REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Primary Health Care Directorate

National Guidelines on Infant and Young Child Feeding

May 2011

MINISTRY OF HEALTH AND SOCIAL SERVICES

NATIONAL GUIDELINES ON INFANT AND YOUNG CHILD FEEDING

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PREFACE

Breastfeeding provides benefits to both the child and the mother, as well as enhances quality of life through its nutritional and psychosocial benefits. Breastfeeding contributes to maternal health and child survival. Breastfeeding provides complete nutrition for the first 6 months. From 6 months onwards the breast milk will not satisfy the need of the infant and has to be complemented. Breastfeeding significantly improves child survival by protecting against diarrhoeal, pneumonia and other infectious diseases.

The 2010 National HIV Sentinel Sero-Prevalence Survey shows that 18.8% of pregnant mothers attending antenatal care were HIV infected. As compared to 17.8% in 2008, there was a slight increase in HIV prevalence. The National Strategic Framework for HIV and AIDS 2010-2015 aims to reduce mother to child transmission of HIV from 12% in 2007 to 4% by2015. This is in line with the WHO virtual elimination of Mother to Child Transmission (MTCT) target of less than 5% by 2015. If no intervention is provided, breastfeeding contributes to 30-40% mother to child transmission of HIV. With appropriate interventions, this transmission can be reduced to less than 5%. Anti Retroviral (ARV) prophylaxis during pregnancy and childbirth and continued use of ARV's during the breastfeeding period, ensures reduction of MTCT.

It is crucial to inform all mothers and their partners about HIV transmission and the importance of primary prevention. It is also necessary to discuss the importance of HIV testing and knowing one's status to receive medical attention, including appropriate counselling on infant feeding.

These guidelines have been developed in line with the WHO HIV and Infant Feeding Revised Principles and Recommendations, Rapid Advice released in 2010 and based on programme experiences with promotion of infant and young child feeding, including supporting HIV positive mother with feeding their children in Namibia.

These guidelines focus on the benefits of exclusive breastfeeding, management of breast problems, introduction of complementary foods and young child nutrition needs. The purpose of these guidelines is to promote, protect and support breastfeeding for all children.

The government and all involved stakeholders shall improve health education for primary prevention of HIV including improved access to rapid HIV counselling and testing (HCT) and for all pregnant women and their partners. In addition, improved obstetric and nutrition care, and increased support to pregnant and breastfeeding women should be provided. The strategies to reduce HIV transmission include HCT, PMTCT with exclusive breastfeeding from birth to six months and continued breastfeeding with complementary foods at six months and timely ARV interventions.

I would like to call upon all health care providers to make a commitment to provide quality services in infant and young child feeding and strengthen their efforts to promote, protect, and support breastfeeding for all children.

The Ministry of Health and Social Services would like to acknowledge all those who, in various capacities, contributed to the development of these guidelines. Most of all we would like to thank UNICEF, WHO, USAID, FANTA-2 and ITECH- Namibia for their technical and financial support.

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PERMANENT SECRETARY

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral therapy
BFHI	Baby Friendly Hospital Initiative
BMFI	Baby and Mother Friendly Initiative
BMS	Breast Milk Substitute
EBM	Expressed Breast milk
EPI	Expanded Programme on Immunization
FANTA-2	Food and Nutrition Technical Assistance II Project
GMP	Growth Monitoring and Promotion
GI	Gastrointestinal
GNP	Gross National Product
HCT	HIV Counselling and Testing
HIS	Health Information System
HIV	Human Immunodeficiency Virus
IBFAN	International Baby Food Action Network
IgA	Immunoglobulin Antigen
ILO	International Labour Organization
IU	International Units
IMCI	Integrated Management of Childhood Illnesses
IYCF	Infant and Young Child Feeding
ITECH	International Training and Education Center on HIV
MCH	Maternal and Child Health
MPC	Maternity Protection Convention
MTCT	Mother to Child Transmission
NDHS	Namibia Demographic and Health Survey
NGO	Non Government Organisation
NHTC	National Health Training Centre
PHC	Primary Health Care
PMTCT	Prevention of Mother to Child transmission
RH	Reproductive Health
UNICEF	United Nations Children's Fund
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
WHA	World Health Assembly
WHO	World Health Organisation

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CHAPTER 1: INTRODUCTION

Exclusive breastfeeding in the first six months of life fulfils the nutritional requirements and psychosocial care for the infant and creates an excellent bond between the mother and the baby. Furthermore, it reduces infectious diseases such as diarrhoea, Acute Respiratory Tract Infections (ARI) and other infectious diseases. Studies have shown that exclusively breastfed babies have a reduced risk of becoming sick and dying from infectious diseases and malnutrition compared to formula fed babies. Breastfeeding also contributes to maternal health, by reducing the risk of breast cancers, postpartum haemorrhage and space the family In addition to these benefits, mother's milk makes a substantial contribution to the economy of most families and the country.

Despite its many benefits, breastfeeding promotion, protection and support present with many challenges in the context of Mother to Child Transmission (MTCT) of HIV. In Namibia, HIV and AIDS is a major public health problem. The 2010 National HIV Sentinel Survey the revealed that 18.8% of pregnant mothers attending antenatal care in Namibia were HIV positive (in 2008 this was 17.8%) The most significant cause of HIV in children below the age of 10 years is MTCT. In the absence of any intervention the overall risk of an infant being infected through breastfeeding is about 30 – 40%. (WHO 2008: HIV transmission through breast feeding: A review of available evidence). With appropriate interventions, this transmission can be reduced to less than 5%. ARV prophylaxis during pregnancy and childbirth and continued use of ARVs during the breastfeeding period ensures reduction of MTCT.

Breastfeeding in the context of HIV particularly in resource-poor settings poses challenges to health workers, parents and the community at large. The Ministry of Health and Social Services developed the National Policy on Infant and Young Child Feeding in 2003. Programme experiences and the WHO HIV and Infant Feeding Revised Principles and Recommendations, Rapid Advice released in July 2010 prompted the development of these guidelines which include consistent and harmonised messages and interventions on infant and young child feeding (IYCF).

Various global instruments as well as national laws and policies have guided the implementation of infant feeding. These include the International Code of Marketing of Breast milk Substitutes the International Labour Organisation (ILO) Convention on Maternity Protection, the Baby Friendly Hospital Initiative (BFHI) and the Baby and Mother Friendly Initiative (BMFI) through the implementation of the Ten Steps to Successful Breastfeeding.

The implementation of IYCF requires a multi-sectoral approach, as it involves interventions from other sectors to complement the mandate of MoHSS. These IYCF guidelines take cognisance of the concerted MoHSS effort to ensure safe infant and young child feeding practices and recognise the important role that other line ministries, development partners and other stakeholders can play in achieving this.

The objectives of these guidelines are to provide health workers with the capacity, knowledge, and skills to:

- Promote, protect and support exclusive breastfeeding
- Assist all mothers irrespective of their HIV status to effectively and safely feed (avoid mixed feeding) their infants and young children.
- Refer women, their partners and their children for required services, including HIV Counselling and Testing (HCT) , Prevention of Mother to Child Transmission (PMTCT) and Infant and Young Child Feeding (IYCF) Counselling as necessary

This guideline does not prepare health workers to become HIV counsellors as it only covers the aspect of infant and young child feeding. Health workers should also be trained in breastfeeding promotion and management, PMTCT and HCT.

CHAPTER 2: THE BABY AND MOTHER FRIENDLY INITIATIVE

Globally, the Baby and Mother Friendly Hospital initiative (BMFHI) focuses on the promotion of the Ten Steps to Successful Breastfeeding in hospitals, especially maternity wards. The initiative was extended to include Maternal and Child Health Programmes in Namibia, as well as work places, to create a nutrition-focused, friendly environment for the child and the mother. This initiative was introduced in Namibia in 1992.

2.1 The National Policy on Infant and Young Child Feeding (2003)

The 2003 National Policy on Infant and Young Child Feeding (IYCF) supplements the existing Baby and Mother Friendly Initiative Policy and Guidelines. While incorporating the issues specific to Namibia, the policy reflects the Government of Namibia's commitment to:

- Promote, protect and support breastfeeding in the general population, with emphasis on efforts to promote exclusive breastfeeding for the first six months, and continued breastfeeding to two years or beyond with appropriate and safe complementary foods, and optimal feeding for children up to 5 years.

This policy has been compounded by the WHO HIV and Infant Feeding Revised Principles and Recommendations, Rapid Advice released in July 2010 which aims to among others:

- Ensure safe and optimal feeding practices for children of HIV infected mothers (and whose infants are HIV infected or of unknown HIV status) to exclusively breastfeed their infants for the first six months of life, introducing appropriate adequate safe nutritious complementary food thereafter, and continue breastfeeding for the first 12 months of life. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided.
- Ensure safe and optimal feeding practices for children of HIV infected mothers (and whose infants are HIV infected to exclusively breastfeed their infants for the first six months of life, introducing appropriate adequate safe nutritious complementary food thereafter, and continue breastfeeding up to 24 months or beyond.

2.2 Implementation of the Baby Mother Friendly Initiative

This guideline is developed based on the Baby and Mother Friendly Initiative and its Ten Steps to Successful Breastfeeding as follows:

Step One: Have a written breastfeeding policy that is routinely communicated to all health care staff

- In addition, have the National Policy Recommendations on Infant and Young Child Feeding in the context of HIV that is routinely communicated to all health care workers.

Step Two: Train all health care staff in skills necessary to implement this policy

- Train all health care staff in skills necessary to implement the National Policy Recommendations and the National Guidelines on Infant and Young Child Feeding.

- Training at all levels should address the Ten Steps, breastfeeding counselling, and the International Code of Marketing of Breast Milk Substitutes.

- HIV and infant feeding issues should be an integrated in any training on breastfeeding and PMTCT and during pre- and in service training.

Step Three: Inform all pregnant women about the benefits and management of breastfeeding

- In addition to the above, provide general information on HIV and breastfeeding, offer HCT services, and provide individual infant feeding counselling.

Step Four: Help mothers to initiate breastfeeding within a half an hour of birth

- Assist mothers to initiate breastfeeding within a half-hour of birth with skin-to-skin contact for at least one hour or until the baby has attached and fed at the breast if this takes longer

Step Five: Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants

- Show all breastfeeding mothers correct positioning and attachment to prevent cracked nipples and mastitis.

- Helping mothers to breastfeed effectively with a good technique is a vital step. If infants are separated from their mothers, or are unable to suckle, their mothers need to express their milk.

- Teach all mothers to express their milk by hand to maintain their milk supply.

Step Six: Give newborn infants no food or drink other than breast milk, unless medically indicated

- Health workers should help mothers to breastfeed effectively, so that they do not feel a need to give a baby other drinks.

- Health workers should understand that supplements are seldom needed, even in the first few days when the volume of breast milk is small and that Colostrum is what a baby needs.

Step Seven: Practice rooming-in. Allow mothers and infants to remain together 24 hours a day

- Rooming in allows mothers and their babies to stay together day and night to bond and to establish breastfeeding.

Step Eight: Encourage breastfeeding on demand

- Babies should feed according to their needs, not on a schedule decided by the health facility or mother.

Step Nine: Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants

- During the early weeks, the baby's need to suckle should be satisfied at the breast. Using teats or pacifiers may interfere with suckling and the adjustment of the breast milk supply to the baby's requirements.

- Maternity staff should not allow use of teats and pacifiers.

- Use a cup to feed expressed breast milk. Cups with spouts are not recommended, as they are difficult to clean.

Step Ten: Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from hospital or clinic.

- Breastfeeding support groups are often part of a community nutrition strategy and are women from the community, who receive training in breastfeeding support. They are very effective in increasing exclusive breastfeeding.

CHAPTER 3: BREASTFEEDING AND CHILD SURVIVAL

Studies show that most babies irrespective of HIV-status of mother and baby who are exclusively breastfed for the first six months grow well and are healthy. Health workers can best help mothers to understand the importance of exclusive breastfeeding for the first six months and understand the benefits of breastfeeding in general.

Breastfeeding is the best feeding option for infants. However, there are some accepted medical conditions (as listed by WHO) that may affect a small proportion of infants or mothers that may justify temporarily or permanently stopping breastfeeding. Whenever stopping breastfeeding is considered, the benefits of breastfeeding should be weighed against the risks posed by the presence of the specific conditions listed. Acceptable medical reasons for the use of breast milk substitutes are listed in annex 4

3.1 Exclusive breastfeeding

Exclusive breastfeeding means that the baby is getting breast milk only NOT even water. Nutritionally the baby does not need other foods or fluids, not even water, for the first 6 months unless medically indicated. Exclusive breastfeeding facilitates enough breast milk production and provides complete nutrition for the baby for the first 6 months. It protects the baby from infections and protects the mother from falling pregnant, provided the mother is not menstruating yet. The risk of transmitting HIV to the baby when the mother is HIV-infected is much lower in the case of exclusive breastfeeding compared to mixed feeding.

Health workers should assist mothers to exclusively breastfeed through the following:

- Breastfeeding should be initiated within half an hour of birth with skin-to-skin contact and mother should practice rooming in.
- Mothers should be advised to breastfeed their babies on demand at least eight to twelve times in 24 hours including night feeds from birth to six months without giving other foods or drinks, not even water.
- Show the mother correct positioning and attachment for proper suckling and prevent breast problems.
- Many mothers might be concerned that breast milk alone is not enough. Help the mother to understand that also in hot climates the baby who is fed on demand will get all the fluids it needs.

Advise and encourage a mother to use condoms during lactation even if she is exclusively breastfeeding to avoid infection and/or re-infection with HIV. A woman who was HIV-negative during pregnancy and she gets HIV-infected during the breastfeeding period she will have a very high viral load after getting infected and the risk of passing HIV to her baby is very high.

3.2 Superiority of human milk

A mother's milk is especially suited for her own baby. Breast milk protects babies from bacteria and viruses to which their mothers were/are in contact. Additionally, a mother's mature breast milk changes from feed-to-feed, day-to-day and month-to-month to meet each particular baby's needs. Adding anything else, even water, increases risks and reduces benefits.

3.2.1 Colostrum

Colostrum is the breast milk that women produce in the first few days after delivery and is thick, sticky, and clear to yellowish in colour. It contributes to the baby's health in the following ways:

- Colostrum is the ideal first food for a baby, with more protein and Vitamin A than mature breast milk.
- If any water or artificial feeds are given, colostrum and its benefits are diluted. A baby's kidneys cannot handle large volumes of fluid soon after birth and are put under stress. Therefore breastfed newborns do not need water or other foods.
- Colostrum has laxative properties and helps the baby to pass meconium.
- Colostrum contains many growth factors which help a baby's immature intestine to develop after birth. This helps to prevent the baby from developing allergies and intolerance to other foods.
- Immunoglobulins, mostly Immunoglobulin A (IgA), in colostrum provide an anti-infective protection to the baby. Therefore colostrum is a baby's first immunization against many bacteria and viruses.

3.2.2 Preterm breast milk

Preterm breast milk is the milk that is produced in the breast before 40 weeks of gestational age.

- If the baby is born before term it can be used even before the baby is able to breastfeed.
- Advice the mother to express breast milk to feed the baby with a cup or through a naso-gastric tube.
- Preterm breast milk has more protein, IgA, and iron (lactoferrin) than mature milk, making it more suitable for the needs of a premature baby than any artificial formula.

Mature breast milk

A few days after birth, colostrum transitions into mature breast milk, which is cream in colour.

- It changes in relation to the time of day, the length of a breastfeed, the needs of the baby, and diseases or bacteria in which the mother has come into contact.
- Since breast milk does not overload a baby's kidneys or cause unnecessary fluid retention, a baby who is allowed to breastfeed on demand does not need supplemental water, even in hot, dry climates.

3.3 The composition of breast milk:

i) Protein

- The amount of protein in breast milk is ideal for infant growth and brain development, whereas most artificial formulas are not as sufficient in protein balance.
- The level of protein in breast milk is not affected by the mother's food consumption; however it is still important for the mother to consume an adequate amount of protein foods to produce an adequate milk supply for the baby.
- Protein in breast milk is easily digested and well absorbed. When cow's milk is fed to a baby, a lower amount of cow's milk protein is digested. This high level of breakdown products in the baby's blood may negatively affect brain development. Modified or unmodified cow's milk should NOT be given to infants.

ii) Fat

- Fat is the main source of calories (energy) for the infant. The level of fat is low at the beginning of a feed (in foremilk) and high towards the end (in hind milk).
- Enzymes in breast milk pre-digest the fat, so that it is available to the baby as energy. Artificial formula does not change during the feed and lacks the digestive enzymes.
- The fat in breast milk is in the form of long-chain fatty acids, which are needed for brain development.
- The level of fat in breast milk can be affected by the mother's diet. Therefore, it is important that a breastfeeding mother eat foods enriched with fats and oils.

iii) Iron

- Iron in breast milk is well absorbed from the baby's intestine – at a rate of 49%, partly because breast milk provides special transfer factors to help this process. This compares to 10% absorption of iron in cow's milk and 4% in iron-fortified infant formula.
- Iron-deficiency anaemia is rare in the first six to eight months in exclusively breastfed babies.

iv) Vitamin A

- While breast milk is an important source of vitamin A, if the mother's intake of vitamin A rich foods is limited she might not have enough vitamin A in her breast milk.
- Vitamin A supplements are therefore given to mother soon after delivery (200,000 IU). These supplements should not be given later than these 4 weeks
- Vitamin A supplements should be given to children between 9 and 72 months (6 years) twice a year (100,000 IU for a child 9-11 months old; 200,000 for a child 12-72 months old)

3.4 Benefits of exclusive breastfeeding for six months

Health workers should inform mothers that:

- Exclusive breastfeeding provides many health benefits and complete food security for the baby for the first 6 months.
- Breastfeeding reduces the risk of acute infections such as diarrhoea, pneumonia, ear infection, Haemophilus influenza, meningitis and urinary tract infection.
- Overall, fewer exclusively breastfed babies require health care beyond regular check-ups during this time.

3.4.1 Benefits for the infant

Promotes development

- Unique fatty acids, essential for brain development.
- Lactose found in breast milk helps prevent rickets (a deficiency of vitamin D affecting bones), enhances calcium absorption, and aids brain development.

Protection against infection

- Breastfed babies have less diarrhoea and respiratory infection than artificially fed babies.
- A substance called bifidus factor found in breast milk helps healthy bacteria to grow in the baby's intestine and prevents other harmful bacteria from growing.

- Production of anti-inflammatory agents reduces the harm caused by uncontrolled inflammation.
- Lymphocytes and macrophages, which are living cells that fight diseases, are most sufficiently produced with breast milk.
- Each mother's milk has antibodies to protect her baby against diseases or bacteria to which she has been exposed.
- Growth factors and nutrients, such as zinc and long-chain polyunsaturated fatty acids, enhance the baby's development and maturation of the immune system, the central nervous system, and organs such as the skin.
- The digestive enzymes, lactase and lipase, and many other important enzymes protect babies born with immature or defective enzyme systems.
- Exclusively breastfed children have a lower risk of getting HIV when their mother is HIV-infected compared to mixed-fed children

Protection from allergy

- The baby's gastro intestinal (GI) tract develops more quickly when fed breast milk, preventing foreign proteins from entering the blood system and causing allergies.
- A lower exposure to foreign proteins reduces sensitization and minimizes allergic response.
- Giving babies even a single bottle of artificial formula in the first days of life can increase the rates of allergic diseases. All formulas, including soya formulas, carry a risk of allergy.

Breastfeeding also is associated with:

- Lower incidence of cot death (sudden infant death syndrome).
- Lower risk of diabetes, cancer, and childhood ear infections.
- Better response to vaccinations and a faster ability to fight diseases.
- Fewer orthodontic and dental problems.
- Better psychomotor, emotional, and social development.
- Higher intelligence.

3.4.2 Health benefits for mothers

- The oxytocin released while breastfeeding contracts the uterus and helps stop bleeding after delivery. For this reason, it is important to begin breastfeeding immediately after birth and continue frequently.
- Frequent breastfeeding delays the return of menses and helps prevent another pregnancy. This also helps to conserve iron stores and contributes to the mothers' health.
- Breastfeeding mothers have a lower risk of breast and ovarian cancer.
- Breastfeeding women are energy efficient, meaning that they can produce milk even with limited caloric intake.

Breastfeeding is also associated with:

- Reduced postpartum depression,
- Reduced workload, compared to artificial feeding,
- Faster physical recovery from childbirth,
- Less child abuse and neglect due to good emotional bonding,

- Enhanced peace of mind for the mother that her baby is receiving all essential nutrients for optimal growth and development.

3.4.3 Benefits to society

- The cost of an adequate diet for the mother is less than the cost of artificial formula.
- There is no need to purchase artificial milk and feeding equipment. Mothers can use the money to buy food and other necessities for all family members.
- The cost of extra fuel, water, health care visits, medicine, and hospitalisation are reduced.
- Healthier children lead to a healthier nation and increased production.

3.5 Infant Feeding Recommendations

All pregnant women should routinely be tested for HIV.

i) Mothers who are known to be HIV uninfected or whose HIV status is unknown

Mothers should breastfeed their infants for the first 6 months of life and then introduce appropriate complementary foods while continuing to breastfeed for 24 months.

ii) Mothers known to be HIV-infected and whose infants are HIV uninfected or of unknown HIV status

Mothers should breastfeed their infants exclusively for the first six months of life, introduce appropriate complementary foods thereafter and continue breastfeeding for the first twelve months of life, with ARV's up to 4 weeks after all breastfeeding has stopped. However for those mothers on HAART for their own health, the infant only takes NVP for 6 weeks. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided.

iii) When infants and young children are known to be HIV infected

Mothers should breastfeed exclusively for the first 6 months of life and then introduce appropriate complimentary foods while continuing to breastfeed for 24 months or beyond. These babies should however all be put on HAART.

Table 1: Summary of Infant Feeding Recommendations

	Mothers who are known to be HIV uninfected or whose HIV status is unknown	**Mothers known to be HIV-infected and whose infants are HIV uninfected or of unknown HIV status**	**Infants and young children are known to be HIV infected**
< 6 months	Exclusive breastfeeding from birth until 6 months	Exclusive breastfeeding from birth until 6 months, with ARV's	Exclusive breastfeeding from birth until 6 months
≥ *6 months*	Introduce appropriate complementary foods at 6 months and continue to breastfeed up to 24 months or beyond.	Introduce appropriate complementary foods at 6 months and continue to breastfeed up to 12 months, with ARV's up to 4 weeks after all breastfeeding has stopped. **Breastfeeding should then only stop once a nutritionally adequate and safe diet without breast milk can be provided.**	Introduce appropriate complementary foods at 6 months and continue to breastfeed up to 24 months or beyond.

3.6 The dangers of using artificial milk, bottles, teats and dummies

Inform mothers about the dangers of artificial milk, bottles, teats and dummies e.g.

- Babies are deprived of the health benefits from breast milk.
- Water used for washing utensils or mixing formula may be contaminated.
- Infant formula may be contaminated through manufacturing errors.
- Families may dilute the formula to make it last longer, which may lead to malnutrition.

3.7 Dangers of Mixed Feeding

Exclusive breastfeeding is difficult for mothers to comply with, despite widespread promotion and support. Mixed feeding refers to giving the baby breast milk and other foods or liquids (milk) during the first 6 months. In the case of HIV-infected mothers compliance to exclusive breastfeeding can greatly reduce the risk of HIV transmission to the baby.

- In terms of exclusive breastfeeding, the introduction of any foods or liquids, even water, while the baby is taking breast milk can disrupt the developing gastrointestinal (GI) tract.

- The potential for irritation of the GI tract increases the risk for inflammation, allergies, and increased permeability, which allows foreign molecules to pass through to the blood, including HIV.
- Exclusive breastfeeding helps to maintain a healthy GI tract, which can then act as a protective barrier to infectious agents.

Important considerations for health workers:

- Mixed feeding during 0-6 months should be avoided at all times because it carries the risk of HIV-transmission to the baby (mothers who are HIV positive) and death or illness from diarrhoea or other infections (all mothers irrespective of HIV status).

- Risk of HIV transmission to the infant will be higher with mixed feeding during first 6 months than the risk from exclusive breastfeeding.

- Mixed feeding during the first 6 months should be avoided even if the mother is on ART and/ the baby is on ARV's or ART.

CHAPTER 4: INFANT FEEDING AND MATERNAL NUTRITION

4.1 Counselling on Infant Feeding

Infant feeding counselling should be done to all mothers and their partners' antenatal, labour and postnatal period. It requires well-trained health workers and a comfortable environment that ensures privacy for the mother and her partner. Therefore, it is necessary for all health workers involved in maternal and child health care to undergo training on infant and young child feeding, including counselling. Supervisors should encourage health workers to undergo this training.

Definition of counselling:

Counselling is a helping relationship. It is one-to-one communication specific to the needs of the individual. It is more than education and providing information. Remembering and understanding that the health worker cannot take away all the mother's/couple's worries. The GATHER approach can be used to counsel on infant and young child feeding,

G — Greet Clients

- Give clients your full attention as soon as you meet them.
- Be polite, friendly, and respectful: greet clients, introduce yourself, and offer them seats.
- Ask how you can help.
- Explain what will happen during the visit e.g. talking about how she is feeding her baby.

A — Ask clients about themselves

- Ask clients about IYCF practices at home.
- Help clients express their feelings, needs, wants, and any doubts, concerns, or questions.
- Keep questions open, simple, and brief. Look at your client as you speak.
- Listen actively to what the client says. Follow where the client leads the discussion.
- Show your interest and understanding at all times. Express empathy. Avoid judgments and opinions.
- Ask for any information needed to complete infant's passport/.records

T — Tell (inform) clients

- Mothers need clear, accurate, specific information about IYCF.
- Inform mothers about advantages of exclusive breastfeeding for the first six months and adding complementary feeding thereafter while continuing breastfeeding

H — Help

- Help mothers to ensure good positioning and attachment. Offer advice and support.

E — Explain what to do

- Explain to mother how to breastfeed exclusively for the first six months and to add safe complementary foods after 6 months while continuing breastfeeding.
- Explain to the mother that the baby should breastfeed on demand.
- Explain that mother can come back whenever and that the baby should be weighed and measured on a monthly basis.

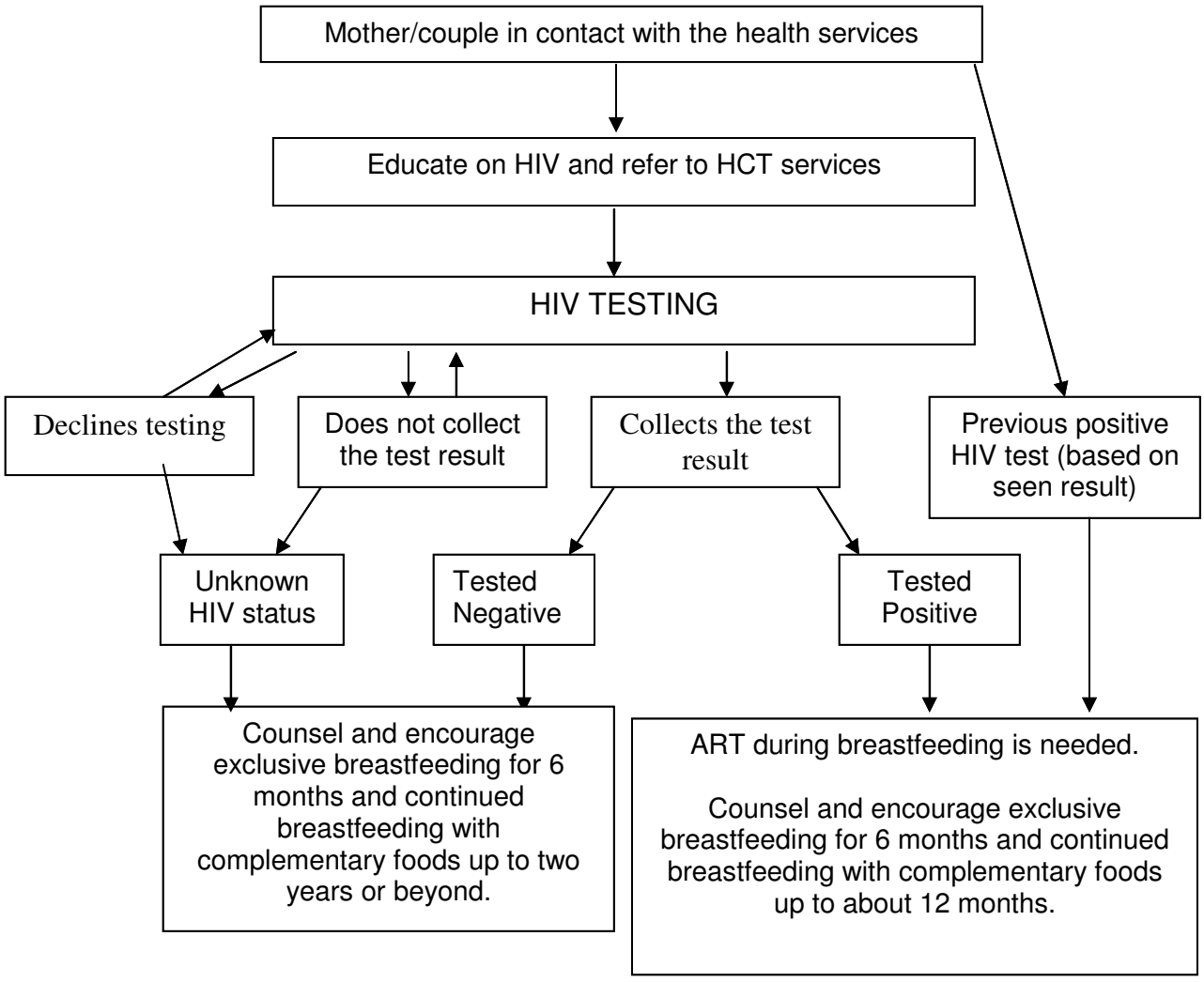
R — Return for follow up

At a follow-up visit:

- Ask if the client has any questions or anything to discuss. Treat all concerns seriously.
- Ask if the client is satisfied. Have there been problems?
- Help the client handle any problems.
- Ask if any other health problems have come up since the last visit.
- Ask if mother is using condoms to protect herself against HIV infection or HIV re-infection while breastfeeding
- Give appropriate feedback advice according to nutritional needs for both infant and mother.

A scheme for counselling on feeding for different conditions and status are shown in Figure 1.

Figure 1: Guidelines for counselling on infant feeding



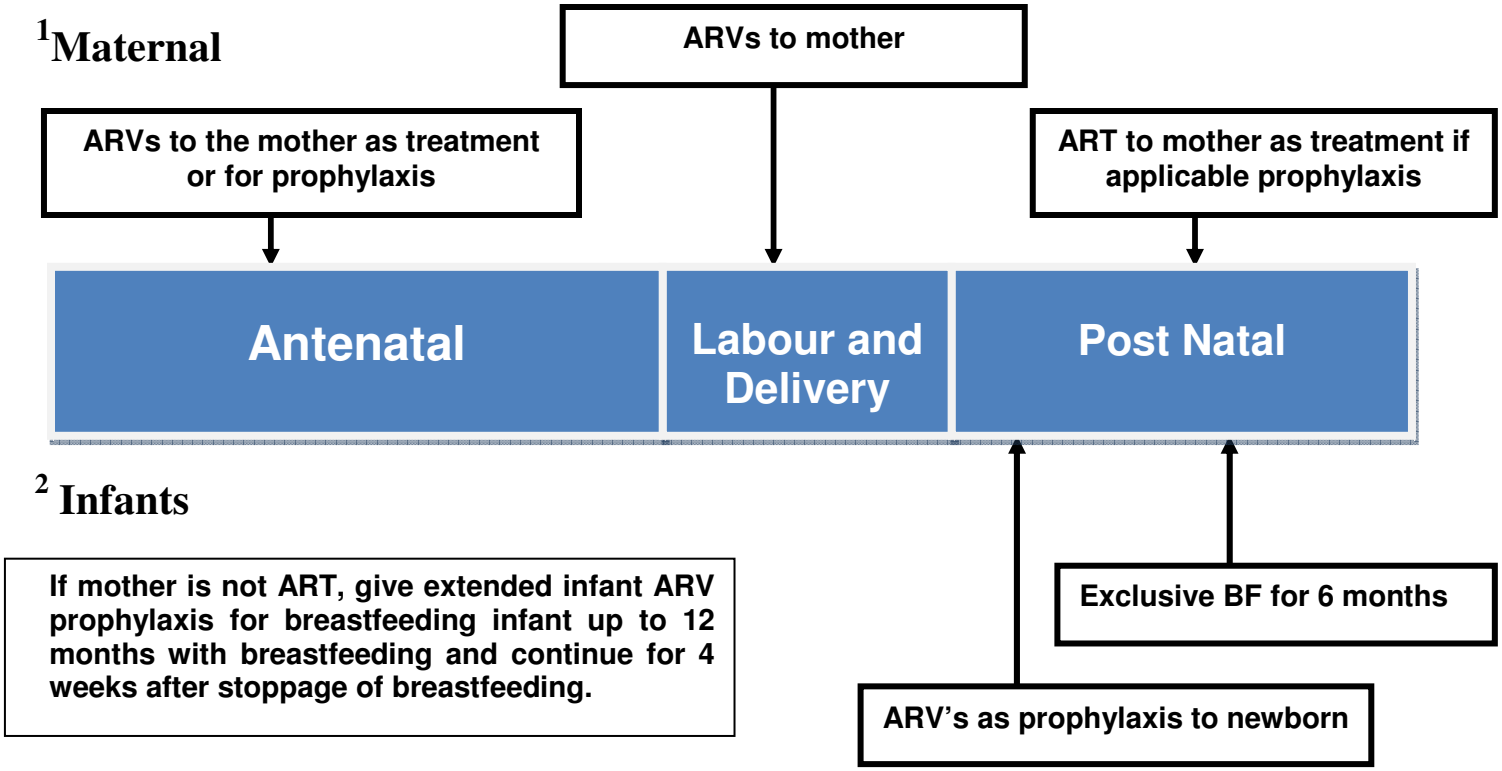
NB: ALL HIV EXPOSED INFANTS SHOULD BE TESTED FOR HIV AT 6 WEEKS, 3 MONTHS AFTER THE BABY HAS STOPPED BREASTFEEDING AND A COMFIRMATORY TEST AT 18 MONTHS.

Counselling should occur at all levels and for all mothers irrespective of HIV-status: pre-HIV testing, post-HIV testing, and ongoing throughout infant feeding process.

4.2 ARV's and Breastfeeding

It is essential that a baby receives an HIV DNA/PCR test at 6 weeks (Refer to National guidelines for Antiretroviral Therapy of 2010). The sero-status results will determine the infant feeding recommendations which Namibia has adopted based on the WHO "Guidelines on HIV and Infant feeding principles and recommendations for infant feeding in the context of HIV and a summary of evidence in July 2010. Interventions to prevent Mother to Child HIV Transmission are reflected in Figure 2.

Figure 2: Guidelines for counselling on infant feeding



[1]Namibia has adopted the use of AZT during pregnancy starting as early as 14th week of gestation
[2] If mother is not on HAART, the newborn should stay on NVP prophylaxis throughout the breastfeeding period until 4 weeks after complete stoppage of breastfeeding. If the mother is on HAART, the infant can stop NVP after 6 weeks.

4.3 Maternal health and nutrition counselling

- Proper nutrition care and support for women before conception, during ANC and postpartum is critical for personal health, as well as infant health.
- Growth retardation, malnutrition and low birth weight are some common conditions seen in newborns and infants that can be prevented with good maternal nutrition from as early as before pregnancy.
- In addition to antiretroviral therapy, good nutrition for women and their children reduces the risk of HIV transmission through pregnancy, delivery and breastfeeding. This boosts the immune system and raises the mother's CD4 count.
- A well-nourished, healthy mother is more likely to be available for child care and contribute fully to the functioning of the family.
- Adequate nutrition status improves productivity for the mother as well as family and the entire community. Therefore, health workers should pay close attention to maternal health and nutrition while providing counselling for infant and young child feeding.

General health information for the mother:

- Optimal food intake will improve maternal nutrition status.
  - Eat a variety of locally available and seasonal foods to meet nutritional needs.
  - Drink at least 3 glasses of dairy products per day, i.e. yoghurt, *omaere* (sour milk), fresh milk (cow or goat).
  - Eat at least three portions of meat, meat products, or meat alternatives per day, i.e. 1 egg in the morning, 2 chicken drumsticks or one chicken thigh for lunch, 1 piece of meat or fish for dinner, with *omwayi* (nut sauce).
  - Eat at least three portions of vegetables per day, i.e. spinach, pumpkin, carrots, green beans.
  - Eat at least two portions of fruit per day e.g. orange, apple, *ombe, enyandi*, water melon, paw-paw, and guava.
  - Eat at least 6 - 9 portions of breads and cereals, i.e. 1 cup of soft porridge in the morning, 1 slice of bread midmorning, 1 cup of mahangu/maize/rice/macaroni for lunch, 1 slice of bread for afternoon snack, 1 cup of mahangu/maize/rice/macaroni for dinner, 1 slice of bread for evening snack.
  - Drink plenty of fluids during the day, i.e. clean and boiled water, *oshikundu*, soup fresh fruit juice, *oshinwa* (marula fruit juice).
  - Promote animal sources of iron, iron-rich foods e.g. egg yolk, shell fish, liver and enhance bioavailability of iron in the diet by adding vitamin C foods e.g. oranges and guavas.
  - Encourage the consumption of iodised salt by the pregnant mother and all members of the household.
  - Provide other micronutrient supplements, where appropriate, including iron folate during pregnancy and postpartum vitamin A.
- If food is unavailable for the family, provide referral to community-based organizations or community gardening, farming projects and regional councils.
- Get plenty of rest and encourage family members to assist with household work.
- Exercise regularly by walking, gardening, dancing, swimming, etc.
- Avoid self medication, alcohol, excessive caffeine from coffee or cool drinks, and smoking.
- Maintain personal hygiene by washing hands regularly with soap and water, washing all utensils used for eating and drinking, and keeping cooking area clean.

- Practise safer sex with correct use of condoms (provide this information for partners as well).
- Adhere to follow-up visits at health facilities
- Advise to follow instruction on how to take ART and other medication for both mother and child.
- Report any problems experienced with medications to the nearest health facility as soon as possible; do not wait until the next appointment.

4.4 IYCF in Maternal and Child Health Services

IYCF is the cornerstone of all maternal and child health care services. When the mother and baby present at any health facility for the following services, Reproductive and Child Health, PMTCT, Treatment of paediatric AIDS, Expanded Programme on Immunization (EPI), Integrated Management of Newborn and Childhood Illnesses (IMNCI) and Growth Monitoring and Promotion (GMP) and IYCF should be addressed according to the following guide:

4.4.1 Antenatal

During group health education talks, the following IYCF information should be disseminated:

- The benefits of breastfeeding.
- The importance of early skin to skin contact to promote bonding.
- The importance of early initiation of breast feeding.
- The importance of exclusive breastfeeding on demand and rooming-in.
- Infant feeding and HIV.
- Reinforce importance of maternal nutrition throughout pregnancy and postpartum
- Group demonstration of correct positioning and attachment and hand expression of breast milk.
- Encourage mother to bring partner/support person
- Follow up care for HIV exposed baby and mother
- Explain importance of PNC, GMP and Immunisation
- Individual infant feeding counselling.
- Individual counselling for PMTCT.
- The importance of support groups: at this point it is very important for the mother to identify a family member or a friend who is likely to give her support.
- Re-testing for pregnant mothers at 36 weeks
- **Pre-test and post-test counselling:** All mothers and partners with unknown HIV-status should be counselled and tested for HIV.
- All HIV infected mothers will get guidance on use of ART/ARV during breastfeeding period. Encourage mother to bring partner/support person.

4.4.2 Post Natal care

- Put the baby skin-to-skin (chest to chest) for all mothers to promote bonding.
- Initiate breastfeeding within ½ an hour after birth.
- Practise rooming-in.
- Show breastfeeding mothers correct positioning and attachment.
- Give newborn infants no food or drink other than breast milk, unless medically indicated.
- Give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding infants.

- Advise mothers to breastfeed on demand, day and night and to wake up the babies for breastfeeding if they sleep too long.
- Reinforce the importance of exclusive breastfeeding and how to achieve this
- Make sure that ART/ARVs are prescribed for mother if mother eligible for her own health and 6 weeks of NVP is prescribed for the baby and the mother has been counselled on the use of ART/ARVs during the breastfeeding period
- Re-emphasise PNC, Immunisation, and GMP and follow up care. Give mother an appointment date for the clinic.
- Provide Vitamin A supplementation for the mother.

4.4.3 On discharge

- Make sure that the mother demonstrates:
  - Correct positioning and attachment.
- Make sure that the mother understands:
  - The importance of exclusive breastfeeding and the dangers of mixed feeding.
  - The dangers of using artificial teats.
  - That the baby should decide the length and frequency of feeds.
  - What to do if they think that they do not have enough milk.
  - The importance of eating a variety of food including traditional food.
  - That despite some cultural beliefs about eating certain foods after giving birth, all foods are important for the body.
  - That she should drink extra fluids regularly throughout the day.
  - That she should get regular exercise and rest.
  - That she should avoid alcohol, tobacco, excessive caffeine and other self-medications.
  - The dangers of getting HIV-infected while she is breastfeeding because of the significant increased risk of MTCT during that period. Advise mothers to use condoms in addition to other methods of family planning.
  - The importance of regular follow up visits for routine child health, GMP and interventions like vaccination. In case of a HIV infected mother the child should be tested for HIV at 6 weeks
- Make sure that the mother has received vitamin A supplementation after delivery.
- Refer mother to support groups or members of her family for support.
- Give follow-up date within 6 days.
- Ensure that mother has received counselling on use of ARVs during breastfeeding period for both herself and the baby

4.4.4 Follow up for mother and baby

Within 6 days

- Asses the condition of mother and baby including the parameters especially weight, HB (HIV exposed infant) and breastfeeding.
- Follow-up on infant feeding progress and provide advice to the mother accordingly, reinforce relevant information and adherence to ARV for the baby.

At 6 weeks

- Reinforce relevant information, such as exclusive breastfeeding.

- For the mother, reinforce the importance of:
  - Eating a variety of food.
  - Enough rest and exercise.
  - Avoiding alcohol, excessive coffee, caffeine, and smoking.
  - Practising safer sex.
  - General hygiene.
- GMP: weigh the infant, plot weight on a growth chart, and refer for further medical care if infant shows signs of growth failure.
- Check baby's mouth for oral thrush and refer/treat accordingly.
- Advise the mother on the use of family planning methods and to practice safer sex.
- Provide immunisation to the baby, also check for mother's TT status and immunise if appropriate
- Prescribe co-trimoxazole for all HIV exposed infants and ARV prophylaxis (NVP) for babies whose mothers are not HAART
- Make an appointment for when the results of the HIV DNA PCR tests are expected
- Provide pre-test counselling on HIV DNA PCR test including infant feeding counselling for HIV-exposed babies.
- Offer HIV counselling and testing for breastfeeding mothers who tested negative previously or of unknown HIV status at 6 weeks.

At 10 weeks and 14 weeks

- Check feeding progress, discuss and advise the mother accordingly.
- Reinforce relevant information regarding infant feeding, maternal nutrition, safer sex, etc.
- Continue GMP and refer or advise accordingly.
- Check baby's mouth for oral thrush and refer/treat accordingly.
- Prescribe co-trimoxazole for all HIV exposed infants and ARV prophylaxis (NVP) for babies whose mothers are not HAART
- If HIV infected mother check :
  - if baby has received HIV DNA PCR test; if not, do test or refer
  - if baby's test result is back and the mother has not already been told, give the test result at post-test counselling
  - if mother is taking HAART/(if applicable) or the infant is taking ARV (if mother not on HAART) to reduce risk of MTCT
- Vaccinate the baby

At 5 months

- Check feeding progress, discuss and advise the mother accordingly.
- Discuss introduction of complementary foods at six months.
- Continue GMP and refer or advice accordingly.
- Check baby's mouth for oral thrush and refer/treat accordingly.
- Prescribe co-trimoxazole for all HIV exposed infants and ARV prophylaxis (NVP) for babies whose mothers are not HAART
- If HIV infected mother check :
  - if baby has received HIV DNA PCR test; if not, do test or refer
  - if baby's test result is back and the mother has not already been told, give the test result at post-test counselling
  - if mother is taking HAART/(if applicable) or the infant is taking ARV (if mother not on HAART) to reduce risk of MTCT

At 6, 7 and 8 months

- Reinforce information on introduction of complementary foods – include the support person or group.
- Emphasise continuation of family planning method in addition to condoms.
- Continue GMP and refer or advice accordingly.
- Check baby's mouth for oral thrush and refer/treat accordingly.
- Prescribe co-trimoxazole for all HIV exposed infants and ARV prophylaxis (NVP) for babies whose mothers are not HAART
- If HIV infected mother check :
  - if baby has received HIV DNA PCR test; if not, do test or refer
  - if baby's test result is back and the mother has not already been told, give the test result at post-test counselling
  - if mother is taking HAART/(if applicable) or the infant is taking ARV (if mother not on HAART) to reduce risk of MTCT

At 9 months

- Give measles vaccination and Vitamin A supplement 100,000 I.U. orally.
- Continue GMP and refer or advice accordingly.
- Check baby's mouth for oral thrush and refer/treat accordingly.
- Find out how feeding is going on in general, discuss and advise the mother accordingly.
- Prescribe co-trimoxazole for all HIV exposed infants and ARV prophylaxis (NVP) for babies whose mothers are not HAART
- If mother is HIV infected and infant was uninfected at 6 weeks, do a rapid test
  - If rapid test result is negative and the infant is still breastfeeding, do another rapid test 3 months after breastfeeding has stopped.
  - If rapid test result is positive, do an HIVDNA PCR to determine if the infant is infected.

At 10 and 11 months,

- Check baby's mouth for oral thrush and refer/treat accordingly.
- Continue GMP and refer or advice accordingly.
- Find out how feeding is going on in general, discuss and advise the mother accordingly.
- Prescribe co-trimoxazole for all HIV exposed infants and ARV prophylaxis (NVP) for babies whose mothers are not HAART
- If HIV infected mother check if baby has received DNA/PCR test; if not refer
- If HIV infected mother check if ART/ARVs are taken by either mother or baby to reduce risk of MTCT
- When the mother is HIV infected and child negative or of unknown status discuss stopping of breastfeeding at 12 months.
- When the infant is infected, advice mother to continue breastfeeding.

At 12 months and every month onwards

- Continue GMP and refer or advice accordingly.
- Check baby's mouth for oral thrush and refer/treat accordingly.
- Give vitamin A supplement (200,00IU) at 6 monthly intervals
- Find out how feeding is going on in general, discuss and advise the mother accordingly.

- When the mother is HIV infected and child uninfected or of unknown status discuss stopping of breastfeeding at around 12 months.
- Prescribe co-trimoxazole and ARV prophylaxis for HIV-exposed infant.
- If HIV positive mother check if baby has received PCR test; if not refer
- If HIV positive mother check if ART/ARVs are taken by either mother or baby to reduce risk of MTCT
- A rapid test should be done 3 months after the child has stopped breastfeeding. If the rapid test is negative, the child does not have HIV. If the rapid test is positive and the child is still less than 18 months of age, an HIV DNA PCR should be done

CHAPTER 5: MANAGEMENT OF BREASTFEEDING

Breastfeeding techniques, such as correct positioning and attachment, are important to successful breastfeeding. Although breastfeeding is natural, mothers need some practical skills to manage breast problems and prevent complications.

5.1 Key messages

The following issues need to be addressed during all of the following times: the antenatal period, immediately after birth, and during early postnatal.

- The importance of exclusive breastfeeding
- The importance of initiation of breastfeeding immediately after birth
- Correct positioning and attachment
- The frequency and duration of breastfeeding 8 to 12 times a day including night feeds, as long as the baby wants
- The importance of breastfeeding on demand and rooming-in (including waking up the baby for breastfeeding if the baby sleeps too long)
- How to express breast milk by hand

5.2 Importance of early initiation of breastfeeding

Initiation of breastfeeding within half an hour promotes bonding between mother and baby. It facilitates early establishment of breast milk production and helps the mother's uterus to contract, subsequently expelling the placenta and controlling bleeding.

How to initiate breastfeeding

Health workers should assist mothers to initiate breastfeeding through the following:

- Dry the baby, and cover both baby and mother with the same blanket. Both mother and baby should be naked underneath, so that they have skin to skin contact. A mother should hold her baby like this as much as possible in the first two hours after delivery.
- The mother should let the baby suckle when he shows that he is ready. Babies are normally very alert and responsive in the first 1-2 hours after delivery.
- Try to delay non-urgent medical routines for at least one hour. If the first feed is delayed for longer than about an hour, breastfeeding is less likely to be successful.

5.3 Correct positioning and attachment

The way the mother holds the baby (positioning) is very important because it will determine how the baby will take the breast into the mouth (attachment). Health workers should learn to recognise signs of good positioning and attachment in order to assist mothers to practise good techniques (see figure 2).

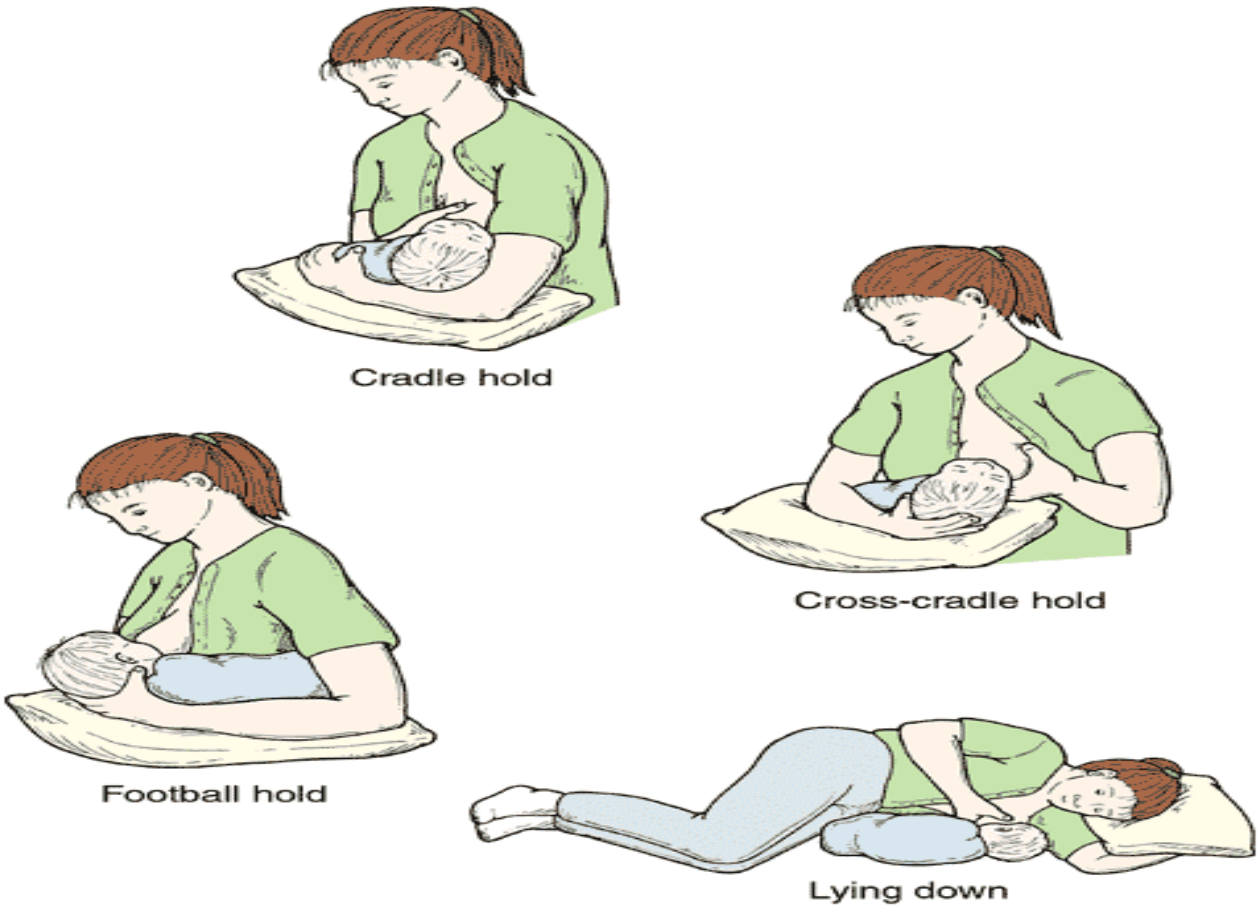
5.4 Signs of good positioning

Figure 2 demonstrates possible positions to hold the baby while breastfeeding. Key elements of each position include the following.

- The baby's whole body is facing the breast and is close to the mother.

- The mother is supporting the back of the head and the whole body with her arm bringing the baby to the breast
- The baby's head, back and buttocks are in a straight line.
- The baby's face is close to the breast, the baby's nose is opposite the nipple.
- The tummy of the baby is touching the mother's tummy
- The mother is comfortable and her back is straight

Figure 3 Common Breastfeeding Positions (University of Michigan, 2002)



Cradle hold
Cradle hold is the most frequently seen position for feeding babies. It allows mother to hold the baby closely and support the body, particularly when they are newborns and not quite able to hold themselves up in any way.

Cross cradle hold
Cross cradle hold is useful for very small babies and sick babies

Football hold
Football hold is useful for twins, blocked duct and baby that is having difficulty attaching.

Lying down
Breastfeeding lying down is useful: when a mother wants to sleep, so that she can breastfeed without getting up. Soon after a Caesarean section, when lying on her back or side may help her to breastfeed her baby more comfortably.

Signs of good attachment

Figures 4 demonstrates good attachment. Figures 5 demonstrates poor attachment, which can lead to breast problems. The following are important signs of good attachment:

- The baby's chin is touching the breast
- The baby's mouth is wide open
- The baby's lower lip is turned outwards
- There is more areola above the baby's upper lip and less areola below the lower lip

Signs to show that the breastfeeding session was successful (good attachment)

- The baby is taking slow deep sucks
- The baby is relaxed, happy and satisfied at the end of the feed
- The mother does not feel nipple pain
- The breast feels softer after a feed.

Figure 4: Good attachment observed at the breast and inside the mouth (WHO, 1999)

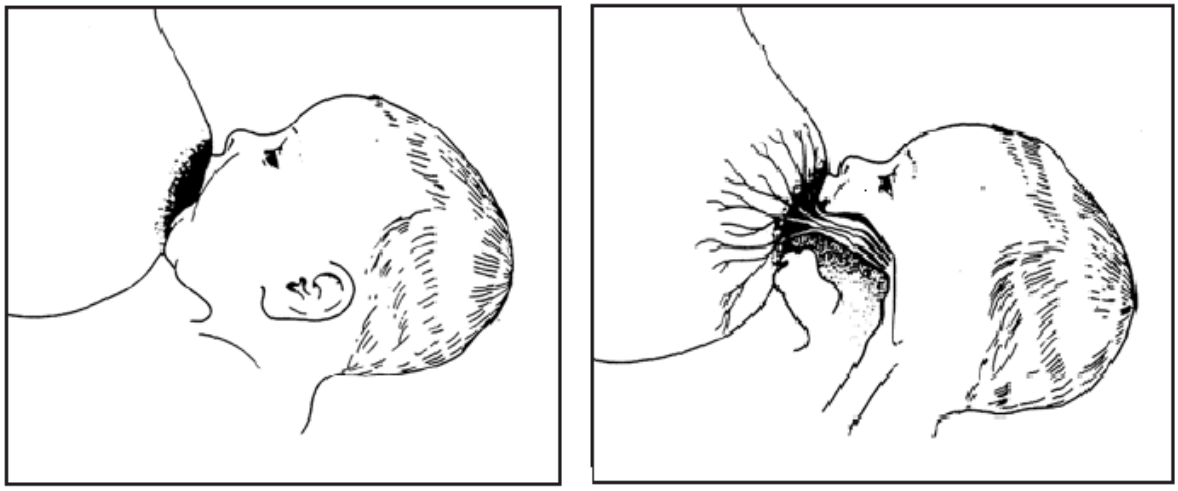
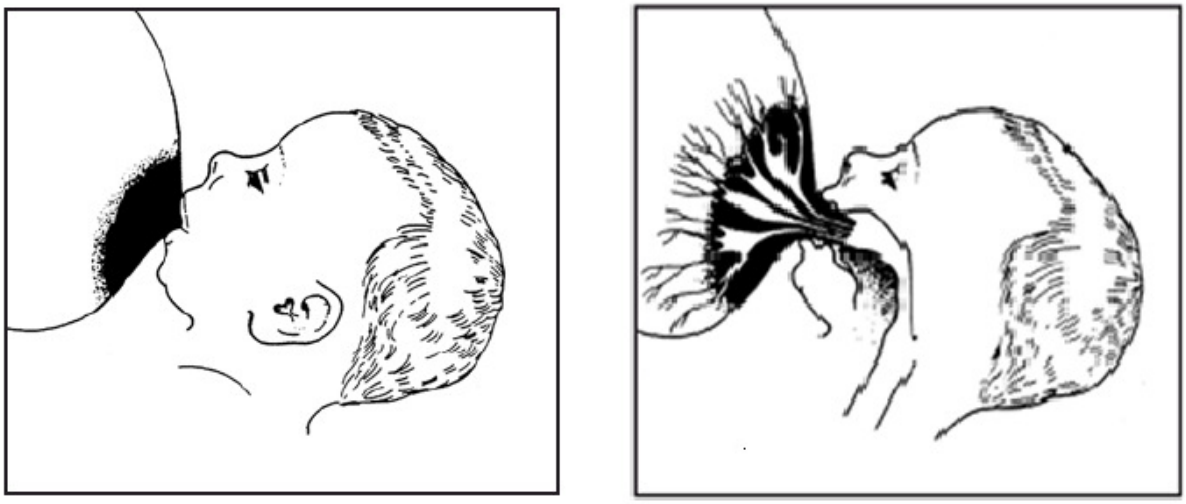


Figure 5: Poor attachment observed at the breast inside the baby's mouth (WHO, 1999)



The suck/swallow/breathe cycle

- Suckling begins when the nipple stimulates the baby's soft palate.
- A peristaltic wave of compression moves along the tongue towards the back of the mouth.
- The sinuses are compressed and milk flows from the breast. *Note: the baby does not get milk from the breast by suction but rather through suckling. .*
- The baby swallows when the back of his mouth fills with milk, and then breathes.
- The cycle lasts for about one second.

5.5 Frequency and duration of breastfeeding

The health worker should inform the mother about the following:

- It is important that the baby breastfeed frequently, 8 – 12 times per 24 hours including night feeding, and on demand to ensure adequate milk supply. This may even require waking the baby up for feedings. The more the baby breastfeeds the more the milk is produced. This also explains why in hot climates breast milk provides enough fluids for the child below 6 months old. This is also important for mothers who return to work and think that they do not have enough milk.
- When mothers return to work, they often breastfeed less frequently, which causes a reduction in milk production; however, expressing breast milk (see section 5.1.6) can help mothers maintain milk production and successfully continue exclusive breastfeeding after resuming work.
- The duration of breastfeeding at one feed is equally important as the frequency for maintaining lactation.
- Mothers should be taught to breastfeed from one breast until the baby lets go or the breast is empty before changing to the other. This ensures that the baby is getting the fore milk, which is watery and good to quench the thirst, as well as the hind milk, which is thick and rich in nutrients.
- Not emptying the breast may contribute to inadequate supply of milk to the infant, which results in malnutrition, or the development of mastitis in the mother.

5.6 Rooming-in

Rooming-in is when the mother and the baby remain together in one room or bed for 24 hours a day. It should start immediately after birth or, in the case of Caesarean section, as soon as the mother is able to respond to her baby. Rooming-in also facilitates breastfeeding on demand and enhances milk production. Encourage mothers to sleep in one room with their babies at home to facilitate breastfeeding.

The advantages of rooming-in

- It enables a mother to respond to her baby and feed him whenever he is hungry. This helps both bonding and breastfeeding.
- Babies cry less so there is less temptation to give bottle feeds.
- Mothers become confident about breastfeeding.
- Breastfeeding continues longer after the mother leaves hospital.

5.7 Breastfeeding on demand

Breastfeeding on demand means breastfeeding whenever the baby or mother wants, with no restriction on the length or frequency of feeds

Advantages of breastfeeding on demand

- There is earlier passage of meconium.
- The baby gains weight faster.
- Breast milk 'comes in' sooner and there is a larger volume of milk intake on day 3.
- There are fewer difficulties such as engorgement.
- There is less incidence of jaundice.

5.8 Breast milk expression

Expressing breast milk is very important because it helps mothers maintain milk production even if they are separated from their infants. Teach the mother to do this herself by hand (see figure 5). Do not express the milk for her. Touch her breast only when necessary to show her what to do and be gentle.

How to express breast milk by hand

Teach mothers to:

- Wash her hands thoroughly with soap and water.
- Make herself comfortable.
- Use clean utensils washed in soap and water and boiled and kept covered.
- Hold a wide necked clean container/cup under her nipple and areola.
- Place her thumb on top of the breast and the first finger on the underside of the breast so they are opposite each other (at least 4cm from the tip of the nipple).
    - Press on the lactiferous sinuses beneath the areola. (Sometimes it is possible to feel the sinuses in a breast. They are like pods or peanuts). This should not hurt, if it hurts, the technique is wrong.
- Compress and release the breast tissue between the finger and thumb a few times.

- If the milk does not appear she should re-position her thumb and finger closer to the nipple and compress and release the breast as before.

- Compress/ Press and release all the way around the breast, keeping her fingers the same distance from the nipple.
  - At first no milk may come, but after pressing a few times, milk starts to drip out.
  - Press the areola in the same way from the sides, to make sure that milk is expressed from all segments of the breast.
- Express one breast until the milk just drips and then express the other breast until the milk just drips.
- Alternate between breasts 5 or 6 times, for at least 20 to 30 minutes or even longer until the flow slows.
- Stop expressing when the milk no longer flows but drips from the start.
- Avoid rubbing or sliding the fingers along the skin.
- Avoid squeezing the nipple itself. Pressing or pulling the nipple cannot express the milk; it is the same as the baby suckling only the nipple

Health workers should explain that to express breast milk 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.

Figure 6: How to express breast milk

5.9 Breast problems

Health workers should assist mothers to manage breastfeeding to avoid breast problems. The following are the most common problems:

5.9.1 Insufficient milk

Symptoms:

- Mother's feeling of not having enough milk; the baby does not gain enough weight; number of wet diapers (fewer than 6 a day).
- Dissatisfied (frustrated and crying) infant.

Causes:

- Infrequent breastfeeding.
- Tiredness, stress, hunger, and pain of mother.
- Incorrect positioning and attachment;
- Giving infant pacifiers or bottles.

Prevention:

- Breastfeed more frequently and on demand day and night.
- Give only breast milk: no water, liquids or foods.
- Correctly position and attach infant to the breast.
- Encourage family to help with household chores
- Do not give bottles or pacifiers.

Advise the mother to:

- Stop giving water, other liquids, formulas and pacifiers.
- Feed infant on demand, day and night even if you need to wake the infant up and increase the frequency of feeds.
- Make sure infant is correctly positioned and attached to the breast.
- Reassure mother that she can produce sufficient milk regardless of breast size.
- Remove milk from one breast first (infant takes fore and hind milk) before offering the second breast.
- Check how many diapers (nappies) the infant wets a day: 6 or more indicates infant is getting enough milk.
- Explain to mother the growth of the child.

5.9.2 Normal fullness

Symptoms:

- Breasts may feel hot, heavy, hard, or as if they are full of stones.
- There is NO FEVER.
- Milk continuous to flow and infant can feed normally.

Causes:

- Late initiation of breastfeeding.
- Plenty of milk.

Prevention:

- Correct positioning and attachment in the first few days.
- Breastfeeding immediately after birth.
- Breastfeeding on demand (as often and as long as infant wants).
- Breastfeeding day and night, at least 10-12 times in 24 hours.

Encourage and reassure the mother with the following advice:

- Fullness is normal and will settle in a few days.
- Let the baby feed as often as s/he wants.
- Show her how to express her milk a few times to keep the breasts comfortable.
- Show her how to position and attach the infant correctly to the breast.

5.9.3 Engorgement

Engorgement is when the breasts are overfull with milk as a result of poor attachment and infrequent breastfeeding, which leads to infrequent or ineffective emptying of the breast.

Symptoms:

- Swelling, tenderness, warmth, redness, throbbing pain, low-grade fever, flattening of the nipple.
- Taut skin on breasts and it usually starts within a few days after birth.

Causes:

- Poor positioning and attachment; delayed initiation of breastfeeding, no removal of milk; infrequent feeding.

Prevention:

- Correct positioning and attachment in the first few days.
- Breastfeeding immediately after birth.
- Breastfeeding on demand (as often and as long as the infant wants), day and night, 10-12 times in 24 hours.

Advise mother to:

- Observe the mother while she breastfeeds to determine the actual problem.
- Apply warm compresses to breasts and gently stroke the breast to get the milk flowing.
- If the breast is too full and the baby cannot attach to it, show and assist the mother to express some milk to soften the breast a little before she start to breastfeed.
- After breastfeed or expression of breast milk, apply cold compresses to reduce swelling.
- Breastfeed more often and longer.
- Improve infant positioning and attachment.
- Massage breasts.

5.9.4 Sore and cracked nipples

Symptoms:

- Breast or nipple pain; cracks in the nipples; occasional nipple bleeding; reddened nipples.

Causes:

- Improper positioning and attachment.
- Washing breasts with soap and antiseptics.
- Thrush (fungal infection).

Prevention:

- Correct positioning of infant.
- Correct attachment to the breast.
- No use of soap or cream on nipples.

Advise the mother to:

- Stop breastfeeding temporarily from affected breast and express frequently.
- Breastfeed on the unaffected breast or the side that hurts less.
- If both breasts are affected, express and heat treat breast milk and feed to the baby in a cup.
- **Not** stop breastfeeding.
- Make sure infant is positioned and attached correctly to the breast.
- Let infant come off the breast by himself after feeding.
- Apply drops of hind-milk to nipples and allow to air dry.
- Expose breasts to air and sunlight.
- Do not wait until breasts are too full to breastfeed. If it is too full, express some milk first.

5.9.5 Blocked duct

Symptoms:

- Breast pain in affected area; redness in affected area; swelling; warmth to the touch; hardness with red streak.

Causes:

- Tight clothing and brassieres.
- Pressure on the ducts in the breasts.

Prevention:

- Ensure correct positioning and attachment.
- Breastfeed on demand.
- Avoid holding the breast in scissors hold.
- Avoid tight clothing and brassieres.
- Avoid sleeping on stomach (mother).
- Use a variety of positions to hold infant to rotate pressure points on breast.

Advise the mother to:

- Give affected breast first during feeding.
- Massage lump toward nipple as infant is feeding.
- Rest (mother).
- Breastfeed more frequently and as long as infant wants.
- Use a variety of positions to hold infant to rotate pressure points on breasts.

5.10 Complication of breast problems

If breast problems are not managed, it can turn into complications.

5.10.1 Mastitis

Mastitis is an inflammation of the breast following unmanaged engorgement, cracked nipples or blocked duct, which leads to infection.

Treatment:

- Give *Paracetamol* immediately for pain and fever and antibiotics to control infection).

Symptoms:

- Breast pain, redness in one area of the breast, swelling, warmth to the touch, hardness with a red streak, general feeling of weakness and fever.

Causes:

- Blocked ducts and engorgement not properly treated and infection.

Prevention:

- Breastfeed frequently and as long as the baby wants; appropriately treat engorged and blocked ducts; and ensure correct positioning and attachment.

Advise the mother to:

- Stop breastfeeding temporarily from the affected breast and feed from the other breast.
- After mastitis has healed, resume breastfeeding.
- Not to give mixed feedings.
- Express breast milk frequently to relieve the breast and to maintain milk production. Apply warm compress to help with milk flow.
- Apply cold compress to relieve swelling.
- Get plenty of rest, ensure to eat well and to drink lots of fluids.
- If both breasts are affected, express and heat treat breast milk and feed to the baby in a cup.
- Breastfeed more often and longer.
- Help mother to correctly position and attach baby to breast

5.10.2 Breast abscess

A breast abscess is a painful fluctuant lump in the breast accompanied by fever that occurs following untreated mastitis or blocked duct.

Treatment:

- Give *Paracetamol* immediately for pain and fever and antibiotics to control the infection and refer for abscess incision and drainage.

Symptoms:

- 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.

Causes:

- An abscess may result if mastitis or a blocked duct is not properly treated. This happens if milk is not removed from the affected breast even if antibiotics are given.

Prevention:

- Ensure correct positioning and attachment; treat engorged and plugged ducts; breastfeed on demand, day and night.

Advise the mother to:

- Stop breastfeeding temporarily from the affected breast and feed from the other breast.
- After abscess has healed, resume breastfeeding.
- Not to give mixed feedings. Once the baby is switched to replacement feeding, maintain this type of feeding exclusively and not go back to breastfeeding.
- Express breast milk frequently to relieve the breast and to maintain milk production.
- Apply warm compress to help with milk flow.
- Apply cold compress to relieve swelling.
- Get plenty of rest, ensure to eat well and to drink lots of fluids.
- If both breasts are affected, express and heat treat breast milk and feed to the baby in a cup.
- Breastfeed more often and longer.
- Help mother to correctly position and attach baby to breast.

5.11 If mother is HIV-infected

The mother should heat-treat the expressed breast milk if both breasts are affected. Heat treating breast milk is a way to destroy the HIV in breast milk while retaining the important nutrients and protective agents in the breast milk. It is also called flash heating. This expressed breast milk should then be given to the baby with a cup until cracked nipples have healed and breastfeeding can safely resume.

In order to heat-treat breast milk, the mother must have adequate access to and supply of fuel and clean cooking supplies to prevent contamination.

Teach the mother how to safely heat-treat breast milk:

- Always wash all utensils that you will use to express and heat treat your breast milk with clean water and soap. It is best to boil these utensils after washing to make sure that they are clean.
- Express breast milk into a clean cup. Be sure to empty both breasts.
- Put all the milk you have expressed in a heat resistant glass (not plastic) jar.
- Place the jar of milk in a small pan of water. Make sure the water is about two fingers above the level of milk so that all the milk will be heated well.
- Heat the water on a very hot fire or on the highest level of your stove until the **water** reaches a rolling boil (when the water has large bubbles). Do not leave the water to boil too long as this will damage some of the nutrients in the milk.
- Remove the jar of milk from the boiling water immediately after the water comes to a boil. Place the jar in a container of cool water, or let it stand alone to cool until it reaches room temperature.
- Protect the milk as it cools and during storage by placing a clean lid or small plate on it.
- You can safely feed your baby this heated milk within **6** hours. Feed heat-treated milk to the infant with a cup.

Figure 6: How to safely heat treatment breast milk

Unheated breast milk can be stored for up to 8 hours at room temperature or up to 24 hours in the refrigerator.

It is critical that the mother when the child is less than 6 months old and being exclusively breastfed does <u>not</u> introduce mixed feedings (with formula or other liquids) to the child during this time.

CHAPTER 6: INTRODUCING COMPLEMENTARY FOODS TO YOUNG CHILDREN

Introduction of complementary foods is a critical time in the growth and development of infants. To increase the survival of children less than 5 years, health workers should provide appropriate counselling for mothers about how to introduce complementary foods**.**

Health workers should encourage mothers/caregivers to bring their children for growth monitoring on a ***monthly*** *basis from birth to 2 years and at least* ***every 3 months*** *from the age of 2 - 5 years.*

As a general rule, complementary foods should be introduced from the age of 6 months to all babies. At this age, breast milk alone cannot provide the required energy and nutrients.

6.1 Complementary foods

Complementary foods are solids or liquids given to the child, after 6 months, in addition to breast milk. Complementary foods should be introduced gradually and carefully to ensure the infant tolerates different consistencies. As the infant gets older, prepare more finger foods to increase hand-eye coordination. Appropriate adequate nutritious complementary foods should consist of

i) Carbohydrates (energy giving food) such as *mahangu*, maize-meal porridge, potatoes, sorghum, fats and oils.
ii) Proteins (body building foods) such as beans, meat, fish, chicken, eggs, milk and milk products
iii) Vitamins and minerals (protective foods) such as vegetables (carrots, spinach) and fruits (oranges, apples, mangoes, and bananas) will provide the infant with optimal nutrition for growth and development.

Appropriate complementary foods should be:

- Rich in carbohydrates, protein, and fat, as well as micronutrients (particularly iron, zinc, calcium, vitamin A, vitamin C, and folate);
- Clean and safe (free from harmful bacteria, chemicals or toxins, without bones or hard bits that are difficult to chew, and not boiling hot);
- Not too spicy, peppery, or salty;
- Easy to chew and swallow;
- Locally available and affordable;
- Easy for the caregiver to prepare.

As a health worker, it is important to first ask the mother what foods are commercially or communally available to the family and culturally acceptable. Also, encourage the mother to involve the entire family into complementary feeding decisions. A one-sided approach to simply telling the mother what to do will not be effective and may result in malnutrition in the child.

The following sections describe nutrition recommendations for infant and young child feeding in detail, and provide a summary of recommended feeding practises at each age up to five years.

Answering the following questions will assist health workers in advising mothers to properly feed their children:

When? An infant should be 6 months when complementary foods are introduced

What? Household staple energy foods and locally available foods

How? Gradually by spoon

When counselling mothers about complementary foods, health workers could use the principles of FADUA to assist mothers with the preparation of safe and nutritious foods for infants and young children. FADUA: **F – Frequency**: the number of times per day the child eats; **A – Amount**: how much the child eats at each meal; **D – Density**: the consistency (thick or watery) and density (different nutrients from a variety of food); **U – Utilization**: how the body uses the different foods and nutrients and **A – Active**: help and encourage the child to eat.

- **Frequency (F)**
  - Introduce food at 6 months, and gradually increase the number of times (frequency) the child eats.
  - 6 – 8 months: 2 – 3 times a day (with 1 – 2 snacks may be offered)
  - 9 – 11 months: 3 – 4 times a day (with 1 – 2 snacks may be offered)
  - 12 – 24 months: 3 – 4 times a day (with 1 – 2 snacks may be offered)
  - It is important to continue breastfeeding.

- **Amount (A) at each meal time**
  - At 6 - 8 months: 2 – 3 table spoons
  - At 9 – 11 months: half a cup
  - At 12 – 24 months: three quarter cup

- **Density (D)**
  - At 6 – 8 months: start with soft porridge and well-mashed foods (not watery)
  - At 9 – 11 months: Finely chopped or mashed foods (not watery) and foods that baby can pick up
  - At 12 – 24 months: Family foods: chopped or mashed (not watery) if necessary
  - Add to the staple food: meat/chicken/fish/egg, beans.
  - Also add butter/margarine/oil/peanut butter to the staple food.
  - Offer the child soft fruits such as bananas and cooked/baked apple or pear, soft vegetables such as pumpkin and other foods like tomatoes and oranges.

- **Utilization (U)**
  - Practice good hygiene to keep the child healthy and free of infections
  - Wash hands before preparing food and before feeding the child
  - Cook and serve the baby's food on clean utensils
  - Prepare fresh food for each feed
  - Do not give leftover food to the child the next day.

- **Active (A)**
  - Encourage and help the child to eat from his or her own plate.
  - Feed infants directly and assist older children
  - Play and talk with the child during feeding
  - Feed slowly and patiently.
  - Offer a variety of foods
  - Increase the variety of foods and colours
  - Do not force children to eat

6.1.1 Staple foods

- In Namibia, maize, mahangu, and sorghum are staple cereal foods, which are rich in calories. Staple roots include potatoes, cassava and sweet potatoes.
- These foods can be easily modified to provide the infant with nutrients and energy. However, these foods should not be given alone; protein foods, fats, fruits and vegetables should be included in the meal for balance.

6.1.2 Porridge and soups

- It is important to consider the consistency of foods for infants.
- An infant's stomach can only hold 200 ml (approximately ¾ a cup) of food or liquid at a time; therefore the child may not receive adequate nutrients if the stomach is filled with too much liquid from porridge or soup.
- Porridge should not be watery or thin; it should be thick enough to stay on the spoon easily. If the porridge can be easily poured from a cup or spoon, it is too thin and will not provide adequate nutrients to the child.
- Soups can also contain too much liquid, which will fill the stomach with less nutrient dense foods.

NB: Thin soups and porridge should not be regarded as a meal.

Ways to make porridge nutrient-dense and thicker:

- Use un-sifted instead of sifted maize or *mahangu* meal
- Use not too much water compared to maize or mahangu meal;
- Instead of water, use milk if available to make soft porridge;
- Add extra milk powder or butter to the porridge;
- Add cooked, mashed vegetables such as sweet potato or pumpkin;
- If porridge becomes too thick, add butter, margarine or oil to make it softer and easier to eat.

Ways to modify soup for the infant:

- Remove solid food pieces from soup and mash to a thicker consistency;
- Soften the mashed pieces with butter or oil;
- Feed the child only these mashed pieces.

6.1.3 Legumes

- Legumes include beans, peas, lentils, and some nuts. They are a good source of protein, iron, and fibre and can be added to an infant's diet if cooked thoroughly and well mashed.
- When using dried peas or beans, soak them for several hours or overnight and discard the water before cooking.
- If mashed beans become too dry, add a small amount of oil or butter to soften them. Mashed beans or nuts can be added to porridge or other mashed vegetables.

6.1.4 Animal foods

- Animal sources of protein such as meat, poultry, fish, worms (i.e. Mopani), milk, yoghurt, cheese, and eggs are rich in many nutrients and can well complement an infant's diet when gradually introduced. However, these are often more expensive than staple foods.
- Health workers should ask the caregiver(s) which foods are most affordable and seasonally available to them.
- Advice on eating these foods should then be given accordingly.
- Meat, chicken and pork should be taken off the bone and cut into bite-sized pieces or softened with butter or oil.
- Add butter or yoghurt to mashed eggs for smoother consistency.
- Egg yolks are high in vitamin A and iron; however the iron is better absorbed when eggs are complemented with a source of vitamin C such as small orange pieces, baobab fruit, guava or mashed avocado.
- Dairy products, such as milk, yoghurt, sour milk, and cheese, are high in calcium and vitamin D, which aid in bone development.

6.1.5 Vegetables and fruits

- For an infant just beginning complementary foods, vegetables and fruits must be made easy to chew and swallow to avoid choking.
- While all vegetables and fruits are important and good for a growing infant, focus should be put on those that are high in vitamins A and C.
- Good sources of vitamins A and C include carrots, pumpkin, spinach, yellow sweet potato, mango, pawpaw, guava, and baobab (*omakwa*) fruit.
- Since vitamin A can be stored in the body for a few months, encourage caregivers to provide these foods as much as possible when available.
- As with other foods, vegetables and fruits can be mashed to the right consistency for the infant to tolerate. See recipes in Annex 2 for ideas.

6.2 Feeding an infant 6 – 12 months

- One to two teaspoons twice a day; gradually increase amount and frequency.
- Introduce only one food at a time to avoid confusion
- Gradually introduce well-mashed vegetable and fruits, one spoon of one food at a time.
- Add other food e.g. soft meat, fish, chicken and egg (only yellow) and enrich staple food with oil, fats and nuts at 9 months.

There is no difference between feeding HIV uninfected HIV-infected or children of unknown HIV-status at this stage. However the nutrient need for an HIV-infected child will be higher than for an uninfected child. Breastfeeding on demand and feeding nutritious food several times a day will in most cases take care of the extra nutrient requirements.

6.3 Feeding a child 12-24 months

- From one (1) year the child should begin eating from the family pot provided the food is mashed and softened.
- At this age, the child's energy and nutrient needs are high, because they are continuing to grow and develop.

- Therefore, each meal must consist of a balance of foods, such as porridge, vegetables, fruit, and protein foods.
- Young children should consume 3 meals per day with 2 nutritious snacks.

Children of HIV-infected mother:

- Breastfeeding during the first 12 months of life provides the maximum benefit in terms of survival.
- The combination of breastfeeding and ARV interventions to reduce the risk of HIV transmission, would offer the best balance of protection from morbidity and mortality versus HIV-transmission.
- Mothers who are HIV-infected are advised to stop breastfeeding gradually when the child is 12 months old if their child is HIV uninfected or of unknown HIV-status. The mother should gradually stop breastfeeding over a period of 2-3 weeks by reducing the number of feeds per day and replace a breastfeed with a meal or a snack that is nutritionally adequate and safe until the child stops breastfeeding completely.
- ARV's should be provided to the baby until 4 weeks after all breastfeeding has completely stopped. Mothers should be advised that once the child stopped breastfeeding, she should NOT give breast milk to the child anymore.

If the child is HIV-infected breastfeeding should continue up to 2 years and beyond as with unexposed infants. Breastfeeding improves the survival of HIV-infected children.

Advise the mother or caregiver to:

- Continue breastfeeding if still appropriate. A child who is not breastfeeding needs another form of milk (cow or goat) until at least 2 years of age.
- Increase the amount of staple food and enrich it by adding energy rich foods such as protein foods, fats/oils, mashed vegetables and well grounded nuts.
- Add one type at a time of a variety of vegetables and fruits. For example: mashed yellow and orange vegetables (i.e. pumpkin, carrots, and sweet potatoes), green-leafy vegetables (i.e. spinach), and yellow fruits (i.e. paw-paw and mangoes).
- Add soft cooked meat, liver, fish, poultry and beans.
- Increase the number of meals to five times a day including snacks (3 main meals and 2 snacks in between). A snack can be *oshikundu or mageu* (gruel), bread, fruit, fruit juice, *omaere*.
- Add milk and milk products to the porridge instead of giving it as a drink (to ensure that the baby's stomach is not too full to eat other meals).
- Take the child **monthly** for growth monitoring up to age of 2 years and **every three months** up to the age of 5 years and every 6 months for vitamin A supplementation.
- Continue practising basic rules for food quality and safety (refer to section 6.8).
- Ensure the child receives plenty of clean water to drink after and between meals for hydration.

6.4 Feeding an older child 2 – 5 years

- At the age of 2 years the child is able to eat all family food.

Advise the mother or caregiver to:

- Continue practicing good food hygiene and cleanliness and taking good care of the child.
- Continue feeding the child 5 or more meals per day including snacks.
- Continue feeding the child variety foods as mentioned under section 6.1.
- Feed the child from his/her own plate.
- Take the child **monthly** for growth monitoring up to age of 2 years and **every three months** up to the age of 5 years and every 6 months for vitamin A supplementation.

6.5 How to encourage young children to eat:

- Feeding young children can be difficult especially if they are sick.
- The caregiver needs to show love, care and patience to overcome this.

Advise the mother or caregiver to:

- Offer small amount at times when the child is alert and happy, but offer these foods frequently in the day.
- Offer more food if the child shows interest.
- Sit with the child and eat together at meal times.
- Use appropriate utensil size, e.g. small bowl, small spoon.
- Offer verbal encouragement, e.g. talk, smile and play (make eating fun).
- Avoid using food to punish or reward a child.

6.6 Feeding a sick child

When the child is ill, advice the mother or caregiver to:

- Continue feeding all foods.
- Increase the calorie (energy) content of foods, especially if the child frequently refuses to eat.
- Breastfeed more if the child is still breastfeeding.
- Offer small, attractive foods more frequently throughout the day (ex: every 2-3 hours).
- Offer foods that the child likes most.
- Avoid forcing the child to eat; try later if the child refuses.
- Supervise the child every time he/she eats.
- Offer food from the child's own plate.
- Take good care of the child; pay attention to food habits and how much the child eats at each meal or snack.
- Practise good food hygiene and cleanliness.

6.7 What else needs to be done to care for young children?

The health worker should advice the mother to:

- Take the child **monthly** for growth monitoring up to age of 2 years and **every three months** up to the age of 5 years and every 6 months for vitamin A supplementation.
- Make sure that the child is fully immunised and receives Vitamin A supplements.
- Love and care for the baby. Talk, sing to and play with baby.
- Practise basic rules for food quality and safety.

- If the mother is HIV-infected it is essential that a child receives a HIV DNA/PCR test at 6 weeks, 3 months after all breastfeeding has stopped and a confirmatory HIV DNA/PCR / ELISA at 18 months. This is essential to ensure that the child can get started on ART as soon as needed.
- All HIV exposed infants should be given NVP prophylaxis daily from birth until 6 weeks of age. Infants whose mothers are on HAART can discontinue NVP; however, infants of mothers who are not HAART should continue daily NVP until 4 weeks after breastfeeding stops. If at any time the infant is confirmed HIV infected, he/she should enrol at the ART clinic for HIV care and treatment, and begin HAART as soon as possible (ideally not longer than 2 weeks after diagnosis).
- All HIV exposed infants should be given co-trimoxazole prophylaxis daily from the age of six weeks until confirmed HIV negative.

Table 2: Summary of Feeding Recommendations for Infants and Children

Age of child	Feeding recommendations
Up to 6 months of age	Exclusively breastfeed as much as child wants day and night; at least 8 times in 24 hours; give no other foods or liquids, even water, up to 6 months and continue breastfeeding up to 2 years and beyond.
6 months up to 12 months	• Continue breastfeeding • Give adequate servings of: - Thick maize porridge; add oil, butter, and/or milk. - Mashed foods, introduced gradually, such as potatoes, pumpkin mixed with rice, fish or beans. • Give 5 meals per day. • Give nutritious snacks between meals such as egg, fruit or soft bread with butter or avocado spread.
12 months up to 24 months	• Continue breastfeeding if mother is HIV-negative • If mother is HIV positive and the child is HIV-negative or of unknown HIV status stop breastfeeding at 12 months and once a nutritionally adequate and safe diet without breast milk can be provided. If the child is HIV positive continue breastfeeding Introduce more variety and textures in foods: meats, fish, eggs, legumes, fruits, and vegetables. • Give 3 meals per day with 2 nutritious snacks.
24 months and older	• Give family foods at 3 meals per day. • Give at least 2 nutritious snacks per day.

6.8 Basic rules for food quality and safety

Germs in the environment can contaminate food, which may cause diarrhoea and other serious illness. Because children are still growing and developing their immune systems, they can be at greater risk of becoming sick from poor hygiene practises. It is important to follow the basic rules of good hygiene whenever and wherever food is prepared.

When storing foods, advise the mother/caregiver to:

- Keep storage area and utensils clean and dry.

- Keep stored food free from insects, pests, animals, dust and smoke.
- Make sure food storage containers are only used for food.
- Keep raw and cooked foods in separate containers.
- Keep food covered and away from chemicals.

When handling foods and water, advise the mother/caregiver to:

- Wash all food preparation areas and cooking utensils in clean, hot water with soap before and after preparing foods, especially when handling raw and cooked foods.
- Wash hands with soap and water before, during, and after food preparation and eating.
- Wash foods, such as vegetables, fruits, meats and fish, in clean water before cooking or eating
- Avoid coughing or sneezing near food or touching the nose, mouth or hair while preparing food.
- Not prepare food for others while sick or having any cuts. If the mother/caregiver must still prepare food in this situation, they should take extra care with hygiene.
- Wash hands in clean water with soap after changing nappies and using a toilet.
- Discard children's stools in a toilet or bury them if there is no toilet and make sure that all family members make use of the toilet.
- Boil drinking water for 5 minutes to kill bacteria.
- Keep water in clean and covered containers at all times.

When preparing foods, advise the mother/caregiver to:

- Keep food at appropriate temperatures (i.e. cold foods should stay cold; hot foods should stay hot).
- Cook all foods thoroughly.
- Store leftover foods in a refrigerator and covered. Leftovers must be reheated thoroughly and should only be eaten within 3 days.
    - If the family does not have a refrigerator or proper cool storage facilities, advise them to prepare meals one at a time and not to store cooked foods for more than one day.

CHAPTER 7: COMMUNITY SUPPORT FOR INFANT AND YOUNG CHILD FEEDING

Mothers need to live in a baby and mother friendly environment in order to successfully breastfeed. Health workers should therefore be aware of the international and national measures that promote, protect and support breastfeeding and contribute towards baby and mother friendly communities. It is important that health workers make communities aware of these measures.

7.1 International and National measures that help communities support infant and young child feeding.

The most important International measures that promote infant and young child feeding are the International Code of Marketing of Breast Milk Substitutes (BMS) and the International Labour Organization (ILO) Maternity Protection Convention (MPC). The national measures are the Labour Act, the Public Health Act and the Baby and Mother Friendly Initiative.

7.1.1 The International Code of Marketing of Breast Milk Substitutes

The World Health Assembly (WHA) adopted the Code in 1981. The purpose of the Code is to contribute to safe and adequate nutrition for infants by protecting, promoting and supporting breastfeeding; and ensuring the proper use of breast milk substitutes, when they are necessary, on the basis of adequate information and through appropriate marketing and distribution.

The Code stipulates the minimum international requirement that mandates all governments to translate it into national laws and regulations.

The Code applies to marketing of BMS including infant formula and other milk products; foods and beverages, including bottle-fed complementary foods, when they are marketed or otherwise represented to be suitable, with or without modification, for use as a partial or total replacement of breast milk; and feeding bottles and teats. It also applies to the quality and availability of BMS, and to information concerning their use.

Implementation of the International Code of Marketing of Breast Milk Substitutes

Health workers should:

- Not advertise breast milk substitutes in health facilities
- Not accept free samples from baby milk companies
- Not promote infant formula products by providing free or low cost formula in health facilities
- Not allow company representative to contact mothers in health facilities
- Not accept gifts or personal samples and should never pass these to mothers
- Not display information with words or pictures idealising artificial feeding, including pictures of infants on the labels
- Not accept information that is not scientific and factual from milk companies
- Provide all the information to mothers on the benefits and superiority of breastfeeding, and the cost and hazards associated with artificial feeding
- Not promote unsuitable products such as sweetened condensed milk for feeding babies
- Ensure that objective and consistent information is provided on infant and young child feeding

- Make the information available to families, health workers and extension officers working with infants and young children
- Plan, design, disseminate, provide, and control information on infant feeding

The Public Health Act enforces and monitors the implementation of the Code

7.1.2 The International Labour Organization (ILO) Maternity Protection Convention

The aim of the Maternity Protection Convention is to protect the jobs and welfare of working pregnant women and working mothers and their babies. It provides the support women need to satisfactorily fulfill their productive and reproductive roles. The first International Labour Organization Maternity Protection Convention was adopted in 1919 and revised in 1952 and 2000, respectively. The revised ILO Maternity Protection Convention No. 183 of 2000 and its Recommendations ensure that women and men have equal opportunities, job security and conditions of work, which protects women's health and enable them to provide optimal care for their infants.

Implementation of the Maternity Protection Convention

Health workers should inform mother about their rights as follows:

- The Convention applies to all employed women including those in atypical forms or dependent work and all children without any discrimination whatsoever.
- The duration of maternity leave is at least 14 weeks, increased from 12 weeks of Maternity Protection Convention No. 103 of 1952.
- The Convention ensures that pregnant or breastfeeding mothers are not obliged to perform work which has been determined by the competent authority to be prejudicial to the health of the mother or the child.
- On production of a medical certificate, leave should be provided before or after the maternity leave period in the case of illness, complication or risk of complication arising out of pregnancy or childbirth.
- Cash benefits should be provided which ensures that a mother can maintain herself and her child in proper conditions of health and with a suitable standard of living. The amount of such benefits shall not be less than two-thirds of her previous earnings.
- Medical benefits should be provided for a woman and her child in accordance with national laws and regulations and should include prenatal, childbirth and postnatal care, as well as hospitalization care when necessary.
- It is unlawful for an employer to terminate the employment of a woman during her pregnancy or absence on leave. A woman is guaranteed the right to return to the same or an equivalent position paid at the same rate as at the end of her maternity leave.
- An employer is prohibited from requiring a test for pregnancy or a certificate of such a test when a woman is applying for employment, except where it is required by national laws or regulation in respect of work that is prohibited or restricted for pregnant or breastfeeding mothers or where there is a recognized or significant risk to the health of the mother and child.
- A woman has the right to one or more daily breaks or a reduction of hours of work to breastfeed her child, according to national laws.

7.1.3 The Labour Act No. 15 of 2004

Each member country of the ILO is supposed to ratify the new Maternity Protection Convention. Ratification means that a country agrees to be bound by the minimum standards set in that convention to ensure their national laws are in line with it. The Namibian Labour Act was promulgated and gazetted in 2004 and contains provisions in respect of maternity leave.

Health workers should inform mothers about their rights with regard to the Labour Act Maternity Leave provisions as follows:

- The duration of maternity leave is twelve (12) weeks, fully paid and one month extended, also fully paid in case of complications due to pregnancy or delivery (mother or child). This is short by 2 weeks as compared by the provision in the ILO Convention.
- The Act prohibits discrimination in any employment practise on the grounds of previous, current or future pregnancy.
- The Act makes provision for temporary re-assignment of duties and functions which are suitable to the pregnant conditions, should be arranged, provided the re-assignment does not lead to reduction in remuneration or any other benefits in respect of the employee's employment
- The Act protects the mother from performing any work, including overtime between the hours of 20h00 and 07h00 during the period of eight weeks before her date of birth and eight weeks after giving birth.

7.1.4 The Public Health Act

Part 7, Section 52, regulation 82 of the Public Health Act refers to infant nutrition according to the International Code of Marketing of Breast Milk Substitutes. Health workers should implement the International Code of Marketing of BMS and the National Infant and Young Child Feeding Policy to protect breastfeeding against the unethical marketing of BMS.

7.1.5 The Baby and Mother Friendly Initiative

The Baby and Mother Friendly Initiative Policy and Guidelines of 1992 have formed the basis for the National Policy on Infant and Young Child Feeding. Health workers should implement the Ten Steps to Successful Breastfeeding.

7.2 Strategies that facilitate community support for infant feeding

Communication strategies in the form of promotion, education and counselling are needed to build community-based support for infant and young child feeding and care. Health workers should use the following strategies for advocacy and social mobilization:

- **Community education** to be done in such a way that connects with daily lives using simple and inexpensive materials, which can be easily available in the community. For example, in order to effectively reach the community, education techniques need to be lively and entertaining. Storytelling, feeding songs and role plays can be all useful ways of educating the community on good feeding practises. The community can easily remember these.

- **Community health promotion campaigns** such as Breastfeeding Week, National Immunization Days, Oral Health Day, Maternal and Child Health Days and World Health Day are good examples. These are special events, which address family and community health needs and may be great forums for creating awareness.
- Community members themselves should be used to develop **Information, Education and Communication (IEC) materials,** using the available resources in the community. It is important to make information and educational material as lifelike as possible, so that community members can recognize the people and objects within the images presented.

7.3 Identifying infant feeding support systems

- A support system contains a network of individuals prepared and/or trained to provide a mother, her partner or the family with assistance for infant feeding challenges or difficulties.
- In identifying support systems for infant feeding, it is important to consider existing support structures and systems in households, families and communities, because these are the closest to the mothers.

Health workers should:

- Involve and inform **fathers/partners** in all steps of infant feeding counselling so that they can take part in the decision making process.
- Inform and sensitise **extended family system of grandparents, uncles, aunts, brothers, and sisters** to the importance of breastfeeding and safe alternative feeding, because they are first referral points for support for pregnant and breastfeeding mothers.
- Give correct and appropriate training to **traditional birth attendants** as these are trusted and respected by mothers and can play an important role.
- Involve **community and church leaders** in mobilizing the community as well as financial resources and identifying members of the support groups.
- Train **mother support groups** on breastfeeding and safe alternatives. Mother support groups are important because the traditional support system continues to break down as life becomes more urban. They reinforce what the health workers tell the mothers in the health facilities and can play a big role in advocating for breastfeeding and infant and young child feeding.
- Mobilize **resources from the community** to ensure community support for infant feeding. The types of resources that are needed are human, financial, material and organizational structures. Non Government Organizations (NGOs), Community-Based Organizations (CBOs), Youth Groups (UNAM Choir), School Children, Community Counsellors, and Home Based Care Volunteers can provide some of these essential resources in the community.
- Involve the **media** in disseminating information and creating awareness on infant and young child feeding.

CHAPTER 8: INFANT AND YOUNG CHILD FEEDING IN EMERGENCIES

Emergencies such as droughts, floods, earthquakes, tsunamis, epidemics and wars are characterized by population displacement and food insecurity and they are increasing in number and intensity. In emergencies, children under five are more likely to become ill and die from malnutrition and diseases as compared to other groups. In general, the younger they are, the more vulnerable they are. The care and feeding of infants and young children are often compromised during emergencies and this has contributed to the high morbidity and mortality among this group. Emergency of natural or manmade disrupts the social and economic norms of the population affected and has significant impact on the health and nutrition of the population in general and women and children in particular.

Nutrition in Emergency

Natural and man-made emergencies disrupt the normal social and economic activities in the community and predispose the population, especially the vulnerable segment, women and children to higher morbidity and mortality due to malnutrition.

The World Health Organization has developed several health and nutrition assessment tools during emergencies and guidelines to implement effective interventions to avert deaths and disabilities among the affected populations. The aim of this section is to orient health care providers to implement effective nutrition interventions and strategies during emergencies.

The topmost priority in emergencies is to prevent death and malnutrition in the affected population, particularly in the most vulnerable groups: infants, children, pregnant women and breastfeeding mothers. Immediate assessment of the nutritional and health needs of affected populations is paramount. In addition, it is also important to protect, promote and support breastfeeding, especially exclusive breastfeeding by providing safe havens for pregnant and lactating women; provide essential micronutrients; support therapeutic feeding centres for severely malnourished children; and provide food for orphans.

In order to meet the RDA of micronutrients, foods are fortified with micronutrients. However, foods fortified with micronutrients may not meet fully the needs of certain nutritionally vulnerable subgroups — pregnant women, lactating women and children from 6 to 59 months of age. Therefore, it is important to ensure provision of a daily multiple micronutrient formula to meet the recommended nutrient intake (RNI) of these nutritionally vulnerable subgroups.

8.1 Major nutritional deficiencies during emergencies

The major nutritional deficiencies during emergency are protein-energy malnutrition and micro-nutrient deficiencies that include iron, iodine, vitamin A and others.

8.2 General Ration

- During emergencies, a general feeding is required when the population has no access to sufficient food to meet the nutritional needs.
- The general ration should meet the populations' minimum energy, protein, fat, and micronutrient requirements.
- Besides the general ration should be culturally acceptable, fit for human consumption and easily digestible for children and other affected vulnerable groups.

The basic commodities in general rations are usually cereals, pulses and edible oil. Other items such as such as salt, sugar, tea, and spices are intended to increase the palatability of relief foods. The minimum energy requirement per day is 2100 Kcal, but depending on the nutritional status of the populations affected by the emergency the requirement could be higher.

8.3 Supplementary feeding

- Supplementary feeding is needed when childhood malnutrition is very prevalent or is imminent.
- It provides additional food to nutritionally vulnerable group, including moderately malnourished children and pregnant or lactating women either through on-site feeding with cooked meals (500-700 kcal per day) or by distribution of dry take-home ration (1,000-1,200 kcal per day).
- Breastfeeding must be encouraged and wet nurses found if possible for infants who cannot be fed by their own mothers.

i) **Blanket supplementary feeding:**

- This approach is providing supplementary feeding to the general population.
- This is indicated when malnutrition rate (Weight-for-height below median -2SD) exceeds 15% or 10% in the presence of other aggravating factors for example high HIV prevalence rate, outbreaks of diarrhoea etc.

ii) **Targeted supplementary feeding:**

- This is provision of extra food to selected individuals.
- This is indicated if the if the malnutrition rate (Weight-for-height below median -2SD) exceeds 10% or 5% in the presence of other aggravating factors for example high HIV prevalence rate, outbreaks of diarrhoea and others.

8.4 Therapeutic feeding

- The purpose of therapeutic feeding in emergencies is to safeguard the nutrition rights and prevent deaths in the most vulnerable groups: infants, children, pregnant women and breastfeeding mothers due to nutrition related causes.
- Therapeutic feeding is required to reduce the death rate among infants and young children suffering from severe protein-energy malnutrition.
- A rehabilitative diet, with high energy, foods served at frequent intervals, provides 175-200 kcal of energy and 2-3 gm of protein per kg of body weight daily.
- When children are in therapeutic feeding program, a close medical monitoring and feeding every 3 hours for 24 hours basis is required. Mothers should be encouraged to actively feed their sick children themselves.

Deaths among severely malnourished children occur in the first four days. The causes are infection and dehydration which should be treated promptly. Broad-spectrum antibiotics and oral or naso-gastric rehydration are often needed. Immunization against measles is apriority during emergencies and all malnourished children should receive normal doses of vitamin A.

Signs of recovery are:

1. Oedema loss,
2. Weight gain and
3. Improvement of the general condition of the child.

Failure to recover is mainly due to inadequate or faulty feeding or infections, including Tuberculosis and HIV.

In all circumstances and especially in emergency situations, emphasis should be on protecting, promoting and supporting breastfeeding and ensuring timely, safe and appropriate complementary feeding. However, in times of crisis, large donations of infant formula, feeding bottles and teats are often received from various sources. Although intentions are generally good, there is lack of awareness that such donations can do more harm than good as there is neither basic infrastructure nor adequate conditions to reduce the risks associated with the preparation of infant formula and other breast milk substitutes. Therefore, the procurement and distribution will be managed according to the policy of the Government of the Republic of Namibia. This helps to prevent situations where excessive availability of breast milk substitutes results in mothers forsaking breastfeeding when it is in fact a lifeline.

In emergencies, more than ever, early initiation, exclusive breastfeeding until six months and continued breastfeeding until two years or beyond, need to be promoted, protected and supported for child development, health and survival.

- In an emergency all children's hydration and nutritional status should be assessed.
- Actions to support breastfeeding during an emergency
- Keep families together.
- Create safe havens for pregnant and breastfeeding mothers. These havens should provide security, counselling, water and food. These havens could be offices, hospitals or other shelters.
- Assure mothers that breast milk is the best for the child. Advocate for optimal feeding practices for orphaned infants, including HIV-uninfected e donor breast milk.
- Assist mothers to initiate breastfeeding within half an hour after birth, promote exclusive breastfeeding for 6 months and encourage breastfeeding for 2 years or beyond.
- In situations where breast milk is not available, recommend ready-to-use formula e.g. powdered formula is the last resort. Use cool boiled water to prepare infant formula.
- Ensure the availability of ART/ARV in an emergency situation.

During emergencies the whole population except pregnant women should be immunized against measles. If there are no adequate vaccines, children under-five years of age should be targeted for measles vaccination. This will reduce the risk of having an outbreak and reduces morbidity and mortality due to measles. Polio vaccine is also recommended for children under five years of age.

Advocate for breastfeeding promotion, protection, and support with relief agencies and workers. Infant feeding practices and resources should be assessed, coordinated and monitored throughout the emergency.

In an emergency there may be no clean drinking water, no clean environment and it may be impossible to ensure cleaning and sterilization of feeding utensils. The cleanest, safest food for an infant is breast milk:

- Breast milk is nutritionally perfect.

- It is readily available without dependence on supplies.
- It is protective against infectious diseases, especially diarrhea and respiratory illnesses.
- It is the right temperature and helps prevent hypothermia.
- The release of hormones during breastfeeding relieves maternal stress and anxiety.

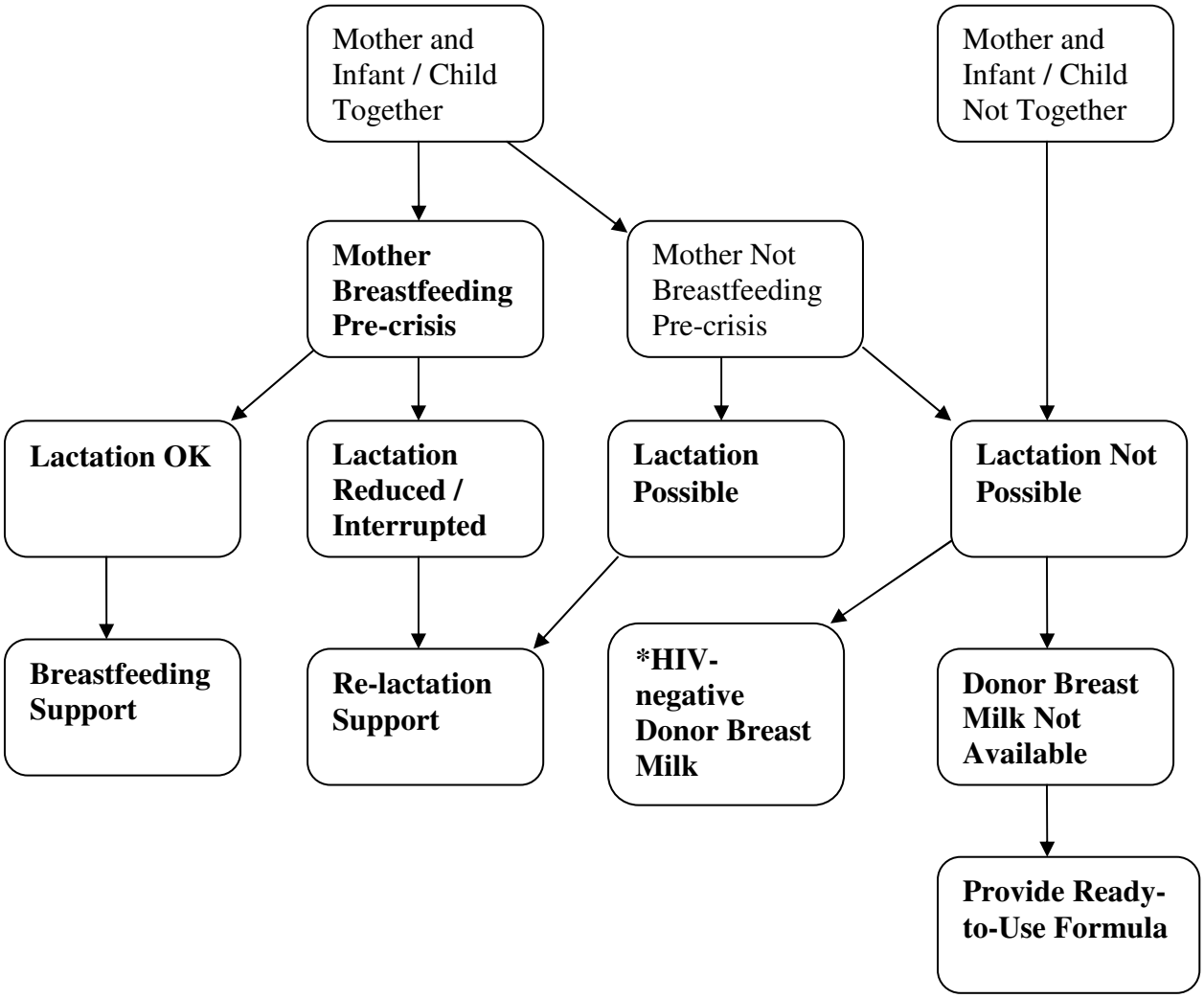
Disadvantages of infant formula use during an emergency

- It may not be available.
- It is difficult to ensure safety and adequacy of the feed during emergency
- It is expensive to purchase and prepare
- It may become contaminated.
- Errors or mistakes in formula preparation may occur.
- Water that is mixed with powdered formula may be contaminated.
- It may be difficult to ensure cleanliness of cups of spoons to feed formula.
- If there is no electricity, prepared formula cannot be stored and preserved in the refrigerator.

Breastfeeding facts

- With appropriate support and guidance, stress does not cause milk to dry up.
- Malnourished women can breastfeed.
- Optimal breast milk supply is maintained by infant demand.
- For some mothers and babies, once breastfeeding has stopped, it may be resumed successfully:
  - Encourage skin-to-skin contact and frequent suckling (8-12 times a day)
  - Supply increases gradually over days to weeks and supplementation should decrease accordingly.
  - Careful assessment of the infant's nutritional and hydration status is critical.
  - A full milk supply is established more rapidly with the younger infant.
  - A mother needs encouragement during this process.

Figure 7: Infant Feeding during Emergencies



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ANNEX 1: GLOSSARY OF TERMS

Abrupt stopping (early cessation) of breastfeeding: completely stopping breastfeeding.

Adherence: Adhering to prescribed treatment regimens. This includes taking the correct amount of medication at the correct time each day as prescribed. Failure to adhere to an anti-HIV Treatment regimen can lead to the body building up resistance to the medications and the medication no longer working effectively.

Acquired Immunodeficiency Syndrome (AIDS): A disease of the body`s immune system caused by the human immunodeficiency virus (HIV).AIDS is characterised by the death of CD4 cells, part of the body`s immune system, which leaves the body vulnerable to life-threatening conditions. AIDS is diagnosed with a positive HIV test, a CD4 count of less than 200 and or with diagnosis of specific AIDS defining infections or cancers.

Alveoli: refers to small glands in the breast that produce milk.

Areola: refers to the darkened area of the breast, around the nipple.

Artificial feeding: feeding with breast milk substitutes, such as infant formula or modified animal's milk.

Artificial teat: refers to a nipple made from synthetic material used for a feeding bottle or for a pacifier/dummy.

Blocked ducts: when milk from one part of the breast does not flow well. This forms a lump of thickened milk that blocks the milk duct.

Bonding: the emotional connection between one person to another, namely mother and baby.

Breast abscess: an area in the breast that feels hot and painful and is full of fluid; it can result from untreated mastitis and blocked duct.

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

Caregiver: person who provides care and support to another person, namely an infant or young child.

Colostrum: the first milk, produced in the breasts by the seventh month of pregnancy. It is thick, sticky and clear to yellowish in colour, high in protein and vitamin A, and has a laxative effect that helps the baby pass meconium. Immunoglobulin (mostly IgA) in colostrum provides anti-infective protection to the baby.

Commercial infant formula: a breast milk substitute formulated industrially in accordance with applicable Codex Alimentarius standards to satisfy the nutritional requirements of infants during the first months of life up to the introduction of complementary foods.

Complementary food: any food, whether manufactured or locally prepared, used as a complement to breast milk or to a breast milk substitute.

Cracked nipples: condition where the skin of the nipples splits, causing bleeding, soreness, and pain. This often occurs when a baby is not correctly positioned or attached during breastfeeding.

Cup feeding: being fed from or drinking from an open cup, irrespective of its content.

Engorgement: swelling in the breast that blocks milk flow, caused by inadequate or infrequent milk removal. The breasts will be hot and painful and look tight and shiny.

With severe engorgement, milk production may stop.

Candidiasis or Thrush: An infection caused by yeast - like fungus. Candidiasis can affect many parts of the body including the oesophagus and mouth. Candidiasis of the mouth is called thrush. The infection appears as white patches in the mouth making food sometimes painful to swallow.

Diarrhoea: Three or more watery stools in a 24 hour period.

Exclusive breastfeeding: means an infant receives only breast milk and no other liquids or solids, not even water, with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines prescribed by a physician.

Food security: when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. To be food secure, households and individuals need to have available food, access to food and the ability to fully utilize it once it is consumed.

Gradual stoppage: refers to wean the baby from the breast over a period of time by reducing the frequency of feeds until breastfeeding stops.

Gestational age: refers to the foetus' age in utero from conception to birth, or the weeks of pregnancy.

Growth monitoring and promotion: a system to track and assess growth in children. GMP includes involving the mother/caregiver in weighing, interpreting, and deciding on an action plan for the child. In addition to weight, growth monitoring can also include measuring the child's height/length, head circumference, and mid-upper arm circumference against their age in months or years. These measurements are used as indicators for assessing, preventing, and treating malnutrition.

HIV-uninfected: refers to people who have taken an HIV test and who know that they tested negative, or to young children who have tested negative and whose parents or guardians know the result.

HIV-infected: refers to people who have taken an HIV test and know that they tested positive, or to young children who have tested positive and whose parents or guardians know the result.

HIV status unknown: refers to people who either have not taken an HIV test or do not know the result of a test they have taken.

Infant: a child from birth to 12 months of age.

Infant feeding counselling: counselling on breastfeeding and on complementary feeding

Low birth Weight: Low birth weight infants are those who weigh 2500 or less grams. Very low birth weight infants weigh 1500 grams. . Extremely low birth weight infants weigh 1000 grams or less. The low birth weight (LBW), very low birth weight (VLBW) or extremely low birth weight (ELBW) babies are generally born between 23 and 32 weeks

Malnutrition: An impairment of health resulting from a deficiency, excess or imbalance of nutrients. It includes under-nutrition, which refers to a deficiency of energy (kJ) and or one or more essential nutrients. It also refers to over –nutrition, which is excess of one or more nutrients and usually energy.

Mastitis: infection in the breast that produces localized tenderness, redness, and heat. The mother may have a fever, feel tired or nauseated, or have a headache.

Mature Breast Milk: a few days after birth colostrum transit into mature milk

Meconium: first stool of a newborn. It is greenish-black to light brown in colour with a tarry consistency.

Mixed feeding: feeding both breast milk and other foods or liquids, including water for children less than 6 months of age.

Mother to Child Transmission: transmission of HIV to a child from an HIV-infected woman during pregnancy, delivery, or breastfeeding. The term is used because the immediate source of the child's HIV infection is the mother. Use of the term *mother-to-child transmission* implies no blame, whether or not a woman is aware of her own infection status. A woman can contract HIV infection from unprotected sex with an infected partner, from receiving contaminated blood, from non-sterile instruments, or from contaminated medical procedures.

Nutrients: chemical substances found in food that nourish the body and must be supplied in suitable amounts. These include water, proteins, fat, carbohydrates, minerals and vitamins.

Nutritional Status: In-depth review and analysis of a person`s medical and diet history ,history, laboratory values ,and anthropometric measurements to verify nutritional risk or malnutrition and identify underlying causes so that appropriate nutrition intervention ,tailored to individual needs, can be planned and initiated.

Preterm breast milk: milk that is produced in the breast before 40 weeks of gestational age

Replacement feeding: feeding infants who are receiving no breast milk and a diet that provides the nutrients infants need until the age at which they can be fully fed on family foods.

Rooming-in: the mother and baby share the same room (hospital or other), beginning as soon as possible after birth.

Young Child: a child between one and five years old.

ANNEX 2: RECIPES FOR INFANTS BEGINNING COMPLEMENTARY FOODS

Fortified Mahangu Porridge:

Main Ingredient:	Add one of the following to fortify:	Preparation
Mahangu/Maize/sorghum, soft porridge	Finely ground or pounded nuts (marula or other nuts). Remove large pieces of nuts for very young children.	Add 1-2 teaspoons ground nuts to prepared porridge. Mix well.
	Finely ground or pounded Mopani (or other types) worms or dried and pounded fish. Remove large pieces for very young children.	Add 1-2 teaspoons worms or fish to prepared porridge. Mix well.
	Oil (such as marula or red palm)	Add 1-2 teaspoons of oil to prepared porridge
	Egg, beaten	Add 1 egg to porridge during cooking process. Stir immediately over heat and cook thoroughly.
	Baobab fruit	Sieve 1 baobab fruit to separate powder from seeds and threads. Add powder to prepared porridge. Mix well.
	Full cream milk or milk powder	Add 1 cup milk or 2 tablespoons of milk powder to porridge during preparation.

Cowpeas (or Bean) Paste
Ingredients: 1 ½ cups boiled cowpeas, water, salt, 1 teaspoon margarine or butter, and 1 tablespoon lemon juice (optional)

Boil the cowpeas (or other beans) in water with a little salt until very soft. Mash to make a smooth paste. Add margarine or butter and lemon juice and mix well.

Chicken Stew
Ingredients: pieces of chicken, oil, potatoes, carrots, pumpkin, water, and greens (spinach)

Cook chicken well in oil. Add potatoes, carrots, and pumpkin to pot. Add water to pot just to cover foods. Bring to a boil and then simmer until vegetables are very soft. Mash vegetables and chicken together. Add finely chopped spinach before serving.

Mashed Pumpkin
Ingredients: pumpkin, oil or butter

Cut pumpkin into small pieces. Cook pumpkin pieces in pot over medium heat with a little water until very soft. Add butter or oil to make pumpkin softer and easier to mash.

*This recipe may be used for other vegetables such as carrots, butternut squash, beets, potatoes, and sweet potatoes. Also add small pieces of well-cooked and chopped meats for extra protein.

Scrambled Egg with Spinach
Ingredients: 2-3 Eggs, chopped spinach leaves, oil

Lightly oil a pan on medium heat. Add finely spinach leaves and cover pan until spinach is almost wilted. Add eggs and stir until well done and eggs are cooked thoroughly. Add salt to taste.

Hardboiled egg
Ingredients: Egg, water, salt

Place egg(s) in pot filled with water over heat. Bring to a boil for 5 to 7 minutes. Allow eggs to cool. Remove shell and add salt to taste.
*For very young children, chop hard boiled eggs into smaller bites.

ANNEX 3: NUTRIENT COMPOSITION OF FOODS

Food (100g)	Description	Energy (calories)	Protein (g)	Iron (mg)	Vitamin A (mcg RE)
Millet (mahangu)	Pearl, flour	318	5.6	54	4
Maize	Flour	335	8	1.1	0
Maize	whole	364	8	3	0
Macaroni	Cooked	395	13	1.4	0
Rice	Cooked	138	2.6	0.2	0
Bread	White	235	8.4	1.6	0
Potato	Cooked	75	1.5	0.3	0
Sweet potato	Cooked	84	1.1	0.7	660
Cassava	Raw	153	0.7	1.0	0
Cowpeas	Raw	318	23	5.0	2
Groundnuts	Raw	564	25.6	2.5	0
Seeds (average)	Raw, without coat	577	23	3	3
Beef	Raw	123	20.3	2.1	0
Chicken liver	Raw	135	19.1	9.5	11325
Chicken, dark meat	Raw	116	21.8	0.5	0
Chicken, light meat	Raw	126	19.1	1.6	0
Fish	Raw	76	17.4	0.3	0
Fish	Steamed	98	22.8	0.2	0
Fish small	Dry whole	320	44	8.5	n/a
Caterpillars	Dried	392	53	2.3	0
Frogs	Dried	98	20	1.6	0
Milk	Fresh, whole	66	3.2	0.06	55
Egg	Boiled	147	12.5	1.9	190
Carrot	Raw	35	0.6	0.3	1350
Carrot	Boiled	24	0.6	0.4	1260
Spinach	Raw	58	4.5	7.2	550
Spinach	Boiled	19	2.2	1.6	640
Pumpkin	Boiled	13	0.6	0.4	160
Tomato	Raw	17	0.7	0.5	107
Mango	Raw	57	0.7	0.7	300
Orange	Raw	37	1.1	0.1	5
Paw-paw	Raw	36	0.5	0.5	135
Banana	Raw	95	1.2	0.3	3
Red Palm oil		890	0	0	4000
Margarine		739	0.2	0.3	780
Butter		699	0	0	730

Source: CTA/ECSA 1987, WHO 2000.

ANNEX 4: ACCEPTABLE MEDICAL REASONS FOR USE OF BREASTMILK SUBSTITUTES

Breastfeeding is the best feeding option for infants. However, there are some health conditions (as listed by WHO) that may affect a small proportion of infants or mothers that may justify temporarily or permanently stopping breastfeeding. Whenever stopping breastfeeding is considered, the benefits of breastfeeding should be weighed against the risks posed by the presence of the specific conditions listed.

Acceptable medical reasons for use of breast-milk substitutes

1. Infant Conditions

Infants who should not receive breast milk or any other milk except specialized formula

- Infants with classic galactosemia: a special galactose-free formula is needed.
- Infants with maple syrup urine disease: a special formula free of leucine, isoleucine and valine is needed.
- Infants with phenylketonuria: a special phenylalanine-free formula is needed (some breastfeeding is possible, under careful monitoring).

Infants for whom breast milk remains the best feeding option but who may need other food in addition to breast milk for a limited period

- Infants born weighing less than 1500 g (very low birth weight).
- Infants born at less than 32 weeks of gestational age (very pre-term).
- Newborn infants who are at risk of hypoglycemia by virtue of impaired metabolic adaptation or increased glucose demand (such as those who are preterm, small for gestational age or who have experienced significant intrapartum hypoxic/ischaemic stress, those who are ill and those whose mothers are diabetic) if their blood sugar fails to respond to optimal breastfeeding or breast-milk feeding.

2. Maternal conditions

Maternal conditions that may justify temporary avoidance of breastfeeding

- Severe illness that prevents a mother from caring for her infant, for example sepsis.
- Herpes simplex virus type 1 (HSV-1): direct contact between lesions on the mother's breasts and the infant's mouth should be avoided until all active lesions have resolved.
- Maternal medication:

- sedating psychotherapeutic drugs, anti-epileptic drugs and opioids and their combinations may cause side effects such as drowsiness and respiratory depression and are better avoided if a safer alternative is available
- radioactive iodine-131 is better avoided given that safer alternatives are available - a mother can resume breastfeeding about two months after receiving this substance;
- excessive use of topical iodine or iodophors (e.g., povidone-iodine), especially on open wounds or mucous membranes, can result in thyroid suppression or electrolyte abnormalities
in the breastfed infant and should be avoided;
- cytotoxic chemotherapy requires that a mother stops breastfeeding during therapy.

Maternal conditions during which breastfeeding can still continue, although health problems may be of concern

- Breast abscess: breastfeeding should continue on the unaffected breast; feeding from the affected breast can resume once treatment has started
- Hepatitis B: infants should be given hepatitis B vaccine, within the first 48 hours or as soon as possible thereafter
- Hepatitis C.
- Mastitis: if breastfeeding is very painful, milk must be removed by expression to prevent progression of the condition
- Tuberculosis: mother and baby should be managed according to national tuberculosis guidelines
- Substance use :- maternal use of nicotine, alcohol, ecstasy, amphetamines, cocaine and related stimulants has been demonstrated to have harmful effects on breastfed babies;
    - Alcohol, opioids, benzodiazepines and cannabis can cause sedation in both the mother and the baby. Mothers should be encouraged not to use these substances, and given opportunities and support to abstain.

In these special conditions mentioned above, infant formula may be given to infants, provided:

a. safe water and sanitation are assured at the household level and in the community; and
b. the mother, or other caregiver can reliably provide sufficient infant formula milk to support normal growth and development of the infant; and
c. the mother or caregiver can prepare it cleanly and frequently enough so that it is safe and carries a low risk of diarrhoea and malnutrition; and
d. the mother or caregiver can, in the first six months, exclusively give infant formula milk; and
e. the family is supportive of this practice; and
f. the mother or caregiver can access health care that offers comprehensive child health services.

It is important that health workers teach mothers about:

- How to prepare infant formula
- The dangers of mixed feeding

How to Prepare Infant Formula

Health workers should teach the mother the important steps on how to prepare formula:

1. Wash hands thoroughly with soap and water before preparation.
2. Use clean utensils washed in soap and water, boiled and kept covered.
3. Boil water for 5 minutes and cool to room temperature before mixing.
4. Make sure the water and the powder are correctly measured. Place the feeding bottle or measuring cup on a levelled surface (kitchen counter or table) and add correct amount of water according to instructions. Powder should be measured using a levelled scoop.
5. Mix the powder and water well.
6. Prepare only one feed at a time.
7. Use a cup to feed the baby, hold the baby close to foster bonding.

8. Discard left over feed.

In addition to the above teach the mother to:

- Not store prepared feed in a thermos/flask this will help bacteria to multiply.
- Always check the expiry date on the formula tin.
- Store infant formula tins in cool and dry place.
- Use the manufacturers' instructions on infant formula label in order to ensure safe preparation of formula and to reduce increased rates of infection and death from malnutrition.


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