module 2 consists of five Core Parts, which can be covered in five hours of group teaching. Additional Parts give more details on specialised topics.

Each Additional Part can be studied or taught separately. If they are all included with the Core Parts in group teaching, the entire session would take a full day.

The simplicity of the material in Module 2 makes it suitable for training community health workers from the emergency-affected population, who are often needed to help support infant feeding.

All parts of the Manuals may be used for private study, as on-the-job guides, and for reference. The information has been simplified and streamlined, so that health and nutrition workers with little time and little opportunity for study can learn and use effective interventions with the minimum of training.

How Module 2 is arranged

The Core Manual comprises parts 1 to 5 which deal with basic information on:

- how breast milk is produced and flows and how babies suckle
- the support women need to breastfeed effectively
- how to assess infant feeding and
- how to help mothers and other caregivers overcome any feeding difficulties.

Additional Parts 6 to 9 deal with specific conditions:

- relactation, and
- breast conditions and specific situations
- severely malnourished infants under six months old and
- when infants are not breast fed.

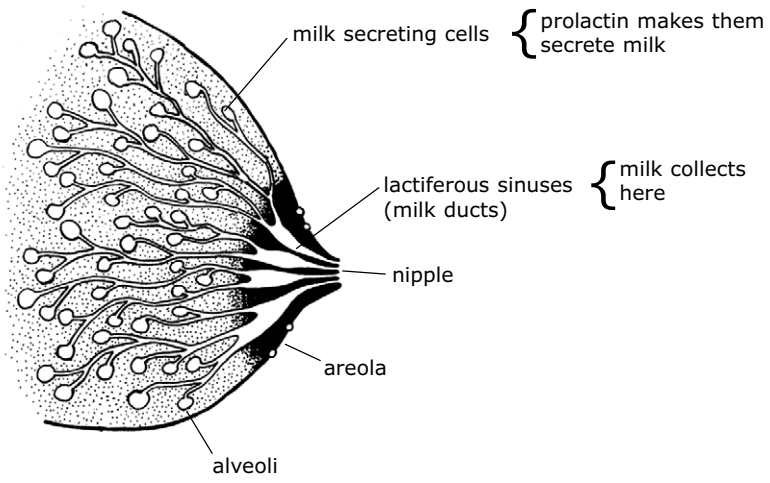
1 How Breastfeeding Works

1.1 Effective suckling

If we could look inside a breast, this is what we would see.

IFE 2/1

Inside the breast **IFE 2/1**



Adapted from WHO/UNICEF BFC, 1993

When the milk secreting cells have produced the milk (see section 1.3), it flows into wide ducts called *lactiferous sinuses* (milk ducts) that are beneath the *areola* (the darker skin around the nipple).

A baby needs to *suckle effectively* to get the breastmilk. To do this, he or she (we will say *s/he*) must take enough of the breast into his/her mouth to put pressure with his/her mouth on the milk ducts. This is called being *well attached* to the breast, or *good attachment*.

A baby cannot get the milk by sucking[1] only on the nipple.

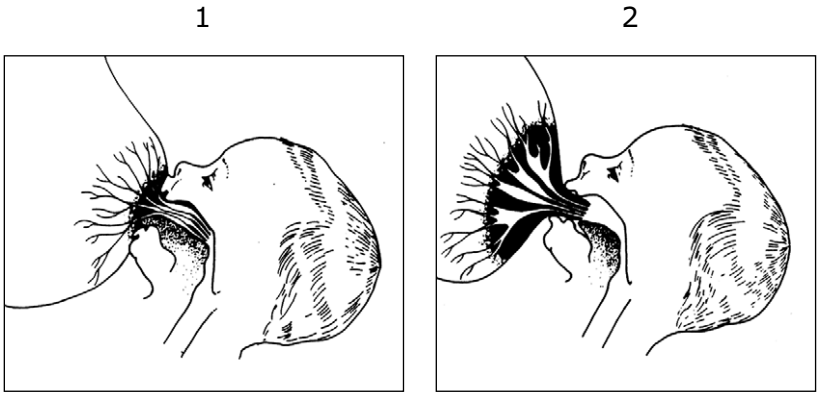
[1] Sucking is a different action from suckling

Good and poor attachment

The next two pictures show what happens inside a breastfeeding baby's mouth.

IFE 2/2

Inside the baby´s mouth **IFE 2/2**



In picture 1:

- The nipple and areola are stretched out to form a long teat in the baby's mouth.
- The lactiferous sinuses are inside the baby's mouth.
- The baby's tongue is reaching forward over his/her lower gum, so that it can press the lactiferous sinuses and press out the milk. This is called suckling.
  This baby is well attached and can easily get the milk. The baby can suckle effectively. In other words the baby's mouth is working in the right way to get the milk and to stimulate the breast to make more milk.

In picture 2:

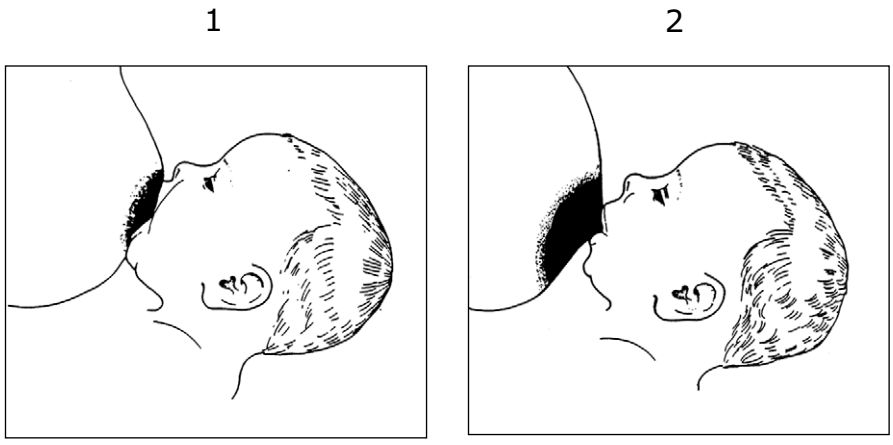
- The nipple and areola are not stretched out to form a teat.
- The lactiferous sinuses are outside the baby's mouth.
- The baby's tongue is back inside the mouth, and cannot press on the lactiferous sinuses.
  This baby is poorly attached. S/he is sucking only on the nipple, which can be painful for the mother. The baby cannot get the milk easily or suckle effectively.

How to decide if a baby is well or poorly attached

We need to be able to decide whether or not a baby is well attached by looking at the baby feeding.

IFE 2/3

Observing attachment at the breast IFE 2/3



Picture 1 shows signs of good attachment:

- More areola is above the baby's mouth than below.
- The baby's mouth is wide open.
- The lower lip is turned out.
- The chin is touching the breast (or nearly touching).

If you can see all these signs, then the baby is well attached. When the baby is well attached, it is comfortable and painless for the mother, and the baby can suckle effectively.

Picture 2 shows signs of poor attachment:

- Sometimes equal amounts of areola are above and below the mouth.
- The mouth is not wide open.
- The lower lip is pointing forward. It may also be turned in.
- The chin is away from the breast.

If you see any one of these signs, then the baby is poorly attached and cannot suckle effectively. If the mother feels discomfort, that is also a sign of poor attachment.

Evaluating attachment at the breast (exercises)

Decide which signs of good and poor attachment you can see in the following photographs. Consider whether the babies are well or poorly attached. You may not see all the signs clearly, so decide from those you can see.

IFE 2/4

Evaluating attachment at the breast **IFE 2/4**

1 2

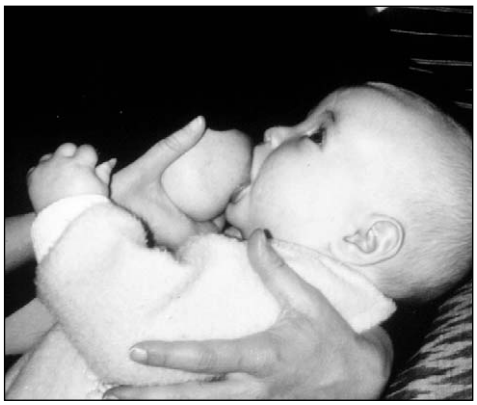
In photo 1, we can see more areola below than above the mouth and the mouth is not wide open. The baby's lower lip is not turned out and the chin is away from the breast. So the baby is poorly attached.

In photo 2, the areola is not clear, but we can see that the baby's mouth is open wide, the lower lip is turned out and the chin is close to the breast. So the baby is well attached.

IFE 2/5

Evaluating attachment at the breast **IFE 2/5**

1 2



In photo 1, we can see more areola above the mouth, and the mouth is wide open. The lower lip is turned out, and the chin is close to the breast. So the baby is well attached.

In photo 2, we can see more areola below the mouth, and the mouth is not wide open. The lower lip is turned outward, but the chin is far away from the breast. So the baby is poorly attached.

Signs that a baby is suckling effectively

If a baby is well attached, s/he is probably suckling well and getting breastmilk during the feed. But you need to be able to check.

Signs that a baby is "drinking in" the milk and suckling effectively are:

- The baby takes slow, deep sucks, sometimes pausing.
  - The pauses are to allow more milk to flow into the lactiferous sinuses/milk ducts.
- You can see or hear the baby swallowing.
- The baby's cheeks are not drawn inward and are rounded during a feed.
- The baby finishes the feed and releases the breast by himself or herself and looks contented.

Signs that a baby is not getting the milk easily and that suckling is ineffective/poor are:

- When the baby makes only rapid sucks.
- When the baby makes smacking sounds.
- When the baby has cheeks drawn in.
- When the baby fusses at the breast, and comes on and off the breast.
- When the baby feeds very frequently or for a very long time and is not contented at the end of a feed.

Helping a mother with positioning and attachment

Positioning means how the mother holds her baby. If her baby is poorly attached, you can help the mother to position the baby so that s/he attaches better. If the baby is well attached and suckling effectively, don't bother about the position.

The mother can be in any comfortable position – for example, sitting on the ground or on a chair, lying down, standing up, or walking.
If she is not comfortable, she may welcome support for her back.
The baby too can be in different positions, such as under the mother's arm, or lying alongside her.

There are **four key points** that are the same for any position. The baby's body must be:

- **straight**, so that the neck is not twisted or bent forward or far back
- **facing the breast** (the baby's nose should face the nipple as s/he comes to the breast)
- **close** to the mother's body, and
- **supported.** A young infant needs the whole body supported, not just the head and neck. An older child may like to have his or her back supported even though s/he sits up to breastfeed.

To start breastfeeding the mother:

- positions the baby so the nose is near the nipple
- touches the baby's mouth with her nipple so the baby opens her/his mouth wide and reaches up a little
- moves the baby onto her breast so the baby takes a big mouthful.

The mother may want to support her breast from below. But she does not need to hold it away from the baby's nose, or pinch it between two fingers. These actions are quite common in some societies and may prevent good attachment. A baby will have no difficulty breathing if well attached.

If a mother is feeding in a new position, check the baby's attachment and watch the suckling. Make sure, through sensitive guidance, that the mother knows how to attach the baby herself and how to recognise effective suckling.

1.2 Good milk flow and confidence

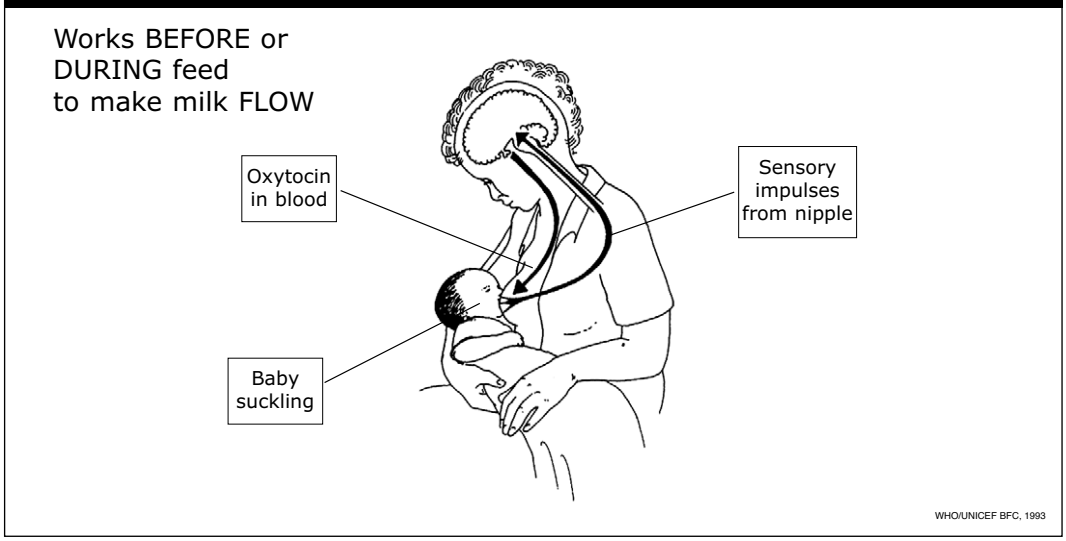
Two things affect milk flow:

- The baby's suckling. This also affects milk production (see section 1.3).
- The mother's feelings.

The breasts of a breastfeeding mother are never completely empty.
Milk is produced and stored in the breast all the time.

IFE 2/6

Milk flow: the oxytocin reflex **IFE 2/6**



When a baby suckles, a hormone called oxytocin is released. Oxytocin makes the stored breastmilk flow through ducts towards the nipple. Mothers sometimes are aware their milk is flowing. They feel a tingling sensation in their breasts, or they see the milk leaking out.

A woman's feelings affect milk flow (and oxytocin).

- Good feelings, such as pleasure in touching, seeing or hearing her baby, or feeling confident that her milk is best, help her milk to flow.
- Bad feelings, such as worries about her milk, or rejection of the baby, may interfere with the flow of milk.
- The extreme stresses and disturbances of emergencies sometimes seem to interfere with milk flow. Fortunately, any stopping of milk flow is usually temporary.
- Protection, shelter, and a reassuring atmosphere around a woman help her milk to flow easily again.

IFE 2/7

Companionship and protection help milk flow **IFE 2/7**

A mother does not need perfect calm or special conditions to breastfeed. Many women breastfeed easily in extremely stressful and difficult situations. Some women find that breastfeeding soothes and helps them to cope with stress.

We are not sure that stress actually reduces milk flow, but many women believe that it does. It is commonly felt that health and nutrition workers can help a mother's milk to flow well if:

- they are supportive, and build a mother's confidence, and
- they help her to find other women who also encourage and reassure her.

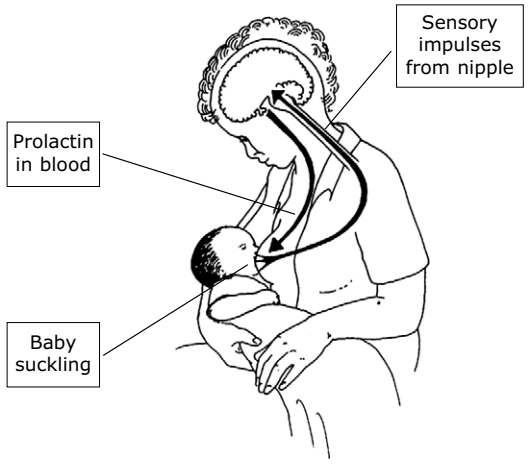
1.3 Adequate milk production

Breasts make milk in response to the suckling of an infant. There are two processes to know about:

1. Suckling stimulates release in the mother's body of a hormone called prolactin. Prolactin makes the breasts produce milk. The milk is stored in the breast.
2. Milk production slows down if a lot of milk is left in a breast at any time.

IFE 2/8

Milk production: the prolactin reflex **IFE 2/8**



WHO/UNICEF BFC, 1993

The amount of breastmilk that a mother produces depends on how much her baby suckles. The breasts make more milk if a baby suckles more (either more often, or for longer, or both). The breasts make less milk if a baby suckles less. Improving a mother's diet alone will not increase her breastmilk.

So a baby should suckle as much as possible to keep the breasts producing milk or to increase the amount.
If a baby cannot suckle, the milk should be removed frequently by expressing it (see Annex 3). Production will decrease and eventually stop if the milk is not removed.

More suckling makes more milk.

Less suckling makes less milk.

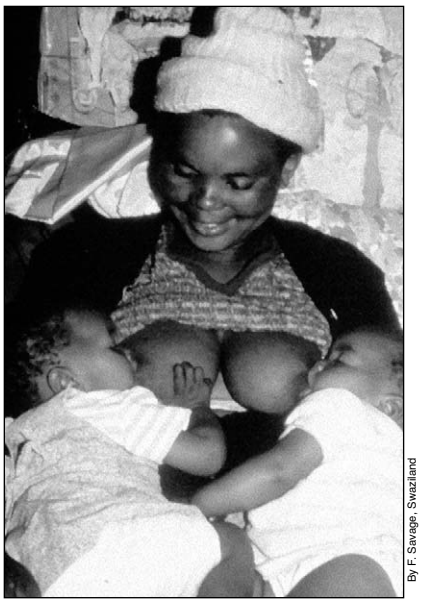
A breastfeeding mother does not have a fixed "supply" of breastmilk. She can always make more even if she is moderately malnourished. Milk production is only likely to be reduced if a woman is severely malnourished. Then the woman herself needs immediate feeding/extra food. Even in such cases the woman needs support to continue to offer her baby the breast so as to maintain the milk-making process while she recovers her own nutrition (See Parts 2 and 5).

Some other things that affect the amount of breastmilk a baby gets:

- Giving other food or drinks to the baby, even water, makes the baby suckle less, so less breastmilk is produced.
- The milk that comes later in a feed is called hind milk. Hind milk flows more slowly but contains more fat and gives the child more energy.
- In societies where pacifiers are used, these may be a sign that a woman has been having breastfeeding difficulties, associated with ineffective suckling or infrequent feeds.
- Suckling at night releases more prolactin and so more milk is produced.
- Milk production does not automatically decrease as a baby gets older – it decreases only if the baby suckles less.
- A mother with twins can produce enough milk for both babies if she is confident and receives skilled support.

IFE 2/9

Breastfed twins: Swaziland and Angola **IFE 2/9**



By F. Savage, Swaziland

Mary Lungatho, Cubal, Angola

Is the baby getting enough breastmilk?

Many mothers worry that they are not producing enough milk. This is especially likely for mothers in emergency situations, but is also true in settled conditions.

Health and nutrition workers can judge whether a baby is getting enough milk by seeing the way the baby feeds. Health and nutrition workers may also worry about breastmilk production and sometimes their own lack of confidence is passed on to the mother.

To get plenty of milk the baby needs:

- to be well attached so that s/he can suckle effectively and get the milk easily
- to have a mother whose milk flows well even if the surroundings are stressful
- to suckle frequently so that the breasts produce plenty of milk
- to suckle for as long as s/he wants during each feed to get the hind milk as well as to stimulate the breasts more.

A baby who is getting enough milk is usually:

- not visibly thin (or is getting fatter/putting on weight, if s/he was thin earlier)
- responsive and active, (appropriately for his or her age)
- gaining weight (at least 500 g /month if aged under six months) and
- passing light-coloured urine six times a day, or more. (However, one cannot use this sign, if the baby is having water, oral rehydration solution or other drinks as well as breastmilk.)

The best breastfeeding pattern

Frequent and unlimited breastfeeds are the best breastfeeding pattern throughout the infant's first year. This ensures that a baby stimulates his or her mother's breast to make all the milk that s/he needs to grow and develop healthily.

The baby should:

- suckle as often as s/he wants, day and night, without long periods of separation from the mother.
- suckle for as long as s/he wants at each feed, getting the fat-rich milk that comes later in the feed.
- have the breast kept available if s/he pauses, or lets go of the breast for some moments. - pauses do not necessarily mean that s/he has finished the feed.
- finish the first breast, and then be offered the other breast, which s/he may or may not want. Let the infant decide whether s/he wants one or two breasts at each feed. There is no rule to follow.

This breastfeeding pattern is important even after complementary foods have been introduced at six months.

1.4 Age–appropriate feeding (the right feeding for the right age)

The best way of feeding is different at different ages, so we talk about age-appropriate feeding.

Between 0 to 6 months

- Babies should start breastfeeding within an hour of birth.
- Babies should breastfeed exclusively and on demand for six months.
- Exclusive breastfeeding means that a baby is given only breastmilk (which can be expressed if necessary) but no other foods or drinks – not even water. Medicines and vitamin drops are allowed if medically necessary and are not diluted.
- Exclusive breastfeeding for six months is possible in almost all circumstances. However to achieve it, women may need ongoing help and encouragement to build their confidence.

From 6 months until 24 months (and longer if desired)

- Complementary feeding should start at the age of 6 months with breastfeeding on demand continuing until children are at least two years old. The frequency of breastfeeding and the length of breastfeeds should not be reduced.
- Women may need encouragement to continue breastfeeding up to two years or beyond. If continued breastfeeding was not usual in their community before the emergency, they need protection from any criticism that may result from breastfeeding for a long time.
- Children should be actively encouraged to eat complementary foods:
  - 2-3 times a day at the age of 6-8 months
  - 3-4 times a day at the age of 9-24 months
  - plus 1-2 snacks a day as desired. Non-breastfed children need more frequent meals (see Annex 12)
- Some families may need help in learning how to prepare and give adequate complementary foods especially if the foods available are not familiar.

The following Parts of this Module give more information on how to help mothers achieve:

- effective suckling
- good milk flow and confidence
- adequate milk production
- age-appropriate feeding

2 Supportive care for all women

Part 2 describes what health and nutrition workers can do to:

- help women to continue to breastfeed even in very stressful situations, and
- increase breastfeeding if artificial feeding was common before the emergency, and the risks of doing so have now increased.

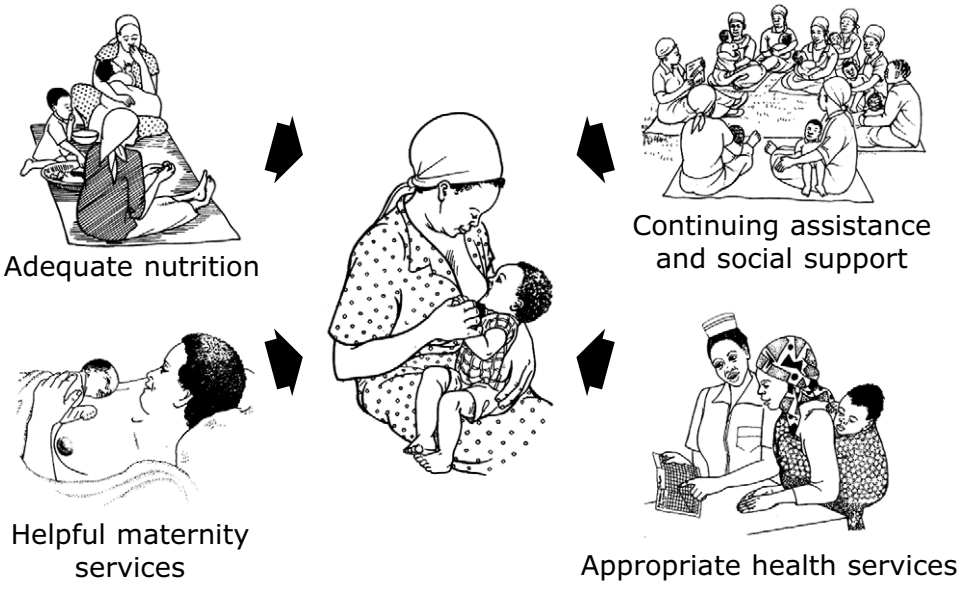
Some general conditions that make breastfeeding easier were covered in Module 1 (pp 35-6). These include camp arrangements, recognition of vulnerable groups, shelter and (where culturally required) privacy, reduction of demands on mothers' time, and increased security. These are in addition to those covered by the Code of International Marketing of Breastmilk Substitutes (see Module 1 pp 21-23).

In addition, every breastfeeding woman needs four elements of supportive care to ensure effective suckling, good milk flow and confidence, adequate milk production, and age-appropriate feeding. These are:

1. Adequate nutrition.
2. Helpful maternity services.
3. Appropriate health services.
4. Continuing assistance and social support.

IFE 2/10

Four elements of supportive care **IFE 2/10**



Adapted from F. Savage, A. Burgess - Nutrition for Developing Countries. 1993

2.1 Adequate nutrition

Food needs during lactation

A breastfeeding woman needs about 450 more kcal of energy per day than when she is not lactating.

Also, the micronutrients in breastmilk that are not stored in a woman's body, need to come from her food or from micronutrient supplements.

This means a breastfeeding woman needs an extra, small, nutritious snack or an extra fifth more of her usual daily food amount.

It is often customary for breastfeeding women to eat special foods (e.g. special soups or porridges). These may not be nutritionally necessary, but they can be important for building a woman's confidence in her milk supply because she believes they are good for her.

In emergencies the *general ration*[2] should provide sufficient energy and protein and some micronutrients if women get their full share and all they want. But it may not provide enough of all the micronutrients women need.

Supplements for lactating women

Where vitamin A deficiency is likely to occur, give lactating women 200,000 IU of vitamin A as a single dose within 6-8 weeks after delivery.

Other micronutrient supplements may also be needed.

Food supplements help to ensure that a woman is not undernourished if she becomes pregnant again.

All lactating women should eat supplementary food for at least six months and preferably for as long as they are breastfeeding. The supplementary food should provide 450 kcal a day and essential micronutrients.

Usually the supplementary food is a fortified cereal-pulse blend that provides 10-12% of energy from protein, 20-25% of energy from fat, and two thirds of the daily requirements of all the important micronutrients.

For on-site feeding, give each lactating woman the amount of supplementary food that supplies 450-500 kcal per day.

For home preparation, give each woman the amount of dry supplementary food that supplies 1000-1200 kcal per day (to allow for sharing among the family).

Effects of malnutrition on breastmilk

Mild or moderate malnutrition rarely affects the amount or quality of breastmilk that a woman produces. She uses her own body stores of nutrients to produce breastmilk.
If her diet remains inadequate for along time, the milk may contain fewer vitamins and fats as her own body stores are used up.

However, her breastmilk continues to be nourishing for her child, and provides anti-infective factors that help to protect the child against infections. No breastmilk substitute contains these protective factors.

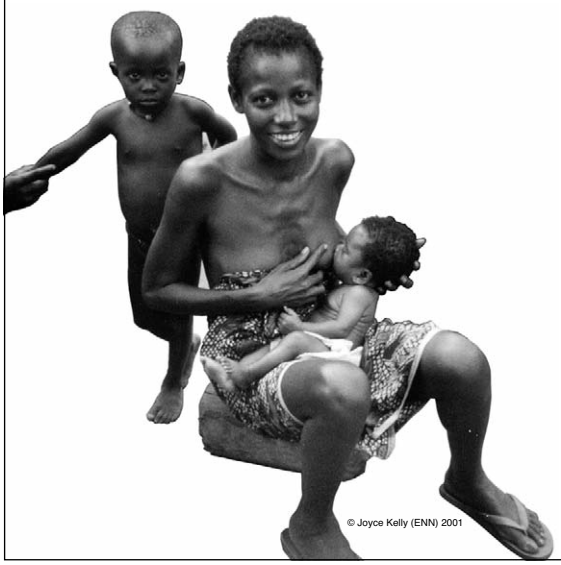
A severely malnourished woman's body has very low nutrient stores. She produces less breastmilk that contains lower amounts of fat and micronutrients. But her milk still protects the baby from infections.

[2] The UN recommendation is a general ration of 2100 kcal per day per person whether adult or child. However, this is given on a population basis, not an individual basis, and is intended to cover individual variations in need, (such as during pregnancy and lactation, or at different ages). It also assumes that food is shared according to need between household members. An infant should be registered immediately following birth, so that the household is eligible for an additional general ration. Usually the general ration includes grains, pulses, a fortified blended food, and concentrated forms of energy such as sugar or oil.

IFE 2/11

A malnourished mother breastfeeds **IFE 2/11**

Sierra Leone, 2001



Feed the mother and let her feed the infant

Monitor the weight and urine output.
Temporary supplements by cup may be needed while the mother´s milk production increases.

Breastfeeding by malnourished women

For most women, if a mother is thin and malnourished, or has an inadequate diet, this is not an indication to stop breastfeeding.

A mother should not stop breastfeeding if she is malnourished or has an inadequate diet. Stopping means her infant would not get any of the nutrients or the anti-infective factors in her breastmilk.

A thin, weak or malnourished woman needs food:

- to rebuild and protect her body stores of nutrients, and
- to enable her to produce more breastmilk.

Give any available food to the mother, and actively see what further support and care you can help her to access. Feeding the mother means she is able to produce enough milk without depleting her own body's nutrient stores.
Closely monitor the weight of any infant whose mother is malnourished and observe the amount of urine produced by the infant (see Section 1.3). The infant may need temporary supplements of other milk (as well as his/her mother´s breastmilk) until the mother's condition improves and her milk production increases (see Part 5.5).

However, giving a mother food alone does not increase breastmilk production. Her infant must also suckle often to stimulate the production of and breastmilk.
Health and nutrition workers need to make sure that every mother receives adequate food for her own health as well as support for a good breastfeeding pattern. (See Section 5.5.)

Food alone does not increase breastmilk.

Effective suckling and frequent unlimited breastfeeds build milk production.

Case study: A thin and worried mother

Mariam is thin (Mid upper arm circumference (MUAC) 20.2 cm). She feels weak, and worries that her milk may be decreasing. Her three-month old son is still exclusively breastfed. He is lively and does not look thin, and passes urine quite often.

Mariam's household receives a full emergency ration consisting of maize meal, beans, oil and sugar. She goes to a supplementary feeding centre where she receives two meals a day (700-1000 kcal/day) of a porridge made from corn soy blend (CSB), oil and sugar. Groundnuts or milk powder are added to the meal when available. On weekends, when the on-site feeding centre is closed, Mariam receives a dry take-home ration that is premixed (CBS/UNIMIX, oil and sugar).

1. Will the supplementary food increase Mariam's breastmilk production?
2. What could she do to produce more breastmilk?
3. Should she give the blended food as gruel to her son?
4. Should the baby be given supplements of infant formula?
5. What does Mariam need most to stop her feeling worried?

Answers:

1. The supplementary food will not increase her milk production, but it may improve her own nutrient status and her energy.
2. Effective suckling and a good breastfeeding pattern will increase her milk.
3. She should not give gruel to her infant at this age. She should continue to breastfeed exclusively until the infant is six months old, and eat the supplementary food herself.
4. Supplements of formula will interfere with increasing the mother's milk, and will needlessly expose the infant to health risks.
5. Mariam needs emotional support to build and maintain her confidence.

Fluids

Dehydration may interfere with breastmilk production. Mothers may arrive at refuges or intake sites already dehydrated.
Fluid intake is especially likely to be a concern when there are:

- populations on the move
- severe drought conditions
- natural disasters that contaminate water, such as floods.

Health and nutrition workers caring for mothers should:

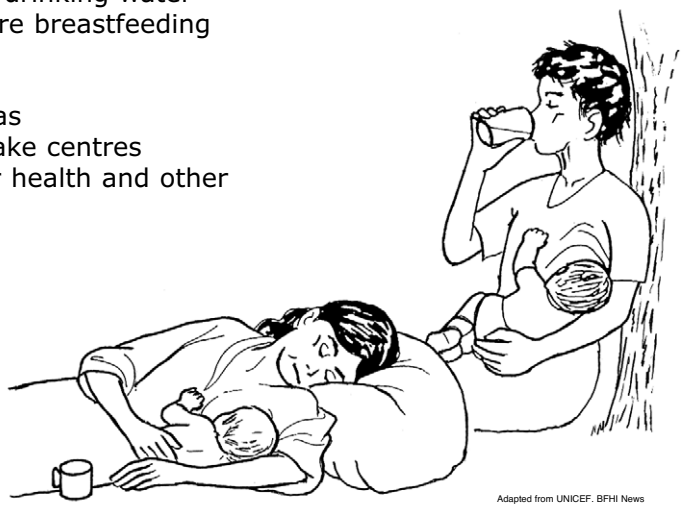
- Ideally, ensure that drinking water is freely available to breastfeeding mothers so that they can drink the amount they need.
- Ensure, if supplies are limited, that every breastfeeding mother gets an extra litre of water per day.
- Provide drinking water wherever women queue or wait in the sun a long time.
- Provide drinking water at transit rest areas for populations on the move.
- If a mother has diarrhoea, then she will need rehydration with Oral Rehydration Salts (ORS).

IFE 2/12

Prevent dehydration **IFE 2/12**

Provide plenty of drinking water wherever there are breastfeeding women in:

- transit rest areas
- registration/intake centres
- long queues for health and other services



Adapted from UNICEF. BFHI News

2.2 Helpful maternity services

The Baby-Friendly Ten Steps to Successful Breastfeeding should be an integral part of maternity services in emergencies.

5.2.2 Operational Guidance, v2.1, February 2007

Antenatal care

Many important elements of antenatal care (ANC), including prevention and correction of malnutrition and micronutrient deficiencies, should be in place.

The Baby-Friendly Ten Steps to Successful Breastfeeding (Module 1, p 53) include telling pregnant women about the benefits and management of breastfeeding.
Antenatal education is particularly important in populations with traditions of brief or only partial breastfeeding.

Try to identify pregnant women early, at registration or at their first contact with the health services. Many women may not seek health services during pregnancy.

Case study: Increased reliance on traditional birth attendants

When living in Rwanda in 1992, 94% of women obtained antenatal care from trained health personnel, and 1% from Traditional Birth Attendants (TBAs). Only 4% had no antenatal care.
Of Rwandan refugee women living in Ngara camps, Tanzania in 1995, only 19% obtained antenatal care from trained personnel and 59% obtained care [only] from TBAs. 22% of women in the camps had no antenatal care.

Lung'aho, Clause, Butera: Rapid Assessment of Infant Feeding Practices in two Rwandan Refugee Camps. San Diego; Wellstart International, 1996

One way to reach more pregnant women is to ask community breastfeeding helpers (local women who traditionally are called upon and/or trained to give support to mothers) or the mother-baby tent staff to organise antenatal breastfeeding discussion groups. (See 5.2.3 Operational Guidance v2.1, 2007)

These should cover:
- why breastfeeding is important and artificial feeding is dangerous
- recommendations of exclusive and continued breastfeeding
- the breastfeeding pattern that ensures plenty of milk
- what to expect soon after delivery, and
- correction of any widespread misconceptions.

The helpers can also listen to and talk with mothers individually about any worries and concerns.

Mothers who had breastfeeding difficulties before, had added bottle feeds or other products (e.g. gripe waters or teas), or stopped breastfeeding early, need to know that they will be helped to breastfeed their next babies more easily and for as long as they want.

Baby–Friendly care after delivery

Wherever women give birth, health and nutrition workers should help women to establish exclusive breastfeeding in the first days. Steps Four to Ten of the 'Baby-Friendly Ten Steps to Successful Breastfeeding' cover post-partum care (see Module 1, p 53).

Step 4 deals with early breastfeeding. Give the baby to the mother to hold closely skin to skin immediately after delivery. Allow the baby to stay in skin-to-skin contact on the mother's chest so she can breastfeed as soon as the baby shows signs of being ready.

Babies recognise the breast by smell, and within the first hour start to open their mouths and look around for the nipple. Often they "crawl" to the breast and attach by themselves and start suckling. Sometimes drugs used during labour may interfere with the baby´s and/or mother´s normal respones. Nevertheless skin to skin contact should be encouraged even if the baby is slow to suckle or the mother is sleepy. This first milk is called colostrum and is rich in factors that protect the baby from infections. Also, this early contact enables babies to breastfeed more easily afterwards, and helps the mother and baby to bond.

IFE 2/13

Skin-to-skin contact immediately after birth **IFE 2/13**

R. Lemoyne/UNICEF C-95 Thailand

A newborn shows that he is ready to feed and actively seeks the nipple. He is in full skin-to-skin contact with his mother.
The mother and baby are kept warm together.

Birth attendants should:

- Quickly dry the baby and then put in skin-to-skin contact with the mother for at least an hour after delivery, and until s/he has had a breastfeed.
- Make sure the baby is not wrapped up so much that skin-to-skin contact is impossible.
- Cover baby and mother so they keep warm together.
- Make sure the mother helps the baby find the breast and attaches when s/he shows readiness to breastfeed.
- Carry out other procedures (except for urgent ones such as resuscitation) while the baby is with the mother, or after the first breastfeed.

Step 5. Show the mother how to breastfeed if necessary, particularly show her how to attach the baby at the breast.

Step 6. Make sure the baby is exclusively breastfed and not given artificial feeds unless there is a medical indication.

Steps 7 and 8. Keep the baby with the mother all the time and encourage her to breastfeed whenever the baby indicates s/he want to do so – this is demand feeding and helps breastfeeding to go well.

Step 9. Do not give the baby a pacifier or feed from a bottle with a teat, as this interferes with breastfeeding.

Step 10. Make sure the mother receives continuing help and support, if possible from other breastfeeding mothers or community counsellors.

In emergencies, women may have more access to TBAs than to trained health workers such as nurses and midwives. TBAs, therefore, need to know how to make sure that breastfeeding starts early and exclusively, and how to help with attaching the baby at the breast.

Baby-Friendly maternity care does not require beds, buildings, or special equipment. Steps 4-10 can be carried out anywhere. However, women give birth and breastfeed more easily if they have privacy, warmth, and appropriate, supportive companionship during labour and the early post-partum period.

2.3 Appropriate health services

> *Integrate breastfeeding and infant and young child feeding training and support at all levels of health care.*
>
> 5.2.2 Operational Guidance, v2.1, February 2007

As well as maternity services, all other health services should encourage breastfeeding. Let people know where pregnant and breastfeeding mothers can go and whom they can ask for help.

Maternal and Child Health (MCH) services

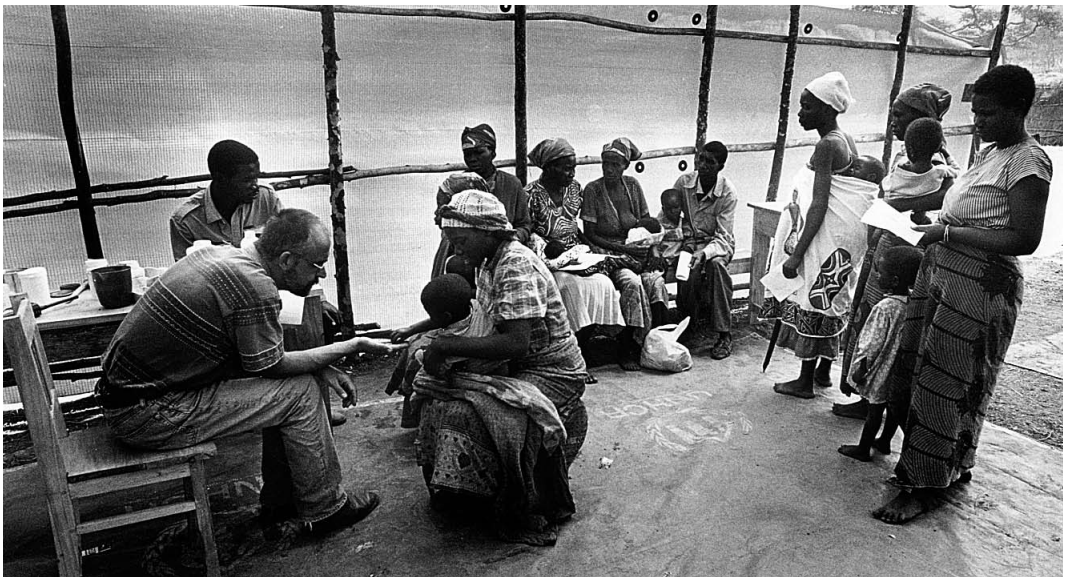
Wherever MCH services are provided, health workers need to:

- encourage age-appropriate feeding
- support breastfeeding
- recognise mothers and babies with feeding problems, for example by Simple Rapid Assessment (see Part 3).

This should happen:

- when infants are weighed
  - an infant should gain 125 g/week or 500g/month up to the age of six months
  - poor weight gain often indicates a feeding problem
- at immunization
- when infants attend for treatment of illness.

Mothers and babies with problems may need referral to an experienced health or nutrition worker who can provide more skilled help. What to do is described in Parts 4 and 5.



Chabalisa Camp, Ngara, Tanzania.

MCH clinics and dispensaries can provide supportive care and identify any difficulties with breastfeeding through Simple Rapid Assessment. Basic Aid for breastfeeding (described in Part 4.2) can also be given at this level.

UNHCR 24152/07.1994/L/TAYLOR

Illness of infant and young child

When children are ill, they may spontaneously increase breastfeeds or return to exclusive breastfeeding. Breastmilk is the best fluid and food for sick infants and young children able to take oral feeds, including infants and young children with diarrhoea.

How to manage feeding during a child's illness:

- Keep the mother and baby together – if the child is admitted to a health facility, admit the mother too. Let the mother stay and sleep with her child, both for comfort and to feed at night, and to help keep the child warm.
- If the child can suckle, encourage the mother to continue or increase breastfeeding.
- If the child cannot suckle, show the mother how to express breastmilk by hand to maintain production and keep the breasts healthy (see Part 5). You may need to ask another health worker who has learned this skill to help. See Annex 3.
- When the child is ready for enteral feeds, feed the expressed breastmilk by tube, syringe or dropper (if under supervision of health staff so equipment can be carefully cleaned) or by cup.
- If the mother is feeding expressed breastmilk at home teach her how to give it by cup (see Annex 2).
- If Oral Rehydration Solution (ORS) is given, use the same methods, never a feeding bottle.

Illness of mother

- Breastfeeding does not need to stop during most maternal illnesses or treatments.
- Breastmilk helps to protect the child against many maternal infections.
- The ill mother may find breastfeeding the easiest way to feed the child, as she can feed while lying down.

A weak and sick mother may find it impossible to carry out artificial feeding safely under emergency conditions.
This is especially so if diarrhoea contaminates her hands and lack of soap and water makes it difficult to wash them frequently.

How to manage feeding during a mother's illness:

- Treat the mother. (See Annex 1 for a summary of maternal medicines.)
- Keep mother and infant together if possible, and continue breastfeeding.
- Seek a relative or other person who can help to care for the infant, and bring him/her to the mother for breastfeeds.
- If the mother cannot breastfeed, she can hand express to keep the milk flowing and the breasts in good condition. If the mother is too weak to express her milk, ask if you, or another carer, can express the milk for her. Ask a more experienced worker to help with this if necessary (see Annex 3).
- Help the mother to increase her milk production as she recovers (see Parts 5 and 7).

Illness (especially fever), diarrhoea, or drugs used during surgery may temporarily reduce the mother's milk production. But she should breastfeed the infant as much as possible.

To check if the infant is getting enough breastmilk, monitor his/her urine output. If the infant does not pass dilute urine at least six times in 24 hours, it may be a sign that s/he is not getting enough fluid. The mother needs to drink more and to build up breastmilk production through frequent breastfeeding (see Part 4).

Case study: A mother with cholera

Nirmala has symptoms of cholera. Her five-month-old son is exclusively breastfed. He seems healthy, but he has passed urine only four times in the last 24 hours.

1. Should Nirmala and her baby be kept together or separated?
2. Does breastmilk transmit vibrio (the organism causing cholera)?
3. Should breastfeeding be stopped and the baby temporarily be given infant formula?
4. Nirmala has become severely dehydrated. What can be done?
5. The baby is urinating only 4 times in 24 hours. Should anything be done?
6. Should antibiotic treatment be given to the mother, to the baby, or to both?

Answers

(based on responses by Dr. Anjuman Ara, Senior Training Physician, ICDDR, Bangladesh)

1. Both the mother and the infant should remain together in any situation irrespective of whoever is ill. The mother may need assistance from other caregivers.

2. Vibrio is not transmitted through breastmilk. The vibrio is in the gastro-intestinal tract and the route of transmission is by fecal-oral contamination. Exclusively breastfed infants rarely develop cholera, unless the vibrio is introduced through the infant's mouth, which is prevented by exclusive breastfeeding.

3. So long as the mother is conscious (even while getting intravenous transfusion) and her dehydration is not severe, breastfeeding should be continued. Artificial feeding will reduce the breastmilk in addition to being a possible source of infection for the infant.

4. The amount of breastmilk from a deydrated mother is reduced, and she needs corrective rehydration. Severe dehydration can be improved within an hour by intravenous fluids; she should also have Oral Rehydration Solution (ORS).

5. As the infant is urinating too little, less than six times a day, he is also dehydrated. He temporarily also requires additional fluid to correct his hydration status until the mother's milk production increases. In this case, oral rehydration is essential. The ORS is given with a spoon or cup and does not interfere with the infant's interest in suckling at the breast. Breastfeeding is continued along with the ORS, so the milk production is not reduced.

6. An antibiotic is given only to the infected mother, not to the uninfected healthy infant.

Reproductive health care

Health workers providing family planning should ask each woman if she is breastfeeding. A breastfeeding mother should not be given any oestrogen-containing contraceptive pills (such as combination pills) because they can reduce breastmilk production.

Avoiding oestrogen-containing contraceptives is important both before six months, when the infant needs exclusive breastfeeding, and from six months to two years or more when frequent breastfeeding should continue, particularly during emergencies.

HIV *(this topic may be omitted where not relevant)*

All health workers should be aware of the 2006 UN policies *(Annex 19)*.
http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/consensus_statement_fr.pdf

Management of infant feeding in high HIV prevalent settings will depend on whether the operational health service is able to offer voluntary testing facilities for HIV, and appropriate referral. If testing is not available, targeting for individual treatment services and infant feeding options will not be possible and messages around breastfeeding will have to be pitched at a population level.

To make informed decisions about how to feed their babies, mothers need to know whether or not they are HIV-infected, and this requires that voluntary and confidential counselling and testing is provided and promoted. It is a fundamental principle that testing be voluntary and carried out with informed consent.

HIV and Infant Feeding: guidelines for decision-makers. UNICEF/ UNAIDS/ WHO (2003)

Risk of HIV transmission through breastfeeding

When a mother is *HIV-positive* (infected with HIV), the infant feeding decision that has to be made requires balancing the risks of breastfeeding and potential HIV transmission against the risks of not breastfeeding.

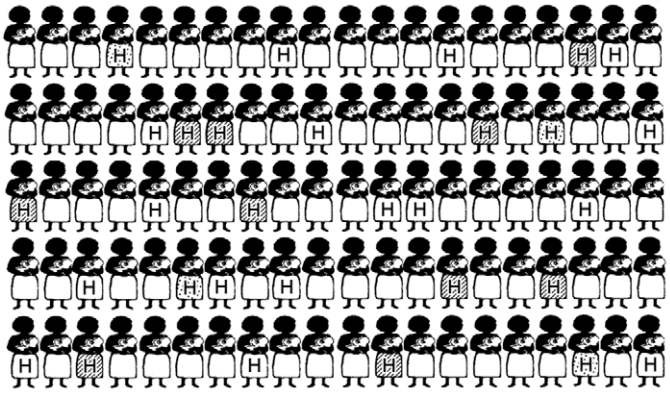
The time of greatest risk of mother to child transmission (MTCT) is during the birth when up to 30% of infants born to HIV-positive women may acquire the infection. The risk of transmission around the time of delivery can be reduced if HIV positive women are given antiretroviral therapy (ART) during the labour period. For those with accessible health services maternal ART may be started earlier in the 3rd trimester of pregnancy.

The risk of transmission of HIV by breastfeeding is sometimes over-estimated. It is often assumed that every breastfed child will be infected. In fact the additional risk of transmission through breastfeeding is estimated at 5-20% (depending on duration), for babies continuing to breastfeed up to 2 years from an HIV infected mother who is not receiving ART. This rate can be lowered by exclusive breastfeeding. On average only about 15% of infants who breastfeed from an HIV-positive mother, who is not receiving ART prophylaxis, are infected this way.

The following diagram (IFE 2/14) can help to explain the risk of MTCT. It shows 100 breastfeeding women from a population where HIV is highly prevalent.
33% (30 women) are HIV-positive (undiagnosed). About 30% of the babies born to these 30 women are infected at or before birth (10 babies). About another 13% of babies (4 babies) born to the 30 infected women may get the infection through breastfeeding. So in a population where HIV is highly prevalent and all women breastfeed, about 4 – 5% of babies become infected. This percentage will differ according to the HIV prevalence of the local population and by the pattern of breastfeeding (exclusive or mixed feeding).

IFE 2/14

If 100 women breastfed where HIV is prevalent **IFE 2/14**



It is important to balance against this risk of HIV infection, the risks to a child who does not breastfeed in a particular setting, especially if a continuing supply of suitable breast milk substitutes and hygienic preparation of artificial feeds are difficult.

When HIV testing cannot be provided

If HIV testing cannot be provided, exclusive breastfeeding for the first 6 months, followed by continued breastfeeding with adequate complementary foods for 2 years or beyond, is the recommended option[3]. This is in accord with the 2006 UN guidelines and with the 2007 Operational Guidance on infant and young child feeding in emergencies.

> *Where the HIV status of the mother is unknown or she is known to be HIV negative, she should be supported to exclusively breastfeed.*
>
> Operational Guidance 5.2.7, Operational Guidance, v2.1, February 2007

When HIV testing is provided: infant feeding options

A woman who has been tested and shown to be HIV-positive needs counselling on how to feed her infant. Current United Nations guidelines state that:

- Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time.
- When replacement feeding is acceptable, feasible, affordable, sustainable and safe (AFASS) avoidance of all breastfeeding by HIV-infected women is recommended.

Artificial feeding
The risk of HIV transmission through breastfeeding can be reduced by artificial feeding, but this carries increased risks to the infant of other illnesses and, in many settings the risk of death from other causes. The information given to a mother needs to be adjusted to the particular emergency. The availability of breast milk substitutes and the necessary resources, such as clean water, fuel and other essentials will vary in different places, and at different phases of an emergency. A woman who chooses this option needs help to prepare artificial feeds properly (see part 6) and to ensure a sustained supply of breast milk substitute

Breastfeeding
If an HIV-positive mother chooses to breastfeed, she should do so exclusively. Exclusive breastfeeding helps to prevent diarrhoea and respiratory infections and is associated with the reduction of HIV transmission in comparison to mixed feeding. Partial breastfeeding mixed with artificial feeding increases the risks of both HIV and other infections. A woman who chooses to breastfeed needs help to ensure effective suckling and milk flow through good attachment (see Part 4) to prevent nipple damage and mastitis which can increase the risk of HIV transmission (see Part 7).

A mother may decide to stop breastfeeding around the age of six months if she is able to feed the baby safely in another way. It is less of a risk to stop breastfeeding a baby after the age of 6 months than in the first 6 months of life, but there are still difficulties, particularly in emergency settings. Therefore the UN recommends that

- at six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the mother and baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.

Wet nursing of orphans

Wet nursing means a woman breastfeeding another woman's baby. The practice of wet nursing should be reviewed in places where the prevalence of HIV is high. It may be discouraged if alternative methods of infant feeding, and the resources required, are fulfilling the AFASS conditions. Where AFASS conditions do not apply, however, wet-nursing may be considered in communities where this option is accepted. The wet-nurse must understand and agree to the implications of HIV testing and counselling, as she will need HIV testing before wet-nursing and 6–8 weeks after starting. In addition, she should be counselled about HIV infection and how to avoid infection during breastfeeding. There is anecdotal evidence of infected infants transmitting HIV to their HIV-negative breastfeeding mothers.

[3] WHO and UNICEF have published two longer course manuals titled Breastfeeding Counselling: a training course (WHO/CDR/93.4), and HIV and Infant Feeding Counselling: a training course (WHO/FCH/CAH/00.4). These teach counselling skills not covered by these brief IFE Modules, and provide additional visual materials.

2.4 Continuing assistance and social support

In an emergency, mothers may be at any stage of breastfeeding. Some may have difficulties due to lack of earlier attention, or to culturally accepted practices. These can be changed, as part of families' adaptation to the emergency situation, but not overnight.

Whenever breastfeeding is not going easily, help and care may be needed for several weeks to establish age-appropriate breastfeeding, the mother's confidence, and the baby's satisfactory growth. Help for breastfeeding needs to continue after the age of six months, when complementary foods are also given.

Women may easily lose confidence and doubt the adequacy of their breastmilk even in settled conditions. Mothers who are socially isolated find it even harder to care for their infants, and may have extra breastfeeding difficulties.
Health and nutrition workers can provide both supportive arrangements and personal attention to make breastfeeding easier.

Supportive arrangements

IFE 2/15

Supportive arrangements and personal attention **IFE 2/15**

- reduce isolation
- provide privacy if culturally required
- encourage age-appropriate feeding
- educate family and community members
- remove conflicting messages
- listen
- build confidence

Adapted from F. Savage, A Burgess - Nutrition for Developing Countries. 1993

Reduce isolation
- Arrange for breastfeeding women to meet together often, especially young, shy, first-time mothers, or women who have lost their families, communities or social networks.
- Home visits or seeing them at special times reduces the isolation of women who find it difficult to mix in a group.
- Provide privacy if culturally required.

Encourage age-appropriate feeding
- Support for mothers includes consistently encouraging them:
  - to breastfeed exclusively for six months, and
  - to continue breastfeeding frequently day and night up to two years or beyond, with adequate complementary foods.
- Praise mothers when they feed their babies like this, and make sure they understand that it is the best way to ensure a plentiful milk supply.

Educate family and community members
- Help families and community members to support age-appropriate feeding.
- Do not criticise women who are breastfeeding more exclusively, more frequently, or for longer than used to be customary.

- Explain the unique value to the health of the child and the mother of the new feeding pattern, throughout the emergency and beyond.

Remove harmful messages

- Remove any leaflets, posters or other messages that conflict with good breastfeeding practices, for example:
  - materials suggesting that other foods can replace breastmilk before the age of 12 months, or that breastfeeding frequency or night breastfeeds be reduced before a child is a year old.

Personal attention: listening and confidence-building

Health and nutrition workers should listen to and talk with mothers themselves when they can speak the mothers' language.
Additionally, you can arrange for community health workers to visit women at home, or for women to talk with each other in mother-support-groups (see Part 4).

Mothers are greatly helped to breastfeed and care for their infants if someone calm and friendly *listens* to them, and builds their confidence with reassurance and correct information.

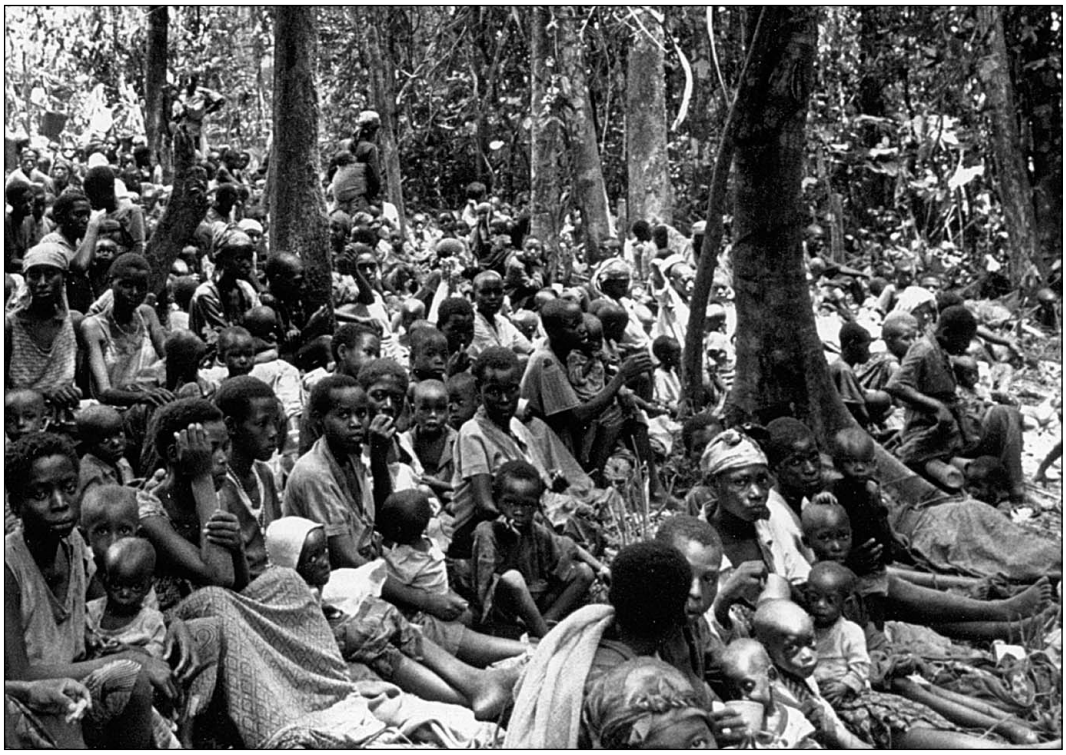
Listen

- Listening, and encouraging women to talk about their worries, confusion and grief, can be of great benefit.
- Where culturally appropriate, ask a mother about her family, her workload and how she is coping.
- Breastfeeding may be the least of her anxieties, if family members are missing.
- Alternatively, find someone else to sit quietly and listen and talk with the mother until she starts to tell of her concerns.

Build confidence

- A kind, approving and uncritical woman, who quietly listens to what a mother says, and praises what she does right, is reassuring and makes a mother feel more confident.
- The mother needs the encouragement of such a reassuring woman.
- This sort of encouragement helps a woman to believe that her milk will not stop even in an emergency setting and that any breastfeeding difficulties can be overcome.

3 Assessment of mother/child pair



Rwandan refugees in Central African rainforest, 1997. R. Chalassani for UNHCR

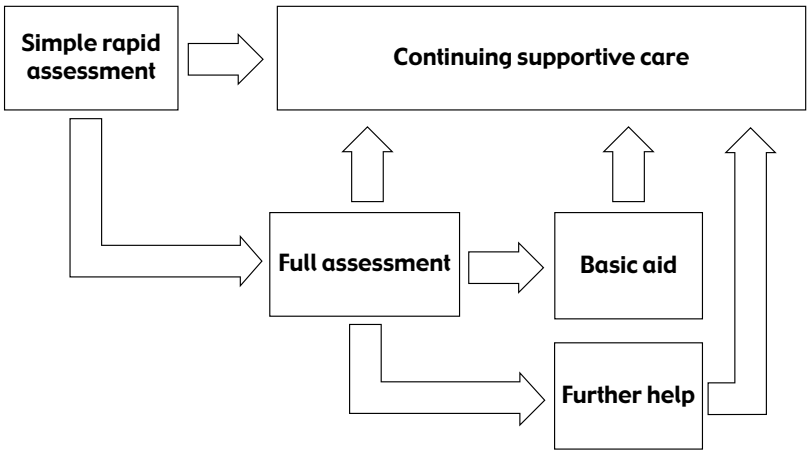
3.1 Two forms of assessment

You can use two methods to assess the feeding of children aged 0 – 2 years:

- Simple Rapid Assessment and
- Full Assessment

IFE 2/16

Deciding who needs help **IFE 2/16**



Simple Rapid Assessment (SRA)

SRA can take place at intake, registration, or any early meeting with health and nutrition workers. SRA decides whether:

- the baby is not at immediate risk of inadequate feeding, and the mother needs only supportive care (see Part 2), or
- the baby is at immediate risk of inadequate feeding, and should be referred for Full Assessment.

Full Assessment (FA)

This usually takes place in a health care setting, when a mother is referred there.

Full Assessment indicates:
- What needs to be improved
- What kind of help is needed.

All mothers should be receiving the supportive care described in Part 2. Two levels of additional help may be needed by breastfeeding mothers:

- **Basic Aid,** which many mothers may need (see Part 4.2), or
- **Further Help**, which a few may need (see Part 5.1).

Some caregivers may need help with **Artificial Feeding** (see Part 6).

Severely malnourished or ill mothers need immediate care for themselves. They should be referred without delay to appropriate services, with their infants. Full Assessment of infant feeding should be part of treatment within those services.

3.2 Simple Rapid Assessment (SRA)

Simple rapid assessment (SRA) does not require medical or nutrition training, or observation of breastfeeding. It covers:

- age-appropriate feeding
- breastfeeding ease
- the baby's condition.

Keep the SRA simple. IFE 2/17, 2/18 and 2/19 list the questions asked for SRA.
Try to memorise these questions, so that you can ask them without using a form. We give a form for practising, but, in the real situation, there is no need to keep a written record. It is best to question each woman away from other women as her responses may be affected if other women can hear her.

Age-appropriate feeding

IFE 2/17

Simple Rapid Assessment: Age-appropriate feeding **IFE 2/17**

Ask:
1. How old is the baby? Age _____months
2. Are you breastfeeding him/her?
3. Is the baby getting anything else to drink or eat?

Reasons to refer for Full Assessment:

- not breastfed
- breastfed but feeding not age-appropriate
  - under 6 months, not exclusively breastfed
  - over 6 months, and given no complementary foods

Ask:

1. How old is the baby? (If caregiver does not know, estimate: under or over six months.)
2. Are you breastfeeding him/her?
3. Is the baby getting anything else to drink or eat?

If infant:

- is not breastfed (whether under or over six months old)
- is breastfed, but feeding is not age-appropriate *(under six months and not exclusively breastfed, or over six months and given no complementary foods)*, the infant is at risk of inadequate feeding.

Refer for Full Assessment.

All infants who are artificially fed should be referred for Full Assessment.
They are at high risk in an emergency setting.

Breastfeeding ease

IFE 2/18

SRA: Breasting ease **IFE 2/18**

Ask:

4. Is the baby able to suckle the breast?
5. Have you any other difficulties with breastfeeding?

Reasons to refer for Full Assessment:

- baby not able to suckle
- mother has other difficulties with breastfeeding
- mother requests breastmilk substitutes

Ask:

4. Is the baby able to suckle the breast?
5. Have you any difficulties with breastfeeding?

Let the mother talk as freely as she wishes about how she is feeding. But she may answer only briefly.

If the mother says that:

- the baby cannot suckle
- she has other difficulties with breastfeeding
- she needs breastmilk substitutes.

the baby is at risk, refer for Full Assessment.

IFE 2/19 Baby's condition

Looking at the baby´s condition **IFE 2/19**

Look:

6. Does the baby look very thin?
7. Is the baby lethargic, perhaps ill?

Reasons to refer for Full Assessment:

- looks very thin
- lethargic, perhaps ill

Ask the mother or caregiver to unwrap the baby - at least enough for you to see the face and upper body - and ask her to try to wake the baby.

Look:

6. Does the baby look very thin?
7. Is the baby lethargic, perhaps ill?

If the baby is sleeping soundly, you can ask the mother or caregiver what the baby is like while awake. She can tell you if the baby is not behaving in the usual way.
If the infant:

- is visibly thin, or
- is lethargic, perhaps ill,

refer for Full Assessment, and possible medical care.

Finishing SRA

If the infant is not at immediate risk because feeding is age-appropriate, breastfeeding is easy, the baby can suckle and is not visibly thin or lethargic and the mother needs only supportive care:

- praise the mother and tell her she is doing well in these difficult circumstances
- tell her where to go for support and help with breastfeeding, if she wants it.

If the infant is at immediate risk for any of the above reasons, and Full Assessment is needed:

- explain to the mother where she should go.

Practice form: Simple Rapid Assessment

Ask:
1. How old is the baby? Age _____
2. Are you breastfeeding him/her?
3. Is the baby getting anything else to drink or eat?
4. Is the baby able to suckle the breast?
5. Have you any difficulties with breastfeeding?

Look:
6. Does the baby look visibly thin?
7. Is the baby lethargic, perhaps ill?

Reasons to refer for Full Assessment:
____Not breastfed
____Breastfed but feeding not age-appropriate
under 6 months, not exclusively breastfed
over 6 months, and given no complementary foods
____Baby unable to suckle the breast
____Mother has other difficulties with breastfeeding
____Mother requests breastmilk substitutes
____Baby visibly thin
____Baby lethargic, perhaps ill

Practising Simple Rapid Assessment

Use the SRA practice form with a colleague until the questions are easy to ask. Then try the SRA with several women and babies, wherever you are, whether or not you are in an emergency setting.
After a time, you will remember the questions and things to look for. Then you will need only a minute or two with each mother and baby.

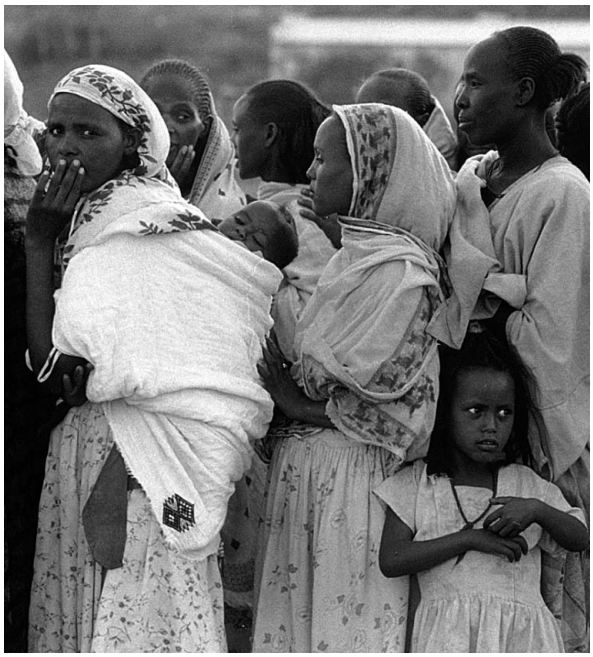
Keep the SRA simple. Remember you do not need full details of feeding at this stage and you should not give advice yet.

Exercise: SRA (photographs)

We have used real photos from emergencies to illustrate possible situations and made up typical details. What would you do for each situation?

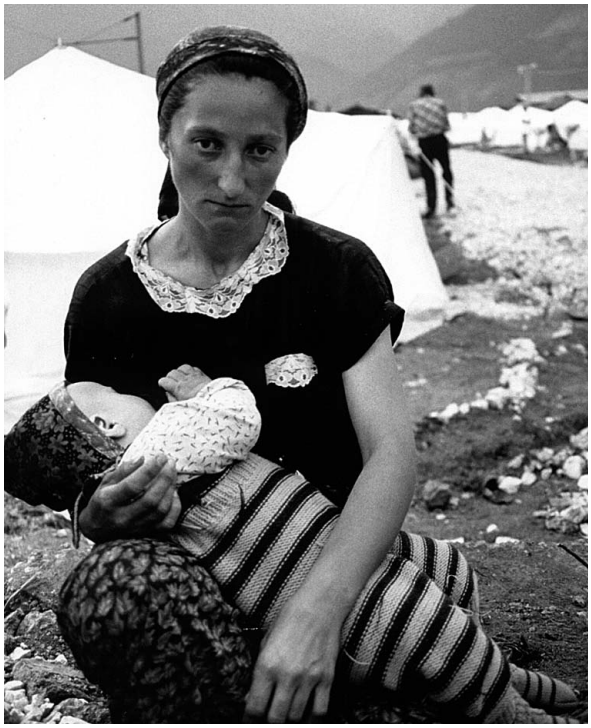
1. Women waiting to register, Dubarwa, Eritrea (2000)

Suppose this baby is three months old, and the mother says she breastfeeds him exclusively. As the mother unwraps him, he stirs, opens his eyes, and looks around. His chest and arms do not look thin.
The mother tells you that breastfeeding is going well, although she is worried about her missing older son.



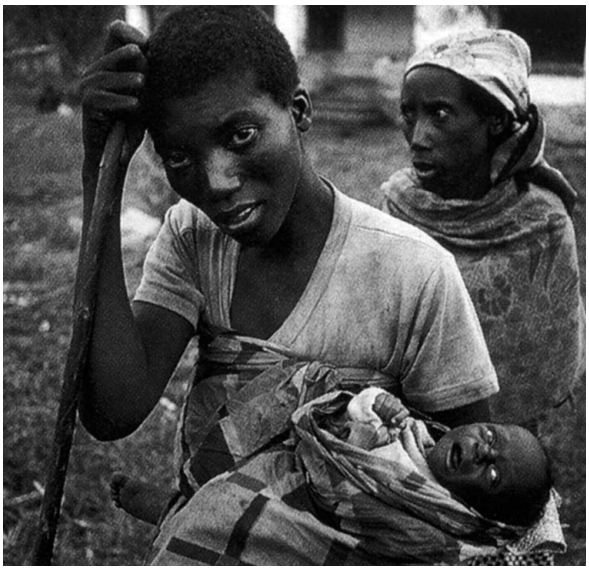
2. Discouraged mother, Kladanj, Bosnia (1995)

This mother is breastfeeding her nine month old daughter and also feeding her cereal. The child is growing very well, but the mother is sure that her milk is going away because of the stress of having to flee from her city. She has lost almost everything, and fears losing her breastmilk as well. She asks to be given infant formula for her child.



3. Mother and child arriving in Biaro, Congo (1997)

This very malnourished and dehydrated mother has walked more than a hundred miles through the rain forest to get help for herself and her baby. She says that all she has been able to do is to breastfeed. The baby is four months old and looks thin. He is irritable and limp, and is not suckling much. The mother believes that her son is rejecting the breast because she is too ill to breastfeed.



Answers

1. Mother in Eritrea
Do not refer, as the baby is exclusively breastfed, looks as if he is growing well, and the mother is not concerned about infant feeding. Supportive care from the health services in the next few weeks should be enough.

2. Mother in Bosnia
Refer for Full Assessment, because of the mother's doubts about her milk production.

3. Mother in Congo
Provide drinking water and food immediately, then refer them together to appropriate medical care and possible therapeutic feeding.

3.3 Full Assessment (FA) of infant feeding

Full Assessment (FA) is generally done by health or nutrition workers with direct responsibility for mothers' and babies' health and nutrition.

If mothers do not want male workers to watch them breastfeeding, it is urgent to identify female workers who can carry out Full Assessment.

Full Assessment helps health and nutrition workers to know:

- if the baby is suckling effectively
- if the mother feels confident and her milk is flowing
- if her milk production is adequate
- more details about age-appropriate feeding.

Full Assessment of infant feeding has three Steps:

1. Observing a breastfeed if the child is breastfed.
2. Listening and learning from the mother or caregiver in all cases.
3. Observing artificial feeding if the child is artificially fed. This step is covered in Part 9.10.

Providing the health and nutrition workers with laminated copies of the Full Assessment practice forms helps them to carry out these Steps.

Ask: Is the child breastfed?

If the child is breastfed, observe a breastfeed (Step 1). This identifies causes of "not enough milk" that the mother herself may not have recognised, such as ineffective suckling or very short feeds.

If the child is *not* breastfed, use only Steps 2 and 3 of the Full Assessment (see also Part 9.10).

Full Assessment (FA) Step 1: Observing a breastfeed

If the infant has not breastfed recently, ask the mother to put her baby to the breast.
If the mother says that the baby is not willing to breastfeed at this time, because s/he has fed recently, ask her to wait nearby and tell you when the baby is ready to breastfeed.
Observe the breastfeed for at least four minutes, and preferably until the baby comes off the breast by him/herself. Listen to and talk with the mother casually, using the Step 2 Listening and Learning topics (see below), or on any other topic.
Meanwhile, quietly notice how she manages the breastfeed. Give no advice or help.

As you observe the breastfeed watch for four things:

1. Attachment to the breast.
2. Effectiveness of suckling.
3. Mother's confidence.
4. How the feed ends.

Observing and listening without giving advice may be difficult to do at first.

However, these are important skills for helping mothers and caregivers.

If the infant is unable to suckle at the breast at all, or does so only weakly (and this is not because of a recent feed), refer for medical assessment, or to a Therapeutic Feeding Centre. The infant may be ill or malnourished.

Look for good attachment

- First check the baby's attachment at the breast.
- A baby needs to be well attached to suckle effectively.
- Remember the four signs of good attachment (see p 9):

  - areola (more above)
  - mouth (wide open)
  - lower lip (turned out)
  - chin (touching breast).

If a baby is very close to the breast, it may be difficult to see if the *lower lip is turned outwards*. If an older infant is suckling on a pointed breast, *the chin may not touch the breast*. Otherwise, **if any one of the signs is not there, the baby is poorly attached.**
If the mother has pain or discomfort of her nipples, that too usually means poor attachment.

IFE 2/20

Full assessment Step 1: Observing a breastfeed **IFE 2/20**

- **Attachment**
  - areola, more above
  - mouth wide open
  - lower lip turned out
  - chin close to or touching breast
  - no nipple pain or discomfort
- **Suckling**
  - slow, deep sucks, sometimes pausing
  - audible or visible swallowing
- **Mother confident**
  - enjoyment, relaxation (not shaking breast or baby)
  - signs of bonding (stroking, eye contact, close gentle holding
- **How the feed ends**
  - baby comes off the breast by itself (not taken off by mother)
  - baby looks relaxed and satisfied, and loses interest in the breast
  - mother keeps the breast available, or offers the other breast

Check the baby´s suckling

- Notice signs of effective suckling
  - slow, deep sucks, sometimes pausing
  - audible or visible swallowing.

These are signs that the baby is suckling effectively and getting breastmilk easily.

- Notice signs of ineffective suckling
  - rapid sucks, with smacking sounds
  - fussing at the breast
  - coming on and off the breast.

These are signs that the baby is not getting the milk easily.
The mother may say that the baby is feeding very frequently or for a very long time, and/or is very restless and unhappy after feeds. These are also signs that the baby is not getting the milk easily.

Notice whether the mother seems confident

Does she seem to be enjoying breastfeeding and is she relaxed and happy with the baby? She may show signs of bonding (strong, close, loving feelings) with the baby, such as stroking or eye contact, but these gestures are not universal. She may show little emotion, yet gently hold her infant closely and confidently.

A mother who is shaking her breast or shaking the baby during a feed is showing that she is not relaxed. She may also keep shaking her leg, tapping the baby's cheeks, or moving the baby repeatedly from one breast to the other.

Effective suckling and a confident, relaxed mother are signs that breastmilk is flowing well.

Notice if the mother shows pain while breastfeeding

Ask her if she has pain or discomfort in her breasts or nipples.
However, during the assessment the mother may tell you, or you may observe, that she has pain or swelling or some other concern about the condition of her breasts.
Possible causes of breast pain and swelling and how to help the mother are discussed in Part 7.
Pain or discomfort without other signs is often cured by Basic Aid for breastfeeding (see Part 4).

It is important to understand that you do not reach any conclusions about the production or flow of milk from the appearance of the breast.

Watch how the feed ends

Ideally, every breastfeed continues, with a few pauses and minutes off the breast, until the baby spontaneously stops and releases the breast.

Notice which of these happens:

- The baby comes off the breast by him/herself and loses interest in the breast. The baby may look relaxed and satisfied and is not immediately restless and unhappy.
  This indicates that the baby has had all the milk s/he needs, including hindmilk.

- The mother keeps the breast available, or offers the other breast.
  This indicates that she is not restricting the feeds, but allowing the baby to continue if s/he wants to.

- The mother takes the baby off the breast herself, and tucks her breast away.
  This indicates that the mother is restricting the length of feeds, and the baby may not have had all the milk that s/he needs.

Practice form for Full Assessment
Step 1: Observing a breastfeed

(Ask whether the child is breastfed. If not, use Full Assessment Steps 2 and 3.)

Observe the breastfeed for at least four minutes, and preferably until it ends.
Give no advice or help. You can mark Yes or No, or make other notes.

If all answers are "yes", it indicates that breastfeeding is going well. If some of the answers are "no" the mother needs help.

Attachment at breast	___ areola, more above
	___ mouth wide open
	___ lower lip turned out
	___ chin close to or touching breast
	___ no nipple pain or discomfort
Suckling	___ slow, deep sucks, sometimes pausing
	___ audible or visible swallowing
Mother confident	___ enjoyment, relaxation, not shaking breast or baby
	___ signs of bonding (stroking, eye contact, close gentle holding)
How the feed ends	___ baby comes off the breast by himself (not taken off)
	___ baby looks relaxed and satisfied and loses interest in the breast.
	___ mother keeps the breast available, or offers the other breast.

Practice of Full Assessment Step 1: Observing a breastfeed

Use a copy of the Full Assessment Step 1 form above to learn what to look for.
Take every opportunity to observe breastfeeds from start to finish.
If possible, observe with a colleague, then move away and compare observations.

Full Assessment Step 2: Listening and learning

When you are doing a Full Assessment and helping a mother or caregiver, one of the most important things to do is to listen to her attentively, and to learn from her.
What you learn from her can help you to give her the support that she needs and in particular to:

- build or restore her confidence, and
- increase her milk production.

It will also tell you whether, and how, she feeds other milk and foods, so you can:

- guide her about age-appropriate feeding for her child.

Paying attention

Introduce yourself and ask the mother's permission to talk to her. Stand or sit on the same level as her. Show by your body language (e.g. facing her and looking interested) and by your responses that you are paying full attention to what a mother says, and that you hear, understand and remember what she says.

Encouraging a woman to talk freely

A useful way to encourage a person to say more is to ask open questions.
These start with words like "what" and "how?"
You can also invite a mother to talk freely with open questions like "Could you tell me about…?"

Practise putting the following open questions and invitations to talk into the local language:

"How are things going with the feeding?"
"Could you tell me how the feeding is going?"
"Would you like to tell me about how you are feeding?"

This kind of question tells you more, and is less discouraging to the mother, than asking whether she has problems.

Working through interpreters

Health and nutrition workers who must rely upon interpreters may need to discuss with them how to talk with mothers gently about breastfeeding, and how to transmit the mother's replies

precisely. Interpreters may sometimes translate an open question such as "How is feeding going for you and the baby?" into a less helpful form such as "Do you have any problems with infant feeding?" or even an authoritative "You know how to breastfeed, don't you?"

They may also have a custom of shortening and summarising replies. This can transform the mother's "I am worried about whether I will have enough milk, because I haven't eaten enough" into the interpreter's "She doesn't have enough milk." Explain to an interpreter why you need to know the details of what a woman is saying.

Learning from the mother or caregiver

This section summarises the topics to cover when learning from the mother or caregiver. But it cannot show how to ask open questions, listen attentively and be sensitive to each woman in accord with her culture and her feelings. The topics you need to learn about are:

- how the child is breastfed
- what other foods and drinks are given
- the mothers beliefs and worries about infant feeding
- how the mother is feeling
- whether she is interested in increasing her breastmilk.

The following are questions to ask the mother or caregiver in order to learn how the child is breastfeeding. Do not give advice or corrections untill you have full information.

Learn how the child is fed – breastfeeding

If breastfeeding has not yet been observed:
Ask:
- Is the baby breastfeeding?

If breastfeeding has already been observed, or the mother says yes to the first question:
Ask:
- About how often is the baby breastfed in a day? during the night?
  - In the day, does she keep the baby with her?
  - Does she sleep with the baby?
- If she says demand feeding, what exactly does this mean:
  - Every time the infant cries?
  - Before s/he cries?
  - Only if s/he cries a lot?
  - About how often is that?

In some settings, you will also want to know:
- Is the baby given a pacifier (dummy, soother, whatever is given to baby to suck)?

IFE 2/21

Full assessment Step 2 **IFE 2/21**

Listening and learning

Breastfeeding? ___yes ___no How often by day?_____ by night?_____
Using a pacifier? ___yes ___no

Other drinks and foods? ___yes ___no
What drinks? _____ How given? _____
How many times a day? _____
What sort of family foods? _____
How many times a day? _____

Beliefs and worries about feeding; how mother/caregiver decided
_____
_____

How is mother/caregiver physically and emotionally?
_____
_____

Interest in increasing breastmilk or relactation ___yes ___no

This transparency summarizes the topics to cover in learning from the mother or caregiver. But it cannot show how to ask open questions, to listen attentively and to be sensitive to each woman in accord with her culture and her feelings.

Learn how the child is fed – other drinks and foods

Ask:
- Is the baby getting other drinks or foods?
- What drinks is s/he given?
- How are the drinks given?
  - Is it by spoon, cup, hand, feeding bottle, other technique?
- How many times a day?
- What soft or family foods is the child eating?
- How many times a day?

Provide a list of local foods, drinks, and feeding techniques, if this will help the discussion.

Learn about the mother´s or caregiver's beliefs and worries about infant feeding

You need to learn whether she already knows about breastfeeding and its value, and whether she has any beliefs and worries that affect how she feeds.

Ask (respectfully):
- What made you decide to feed as you are doing?
- What have people told you about infant feeding?

Do not disagree with or correct any misconceptions immediately, as that will stop her talking freely.
Learn if she has any beliefs, fears, doubts or misconceptions that make her worry about breastfeeding.
People may have told her that she is too stressed to breastfeed.

Learn how the mother or caregiver is feeling, both physically and emotionally

- She may be malnourished, ill, or exhausted. (She will need urgent treatment.)
- She is likely to have lost her home and familiar community.
- She may be mourning dead family members, or worrying about missing children.
- She may be suffering from depression and the aftermath of traumatic stress.
- She may reject a baby resulting from rape, or because torture and terror have robbed her of a sense of human connection.

Ask (adapted as culturally appropriate):
- How are you yourself?
- Is there anything worrying you that you would like to talk about?

If she can talk, it may help to release some feelings. However, she may not want to talk. Do not press her, but try to provide the warmth and companionship that will in time allow her to speak to you or others.

Learn about her interest in increasing her breastmilk (or in relactation).

If the mother is breastfeeding but concerned about her milk production:
Ask:
- Would you like to increase your breastmilk? We can help you to make more.

If the mother or female caregiver is not breastfeeding,
Ask:
- Would you be interested in breastfeeding this baby? We can help you to produce breastmilk again.

Practice of Full Assessment (FA) Step 2 – asking questions

Practise Step 2 with a colleague. One takes the role of health worker, the other takes the role of the mother or caregiver.

First use the form below. Adapt the questions to the local culture, if it seems necessary. Use the language you will speak with mothers, if possible.

Practice form for Full Assessment (FA)
Step 2 - asking questions

- Is the baby breastfeeding?
- About how often is the baby breastfed in a day? During the night?
  - In the day, does she keep the baby with her? Does she sleep with the baby?
  - If she says demand feeding, what exactly does this mean: every time the
  - infant cries? Before s/he cries? Only if s/he cries a lot? About how often is that?
- Is the baby given a pacifier (dummy, soother, whatever is given to baby to suck)?
- Is the baby getting other drinks or foods?
- What drinks is s/he given?
- How are the drinks given?
  - Is it by spoon, cup, hand, feeding bottle, other technique?
- How many times a day?
- What soft or family foods is the child eating?
- How many times a day?
- What made you decide to feed as you are doing?
- What have people told you about infant feeding?
- How are you yourself?
- Is there anything worrying you that you would like to talk about?
- Would you like to increase your breastmilk? (We can help you to make more.)
- Would you be interested in breastfeeding this baby? (We can help you to produce breastmilk again.)

Remember not to give advice or corrections during this step.

Practice of FA Step 2 – recording responses

Use the recording form below. Write brief notes on the form.
Keep your practice notes to use in Part 4.

Practice form for Full Assessment (FA)
Step 2 - recording responses

Breastfeeding? yes ___ no ___
How often by day? _____ by night? _____
Pacifier? yes ___ no ___

Other drinks and foods? yes ___ no ___
What drinks? _____
How given? _____
How many times a day? _____
What soft or family foods? _____
How many times a day? _____

Mother's beliefs, how she decided feeding
_____
_____

How is mother/caregiver physically/emotionally? Any worries?
_____
_____

Interest in increasing breastmilk or relactation yes ___ no ___

Practicing Steps 1 and 2 with mothers and caregivers

When you are at ease with the questions, practise both Steps 1 and 2 of the Full Assessment with mothers and caregivers.
You will find that you can often combine observing a breastfeed (FA Step 1) with listening to and learning from the mother (FA Step 2).
If a mother or caregiver is not breastfeeding, practice with FA Step 2 only to learn how she feeds the infant.

You may take brief notes if that does not make the mother uneasy. Alternatively, remember carefully what she says, and record it later.

Keep your practice notes to use in Part 4. Step 3 of the Full Assessment is described in Part 9.10.

4 Providing help to improve infant feeding

4.1 Deciding what help is needed[1]

After making a Full Assessment, the health or nutrition worker needs to decide how to help the mother and baby.

All mothers should be getting supportive care for breastfeeding, integrated into general assistance, and health and nutrition care. Mothers with any of the common difficulties, and most who are not giving the baby age-appropriate feeding, can be helped by a package of simple care that we call Basic Aid for breastfeeding.

In addition to Basic Aid, some mothers also need more skilled interventions, which may include Further Help for breastfeeding, help with artificial feeding options (e.g. temporary or longer term supplements, when appropriate), therapeutic feeding, or medical treatment.

We summarise the indications for the different levels of help in the following two tables.

Levels of help for infant feeding: conditions needing Basic Aid for breastfeeding
Mother and infant are adequately healthy but assessment shows:
• mother lacks confidence • misconceptions, worries about breastfeeding • doubts about having adequate breastmilk • requests for breastmilk substitutes to supplement breastfeeding • interest in increasing breastmilk
• poor attachment or ineffective suckling • discomfort or mild pain from nipples • normal fullness of breasts after birth
feeding not age-appropriate • under 6 months: - gives other drinks or foods - breastfeeds <8 times/day - no night breastfeeds - mother ends feed, puts breast away
• 6-12 months - breastfeeds <6 times/day - no complementary foods - foods less than 3 times/day
• 12-24 months - no complementary foods - foods less than 3 times/day

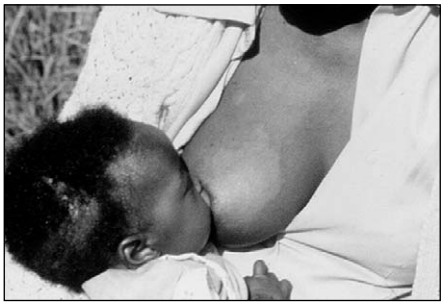
[1] The general conditions to support breastfeeding in a population, such as providing an adequate diet, are discussed in Module 1 and in Module 2 Part 2, and are not repeated here.

Levels of help for infant feeding: conditions needing more skilled help	
Assessment shows:	**Appropriate help:**
• mother malnourished or ill • infant severely malnourished: - very thin or oedematous (swollen with fluid) • infant unable to suckle, lethargic, perhaps ill	• refer urgently for: - medical treatment - therapeutic feeding • when in hospital or therapeutic feeding centre, provide: - full assessment - Basic Aid - Further Help with breastfeeding (including relactation) - artificial feeding options (temporary supplementary feeding)
• mother traumatised, in emotional crisis, rejecting infant	• provide: - Further Help (restorative care) - Basic Aid
• infant visibly thin or underweight (mild or moderate malnutrition) • infant refusing to suckle, but not lethargic or ill	• provide: - Full Assessment - Basic Aid - Further Help (to get baby to suckle again; to increase milk production) - artificial feeding options (temporary supplementary feeding) • if over six months, also provide: - improved complementary feeding
• not breastfeeding	• offer: - Further Help (relactation - if mother /caregiver interested) • if no possibility of relactation, offer: - artificial feeding options
• difficulty attaching to breast with flat nipples	• provide: - Basic Aid - Further Help (to attach baby, feed expressed breastmilk while learning)
• inverted or very large nipples • severe or persistent nipple pain • breast pain, swelling or other breast conditions (engorgement, blocked duct, mastitis)	• provide: - medical care - other help described in breast conditions

IFE 2/22

Appropriate help restores breastfeeding and growth **IFE 2/22**

Ella at four weeks



Ella at four months

Source: Felicity Savage

Case study: Appropriate help restores breastfeeding and growth

Ella, the infant shown in both pictures on the overhead figure (IFE 2/22), came into a clinic when she was four weeks old. She was visibly thin and weighed only 2 kg.

- What can you see in the left-hand picture that might explain why she was thin?*

At birth, Ella was given bottle feeds to 'supplement' breastmilk, and when she went home she was not suckling effectively. As well as breastfeeding, her mother gave her about 200 ml of cow's milk each day, diluted and fed by bottle. When she came to the clinic, her mother said Ella was not breastfeeding well, and often refused the breast.

Fortunately, Ella was not sick. However, as the family lived far away from the hospital, she and her mother were admitted to hospital and kept together with frequent skin-to-skin contact. The health worker showed the mother how to help Ella to attach better to the breast, so that she could suckle effectively. The mother also learned to express her milk every three hours and feed it to Ella with a cup until she was suckling better and taking long feeds.

The health worker listened to the mother, tried to build her confidence, and encouraged her to breastfeed as much as possible to increase her milk production. Ella needed a few supplementary cup feeds of formula in the first two days. But these became unnecessary and with continued encouragement, Ella started exclusive breastfeeding.

The second photograph shows Ella at four months, well attached, suckling effectively, and still breastfeeding exclusively. She then weighed 4.5 kg, an average gain of almost 28 g/day.

Source: F. Savage

***Answer**: The picture shows that her mouth is not wide open, her lips are pointing forward, and her chin is far from the breast, so she is poorly attached. If a baby is poorly attached she cannot suckle effectively. Ella also looks very anxious and tense, and her cheeks are drawn in as she tries to suckle.

Practice in deciding the appropriate level of help

Use the Levels of Help tables above, and the notes you wrote when you were practising Full Assessment, Step 1 (See p 35) and Step 2 (See p 38).
On your own or with a colleague, consider what level of help would be appropriate in each of the situations that you examined.

In most situations, it is not necessary to stop breastfeeding. With appropriate help and support the mother can in many cases continue to breastfeed, or if she has stopped, she can resume breastfeeding.

4.2 Basic Aid for breastfeeding

Basic Aid for breastfeeding includes the simple, essential interventions to prevent and resolve the most common difficulties. Basic Aid can also help with some less common difficulties.

Basic Aid has four steps :

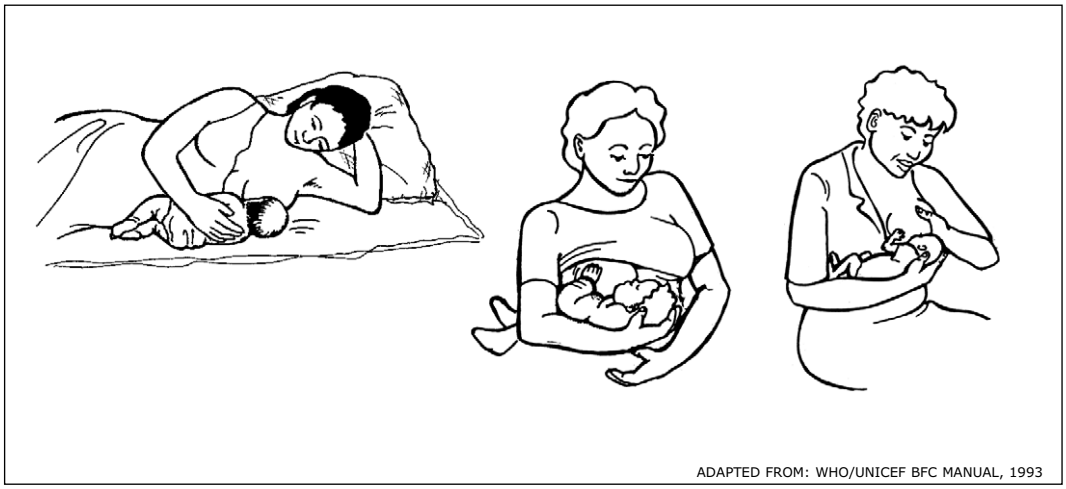
Step 1: Ensure effective suckling.
Step 2: Build the mother's confidence and help milk flow.
Step 3: Increase milk production.
Step 4: Encourage age-appropriate feeding.

Step 1: Ensure effective suckling

First, observe a breastfeed. If the attachment is good and the baby suckling effectively, you do not need to make any changes. Praise the mother and move on to Step 2.

If you think the attachment is poor, and the suckling ineffective, help the mother to improve it, as you learnt in Part 1. To improve attachment, you may need to change the position of the baby's body. Remember that it should be straight, facing the breast, close and supported.

Possible ways to make it easier for the mother to attach her baby to her breast are:
- You can arrange to support the mother's back if she is sitting without support.
- She can lie down.
- She can hold the baby under her arm.
- She can hold the baby with the opposite arm, to support the baby more easily. (This is particularly helpful for very small babies.)



ADAPTED FROM: WHO/UNICEF BFC MANUAL, 1993

Alternative positions for good attachment

- If the baby has many wrappings and they get in the way, the mother can open them up so that she can hold the baby closer. Show her how to arrange the wrappings in a way that keeps the baby warm, but does not keep the baby away from the breast.
- If a mother holds the breast very close to the nipple her fingers can get in the baby's way, you can show her how to support the breast with her fingers further back, and not pinching.

Distraction by noise and activity can make some babies suckle less effectively. Sometimes the mother has a habit of patting the baby's cheeks, or shaking the breast or baby. These may also disturb suckling.

- Try to avoid conditions that distract the baby, and let the baby suckle at his/her own speed.
- Remove interference with suckling: avoid pacifiers and feeding bottles.

Step 2 : Build the mother's confidence and help milk flow

Effective suckling (Step 1) helps a woman's milk to flow.
But in addition encourage her to:

- Have plenty of skin-to-skin contact with her baby.
- Take pleasure in her baby, by playing and looking at him or her, face to face.

This helps the release of hormones, especially oxytocin, and the flow of her milk.
It can also calm and comfort a woman under stress.

In addition, a mother needs to feel confident that her milk is adequate.

You can help to *build her confidence* when you talk with her if you use a friendly, reassuring manner, and do not criticise her or give her instructions:

- *Recognise and praise* what she and her baby are doing right. Praise her for continuing to breastfeed, and for her baby's growth, or whatever else is going well. Praise the baby's effective suckling and swallowing, and any other signs of milk flow. Help her to recognize and welcome these signs.

- *Give her relevant information* in an encouraging way that builds her confidence. Good information can help to reassure her, reduce her worries, and correct misconceptions. For example, help her to understand that her milk is always the best food, even if she is upset or has a very simple diet, and that she can have enough for her baby.

Help to reduce some of the stresses of the emergency for her by providing an atmosphere of security, warmth, and reassurance. Help a mother to find companions whom she can trust, such as other breastfeeding mothers, or reassuring older women, and to breastfeed near them. This may help her to relax.

IFE 2/23

Basic aid for breastfeeding **IFE 2/23**

Step 1. Ensure effective suckling

- improve attachment
- help with positioning, if necessary
- avoid distractions
- remove interference with suckling (bottles, pacifiers)

Step 2. Build the mother's confidence and help milk flow

- encourage skin-to-skin contact, face-to-face interaction
- have a reassuring, friendly manner, without criticism or commands
- praise what mother and baby are doing well
- give her relevant information in an encouraging way
- try to find warm companionship for her

Step 3: Increase milk production

You can help a mother increase the amount of milk she produces when:

- the baby attaches well and suckles effectively
- you have built the mother's confidence and helped her with her milk flow.

A mother can almost always increase her milk supply at any stage of lactation, right through the second year or beyond, if she improves her breastfeeding pattern.

Then the mother can also follow a **breastfeeding pattern** that encourages milk production. This means:

- Letting the baby suckle frequently.
- Letting the baby suckle longer at each feed.
- Making sure that the mother has enough water to satisfy her thirst.
- Removing anything that interferes with breastmilk production.

Let the baby suckle frequently

- The mother needs to let the baby breastfeed as often as s/he shows signs of hunger or asks for the breast. This should be a minimum of 8 times in 24 hours, but should, if possible, be 10, 12 or more times. (To increase her milk production, she should wake the baby and offer the breast if the baby is too sleepy to demand a feed, at least every three hours, and preferably much more often.)
- The baby can suckle for comfort too, at any time. Do not give a pacifier, only the breast.
- The mother should keep the baby with her as much as possible during the day, including in queues, and avoid long periods of separation.
- The mother should sleep with the baby and breastfeed at night.

Let the baby suckle longer at each feed

- The mother should let the baby suckle for as long as s/he is interested, pausing if the baby wants to, until s/he finishes and releases the breast by him or herself.
- The mother should avoid interrupting/stopping a breastfeed by detaching/taking the baby off the breast or putting the breast away the first time the baby pauses, or looks around.
- The mother should offer the second breast, and let the baby decide if s/he wants it, or if one was enough.

Help the mother to have enough water to drink

- Ensure the mother can keep enough drinking water available for herself, especially in hot or dry conditions.
- Supportive care (see Part 2) should already have assured that the mother is getting adequate food.

Remove anything that *interferes* with breastmilk production

- Reduce any milk supplements that the baby is getting by 50 ml/day. Breastmilk will increase each day until:
  - a baby who is aged under six months is exclusively breastfed, or
  - a child who is aged over six months is getting much more breastmilk than before.

- Advise the mother to avoid:
  - being separated from her baby
  - feeding to a schedule
  - other people caring for her baby
  - anything that delays breastfeeds
  - using feeding bottles and pacifiers, as already mentioned in Step 1.

- Prevent a new pregnancy. Offer non-oestrogen family planning methods throughout the first and second year.

'Insufficient milk' is not an appropriate reason to stop breastfeeding. It is a reason to breastfeed more, to increase production of breastmilk.

Step 4: Encourage age-appropriate feeding

Infants under six months old should have only breastmilk. The aim is to help mothers to increase their milk supply sufficiently so they exclusively breastfeed. Most women should be able to do this.

Infants of six months and older should have plenty of breastmilk and good complementary foods. Breastmilk can provide half or more of the child's nutrient needs. Complementary foods should be nutrient rich, and given 2-3 times a day at 6-8 months, and 3-4 times a day at 9-24 months with 1-2 snacks a day as desired (see Annex 11). Some kind of milk, such as full fat animal milk, may be one of the complementary foods. It can be mixed into other foods or given as a drink from a cup, not by bottle.

IFE 2/24

Age-appropriate feeding **IFE 2/24**

includes starting complementary foods when the child is ready/at the age of 6 months

Brian Gleeson, CRS Angola

From six months to two years of age, children should receive appropriate complementary foods in addition to continued frequent breastfeeding.

IFE 2/25

Basic aid for breastfeeding **IFE 2/25**

Step 3. Increase milk production

- Encourage the mother to let the baby suckle frequently.
- Explain how to let the baby suckle longer at each feed.
- Help the mother to get enough water to drink. (Supportive care assures mother gets enough food.)
- Remove any interference; reduce supplements by 30-60 ml/day.

Step 4. Encourage age-appropriate feeding

- If necessary help the mother to re-establish exclusive breastfeeding until the baby is six months old.
- If milk supplements are needed, teach her to give them by cup, not bottle.
- Show her how to prepare and give adequate complementary foods from six months of age.

Avoiding bottles when milk supplements are needed

In some populations, bottle feeding may be a customary and accepted way of infant feeding and difficult to stop.
Try to get everyone to understand that feeding bottles are not a good or necessary method of feeding milk or any other drinks. They are not a good way to feed newborns and infants who are too ill to suckle. Babies who bottle feed may become unwilling to suckle the breast effectively (see Module 1, p 54).

Cups are preferable and safer, especially in places where hygiene is difficult. Cups are easier to clean and can be used from birth onward, even for low birth weight babies. So teach caregivers how to cup feed if it is necessary to give supplements (see Annex 2).

IFE 2/26

Supplementing with a cup IFE 2/26

If an infant can
- suck (or lap milk with the tongue) and
- swallow,

he or she can be fed with any open cup.

Adapted from UNICEF BFHI News

Use of feeding bottles increases risks of illness.

IFE 2/27

Cup feeding technique IFE 2/27

F. Salvage / Philippines & UK

The milk just reaches the infant's lips.
The caregiver does not pour the milk into the baby's mouth.
The infant takes up the milk with his/her tongue, sucks or sips.

Practice giving Basic Aid for breastfeeding

Practise giving 'Basic Aid for breastfeeding' using the summary sheet below.
First, role-play with colleagues and then, with mothers.
Focus your practice on the commonest conditions, such as "not enough milk" or feeding that is not age-appropriate.

Basic Aid for breastfeeding
Summary

Step 1: Ensure effective suckling

- Observe a breastfeed for the 4 points of good attachment (areola, mouth, lip, chin) and effective suckling.
- If attachment is not good or suckling not effective, improve position (straight, facing, close, supported) and help attach the baby. If necessary, also improve the position by:
  - reducing baby's wrappings so s/he can reach breast
  - showing the mother how to hold her breast well behind the nipple, without pinching
  - encouraging her to lie down, hold the baby under arm, or across the body.
- Avoid distractions and let baby suckle at own speed.
- Avoid feeding bottles and pacifiers.

Step 2: Build the mother's confidence and help milk flow

- Help mother and infant until suckling is effective.
- Encourage her to enjoy skin-to-skin contact and to play with her baby face-to-face.
- Build her confidence:
  - recognise and praise what she is doing right – including signs of milk flow,
  - give relevant information in an encouraging way and correct misconceptions.
- Help her to breastfeed near trusted companions, which helps relaxation.

Step 3: Increase milk production

Encourage more frequent breastfeeds
- Ask mother to breastfeed very often, 12 times or more in 24 hours if the baby is willing.
- Tell her the value of keeping the baby with her day and night and breastfeeding at night.
- Encourage her to give the breast for comfort at any time.
- If baby is ill or unusually sleepy, encourage her to wake him/her up and offer her breast often.

Encourage longer breastfeeds
- Suggest that the mother continues each feed until baby stops him or herself and does not want more. It is best if she does not detach the baby or put her breast away quickly.
- Encourage her to offer the other breast, and let baby decide if s/he wants more or not.

Ensure mother gets enough to drink (Supportive care has assured enough food).
- Help her to keep drinking water available for herself.

Remove interference
- Help the mother to reduce any milk supplements by 50 ml/day, monitoring weight weekly to reassure her that infant is still gaining 125 g/week.
- Ask her to avoid separation from the baby, scheduled feeding, care of the baby by others, delaying feeds and, as above, giving bottles and pacifiers.
- Help her to prevent a new pregnancy with non-oestrogen family planning methods.

Step 4: Encourage age-appropriate feeding

- Help the mother to establish or re-establish exclusive breastfeeding until the baby is six months old.
- If supplements are needed, teach her to give them by cup, not bottle.
- Show her how to prepare and give adequate complementary foods from six months of age, as well as frequent breastfeeds.

Exercise: Giving relevant information

The mothers imagined below have been in a camp for one week. They are alone with their infants. Their households receive full rations and has adequate fuel, utensils and water. They are not malnourished or ill.

Consider how you might reply to each mother in order to correct her misconception about infant feeding in a friendly, non-critical way.

Mother 1: "My milk is too weak, because I haven't been eating right/enough. I can't breastfeed."

Mother 2: "My milk is going away now. It always goes away when my babies are a few weeks old."

Mother 3: "In this hot place, the baby will be too dry if I don't give her water."

Mother 4: "Babies need to suck a lot. So I use a pacifier between breastfeeds."

Think about your own possible responses, before looking at the ideas/examples of responses below. These show how a health worker has used information to correct the mothers' misconceptions.

Notice that the health worker does not criticise the mothers, or give them instructions.
She also does not lecture them on all the benefits of breastfeeding.
She tries to give them relevant information in an encouraging way.

Possible responses:

1. Health worker: Of course you are worried. (Friendly response, no criticism). But actually, your milk is still exactly right for your baby. The food you are getting here will make good milk.

2. Health worker: Well, milk comes back if you breastfeed more. We can help you increase it, so you make all that your baby needs to grow and be strong. If you do things a little differently this time, you can keep your milk flowing much longer than it did with the other babies.

3. Health worker: You're right to think about giving your baby enough to drink. But all the water she needs is in your breastmilk, and that is cleaner than even boiled water. Whenever your baby is thirsty, put her to your breast and let her drink. It is a good idea for you to drink plenty of water yourself, so that there is plenty for your milk. (Relevant information; notice these are not instructions, just information.)

4. Health worker: Yes, babies really do enjoy sucking. But the safest thing for your baby to suck is your breast. It is cleaner than a pacifier, and the extra sucking for comfort helps your breasts to make lots of milk.

5 More skilled help with breastfeeding

5.1 Further Help for breastfeeding

Basic Aid does not solve all breastfeeding difficulties. Some mothers need a level of care that we call Further Help. This requires more skills, time and attention than Basic Aid. So health and nutrition workers need more training to provide Further Help than they do to provide Basic Aid.

It may be simpler to provide Further Help for breastfeeding than to provide the conditions needed to use breastmilk substitutes safely.

Additional skills required

- Teaching mothers how to express breastmilk by hand. Hand expression is useful in many situations. It is described in Annex 3.
- How to use a breastfeeding supplementer and carry out other supplementation techniques. These are described in Additional Part 6 Relactation, but they are also useful in other situations.
- Help with Kangaroo Care (see below in Part 5.2). This is useful particularly for care of low-birth-weight and sick infants.
- Restorative care for traumatised mothers (see below in Part 5.6).

Temporary supplementary artificial feeds may be needed sometimes. Part 9 Artificial Feeding Options describes methods of preparation and volumes of supplements needed.

Situations for which Further Help is required

- low-birth-weight infants
- babies who are visibly thin, underweight
- babies who refuse the breast
- management of breastfeeding by malnourished mothers
- mothers who are traumatised, in emotional crisis, or rejecting their infants.

Further Help is also needed for:

- relactation (covered separately in Part 6)
- breast conditions (covered separately in Part 7)

5.2 Low-birth-weight infants

In an emergency setting, many babies may be born with low-birth-weights (LBW). A LBW is a birth weight of less than 2500 g.
LBW babies may be preterm or small for gestational age.
Breastmilk, including colostrum, the first milk, is especially important for their survival and health.

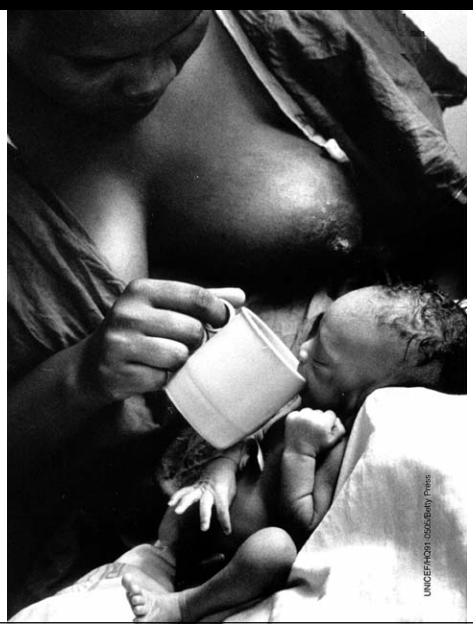
- Help every mother of a LBW newborn to hand express colostrum and milk about eight times every 24 hours, from birth onward (see Annex 3). Starting to express soon after delivery helps to establish lactation. Expressing frequently helps milk production to become established more quickly, even if only a little colostrum is obtained at first.
- If the amount of colostrum expressed is small, use a small sterilised syringe to draw it from the nipple.
- As soon as the infant is ready to take feeds by mouth, give the mother's freshly expressed breastmilk by sterilised tube, syringe, dropper or cup.
- **On the first day,** give 60ml/kg, divided into 12 two-hourly feeds. If insufficient quantities of breastmilk are expressed at first, make up the volume with donated breastmilk which has been heat-treated to prevent the risk of infection. If this is not possible use temporary artificial supplements given by tube, syringe, dropper or cup.
- **Increase the volume** by 20ml/kg per day until the baby is taking a total of 200ml of breastmilk per kg per day, divided into 12 two-hourly or 8 three-hourly feeds.
- When the infant's condition is stable, show the mother how to give Kangaroo Care (see below).
- Whenever the infant shows interest in suckling, encourage the mother to offer her breast. The aim is to discharge the LBW infant on exclusive breastfeeding.

IFE 2/28

Cup feeding a Low-Birth-Weight (LBW) infant **IFE 2/28**

A mother in Kenya feeds her own freshly expressed breastmilk to her low-birth-weight baby. In this maternity facility, mothers help each other to learn the skills of hand expression and cup feeding until the baby is ready to suckle.

LBW infants are discharged exclusively breastfeeding.



Cup feeding a low-birth-weight infant with expressed breastmilk, Kenya.
UNICEF/HO910505/Betty Press

Kangaroo Care

Kangaroo Care means keeping an infant in continuous skin-to-skin contact with the mother or another adult. It is helpful particularly for low-birth-weight babies. The infant is kept near the mother's breast, and is carried and rocked without being urged to breastfeed.
Kangaroo care helps to keep babies warm, and reduces stress. It may also increase the amount of breastmilk produced.
Infants who have never breastfed or who refuse to breastfeed often start breastfeeding spontaneously when cared for in this way.

How to give Kangaroo Care

Kangaroo Care is widely used for preterm infants whose condition has become stable (breathing and pulse especially).

- The mother or other caregiver removes inner clothing.
- The infant wears only a nappy* and head covering if it is very cold.
- The infant is gently held close against the adult's bare chest by any wrapping of cloth that is culturally appropriate.
- The adult wears enough of his or her usual outer clothing to keep warm, and adjusted so that the child's face is exposed to the air and can be seen by the caregiver.

Newborn preterm infants

- The preterm infant is held in an upright position between the woman's bare breasts, or on a man's chest.
- The caregiver can move around and carry out any upright activities, and sleep in a semi-lying down position.
- If a mother or wet nurse are giving Kangaroo Care, the skin-to-skin contact stimulates breastmilk production and increases bonding between the two.

Full term infants and young children

You can use Kangaroo Care:
- for older children, particularly for malnourished children, who are at risk of getting too cold (hypothermia)
- to help with relactation, or to overcome refusal to breastfeed.

Any position can be used that provides plenty of continuous skin-to-skin contact.
Adult and infant can sleep together lying down, covered in the same blanket.

*If the child has diarrhoea, cut a nappy covering from a rectangle of thin plastic sheeting, leaving extra tails at the corners to tie at the sides.

IFE 2/29

Kangaroo Care **IFE 2/29**

To reduce heat loss when very cold cover the infant´s head with a cap or the mother's shawl.

The infant is kept in full skin-to-skin contact with the mother day and night, and breastfeeds as much as his/her condition allows.

Kangaroo Care, pp. 76,79. WHO/IMCI. Management of the child with a serious infection or severe malnutrition WHO/FCH/CAH/00.1

IFE 2/30

Bonding is enhanced by Kangaroo Care IFE 2/30

The infant's hands should be left free so he or she can move them in or out of the warmth.

Kangaroo Care infants may regulate their own temperature in this way.

UNICEF/HQ94-0632/Dora Gutierrez

5.3 Babies who are visibly thin or underweight

An infant who is visibly thin (or, if weighing and measuring is possible, underweight) may be:

- *mildly malnourished* (-2 Standard Deviations to –1 Standard Deviation of weight-for-length, or 80-89% of the median)
  or
- *moderately malnourished* (-3 SD to –2 SD of weight-for-length, or 70-79% of the median)[1].

To help a thin or underweight infant:

- Evaluate the infant's health to rule out underlying illness, and treat infection if present.
- Carry out Full Assessment Steps 1 and 2 (see Part 3).

If the infant is still breastfeeding at all:

- Give Basic Aid for breastfeeding, to establish or re-establish age-appropriate feeding, and to increase breastmilk volume.
- If the infant is under six months and breastmilk production is low, the mother may need to give temporary artificial supplements until she can exclusively breastfeed. Teach her to give the supplements by cup, after breastfeeds, and to decrease the amount by 50 ml each day.
- If the infant is over six months, help the mother increase breastfeeding and give nutrient-rich complementary foods.

If the infant is not breastfed:

- Carry out Full Assessment Steps 2 and 3 (See Part 9.10 for FA Step 3).
- Consider relactation, and discuss it with the mother or caregiver if it is likely to be possible.
- If relactation is not possible, discuss artificial feeding options (see Part 9) with the mother or caregiver.

For all infants:

- Give mothers extra and frequent reassurance, praise and help, to build their confidence.
- Show the mother how to give extra warmth, stimulation and play, to make her infant more alert.
- Follow up and weigh each infant weekly until weight gain is established (at least 125g/week, 500 g/month) and appetite improves.
- Repeat Full Assessment Steps 1, 2 and 3 after treatment, as appropriate, to ensure that previous feeding difficulties have been overcome.

[1] Severely malnourished infants (under –3 SD W/L or under 70% of the median) and any with pitting oedema (bilateral swelling that pits on pressure) should be referred to a Therapeutic Feeding Centre or hospital with their caregivers (see Part 8).

5.4 Babies who refuse the breast

A healthy baby who has been breastfeeding may refuse the breast due to bottle feeding or some upsetting change in care.

A health or nutrition worker can help re-establish/restart breastfeeding:

- Advise the family that only the mother should care for the infant.
  Keep mother and baby in close skin-to-skin contact day and night, using Kangaroo Care if appropriate.
  Encourage the mother to stroke and talk to the infant to comfort him or her.
- Help the mother to **hand express** as much milk as she can,
  eight times or more per day, to build up milk production.
- Feed the infant with the expressed breastmilk by cup, using no bottles or pacifier.
- If breastmilk production is low, give temporary supplements until milk production increases. Give supplements by cup, after all available breastmilk has been given.
- Offer the breast whenever baby is sleepy or relaxed, or after a small cup feed.
- Help the mother to relax; assure her that breastfeeding can be restored.
- Try different positions if baby is uncomfortable. Ensure good attachment if the baby breastfeeds in a new position.

5.5 Management of breastfeeding by a malnourished mother

If a mother is malnourished, she needs care and feeding for herself, before she can adequately care for her child.

Caring for the mother

- Feed a malnourished mother according to established principles .
- When her appetite recovers, give her a mixed, nutrient- and energy-rich diet, encouraging her to eat as much as she can.
- Provide her with unlimited access to drinking water and other fluids.
- Listen to her throughout this process. Learn her difficulties, and help her to talk about them, including any that might affect her ability to breastfeed and care for her child.

Caring for her child

- Keep mother and child together. If there are more children, keep them with the mother too if possible. Unnecessary separations may put at risk the breastfeeding of an infant and the feeding and care of other children.
- As soon as the mother's condition permits, encourage her to let her child suckle as often as s/he is willing.
- Build her confidence by explaining that her milk is still nourishing, and the best food for her baby even when she feels weak. Reassure her that, if her infant suckles often, she will soon have plenty of milk again.
- If her breastmilk supply has decreased, give artificial supplements by cup or breastfeeding supplementer. Encourage the infant to suckle as often as s/he is willing, until breastmilk production has increased (see Part 6, Relactation).

> *Mothers' and health workers' confidence in breastfeeding is often shaken when they see a malnourished infant attached to the breast. If there is a rush to rehabilitate the infant, forgetting about the mother, then there is a risk of discharging a healthy infant with no secure supply of food.*
>
> Mary Corbett in Field Exchange 9, March 2000

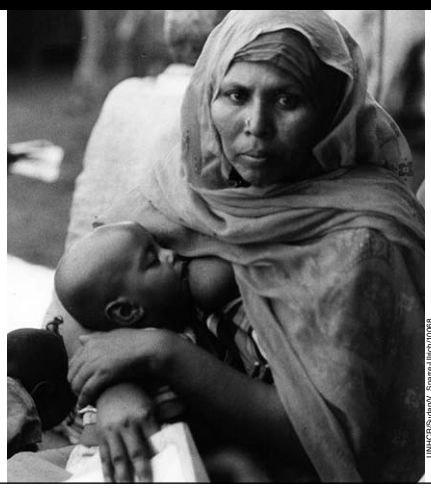
5.6 Mother traumatised, in emotional crisis, or rejecting infant

Stress does not prevent mothers producing breastmilk. However, traumatised and depressed women may have difficulty responding to their infants, letting their milk flow, and feeling any confidence.

IFE 2/31

The need for restorative care IFE 2/31

Stress, trauma, grief, or sexual violence do not spoil a mother's breastmilk, but she needs care that helps to restore her emotional balance.



The need for restorative care. UNHCR/Sudan/V.Sparre-Ulrich/10068

A woman may believe that stressful events in her life have caused a decrease in milk production. She may give her baby artificial supplements so the baby suckles less at the breast and breastmilk production really decreases. Often a health or nutrition worker does not see a mother like this until she has already stopped breastfeeding.

Bereavement, anxiety over missing family members, and the effect of torture or horror can exhaust a woman's emotional resources even more. She may believe that persistent grief spoils breastmilk or makes her unable breastfeed.

A woman may have experienced sexual violence and feel that she and her breastmilk is contaminated. A woman may reject her infant for different reasons. For example, if she suffered severe psychological trauma if her pregnancy was caused by rape, if there is severe conflict with the family, if the child is abnormal, or if she believes the child is dying. The rejection may be temporary or long term.

A woman who is unable to respond to her infant may breastfeed less, and her breastmilk production is likely to decrease as a result. Her baby may not respond to her, and may not demand to be fed. If a woman does not receive emotional care, the result may be that the infant fails to feed, fails to grow and fails to develop psychologically.

Stress, trauma, grief, and sexual violence do not spoil a mother's breastmilk, but she needs restorative care.

Restorative care

Care that restores a woman's emotional balance may help. Care for violated women should include measures to support them, as far as possible within their religious and cultural traditions, and to help them want to breastfeed again.

- Sit with the mother and family and listen and talk in a friendly manner.
- Seek people close to the mother to give her companionship and the kind of touch she may find comforting.
- If the woman has come to believe that she cannot be a good mother, try to give her back her feeling of self-respect.
- Keep the baby in skin-to-skin contact with the mother, and find reassuring companions, perhaps older women, to help her accept the child.
- If necessary, feed the baby temporary artificial supplements by cup, and give Basic Aid until breastfeeding starts again.
- Use culturally appropriate means of "cleansing" the mother and her breasts to help her be willing to breastfeed again.
- In severe cases, consider temporary use of appropriate psychiatric drugs (i.e. that may be used safely by breastfeeding women (see Annex 1). Encourage her to continue breastfeeding and monitor the baby for drowsiness and adequate weight gain.

Self-massage for traumatised women

A massage therapist working with survivors of torture and sexual abuse suggests a role for self-massage, adapted to a woman's culture.

"Often trauma means that a person is caught in constant thought and separated from their emotions and the feelings of their body. One could teach mothers a simple breast massage to do on themselves. It could be something easy and slow to help women regain contact with themselves and feel emotions again.

During this brief massage of about five minutes, they could think about giving themselves messages that encourage breastfeeding. For example:

"I have given birth to this beautiful baby and now I am going to give life-giving milk.
With this massage, I rest my body and prepare my breast to give life to my child.
I will give food to my child and make him/her strong."

adapted from John Calvi, 2001

Case study: A depressed mother

A mother came to the health service asking for infant formula for her one-month-old infant who weighed 4.4 kg. She was referred to the Breastfeeding Counselling Unit. The breastfeeding counsellor learned that the mother was emotionally depressed and under stress because of her situation at home. The infant's father was mentally ill and sometimes beat the mother and her children.

Due to this situation, relatives and neighbours had told the mother that her breastmilk was not good and would make the baby ill. So she felt that she could not breastfeed.

The counsellor talked with the mother, reassuring her of her ability to breastfeed and trying to build her self confidence. She reminded the mother of the Prophet's words about breastfeeding from the Quran.

The counsellor asked the mother to breastfeed in front of her to show her how she breastfed. She helped the mother by rubbing and touching her shoulders. She asked the mother to look at her baby's eyes and touch her cheeks, thinking only of her baby until the milk flow started.

The counsellor started to teach the mother how to decrease the number of artificial feeds gradually and increase the number of breastfeeds. The mother first decreased daytime formula feeds from five to three. Then she gave breastfeeds only during the night, for three days. Over the next three days, the mother gave only one formula feed per day, and after that she breastfed exclusively day and night.

The counsellor visited the family at home and talked to the mother-in-law, asking her to help the infant's mother with breastfeeding and to support her through her problems. By the time the infant was four months old, she was exclusively breastfed and weighed 6.9 kg.

From nutritionist Amani Jouda, of Ard El Insan, Gaza, 2001

Case study: A mother afraid to continue breastfeeding

Mother: "I am crying all the time, and my aunt tells me that spoils my milk. That and...well.... something terrible that happened to me on the road. There were some soldiers….I could not get away. I am so ashamed, and now my milk is spoiled."

How can the health or nutrition worker help this mother and her baby?

Consider what would be appropriate in the culture where you are working. The responses below are not the only possibilities.

Possible responses:

Make sure the baby is given appropriate feeding by cup, and help the mother to hold and cuddle the baby. Listen and learn – let the mother talk and cry, and touch her to comfort her. Gradually introduce the idea that she might be able to get cleansed and breastfeed again in the future – perhaps expressing her milk could help.
Find someone from her social group who can be with her and talk to her and help her with the baby. Ask if they know how to cleanse a woman who has had this experience.
Invite her to join a group of women with babies, to be with them and perhaps in time to talk with them.

> *If breastfeeding by the natural mother is impossible, make appropriate choices among alternatives (wet-nursing, breastmilk from milk bank, locally purchased infant formula, home-made infant formula).*
>
> 5.2.1. Operational Guidance, v2.1, February 2007

5.7 Other breastmilk options

Wet nursing

Wet nursing means breastfeeding a baby to whom one did not give birth. Wet nursing may be the best way to feed unaccompanied or orphaned infants. Possible wet nurses include:

- A grandmother or other female relative of a motherless child. Relactation is possible even years after the relative breastfed her own children, and even after the menopause.
- A woman who has recently lost her own infant.
- A woman who is breastfeeding her own infant, also breastfeeding a motherless infant. Supportive care and Basic Aid can help her milk production to increase to meet the needs of both babies.

Health and nutrition workers can tactfully correct any misconceptions about wet nursing as they discuss these possibilities with an infant's surviving family members.

Always offer a potential wet nurse **voluntary and confidential counselling and testing for HIV,** and check she is HIV-negative. Advise her that she must remain uninfected while feeding the infant, and help her to protect herself from any exposure.

Make sure that the wet nurse receives the **additional food and other resources** that all breastfeeding women get. Give the baby temporary cup-fed milk supplements until the wet nurse has plenty of breastmilk. **Follow-up the baby closely** to make sure weight gain is adequate.

Use of donated breastmilk

Infants in hospital can be given heat-treated expressed breastmilk donated by other mothers. If available, this may be particularly useful for severely malnourished infants under six months old, in the initial feeding phase (see Part 8).
The milk should be hand expressed and then:

- boiled, or
- held at 65 degrees Celsius for 30 minutes.

This treatment kills bacteria and viruses, including HIV. After heat treatment, the milk should be refrigerated if it will not be quickly used.

Formal breastmilk banking requires staff experienced in milk banking with standard milk banking procedures and safety precautions. These are difficult to achieve under emergency conditions. Even in stable conditions, banked breastmilk is usually not a realistic way for long term infant feeding.

Left to right: UNICEF, Somalia; Guatemala/LINKAGES, Maryanne Stone-Jimenez; M.Jakobsen, Guinea Bissau, 1987; Mae La camp, Thailand, O.Banjong, 2001; Breastfeeding supplementer, Mike Golden; Peru, WHO/PAHO; Domasi Rural Health Clinic, Malawi, St Louis Nutrition Project, Heidi Sandige, 2003; Mother and child, Valid International.

Additional Material

Kent Page, UNICEF, DRC, 2003

6 Relactation

6.1 Indications for relactation

Relactation means re-establishing (restarting) breastfeeding. It is the best way of providing milk feeds for infants who are not breastfeeding, especially in emergency settings when artificial feeding is dangerous.
If possible it should be done by the infant's mother, but, if she is not available, by a caregiver who is willing to be a wet nurse and undergo the appropriate health checks (see Part 5.7).

Full Assessment Step 2 identifies mothers or caregivers who are interested in relactation, and they should be referred for Further Help with breastfeeding, (see Part 5.1).

Age of mother

Most women can relactate if they want to, and can start producing breastmilk again. They can do this even if they have not breastfeed for several years and even after the menopause. Many women can produce enough milk to breastfeed an infant exclusively, or to feed more than one infant.
However, relactation is easier for women who stopped breastfeeding recently, or who are still breastfeeding occasionally.

Age of infant

Under six months
It is easier to relactate when the infant is under six months old. Every effort should be made to start or re-establish breastfeeding for this age group, when breastfeeding is especially valuable and should be exclusive.

Over six months
Previously breastfed infants as old as 12 months can also restart breastfeeding.
Breastmilk is valuable also for these infants, particularly those who are sick, or who cannot tolerate artificial milk feeds.

Prevent the need for relactation by ensuring supportive conditions for all women and Basic Aid for breastfeeding whenever needed.
These are easier to provide than the skilled help needed for relactation.

6.2 Conditions for relactation

The three most important conditions are: **motivation, stimulation, and support.**

Motivation

A mother or wet nurse needs to be highly motivated.
Some women are well motivated already and just need skilled help with technique.
Others need a lot of encouragement and information to be sufficiently motivated.

Some women periodically lose their confidence and need extra reassurance.
A health or nutrition worker needs time, skill and patience to keep a woman motivated; she needs to listen, talk with and encourage the woman often.

Stimulation of the breasts

Stimulation of the breasts is essential, and is preferably done by the infant suckling.
Suckling releases prolactin which stimulates growth of the alveoli in the breast and the production of breastmilk.
The more frequently and the longer the infant suckles, the more milk is produced.
If an infant cannot suckle, breastmilk can be hand expressed.
Full stimulation of the breasts means removing as much milk as possible by suckling or expression, and doing so frequently.

Ongoing support

Health and nutrition workers should be available to help whenever possible. They need to have an encouraging and friendly attitude to build the mother's confidence.
However, intensive day-to-day support takes a lot of time.
It may be necessary for the mother or caregiver to visit the clinic frequently, or to stay there for part of each day, to get the help that she needs.

Community health workers, mothers in support groups, other women and friends, or traditional birth attendants can be trained so they can also give support to relactating women (see Part 2).
Supportive family members are also important when available. Other women who have relactated are especially valuable.

6.3 How to help a woman to relactate

A woman who is willing to relactate needs the same supportive care that all breastfeeding women need, including adequate food and fluids (see Part 2).
She needs protection from violence, and access to a sheltered space with other breastfeeding women for help and support.
The general conditions to support relactation are outlined in Module 1 (p 36).

With Supportive Care, a woman with mild or moderate malnutrition can be assisted to start the process of relactation immediately. She does not need to wait until she is better to start breastfeeding.
If a woman is ill or severely malnourished, she should get appropriate treatment and start relactation when her condition improves.

Her infant may need a temporary artificial supplement. The supplement should be given in a way that encourages the infant to start breastfeeding. Do not give feeding bottles or pacifiers.
When the baby wants to suckle, s/he should do so from the breast.

Before relactation starts

The health or nutrition worker (or other skilled helper) should explain to the mother that:
- It is possible to re-start breastmilk production while the infant is temporarily fed on other milk.
- Breastfeeding gives her infant the best chance of health and growth in the emergency situation.

The helper should:

- Talk with the woman several times, listen to her and try to understand how she feels.
- Try to decide the reason for her difficulties.
- Ensure that the woman is adequately motivated and believes that relactation is possible (but put no pressure on her, if she is unwilling).

• If possible, introduce her to other women who have relactated and can encourage her.

The helper should also explain to the woman:

- what she and the mother will do to start breastfeeding
- how long it may take, and her need to be patient and persistent
- how her infant will be fed while her milk production starts or increases.

The helper should also ask about practices that can interfere with breastfeeding.

- Factors that can reduce frequent and effective suckling:
  - periods of separation from the infant. *(Help the mother to stay with her baby.)*
  - feeding at fixed times or using a pacifier or bottle. *(Explain the need for feeding on demand.)*.
- Medicines that can reduce milk production:
  - oestrogen-containing contraceptives *(Provide a non-oestrogen method.)*
  - thiazide diuretics. *(Try to find an alternative treatment.)*.

The helper should discuss with the mother how she can avoid these practices and explain why it is important that she do so.

Starting relactation

Provide encouragement and support for the mother or wet nurse throughout relactation. At first this should be daily until she is confident and milk production starts and her milk starts to flow.

- Encourage the mother (or wet nurse) to breastfeed whenever the child shows interest and is willing.
- Tell her that resting can help her to breastfeed frequently.
- Explain to the woman's family and friends that she needs practical help and, if possible some relief from other duties for a few weeks so she can breastfeed often. She must be able to do this without risk to her own or her family's survival. (See Module 1 pp 35-6 on conditions that make breastfeeding more feasible.)
- Advise the mother that only she should care for the child. She should hold the infant close to her, sleep with him or her, and give skin-to-skin contact as often as possible. Kangaroo Care may be helpful (see Part 5.2).

If the infant is willing to suckle

Infants who have breastfed previously may be willing to suckle the breast even before much milk is produced.

If an infant is willing to suckle even a little, relactation is relatively easy. Many infants who have breastfed before are willing to suckle, even if there is not much milk being produced currently.

Encourage the woman to:

- Put the infant to the breast frequently, as often as s/he is willing, every one to two hours if possible and at least 8-12 times every 24 hours.
- Sleep with the infant so she can breastfeed at night.
- Let the infant *suckle on both breasts, and for as long as possible* at each feed - at least 10-15 minutes on each breast.
- Offer each breast more than once if the infant is willing to continue suckling.
- Make sure that the infant is well attached to the breast.
- *Cup feed* measured milk supplements, six times in 24 hours to begin with.
- Always put the infant to the breast to suckle before giving a cup feed.

A child who is more than six months old also needs complementary foods. These should be nutritious foods, not watery drinks (see Annex 1).

Offer the breast whenever the baby shows interest in sucking anything.

If the infant is unwilling or unable to suckle

Infants who have never breastfed, or who have become used to feeding from a bottle with a teat may not want to suckle the breast.

- They need more help to take the breast and suckle effectively.
- Check the infant for illness, and arrange treatment if necessary. Suckling can start as soon as the infant's condition improves enough.
- Suggest extra skin-to-skin contact or Kangaroo Care (see Part 5.2 and IFE 2/29), offering the breast at any time that the infant shows any interest.
- Encourage the mother to start the relactation process by stimulating her breasts with 20-30 minutes of hand expression 8-12 times a day.

The woman and infant are likely to need help at each feed. It may be most convenient to admit them to a health facility for a few days, or to let them stay near the clinic for much of the day. In this way health workers have a better chance of providing feed-by-feed help and reassurance, and of making sure that the mother (or anyone else) does not give a bottle, pacifier or unnecessary artificial feed.

When relactation is well started, the mother and child can be discharged. They should be followed-up by community-level helpers each day and checked as often as possible by a health or nutrition worker.

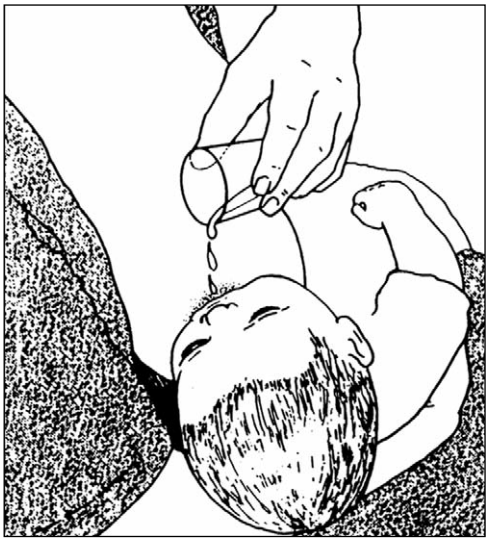
Giving milk supplements

The drop and drip technique

This is one way to give milk supplements during relactation. It encourages an infant to take an interest in the breast and to start suckling.
Drip milk from a dropper or a container directly onto the breast while the mother is attaching the infant to the breast.
However, after the infant is well attached and suckling, milk dripped in this way does not go into his/her mouth so easily.

IFE 2/35

The drop and drip technique **IFE 2/35**

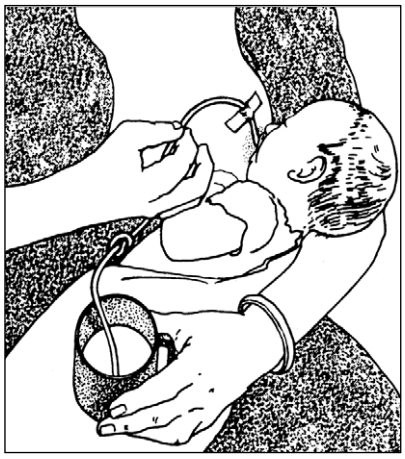


The breastfeeding supplementer technique

This method of giving milk supplements is useful for an infant who is unwilling to suckle at a breast which is not yet producing milk.
A breastfeeding supplementer consists of a tube that leads from a cup of supplement to the breast. It then goes along the nipple and into the infant's mouth.
The infant suckles and stimulates the breast, and at the same time draws the supplement through the tube, and so is fed and satisfied.
This feeding method is usually done under supervision at a health facility.

IFE 2/36

Using a breastfeeding supplementer **IFE 2/36**



Use a fine nasogastric tube or other fine plastic tubing. A gauge 8 tube is satisfactory. If there is no fine tube, use the best available.

Cut a small hole in the side of the tube, near the end of the part that goes into the infant's mouth (this is in addition to the hole at the end). This helps the flow of milk.

Fine plastic tubing is difficult to clean. So:

- Immediately after use rinse the tubing thoroughly with hot water and soap. Do this by drawing water through with a syringe or by sucking the tubing like a straw.
- Then sterilise with household bleach drawn through the tubing, or alternatively boil the tubes.
- Immediately before using the tube again, rinse again with clean water.
- Replace the tubing every few days.

Show the mother how to:

- Prepare a cup of supplement (expressed breastmilk or artificial milk) containing the amount that her infant needs for one feed.
- Put one end of the tube along her nipple, so that her infant suckles the breast and the tube at the same time. Tape the tube in place on her breast.
- Put the other end of the tube into the cup of supplement.
- Tie a knot in the tube if it is wide or put a paper-clip on it, or pinch it. This controls the flow, so that the infant does not finish the feed too fast.
- Control the flow of milk so that the infant suckles for about 30 minutes at each feed. Raising the cup makes the feed flow faster, lowering the cup makes it flow more slowly. As the infant gains strength, the woman can slow down the flow through the supplementer so that the infant suckles the breast longer.

Clean and sterilise the cup and the tube of the supplementer each time they are used, or teach the mother how to do this.

Encourage the woman to let the infant suckle at any time that s/he is willing – not just when she is giving a feed through the supplementer.
When the infant is willing to suckle at the breast without the supplementer, the mother can start giving the supplements by cup instead.

Lactogogues

There are medicines called lactogogues that can increase a low breastmilk production by increasing prolactin levels.
It is uncertain how much they help when breastfeeding has stopped completely.
They are rarely necessary for relactation because full stimulation of the breasts is usually enough by itself.

Full stimulation of the breasts is usually all that is needed for relactation.

Only consider using a drug as an added stimulus if the methods described above have been tried for at least two weeks, and breastmilk has not been produced.
This is because:

- Relying on lactogogues can create dependency upon them among mothers and health and nutrition workers.
- Use of lactogogues early in the relactation process may reduce the amount of Basic Aid and Further Help that are offered.
- Lactogogues given as a "short cut" to relactation are unlikely to work.
- Lactogogues may also have some side effects on the mother and her infant.

Lactogogues[1]

The drugs that are sometimes used are:
Domperidone 10-20 mg x 3-4 per day
Metoclopramide 10 mg x 3 per day

To discontinue both drugs:
Reduce by 10mg/day, and monitor the mother's milk supply

These are effective only if the woman receives adequate help and her breasts are fully stimulated as well.

Words of caution

Domperidone is the safer option for a mother and her infant. It has few side-effects and the levels detected in breastmilk are minimal.

Metoclopramide has a number of significant side-effects, in particular it can cause depression in mothers. Its use needs to be balanced against the risks for the mother and infant, especially given the stresses of an emergency setting.

Once drugs are discontinued, good management of breastfeeding will ensure that breastmilk production continues.

If a woman or her family believe that a traditional drink or food will help a mother produce more milk, then taking it may help her psychologically. Most traditional 'remedies' are harmless. Usually they are high-nutrient foods such as oatmeal or millet porridge, or teas prepared from aromatic spices such as fenugreek, anise or fennel. It is important not to undermine a woman's faith in these drinks or foods, even if you do not believe in their efficacy. You may be able to provide warm teas, gruels, or other foods that breastfeeding women believe to be helpful, in a mother-baby tent. These can be part of ongoing support for relactation.

[1] Dosage recommendations, personal communication, Professor Thomas Hale. See also "Medications and Mothers' Milk, " 2004 edition, Pharmasoft (ISBN 0-9636219-8-X), pp 259, 548; author Thomas W. Hale (Professor of Pediatrics, Texas Tech University School of Medicine), and WHO website: http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/BF_Maternal_Medication.pdf

6.4 Feeding the infant during relactation

What to give

While the mother is starting to produce breastmilk, she must feed her infant on the best available milk. This might be expressed breastmilk or artificial milk (see Part 9.4).

Supplements should be given by cup (see Annex 2) or supplementer so that the baby still needs to suckle frequently to stimulate the breasts.
If given by cup, let the infant suckle at the breast first, and cup feed afterwards.

The full amount of milk an infant needs is:

150 ml per kg body weight per day

At the start of relactation, give this amount of supplement each day.
Divide this into six to twelve feeds depending on the infant's age and condition.
Young, weak or sick infants will need more frequent, smaller, feeds.
As the amount of breastmilk increases, the infant needs less supplement, and the amount can be decreased (see below).

Infants over six months of age also need nutritious complementary foods (see Annex 11).

Monitor weight

A health or nutrition worker should:
Weigh the infant once a week if possible. Low-birth-weight, sick or malnourished babies should be weighed more frequently.
An infant under six months of age should gain a minimum of
125 grams a week, or 500 grams a month.

Ask how often the baby passes urine

Frequent urination (six or more wet nappies daily for babies aged under six months) with pale, dilute urine, is a useful day-to-day sign of adequate fluid intake in the exclusively milk-fed child.

Ask about the infant's level of activity

An infant is probably getting enough to eat if s/he:

- wakes spontaneously every two to three hours demanding a feed
- feeds vigorously
- is lively and interacts socially in a way appropriate to his/her age.

An infant who is not getting enough to eat may be very quiet and undemanding because s/he lacks the energy to insist on being fed.

Is breastmilk being produced yet?

Breastmilk production may start in a few days or a few weeks and is difficult to predict.
Some women produce a full supply in just a few days, especially if their infants were still breastfeeding sometimes when they started relactation.

But if an infant had stopped breastfeeding completely, it may take a few weeks, or more, before much breastmilk comes.

If a mother has never breastfed her infant, she may never produce enough breastmilk to establish exclusive breastfeeding.
However, some breastfeeding is better than no breastfeeding unless the woman is known to be HIV positive in which case mixed feeding should be avoided.
Enourage her to feed as much breastmilk as possible, with supplements of an appropriate artificial feed.
All breastmilk is nutritious and gives protective factors that artificial feeds cannot.

So it is better for a child to get some breastmilk from a relactating woman (unless she is known to be HIV positive), than be fed only on breastmilk substitutes.

A child aged over six months needs breastmilk and complementary foods. A woman who has relactated can breastfeed to two years and beyond like other women.

All women need encouragement to be patient, they must know that their milk may take a short or a long time to 'come in'.

Signs that breastmilk is being produced

Breast changes:
- The breasts feel fuller or firmer, or may leak milk, or milk can be expressed.

Less supplement consumed:
- The infant (who breastfeeds first at each feed) takes less supplement while continuing to gain weight. This is not reliable over a short time, as the amount taken varies from day to day. Over a longer time, there should be a clear trend.

Infant does not take second breast:
- This may be a sign to reduce the amount of supplement offered, so that infant will again want to suckle both breasts at each feed.

Stool changes:
- The infant's stools become softer, more like the stools of a breastfed infant.

How much breastmilk is being produced?

You can work out how much breastmilk a woman is producing by subtracting the amount of milk supplement a baby takes from the total amount of milk the baby needs. To do this:

1. Estimate the infant's total needs according to his or her weight (150ml/kg/day).
2. Ask the mother to give a breastfeed first and then offer the supplement.
3. Subtract the total daily amount of supplement that the infant takes from his or her total needs.

The difference is approximately the amount of breastmilk that the mother is producing. This calculation assumes that the infant is gaining weight, showing that s/he is taking all the milk needed for growth.

Example
A 6 kg infant needs..... about 900 ml of milk per day.
If the infant is taking.....450 ml of supplement per day
then the mother or wet nurses is producing..... about 450 ml of breastmilk per day.

How to decrease the supplement

Start giving less of the supplement when there are signs that the woman is producing breastmilk and the infant is gaining weight.

Reduce the supplement enough to encourage longer and more frequent breastfeeds, but not so much that the infant becomes too hungry or too inactive to feed properly.

The mother or wet nurse can:

- reduce the total amount of supplement given in 24 hours by 50 ml and
- continue with the reduced amount for the next few days.

She may decide to give the supplement less frequently, perhaps only three or four times a day, or only one or two times late in the day.
She can reduce several supplementary feeds by 10-15 ml each, or reduce two feeds by 25 ml each.
She should continue to breastfeed without giving a supplement as often as the baby is willing.

If the infant:

- **shows by his urination and activity** that s/he is getting enough, and
- **after a week, has gained 125 g** or more of weight.

The woman can reduce the supplement again by another 50 ml.
Repeat the same process every few days, as long as weight gain, urine output, and activity continue to be adequate.

The amount of supplement can be reduced faster if the infant is not drinking all the supplement and is gaining weight (see Case Study below).

In some cases, relactation may take longer, especially with a wet nurse who stopped breastfeeding years before. Do not reduce the amount of milk supplement if the infant:

- shows signs of hunger that is not satisfied by more frequent or longer breastfeeding
- has not gained weight at the end of a week.

Continue to give the same amount for one more week.

If an infant continues to show signs of hunger despite unrestricted breastfeeding, or s/he still has not gained weight after another week, increase the supplement to the amount it was before it was reduced.

Case study: Changing the balance of supplements and breastmilk

A baby named Roberto arrives in camp aged three months and weighing 5 kg. At Full Assessment, his mother, Maria, said that she had "lost her milk" and had stopped breastfeeding in the previous month, but she would like to start breastfeeding again.

The first week
The mother was given 750 ml of supplemental milk for Roberto. She gave it by cup after encouraging Roberto to suckle her breast, and she also encouraged him to suckle very frequently at other times. She kept him in skin-to-skin contact with her.

At the end of the first week, Roberto weighed 5.2 kg, a gain of 200g. He did not take all the milk from the cup; there was a total of about 50 ml of milk left over on each of the last two days.

The mother also noticed that a few drops of milk came out of her breasts when she tried to hand express her milk.

1. Was Roberto's weight gain in the first week adequate?
2. About how much breastmilk was Roberto's mother producing after a week?

The second week
The health worker praised Roberto's mother for having re-started her milk production.
She also watched a breastfeed and saw that Roberto was suckling effectively.
She explained that now they would be able to make faster progress.

They would try reducing the milk supplement by 50 ml a day.
So on the next six days, Roberto was given supplements of 700, 650, 600, 550, 500 and 450 ml.
Then the health worker saw Roberto and his mother again.
His mother said Roberto was suckling longer and more often, as well as taking the cup feeds.
She also could hear him swallowing during some breastfeeds.

At the end of the second week, Roberto weighed 5.35 kg, a gain of 150 g.

3. Was Roberto's weight gain in the second week adequate?
4. Should the amount of supplement continue to decrease, increase, or be kept at 450 ml?
5. What additional help might the mother need at the end of the second week?

Possible answers:

1. Yes, it was very good.
2. Probably about 50 ml per day.
3. Yes, it was still over 125 g/week.
4. The supplement can continue to decrease if the baby's weight continues to be monitored frequently.
5. The mother needs praise for the way her milk production is increasing. She needs to know that Robert's weight gain was good. She may need to be told that she is making very good progress back toward exclusive breastfeeding. As always, she needs to be listened to. Does she have doubts or satisfactions to express? She might want to decide whether she will give cup feeds of the supplement fewer times per day.

7 Breast conditions

7.1 Level of help required

During Full Assessment (see Part 3.3) you may have found that a mother has a difficulty with one or both breasts such as:

- concern about breast size and shape, flat or inverted nipples, or
- very large nipples, nipple pain (sometimes persistent) or breast pain and swelling.

The Levels of help tables in Part 4 indicate that these mothers need to be referred for Further Help. Some of them will require medical care and the other interventions described below. If there is no-one available to give Further Help for breastfeeding, give Basic Aid as this can help many breast problems.

For a mother with any of these conditions, it is important to:

- listen and learn about her worries and feelings
- talk to her and explain what the condition is and what can be done to help
- reassure her that she will recover and that she can continue to breastfeed.

Notice that many of the conditions can prevented by Baby-Friendly maternity care (see Part 2.2) which includes suckling soon after delivery and help with early breastfeeds. Also, giving Basic Aid as soon as a mother has a difficulty may prevent it from becoming more severe, and may prevent other problems arising.

7.2 Breast fullness and size

Women in emergency situations often become worried that their breasts do not feel full or firm. Thinning of the breasts may occur with weight loss, because the breasts lose some of the fat that gives them their full shape. However, the alveoli continue to make milk provided the baby is suckling effectively.

Breasts differ greatly in size and shape, but this does not affect milk production. All types of breasts can make breastmilk whether high and rounded, long and hanging, large and fat, or small and flat.

- If the mother is not worried, say nothing about the fullness or size of her breasts.
- If the mother is worried about fullness, explain (kindly and without being critical) that fullness and size is mostly due to fat. Reassure her that her breasts will produce perfect milk as long as her baby suckles.
- Praise her for breastfeeding and tell her that her milk is exactly what her baby needs.

7.3 Nipple conditions

Women (and health workers) are often concerned about nipple shape.
They may believe that difficulties with attachment are because a nipple is flat or inverted (turned inwards). But the difficulty is almost always due to a poor breastfeeding technique.
It is important to remember that when a baby suckles, the nipple and tissues underneath the areola are stretched out to form a long teat in the baby's mouth (see IFE 2/2).
The nipple is only a small part of this teat, and its size is not important, provided the breast tissue can be stretched out.
Most nipples become softer and easier to stretch around the time of delivery.

Flat nipples

Many nipples look very short or flat but if they can be stretched out they should not cause any difficulty.

To prevent problems arising:

- Allow the infant to suckle immediately after birth (see Part 2.2).
- Give the mother help with early feeds.
- Reassure her that a baby suckles the breast, not the nipple, and that the shape of the nipple is not important if the baby is well attached.
- Pay careful attention to the technique of positioning and attaching the baby at the breast (see Parts 1.1 and 4.2).

There is no need to prepare nipples during pregnancy as this is not effective.

Additional suggestions are to:

- Give extra help with attachment. Make sure that, as the mother is putting the baby on her breast, she:
  - aims the baby's chin below her nipple, so that his/her tongue gets right underneath the areola
  - gently touches the baby's mouth to encourage him or her to open it widely and to take a big mouthful of breast (but does not pull his/her mouth open)
- Avoid use of nipple shields (artificial teats that cover the mother's nipple) they reduce breastmilk intake and do not usually help.

Inverted and large nipples

A few nipples are truly inverted. They may look indented (turned inwards) and do not stretch out easily.
Some nipples are very large or wide or long. This makes it difficult for a baby to take enough of the breast tissue into his or her mouth to suckle effectively, particularly in the first few weeks of life.

If a mother has nipples that are inverted or large, wide or long:

- Make sure that she understands about attachment and knows what she is trying to get her baby to do (see Additional suggestions above).
- Encourage her to give the baby plenty of skin-to-skin contact, with frequent opportunities to try to take the breast into his or her mouth. But tell her not to force him, or to force his mouth open.
- Show her different breastfeeding positions to try, such as lying down, holding the baby in the underarm position or lying or leaning forward so that her breast falls towards the baby's mouth (see Part 1.1).
- If it is possible to get a 20ml plastic syringe, you can use it to pull out an inverted nipple in the following way: cut off the adaptor end, put the plunger in backwards, put the smooth (uncut) end of the syringe over the nipple, and draw out the plunger. This will stretch out the nipple. Do this for half a minute to make the nipple stand out just before each breastfeed.
- Teach her to express her milk (see Annex 3) at least eight times a day, and to feed the expressed milk to the baby with a cup. Avoid bottles and pacifiers which encourage sucking with a more closed mouth and lips pushed forward.
- Keep on trying. Most babies want to suckle and they will find out how to open their mouths wide enough to take the nipple eventually. It may take a week or two.

Nipple pain

A mother may complain of sore nipples or appear to be in pain or discomfort while feeding. This happens quite often in the first few days after delivery but also occurs at other times.
The commonest cause of sore or uncomfortable nipples is poor attachment.
Help with early feeds often prevents the problem.
When you watch a breastfeed, notice the appearance of the nipple as the baby releases the breast. Even if the mother complains of pain there may be nothing to see because at first the nipple skin is not damaged.

But if a baby continues to suckle while poorly attached, it damages the nipple skin. Then you may notice a line across the end of the nipple like a fold in the skin which may disappear soon after the baby stops suckling. The line shows that the nipple is being squashed and hurt by poor attachment. Later a sore or crack may develop which may bleed or become infected.

Sometimes a mother does not say that suckling is uncomfortable until the baby's attachment improves, and then she feels the difference.

To help mothers with nipple pain:

- Ensure good attachment and effective suckling (see Basic Aid, Part 4.2). This often reduces the pain immediately. Continue breastfeeding. If there is a sore, it usually heals and breastfeeding becomes painless in one to three days.
- Suggest that the mother expresses a little breastmilk at the end of each feed and rubs it gently into the sore. Breastmilk promotes healing.
- If a sore is infected, give the mother a vaseline gauze dressing (if available) to cover the sore between feeds. If the sore is large and infected give a systemic antibiotic of a kind that is effective against resistant staphylococci.

Persistent nipple pain

Nipple pain sometimes continues despite improved attachment.
If the pain is present between feeds, or if the nipple skin is dry and itchy, there may be thrush infection (infection with candida, sometimes called yeast).

To help a mother with persistent nipple pain:

- Examine the baby's mouth for white spots, and his or her bottom for a spotty red rash. These are signs that the baby may have thrush, which is also affecting the mother's nipples.
- Treat with gentian violet once daily: 0.25% solution for baby's mouth and bottom, and 0.5% solution for mother's nipples, for five days. You can also use Nystatin cream for nipples and oral drops for the baby if available.
- The mother can continue breastfeeding during the treatment; the medicine on her nipples will not harm the baby (who anyway has the same medicine in his/her mouth).
- Advise the mother not to use pacifiers or feeding bottles.
- Discourage use of soap or ointments on the nipples. Ordinary washing as for the rest of the body is all that is needed.

7.4 Breast pain and swelling

A woman may complain of pain and/or swelling of one or both breasts.
You may notice swelling or redness (in light-skinned women) of a breast when you observe a breastfeed.

To find the cause of the problem:

Ask the mother: "Do you have a fever or feel ill?"
Look at both breasts for a swollen appearance, shiny oedematous skin and/or red areas (in light-skinned women).

Feel both breasts for:

- general hardness and tenderness
- localised hardness, tenderness, and swelling or lumps.

Try to decide if the condition is:

- normal fullness
- engorgement
- a blocked duct
- mastitis
- an abscess.

Normal fullness

A few days after a baby is born, the milk "comes in" and the breasts fill up with milk. The breasts may become very full and uncomfortable, and may contain several lumps.
However, the mother remains well, with no fever.
The breast and nipple skin remain healthy.
The milk continues to flow and may drip out between feeds.
The lumps become smaller after a feed.

To help a mother whose breasts are very full in this way:

- Reassure her that the fullness is normal and will settle in a few days.
- Encourage her to let the baby feed as often as s/he is willing.
- Show her how to express her milk a few times to keep the breasts comfortable.

Fullness is less troublesome if the baby starts to suckle soon after delivery and if s/he is well attached and suckling effectively.

Engorgement

Sometimes the breasts become too full of milk and tissue fluid and the milk cannot flow out easily.
The breasts are painful and the woman may have fever for 24 hours.
The whole breast looks swollen, oedematous and shiny, and may be a little red (in light-skinned women).
The breasts feel hard and are tender.
The nipple may be stretched so tightly that it is difficult for the baby to attach and suckle effectively.

Engorgement can usually be prevented if the baby starts breastfeeding soon after delivery, and then continues to feed whenever s/he wants, with no restrictions.

To help a mother with engorgement:

- Give Basic Aid for breastfeeding (see Part 4.2) to ensure good attachment, and encourage her to feed the baby frequently.
- If the baby has difficulty attaching, help the mother to express her milk (see Annex 3) to soften the breasts until the baby can attach more easily.
- Gently massage the mother's back while she expresses, or while the baby suckles, to help the milk to flow.
- Use a warm compress, or bathe the breasts in warm water before a feed to help the milk to flow.
- Use a cold compress after a feed to help reduce the swelling.

Blocked duct

Sometimes the milk is not removed from one part of a breast; it collects and forms a small hard lump.
The lump is tender, and the skin over it may look slightly red.
The lump is only in one place (localised) and the rest of the breast is healthy.
The woman remains well and has no fever.

To help a mother with a blocked duct:

- Ensure good attachment and encourage the mother to breastfeed frequently particularly from the affected breast.
- Show her how to gently massage over the lump, towards the nipple while the baby suckles. This should help the milk to flow out of the lump, and the lump then disappears. Sometimes a plug of thickened milk comes out of the nipple (the baby can safely swallow it).
- Avoid strong massage which may bruise the breast.
- Suggest that the mother tries feeding the baby in a different position, such as the underarm position (see Part 4.2).
- Advise her not to wear tight clothes over her breasts.

Mastitis

Sometimes part of a breast becomes hot, hard and very painful. In light-skinned women, the area may look very red.
The woman feels ill and has a fever. This is mastitis.

Mastitis may happen when milk is not removed effectively, so it stays in the breast.
For example, mastitis may follow if the baby is not well attached, if there have been delays between feeds or if feeds have been short or hurried.
But often the cause is not clear.
Often there is no infection. If the milk stays in the breast for a long time, it can cause inflammation of the breast which gives the woman fever and pain.
However, infection may occur especially if there is an infected sore on the nipple.
The infection may develop into an abscess if not properly treated.

To treat mastitis:

- Explain to the mother that the most important part of treatment is to remove the milk from the affected breast by breastfeeding or by expressing it.
- Explain that the baby should continue to breastfeed. There is no need to stop unless breastfeeding is unbearable for her. Even if the breast is infected, the milk does not make the baby ill. The exception to this rule is if the mother is known to be HIV positive (see paragraph below).
- Ensure that the baby is well attached and suckling effectively. Then encourage the mother to breastfeed as often and for as long as the baby is willing.

- Explain that if the baby does not breastfeed, or does not feed enough, the milk must be removed by expressing it (see Annex 3). Teach her how to do this.
- Encourage the mother to rest and ask other people to help with her duties. She can lie down with the baby and breastfeed him or her as often as possible.
- Reassure her that frequent, effective suckling usually results in improvement within 24 hours.
- Give anti-inflammatory analgesics (e.g. ibuprofen) to reduce the symptoms.
- Give an antibiotic effective against resistant staphylococci if:
  - the inflammation is extensive and the mother severely ill when first seen
  - there is a purulent, infected nipple sore, or improved removal of milk does not result in improvement in 24 hours.
- Continue encouraging breastfeeding and giving all the care listed above throughout the antibiotic treatment. Antibiotic treatment alone is not sufficient to cure mastitis. Antibiotics given to the mother will not harm the baby.

Mastitis in the context of HIV

If a mother is known to be HIV positive,The presence of mastitis can increase the risk of HIV transmission through the breast milk. In this instance, the mother should feed from the uninfected breast and continue to regularly express and discard the milk from the infected breast until the condition is cleared. If the milk from the healthy breast is not enough to cover the baby's needs, the milk from the affected breast must be heat treated before giving it to the baby. Once the breast has recovered, normal breastfeeding may resume.

In the case of **cracked and bleeding nipples**, the approach is similar to that of mastitis, i.e. mother should feed from the healthy breast only and express and discard the milk from the other. If the milk from the healthy breast is not enough to cover the baby's needs, the milk from the affected breast must be heat treated before giving it to the baby. To treat cracked nipples, the mother should put some breastmilk on them, let it air-dry and to do this whenever milk from that breast is expressed.

Adapted from: HIV and Infant Feeding Counselling Tools: reference guide, WHO 2005

Breast abscess

An abscess may result if mastitis or a blocked duct are not properly treated.
This happens if milk is not removed from the affected breast even if antibiotics are given.
The breast develops a very painful swelling and the woman is ill with fever.
The skin over the swelling may be discoloured.
It may be possible to feel that the swelling contains fluid.

To treat a breast abscess:

- Refer the mother for medical treatment because:
  - the abscess may need incision and drainage, or aspiration of the pus
  - and the woman needs antibiotics.
- Encourage her to continue breastfeeding. There is no need to stop, unless it is too painful (for example, when there is a wound near the nipple). The milk and medicines will not make the baby ill, healing will not be delayed. In the case of HIV positive mothers with a breast abscess follow the same advice as given in the management of mastitis and feed from the unaffected breast whilst expressing from the infected breast until the abscess is treated.
- If necessary, help her to express her milk, to temporarily feed it to the baby from a cup and to re-establish breastfeeding as soon as possible.

8 The young severely malnourished infant

The nutritional management of severely malnourished infants aged less than six months was identified by the core group as a key issue to include in Module 2[1]. As there is little published evidence to guide the development of training material, Part 8 was reviewed by experienced academics, paediatricians, nutritionists and field teams[2]. The guidelines given here reflect the consensus reached by this review and are based on existing evidence and field experience.

There is an urgent need for more research in areas such as the management of supplemental suckling in emergencies, and the choice of supplemental milk. We invite you to send us your experiences on the nutritional care of severely malnourished infants aged less than six months. Part 8 will be updated as new evidence emerges.

8.1 Malnutrition in infants aged less than 6 months

In emergency situations, infants are defined as being severely malnourished if they have:

- **Weight-for-length of less than 70% of the median** (NCHS/WHO reference values)*
- **oedema** (bilateral pitting oedema of at least the feet)

* % of the median, rather than z scores, tend to be used in feeding centres in emergencies, and so are used here.

Infants less than 6 months old may become malnourished if they have:

- never been breastfed
- been only partially breastfed, combined with inadequate, unsafe artificial feeds and/or with inappropriate complementary feeds (e.g. watery, introduced too early)
- their mothers are dead or absent
- their mothers are malnourished, traumatised, ill, or unable to respond normally to their infants' needs
- they have some form of disability that affects their ability to suckle or swallow, and/or a developmental problem affecting feeding.

Infants may also be classified as malnourished if they:

- were low birth weight babies as a result of prenatal malnutrition or preterm birth and have failed to 'catch up'.

It is difficult to distinguish between these infants and those who became malnourished after birth.

Care for infants with severe malnutrition

Severely malnourished infants need special care. This usually requires admission to a hospital or a Therapeutic Feeding Centre (TFC) for immediate nutrition and medical care, and later follow-up with outpatient or community based care.

[1] See ENN/GIFA report www.ennonline.net; Field Exchange, Issue 21; SCN Update on IFE 2004.
[2] Earlier drafts of this chapter were circulated to a cross-section of external experts and practitioners with terms of reference about the its appropriateness, safety and practicality. The list of reviewers and Terms of Reference can be obtained from the ENN, email; marie@ennonline.net

Nutritional management of these infants requires a combination of:

- improved or re-established breastfeeding (unless the infant has to be artifically fed)
- temporary or longer term appropriate therapeutic feeding
- nutritional, psychological, and medical care for their mothers.

Feeding severely malnourished young infants is labour intensive and requires staff skills that are different to those needed when treating older infants and children. Supporting and, if necessary, re-establishing or starting exclusive breastfeeding is the cornerstone of management and longer term survival of young infants, and takes much time and expertise. Training is essential for staff to understand the particular needs of malnourished infants aged less than six months.

Role of breastfeeding for malnourished infants

The future survival of malnourished infants aged less than six months depends largely on the establishment or re-establishment of exclusive breastfeeding. To achieve this, breastfeeding or breastmilk should be part of the feeding management *from the beginning* if the mother is available or a wet-nurse[3] can be found.

Supplementary suckling can be used to re-establish or begin breastfeeding in malnourished infants.
Supplementary suckling means that the infant is suckling at the breast and at the same time is taking supplementary milk from a cup through a fine tube leading along the nipple. The infant is nourished by the supplementary milk while the suckling stimulates the breast to produce milk (see Parts 6.3 and IFE 2/36).

Infants who are not breastfed

There are situations where an infant is not being breastfed and there may be no option of breastfeeding e.g. if a mother has never breastfed and is unwilling to try to breastfeed, or if a mother has died and/or no wet-nurse is available.
Nutritional management of non-breastfed infants follows the same principles as for breastfed infants.
Plans and preparation for discharge become especially important, as the infant's future nutritional security is more uncertain and the young infant especially vulnerable, particularly in emergency settings (see Part 9 on Artificial Feeding, Section B).

Infants who show no signs of severe malnutrition

These infants can normally be supported at a breastfeeding corner. They include:

- infants whose mothers report that *they do not have enough breastmilk*
- *infants who are reported not to be gaining weight as expected*
- *low birth weight infants* if they are feeding well and showing no signs of illness and are gaining weight (See Part 5.2)
- *mild and moderately malnourished infants less than six months.*

Mild and moderately malnourished (see Parts 4.1 and 5.3) infants do not need to be admitted to a TFC. Avoiding admission to centres where there may be other sick children, and which may be crowded, reduces the risk of cross-infection of young infants who are particularly vulnerable. Instead they, like the others mentioned above, can be monitored and cared for at a breastfeeding corner (see Annex 14). Support to improve breastfeeding may be all the care needed, and can be life saving for these infants. Many of these infants gain weight if their mothers are given support to improve breastfeeding.

If management at the breastfeeding corner is not successful and monitoring shows a failure to gain weight, infants should be admitted and nutritionally managed as if they are severely malnourished. However, these infants do not require the systematic drug treatment of the severely malnourished infant. They need to be individually assessed medically for signs of illness. If they are ill, for example with an infection, additional treatment may be necessary. Malnourished infants more than 6 months old, but less than 65 cm long or weighing less than 4 kg can be managed the same as infants aged less than 6 months. These infants may have been LBW and/or have grown poorly after birth.

[3] In areas of high HIV prevalence, wet-nursing may not be feasible unless it is certain that a prospective wet-nurse is HIV-negative and can ensure that she remains so – see HIV and Infant Feeding Counselling: A Training Course WHO/UNAIDS/UNICEF (WHO/FCH/CAH/00.4).

8.2 Overview of management

The medical treatment of young infants is not described in this Module but details are given in some of the reference documents listed in Part 8.11. These should be available to all health and nutrition workers. The reference documents do not specifically cover the special nutritional needs of infants less than 6 months old or the effective management of breastfeeding. That is why these issues are the main focus of this section.

Severely malnourished young infants need:

1. **Diagnosis** of medical complications and treatment if any are found.
2. **Warmth** to treat and prevent hypothermia.
3. Initial re-feeding (for metabolic **stabilisation**) which may require milk feeds in addition to breastmilk, or where an infant is not breastfed instead of breastmilk.
4. Feeding for catch-up growth (nutrition **rehabilitation**).
5. **Continuous monitoring** of weight and feed intake.
6. **Follow-up** to reduce the risk of becoming malnourished again.

The table below summarises the management of young severely malnourished infants from initial admission through the different phases until recovery and discharge. Support to the mother is an integral part of this care.

Table 8.1: Outline for the management for severely malnourished infants under six months of age

Initial assessment and treatment	Weigh and measure infant and diagnose and treat complications such as hypothermia, hypoglycaemia, dehydration, infections and septic shock.
Give the infant initial re-feeding	Feed the infant with appropriate milk feeds for initial recovery and metabolic stabilisation.
Feed and care for the mother	If the mother is available, feed and care for her physically and psychologically, to help restore her health, her ability to produce milk, and her ability to respond to her baby.
Keep mother and infant together	Keep mother and infant together, to help the mother care for and respond to the baby, and to give skin-to-skin contact (Kangaroo care) to warm the baby. Beds or mats are better for this than cots.
Continue and improve or re-establish breastfeeding	Breastfeeding is an integral part of management. Continue and improve or start to re-establish breastfeeding as soon as possible from the beginning of treatment, if necessary using the supplementary suckling technique. A mother may need to express breastmilk, if the infant is too weak to suckle. Show her how to do this.
Feed the infant for catch-up growth	As the infant starts to recover, feed him/her to achieve rapid catch-up growth, (nutrition rehabilitation). Give supplementary milk feeds using a breastfeeding supplementer if needed, as long as necessary, until exclusive breastfeeding is re-established.
Give adequate artificial feeding if breastfeeding impossible	If breastfeeding is not possible, give therapeutic feeds until the infant recovers then change to adequate artificial feeding in accordance with a local Agreed Criteria.
Discharge when gaining weight on breastfeeding alone **or** on a safe alternative	Discharge the infant from TFC when gaining weight for 5 days on breastfeeding alone (regardless of original body weight) **or** when the infant has changed completely to adequate artificial feeding with formula; and has had weight-for-length 80-85% of the median NCHS/WHO standards reference values for 3 days.

8.3 Assessment and admission

- Weigh the infant, measure length if possible, and examine for signs of illness.
- If a complication is present, start treatment. The usual complications are hypothermia, hypoglycaemia, dehydration, infection, septic shock or congenital conditions. Check carefully to avoid over-diagnosis, particularly of dehydration, as fluid overload is dangerous. For further details see reference documents 1-4 in Part 8.11.
- Keep the infant warm, start Kangaroo care (see Part 5.2). A hot drink given to the adult can increase the heat she makes to warm her infant while in the Kangaroo position.

- Do a *Full Assessment* of feeding (see Part 3.3) to learn if the infant is breastfeeding effectively, and what other feeds have been given.

Admission criteria for infants less than six months of age

One or more of the following criteria should be met in order to admit an infant under six months to a TFC:

- severe wasting *(<70% of the median weight for length)* for infants 49cms or more
- visible severe thinness for infants less than 49cms
- bilateral oedema (as defined above)
- failure to gain weight at home or under management at a breastfeeding corner (see Annex 14).

Assessment in this age-group has some difficulties:

- At present, weight-for-length can only be calculated for infants over 49cms, because charts do not exist below 49cm. Some agencies admit infants under 49cms if they weigh less than 2.1 kg.
- Visible severe thinness can be used to identify severe wasting if measurements are not possible. It is more difficult to accurately measure very small infants than larger infants, especially with the equipment usually available in emergency situations.

8.4 Selecting the right feed type

All infants less than 6 months of age have special dietary needs because they:

- Are metabolically more vulnerable.
- Have higher water requirements than older infants. This is because:
  - small infants have a high ratio of surface area to weight so more water is lost from the skin. Water loss from the skin (evaporative loss) increases in hot conditions, and
  - small infants are less able to concentrate fluid in the kidneys, especially if they are malnourished.

The milks listed below and described in Annex 13 have been used successfully in different circumstances. The guidance given below should help you decide what to use. What is available and the context of an emergency situation also influences which milk to chose.

Breastmilk/Breastfeeding

- Suitable for initial re-feeding **but** only a limited quantity may be available if breastfeeding has been interrupted and infant not suckling. Can combine expressed breastmilk and appropriate therapeutic milk initially.
- Suitable for continuing catch-up growth in infants under 6 months if adequate milk production has been re-established, and if infant feeds often enough day and night.

Commercial F75

- Safe for initial re-feeding of severely malnourished infants under 6 months (and all ages) during stabilization phase. It is essential to use commercially prepared F75. Home-made F75 is higher in osmolarity.
- Necessary if infant has oedema.
- Not suitable for catch-up growth at any age.

F100-D (F100 + one-third extra water)

- Safe to use for initial re-feeding under 6 months if appetite appears to be reasonable, especially if infant is breastfeeding.
- Suitable for catch-up growth of infants under 6 months.

Infant formula (as specified in Codex Alimentarius)

- Safe to use in initial re-feeding under 6 months if reconstituted accurately and hygienically and the mother or carer has received proper counselling on re-lactation and what and how to feed the baby.
- Suitable for catch-up growth of infants under 6 months.

These recommendations as well as any other contained in this Module will be revisited as new information becomes available.

Breastmilk is the best milk for malnourished infants under six months of age, and breastfeeding needs to be actively supported from the beginning of treatment. Always emphasise the superiority of breastmilk. If infant has access to sufficient quantities of breastmilk this alone can be used in preference in all phases of treatment.

If an infant is too weak to suckle adequately, the mother's **expressed breastmilk** can be given by cup (see Part 5.4) or used for supplemental suckling (see Part 6.3 and IFE 2/37 p 90).

Infant formula is not usually used as it is normally more convenient to use the same preparation (F75 or F100) being used for older children. Also there is a risk of conveying a negative health education message if mothers see its use as promotional.

On the rare occasions when infant formula is needed, it should be purchased from normal channels and not received as a donation (see Module 1 Part 3.1).

The other types of milk, listed in Annex 13, can be given to malnourished infants under 6 months of age:

- as a temporary supplement to breastmilk - when there is a possibility of re-establishing exclusive breastfeeding and expressed breastmilk is not available
- when expressed breastmilk is available in insufficient amounts
- as the only food where there is no prospect of breastfeeding.

A *test feed* can be used to assess how well an infant is feeding. The infant is observed breastfeeding (see Part 3.3), and/or taking the prescribed amount of feed by mouth to see how well they manage.

Feeds that should not be used for infants under six months:

- **Home prepared milk feeds**
  - Home prepared milk-based feeds/modified animal milk recipes are unsuitable for young malnourished infants due to their higher osmolarity, and often inadequate micronutrient content. If breastmilk, infant formula, diluted F100, or F75 are not available, they can be used as a last resort, but for a minimum length of time.

- **Full strength F100**
  - Full strength F100 should not be used for infants under six months of age. This is because the renal solute load is too great and the water content too low for young infants, even during catch-up growth.

- **Cereals and other foods**
  - Some feeding programmes use therapeutic feeds made from cereals, or Ready to Use Therapeutic Foods (RUTF) (like Plumpy'nut or locally made versions).
    But these foods should not be given to infants under six months of age as they cannot digest cereals easily.

Similarly, do not give porridge and other complementary foods. Giving porridge may slow recovery as it replaces milk feeds. It is better to give increased amounts of breastmilk and adequate supplementary milk.

Micronutrients and electrolytes

Give to all children aged under 6 months:

- A high dose of vitamin A (50,000 IU orally) on admission (see reference document 2 p17 in Part 8.11).
- 5mg folic acid on day 1 and, if using non commercial F75 or F100-D, give 1mg folic acid daily from day two.

Electrolytes/minerals and vitamins must be added to the feeds if commercial F75 and F100-D are not available and home-made F75 and/or infant formula has to be used.

Do not give iron during stabilization, but give 3mg/kg/day oral iron in two divided doses during rehabilitation (see reference document 2 p21-2 in Part 8.11).

8.5 Phases of treatment

Management of severely malnourished infants less than six months of age can be broken down into four phases of treatment.

Stabilisation

The first phase is called *stabilisation* (or *initial treatment*). The aim of this phase is to achieve metabolic stabilisation in the infant while supporting breastfeeding where possible. This is done through careful feeding, medical management and supplementary suckling.
Depending on the circumstances breastmilk and/or a choice of F75, diluted F100 (F100-D) or infant formula are appropriate in this phase (see Annex 13).
Weight gain is not expected in this phase, and there may even be a fall in weight due to loss of oedema.

Transition

Once stable, the infant enters the transition phase. Here feeding regimens will be altered in volume and type in preparation for rehabilitation. For breastfeeding infants the mother receives continued support, and supplemental suckling if started should continue. The breastmilk quantity should start to increase in the transition phase. If F75 was used during stabilisation, change to F100-D or infant formula.

Rehabilitation

The next phase is called the *rehabilitation* (or sometimes the *recovery* or *catch-up growth*) phase. The aim of this phase is to provide enough feed to support rapid catch-up growth. During this phase, supplemental suckling if used is scaled down, and the infant should return to exclusive breast feeding. Non-breastfed infants are changed to a BMS suitable for preparation in the home.
Weight gain should be 10g/kg/day or more, if less than 5g/kg/day the infant is not responding to treatment.

Discharge and Follow-up

The final phase is to prepare the mother/caregiver and infant for discharge and to follow them up when they go home.

When catch-up growth is complete, the infant should continue to gain weight at the slower rates expected for infants of the same age (5-10g/kg/d) - as seen in growth monitoring charts, for example.

After discharge, the weights and feeding of infants should be monitored at least weekly for 3 months and mothers/caregiver given continued support if they are breastfeeding.

8.6 Monitoring progress

The importance of close monitoring during each phase of treatment must be emphasised, and staff may need training to understand that this is a priority.

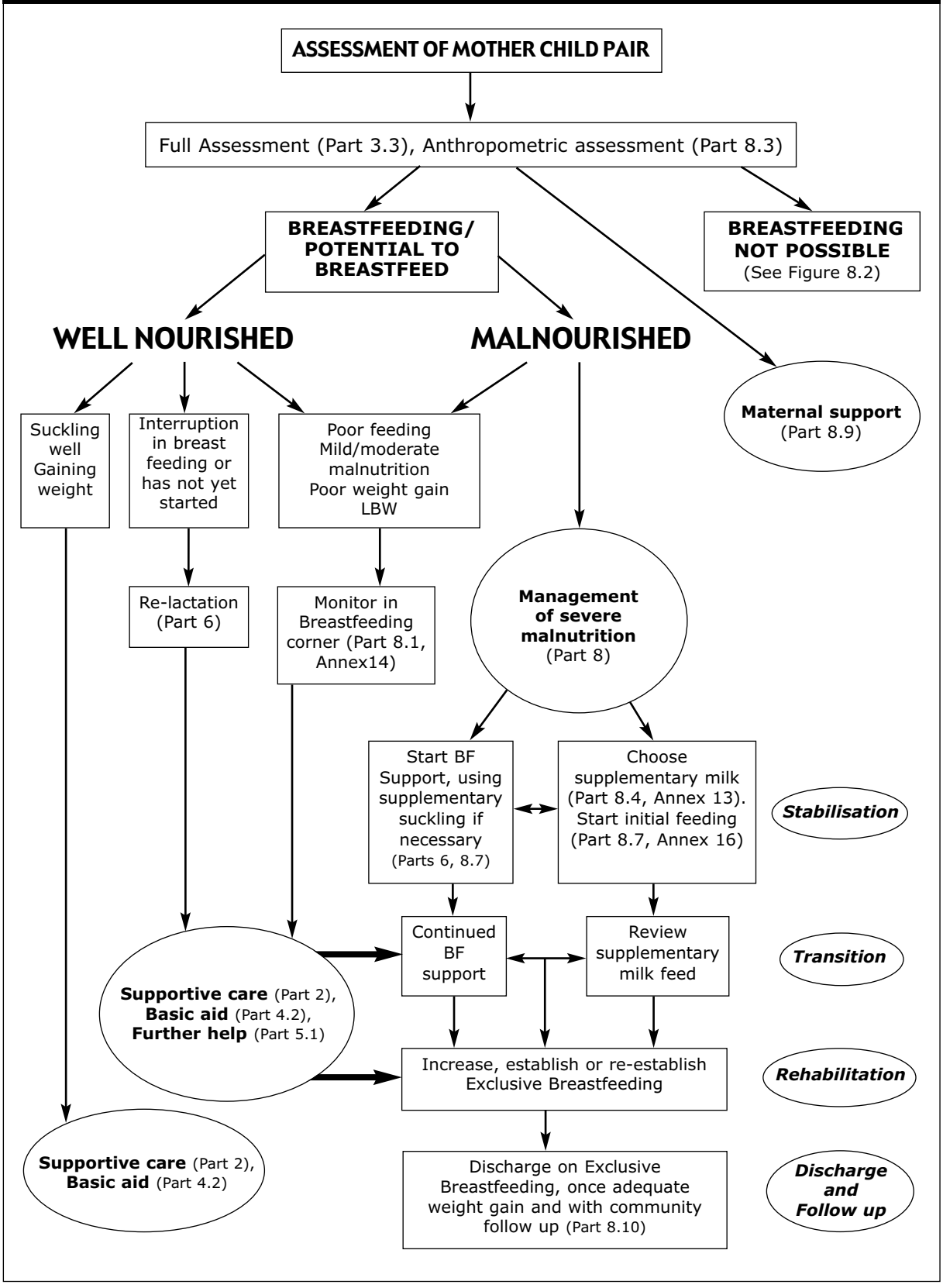
- Record and review the total intake of supplementary milk feeds and/or number of breastfeeds per 24 hours.
- Monitor weight gain, urinary output, activity level and other signs that breastmilk is being produced (see Part 6.4).

Tips for monitoring weight:

- Infants should be weighed daily on appropriate scales, with an accuracy , ideally, to at least 20g.
- It is important to check scales are being properly used (e.g. zeroed if necessary after each measurement).
- Infants should be weighed entirely nude – weight of clothes can make a big difference to the small changes in weights seen in such small infants.
- Using a basin to weigh young infants is more practical for small, sick infants, and easier to clean than hanging pants.
- Weight gain needs to be calculated as grams per kilo body weight per day. However a useful rule of thumb for minimum acceptable weight gain during catch-up growth in young infants (weighing less than 4kgs on admission) is 20g every day.

8.7 Management when breastfeeding is possible

Figure 8.1



Stabilisation

Breastfeeding is an integral part of management from the very beginning of treatment. Continue and improve, or start to re-establish, breastfeeding as soon as possible; if necessary use the supplementary suckling technique (see Parts 6.3 and IFE 2/36 p86).
If the infant is too weak to suckle, the mother should express her breastmilk and feed it by cup or supplementer.

If a mother initially finds it difficult to express the full volume of breastmilk required, then a combination of expressed breastmilk plus supplementary milk feed (e.g. F75 or F100-D or infant formula) can be used. If an infant appears lethargic, or is very reluctant to suckle at the breast at all, or has oedema, then s/he should be started on F75.

1. Select the type of milk feed (see Part 8.4 and Annex 13).

2. Using the table in Annex 16, calculate the amount needed for 24 hours according to the infant's weight on admission, and then the amount needed at each feed. Give the full amount of milk feed over 24 hours, making no allowance for any intake from breastmilk. Give one feed immediately on admission. Give a 2-hourly amount if the infant is very ill or a 3-hourly amount if the condition is satisfactory. Continue to give 3-hourly feeds (if these are tolerated) or 2-hourly feeds (if infant remains very ill) but give the same total volume in 24 hours.

3. If the infant is able to suckle, give the supplementary milk feeds by breastfeeding supplementer while the infant is suckling at the breast. This is the supplementary suckling technique and is preferable to other methods of feeding a young malnourished infant.

4. If the infant is not able to suckle, give feeds by cup, dropper, syringe, or naso-gastric tube. At each feed try the supplementary suckling technique before using other methods, only use these methods if infant is not taking milk by supplementary suckling.

   It is particularly important to monitor the total 24-hour intake of milk feed and number of breastfeeds when supplemental milk is being provided by naso-gastric tube, especially in very small infants. An infant cannot refuse a naso-gastric feed and so it is easier to overfeed than when feeding orally.

   As soon as oral feeds have started, ask the mother to offer her breast, to see if the infant is willing and able to suckle. The breast should be offered 1/2 - 1 hour before giving the therapeutic feed when the baby is more likely to be hungry and so more likely to suckle.

5. When the infant is suckling at the breast, continue to give the same total volume of supplementary milk over 24 hours. Suckling at the breast stimulates an increase in production of breastmilk and this provides the increased amount of feed that the infant requires as s/he recovers and starts to gain weight.

Frequency and numbers of feeds

If you feed every 2 hours, this means giving 12 feeds in 24 hours with some feeds being given at night. This can be very difficult to do except perhaps for one or two days at the start of treatment – but it is the best and safest way of feeding during the stabilization phase.

Sometimes staff are not available at night, and mothers become exhausted if they have to keep waking up to feed. The result may be that feeds are missed, so that the total volume required for recovery is not given. 3-hourly feeds (8 times in 24 hours) are more likely to be given as required.

Sometimes, if there are no night staff, mothers are admitted only during the day, and go home with their infants at night. In such situations, you may need to divide the total 24-hour intake between fewer feeds (such as 6 feeds), and to give all the feeds during the day.

At other times, especially during the night, the infant should stay with the mother and continue to breastfeed if possible. Continuing to breastfeed at night is the key to successful day care. Even if the infant takes only a small amount of breastmilk, it stimulates milk production, is nutritionally valuable and may be life-saving.

The total volume of supplementary milk taken over 24 hours is the most important measure, and must be carefully monitored.

6. Continue to give the full amount of supplementary milk as well as breastfeeding as much as possible, until:

   - any oedema has disappeared
   - the infant's appetite improves
   - there is evidence of breastmilk production (milk can be expressed, breasts feel fuller See Part 6.4).

   These events usually occur about two to seven days after initial re-feeding begins.

7. As the infant's general condition improves, s/he will start to show an interest in taking milk, for example, taking the supplementary milk through the supplementer quickly, and finishing all feeds, sucking on the syringe, suckling the breast more strongly, or lapping from a cup.

The infant now moves into the transition phase.

Transition

- Observe breastfeeds, to ensure that the infant feeds effectively, and for as often and as long as possible. Breastfeeding should last at least 20 minutes and start half to 1 hour before supplementary feeds are due.

- If F75 was initially used as the supplementary milk, then change to F100-D or infant formula. Continue to offer the same total amount of supplementary milk according to the infant's weight on admission.

Rehabilitation Phase

As breastmilk production increases, the infant gains weight. This happens partly because, although the intake of supplementary milk remains the same, the increased breastmilk adds to the total intake.

Eventually as breastmilk production increases, the infant may take less supplementary milk.

When the infant is having mainly breastmilk and is gaining weight, you can reduce the amount of additional milk feeds offered and then stop them, while you monitor the infant's progress on breast milk alone (see below).

Monitoring progress

Weigh the infant every day if possible, or at least every 2 days

- If the infant loses weight over 3 days, reassess both the supplementary feeds and the breastfeeds that are given, (amount, technique, frequency and duration, both day and night) and check the infant medically, especially for infection.

  If indicated, give medical treatment and/or correct the breastfeeding technique and the therapeutic feeds, keeping the 24-hour total volume of therapeutic feed the same.

- If the infant is not gaining weight, but is well, and is breastfeeding well, increase each supplemental feed by 5mls over 24hrs and maintain this amount of supplementary milk. Also let him/her suckle more: this will stimulate the production of more breastmilk, which may take 1-2 weeks to increase.

- If the infant gains weight despite not increasing the volume of supplementary feeds, then this means that the amount of breastmilk produced is increasing.

- If the infant gains weight but does not finish all the supplementary feed, then breastmilk is increasing and the infant has had enough.

Reducing the volume of supplementary feed

Start reducing the volume of supplementary milk when the baby is gaining weight for 2-3 days, at least 20g per day, is free from illness (they should be free from illness if gaining this much weight), and there is evidence of breastmilk production.

- Reduce the volume of supplementary milk by one third and feed this amount for 2-3 days.

- If weight gain continues to be satisfactory, reduce the amount of supplementary milk again by a similar amount until none is given.
- If weight gain is not satisfactory when the volume of supplementary milk is reduced, increase the volume to the previous level for the next 2 days, then try again.

After supplementary milk feeds have stopped, keep the infant in the TFC for 5 days on breastfeeding alone to ensure that a satisfactory weight gain of at least 20g per day continues.

Breastfeeding is adequate for continuing and completing catch-up growth, provided the infant is getting enough. This can be checked from the infant's weight gain.

Ensure that the mother breastfeeds frequently (8–12 times/24 hours) and keeps the baby at the breast for as long as s/he is willing, day and night.

Continue outpatient follow-up to ensure that satisfactory progress continues.

ALTERNATIVE METHOD:

Some experienced field workers (see below) recommend more rapid reduction of supplementary milk. When you have experience caring for these small infants, try this simpler method. An important pre-requisite is to be able to monitor their progress closely, so that you can respond quickly if they do not gain weight:

- *Reduce the volume of therapeutic feed to half the original volume when satisfactory weight gain is established*
- *If satisfactory weight gain continues for 2 days, stop supplementary formula on day 3.*

Case study: A rapid transition to exclusive breastfeeding

In a TFC in Liberia in 1998, 16 infants under six months old with weights-for-length of under 70% of reference were breastfed eight times in 24 hours. They were also offered the breast an hour later with F100-D* fed by breastfeeding supplementer. So they had a total of 16 feeds in 24 hours.

The cup for the supplementer was kept 20-30 cm below the level of the baby's mouth so the baby could control the flow of milk.

This combined feeding was needed for an average of 13 days. The infants' mean weight gain during the supplemented feeding period was 14.7g/kg/day.
When the infants' weights-for-length reached 85% of the reference, the supplemental milk was reduced by half for one day and then stopped completely. In these two days the amount of supplemental milk given went from about 560 ml to none.

After this the infants remained in the centre with their mothers for at least four more days on exclusive breastfeeding. Trained staff observed breastfeeds, encouraged and supported the mothers and checked the babies' positioning and attachment. During these days, the mean weight gain was 9.4g/kg/day on breast milk alone, which is adequate for continued catch-up growth.

It was found that other mothers already using the technique were of great support and encouragement to new admissions. Mothers also needed regular updates from health and nutrition workers on their infant's progress. They needed reassurance that almost all mothers can produce adequate amounts of milk, even if they themselves are underweight.

*Each packet of F100 was diluted with 2.8 litres of water to make it 70 kcal/100 ml.

Summarised from a report by Mary Corbett in Field Exchange 9, March 2000

How to increase or re-establish breastfeeding

A mother may produce less milk if:

- the infant has not been suckling frequently or strongly enough
- she has been ill or severely malnourished
- she is unable to respond to her infant.

To increase her breastmilk a mother needs:

- food and care for herself
- her infant to suckle frequently and for as long as possible at each feed (see Part 6, Relactation).

For a description of how to help a mother relactate and how to use the supplementary suckling technique (see Part 6.3). In summary:

The infant's suckling stimulates the breast to produce milk, so the more s/he suckles, the more breastmilk is likely to be produced. Infants suckle more strongly if offered the breast before supplementary milk feeds are given. If they suckle only after another milk feed, when they are not hungry, they suckle less, and do not stimulate the breasts sufficiently to increase milk production. Frequent suckling should be encouraged as occasional suckling is also less effective.

Supplementary suckling can be used to re-establish or begin breastfeeding in malnourished infants. Mothers need strong reassurance that supplementary suckling works, and that they will produce enough milk to make their babies better.

It is often helpful to record the number of breastfeeds by day and night. This shows everyone that breastfeeding is an important part of treatment. If you record the amounts of supplementary milk feeds, also record the numbers of breastfeeds, even though you cannot measure the exact intake.

Case Study: Supplementary suckling in malnourished infants under six months in Burundi

Infants under 6 months of age are admitted to the TFC if they do not have enough strength to suckle, or if the mother's milk supply is clearly decreased. The two criteria are often found together because mothers often experience problems with breastfeeding in a crisis situation, perhaps because of psychological trauma or intensive stress, and also, because of fatigue and lack of food in quantity or quality.
To allow the infants to recover, we use the supplementary suckling method, which gives them the quantity of milk they need and, at the same time, stimulates lactation. The mothers also receive two extra meals of porridge and a minimum of 2 litres of fluid to drink per day.

At first this protocol seems strange to the mothers, but with health education, they accept it. The main problem is that sometimes, they "forget" to breastfeed the child before the supplementary suckling. So, health workers need to be very alert. They need as much attention as other children in the TFC and in planning as many staff are allocated to care for infants under 6 months as for older infants. These staff duties must be protected and maintained, even if the overall number of admissions to the TFC increases.

Infants under 6 months are particularly vulnerable to infections, and are cared for in a specially designated area to protect them.

Source: Florence Le Guelinel, ACF Burundi, 2003

How to re-establish breastfeeding

If the baby is not breastfeeding at all, start initial re-feeding using milk feeds (see Annex 13) and ask the mother to offer her breast, to assess how well the infant can suckle.

If the infant can suckle:

- Make sure that the baby is well attached to the breast and able to suckle effectively.

- Actively encourage the mother to breastfeed about half to one hour **before** giving the supplementary feed, because this is when the baby is most likely to be hungry and willing to suckle. It is a good idea to tell a mother to breastfeed at an exact time before giving a supplementary milk feed (an hour is a convenient period to monitor). This helps to ensure that breastfeeding is remembered and carried out.
- The mother should try to keep the baby suckling for at least 20 minutes every 3 hours, longer if the infant is willing. Explain the value of the energy-rich hind milk that comes at the end of a breastfeed.
- Encourage the mother to breastfeed the infant at any other time that s/he is willing between therapeutic milk feeds.
- Record the breastfeeds both day and night and if possible their duration (as well as recording supplementary milk feeds).

Continue to give the full volume of supplementary milk feeds as indicated in Annex 16. Give them by supplementer if possible, (otherwise by cup, dropper, syringe or naso-gastric tube). Keep the volume the same according to the infant's initial weight.

IFE 2/37

Mother using breastfeeding supplementer IFE 2/37

If the infant is NOT able to suckle or is suckling weakly:

If the mother is willing, encourage her to start expressing her milk (see Annex 3).

- Show her how to hand express all that she can at least 8-12 times a day. This will stimulate her breasts to make more milk.
- Measure the expressed milk and feed it to the baby by naso-gastric tube, syringe, dropper or cup, in the same way as the supplementary milk. Give the expressed breastmilk in addition to the full amount of supplementary milk.
- Build the mother's confidence by praising her for her patience and persistence and for whatever amount of breastmilk she expresses. Even a small amount of breastmilk is good for the infant.
- Encourage the mother to offer her breast to the baby from time to time. Tell her to let the baby breastfeed whenever she or he shows an interest in suckling.
- When the baby starts to suckle, give some or all of the supplementary feeds by supplementary suckling technique if possible.
- If the mother is reluctant to express her milk but her baby is too weak to suckle effectively, use supplementary suckling with the cup held as high as the baby's mouth. The milk should drip slowly into the baby's mouth, even with very weak suckling. As the baby gains strength, lower the cup.

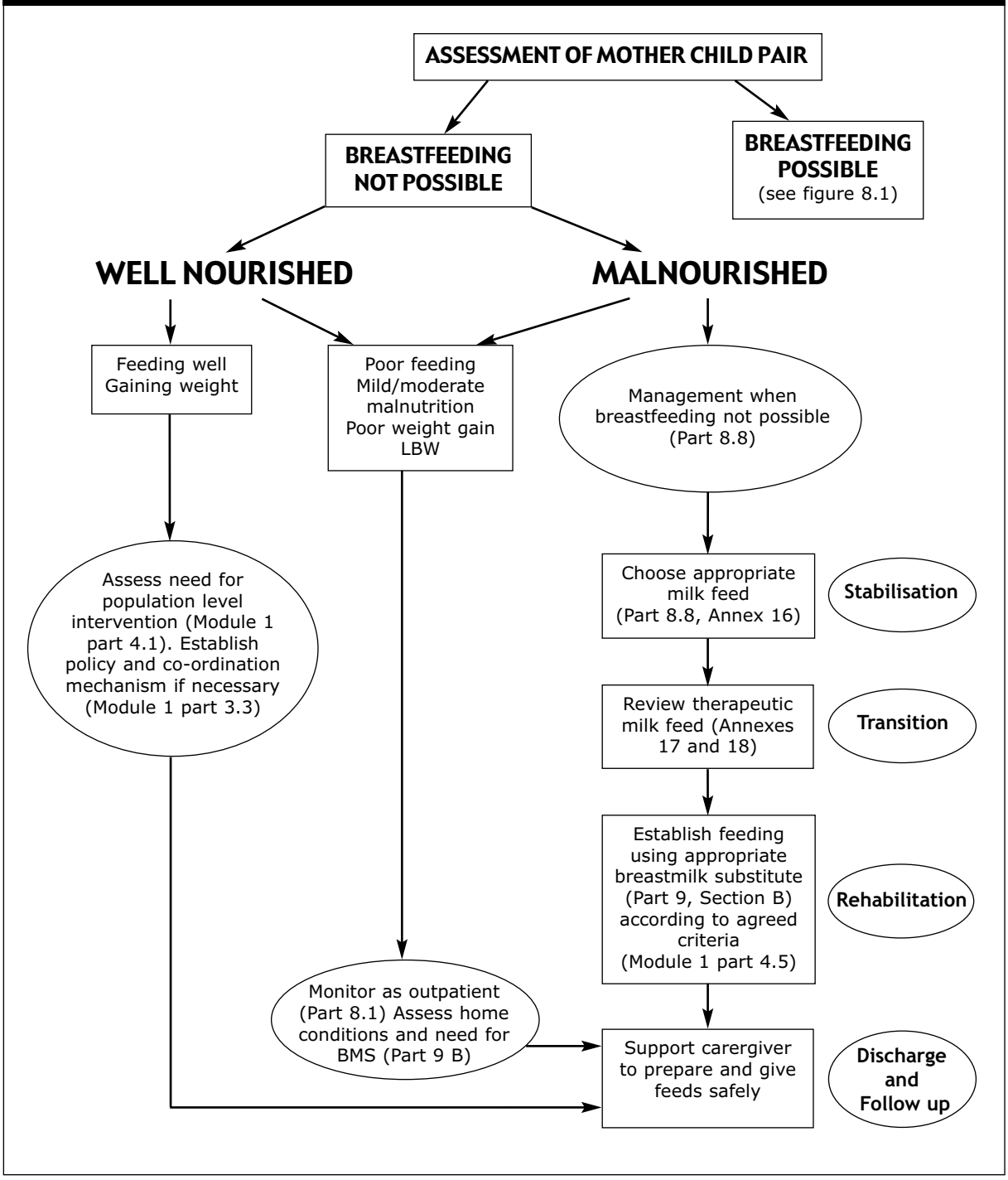
If a mother is giving her baby Kangaroo Care (see Part 5.2):

The mother can keep the baby in place while she expresses her milk and cup feeds him or her. Skin-to-skin contact may help to increase the amount of milk she can produce. She may need to loosen her clothes and move the baby to one side.

8.8 Management when breastfeeding is not possible

Management follows the same principles as outlined in sections above. Specific management for this group is noted below. Part 9 is also relevant to the care and management of infants who are not breastfed.

Figure 8.2



Stabilisation

1. Choose the milk feed (see Annex 13).
   - F75 is the most suitable milk for non-breastfed infants during this phase.
   - If F75 is not available, then diluted F100 (F100-D) or infant formula are safe options to use.

2. Calculate the appropriate volume according to the infant's weight on admission (see table in Annex 16).
   - Give the full volume for 24 hours by cup, dropper, syringe or naso-gastric tube, in 3-hourly or 2-hourly feeds according to the infant's condition.

3. Continue to give the full volume of milk until the infant shows signs of recovery:
   - any oedema has disappeared
   - his/her appetite has improved.

No weight gain is expected at this time.

Transition

This phase should continue for 4-5 days.
When the infant shows the signs of recovery listed above:

- Switch feeds from F75 to F100-D or infant formula to allow catch-up growth.
- Increase the volume by 30%, as shown in table in Annex 17.
- Monitor the infant's weight. Weigh daily and use appropriate scales (see Part 8.6).

Rehabilitation

- After 4-5 days, increase the volume of milk feed by another 30%, as in Annex 18.
- If the infant is still hungry after having taken all the feed, give more. Increase the feeds by 5 ml per feed.
- Continue until catch-up growth is completed, and the infant weighs 80 –85% of the median weight-for height NCHS/WHO standards.
- If necessary (e.g. if an infant is being fed F100-D during rehabilitation) change to an adequate alternative, such as infant formula (commercial or home modified) fed by cup in preparation for discharge.

How to change from therapeutic feeds to infant formula

Either replace one feed of F100-D each day with a feed of infant formula to see if the infant accepts the change; then each day replace one more feed with infant formula.
Or add an increasing proportion of infant formula to the therapeutic feed so the taste changes gradually.

Show the infant's caregiver how to prepare feeds (see Part 9.8) and how to clean utensils carefully (see Part 9.7). The caregiver should give the feeds under supervision while the infant is still in the TFC, until the staff can see that she is confident and can prepare and give feeds correctly.

Artificial feeding should be in accordance with locally Agreed Criteria (see Module 1, part 4.5) and needs to be monitored and supervised. Details about artificial feeding options are given in Part 9, Section B.

8.9 Feeding and caring for mothers

Feeding mothers

A mother of a severely malnourished infant needs to be fed so she can care well for her child (see Part 5.5). She needs high-quality food containing a minimum of 2500 kcal/day, adequate fluids (an extra litre per day), and enough micronutrients, to ensure that her milk contains sufficient nutrients for her infant (see Part 2.1).

If a mother is severely malnourished, feed her according to the established guidelines described in Reference Document 2, (WHO 1999), pp 37-9 in Part 8.11.

> *Mothers' and health workers' confidence in breastfeeding is often shaken when they see a malnourished infant attached to the breast. If there is a rush to rehabilitate the infant, forgetting about the mother, then there is a risk of discharging a healthy infant with no secure supply of food.*
>
> Mary Corbett, Field Exchange 9, March 2000

Listening to mothers

Mothers in emergency situations are often traumatised and depressed, and they may not interact with or respond to their babies. At this stage, technical messages about infant feeding are not useful. It is helpful to get mothers to talk about their experiences and their feelings and doing so can help to resolve their problems. Then they may be able to respond better to their babies again.

- Listen to a mother throughout this process, learn her difficulties, and help her to talk about them, including any that affect her ability to breastfeed and to care for her child.
- Encourage women to listen to each other in support groups (Part 5.6).
- Usually the best help comes from other women, of the same culture and social standing, who have had a malnourished infant that responded well to treatment. The regimen in the TFC must not be too strict.

Case study: Psychosocial factors affecting infant and young child feeding

In a TFC in Kabul, many admissions were of infants under six months of age. Several factors were found to interfere with feeding and contribute to malnutrition in these infants. These factors may also be important in other situations.

Cultural factors – many mothers do not start breastfeeding immediately. They give other fluids to the infant instead. Some feed their infants only 2-3 times a day. Breastfeeding and adequate breastmilk production is thus not well established.

Poor education and support of mothers – women reside with their husband's family and often have poor/conflict relationships with their mothers-in-law. A first time mother is offered little advice and support for breastfeeding her new infant. If she has difficulty, she reports that she "does not have enough milk" which seems quite acceptable in Kabul. Instead of supporting the mother, the family buys tins of milk to give to the infant.

Mental health of women – many mothers have signs of depression and anxiety, and, as a result, have difficulties relating to their babies. They do not sleep well; they have nightmares and repeated worries. An association between maternal depression and infant malnutrition is well documented, and in Kabul it is very clearly seen.

Interaction with newborn infants. In many communities it is not felt necessary to stimulate young infants by talking, playing, and socialising with family members. Infants are swaddled (wrapped up tightly), covered and left on their own. Poor development and malnutrition may result.

Source (adapted from): Cécile Bizouerne, field psychologist, ACF Afghanistan, 2003

Keeping mothers and infants together

Separating mothers from their children endangers breastfeeding, care and warmth for the infant, feeding and care of other children, and increases mothers' anxieties.

So keep mothers and infants together. This can be in a breastfeeding corner (see Annex 14). The treatment of these infants is different from that of other children, and it is easier to look after them together. The arrangement also helps to provide the mothers with privacy and security.

If there are other children, keep them with the mother too if possible (see Part 5.5). Keeping mothers and infants together does not cause cross infection.
Mothers and infants can be kept together more easily if they have beds or mats to sleep on together, instead of putting the infants in cots.

Case study: Supporting young mothers of malnourished or low birth weight infants in Bangladesh

We have found that very young and malnourished mothers giving birth to very low birth weight infants can have difficulty breastfeeding and often feel not able to feed regularly enough. Mothers attending the TFC often do not feed the child at night. They may also share their own rations, needed for their own weight gain, therefore any catch up is difficult to attain. Motivating mothers in child development issues can be difficult when the mothers themselves are often thoroughly depressed and undernourished.

To meet the needs of young mothers, our TFC now has a separate breastfeeding corner, which provides privacy for young mothers to feed their infants. More experienced mothers are encouraged to support those who are not comfortable with feeding practices, in this more relaxed environment. This has been a welcome and successful initiative in allowing younger mothers to overcome their shyness and lack of confidence, especially within the very conservative refugee community with whom we work.

Source: Orla O'Neill, Concern Bangladesh, 2003

8.10 Discharge and follow-up

Discharge

Any in-patient stay in a TFC or hospital should be as short as possible to avoid cross infection and defaulting. So discharge mothers and babies as soon as it is safe to do so.

Breastfeeding infants can be discharged from a TFC when the infant has gained a minimum of 20 grams per day on breastfeeding alone for 5 days, regardless of the total body weight or weight-for-height.

Artificially fed infants can be discharged when:

- The infant has changed over completely to adequate artificial feeding.
- The caregiver has been trained to give the feeds correctly.
- Weight is 85% median weight-for-height NCHS/WHO standard, and has remained at this level for 3 days. However if the follow up service is very good, infants can be discharged at 80% of median weight-for-height.

Follow-up

To ensure that infants discharged from an inpatient TFC or hospital care continue to maintain weight gain and nutritional status they should be followed up:

- at least weekly and, ideally, more frequently initially after discharge, and
- for a minimum of 3 months.

This may be as out patients or at a Supplementary Feeding Programme (SFP), at a breastfeeding corner or in the community.
At an SFP, mothers should receive a ration for themselves. Older infants should also receive a ration - in this case, the lactating mother will be expected to eat at least some of the infant's ration themselves, to maintain their own nutritional status while breastfeeding.

At each follow-up visit:

- Monitor the infant's weight gain and health.
  The very rapid catch-up growth of the rehabilitation phase will slow to a more usual rate after discharge (see Part 8.5).
- Give Supportive care to the mother or wet nurse, or other caregiver (see Part 2).
- Give Basic Aid for breastfeeding if needed, e.g. if there are doubts about milk production (see Part 4.2)
- Monitor the supply and use of infant formula, if used.

In addition, arrange community follow-up to maintain the mother, wet nurse, or other caregiver's confidence.

8.11 References

1. *Management of the Child with a Serious Infection or Severe Malnutrition: IMCI guidelines for care at the first-referral level in developing countries* (WHO/FCH/CAH/00.1).
2. *Management of severe malnutrition: a manual for physicians and other senior health workers* (WHO, 1999).

The guidelines for dealing with the medical complications of malnutrition given in these two manuals can be used for infants aged less than 6 months.

Other manuals that provide valuable information are:

3. *Assessment and treatment of Malnutrition in Emergency Situations. A Manual of Therapeutic Care and Planning for a Nutritional Programme*. Claudine Prudhon. Action Contra la Faim/Action Against Hunger 2002.
4. *Nutrition Guidelines*. Medecins Sans Frontieres 1995, currently under revision.

A listing of current WHO/TALC materials (July 2004) for managing severe malnutrition is given in Annex 15.

8.12 Teaching Tips

Trainers can use the following exercise to evaluate the training on this chapter.

Case Study: Initial re-feeding of a malnourished infant

Muhonja is three months old and weighs 3.2 kg. She arrives with her mother, who has been giving some breastfeeds and some dilute infant formula, with occasional drinks of water and sometimes tea in a feeding bottle. Muhonja is weak and drowsy, and her body feels cold, even though her mother has her wrapped in two blankets. She suckles weakly when put to the breast. She looks thin but has no oedema.

The doctor diagnoses severe malnutrition, hypoglycaemia and hypothermia, and treats her with 50 ml of 10% glucose given by naso-gastric tube. Because Muhonja has both hypoglycaemia and hypothermia, the doctor suspects severe infection, and starts her on antibiotics.

Questions:

1. What additional immediate treatment is needed to treat Muhonja's hypoglycaemia?
2. What immediate treatment does she need to warm her?
3. How should she be fed during the first 24-48 hours after admission? How much and how often?
4. If Muhonja's mother can express 10 ml of breastmilk for a feed, what should be given at that feed?
5. What else can Muhonja's mother do to help?

Answers:

1. Start feeding her immediately with 40ml therapeutic milk (suggest F75 or, if not available, diluted F100). This is the amount recommended for a child of her weight, who is very ill and who cannot tolerate feeds more often than 2 hourly. This means she gets 12 feeds per day (see table in Annex 15). If she is too drowsy and weak to take feeds orally, give by naso-gastric tube. Feeding is important for treating both hypothermia and hypoglycaemia.
2. Remove all her clothing except a nappy/pants and cap. Give Kangaroo Care (see Part 5.2) by putting her in skin-to-skin contact with her mother, inside her mother's clothing. Keep them in skin-to-skin contact day and night.
3. She should breastfeed, or have expressed breastmilk at least 2 hourly; after breastfeeding she should be given the therapeutic milk either by supplementer or cup.
4. 10 ml breastmilk followed by 40ml therapeutic milk. Continue feeding therapeutic milk every 2 hours (12 feeds a day).
5. The mother can stay with her child and feed her by cup. She can keep the baby warm through Kangaroo Care. She can tell staff if her baby becomes limp and drowsy again, or if her breathing becomes fast. She can record the baby's urine and stools, and any vomiting. As Muhonja begins to recover, the mother can offer the breast very frequently to build up her milk production. She can begin to play with her to stimulate her.

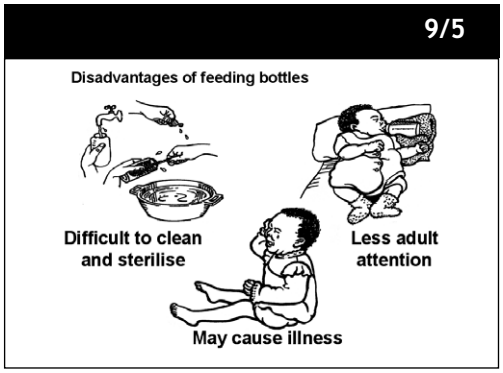
9 When infants are not breastfed*

Breastfeeding is the best way to feed babies. Part 9 deals with infant feeding if breastfeeding is not possible. This is sometimes called artificial feeding or replacement feeding The foods for artificial feeding are called breast milk substitutes[1] (BMS).

There are increased risks linked to artificial feeding (see Module 1). In most emergency settings these risks are further increased because necessary supplies may be unreliable, and hygiene can be particularly difficult to maintain.

In any situation, particularly in emergencies, the recommended method of giving artificial feeds is by cup rather than by bottle. This is because using bottles increases the risk of disease and poor care. Even in developed countries under good conditions, the incidence of diarrhoea and other diseases, and of hospitalisation, is increased when infants are bottle-fed.

> *The use of **bottles and teats** should be actively discouraged in emergency contexts, due to the high risk of contamination and difficulty with cleaning.*
>
> 6.3.5 Operational Guidance, v2.1, February 2007



However, many emergencies occur in areas and among cultures where many women have been bottle feeding before the onset of the emergency. In these situations it may not be practical to expect mothers to switch from bottle to cup immediately. So Part 9 provides advice about how to keep bottles safe and clean and how to care for children who are bottle fed.

*For this reprint, key references have been added in various sections of this chapter.
[1] Breastmilk substitutes (BMS): any food being marketed or otherwise represented as a partial or total replacement for breastmilk, whether or not suitable for that purpose.

Part 9 is divided into three sections:

A Infant feeding interventions among populations
B Supporting caregivers to feed infants who are not breastfed
C Feeding infants in institutions

A Infant feeding interventions among populations

There are emergency situations where support of artificial feeding for some of a population is required. Key aspects of supporting safe infant feeding at a population level have been dealt with in Module 1. These include key policies and guidelines (Part 3), assessment and analysis, co-ordination (Part 4), policy gaps and establishing common policies (Part 3.3). Agreed criteria, conditions and management of artificial feeding is dealt with in Part 4.5 and 4.6, while decisions where HIV is prevalent are covered in Part 3.4.

The practicalities of devising and implementing an emergency programme, where some of the infants are artificially fed, requires considerable planning and resources.
The challenge of a population-based intervention is to create the conditions to support safe artificial feeding while, at the same time, supporting and protecting infants who are exclusively breastfed, or with the potential to exclusively breastfeed (e.g. new-borns, mixed feeders). Technical guidance on the support of Breastfeeding (Part 2.4), managing infants who are not breastfed (Section B), and the management of severe malnutrition in infants under six months (Part 8) should be used to guide staff training and programme activities.

This section deals with some additional considerations when managing artificial feeding at a population level. The main aim is to give priority to activities that help to prevent illnesses and deaths among infants and young children. Only those who have been trained in safe and appropriate artificial feeding in an emergency should do so.

9.1 Approach to supporting artificial feeding in a population

Any approach to support artificial feeding in a population should include:

- background information
- early assessment
- co-ordinated approach
- programme considerations
- calculating requirements
- monitoring
- surveillance.

Background information

Sources of information may include large-scale surveys, e.g. UNICEF Multiple Indicator Cluster Surveys (MICS), and data from the Ministry of Health and local and international agencies working in an area before the emergency.

Early assessment

Early assessment of how many women, infants and young children there are in a population and of infant feeding practices is essential (see Module 1, Part 4.1).

To estimate infant feeding needs at a population level you will need information on:

- population size
- number of infants aged under 6 months and 6-12 months
- proportion of infants artificially fed in each age group
- number of unaccompanied infants and young children
- number of pregnant and lactating women.

For an initial estimate of infant feeding practice, especially in the early stages of an emergency, refer to already-existing infant feeding data for the population (for example, DHS surveys).

If the proportion of artificially fed infants is not directly assessed, then initial requirements may be estimated from a initial basic assessment to guide immediate needs. A guide to calculating infant formula needs in the early stages of an emergency is given in Annex 4.

Co-ordinated approach

Early in an intervention, an agency or group of agencies should be designated to take responsibility for the co-ordination of infant and young child feeding activities (see Operational Guidance, section 3.1, v2.1, February 2007).

Programme considerations

Ultimately, programmes must enable any women who artificially feed to do so safely and correctly, any women who are supplementing breastfeeding with artificial feeds to be supported to breastfeed exclusively, and any lactating women to have access to breastfeeding counselling and support.

In devising a programme, you will need to:

- consider influences on infant feeding
- prevent threats to breastfeeding
- identify subgroups with special needs
- set realistic programme objectives
- prioritise infants under 6 months
- consider sensible danger limitation.

Influences on infant feeding

In an emergency situation, there are many factors that influence infant feeding practices and safety in addition to nutrition programme activities. These factors may include water and sanitation conditions, health facilities and traditional infant feeding practices. There are also factors related to the particular emergency. All these things will influence the decisions made on infant feeding activities and how successful or not they will be.

Prevent threats to breastfeeding

Well-meaning, but poorly considered, interventions (for example, a general distribution of baby bottles) may promote inappropriate infant feeding practices, and also increase the risks of infant illness and death. Giving infant formula to mothers of artificially fed infants, without giving items of the same value to breastfeeding mothers, may threaten breastfeeding. One option may be to use a voucher-exchange scheme, in which all registered mothers receive a voucher that can be exchanged for infant formula or a food ration of at least the same value.

Identify subgroups with special needs

During an emergency, there may be sub-groups of infants who need finding and given special support. These include infants in institutions, (e.g. orphanages), unaccompanied infants, and hospitalised infants without individual caregivers, (e.g. HIV and AIDS infants) (see Section C below on institutional feeding).

Set realistic programme objectives

Where some young infants are mixed feeders (i.e. breastfeeding and artificial feeding), one of the programme objectives may be to increase the proportion of exclusive breastfeeders. Another programme objective may be to achieve 100% exclusive breastfeeding rates in all new-borns. In both cases, infant formula requirements should decrease with time, if successful. Where a population are established artificial feeders, then increasing exclusive breastfeeding rates may take longer and artificial feeding requirements may not decrease quickly.

Prioritise infants under 6 months

Where some infants are artificially fed, the priority should be infants aged under 6 months because they are completely dependent on a milk based diet. The decision whether or not to provide infant formula to infants aged 6 – 12 months depends on the situation. Considerations may include pre-emergency feeding practices, infants' nutritional status (e.g. prevalence of anaemia), complementary foods available and emergency resources (e.g. are there sufficient in-country supplies to provide for older infants).

Case study: Assessment of needs of older infant – a pragmatic approach

Prior to the 2003 Iraq crisis, infants aged 6-12 months had received infant formula in the general food ration through the Food for Oil programme. Background health information indicated a high prevalence of iron deficiency anaemia. Commercial complementary foods had also been included in the pre-emergency ration but supplies had not been re-established. In the initial phase of the intervention, given this situation, it was considered appropriate to provide infants 6 – 12 months with infant formula during only the initial phase of the intervention, (i.e. the first six months), with a view to improving complementary feeding and the nutrition of these older infants in the short term, and protecting breastfeeding rates and phasing out formula supply in the longer term.

Source: SC UK report, Iraq, 2003

In a population where some of the infants under six months are not exclusively breastfed, therapeutic feeding centres and referral hospitals need to develop the capacity to manage young severely malnourished infants (see Part 8).

Sensible danger limitations

It may not be feasible to immediately implement recommended feeding practices in an emergency. For example, if a population are using bottles to artificially feed their infants, it may not be practical, nor acceptable to caregivers, to immediately change to feeding with cups and spoons. Instead, a bottle exchange scheme (swapping new, clean bottles in exchange for old ones), and individual advice on household sterilisation and bottle cleaning may be a more realistic approach. Then, focusing on reducing bottle feeding in mixed feeders, where there is a good chance to re-establish breastfeeding, may help to target resources where they probably will have the greatest impact.

Annex 6 includes an exercise for planning an infant feeding intervention, using a log frame to plan activities (allow one hour).

9.2 Requirements for artificial feeding

To manage artificial feeding in an emergency, we need to estimate requirements of:

- the amount of artificial formula needed
- other supplies, e.g cooking and feeding equipment
- staffing
- transportation and storage as well as availability/source of artificial feeds.

Estimating the amount of artificial formula

Calculating requirements for a large number if infants will depend on a number of factors. These include information on feeding practice from early needs assessment (see Part 9.1), whether the proportion of artificially fed infants is expected to decrease with time (as breastfeeding rates increase) and whether infants aged 6-12 months are given formula.

On average, an infant needs 3.5 kg of formula powder each month.
Annex 5 shows how to calculate the amount of formula an individual infant needs.

Other supplies

In an intervention to support artificial feeding, you will need:

- a safe and secure water source
- a designated preparation area (e.g. tent)
- a sufficient heat source (e.g. adequate fuel and area to boil water)
- preparation equipment
- feeding utensils.

Requirements will vary depending on the nature of the programme and whether the intervention involves:

- household based feeding support (see Section B below)
- central preparation of artificial feeds, (for example, when the camp is first set-up and individual facilities are not adequate and resources are limited), or
- designated preparation sites (e.g. Mother and Baby Tents in a camp).

Staffing

Adequate numbers of capable and trained, skilled staff are essential to support a programme.

Local capacity should be assessed early, (e.g. availability of UNICEF, WHO or MOH trained staff) as well as local training capacity, (e.g. established IBFAN training programme).

Targeted training (e.g. training breastfeeding counsellors on expert lactation support, and health and nutrition workers on all aspects of infant feeding practice), should be a core activity of any intervention.

Transportation and storage

In general, infant formula is most economical to transport in powdered form for reconstitution, rather than as liquid ready-to-feed formula. Ready-to-feed formula have been used where cheaper road transportation is possible, and/or where water supply and hygiene conditions are poor. (See Part 9.13 on storage).

Availability/source

The availability and source of supplies may be influenced by a number of factors (see Part 9.11).

In an emergency, donations of infant formula should not be accepted (see Operational Guidance, section 6.1, v2.1, February, 2007). You should report unsolicited donations or offers of donations to the co-ordinating agency for infant feeding.

9.3 Monitoring and surveillance

Any infant feeding intervention should have established goals, measurable objectives and activities that are monitored.
Annex 6 gives an exercise for planning activities for an intervention.

There are currently no reliable anthropometric indicators to assess malnutrition in an infant younger than 6 months. So this age group are often not included in nutrition surveys.
However, survey data on illness, death and infant feeding practices should be collected on infants under six months.
Using standard indicators in surveys makes it possible to compare findings with other surveys and pre-emergency information.

When infant formula is used, markets should be monitored to see whether the distributed formula is being sold ('spillover'), or whether prices of formulas change. This monitoring could be one of the tasks of community outreach workers.

The provisions of the International Code of Marketing of Breastmilk Substitutes apply in emergencies (see Module 1 Part 3.1 www.ibfan.org/English/resource.who/fullcode.html). Suspected violations of the Code, such as inappropriate distribution or unsolicited donations of infant formula, should be reported to the designated co-ordinating agency on infant feeding, or the competent national authority. (see Operational Guidance, Section 7 (Key Contacts), v2.1, February 2007).

B Supporting caregivers to feed infants who are not breastfed

For infants who are not breastfed, some form of milk is essential for at least the first six months. This milk must be a suitable breastmilk substitute (BMS). Infants under six months should be fed a milk diet only (See Part 1.4 on age appropriate feeding).

The supply of this milk must be reliable and uninterrupted.

Water, fuel, utensils and time will be all be needed to safely prepare artificial feeds.
From about 6 months of age, a child needs adequate complementary foods, but it is also useful if some kind of milk is part of the diet up to two years of age or more.

In order to reduce the dangers associated with artificial feeding, caregivers should know:

- what BMS to give
- how much and how often to feed BMS
- how to keep feeding utensils clean and safe
- how to prepare the feeds
- how to give the feeds.

Parts 9.4 – 9.9 give you the information you can use to assess artificial feeding in an infant. See Full Assessment Step 3, Part 9.10.

9.4 What breastmilk substitutes to give

Q: Ask participants to list suitable breast milk substitutes for infants aged under 6 months dependent on this milk alone.

Examples of suitable breastmilk substitutes:

- Infant formula made in accordance with the Codex Alimentarius standards.
- Home-prepared modified milk made with fresh animal milk, or powdered full cream milk or Ultra Heat
  Treated (UHT) milk. These milks must be diluted with water and sugar, and micronutrient supplements added.

All animal milk should be heated when used for feeding infants.
See Annex 7 for full details and preparation guidelines.

Q: Ask participants what they would give in the short term if suitable milks were not available.

Examples of unsuitable breastmilk substitutes:

Use these only when suitable milks are not available and then only temporarily. Replace with breastmilk or more suitable breastmilk substitutes as soon as possible.

- Home-prepared formula without any micronutrients added.
- Dried skimmed milk (DSM, or NFDM – non-fat dried milk) and other low fat milks.
  DSM needs substantial and precise modification with other ingredients – oil, sugar, minerals and vitamins – to meet the nutritional requirements of infants.

Milks that should never be used:

- Therapeutic milk products, such as F75 and F100. These are for use only in Therapeutic Feeding Centres and are not suitable breastmilk substitutes for household use.
- Unmodified animal milks for infants under six months.
- Sweetened condensed milk. This is unsuitable, as it contains too much sugar and insufficient fat, protein and other nutrients.
- Cereal gruels, water and watery drinks such as juices and teas. These are sometimes mistakenly given instead of milk feeds, but are nutritionally unsuitable. They should never be given to infants under six months of age, even as temporary supplements.

Q: Ask what foods and drinks other than milk are sometimes used to feed infants below 6 months?

→ Make a list on a flipchart of what participants report.
For each one, discuss if it is possible or unsuitable, and why, and mark it accordingly.
Below is a list of some foods and drinks that might be included in some areas.

Coconut milk	unsuitable
Dilute cereals, gruels	unsuitable
Flavoured milks	unsuitable
Juices	unsuitable
Sodas	unsuitable
Sugar drinks	unsuitable
Teas	unsuitable

9.5 How much to give and how often to feed with BMS

Table A in Annex 5, shows how much prepared formula (whether commercial or home-prepared) an infant needs at different times in the first six months. Table B shows how often an infant should feed depending on the age and weight.

How to calculate an infant's daily requirements of breast milk substitute

This calculation uses infant formula as an example.

The amounts of prepared formula needed are based on average daily intakes of infants according to age and weight (see Annex 5).

Young infants should be fed approximately every 3 hours (that is 8 feeds in 24 hours). This can be reduced to 4 hourly feeds (that is 6 feeds in 24 hours) by the age of 3 months.

Exercise to calculate an infant's daily feed volumes

Ask participants to calculate the volume of milk per feed for a 1 month old infant who weighs 3 kg.

Answer guide

Infant´s weight = 3kg
Volume of milk required per day = 150ml x 3 = 450mls per day
Amount per feed = 450ml divided by 8 feeds = 56mls per feed

= 8 feeds x 60 mls*

**Amounts rounded for ease of measurement and therefore approximate.*

Health workers can help a caregiver to calculate from Table B in Annex 5 and from her infant's age or weight:

- how much formula the infant needs each day
- how many feeds the infant needs each day (including at night)
- how much formula the infant needs at each feed.

Write down the quantities for her, or draw symbols for the numbers of feeds and the amounts of ingredients.

9.6 Feeding the non-breast-fed child 6 – 24 months of age

The feeding needs of the non-breastfed infant over six months of age will depend on whether infant formula and animal milk products are available or not, and whether other animal foods are available.

Q: Ask what milks can be used to feed infants 6 -24 months of age, and what milks are unsuitable?

➔ Make a list on a flipchart of what participants report.
For each one, discuss if it is possible or unsuitable, and why, and mark it accordingly.
Below is a list of some foods and drinks that might be included in some areas.

Acceptable milk sources for children aged 6-24 months:

- Full cream milk, including goat, buffalo, cow, sheep, camel milk, Ultra High Temperature (UHT)
- Evaporated milk (reconstituted)
- Fermented milk
- Expressed breast milk (heat-treated if HIV positive).

The following milks are unsuitable as sources of nutrients:

- Condensed milk
- Skimmed and semi-skimmed milk (semi-skimmed milks may be acceptable after 12 months)
- Coffee creamer
- Soy milk (unless it is a soy-based infant formula).

Drinks with low nutrient value, such as tea, coffee and sugary drinks such as soda should be avoided.
Juices should be limited to <250ml per day, to make sure that they do not replace more nutrient dense foods.

Q: Ask how much milk does a child 6 –24 months of age need?

If adequate amounts of other animal source foods are eaten regularly, the amount of milk needed ranges from 200-400ml/d.
Otherwise, the amount of milk needed ranges from 300-500ml/d.

Non-breastfed infants over six months also need additional fluids to drink.
They need at least 400-500ml/d of additional fluids (in addition to water contained in foods) in a temperate climate, and 800-1000ml per day in a hot climate.
Plain, clean (boiled, if necessary) water should be offered several times a day.

Diets that do not provide animal source foods regularly cannot meet the nutrient requirements of this age-group unless fortified products or nutrient supplements are used.

If milk and other animal source foods are not eaten regularly, both grains and legumes should be eaten daily to ensure adequate protein quality (see Annex 12). Rich food sources of micronutrients will be needed to meet the needs of the child.

The *meal frequency* will depend on the energy density of the foods, the variety available and the usual amounts that the infant eats at each meal. Meals should be given 4-5 times per day, with additional nutritious snacks 1-2 times per day (see Annex 12).

> *Procurement should be managed so that infant formula supply is always adequate and continued for as long as the targeted infants need it – until breastfeeding is re-established or until at least 6 months of age, and formula or some other source of milk and/or animal source food after that during the complementary feeding period (6-24 months of age).*
>
> Operational Guidance 6.3.4, v2.1, February 2007

9.7 How to keep feeding utensils clean and safe

All utensils (cups, spoons, measures) must be properly cleaned to ensure that feeds are prepared as safely as possible.

Q: Ask participants how to clean and store feeding utensils.

Check that the following points are covered in the answers:

- After use, wash utensils thoroughly first in cold water and then in hot soapy water. This needs to be done immediately, before milk has hardened and stuck to the surface, making a breeding place for germs from which it is difficult to remove them.
- Store the clean utensils in a clean dry container with lid or cover with a clean cloth until the next time they are used.

Cleaning a cup

A cup must be washed and scrubbed in hot soapy water each time it is used. If possible, dip the cup into boiling water or pour boiling water over it just before use. Boiling is not essential for open cups.

Cleaning a feeding bottle

- Always sterilise bottles and teats before using for the first time (see box on sterilisation).
- Then, every time after using the bottle, it must be cleaned inside in all corners with a bottle brush (a long thin brush with bristles all round that reaches the bottom of the bottle).
- Bottles and teats must then be *sterilised*. Not doing so increases the risk of diarrhoea and other illness, particularly in the circumstances of most emergencies, where hygiene and sanitation conditions are typically poor.

Two methods of sterilising equipment

Disinfection

Items such as bottles and accessories can be chemically disinfected using sodium hypochlorite (bleach) solution (diluting 15 ml 1% sodium hypochlorite in 1 litre of water) that is prepared freshly each day. Other products should be prepared according to the manufacturer´s instructions.

Immerse equipment completely for one hour in the disinfectant solution. The preparation of disinfectant solutions should be checked regularly.

The disinfectant solution should be thrown away at the end of every day.

Boiling (moist heat)

Place the items to be sterilised in a large pan.
Cover bottles and teats with boiling water – make sure the bottles are filled with water and completely covered with water.
Bring to the boil and continue a rolling boil for 5 minutes – this is where the water is bubbling continuously.
Allow to cool in the water, covered by a sterilised lid.

After sterilisation, the equipment must be dried properly, by draining.
After drying the equipment must be protected from contamination. Bottles should be left upside down on sterilised draining stands and ideally sterile cloths can be draped over smaller equipment. Cloths should not be used for drying due to the risk of contamination.

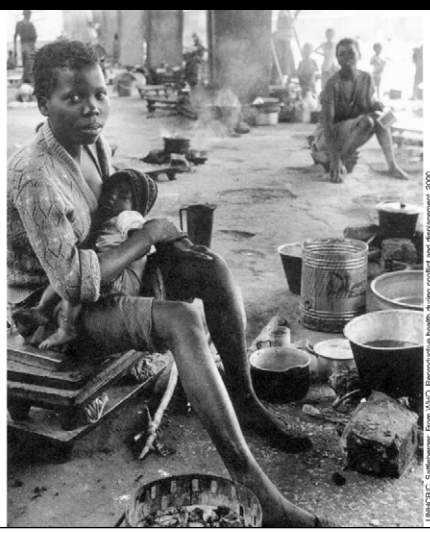
Other sterilisation methods, e.g. autoclaving, using an oven or terminal heating are more likely to be used in large facilities, e.g. in hospitals or orphanages (see Annex 10).

9.8 Preparing and storing feeds

The best way to check that a caregiver can prepare feeds properly, is to show her how to prepare a feed and then watch the her do the same wherever she lives.

IFE 2/32

"Household" conditions when there is no house **IFE 2/32**



When preparing feeds, always check the instructions on the label of a commercial formula as different brands may vary.
The methods of preparation are the same for home-modified formula. However, details of ingredients, measuring and mixing may differ.

If a cup is used to feed the infant, you will need to prepare and calibrate a measure for water. You can do this by:

- Getting a measuring jug for 60, 120, and 180 ml (if not available, use a feeding bottle).
- Using your measure, put 60, 120, or 180 ml of water into a cup, and make a scratch on the side. The caregiver will use this cup to measure amounts of water in the future and to feed the infant.

As the infant grows, so the amount of milk to be prepared will increase.

Ten steps for safe preparation of a breastmilk substitute feed

Q: Write the following 10 steps up on a flip chart / transparency and ask participants to describe what they would tell or show mothers for each step.

1. Wash hands
2. Keep it clean
3. Check the date
4. Boil it
5. Measure it
6. Mix it up
7. Test the temperature
8. Store it
9. Use it or lose it
10. Finish up

Then ask them to look at the table in Annex 9 for a guide to each step.

9.9 Helping the caregiver use breastmilk substitutes safely

UNICEF/95-0545/R. LEMOYNE

A Bosnian refugee's hand rests protectively on her sleeping baby. She has covered the feeding bottle with tape, perhaps also considering this protective. Supportive, non-critical listening and learning will tell the health worker whether the mother is boiling the bottle before each use, a more important protection.

To help the caregiver use breastmilk substitutes safely, the health or nutrition worker needs to:

- Show the caregiver how to clean and sterilise utensils and prepare feeds.
- Watch the caregiver cleaning utensils and preparing feeds using her own utensils and, ideally, where she will normally prepare the feeds.
- Give clear instruction in the caregiver's own language (spoken and, where appropriate, written or using pictures).
- Give instruction only to the caregiver who needs to give the artificial feeds[2].
- Give a clear explanation of the risks of using infant formula.

> *Use of infant formula by an individual caregiver should always be linked to education, one-to-one demonstrations and practical training about safe preparation, and to follow-up at the distribution site and at home by skilled health workers. Follow-up should include regular monitoring of infant weight at the time of distribution (no less than twice a month).*
>
> Operational Guidance 6.2.3, v2.1, February 2007

Points to discuss with the caregiver

- The best type of milk for the infant. You will need to consider its nutrient value, the cost and the reliability of supply as well as any disadvantages.
- The resources the caregiver will need, including extra fuel, water and utensils.
- The time it will take to prepare feeds. If no refrigerator is available, the infant will need a freshly prepared feed eight times a day at first, and at least six times a day after s/he weighs about five kg.
- How to sterilise water by bringing it to a rolling boil.
- How to prepare fresh feeds for the infant at night. The caregiver may be able to measure milk and boiled water separately during daylight, and then mix them as needed without much light.
- Explain the advantages of cup feeding and how to cup feed (see Annex 2 and IFE 9.6). This will help caregivers and others in the community understand that cup feeding is safer than bottle feeding, and that it is less work to clean a cup.
  - If suitable open plastic cups are available as a supply item, offer to exchange one for any feeding bottle, and if the cup becomes scratched, to replace it.
  - If families insist on using feeding bottles, discuss the extra precautions needed to clean and sterilise them and the need for extra fuel and water.
- Discuss why it is important to hold the baby and interact with him or her throughout each feed, to stimulate his/her development.

Temporary use of breastmilk substitutes

Infants may need artificial supplements temporarily, usually as part of Further Help (see Part 5.1) for breastfeeding, in the following situations:

- when their mothers are ill or severely malnourished
- while their mothers are recovering and the breastmilk supply is built up again
- while relactation is started
- if they have become used to supplements, while exclusive breastfeeding is re-established
- when they are ill and unable to suckle directly from the breast, or
- if their mother has a breast condition which makes suckling difficult, while the condition is being treated.

The same principles about the choice of artificial feed and its preparation should be applied as when an infant is completely artificially fed, unless the infant is severely malnourished (see Part 8).

However there are some differences:

- Use of a less suitable breastmilk substitute (see Part 9.4) may be less of a nutritional risk, if it is used for only a short time and if partial breastfeeding continues or restarts quickly, than if the formula is the infant's only food over a long time. The ideal nutritional composition of breastmilk helps to overcome the deficiencies of the artificial feed.
- Cup feeding is more important when it is expected that breastfeeding will restart because the use of a feeding bottle may interfere with suckling.
- It is more complicated to calculate of quantities of formula needed if an infant is also having breastmilk.

[2] In accordance with the International Code of Marketing of Breastmilk Substitutes (Module 1 pp 42-44).

Key references

Guidelines for the safe preparation, storage and handling of powdered infant formula
http://www.who.int/entity/foodsafety/publications/micro/pif_guidelines.pdf

How to Prepare Formula for Cup-Feeding at Home
http://www.who.int/entity/foodsafety/publications/micro/PIF_Cup_en.pdf

How to Prepare Formula for Bottle-Feeding at Home
http://www.who.int/entity/foodsafety/publications/micro/PIF_Bottle_en.pdf

9.10 Full Assessment Step 3: Observing artificial feeding

Full Assessment Step 3 (see Part 3.3 for Steps 1 and 2) first considers whether the household has the resources necessary for storage and preparation, and has a reliable supply of the selected breastmilk substitute. Without these resources, artificial feeding cannot be adequately carried out even if caregivers are well informed and experienced.

IFE 2/33

Full Assessment Step 3: Observing artificial feeding **IFE 2/33**

What resources are available in the household?

Breastmilk substitute
___Suitable breastmilk substitute (or ingredients and recipe)
___Expiry date clear, not past
___Instructions in user's own language
___Household member able to read instructions
___Supply assured until need no longer exists.

Storage
___Safe storage for ingredients, feeds
___Water boiled (special clean container, cover)
___Refrigeration available (if feeds made in advance).

Preparation faciliites
___Adequate fuel for preparation
___Adequate drinking water for preparation
___Adequate other water, soap for utensils, hands
___Clean surface, (clean cloth to cover utensils)
___Means of measuring milk and water (not bottle).

Extra time
___Time to prepare 6-8 fresh feeds/day.

Full Assessment Step 3 next looks at **how the caregiver uses household resources** to prepare, give, and complete an age-appropriate feed.

IFE 2/34

Full Assessment Step 3: Observing artificial feeding **IFE 2/34**

How does the caregiver manage the feeding?

Preparation
___Caregiver washes hands
___Cup washed with soap and water
___Bottle and teat washed and boiled before this use
___Caregiver measures milk and water correctly.

Feeding technique
___Infant fed with cup, takes most of milk
___Infant fed with bottle, artificial teat
___Infant fed with another method: _____

Interaction and end
___Infant is held throughout feed
___Caregiver interacts lovingly during feed
___Infant finishes milk
___None of feed kept for giving to infant later.

Adequacy of milk feeds
___Correct number and amount of milk feeds for age or weight.

Age-appropriate feeding
___Under 6 months, only milk is given
___Over 6 months, milk and complementary foods are given.

Practice of FA Step 3: Observing artificial feeding (resources)

Using the form below, practice observing a caregiver's resources for artificial feeding. There are also a few questions that you may need to ask. However, the caregiver may tell you enough in response to an open question such as "How is the feeding going for you?"

It is best to give no advice or help during the observation (as with breastfeeding). You will be able to give help more effectively later.

What resources are available in the household?

Ask:
- What general supplies (water, fuel, soap etc) are the family getting?
- When will the next distribution provide more?
- Are there are difficulties in getting supplies?
- How much formula (or ingredients or feeds) is the family getting each month (or other dispensing interval)?
- For how many months is the family sure that the supply will be provided?

Look at:
- the storage facilities for ingredients for feeds
- the amounts of the general supplies remaining
- the labels on formula tins, for language and expiry date
- the caregiver's means of measuring water and milk.

You may make notes on the form if this does not make the caregiver uncomfortable.

Practice form: FA Step 3 - resources

What resources are available in the household?

Breastmilk substitute	___Breastmilk substitute (or ingredients and recipe provided is suitable for age ___Quantity used since last distribution is appropriate ___Quantity remaining is sufficient until next distribution ___Caregiver has no difficulty obtaining sufficient formula or other ingredients; assured to age 6 months at least ___Expiry date clearly marked, and not past ___Instructions written in user's own language ___Preparer or another household member is able to read label instructions.
Storage	___Safe storage/tightly closed containers used for ingredients ___Milk feeds prepared in advance only if refrigeration available ___Any drinking water boiled in advance is stored in special container (clean, with a cover).
Preparation facilities	___Adequate fuel is available for boiling water (and for boiling bottle and teat at each feed, if used) ___Adequate drinking water is available for preparing several feeds per day (at least 1 litre) ___Adequate other water and soap are available for washing utensils and hands ___Clean surface is available to put utensils on (and a clean cloth to cover them) ___Suitable means of measuring milk and water (if a feeding bottle,the top is cut off).
Extra caregiver time	___Time to prepare 6-8 fresh feeds per day, if no refrigeration.

Practice of FA Step 3: Observing artificial feeding (procedures)

Use the form below. It is best not to ask questions about anything observable, such as the washing of hands and utensils, the measuring of ingredients, or the feeding technique. As before, give no advice or help during the observation.

How does the caregiver manage the feeding?

Ask:
- How old is the infant?
- How much does s/he weigh?
- How many feeds do you give in a day and night?

Look at:
- how the caregiver prepares the feed, including washing hands and utensils, boiling water and utensils (if bottle used) and measuring ingredients
- how the caregiver gives the feed to the infant
- how the caregiver cleans up after the feed.

Practice form: FA Step 3 - procedures

How does the caregiver manage the feeding?

Preparation	___Caregiver washes hands ___Cup (or bottle and teat if used) covered, in clean place ___Bottle and teat (if used) are boiled just before the feed, ___Bottle and teat (if used) have been soaking in bleach, and are now rinsed with clean boiled water ___Water to prepare feed is brought to a rolling boil ___Caregiver measures proportions of milk and water correctly.
Feeding technique	___Infant is fed with cup, and takes most or all of the milk ___Infant is fed with feeding bottle ___Infant is fed with another method:
Interaction and end of feed	___Infant is held throughout the feed ___Caregiver interacts lovingly with the infant during the feed ___Infant finishes the milk feed ___None of this feed is kept for the infant to take later (Milk could be drunk by mother or older child).
Adequacy of milk feeds	___Number of feeds given per day appropriate to age or weight ___Amount given at each feed appropriate.
Age-appropriate feeding	___Under 6 months, only milk is given ___Over 6 months, milk and complementary foods are given.

Follow-up after Full Assessment Step 3

After completing Full Assessment Step 3, the health nutrition or community worker who made the visit first praises the caregiver for all that she is doing well.

She also:

- is supportive of the caregiver's efforts, and is not critical
- discusses any difficulties and helps her to think of ways to overcome them. This must include any difficulties in ensuring that the milk provided is used only for the infant
- explains again this infant's exact needs, number of feeds per day, amount of each feed and the risks of him/her not having the right amount
- shows the caregiver how to clean (and if necessary sterilize) utensils, and prepare and give the feeds more safely

- tries to gain the confidence of other family members or neighbours, and encourage them to help the caregiver
- arranges for further follow-up of the infant, both in the clinic, and at home with reassessment with FA Step 3 if necessary.

The health and nutrition worker may also report to the camp management in order to:

- inform them about the difficulties caregivers experience
- advocate for improved resources for preparation and storage
- ensure sustained supplies of milk and other ingredients for infants meeting the Agreed Criteria, and encourage compliance with the International Code of Marketing of Breastmilk Substitutes.

C Feeding infants in institutions

Sometimes in emergencies, groups of infants need feeding support. For example, this may occur where there are unaccompanied infants at a refugee camp or where NGOs are asked to support institutional care, e.g. orphanages.

The guidance given in this section is based on current recommendations[4] and shared field experiences[5] and aims to help workers to support groups of infants as safely and practically as possible.

Principles

In the first phase of an intervention to support institutional feeding, the priority is avoiding (or reducing) excess death and illness. It may not be feasible to immediately implement standard guidelines. Instead the focus should be on limiting any immediate risks associated with existing practices. Once an intervention is underway, then there may be more time and capacity to improve feeding practices.

Practicalities

To safely manage artificial feeding in an institution, you will need:

- A reliable source of appropriate feeds.
- A well organised facility in which there is:
  - a centralised production area
  - appropriate storage
  - a clean preparation area
  - areas for personnel to wash
  - correct preparation of the right amount of milk
  - correct methods of washing up.
- Safe feeding.
- Good infant care.
- Infection control.

9.11 Source of artificial feeds

For practical and nutritional purposes, infant formula is likely to be the most appropriate breastmilk substitute to use in institutional feeding.

Commercial infant formula products are usually:

- non-sterile powders
- sterile liquids (e.g. liquid concentrate, or ready-to-feed (RTF) formula).

Since powdered formula are not sterile, there is a risk that they might be contaminated with micro-organisms such as E sakazakii and Salmonella. Infants who may be particularly vulnerable to infection are low birth weight infants or infants born prematurely, and infants whose mothers are HIV positive. See Part 9.14 for preventative measures.

[4] Preparation of formula for infants: guidelines for healthcare facilities. The American Dietetic Association,1991.
[5] Orphanage experiences of MSF France in Khartoum, Sudan , OpenHeart Orphange, Malawi, and Red Cross Paediatric Hospital, South Africa.

The choice of which to use depends on resources (RTF is more expensive), availability (RTF may not be locally available), transportation and storage (RTF is much bulkier) and preparation facilities (RTF does not require reconstitution with water).

Where an institution had an established supply of breastmilk substitutes before the emergency, this may be the best source of artificial feeds. However, prepare plans and procedures for emergency provision of a alternative infant milk in case there are problems with the supply chain. This might include an emergency stock of infant formula, and/or an acceptable short-term milk replacement using locally available ingredients (see Annex 7).

A secure sustainable supply of infant formula needs to be made, in line with the provisions of the International Code (preferably generic).

9.12 Preparing larger quantities of feeds

When preparing individual feeds of formula follow the instructions on the particular product and use the scoop included in the pack or tin (see Annex 7).

When feeding large numbers of infants, it may be more practical to prepare the milk feeds in bigger amounts.

You can calculate the amounts of milk and water needed to prepare larger volumes. by multiplying up the scoop weight of the particular product. If the weight of formula powder in one scoop is not written on the tin, carefully weigh the amount of powder in one scoop, using an appropriate scale.

Exercise

The instructions on the label of Formula X say to add 1 level scoop of infant formula to 30 ml cooled, boiled water. The tin contains 450g of formula. One scoop contains 4.5g.

If 100 infants require a milk feed and the average feed volume is 150ml, how much formula and water will need to be mixed?

Answer Guide

Total volume of feed needed: 100 infants x 150ml = 15000ml = 15 litres of milk.

If 4.5 g formula makes (approximately) 30mls feed, so 450 g (1tin) formula makes 3 litres of feed.

So to make 15 litres (3 litres x 5) of feed, you need 5 tins of formula and 15 litres of water.

Add 5 tins of 450g to 15 litres of cooled boiled water.

Since the measured powdered formula is being added to 15 litres, more than 15 litres of milk will be prepared.

When reconstituting larger volumes of artificial milk, add the powder gradually and whisk between additions until all of the milk powder has been well dispersed.

9.13 Organising feed preparation

Centralised production area

A centralised production area for preparing and distributing artificial feeds and cleaning bottles and equipment (i.e. a milk room) is necessary. Ideally, this is a separate room or tent, or if this is not possible, a protected section of an area where there is no risk of contaminating the feed can be used.

Separate sections to organise within a milk room/area are storage, preparation, and wash-up areas.

Other considerations for locating a milk room should include physical separation from ill children and "soiled" areas (e.g. toilets or waste disposal), away from the traffic flow of personnel, and yet near where the milk will be given.

Preparation

Only water that has been sterilised through boiling (brought to a rolling boil) should be used to reconstitute powdered infant formula. Chemically softened water is not appropriate for using to prepare infant formula.

When preparing infant formula, an'aseptic technique' should be used to reduce the risk of contamination. This means reconstituting powdered formula or liquid concentrate with safe boiled water under hygienic conditions, and storing it in a clean container in a refrigerator, or using it immediately (see Storage below).

An aseptic technique includes having:

- Surfaces of floors, walls and ceilings made of material that can be easily cleaned.
- The preparation area cleaned, disinfected and tidied daily. Avoid dry cleaning (e.g. sweeping, dusting) during the day.
- Work surfaces cleaned with an antibacterial solution (e.g. 70% alcohol or specific sanitising agent) before and after each cycle of feed preparation.
- All non-disposable feeding utensils, such as bottles, cups, beakers, bottle rings, bottle teats and teat covers, sterilised before use (see box on sterilisation).
- Multiple use teats boiled before re-use and checked regularly for thinning or cracking.
- Disposable products, e.g. bottles and teats, sterile and ready to use.
- Good ventilation. Clean, dry air is important to reduce the risk of contamination from insects, dust and condensation. Try to avoid condensation that may be generated by boiling and steaming. While a ventilation system is ideal, this may not always be possible. Air currents from fans and open doors tend to lift dust, so try to position these away from key preparation areas.

Storage

Q Ask participants how the items below should be stored.

Show the table below to compare with the answers given.

Table 9.1 Guidance on storage times for infant formula

Item	Store	Length of time	Additional considerations
Unopened liquid and powdered infant formula	cool dry areas (0-30° celcius)	to expiry date	Rotate using a first-in, first-out inventory method. Throw away out-of-date formula.
Opened infant formula powder	cool dry area	If in original container, for up to four weeks	Note the manufacturers instructions. Label with the opening time and date.
Opened commercial liquid formula	refrigerator	Up to 48 hours	Covered in original container.
Prepared formula	refrigerator	See table 9.2 below	Store close to preparation area but outside it so that staff can get the feeds without having to enter the preparation area.

Ideally a refrigerator is used to store prepared milk and only prepared milk should be stored in the refrigerator.

Where there are limited or no refrigeration facilities, then artificial milks must be freshly prepared for each feed time and any surplus or leftover milk thrown away.

Prepared infant formula should be cooled to below 6 degrees Celsius (the usual temperature of a refrigerator) or to when the feed is cool to touch, within one hour following preparation.

Prepared infant formula removed from the refrigerator should be fed to the infant within 30 minutes of removal.

Table 9.2 gives the recommended keeping times for prepared formula feeds, but take into account the local temperature which may vary through the day – if the temperatures are high, then the safe keeping times of non-refrigerated formula will be reduced.

Table 9.2 Storage times for prepared infant formula

Formula	Use within
Prepared infant formula, unrefrigerated	1 hour*, ideally immediately
Prepared infant formula, refrigerated	24 hours
Formula remaining in bottle at end of bottle feeding	Throw away

*depends on ambient temperatures, may be shorter if temperatures higher.

Washing – up

If equipment is washed up in the same room as the feeds are prepared, then arrange to prepare feeds and wash up at different times. For example, once preparation has been completed for one feed period, the room and all utensils can be thoroughly cleaned ready for the next feed.

Washing up should be organised using a 1-2-3 system of wash-up, rinse and disinfect. All equipment and utensils should then be sterilised and stored to avoid contamination (see Part 9.7 on individual feed preparation). If not used within 3 weeks, equipment should be re-sterilised.

At the end of every day, bottle brushes should be cleaned carefully, left to disinfect for one hour, drained and air-dried. Drying cloths can be a source of contamination.

Personal hygiene

Handwashing is the most important way of controlling infection. A proper handwashing method is essential for people handling formula (see box, how to wash your hands).
Separate facilities for washing hands, with supplies (e.g. nail brushes, soap), are needed near a feed preparation area. Liquid or powdered soap is better than bars of soap (which may become contaminated with germs).

Ideally, staff preparing formula should remove hand and ear jewellery, change from personal clothing to a uniform and cover their hair with a clean scarf or hat outside the preparation area but within the healthcare facility.

How to wash your hands

Using a sufficient amount of soap, begin scrubbing at the elbow, then proceed to the mid-arms and hands. Hold the hands and forearms higher than the elbows to prevent dirty water running onto the hands. Continue scrubbing for three minutes.

Key references

Guidelines for the safe preparation, storage and handling of powdered infant formula
http://www.who.int/entity/foodsafety/publications/micro/pif_guidelines.pdf

How to prepare powdered infant formula in care settings.
http://www.who.int/foodsafety/publications/micro/PIF_Care_en.pdf

Poster on preparing infant formula in care settings.
http://www.who.int/foodsafety/publications/micro/PIF_Poster_en.pdf

9.14 Infant care

Training of staff responsible for caring for the infants is critical. This should include care practices such as feeding and washing young infants, and interaction, play and stimulation of infants.
Assigning infants to named staff, or named key workers who have a greater responsibility to individual infants, may help improve a bond between infants and carergivers.
In a busy facility, there is always the risk that play activities are not carried out, as other duties take priority – every effort should be made to encourage and protect this playtime.

Sometimes unaccompanied infants may be looked after within a health facility, for example, in a section of a hospital. Then, care should be taken to reduce the risk of cross-infection from ill patients and to avoid "medicalisation" of feeding.

Severely malnourished infants should be referred to an appropriate health facility, e.g. a hospital or therapeutic feeding programme or, if not available, managed according to current recommendations (see Part 8).

When infants become ill with an infectious disease within a health or care facility, they should be isolated from other healthy infants until free of infectious disease. The recommendations on isolation should follow international standards if it is for a health facility setting and be according to type of infection for other settings.

Particular attention should be paid to feeding ill infants – if possible by a designated carergiver.

All infants should receive routine vaccinations according to national protocols.

9.15 Controlling contamination of infant formula*

Key ways to control contamination of infant formula are:

- Prevention of external (outside) contamination of formula, or overgrowth of organisms present in prepared formula. Extra precautions to be taken in handling, storage and preparation.
- Reducing the risks of infection with micro-organisms that may be present in powdered infant formula (intrinsic contamination) due to the manufacturing process.
- Detection as soon as possible of any infection, or intoxication, due to contaminated formula.
- Prompt investigation and institution of control procedures if needed.

Immunocompromised infants, including new-borns (especially those very premature) and HIV positive infants are particularly at risk of infection.

When caring for high risk infants, it may be safer to use commercially sterile liquid formula or formula that has undergone an effective decontamination procedure, such as using boiling water to reconstitute formula, or heating reconstituted formula (see Annex 10)[6].

Prevention

Preventive procedures depend on the size of the unit and the resources available but should include:

- Handwashing (see box in Part 9.13 for technique).
- Aseptic technique in formula preparation.
- Housekeeping and cleaning of preparation room as well as all areas where infant formula is fed.
- Appropriate storage of formula and keeping to expiry dates.
- Quality control checks for any heating, cooling and cleaning equipment.
- Ideally staff should not work if they are ill or have a suspected infectious disease, particularly gastrointestinal illness. But this may be difficult to manage in practice. With minor, non-GI related illness where staffing demands make exclusion impractical, then hygiene procedures are even more important.

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* see Technical WHO Guidelines for the safe preparation, storage and handling of powdered infant formula at http://www.who.int/foodsafety/publications/micro/pif2007/en/index.html

[6] Recommendation of joint FAO/WHO workshop on E sakazakii and other micro-organisms in powdered infant formula, Februrary, 2004. Summary at www.who.int/foodsafety/micro/meetings/feb2004/en. FAO/WHO Expert meeting on Enterobacter sakazakii and Salmonella in powdered infant formula, Rome, 16-20 January 2006. http://www.who.int/entity/foodsafety/micro/jemra/meetings/jan2006/en/index.html

Dealing with infection outbreaks

Reported outbreaks of infection are often related to poor storage procedures (improper handling, excessive temperatures or keeping the product beyond its recommended time).

Routine microbiologic sampling of prepared formula for infants is not particularly effective in reducing infection rates. Rather, investing what time and resources are available in staff training, surveillance of procedures and upkeep of equipment is more useful.

In extreme circumstances, e.g. outbreak of diarrhoea linked to formula milk, then terminal heating may be employed as a temporary measure (see Annex 10).

Case Study: Challenges of institutional feeding

Around the 1999 Kosovo crisis, we came across around 25 unaccompanied infants and young children in the main hospital in Pristina. Most spent all their time in a room on the paediatric ward under the care of the nurses, while four young infants were being looked after on the neonatal ward.

All slept and spent their all their time in cots, where many were tied to the sides. Milk was the main nutrient source, with little complementary feeding - formula milk for young infants, and cows milk (UHT) for older infants and young children. All were typically fed lying on their backs, sometimes with bottles propped up to feed. While none were severely malnourished using weight-for-height criteria, micronutrient status was questionable and feeding, psychosocial and speech development greatly impaired.

Where to start? First we targeted the kitchen, to check how milk was prepared and what type of milk was used. Formula sources included local purchase and various donations from NGOs. Carers were employed, one of their primary roles being to "mother" the infants and children. Young infants were continued on infant formula, but were now fed in the carers arms, rather than in their cot. Access to a playroom close by was established. Older infants were introduced to beakers and complementary foods. We began with mashed bananas for all. NATO troops, stationed at the hospital and hearing of their plight, kept arriving with gifts of bananas!

Marie McGrath, (SC UK), Kosovo, 1999

Key references

Operational Guidance on Infant and Young Child Feeding in Emergencies, v2.1, February 2007. IFE Core Group. Available at http://www.ennonline.net/ife

Policy of the on the acceptance, distribution and use of milk products in refugee settings (2006). Available in English and French. Download from http:///www.unhcr.org or http://www.ennonline.net/ife or email: ABDALLAF@unhcr.org or HQTS01@unhcr.org

Technical WHO Guidelines for the safe preparation, storage and handling of powdered infant formula at http://www.who.int/foodsafety/publications/micro/pif2007/en/index.html




Annexes

Kent Page, UNICEF, DRC, 2003




Annex 1

Summary of breastfeeding and mother's medication

In general, if a drug can be taken by the infant or during pregnancy, it is acceptable for breastfeeding mothers. The exceptions are the few that affect breastmilk production.

Health workers may need to decide whether a mother who is breastfeeding and who needs treatment with drugs can take the necessary medication and still continue to breastfeed safely. There are very few kinds of treatment during which breastfeeding is absolutely contraindicated.

These questions may be helpful as health workers consider treatment of the breastfeeding mother:

1) Is the drug therapy really necessary?
2) Is this the safest drug available?
3) Might the timing be adjusted to minimize the dose to the infant, for example by taking the drug just after a breastfeed?

However, there are some drugs that a mother may need to take which sometimes cause side-effects in the baby. The health worker needs to be aware which drugs these are. The summary below gives a preliminary guide. A fuller listing of all the drugs is available from WHO (http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/BF_Maternal_Medication.pdf).

Stop breastfeeding:

Breastfeeding contraindicated	Anticancer drugs (antimetabolites). Radioactive substances. *(Stop breastfeeding temporarily.)*

Continue breastfeeding with extra care:

Side-effects possible	Psychiatric drugs and anticonvulsants. *(Monitor baby for drowsiness.)*
Use alternative drugs if possible	Antibiotics: chloramphenicol, tetracyclines, metronidazone, quinolones (e.g. ciprofloxacin).
	Sulphonamides, cotrimoxazole, mefloquine, dapsone. *(Monitor baby for jaundice.)*
	Oestrogens, including oestrogen-containing contraceptives, Thiazide diuretics, ergometrine *(These may decrease milk production.)*

Continue breastfeeding:

Safe in usual dosage	Analgesics and antipyretics: short courses of paracetamol, acetylsalicylic acid, ibuprofen; occasional doses of morphine and pethidine. Most cough and cold remedies. Antibiotics: ampicillin, cloxacillin and other penicillins, erythromycin. Anti-tuberculars, anti-leprotics (but see dapsone above). Antimalarials (except mefloquine, see above). Antihelminthics. Antifungals. Bronchodilators (e.g. salbutamol). Corticosteroids. Antihistamines. Antacids. Drugs for diabetes. Most antihypertensives, digoxin. Nutritional supplements of iodine, iron, vitamins.

Annex 2

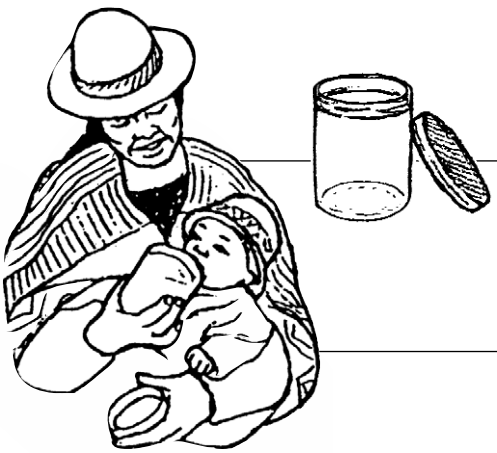
How to cup feed

How to feed a baby with a cup

- Hold the baby sitting upright or semi-upright in your lap.
- Hold the small cup of milk to the baby's lips. Tip the cup so that the milk just reaches the lips. The cup should rest lightly on the baby's lower lip and the edges of the cup should touch the outer part of the baby's upper lip.
- The baby will become alert and open his or her mouth and eyes. A low-birthweight baby will start to take up the milk with the tongue. A full-term or older baby will suck or sip the milk, spilling some of it.
- Do not pour the milk into the baby's mouth. Continue to hold the cup to the baby's lips, allowing the baby to take it.
- When the baby has had enough, the baby will close his or her mouth and refuse to take any more. A baby who has not taken enough may take more the next time or you may increase the frequency of feeding.
- Measure the baby's intake over 24 hours rather than at each feeding.

Adapted from WHO/UNICEF, 1993, Breastfeeding Counselling: A training course, Participants manual, p. 136 and UNICEF BFHI NEWS.

Fathers can cup feed, too.



It is easy to transport milk in a jar for feedings away from home. Be sure to use a wide-mouthed jar, so it can be easily cleaned.

The use of bottles and teats should be actively discouraged in emergency contexts, due to the high risk of contamination and difficulty with cleaning

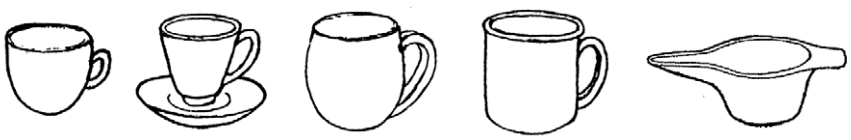
6.3.5 Operational Guidance, v2.1, February 2007

Cup feeding is often used in hospitals for pre-term infants who are not ready to breastfeed. These infants are commonly able to swallow before they can suck. Those able to breastfeed may not have the strength to suckle long enough to obtain the optimum amount of milk and may not complete feeding with a cup.

Like a breastfed baby, a cup-fed baby of about five months will often take breaks from feeding, taking the feed in his or her own time.

Gently tilt the cup so that the baby may sip the milk at his or her own speed. Never pour the milk or let it gush.

Healthy, full-term babies can also be fed by cup when breastfeeding is not possible — such as when a mother is absent or has a condition, such as HIV infection, that might lead her to decide not to breastfeed. In these situations, a baby might be fed expressed mother's milk or some other kind of milk.



Cup feeding requires no special equipment: any open cup found in most households will do. Avoid cups with covers or those specially designed with straws or closed spouts, as these can be difficult to clean and may lead to infections.
The cups displayed on this page include a hospital medicine cup, a teacup, 2 mugs with handles and an Indian bondla — a vessel with an open spout traditionally used for infant feeding.

Annex 3

Hand expressing breastmilk

How to stimulate the oxytocin reflex

Help the mother psychologically:

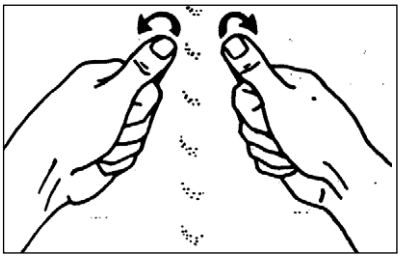
- Build her confidence.
- Try to reduce any sources of pain or anxiety.
- Help her to have good thoughts and feelings about the baby.

Help the mother practically. Help or advise her to:

- Sit quietly and privately or with a supportive friend.
  Some mothers can express easily in a group of other mothers who are also expressing for their babies.
- Hold her baby with skin-to-skin contact if possible.
  She can hold her baby on her lap while she expresses. If this is not possible, she can look at the baby. If this is not possible, sometimes even looking at a photograph of her baby helps.
- Take a warm soothing drink.
  The drink should not be coffee.
- Warm her breasts.
  For example, she can apply a warm compress or warm water or have a warm shower.
- Stimulate her nipples.
  She can gently pull or roll her nipples with her fingers.
- Massage or stroke the breasts lightly.
  Some women find that it helps if they stroke the nipple and areola gently with finger tips or with a comb.
  Some women find that it helps to gently roll their closed fist over the breast towards the nipple.
- Ask a helper to rub her back.
  The mother sits down, leans forward, folds her arms on a table in front of her and rests her head on her arms. Her breasts hang loose, unclothed. The helper rubs down both sides of the mother's spine. She uses her closed fist with her thumbs pointing forwards. She presses firmly making small circular movements with her thumbs. She works down both sides of the spine at the same time, from the neck to the shoulder blades, for two or three minutes.

Stimulating the oxytocin reflex

A helper rubbing a mother's back to stimulate the oxytocin reflex



Adapted from WHO and UNICEF: Breastfeeding Counse1ling: a training course. WHO/CDR/93.5

How to express breastmilk		
a. Place finger and thumb each side of the areola and press inwards towards the chest wall. 	**b.** Press behind the nipple and areola between your finger and thumb. 	**c.** Press from the sides to empty all segments. 

How to express breastmilk by hand

Teach a mother to do this herself. Do not express her milk for her. Touch her only to show her what to do. Be gentle.

Teach her to:

- Wash her hands thoroughly.
- Sit or stand comfortably, and hold the container near her breast.
- Put her thumb on her breast **above** the nipple and areola, and her first finger on the breast **below** the nipple and areola, opposite the thumb. She supports the breast with her other fingers.
- Press her thumb and first finger slightly inwards towards the chest wall. She should avoid pressing too far because that can block the milk ducts.
- Press her breast behind the nipple and areola between her finger and thumb. She must press on the lactiferous sinuses beneath the areola (see above).
  Sometimes in a lactating breast it is possible to feel the sinuses. They are like pods or peanuts. If she can feel them, she can press on them.
- Press and release, press and release.
  This should not hurt - if it hurts, the technique is wrong.
  At first no milk may come, but after pressing a few times, milk starts to drip out. It may flow in streams if the oxytocin reflex is active.
- Press the areola in the same way from the **sides**, to make sure that milk is expressed from all segments of the breast.
- Avoid rubbing or sliding her fingers along the skin. The movement of the fingers should be more like rolling.
- Avoid pinching the nipple itself. Pinching or pulling the nipple cannot express the milk. It is the same as the baby sucking only the nipple.
- Express one breast for at least 3 - 5 minutes until the flow slows; then express the other side; and then repeat both sides. She can use either hand for either breast, and change when they tire.

Explain that to express breastmilk adequately takes 20 - 30 minutes, especially in the first few days when only a little milk may be produced. It is important not to try to express in a shorter time.

Annex 4

Calculation of infant formula needs in early stages of emergency

Any appeal for emergency funding should include not only funds for infant formula to support those infants who meet the agreed criteria, but also money/funding for resources to support efforts to protect, promote and support breastfeeding.

How to calculate amount of formula needed

1. Determination of numbers of infants who need to be supported by artificial feeding.

- Review existing information.
- If necessary, conduct a mini-survey (20-40 mothers) to obtain an approximate figure of infant feeding needs (see box).

Box: Mini infant formula needs survey

Determine numbers of infants 0-6 months (and 6-12 months, possibly) in the following categories*:

- exclusive/full breastfeeding
- partial breastfeeding/mixed feeding
- artificially fed/not breastfed.

*Based on a 24-hour recall in which the caregiver is asked to recall everything that the infant was fed since this time yesterday, classify the infants as follows:

- Exclusive/full breastfeeding: If the baby received **only** breastmilk (and not plain water, commercial infant formula, other milk, juice, other liquids, cereals/grains, fruits, vegetables, tubers, legumes, meats/fish/cheese/eggs, etc.), then the infant was exclusively breastfed. Infants who received sips of water or juice in addition to breastmilk are fully breastfed.
- Infants who receive other fluids and foods in addition to breastmilk are mixed feeders.
- Artificially fed/not breastfed: those infants who receive no breastmilk (i.e., receive infant formula, animal milk products, or other foods and fluids but no breastmilk).

2. Calculate infant formula requirements based on needs survey.

Full breastfeeding infants receiving sips of water: require no infant formula

Infants partially breastfed (mixed feeders): estimate time needed for the mother to relactate fully. This will depend, in part, on the resources available to support mothers who are relactating.

For mixed feeders whose mothers are still relactating, a two month supply of infant formula should be planned, to allow time to re-establish exclusive breastfeeding and to allow for a safety-net.

Infants receiving no breastmilk: sufficient formula is needed to support each infant having to be formula fed for the entire period until formula is no longer required (until six months of age at least. See Annex 5)

3. Resurvey: After a given time period (e.g. 6 weeks) infant feeding needs should be resurveyed, to correct or adjust projected need.
The timing of resurvey may partly depend on the time needed for ordering more supplies.

[1] Decisions on how much infant formula to procure will partly depend on the regularity of supply and the supply chain in an emergency context.

Annex 5

Calculating daily and monthly requirements of breastmilk substitutes

Infants require 100 kcal/kg/day. The energy value of prepared infant formula is 65-70 kcal/100 ml. So an infant needs 150 ml of prepared formula per kg per day (150ml/kg/d).

Table A shows approximately how much prepared formula (commercial or home-prepared) an infant needs at different ages in the first six months. These are based on a requirement of 150ml/kg/d.

Table A: Amount of prepared formula an infant needs per day

Age of infant in months	Weight in kilos*	Amount of formula per day	Number of feeds per day	Size of each feed in mls**
0-1	3	450ml	8	60ml
1-2	4	600ml	7	90ml
2-3	5	750ml	6	120ml
3-4	5	750ml	6	120ml
4-5	6	900ml	6	150ml
5-6	6	900ml	6	150ml

*Always use the actual weight of the infant to calculate feed amounts, even if the infant´s weight is very different to what you expect for their age.
**Amounts rounded for ease of measurement, and therefore approximate. Differences between columns amounts to plus or minus 30 ml per day variation.

Calculating monthly requirements

Infants requiring home-modified milk, based on fresh or prepared powdered milk, need, on average, 725 ml per day (0-6 months) and 500-600 ml per day (6-12 months).

Table B indicates the amounts of commercial formula, full cream dried milk (FCDM) or liquid cow's milk and sugar needed for each 30-day month to provide the required amount of prepared formula. When calculating requirements a little more should be added to allow for leakage.

Table B: Approximate amounts of milk needed to make formula per month**

Age of infant in months	Prepared formula ml/day	Commercial formula powder needed*	FCDM and sugar needed to make home-modified	Liquid cow's milk and sugar needed to make home-modified
0 - 1	450 ml	4 x 500 g tins (2 kg)	FCDM 1.2 kg Sugar 0.9 kg	Liquid milk 9 litres Sugar 0.9 kg
1 - 2	600 ml	6 x 500 g tins (3 kg)	FCDM 1.5 kg Sugar 1.2 kg	Liquid milk 12 litres Sugar 1.2 kg
3 - 5	750 ml	7 x 500 g tins (3.5 kg)	FCDM 1.9 kg Sugar 1.5 kg	Liquid milk 15 litres Sugar 1.5 kg
5 - 6	900 ml	8 x 500 g tins (4 kg)	FCDM 2.25 kg Sugar 1.8 kg	Liquid milk 18 litres Sugar 1.8 kg
Approximate totals for 6 months		40 x 500 g tins (20 kg)	FCDM 11 kg Sugar 9 kg	Liquid milk 90 litres Sugar 9 kg

*Amounts rounded for ease of measurement, and therefore approximate. Differences between columns amounts are plus or minus 30 ml/day of variation.
** In addition, specified amounts of water are needed to prepare safe home-modified milk from FCDM and liquid milk, and to prepare commercial formula.

Annex 6

Log frame exercises on artificial feeding in populations

Exercise A. Any planned intervention depends on a number of calculated assumptions, which may influence outcomes and need to be remembered. Devising a log framework may provide a useful tool to plan and account for activities.

Ask participants to define key activities and indicators for the following Goals and Purposes (objectives), where:

- The overall goal is to prevent excess morbidity and mortality
- The purpose of an intervention is to support safe and appropriate infant feeding.

	Description	**Objective, verifiable indicator**	**Sources of information**	**Assumptions**
Goal	To prevent excess morbidity and mortality.	Under 5 mortality rates to reach Sphere standards. Infant mortality rates are equal to or less than the pre-emergency rate.	Mortality reporting and surveys.	High infant mortality rates are related to unsafe infant feeding practices, access is possible to sites and/or communities, a stable security and public health situation is maintained, and other complementary activities are in place or will be undertaken by other agencies, e.g. water and sanitation, shelter, transport infrastructure.
Purpose /Objective	To support safe and appropriate infant feeding.	Number of mothers accessing services. Proportion of orphaned/ unaccompanied children accessing services. Increasing proportion of mothers with infants <6m breastfeeding exclusively. Decrease in incidence of diarrhoea in infants.	Programme monthly reports, focus group discussions, clinic records, interagency forums and surveys.	The starting proportion of mothers who do not breastfeed their infants will influence outcomes. The offered service is acceptable to the community. Sufficient amount of potable water is available for the programme and required staff is available.

Exercise B. Hand out exercise sheet - Artificial feeding in Populations Log frame (see below). Allow 20 mins to complete activities row.
Hand out exercise sheet answer guide (see below) and discuss activities not identified by the groups.

Artificial Feeding in Populations Log Frame			
Description of activities	**Objective, verifiable indicator**	**Sources of information**	**Assumptions**

Artificial Feeding in Populations Log Frame - Answer guide			
Description of activities	**Objective, verifiable indicator**	**Sources of information**	**Assumptions**
Developing facilities to support mothers and infants, e.g. Mother Baby tents in a camp situation. Means of safely preparing artificial feeds, either at a household level or involving central preparation (see Part 9.C on institutional feeding). Training programmes for staff on infant feeding practice. Means of targeting and distributing infant formula supplies in accordance with the International Code (see Module 1, Part 3.1). Management strategy for infants identified as malnourished, e.g. referral to therapeutic feeding centre/hospital unit that can cater for young infants (see Part 8). The establishment of a system for the distribution of infant formula in accordance with the International Code. The establishment of a common monitoring and evaluation system for infant feeding.	Facilities for the preparation of artificial feeds meet safety standards and are regularly checked. A decrease in the amount of infant formula distributed per month. Targeted number of breastfeeding counsellors, health workers trained on breastfeeding support and principles of infant feeding. Targeted number of community groups trained in principles of infant feeding.	On site inspections by members of co-ordination agencies. Monthly formula distribution reports. Health professionals. Breastfeeding counsellors and community groups. Designated agency co-ordinating infant feeding monthly report on distribution. Weekly standard distribution reports collated and submitted monthly to the designated agency co-ordinating infant feeding.	Required materials and technical expertise are available and can be transported from (overseas) suppliers within the shortest of timescales. Appropriately trained staff are available, e.g. local UNICEF, MOH, and will remain available in sufficient numbers to fulfil programme requirements. No general distribution of infant formula and complementary infant foods. Baseline infant feeding indicators have been correctly measured. Orphaned/unaccompanied children are correctly identified. Areas of low HIV prevalence (e.g. in Iraq 1999, less than 0.01% of the adult population) makes wet nursing a relatively safe first option. Where HIV prevalence is high, wet nursing may not be appropriate and alternatives must be established. Incidence of diarrhoea is high related to poor sanitary conditions in the camp. Camp management agrees that infant feeding facilities are priority locations for the reception of potable water. A therapeutic feeding facility is provided, either as part of a hospital or as a therapeutic feeding centre in the camp.

Annex 7

Guide to milks and recipes to prepare breastmilk substitutes

Milk Group	Information	Use
Fresh liquid animal milk	*Whole cow's milk* is the commonest, however buffalo or camel or goat's milk may be available. It may be available in cartons or bottles or people may collect it in their own containers. Sometimes the fresh milk available in the market has already been diluted or some of the cream removed. *Home prepared animal milk* made with fresh or powdered full cream milk, diluted with water, and with sugar and micronutrients supplements added. These formulas contain most required nutrients but the proportions differ from breastmilk. Proteins and fats are inferior and protective factors are lacking. Home prepared formula have been used where animal milks are widely available. However there is no information on their health effects, no information on types of micronutrient supplements being promoted with this option, and whether they are consistently given, nutritionally adequate, appropriate or locally available. There is also concern regarding safe preparation, storage and feeding, and incorrect modification (extracted from Annex 9, HIV and infant feeding, A guide for health care mangers and supervisors,UNICEF/UNAIDS/WHO/UNFPA. 2003).	Can be used if boiled and modified as suggested below (see Home-prepared formula from liquid milks). Home-prepared formula must be fortified with many micronutrients. However appropriate formulations may not be available in the field*. If micronutrients are not added, home preparations should be used only for a short time. Milk from sheep or buffalo is higher in fat, and therefore the modifications are different.
	Skimmed fresh milk has the fat (cream) removed and therefore the energy level is low. Most of the vitamins A and D are also removed because they are in the milk fat.	Do not use.
	Semi-skimmed milk, which contains 2% fat, is sometimes available. (Whole fresh milk normally contains more fat than this – about 3.5-4%.)	Do not use.
Tinned liquid milks	*Evaporated milk* is sterilised, has some of the water removed and is sealed in tins. Sometimes the fat content is altered. Diluted with water, it has a similar composition to fresh milk.	The processing destroys vitamin C and folate. It can be used if extra vitamins are added. Dilute according to instructions and modify (see Home-prepared formula from liquid milks).
	Condensed milk has some of the water removed but a lot of sugar is added. This extra sugar makes bacteria grow more slowly when the tin is opened. Also, the fat level may be reduced. This balance of fat and sugar in condensed milk make it very different from evaporated milk.	Do not use.
Powdered milk	*Full cream powdered milk* is whole cow's milk that is dried to a powder. Much vitamin C and some B vitamins are lost, but the protein, fat, minerals and most of the vitamins A and D remain. It can be made up with water to the strength of whole fresh milk.	Can be used when reconstituted by adding the correct amount of water (following the instructions on the label) and then modified (see Home-prepared formula from liquid milks below).
	Dried skimmed milk has the fat and fat-soluble vitamins (e.g. vitamins A and D) removed. Most modified powdered milks, such as "creamers" used for "whitening" tea or coffee or various filled milks, have had the milk fat removed and replaced with vegetable fat. Sugar may also be added to ingredients to make it dissolve easily.	Do not use.
Infant formula	*Commercial infant formula* is made in accordance with the Codex Alimentarius standards** – this means minimum standards of nutrient composition must be met. There are many different brands of commercial infant formula.This is nutritionally the most complete breastmilk substitute and contains adequate micronutrients. However, both proteins and fats are inferior to those in human milk, it is less easily digested and protective factors are absent.	Commercial infant formula is expensive so can affect sustainability of supplies.
	Generic Formula. The nutritional composition is the same as branded commercial formula. The only difference is in the way in which it is marketed and distributed. It is also labelled more simply.***	Instructions on tin must be followed (see Using commercial infant formula below).

*Micronutrients needed to fortify home-prepared formula - 150ml, (see p 13): manganese 7.5µg, iron 1.5mg, copper 100µg, zinc 205µg, iodine 5.6µg, vit A 300IU, vit D 50 IU, vit E 1 IU, vit C 10mg, vit B1 50 µg, vit B2 80µg, niacin 300µg, vit B6 40µg, folic acid 5µg, pantothenic acid 400µg, vit B12 0.2µg, vit K 5µg, Biotin 2µg.
**For information on Codex Alimentarius requirements, see www.codexalimientarius.net and for information on the safe use of infant formula see Guidelines for the safe preparation, storage and handling of powdered infant formula http://www.who.int/entity/foodsafety/publications/micro/pif_guidelines.pdf
***For information on sources of generic formula contact ENN at office@ennonline.net

Home-prepared formula from liquid milks

Recipes using fresh milk (or milk reconstituted to be equivalent to fresh milk)

To make 150 ml of prepared formula using fresh (or reconstituted) cow's, goat's or camel's milk, mix:

100ml boiled milk
50 ml boiled water
10g (2 levelled teaspoons) sugar

To make 120 ml of prepared formula using fresh sheep or buffalo milk, mix:

60 ml milk
60 ml water
6 g (1 rounded teaspoon) sugar

Milk and water can be measured, mixed and then boiled together. Or the milk can be boiled separately and boiled water added according to convenience.
Then add the sugar and micronutrients (see p 127). Stir well and pour into feeding cup.

Table A in Annex 5 shows the volume and number of feeds required by infants of different ages and weights.

Using commercial infant formula

All commercial infant formula used should be labelled in the appropriate language.
Infant formula must be prepared according to the instructions on the label.

- Over-dilution results in decreased nutrient and energy intake.
- Under-dilution results in an over-concentrated formula that places heavy demands on the infant´s immature metabolism.

Always follow instructions on the tin or packet.

An infant formula available in an emergency may not be the one a mother has normally used for her infant. Advice on preparation must take this into account. In particular:

- **Checking the volume of water needed per scoop of formula.**
  Commercial infant formula usually comes with a special measure (called a scoop) in the tin or packet of powder. This should be used only for that brand of infant formula. Standard commercial infant formulas use one level scoop of powder to each 30 ml of water. Always check the instructions of the particular product you are using as some brands use different size scoops.
- **Measuring water.**
  To prepare most commercial infant formulas, you first measure the water and then add the powder. However, check the manufacturer instructions as these can vary.
- **Measuring milk powder.**
  Each scoop of powdered milk must be levelled for accurate measuring. Do this by drawing the back of a clean knife or the straight handle of a spoon across the scoop, so the powder is level with the edges of the scoop. Do not round, heap or press down the milk powder in a scoop.

See Annex 9 for details on safe preparation of a breastmilk substitute feed and Annexes 2 and 8 for how to cup or bottle feed an infant.

Annex 8

How to feed with a bottle

- Before beginning to feed, test the heat and flow of the milk in the bottle by letting milk drip onto your wrist.
  The temperature of the milk on your wrist should be barely warm.
  The hole in the teat should be large enough to let the milk flow in a stream of several drops per second when the bottle is turned upside down.
- Make yourself comfortable.
- Hold the infant half sitting with the head in the inside bend of your elbow to give skin contact. Interact warmly with him or her throughout the feed by smiling, talking, singing and making eye contact, making feed time as pleasant as possible.
- Hold the bottle at an angle so that the baby does not swallow air with the milk and the teat is filled with milk.
- Gently stroke the baby's nearest cheek to start the sucking reflex. Carefully put the teat into the mouth. Do not push it too far back as this may make the baby choke.
- If the baby is having difficulty getting the milk, gently remove the bottle from the mouth so that air can enter the bottle, then continue as before.
- If you want to release the bottle, gently slide your little finger into the corner of the baby's mouth. This will break the suction on the teat.
- 'Winding' releases any air that the baby has swallowed. Swallowing air is more common in bottle fed babies than breastfed babies. But it can be reduced by tilting the bottle more as the baby empties it, so that the teat is full of milk and not air. To wind mid way through a feed or after it, hold the baby upright and pat or rub his/her back.
- Offer the whole feed to the baby. Babies vary in how much they take at each feed, in the same way as breastfeeding babies do.
- Never leave a baby with a bottle propped up on a pillow or cushion. This is very dangerous as the baby may choke on the feed. Also babies need the cuddling and stimulation they get when a person feeds them.

For ***How to feed with a cup***, see Annex 2

Annex 9

Ten steps for safe preparation of a breastmilk substitute feed

Step	Description
Wash hands.	Always wash your hands with soap and water before preparing feed.
Keep it clean.	Carefully clean the utensils, sterilise them if needed. Countertops and tables also should be very clean. Use a clean cloth to cover counters/surfaces if necessary.
Check the date.	Check the expiration date on the formula can. Discard expired formula.
Boil.	Boil water to prepare the feed. Bring to a rolling boil. If water was boiled in advance for making up feeds, store it in a container used for this purpose for only up to 24 hours. The container should be clean and have a cover. Pour correct amount of cooled boiled water into calibrated cup /bottle.
Measure it.	Measure the required amount of formula powder, using the scoop from this tin or packet. (Do not use scoops from other brands of formula.) Level the powder off with a clean straight spoon handle or knife. Follow the mixing instructions on the label carefully. (Usually two scoops are needed for each 60 ml of water, but it may only be one. See Using commercial infant formula, Annex 7).
Mix it up.	Most commercial formula advise adding the dried powder to the measured water – but check the preparation details for the particular product you are using. Add the scoops of formula powder **to** the measured water, and, if a cup is used, mix the powder in thoroughly with a spoon. If a bottle is used, put the cap and cover on and shake to mix. The amount of formula, once mixed up according to instructions on the label, will be slightly more than the measured amount of water.
Test the temperature.	Place a drop of warmed formula on your wrist; if it feels comfortable and just barely warm, it's safe to feed baby. Feeds can be given at room temperature and do not need to be heated. If a feed is being warmed prior to the feed, place the bottle or cup in a bowl of hot water and test before feeding.
Store it.	Keep prepared formula refrigerated until feeding time. If refrigerated, use reconstituted formula within 24 hours of preparation. Never put a warmed bottle back into the refrigerator. If there is no refrigerator, then prepare milk before each feed.
Use it or lose it.	Give the prepared milk to the baby within, at most, an hour of preparation (if not refrigerated).Give as much as s/he wants. It is important that an infant receives a minimum amount per day or he/she may become malnourished. See Annex 5 to guide you on how much you can expect an infant to drink at a feed and over 24 hours. Give any leftover milk to an older child or the caregiver can drink it herself, otherwise throw away. For how to give a cup feed or bottle feed, see Annexes 2 and 8.
Finish up.	See Part 9.7 on how to clean a feeding bottle. Store utensils in a special container with a lid or leave covered with a clean cloth on a clean surface, ready for the next feed in three or four hours. If sterilising solution is used, leave bottles, teats and caps soaking until the next feed (minimum 1 hour).

Key reference:
Guidelines for the safe preparation, storage and handling of powdered infant formula
http://www.who.int/entity/foodsafety/publications/micro/pif_guidelines.pdf

Annex 10

Additional methods of sterilisation

In addition to boiling or chemical sterilisation (see Part 9.7), sterilisation can be carried out using steam under pressure (autoclave), dry heat, e.g. in an "oven" or a terminal heating method.

Autoclave: The recommended temperature for sterilisation is 121 degrees C for:

- 15 minutes: bottles, teats, rings, caps, utensils, measures, cloths
- 30 minutes: 0.5 litre water containers, clothing, face masks, cloths (to drape over sterilised equipment).

Sterilising using dry heat is carried out by placing equipment in an "oven" for 1 hour at 170 degrees celcius, or for 35 minutes at 180 degrees celcius.

Terminal heating

Terminal heating means heating formula after preparation to kill micro-organisms.It is not recommended as a common method of preparation of formulas due to the potential alteration of the nutritive and physical characteristics of the formula.
When carefully carried out, terminal heating can be used as an extraordinary control measure under emergency circumstances, e.g. a diarrhoea epidemic, when there is a strong suspicion that an outbreak is infant formula related.

Equipment needed
Bottles made of appropriate plastic or glass with nipples, caps and rings.
Bottle steriliser, deep kettle with lid, or simple container with tight fitting lid.
Wire rack to keep bottles from touching the bottom of container.
Bottle brush.

Method for terminal heating
Scrub bottles, nipples, caps and rings with bottle brush, soap and hot water.
Squeeze water through nipple holes during washing and rinsing. Rinse everything well.
Measure appropriate amount of prepared formula into each clean bottle.
Put nipples, caps and rings on bottles loosely.
Place bottles in rack on bottom of steriliser. Add three inches of water to steriliser. Bring to the boil.
Cover and boil for 25 minutes, then turn off the heat. Let the steriliser cool to touch before uncovering. If bottles are cooled too quickly, a film may form that could clog nipples.
When bottles are cooled enough to handle, remove them from the steriliser. Tighten the caps, label and put in the refrigerator.

Adapted from: Preparation of formula for infants: guidelines for healthcare facilities. The American Dietetic Association, 1991.

Annex 11

Guiding principles for complementary feeding of the breastfed child

1. Duration of exclusive breastfeeding and age of introduction of complementary foods

Practice exclusive breastfeeding from birth to 6 months of age, and introduce complementary foods at 6 months of age (180 days) while continuing to breastfeed.

2. Maintenance of breastfeeding

Continue frequent, on-demand breastfeeding until 2 years of age or beyond.

3. Responsive feeding

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

4. Safe preparation and storage of complementary foods

Practice good hygiene and proper food handling by a) washing caregivers' and children's hands before food preparation and eating, b) storing foods safely and serving foods immediately after preparation, c) using clean utensils to prepare and serve food, d) using clean cups and bowls when feeding children and e) avoiding the use of feeding bottles, which are difficult to keep clean.

5. Amount of complementary food needed

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

6. Food consistency

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

7. Meal frequency and energy density

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

8. Nutrient content of complementary foods

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

9. Use of vitamin–mineral supplements or fortified products for infant and mother

Use fortified complementary foods or vitamin-mineral supplements for the infant, as needed. In some populations, breastfeeding mothers may also need vitamin mineral supplements or fortified products, both for their own health and to ensure normal concentrations of certain nutrients (particularly vitamins) in their breast milk.

10. Feeding during and after illness

Increase fluid intake during illness, including more frequent breastfeeding, and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more.

Source: Guiding Principles for Complementary Feeding of the Breastfed Child, Pan American Health Organisation 2003, World Health Organisation, http://www.paho.org

Annex 12

Feeding the non-breastfed child 6-24 months of age

Extracted from: Informal Working Group on Feeding Nonbreastfed children. Feeding of nonbreastfed children from 6 to 24 months of age. Conclusions of an informal meeting on infant and young child feeding organized by the World Health Organization, Geneva, March 8-10, 2004. Food and Nutrition Bulletin 2004, vol 25, No 4.

According to current UN recommendations, infants should be exclusively breastfed for the first six months of life, and thereafter should receive appropriate complementary feeding with continued breastfeeding up to two years or beyond. However, there are a number of infants who will not enjoy the benefits of breastfeeding in the early months of life or for whom breastfeeding will stop before the recommended duration of two years or beyond. A group that calls for particular attention is the infants of mothers who are known to be HIV-positive. To reduce the risk of transmission, it is recommended that, when acceptable, feasible, affordable, sustainable and safe, these mothers give replacement feeding from birth. Otherwise, they should breastfeed exclusively and stop as soon as alternative feeding options become feasible[1]. Another group includes those infants whose mothers have died, or who for some reason do not breastfeed.

Recommendations for appropriate feeding of breastfed infants from six months onwards have been summarized by PAHO[2]. Some of these guiding principles are not applicable to non-breastfed children, while others need adaptation. WHO convened this informal meeting to identify an analogous set of guiding principles for feeding of non-breastfed children after six months of age.

Summary of Guiding Principles for feeding the non-breastfed child 6-24 months of age

1. Amount of food needed

Guideline: Ensure that energy needs are met. These needs are approximately 600 kcal per day at 6-8 months of age, 700 kcal per day at 9-11 months of age, and 900 kcal per day at 12-23 months of age.

2. Food consistancy

Guideline: Gradually increase food consistency and variety as the infant gets older, adapting to the infant's requirements and abilities. Infants can eat pureed, mashed and semi-solid foods beginning at six months. By 8 months most infants can also eat "finger foods" (snacks that can be eaten by children alone). By 12 months, most children can eat the same types of foods as consumed by the rest of the family (keeping in mind the need for nutrient-dense foods, as explained in #4 below). Avoid foods in a form that may cause choking (i.e., items that have a shape and/or consistency that may cause them to become lodged in the trachea, such as nuts, grapes, raw carrots). Such foods should be mashed, pureed or juiced before being fed to young children.

3. Meal frequency and energy density

Guideline: For the average healthy infant, meals should be provided 4-5 times per day, with additional nutritious snacks (such as pieces of fruit or bread or chapatti with nut paste) offered 1-2 times per day, as desired. The appropriate number of feedings depends on the energy density of the local foods and the usual amounts consumed at each feeding. If energy density or amount of food per meal is low, more frequent meals may be required.

4. Nutrient content of foods

Guideline: Feed a variety of foods to ensure that nutrient needs are met.

- Meat, poultry, fish or eggs should be eaten daily, or as often as possible, because they are rich sources of many key nutrients such as iron and zinc. Milk products are rich sources of calcium and several other nutrients. Diets that do not contain animal source foods (meat, poultry, fish or eggs, plus milk products) cannot meet all nutrient needs at this age unless fortified products or nutrient supplements are used.

[1] UNICEF UNAIDS WHO UNFPA. HIV and Infant Feeding. Guidelines for decision-makers. Geneva, WHO, 2003. Available at: http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/HIV_IF_DM.pdf

[2] PAHO. *Guiding Principles for Complementary Feeding of the Breastfed Child*. Washington: Pan American Health Organization, World Health Organization, 2003. Available at: http://www.who.int/child-adolescent-health/New_Publications/NUTRITION/guiding_principles.pdf

- If adequate amounts of other animal source foods are consumed regularly, the amount of milk needed is ~200-400 mL/d; otherwise, the amount of milk needed is ~300-500 mL/d. Acceptable milk sources include full-cream animal milk (cow, goat, buffalo, sheep, camel), Ultra High Temperature (UHT) milk, reconstituted evaporated (but not condensed) milk, fermented milk or yogurt, and expressed breast milk (heat-treated if HIV-positive).
- If milk and other animal source foods are not eaten in adequate amounts, both grains and legumes should be consumed daily, if possible within the same meal, to ensure adequate protein quality.
- Dairy products are the richest sources of calcium. If dairy products are not consumed in adequate amounts, other foods that contain relatively large amounts of calcium, such as small fish that include the bones (dried or fresh, with the bones crushed or otherwise processed so that they are safe to eat) and lime-treated maize tortillas, can fill the gap. Other foods such as soybeans, cabbage, carrots, squash, papaya, green leafy vegetables, guava and pumpkin are useful additional sources of calcium.
- The daily diet should include Vitamin A rich foods (e.g. dark coloured fruits and vegetables; red palm oil; vitamin A fortified oil or foods); vitamin C rich foods (e.g. many fruits, vegetables and potatoes) consumed with meals to enhance iron absorption; and foods rich in the B vitamins including riboflavin (e.g. liver, egg, dairy products, green leafy vegetables, soybeans), vitamin B6 (e.g. meat, poultry, fish, banana, green leafy vegetables, potato and other tubers, peanuts) and folate (e.g. legumes, green leafy vegetables, orange juice).
- Provide diets with adequate fat content. If animal source foods are not consumed regularly, 10-20 g of added fats or oils are needed unless a fat-rich food is given (such as foods or pastes made from groundnuts, other nuts and seeds). If animal source foods are consumed, up to 5 g of additional fats or oils may be needed.
- Avoid giving drinks with low nutrient value, such as tea, coffee and sugary soft drinks. Limit the amount of juice offered, to avoid displacing more nutrient-rich foods.

5. Use of vitamin-mineral supplements or fortified products

Guideline: As needed, use fortified complementary foods or vitamin-mineral supplements (preferably mixed with or fed with food) that contain iron (8-10 mg/d at 6-12 months, 5-7 mg/d at 12-24 months). If adequate amounts of animal source foods are not consumed, these fortified foods or supplements should also contain other micronutrients, particularly zinc, calcium and vitamin B12. In countries where vitamin A deficiency is prevalent or where the under five mortality rate is over 50 per 1000, it is recommended that children 6-24 months old receive a high-dose vitamin A supplement (100,000 IU once for infants 6-12 months old and 200,000 IU bi-annually for young children 12-23 months old).

6. Fluid needs

Guideline: Non-breastfed infants need at least 400-600 mL/d of extra fluids (in addition to the 200-700 mL/d of water that is estimated to come from milk and other foods) in a temperate climate, and 800-1200 mL/d in a hot climate. Plain, clean (boiled, if necessary) water should be offered several times per day to ensure that the infant's thirst is satisfied.

7. Safe preparation and storage of foods

Guideline: Practice good hygiene and proper food handling by a) washing caregivers' and children's hands with soap before food preparation and eating, b) storing foods safely and serving foods immediately after preparation, c) using clean utensils to prepare and serve food, d) using clean cups and bowls when feeding children, and e) avoiding the use of feeding bottles, which are difficult to keep clean (for additional details, see WHO Complementary Feeding: Family foods for breastfed children, 2000 and Five Keys to Safer Food www.who.int/foodsafety/publications/consumer/5keys/en/).

8. Responsive feeding

Guideline: Practice responsive feeding, applying the principles of psycho-social care (Engle et al., 2000; Pelto et al., 2002). Specifically: a) feed infants directly and assist older children when they feed themselves, being sensitive to their hunger and satiety cues; b) feed slowly and patiently, and encourage children to eat, but do not force them; c) if children refuse many foods, experiment with different food combinations, tastes, textures and methods of encouragement; e) minimize distractions during meals if the child loses interest easily; f) remember that feeding times are periods of learning and love - talk to children during feeding, with eye to eye contact.

9. Feeding during and after illness

Guideline: Increase fluid intake during illness and encourage the child to eat soft, varied, appetizing, favorite foods. After illness, give food more often than usual and encourage the child to eat more.

Annex 13

Feeds (including breastmilk and infant formula) that can be used for the therapeutic feeding of infants under six months of age

Milk feed	Properties	Indications
Breastmilk/ Breastfeeding	Sodium and protein levels are slightly higher than F75, less than F100-D and infant formula. Energy level similar to F75, F100-D and slightly more than infant formula (65 kcal/100 ml). Immunological and other health benefits. Lactose content higher than F75, F100-D, F100 and infant formula.	- Suitable for initial re-feeding **but** only a limited quantity may be available if breastfeeding has been interrupted and infant not suckling. Can combine expressed breastmilk and appropriate therapeutic milk initially. - Suitable for continuing catch-up growth in infants under 6 months if adequate milk production has been re-established, and if infant feeds often enough day and night.
Commercial F75	Sodium and protein contents are slightly lower than breastmilk. Renal solute load safe. Energy concentration 75 kcal per 100 ml. Percent energy from fat is lower than that in breastmilk (32% v 55%). Less phosphorus, calcium and lactose than breast milk.	- Safe for initial re-feeding of severely malnourished infants under 6 months (and all ages) during stabilization phase. It is essential to use commercially prepared F75. Home-made F75 is higher in osmolarity. - Necessary if infant has oedema. - Not suitable for catch-up growth at any age.
F100	Sodium, protein and lactose high. Solute load high. Energy concentration 100 kcal per 100 ml.	**- not suitable for infants under 6 months. Solute load too high** - Suitable for catch-up growth after 6 months of age.
F100-D (F100 + one-third extra water)	Sodium and protein concentration lower than F100, higher than breastmilk and F75, similar to infant formula. Solute load (mOsm/L) less than F100, slightly higher than infant formula and higher than F75 and breastmilk. Energy concentration similar to breastmilk.	- Safe to use for initial re-feeding under 6 months if appetite appears to be reasonable, especially if infant is breastfeeding. - Suitable for catch-up growth of infants under 6 months.
Infant formula (as specified in Codex Alimentarius)	Sodium and protein content higher than breastmilk and F75, similar to F100-D. Solute load similar to F100-D. Energy concentration similar to breastmilk and F75 and F100-D. Designed as breastmilk substitute.	- Safe to use in initial re-feeding under 6 months if reconstituted accurately and hygienically. - Suitable for catch-up growth of infants under 6 months.
Home-made milk based feeds	Higher sodium and protein than F75 and breastmilk; dilution only compensates partially, accurate preparation difficult. Sugar and micronutrients must be added, as well as water for dilution.	- **not suitable** except as a last resort if no alternative available, and then should be used only for a short time.

Notes:

For details of composition of F75 and F100, see Module 2, Additional Material, Section 8.4.

Diluted F100 (F100-D): F100-D is used for initial re-feeding (Stabilisation phase) and catch-up growth (Rehabilitation phase) by agencies working in the field. It is prepared by adding one-third extra water to full strength F100, or by adding 35ml of water to each 100ml of prepared, full strength F100. Using the same milk in both initial re-feeding and catch-up avoids changes in flavour. Some infants reject supplementary suckling if the flavour of the feed changes.

The choice between using F100-D and infant formula depends on availability and the context. In emergency operations where F100 is more readily available than infant formula, then F100-D may be a more practical option. It may be more convenient to use the same preparation (F75 or F100) that is being used for older children, rather than an alternative that requires different handling. Also, using infant formula may convey a confusing message, because it is not seen as medical treatment and therefore may interfere with re-establishment of breastfeeding.

Infant formula: (This refers to infant formula which is industrially produced in accordance with the relevant Codex Alimentarius standards and is formulated as a suitable breastmilk substitute.) There is much experience of using infant formula as a breastmilk substitute, but there is little experience of using it for therapeutic feeding. However, in smaller units, infant formula may be available locally, or more easily sourced and less expensive than F100.
It can be used for initial re-feeding and for catch-up growth, as a substitute for breastmilk until breastfeeding is re-established, or for infants who will never be able to breastfeed.
If commercial infant formula is needed, buy it from normal channels, and use it according to the provisions of the International Code.

Annex 14

Breastfeeding corners

Breastfeeding corners

A breastfeeding corner is an area with seats or mats which is set aside for mothers who are breastfeeding, and who need support and help. This may be near to a TFC, or in part of a ward or an MCH clinic, or another suitable place. Help may be given by health or community workers who have received some training in breastfeeding, and who can give skilled attention to the mothers. Mothers may attend only for day care, and return to the community at night.

The advantage for staff is that it enables them to get experience in helping with breastfeeding problems and to become more skilled. Special assistants/helpers can be trained to care only for this group of infants, and to look after any apparatus/equipment they use. The advantage for mothers is that being together gives them some privacy and they can help and support each other.

Breastfeeding corners can also be useful for mothers with malnourished infants who are being treated with supplementary suckling (see Part 6.3). Mothers can be asked to show each other how to do the supplementary suckling. This is often more successful than a health worker telling them what to do.

Annex 15

WHO/TALC materials on the management of severe malnutrition

Item	Date	Title	Type material Authors	Description	Distributor Approximate price Language**
1	1999	*Management of severe malnutrition: a manual for physicians and other senior health workers*	Manual 60 pages. WHO	Internationally agreed guidelines on the management of severe malnutrition in young children (and briefly in adults and adolescents) for health staff working at central and district level.	NHD/WHO US$20.70 or SwFr 23.00 (16.10)* Eng, Fre, Span, Port
2	2000	*Management of the child with a serious infection or severe malnutrition* WHO/FCH/CAH/00.1	Manual with 20-page chapter 'Severe Malnutrition' + appendices. WHO-IMCI	IMCI guidelines for senior health staff responsible for the care of young children at the first referral level in developing countries.	CAH/WHO SwFr 15.00 (10.50)* Eng, Fre, Rus TALC £3.50 +pp, Eng
3	2000	*Treatment of severely malnourished children*	Slides + notes for facilitator. Schofield/ Ashworth/Burgess	Set of 24 teaching/learning slides for staff in health centres, hospitals and emergency feeding programmes.	TALC From £5.50+pp Eng
4	2001	*Improving the management of severe malnutrition*	Training modules (300 pages) on CD-ROM. Ashworth/Schofiel d (LSHTM) & Puoane/Sanders (UWC)	Trainers' Guide for those running training workshops. It tells how to plan a workshop and contains course materials, handouts and transparencies that participants can use to train their own staff, especially nurses. Clinical setting not required.	LSHTM & UWC Free TALC (see item 7 below) Eng
5	2002	*Training course on the management of severe malnutrition* WHO/NHD/02.04	Training guides and 7 modules with support material including a video. WHO	Instructor and Participant Guides (with exercises and photos) for 3-day orientation course for instructors and 6-day training course for senior health workers.	NHD/WHO Eng, Span (Fre/Port under prep.)
6	2003	*Caring for severely malnourished children*	Book 82 pages. Ashworth/Burgess	Based on items 1, 2 and 4 and written for nurses and other health professionals working in resource-poor settings. Sets out the 10 steps and briefly explains the rationale for each one. Includes how to involve mothers in care.	TALC £3.15 +pp Eng
7	2003	*Caring for severely malnourished children*	CD-ROM. TALC	Contains items 3, 4, 6 and a list of related websites.	TALC, £4.50 +pp (includes hard copy of item 6 – CD-ROM not sold separately), Eng
8	2003	*Guidelines for the inpatient treatment of severely malnourished children*	Handbook 48 pages. Ashworth/Khanm/ Jackson/Schofield NHD/WHO	Practical 10-step treatment guidelines similar to the malnutrition section of item 2. Support material for item 5.	NHD/WHO US$ 9.00 or SwFr10.0 (7.00)* Eng (Fre/Span under prep.)

*Prices: where two are given, the first applies to industrialised and the second to developing countries.
Approximate exchange rates (these may change) UK£1 = US$1.77, Swiss Franc (SwFr)1 = US$ 0.77
Additional materials are also available from several other organisations; ENN has recently published an interagency workshop report *Community based approaches to managing severe malnutrition see* www.ennonline.net
** Language: Eng=English, Fre=French, Rus=Russian, Span=Spanish, Port=Portuguese.

Abbreviations, Addresses and Websites

- CAH - Child and Adolescent Health and Development, WHO, 1211 Geneva 27, Switzerland. Fax: +41 22 7914857, email: cah@who.int, http://www.who.int/child-adolescent- health/publications/pubIMCI.htm.
- IMCI - Integrated management of childhood illness
- LSHTM - London School of Hygiene and Tropical Medicine, Nutrition and Public Health Intervention Research Unit, Keppel Street, London WC1E 7HT, UK. Fax: +44 20 7 958 8111, email: ann.hill@lshtm.ac.uk, http://www.lshtm.ac.uk/nphiru
- NHD - Nutrition for Health and Development, WHO, 1211 Geneva 27, Switzerland. Fax: +41 22 791 4156, email: khanums@who.int, http://www.who.int/nutrition/publications/en/
- pp - post and packing
- TALC -Teaching-aids At Low Cost, P O Box 49, St Albans AL1 5TX, UK. Fax: +44 1727 846852, email: info@talcuk.org, http//:www.talcuk.org
- UWC - University of Western Cape, School of Public Health, Private Bag X17, Bellville 7535 Cape, South Africa. Fax: +27 21 959 2872, email: tpuoane@uwc.ac.za or dsanders@uwc.ac.za, http:// www.soph.uwc.ac.za
- WHO - World Health Organisation; Marketing & Dissemination, 1211 Geneva 27, Switzerland. Fax: +41 22 791 4857, email: publications@who.int, http://bookorders.who.int

Annex 16

Therapeutic milk feeds for initial feeding in the stabilisation phase for breastfed and non-breastfed infants

- Check infant's weight and look up the volume or feed needed for 24 hours and for the expected feed frequency.
- Do not make any adjustment for oedema.
- Try very hard to give very small infants at least 8 feeds per day.
  However, it is better to give the total volume of feed needed over the 24 hours with less frequent feeds, than to miss feeds because the ideal feed frequency is not possible (see Box 8.3, Frequency and number of feeds).

Weight of infant	***Total feed volume in 24 hours***	**Volume of feed according to feed frequency (per 24 hours)**					
		12 feeds	**10 feeds**	**8 feeds**	**7 feeds**	**6 feeds**	**5 feeds**
Kg	*mls*	mls	mls	mls	mls	mls	mls
1.2	*240*	20	20	25	30	35	45
1.3	*240*	20	25	30	30	35	45
1.4	*240*	20	25	30	35	40	45
1.5	*240*	20	25	30	35	40	45
1.6	*300*	25	30	35	40	45	55
1.7	*300*	25	30	35	40	45	55
1.8	*300*	25	30	40	40	45	60
1.9	*300*	25	30	40	45	50	60
2	*300*	25	35	40	45	50	65
2.1	*300*	25	35	40	45	50	65
2.2	*360*	30	35	45	50	60	70
2.3	*360*	30	35	45	50	60	70
2.4	*360*	30	35	45	50	60	70
2.5	*420*	35	40	50	55	65	75
2.6	*420*	35	40	50	55	65	75
2.7	*420*	35	40	50	55	65	75
2.8	*420*	35	40	55	60	70	80
2.9	*420*	35	40	55	60	70	80
3	*480*	40	45	60	65	75	85
3.1	*480*	40	45	60	65	75	85
3.2	*480*	40	45	60	65	75	85
3.3	*480*	40	45	60	65	75	85
3.4	*480*	40	45	60	65	75	85
3.5	*480*	40	50	65	70	80	95
3.6	*480*	40	50	65	70	80	95
3.7	*480*	40	50	65	70	80	95
3.8	*480*	40	50	65	70	80	95
3.9	*480*	40	50	65	70	80	95
4	*540*	45	55	70	75	85	110
4.4	*540*	45	55	70	75	85	110
4.5	*600*	50	60	80	90	95	120
4.9	*600*	50	60	80	90	95	120
5	*720*	60	70	90	100	110	130
5.4	*720*	60	70	90	100	110	130
5.5	*720*	60	80	100	110	120	150
5.9	*720*	60	80	100	110	120	150
6	*840*	70	85	110	120	140	175

How total feed volumes are calculated for initial feeding

The lower the weight of the infant, the higher the volume of feed per kg required.
As a guide, the average volume of feed /kg, according to weight in the stabilisation phase is:

Weight	Feed ml/kg/24 hours*
1.2 – 1.5 kg	180 ml/kg
1.6 – 1.9 kg	170 ml/kg
2.0 – 3.0 kg	155 ml/kg
3.1 – 3.5 kg	145 ml/kg
3.6 – 6.0 kg	130 ml/kg

*average rounded to nearest 5ml therefore absolute volumes per kg body weight may vary a little, these are guidance volumes.

Annex 17

Therapeutic milk feeds in the transition phase for infants who are not being breastfed

During transition phase, infants should be switched from F75 to infant formula or diluted F100.

Weight of infant	***Total feed volume in 24 hours***	**Volume of feed according to feed frequency (per 24 hours)**					
		12 feeds	**10 feeds**	**8 feeds**	**7 feeds**	**6 feeds**	**5 feeds**
kg	*ml*	ml	ml	ml	ml	ml	ml
1.2	*300*	25	25	35	40	45	60
1.3	*300*	25	30	40	40	45	60
1.4	*300*	25	30	40	45	50	60
1.5	*300*	25	30	40	45	50	60
1.6	*360*	30	40	45	50	60	70
1.7	*360*	30	40	45	50	60	70
1.8	*360*	30	40	50	50	60	80
1.9	*360*	30	40	50	60	65	80
2	*360*	30	45	50	60	65	85
2.1	*360*	30	45	50	60	65	
2.2	*480*	40	45	60	65	80	90
2.3	*480*	40	45	60	65	80	90
2.4	*480*	40	45	60	65	80	90
2.5	*540*	45	50	65	70	85	100
2.6	*540*	45	50	65	70	85	100
2.7	*540*	45	50	65	70	85	100
2.8	*540*	45	50	70	80	90	105
2.9	*540*	45	50	70	80	90	105
3	*600*	50	60	80	85	100	110
3.1	*600*	50	60	80	85	100	110
3.2	*600*	50	60	80	85	100	110
3.3	*600*	50	60	80	85	100	110
3.4	*600*	50	60	80	85	100	110
3.5	*600*	50	65	85	90	105	125
3.6	*600*	50	65	85	90	105	125
3.7	*600*	50	65	85	90	105	125
3.8	*600*	50	65	85	90	105	125
3.9	*600*	50	65	85	90	105	125
4	*720*	60	70	90	100	110	145
4.4	*720*	60	70	90	100	110	145
4.5	*780*	65	80	105	125	125	155
4.9	*780*	65	80	105	125	125	155
5	*960*	80	90	115	130	145	170
5.4	*960*	80	90	115	130	145	170
5.5	*960*	80	105	130	145	155	195
5.9	*960*	80	105	130	145	155	195
6	*1080*	90	110	145	155	180	225

How total feed volumes are calculated for the transition phase (non-breastfed infants)

The lower the weight of the infant, the higher the volume of feed per kg required.
As a rough guide, the average volume of feed/kg, according to weight in the transition phase is:

Weight	Feed ml/kg/24 hours*
1.2 – 1.5 kg	225 ml/kg
1.6 – 1.9 kg	205 ml/kg
2.0 – 3.0 kg	200 ml/kg
3.1 – 3.5 kg	180 ml/kg
3.6 – 6.0 kg	170 ml/kg

*average rounded to nearest 5ml

Refer to the large table to manage individual infants.

Annex 18

Therapeutic milk feeds in the catch-up phase for infants who are not being breastfed

Weight of infant	*Total feed volume in 24 hours*	Volume of feed according to feed frequency (per 24 hours)					
		12 feeds	10 feeds	8 feeds	7 feeds	6 feeds	5 feeds
mls	*mls*	mls	mls	mls	mls	mls	mls
1.2	*360*	30	30	40	50	55	70
1.3	*360*	30	40	50	50	55	70
1.4	*360*	30	40	50	55	65	70
1.6	*420*	35	40	50	60	70	80
1.6	*480*	40	50	55	65	70	90
1.7	*480*	40	50	55	65	70	90
1.8	*480*	40	50	65	65	70	95
1.9	*480*	40	50	65	70	80	95
2.0	*480*	40	55	65	70	80	105
2.1	*480*	40	55	65	70	80	105
2.2	*600*	50	55	70	80	95	110
2.3	*600*	50	55	70	80	95	110
2.4	*600*	50	55	70	80	95	110
2.5	*660*	55	65	80	90	105	120
2.6	*660*	55	65	80	90	105	120
2.7	*660*	55	65	80	90	105	120
2.8	*660*	55	65	90	95	110	130
2.9	*660*	55	65	90	95	110	130
3.0	*780*	65	70	95	105	120	135
3.1	*780*	65	70	95	105	120	135
3.2	*780*	65	70	95	105	120	135
3.4	*780*	65	70	95	105	120	135
3.5	*780*	65	80	105	110	130	150
3.6	*780*	65	80	105	110	130	150
3.7	*780*	65	80	105	110	130	150
3.8	*780*	65	80	105	110	130	150
3.9	*780*	65	80	105	110	130	150
4.0	*840*	70	90	110	120	135	175
4.4	*840*	70	90	110	120	135	175
4.5	*960*	80	95	130	145	150	190
4.9	*960*	80	95	130	145	150	190
5.0	*1140*	95	110	145	160	175	210
5.4	*1140*	95	110	145	160	175	210
5.5	*1140*	95	130	160	175	190	240
5.9	*1140*	95	130	160	175	190	240
6.0	*1320*	110	135	175	190	225	280

How total feed volumes are calculated for catch-up/rehabilitation (non-breastfed infants)

The lower the weight of the infant, the higher the volume of feed per kg required.
As a rough guide, the average volume of feed/kg, according to weight in the catch-up phase is:

Weight	Feed ml/kg/24 hours*
1.2 - 1.9 kg	270 ml/kg
2.0 - 3.0 kg	270 ml/kg
3.1 - 3.5 kg	240 ml/kg
3.6 - 6.0 kg	230 ml/kg

*average rounded to nearest 5ml

Refer to the large table to manage individual infants.

Annex 19

WHO HIV and Infant Feeding Technical Consultation Held on behalf of the Inter-agency Task Team (IATT) on Prevention of HIV Infections in Pregnant Women, Mothers and their Infants Geneva, October 25–27, 2006

CONSENSUS STATEMENT

Researchers, programme implementers, infant feeding experts and representatives of the IATT[1], UN agencies, the WHO Regional Office for Africa and six WHO headquarters departments[2] gathered in Geneva in order to review the substantial body of new evidence and experience regarding HIV and infant feeding that has been accumulating since a previous technical consultation in October 2000[3], and since the Glion[4] and Abuja[5] calls to action on the prevention of mother to child transmission of HIV. The aim was to establish whether it is possible to clarify and refine the existing UN guidance[6], which was based on the recommendations from the previous meeting.

After three days of technical and programmatic presentations and intensive discussion, the group endorsed the general principles underpinning the October 2000 recommendations and, based on the new evidence and experience presented, reached consensus regarding a range of issues and their implications. This statement presents a preliminary summary pending publication of the full report.

New evidence on HIV transmission through breastfeeding:

- Exclusive breastfeeding for up to six months was associated with a three to four fold decreased risk of transmission of HIV compared to non-exclusive breastfeeding[7] in three large cohort studies conducted in Côte d'Ivoire, South Africa and Zimbabwe.
- Low maternal CD4+ count, high viral load in breast milk and plasma, maternal seroconversion during breastfeeding and breastfeeding duration were confirmed as important risk factors for postnatal HIV transmission and child mortality.
- There are indications that maternal HAART for treatment-eligible women may reduce postnatal HIV transmission, based on programme data from Botswana, Mozambique and Uganda; follow-up trial data on the safety and efficacy of this approach, and on infant prophylaxis trials, are awaited.

New evidence on morbidity and mortality

- In settings where antiretroviral prophylaxis and free infant formula were provided, the combined risk of HIV infection and death by 18 months of age was similar in infants who were replacement fed from birth and infants breastfed for 3 to 6 months (Botswana and Côte d'Ivoire).
- Early cessation of breastfeeding (before 6 months) was associated with an increased risk of infant morbidity (especially diarrhoea) and mortality in HIV-exposed children[8] in completed (Malawi) and ongoing studies (Kenya, Uganda and Zambia).
- Early breastfeeding cessation at 4 months was associated with reduced HIV transmission but also with increased child mortality from 4 to 24 months in preliminary data presented from a randomized trial in Zambia.
- Breastfeeding of HIV-infected infants beyond 6 months was associated with improved survival compared to stopping breastfeeding in preliminary data presented from Botswana and Zambia.

Improving infant feeding practices

- Improved adherence and longer duration of exclusive breastfeeding up to 6 months were achieved in HIV-infected and HIV-uninfected mothers when they were provided with consistent messages and frequent, high quality counselling in South Africa, Zambia and Zimbabwe.

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[1] Academy for Educational Development, Catholic Medical Mission Board, Columbia University, Elizabeth Glaser Pediatric AIDS Foundation, UNAIDS, UNFPA, UNICEF, US Agency for International Development and the US Centers for Disease Control.

[2] Child and Adolescent Health and Development, Nutrition for Health and Development, HIV/AIDS, Reproductive Health Research, Making Pregnancy Safer and Food Safety, Zoonoses and Foodborne Diseases.

[3] WHO. New data on the prevention of mother-to-child transmission of HIV and their policy implications. Conclusions and recommendations. WHO technical consultation on behalf of the UNFPA/UNICEF/WHO/UNAIDS Inter-agency Task Team on mother-to-child transmission of HIV. Geneva, 11-13 October 2000. Geneva, WHO 2001, WHO/RHR/01.28.

[4] UNFPA and WHO. The Glion Call to Action on Family Planning and HIV/AIDS in Women and Children, 3-5 May 2004.

[5] Call to Action : Towards an HIV-free and AIDS-free Generation. Prevention of mother-to-child transmission high-level global partners forum, Abuja, Nigeria, December 3, 2005.

[6] For current guidance, please see documents and tools at http://www.who.int/child-adolescenthealth/NUTRITION/HIV _infant.htm; and Guidelines for the Safe Preparation, Storage and Handling of Powdered Infant Formula.

[7] In Côte d'Ivoire, non-exclusive breastfeeding included any other liquids or foods; in South Africa, it included non-human milks or other liquids, with or without solids; in Zimbabwe, it included feeding nonbreast milk foods and liquids.

[8] HIV-exposed refers to children born or breastfed by women living with HIV.

New programme data

- UN HIV and infant feeding guidance is available and increasingly used in policy-making in countries, but challenges in implementation remain.
- Coverage and quality of the full range[9] of interventions to prevent mother-to-child transmission of HIV, including those related to infant feeding counselling and support, is disturbingly low.
- Weak and poorly organized health services affect the quality of infant feeding counselling and support. Inaccurate, insufficient, or nonexistent infant feeding counselling has led to inappropriate feeding choices by both HIV-infected and HIV-uninfected women.
- Scaling-up quality infant feeding counselling and support and related interventions needs sustained and strong commitment and support from international agencies and donors working in concert with Ministries of Health.
- The sharp increase in deaths from diarrhoea and malnutrition in nonbreastfed infants and young children during a recent diarrhoeal disease outbreak in one country emphasizes the vulnerability of replacementfed infants and young children, and the need for adequate follow-up for all infants.
- Increasing access to early infant diagnosis in the first months of life and to paediatric ARV treatment provides new opportunities for postnatal infant feeding assessment, counselling, and follow-up nutritional support.
- Multidisciplinary research, from basic science through clinical trial and operational research, is still needed on identified priority issues, including ways of making infant feeding options safer for HIVexposed infants.

Recommendations:

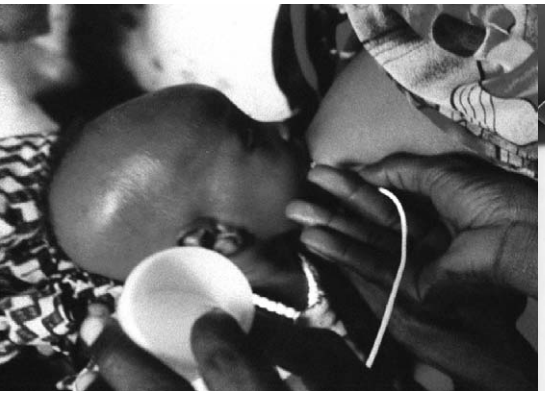
The following recommendations for policy-makers and programme managers are intended to supplement, clarify and update existing UN guidance and do not replace it. Based on this consultation, a technical update of the relevant UN guidance will be forthcoming.

- The most appropriate infant feeding option for an HIV-infected mother should continue to depend on her individual circumstances, including her health status and the local situation, but should take greater consideration of the health services available and the counselling and support she is likely to receive.
- Exclusive breastfeeding is recommended for HIV-infected women for the first 6 months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time.
- When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected women is recommended.
- At six months, if replacement feeding is still not acceptable, feasible, affordable, sustainable and safe, continuation of breastfeeding with additional complementary foods is recommended, while the motherand baby continue to be regularly assessed. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided.
- Whatever the feeding decision, health services should follow-up all HIV-exposed infants, and continue to offer infant feeding counselling and support, particularly at key points when feeding decisions may be reconsidered, such as the time of early infant diagnosis and at six months of age.
- Breastfeeding mothers of infants and young children who are known to be HIV-infected should be strongly encouraged to continue breastfeeding.
- Governments and other stakeholders should re-vitalize breastfeeding protection, promotion and support in the general population. They should also actively support HIV-infected mothers who choose to exclusively breastfeed, and take measures to make replacement feeding safer for HIV-infected women who choose that option.
- National programmes should provide all HIV-exposed infants and their mothers with a full package of child survival and reproductive health interventions[10] with effective linkages to HIV prevention, treatment and care services. In addition, health services should make special efforts to support primary prevention for women who test negative in antenatal and delivery settings, with particular attention to the breastfeeding period.
- Governments should ensure that the package of interventions referenced above, as well as the conditions described in current guidance[11], are available before any distribution of free commercial infant formula is considered.
- Governments and donors should greatly increase their commitment and resources for implementation of the Global Strategy for Infant and Young Child Feeding and the UN HIV and Infant Feeding Framework for Priority Action in order to effectively prevent postnatal HIV infections, improve HIV-free survival and achieve relevant UNGASS goals.

[9] The full range of interventions includes: primary prevention of HIV infection in women; prevention of unintended pregnancies in women living with HIV; prevention of transmission from women living with HIV to their infants; and provision of care, treatment and support for women living with HIV and their families.
[10] See: WHO. Antiretroviral drugs for treating pregnant women and preventing HIV infection in infants in resource-limited settings. Geneva, 2006; WHO. The World Health Report: Make every mother and child count. Geneva, 2005.
[11] See http://www.who.int/child-adolescent-health/NUTRITION/HIV_infant.htm.

Overhead Figures

Kent Page, UNICEF, DRC, 2003



Inside the breast

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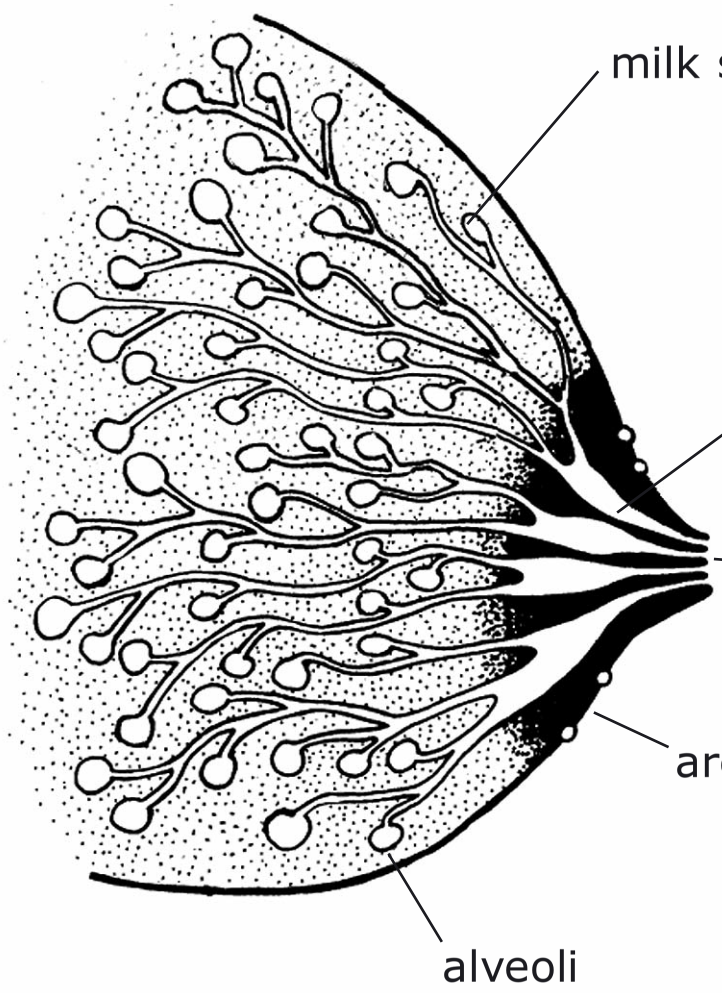

Adapted from WHO/UNICEF BFC, 1993

Inside the baby's mouth

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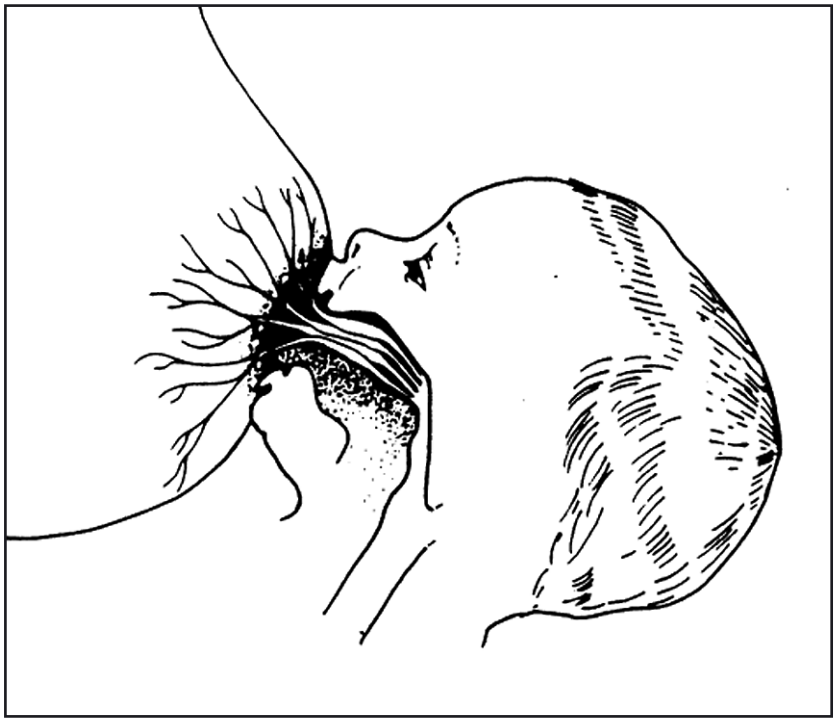
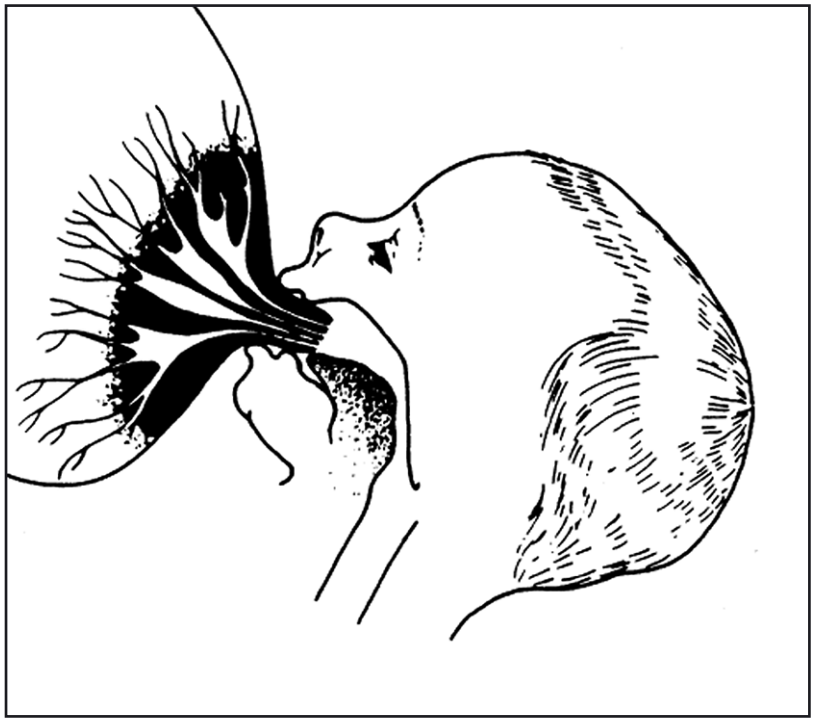


Good attachment

2



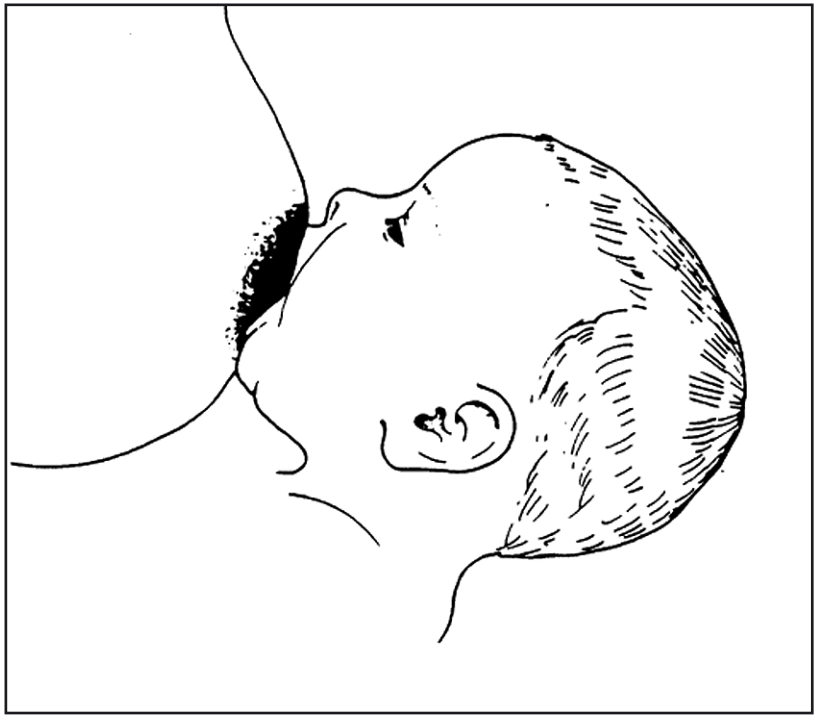
Poor attachment

WHO/UNICEF BFC, 1993

Observing attachment at the breast

IFE 2/3

1



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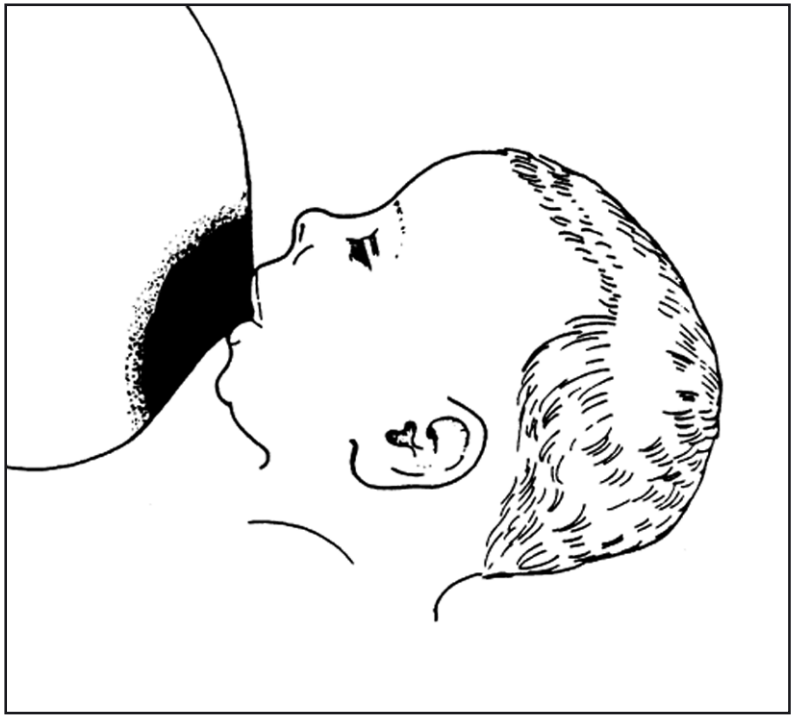


Areola, mouth, lower lip, chin

WHO/UNICEF BFC, 1993

Evaluating attachment at the breast

IFE 2/4

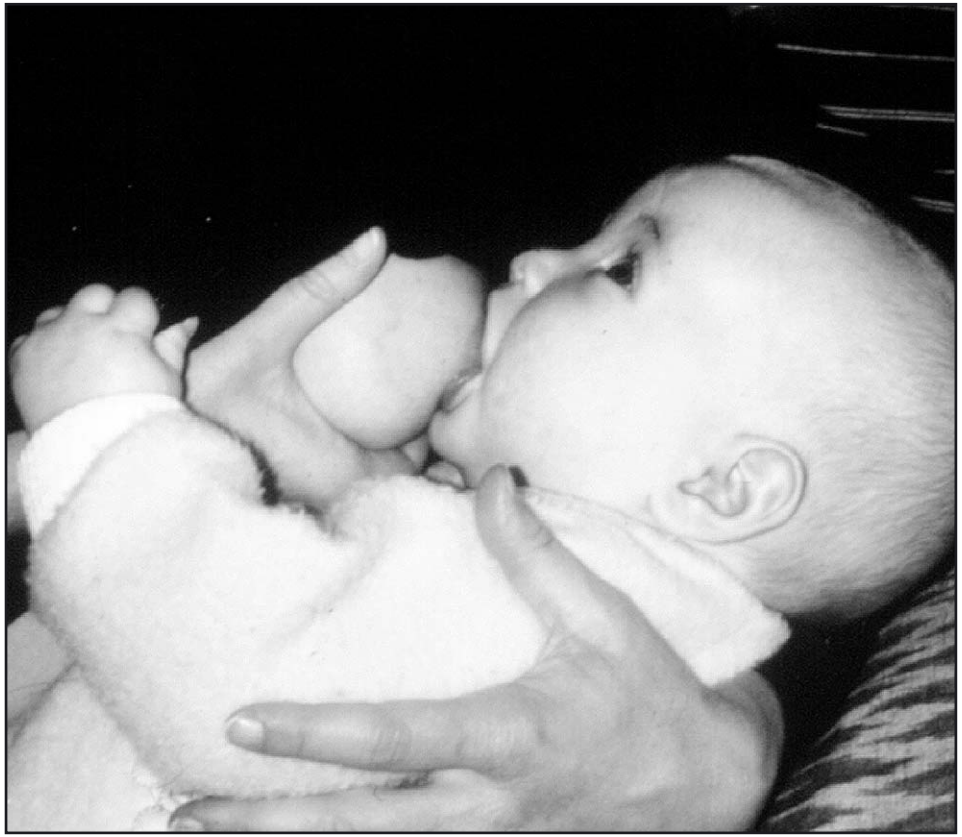
1

2

Evaluating attachment at the breast

IFE 2/5

1

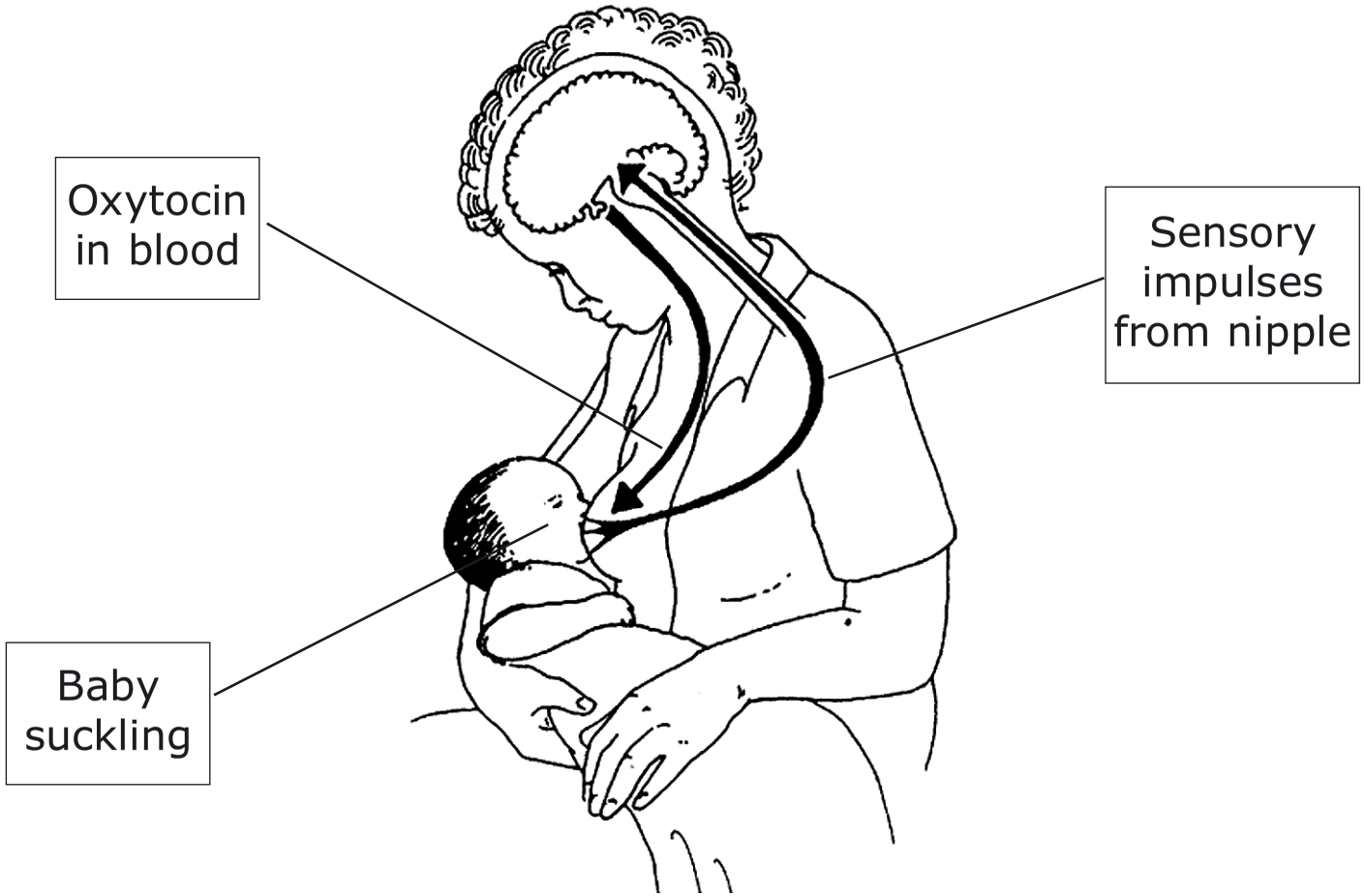


2

Milk flow: the oxytocin reflex

IFE 2/6

Works **before** or **during** feed to make milk **flow**



WHO/UNICEF BFC, 1993

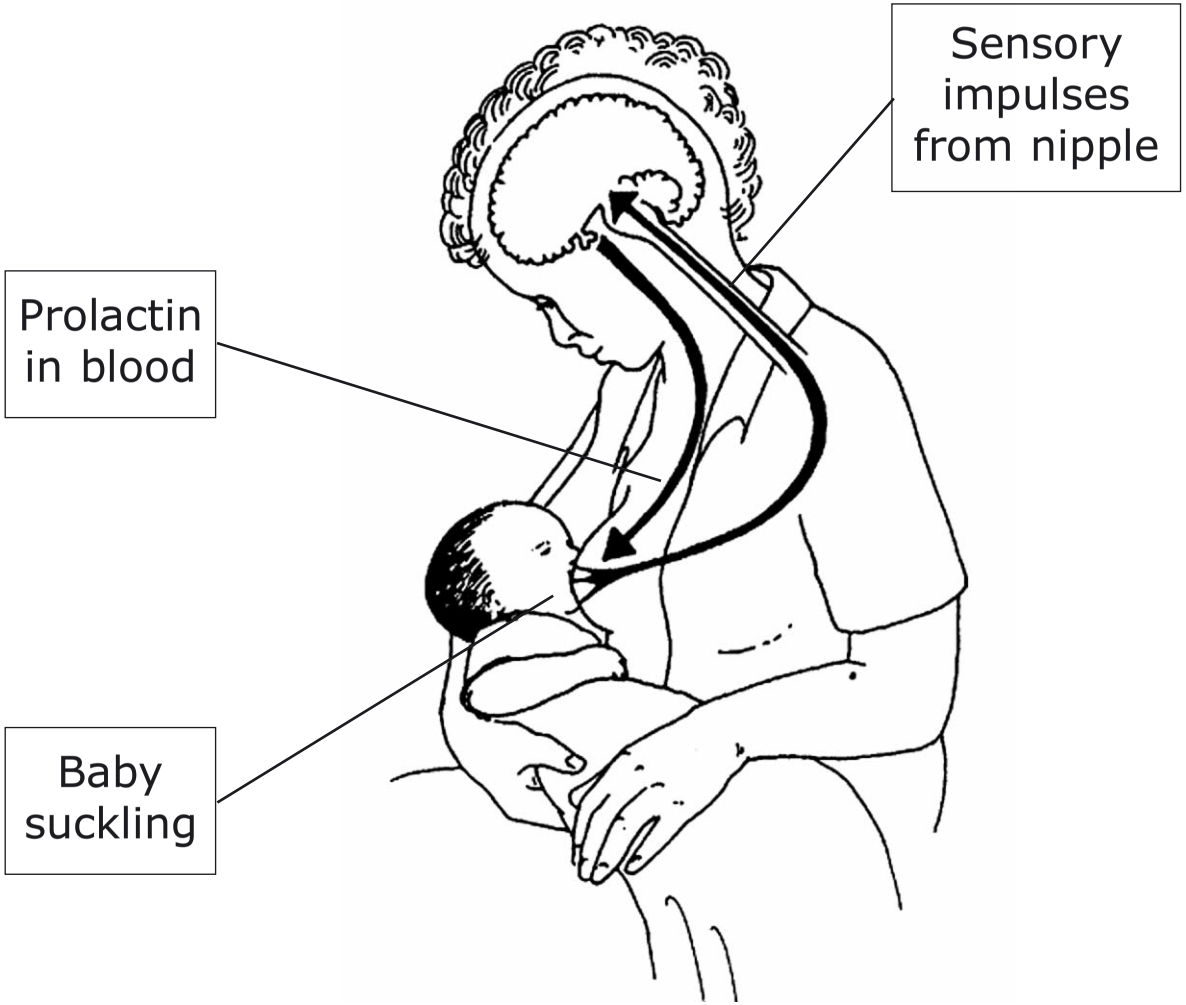
Companionship and protection help milk flow

IFE 2/7

Janet Griffin/Nepal, from IFE, WEMOS/IBFAN

Milk production: the prolactin reflex

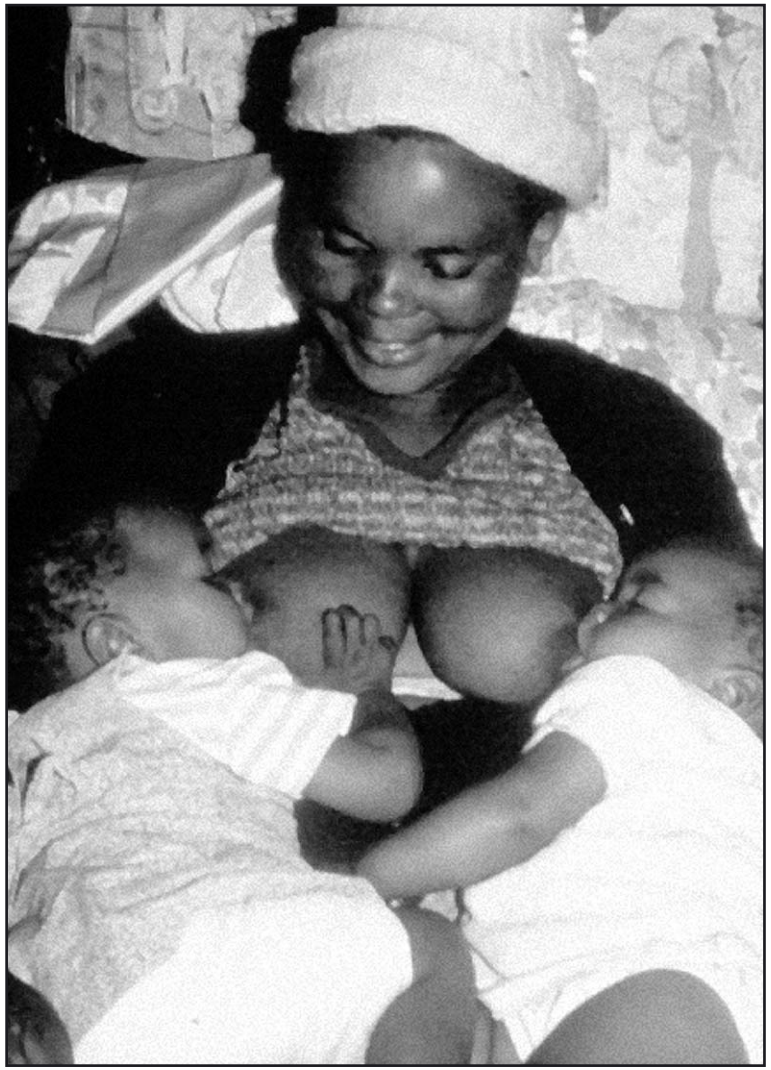
IFE 2/8



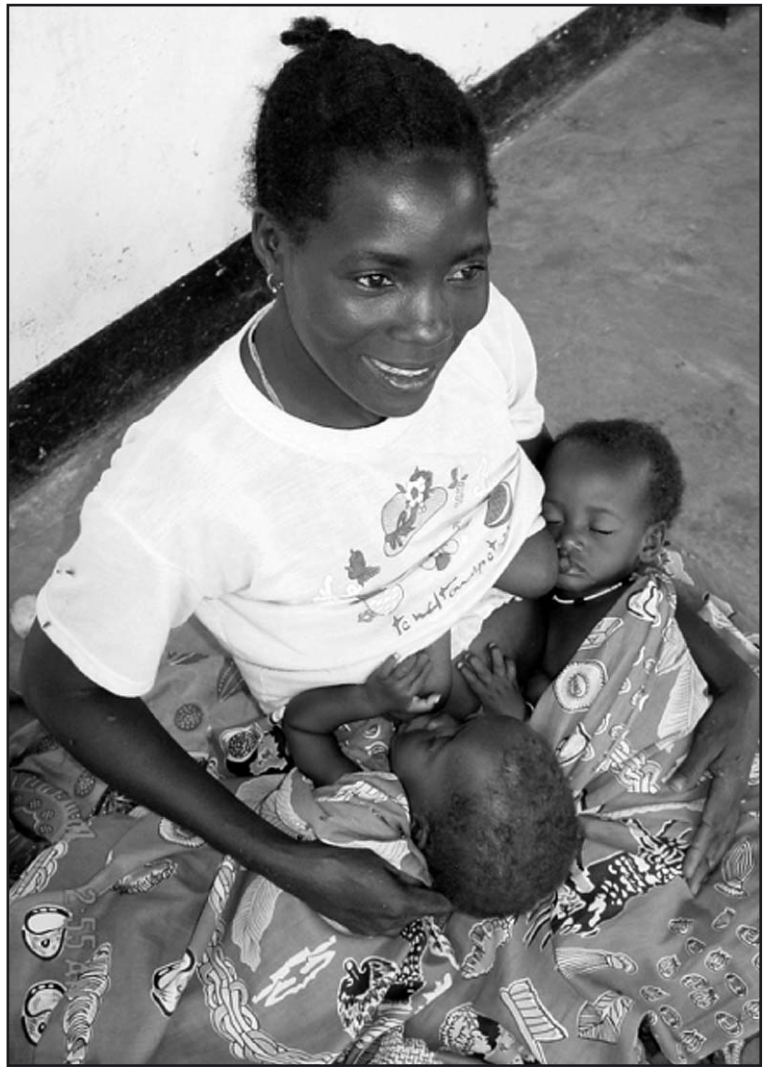
WHO/UNICEF BFC, 1993

Breastfed twins: Swaziland and Angola

IFE 2/9



By F. Savage, Swaziland



Mary Lungaho, Cubal, Angola

Four elements of supportive care

IFE2/10

Adequate nutrition

Continuing assistance and social support

Helpful maternity services

Appropriate health services

Adapted from F. Savage, A. Burgess - Nutrition for Developing Countries. 1993

A malnourished mother breastfeeds

IFE2/11

Sierra Leone, 2001

© Joyce Kelly (ENN) 2001

Feed the mother and let her feed the infant

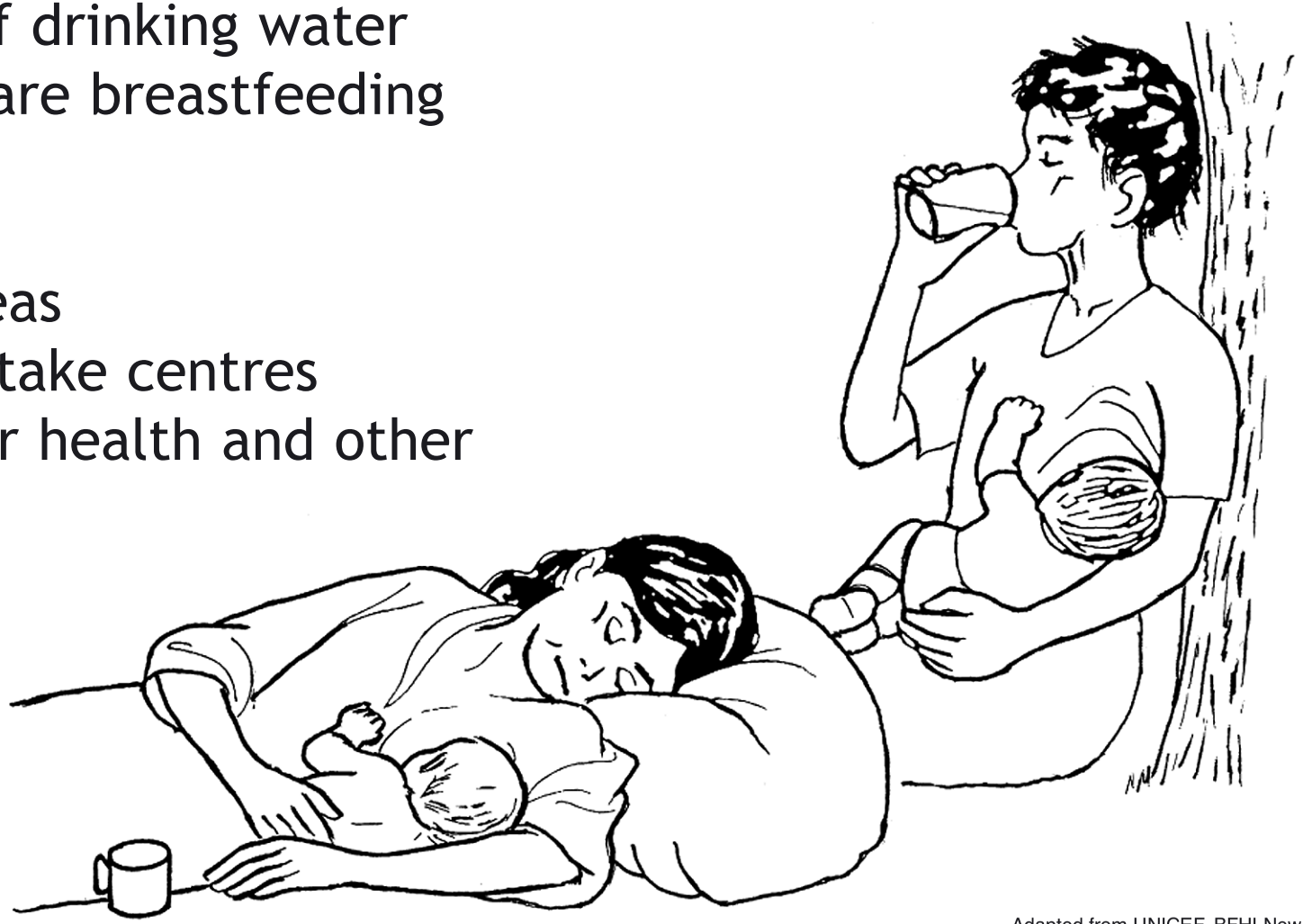
Monitor the weight and urine output.
Temporary supplements by cup may be needed while the mother´s milk production increases.

Prevent dehydration

IFE2/12

Provide plenty of drinking water wherever there are breastfeeding women in:

- transit rest areas
- registration/intake centres
- long queues for health and other services.



Adapted from UNICEF. BFHI News

Skin-to-skin contact immediately after birth

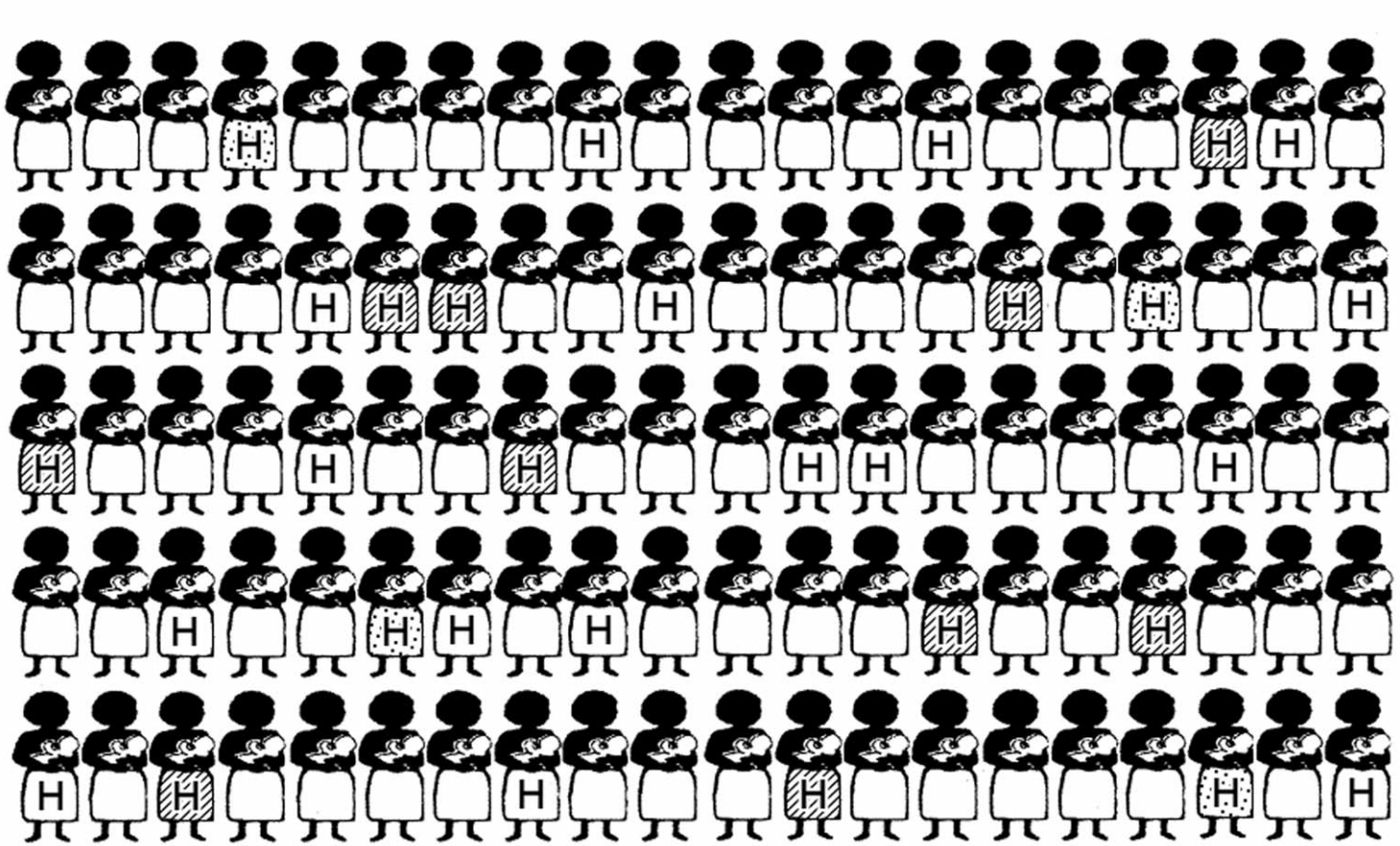
IFE2/13

R. Lemoyne/UNICEF C-95 Thailand

A newborn shows that he is ready to feed and actively seeks the nipple.
He is in full skin-to-skin contact with his mother.
The mother and baby are kept warm together.

If 100 women breastfeed where HIV is prevalent

IFE2/14



UNAIDS/UNICEF/
WHO. HIVC. 2000

H = 30 of these women are HIV-positive and untreated

▨ = 10 of the HIV-positive women transmit the virus before/during birth

▩ = 4 of the HIV-positive women transmit the virus by breastfeeding

Supportive arrangements and personal attention

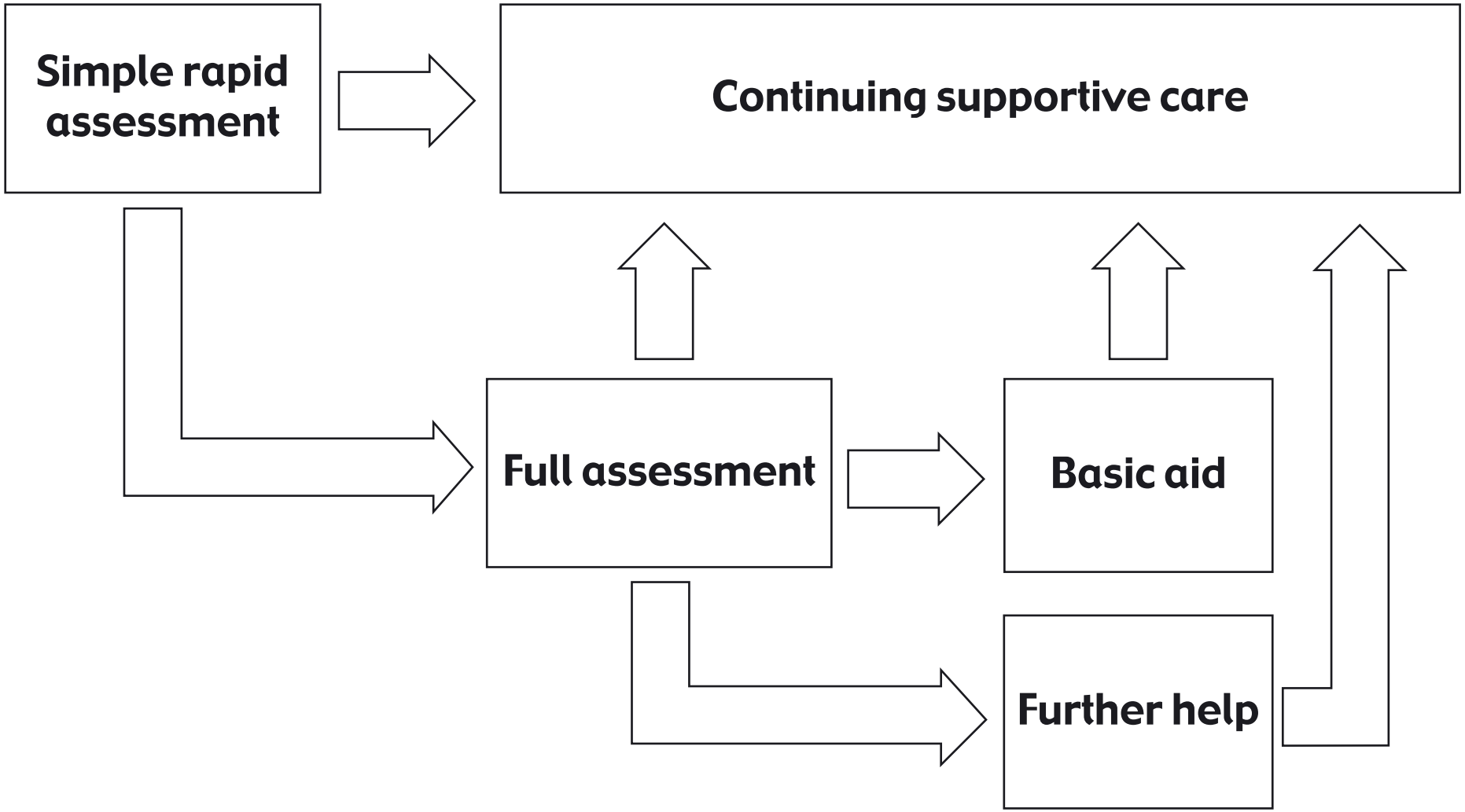
IFE2/15

- reduce isolation
- provide privacy if culturally required
- encourage age-appropriate feeding
- educate family and community members
- remove conflicting messages
- listen
- build confidence.

Adapted from F. Savage, A Burgess - Nutrition for Developing Countries. 1993

Deciding who needs help

IFE2/16



Simple Rapid Assessment (SRA): Age-appropriate feeding IFE2/17

Ask:

1. How old is the baby? Age_____months
2. Are you breastfeeding him her?
3. Is the baby getting anything else to drink or eat?

Reasons to refer for Full Assessment:

- not breastfed
- breastfed but feeding not age-appropriate
  - under 6 months, not exclusively breastfed
  - over 6 months, given no complementary food.

Simple Rapid Assessment (SRA): Breastfeeding ease

Ask:

4. Is the baby able to suckle the breast?
5. Have you any other difficulties with breastfeeding?

Reasons to refer for Full Assessment:

- baby not able to suckle
- mother has other difficulties with breastfeeding
- mother requests breastmilk substitute.

Simple Rapid Assessment: Looking at baby's condition

Look:

6. Does the baby look very thin?
7. Is the baby lethargic, perhaps ill?

Reasons to refer for Full Assessment:

- looks very thin
- lethargic, perhaps ill.

Full assessment Step 1: Observing a breastfeed

- **Attachment**
  - areola, more above
  - mouth wide open
  - lower lip turned out
  - chin close to or touching breast
  - no nipple pain or discomfort.

- **Suckling**
  - slow, deep sucks, sometimes pausing
  - audible or visible swallowing.

- **Mother confident**
  - enjoyment, relaxation (not shaking breast or baby)
  - signs of bonding (stroking, eye contact, close gentle holding).

- **How the feed ends**
  - baby comes off the breast by itself (not taken off by mother)
  - baby looks relaxed and satisfied, and loses interest in the breast
  - mother keeps the breast available, or offers the other breast.

Full Assessment Step 2: Listening and learning

IFE 2/21

Breastfeeding? ___yes ___no **How often by day?_____ by night?_____**
(Using a pacifier? ___yes ___no)

Other drinks and foods? ___yes ___no
What drinks? _____ **How given?**_____
How many times a day? _____
What sort of family foods? _____
How many times a day? _____

Beliefs and worries about feeding; how mother/caregiver decided

_____

_____

How is mother/caregiver physically and emotionally?

_____

_____

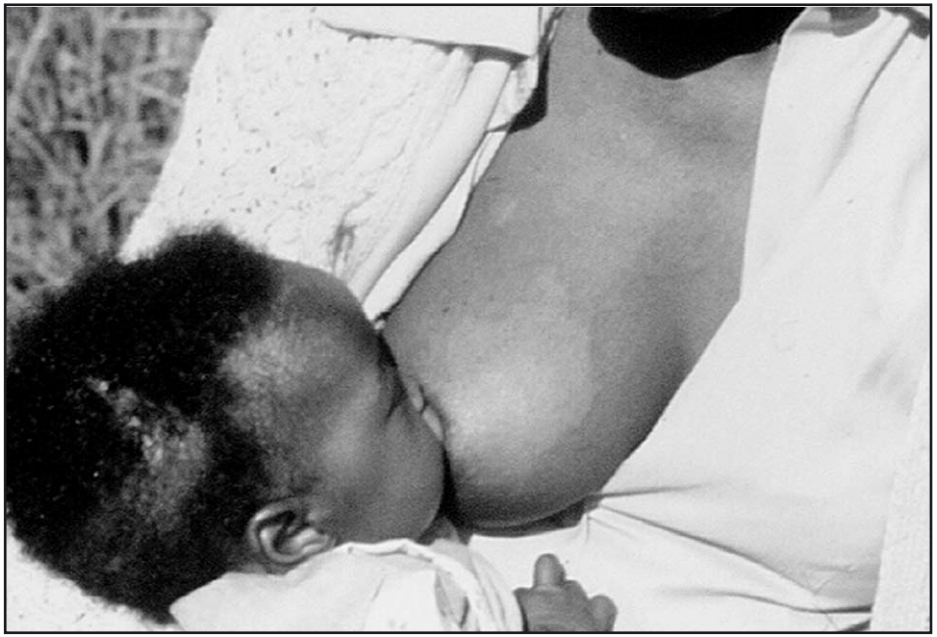
Interest in increasing breastmilk or relactation ___yes ___no

This transparency summarizes the topics to cover in learning from the mother or caregiver. But it cannot show how to ask open questions, to listen attentively and to be sensitive to each woman in accord with her culture and her feelings.

Appropriate help restores breastfeeding and growth

IFE 2/22

Ella at four weeks



Ella at four months

Source: Felicity Savage

Basic Aid for breastfeeding

Step 1. Ensure effective suckling

- improve attachment
- help with positioning, if necessary
- avoid distractions
- remove interference with suckling (bottles, pacifiers).

Step 2. Build the mother's confidence and help milk flow

- encourage skin-to-skin contact, face-to-face interaction
- have a reassuring, friendly manner, without criticism or commands
- praise what mother and baby are doing well
- give her relevant information in an encouraging way
- try to find warm companionship for her.

Age-appropriate feeding

IFE 2/24

includes starting complementary foods at the age of 6 months

Brian Gleeson, CRS Angola

From six months to two years of age, children should receive appropriate complementary foods in addition to continued frequent breastfeeding.

Step 3. Increase milk production

- Encourage the mother to let the baby suckle frequently.
- Explain how to let the baby suckle longer at each feed.
- Help the mother to get enough water to drink. (Supportive care assures mother gets enough food.)
- Remove any interference; reduce supplements by 30-60 ml/day.

Step 4. Encourage age-appropriate feeding

- If necessary help the mother to re-establish exclusive breastfeeding until the baby is six months old.
- If milk supplements are needed, teach her to give them by cup, not bottle.
- Show her how to prepare and give adequate complementary foods from six months of age.

Feeding with a cup

IFE 2/26

If an infant can

- suck (or lap milk with the tongue) and
- swallow

he or she can be fed with any open cup

Adapted from UNICEF BFHI News

Use of feeding bottles increases risks of illness.

How to cup feed

IFE 2/27

F. Savage / Philippines & UK

The milk just reaches the infant's lips.
The caregiver does not pour the milk into the baby's mouth.
The infant takes up the milk with his/her tongue, sucks or sips.

Cup feeding a Low-Birth-Weight (LBW) infant with expressed breastmilk

IFE 2/28

UNICEF/HQ91-0505/Betty Press

A mother in Kenya feeds her own freshly expressed breastmilk to her low-birth-weight baby.

In this maternity facility, mothers help each other to learn the skills of hand expression and cup feeding until their babies are ready to suckle.

LBW infants are discharged exclusively breastfeeding.

Kangaroo Care

To reduce heat loss when very cold cover the infant´s head with a cap or the mother's shawl.

The infant is kept in full skin-to-skin contact with the mother day and night, and breastfeeds as much as his/her condition allows.

Bonding is improved by Kangaroo Care

The infant's hands should be left free so he or she can move them in or out of the warmth.

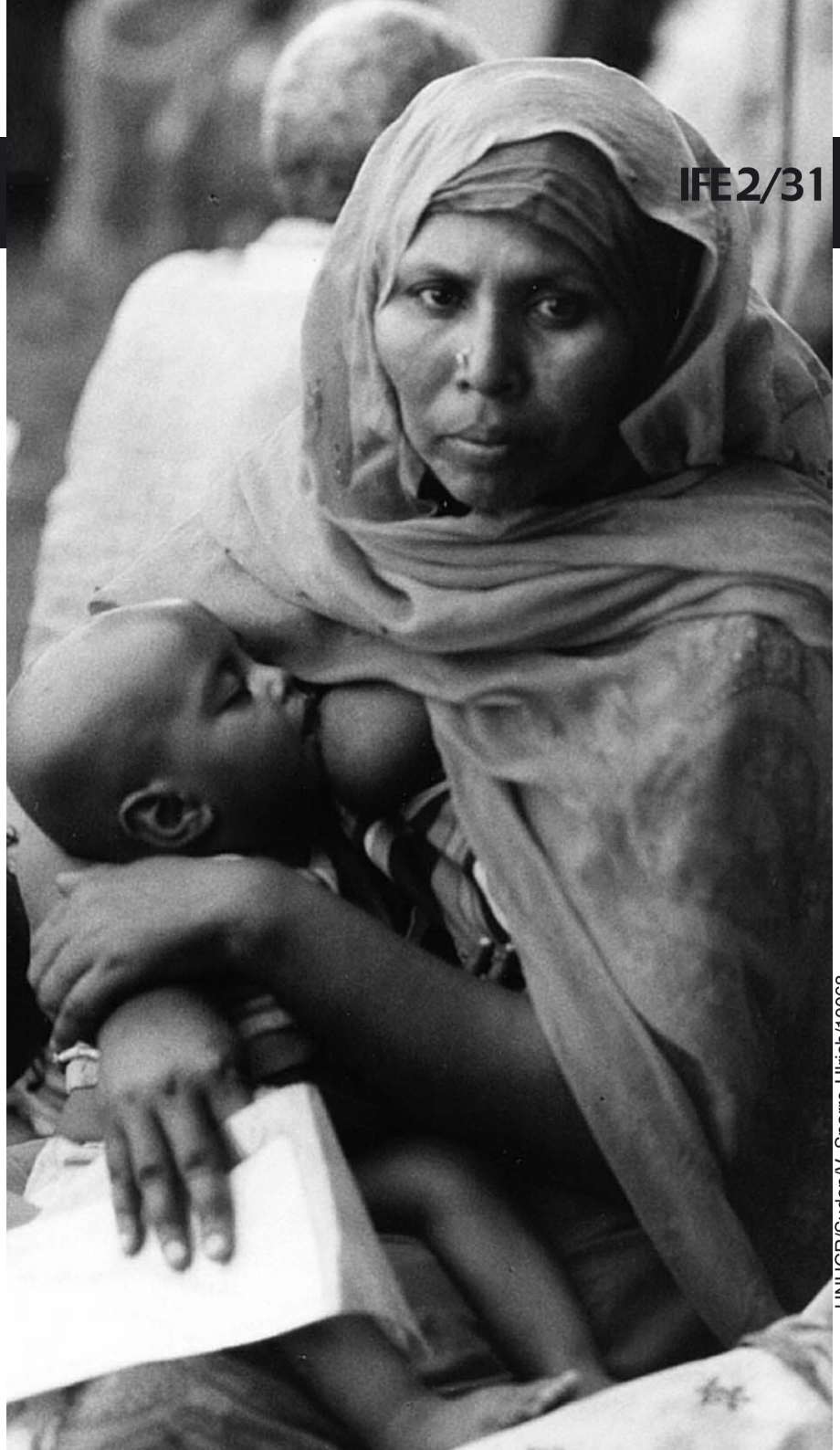
Kangaroo Care infants may regulate their own temperature in this way.

UNICEF/HQ94-0632/Dora Gutierrez

The need for restorative care

IFE2/31

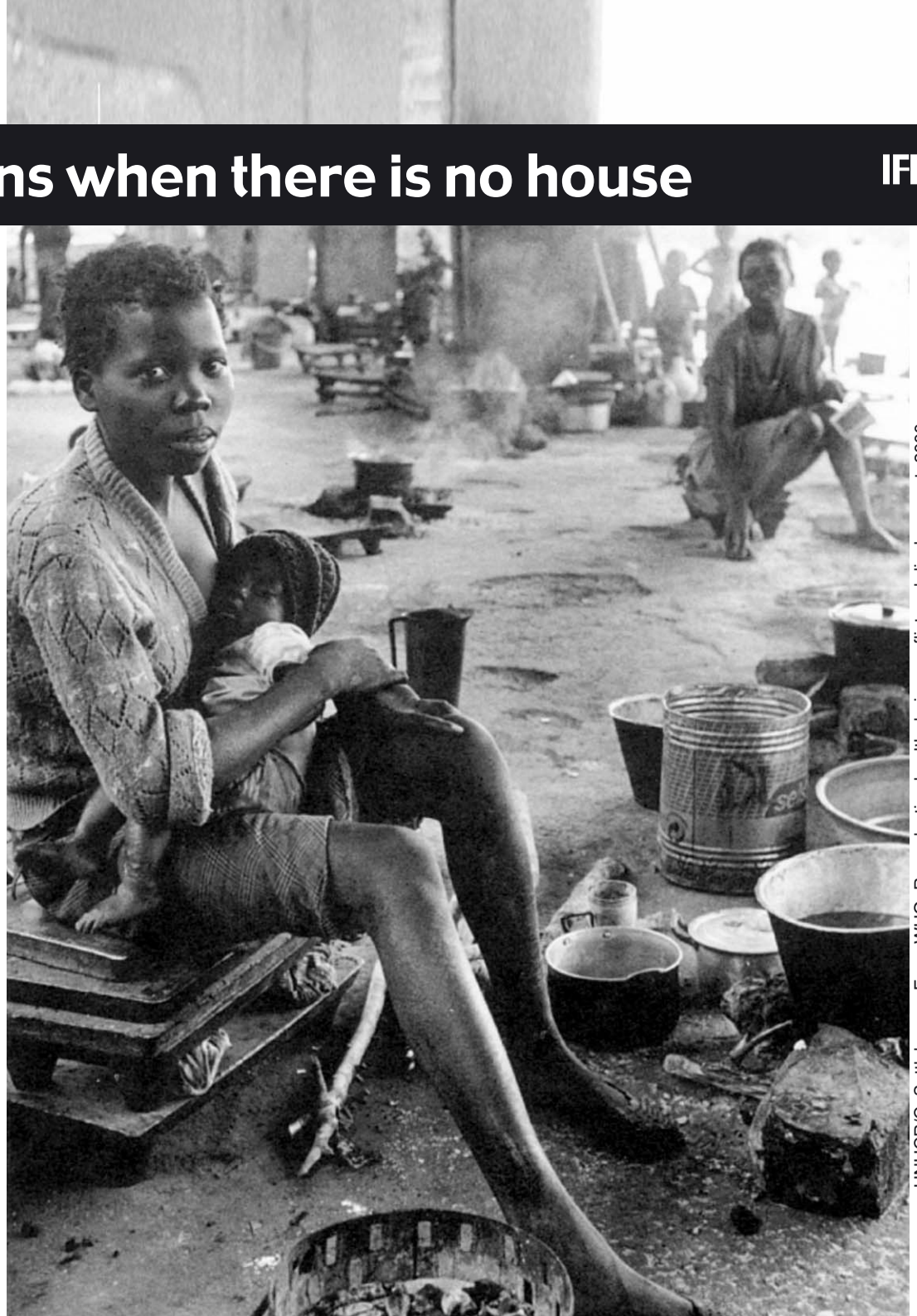
Stress, trauma, grief, or sexual violence do not spoil a mother's breastmilk, but she needs care that helps to restore her emotional balance.



UNHCR/Sudan/V. Sparre-Ulrich/10068

"Household" conditions when there is no house

IFE 2/32



UNHCR/C. Sattleberger. From WHO, Reproductive health during conflict and displacement. 2000

Full Assessment Step 3: Observing artificial feeding

What resources are available in the household?

Breastmilk substitute

___Suitable breastmilk substitute
(or ingredients and recipe)
___Expiry date clear, not past
___Instructions in user's own language
___Household member able to read instructions
___Supply assured until need no longer exists.

Storage

___Safe storage for ingredients, feeds
___Water boiled (special clean container, cover)
___Refrigeration available (if feeds made in advance).

Preparation facilities

___Adequate fuel for preparation
___Adequate drinking water for preparation
___Adequate other water, soap for utensils, hands
___Clean surface, clean cloth to cover utensils
___Means of measuring milk and water (not bottle).

Extra time

___Time to prepare 6-8 fresh feeds/day.

Full Assessment Step 3: Observing artificial feeding

How does the caregiver manage the feeding?

Preparation

___Caregiver washes hands
___Cup washed with soap, water
___Bottle, teat washed and boiled before this use
___Caregiver measures milk, water correctly.

Feeding technique

___Infant fed with cup, takes most of milk
___Infant fed with bottle, artificial teat
___Infant fed with another method: _____

Interaction and end

___Infant is held throughout feed
___Caregiver interacts lovingly during feed
___Infant finishes milk
___None of feed kept for giving to infant later.

Adequacy of milk feeds

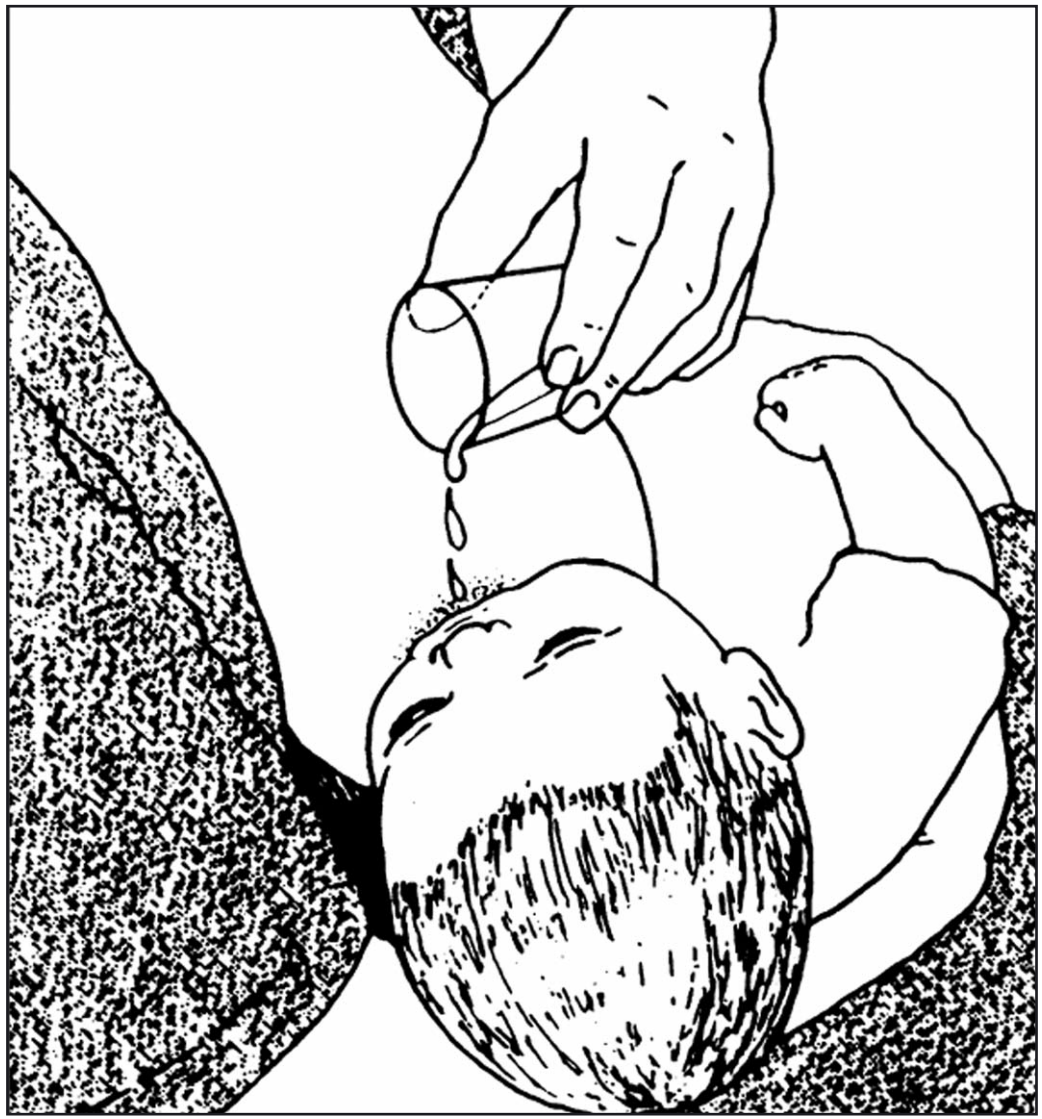
___Correct number and amount of milk feeds for age or weight.

Age-appropriate feeding

___Under 6 months, only milk is given
___Over 6 months, milk and complementary foods are given.

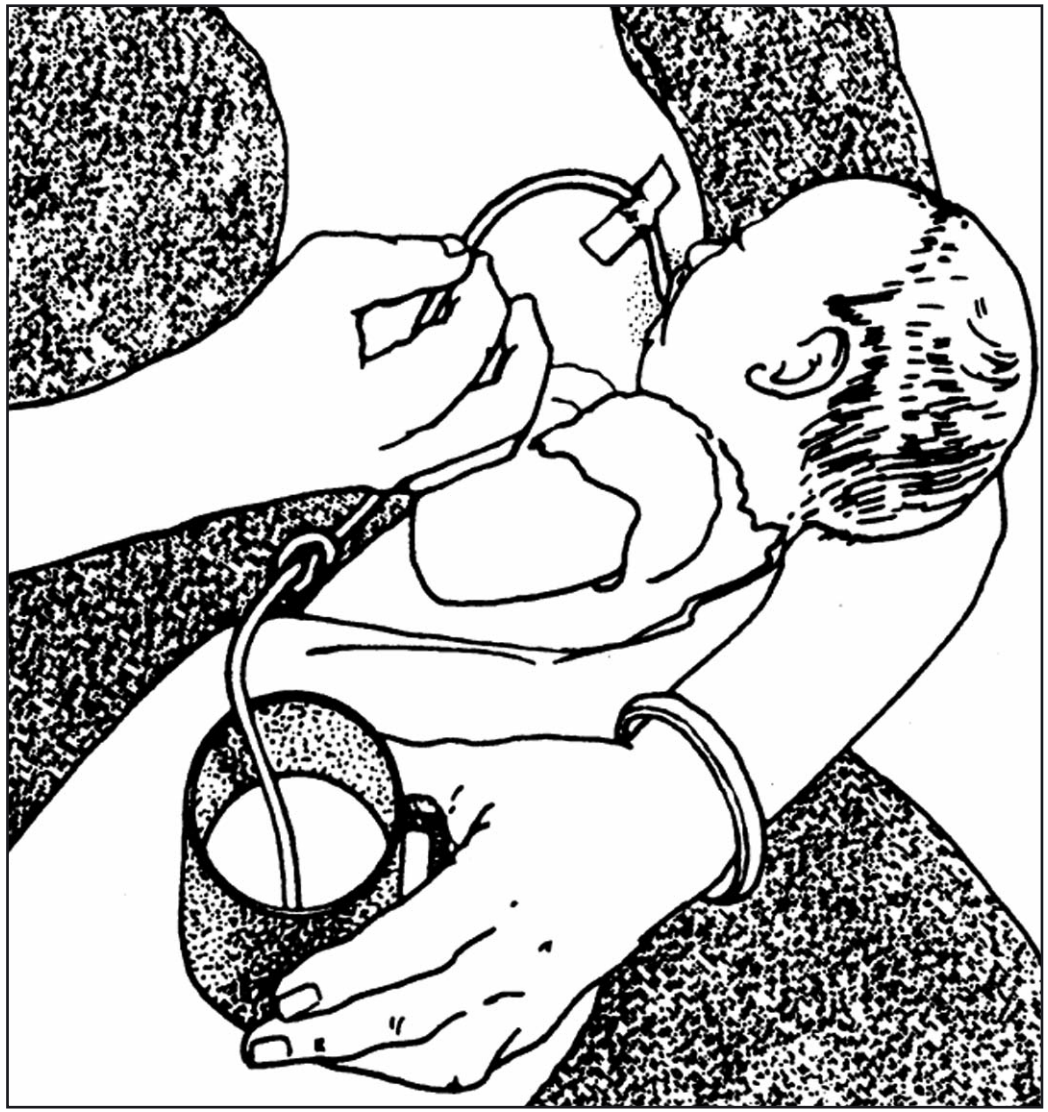
The drop and drip technique

IFE 2/35



Using a breastfeeding supplementer

IFE 2/36



Mother using breastfeeding supplementer

IFE 2/37

UNICEF, Somalia

The update to Module 2, v1.1 was funded by the UNICEF-led Inter-Agency Standing Committee (IASC) Nutrition Cluster.