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MINISTRY OF HEALTH

MATERNAL, INFANT AND YOUNG CHILD NUTRITION

NATIONAL OPERATIONAL GUIDELINES FOR HEALTH WORKERS

2013

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Maternal, Infant and Young Child Nutrition: National Operational Guidelines for Health Workers

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FOREWORD

The National Maternal, Infant and Young Child Nutrition (MIYCN) guidelines are anchored on the Kenya Food and Nutrition Security Policy (2011), the Breastmilk Substitutes (Regulations and Control) Act, the National Maternal Infant and Young Child Nutrition Policy Guidelines (2013), Kenya National Nutrition Action Plan (2011-2017) and the Maternal Infant and Young Child Nutrition strategy (2012 to 2017). These documents provide a policy and an action framework respectively for national and county response to priority areas of MIYCN as well as goals and targets for MIYCN interventions.

The Kenya constitution guarantees children the right to nutrition as a fundamental human right. Kenya Vision 2030, the country's development blueprint covering the period 2008 to 2030 aims to transform Kenya into a newly industrializing, "middle-income country providing a high quality life to all citizens by the year 2030." Kenya's vision for health is to provide "equitable and affordable health care at the highest affordable standard" to her citizens. Good health and nutrition is expected to play an important role in boosting economic growth, poverty reduction and the realization of social goals.

Today, under-nutrition is still a leading cause of death of young children in Kenya. For infants and children under the age of two, the consequences of under-nutrition are particularly severe, often irreversible, and reach far into the future. For children under the age of two, under-nutrition can be life-threatening. It can weaken a child's immune system and make him or her more susceptible to dying from common illnesses such as pneumonia, diarrhea and malaria. The 1,000 days covering the period between a woman's pregnancy and her child's second birthday offer a unique window of opportunity to shape healthier and more prosperous futures. The right nutrition during this 1000 day window can have a profound impact on a child's ability to grow, learn, and rise out of poverty. It can also shape a society's long-term health, stability and prosperity. During pregnancy, under-nutrition can have a devastating impact on the healthy growth and development of a child. Babies who are malnourished in their mother's womb have a higher risk of dying in infancy and are more likely to face lifelong cognitive and physical deficits and chronic health problems.

These guidelines provide a mechanism for coordinated comprehensive interventions for optimal maternal, infant and young child nutrition and improved child survival through the operationalization of the MIYCN Policy guidelines and Strategy. The Ministry through Sector Wide Approach (SWAp) envisages a common and strong working partnership on implementation of interventions to improve maternal and child survival and especially at the community level. We call upon the various development and implementing partners to embrace a vibrant team spirit, sound rapport, mutual understanding and full cooperation towards achieving the aim and objectives of these guidelines.



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EXECUTIVE SUMMARY

The National Maternal, Infant and young Child Nutrition (MIYCN) guidelines were formulated and developed through extensive participatory collaborations and consultations between the Ministry of Health and various representatives from line ministries, NGOs, partners and other relevant stakeholders. The process was coordinated by the Division of Nutrition through the National MIYCN Steering Committee, the various Nutrition Working Groups and the Nutrition Interagency Coordinating Committee. The main objective of this document is to operationalize the MIYCN Policy guidelines and Strategy by providing guidance to service providers on day to day implementation of the national and global recommendations on maternal and child nutrition care and support at all levels of operation for optimal health of the target populations in Kenya.

Implementing these guidelines will require increased political will, public investment and a heightened awareness of the critical importance of MIYCN among health workers, other professionals and community based care providers. Involvement of the national and county government, families, communities, community based organizations (CBOs), in collaboration with international organizations and other concerned parties will ultimately ensure that necessary action is taken.

The MIYCN Guidelines are divided into eight broad areas as follows:

- **Chapter One:** Background and situational analysis - this section provides an insight into the status of MIYCN in Kenya, the policy and legislative framework, practices and programmes in Kenya. Highlighted are also issues deriving from the situational analysis. Outlined also is the justification/rationale, aims, objectives and guiding principles based on the WHO recommendations
- **Chapter Two:** Maternal Nutrition - this section provides guidance for the nutrition care and support that women need at different stages, pre-natal, antenatal, postpartum and continued care. Included also are special needs for teenage mothers and HIV positive mothers.
- **Chapter Three:** Infant and Young Child Nutrition- This section provides guidelines on support for exclusive and proper management of breastfeeding, and optimal complementary feeding.
- **Chapter Four:** Infant and Young Child Feeding in the context of HIV- Provides guidance for HIV positive mothers to make informed choices on appropriate infant and young child feeding.
- **Chapter Five:** Infant and Young Child Feeding in Difficult/Special Circumstances- This section provides guidance on nutrition care for low birth weight infants and pre-term, hospitalized infants, children and mothers with children with special medical conditions, infants and young children in emergencies, malnourished children, orphans and children separated from their mothers, children in daycare and early childhood centers and other institutions and children with disabilities.

- **Chapter Six:** Nutrition assessment, counseling and support – This section provides guidelines on the proper nutrition assessment to determine nutrition status of the individuals through use of dietary history and intake data, biochemical tests, clinical examination, anthropometric measurements and psychosocial information. Guidance is also provided on how to counsel mothers of children with different needs e.g underweight, stunted, severely malnourished, overweight or sick child.
- **Chapter Seven:** Maternal, Infant and Young Child Nutrition (MIYCN) Community Linkages - This section provides information on Follow up referral, linking client to other services that provide care and support services, integration of MIYCN services, coordination of key players in the community, social and resource mobilization. The aim is to maintain sustainable good nutrition of the mothers and children
- **Chapter Eight:** Implementation, Monitoring and Evaluation of MIYCN- This section provides guidance on advocacy and social mobilization, implementation strategies, capacity building, integration and coordination, resource mobilization. It outlines the roles and responsibilities of the government, private sector and other partners in implementation of the guidelines. Monitoring indicators, time frame observation and evaluation of MIYCN activities, data collection, reporting, management and use are also discussed.

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ACRONYMS AND ABBREVIATIONS

AED	Academy for Educational Development
AFASS	Affordable, Feasible, Acceptable Safe and Sustainable
AIDS	Acquired Immuno-Deficiency Syndrome
ANC	Antenatal Clinic
ART	Anti-retroviral Therapy
ARV	Anti-retroviral
BCC	Behavior Change Communication
BFCI	Baby Friendly Community Initiative
BFHI	Baby Friendly Hospital Initiative
BMI	Body mass Index
BMS	Breastmilk Substitutes
CBHIS	Community Based Health Information Systems
CBO	Community Based Organization
CD4	Cluster of Differentiation 4
CHANIS	Child Health and Nutrition Information Systems
CHEW	Community Health Extension Workers
CHMT	County Health Management Team
CHWs	Community Health Workers
CWC	Child Welfare Clinic
DHIS	District Health Information Software
DHMT	District Health Management Team
DON	Division of Nutrition
EBF	Exclusive Breast Feeding
ECD	Early Childhood Centres
EFV	Efavirenz
EID	Early Infant Diagnosis
ELBW	Extremely Low Birth Weight
FATVAH	Frequency, Amount, Texture (Thickness), Variety, Adequacy, Active Feeding and Hygiene
FBO	Faith Based Organization
GMP	Growth Monitoring and Promotion
GOK	Government of Kenya
HAART	Highly Active Anti-Retroviral Therapy
HBC	Home Based Care
HCWs	Health Care Workers
HFA	Height for Age

HII	High Impact Interventions
HINI	High Impact Nutrition Interventions
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information Systems
HW	Health Workers
IBFAN	International Baby Food and Action Network
ICC	Inter-agency Coordinating Committee
IEC	Information, Education and Communication
IF	Infant Feeding
IGR	Intra-Uterine Growth Retardation
ILO	International Labour Organization
IMAM	Integrated Management of Acute Malnutrition
IMCI	Integrated Management of Childhood Illnesses
IYCF	Infant and Young Child Feeding
IYCF-E	Infant and Young Child Feeding in Emergency
IYCN	Infant and young Child Nutrition
KAIS	Kenya Aids Indicator survey
KDHS	Kenya Demographic and Health Survey
KEPH	Kenya Essential Package for Health
KNBS	Kenya National Bureau of Statistics
LAM	Lactation Amenorrhea Method
LBW	Low Birth Weight
MCH	Mother and Child Health
MDG	Millennium Development Goals
MIYCN	Maternal, Infant and Young Child Nutrition
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MoPHS	Ministry of Public Health and Sanitation
MPs	malaria parasites
MTCT	Mother to Child Transmission
MUAC	Mid-Upper Arm Circumference
NGO	Non-Governmental Organization
NIDS	National Immunization Days
NMDCC	National Micronutrient Deficiency Control Council
NMIYCNSC	National Maternal, Infant and Young Child Nutrition Steering Committee
OJT	On Job Training
ORS	Oral Rehydration Salts
OTP	Outpatient Therapeutic Programme

PMTCT	Prevention of Mother to Child Transmission
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SGA	Small for Gestational Age
SWAP	Sector Wide Approach to Planning
TFR	Total Fertility Rate
TIPS	Trials of Improved Practices
UNICEF	United Nation's Children Fund
VLBW	Very Low Birth Weight
WHA	World Health Assembly
WHO	World Health Organization

CHAPTER 1: BACKGROUND INFORMATION

1.1 INTRODUCTION

Maternal, Infant and Young Child Nutrition is critical for child health and survival. Appropriate feeding practices are of fundamental importance for health, nutrition, survival and development of infants and children. Maternal nutrition is critical to both mother and child. It lays the fundamental foundation for the successful outcome of pregnancy and lactation. Interventions to improve mothers' nutritional status should start long before pregnancy. Poor nutritional status before and during pregnancy has been associated with intrauterine growth retardation (IUGR), low birth weight (LBW) and premature delivery conditions. The critical window for improving child nutrition is from pregnancy through the first 24 months of life. The deficits acquired by this age are difficult to reverse later. Kenya has experienced a constant prevalence of malnutrition for this age group over the past decade.

Breastfeeding drastically reduces deaths from acute respiratory infection and diarrhea, the two major child killers, as well as from other infectious diseases. By starting breastfeeding immediately after birth, there is an improved chance of survival of one in five Kenyan newborns. Exclusive breastfeeding for the first six months and continuing to breastfeed and giving appropriate complementary foods after six months up to the first two years of a child's life, saves one in five children. It is evident that exclusive breastfeeding with appropriate complementary feeding can save up to 19 percent of child deaths (Lancet 2008). Further, 22 % of neonatal deaths could be prevented if breastfeeding is started within the first hour of delivery (Edmond 2006).

Breastfeeding is the best way of feeding all babies. It is an unequalled way of providing ideal food for the healthy growth and development of infants. The Kenya National Maternal, Infant and Young Child Nutrition Policy guidelines recommend that, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Virtually all mothers can breastfeed from birth provided they are given skilled practical help, which can help to build their confidence, improve the feeding technique and prevent or resolve breastfeeding problems.

After six months of age, breastmilk alone is no longer adequate to meet an infant's nutritional requirements. From this age, complementary foods that are nutritionally adequate should therefore be provided in addition to breast milk. Breast milk continues to be an important source of vital nutrients, fluids and offers immunological protection. Giving complementary foods too early or too late are both detrimental to child health.

1.2 CONTEXT OF THE GUIDELINES

Kenya is a signatory to all the global conventions and resolutions with a commitment to promote, protect and support optimal infant and young child feeding and maternal nutrition.

These include the World Health Assembly Resolutions adopted since 1981 on regulating the marketing of Breast Milk Substitutes (WHA34.22), the 1990 Convention on the Rights of the Child, adopted in 1989 by the General Assembly of the United Nations, the International Labour Organization (ILO) convention for maternity protection and the Innocenti Declarations of 1990 and 2005, among others. The Baby Friendly Hospital Initiative launched in 1991 is an effort by UNICEF and WHO to ensure that all maternities whether free standing or in a hospital become centers of Breastfeeding (WHO and UNICEF 2003). The National Maternal, Infant and Young Child Nutrition Guidelines operationalizes the Global Strategy for IYCF (WHO and UNICEF 2003), the National Food and Nutrition Security Policy (GoK, 2011), the National Nutrition Action Plan 2012-2017, the Breastmilk Substitutes (Regulations and Control) Act, the National Maternal, Infant and Young Child Nutrition Policy guidelines (MoPHS, 2013), the National Maternal, Infant and Young Child Nutrition Strategy 2013-2017 and the Child Survival and Development Strategy (MoH, 2008).

1.3 SITUATION ANALYSIS

1.3.1 Nutrition status of women and children in Kenya

An estimated 35% of children less than 5 years of age in Kenya are stunted, 16% are underweight and 7% are wasted (KNBS and ICF Macro, 2010). Lack of appropriate breastfeeding and complementary feeding practices are main causes of Under-nutrition. Inappropriate breastfeeding and complementary feeding practices can also initiate the problem of overweight and obesity that may only become most apparent in children beyond the age of 2 years. Kenya is among many countries that suffer from the double burden of both types of malnutrition.

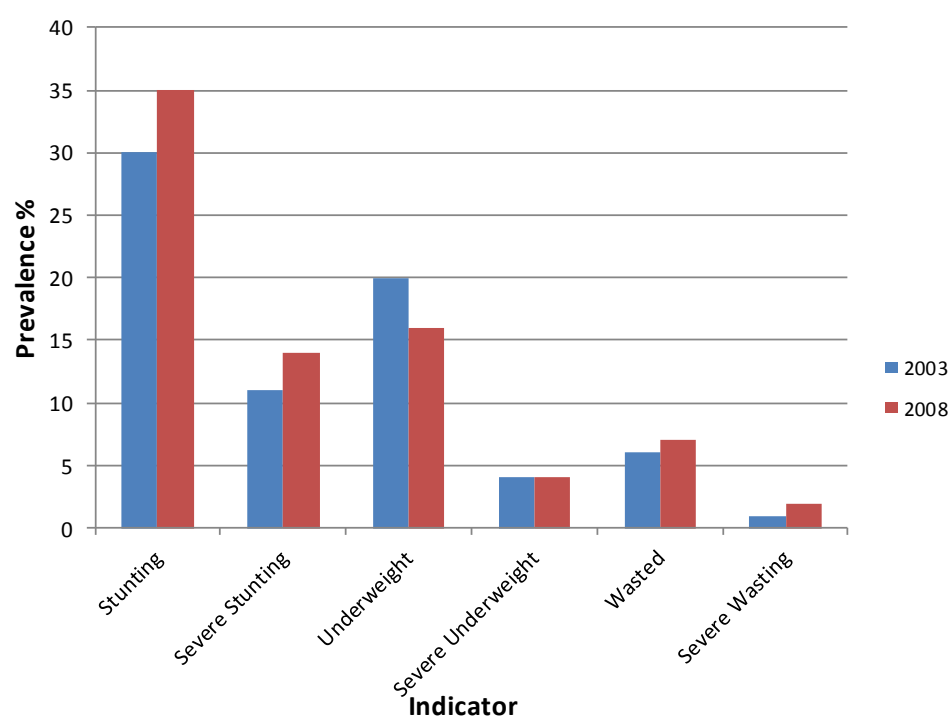


Figure 1: Comparison of 2003 and 2008/09 nutrition status of children <5 years of age in Kenya
(Source: KDHS 2003, KDHS 2008)

In Kenya 8.6 million women are in the childbearing age. Available evidence show that pregnant women have poor nutritional status with 55% being anemic (GOK, 1999) and 12.3% of women of reproductive age having a BMI of less than 18.5kg/m² (KNBS and ICF Macro, 2010). Low birth weight (birth weight <2500g) which is one of the best composite indicators of short and long term under nutrition in women, affects one in ten newborns in Kenya (KNBS and ICF Macro, 2010). Anemia in pregnancy contributes to high rates of intrauterine growth retardation (IGR) and premature birth, increased complications of post-partum bleeding, and finally, greater risk of maternal mortality (MDG 5). Micronutrient deficiencies particularly iron and Vitamin A are unacceptably high among young children in Kenya; about 76% and 74% of pre-school-aged children are deficient in Vitamin A and iron, respectively, affecting cognitive development, lowering school performance and adult productivity, reducing immunity and eventually contributing to the high burden of infant and child morbidity and mortality (MDG 4) 63% of all the pregnant women have been tested for HIV with a national prevalence of 6.3 % (KNBS and ICF Macro, 2010).

Table 1: Nutrition status of Kenyan Women

INDICATOR	2003 KDHS	2008 KDHS
1. Women taking iron supplementation for 90 days during pregnancy	2.5%	2.5%
2. Women of reproductive age having a BMI of less than 18.5 kg/m ²	12.3%	12.3%
3. Overweight or obese women with BMI of >25	23.4%	25%
4. Women living in households with adequately iodized salt	N/A	98%

(KDHS 2003, KDHS 2008), N/A-Not Assessed

The micronutrient status shows that 42% of the women have Vitamin A deficiency. In 1994, 16 % of the population had goitre (Iodine deficiency) while in the year 2004 the rate went down to 6% (KEMRI 2004). Among pregnant and lactating women iodine deficiency leads to reduced mental capacity, poor physical performance, and increased fatigue and also causes goiter while the fetus suffers brain damage and congenital malformations which are not reversible. Iron deficiency among women is at 43% out of whom 70% are pregnant women. Moderate to severe anemia is high among pregnant women. According to USAID report 2007, 46% of mothers took iron supplements but only 2.5% used the supplement for 90 days as recommended.

1.3.2 Infant feeding practices in Kenya

Poor infant feeding practices are a major contributor to morbidity and mortality among infants and young children in Kenya. Initiation of breastfeeding within the first hour of birth which provides the best start in life only occurs among 58% of infants and only 32% infants are exclusively breastfed during the first six months (KNBS and ICF Macro, 2010). Data from the 2003 and 2008 Kenya Demographic and Health Survey, show that although breastfeeding is a common practice in Kenya, mixed feeding rather than exclusive breastfeeding is practiced. Introduction to other foods and liquids start as early as the first month with 64% and 86% of infants being given complementary foods by 2-3 months and 4-5 months respectively. Unfortunately, these complementary foods which replace breast milk are low in energy and

micronutrients. Only 39% of all children 6-23 months old are fed in accordance with optimal IYCN practices and only 54% have adequate diversity of more than 3 food groups in their diet to meet their nutritional needs (KNBS and ICF Macro, 2010).

Malnutrition leads to death and/or disease which in turn reduce the country's productivity. In Kenya, malnutrition causes substantial losses in social capital related to diseases and death in children (Profiles, 2007 and 2010). Some of these losses that could be prevented through nutrition interventions include:

- 50,000 child lives lost every year because children are underweight
- 23,000 child lives lost every year because children lack the protection of Vitamin A
- 11,000 child lives lost every year because children are not exclusively breastfed
- 400,000 children suffering mental retardation every year because they are not consuming iodized salt

Poor households bear the highest burden of chronic malnutrition with 44% and 39% of children being in the first and second lowest wealth quintile respectively. Chronic malnutrition also affects the richest households with 25% of children in the highest wealth quintile being stunted (KNBS and ICF Macro, 2010). Though the 2008 KDHS showed a reduction in infant mortality and under-five mortality, the figures for chronic under-nutrition have not improved over the past 20 years (KDHS 1998 and 2008) with an increase in stunting from 33% in 2003 to 35% in 2008.

Table 2: Infant and Young Child Feeding Practices in Kenya

IYCN Practices	1998 KDHS	2003 KDHS	2008 KDHS
1. Initiation of breastfeeding (% of babies breastfed within one hour of birth)	58%	52%	58%
2. Exclusive breastfeeding (% of babies 6 months of age exclusively breastfed in the last 24 hours)	17%	*13%	32%
3. Duration of breastfeeding (median duration in months of breastfeeding of children under three years of age)	21 months	20 months	21 months
4. Optimal complementary feeding for children 6 – 24 months	N/A	N/A	39%
5. Bottle Feeding (% of breastfed babies 1 – 12 months of age fed from bottles in the last 24 hours)	17.7%	27.6%	25%

KDHS (2003) cites exclusive breastfeeding rates for < 6 months as 12.7 % although after a national stakeholder review of this indicator, 2.6 percent (which is also cited in KDHS for up to 5 months of exclusive breastfeeding) was agreed on as the figure for national reference.

N/A – not assessed

** Source: KSPA, 2010

1.4 POLICY GUIDELINE ON MATERNAL, INFANT AND YOUNG CHILD NUTRITION

The Kenya National Maternal, Infant and Young Child Nutrition policy guidelines identifies evidence-based practices that should be adopted by all stakeholders to support care for parents during pregnancy, childbirth, neonatal period and for children in the first five years of life. It also seeks to protect, promote and support optimal feeding for mothers, infants and young children in all circumstances. This policy guideline is intended to provide a strong framework through which the government can accelerate activities aimed at improving Maternal, Infant and Young Child Nutrition (MIYCN) practices in Kenya. Its full implementation will support reduction of infant and young child morbidity and mortality in line with the National Health Sector Strategic Plans and make a strong contribution towards attainment of the Millennium Development Goals (MDGs) and Vision 2030 in Kenya.

The policy guideline also identifies actions that should be taken to strengthen the capacity of health care services, communities and stakeholders to ensure that the nutritional needs of infants and young children are met. The Infant and Young Child Nutrition Policy guideline covers pregnancy, postnatal, newborn and early childhood nutrition. It also includes a focus on feeding during difficult circumstances; including the context of HIV and AIDS, low birth weight and preterm, children with special medical conditions, malnourished children, children in institutional care and infants and young children in emergency situations, and emerging focus on adolescence and childhood obesity. The policy guideline integrates issues of the Kenya Breast-milk Substitutes (Regulations and Control) Act and subsequent relevant World Health Assembly Resolutions, key child survival strategies and responsibilities of decision makers and health care personnel implementing maternal, child health and nutrition programmes at national, district, facility and community level.

1.4.1 Protecting IYCF through the regulation of the marketing of infant feeding products

Kenya is a signatory of the International Code of Marketing of Breast milk Substitutes (WHA 34.22 1981) and was one of the first countries to implement the code at national level, by establishing standards). The Code is mandatory, and is an Act of the Kenyan laws and Standard with Kenya Bureau of Standards.

In 2012, Kenya enacted the Breastmilk Substitutes (Regulations and Control) Act whose aim is to contribute to the provision of safe and adequate nutrition for infants through the protection and promotion of breastfeeding and by ensuring the proper use of breast milk substitutes when these are necessary, on the basis of scientific information and through appropriate marketing and distribution.

1.4.2 Supporting MIYCN through maternity protection

Working women in both the formal and informal sectors should be facilitated to establish and sustain exclusive breastfeeding for the first 6 months, by being provided with adequate paid maternity leave and breastfeeding breaks. In recognition of the critical role exclusive breastfeeding plays, many countries have established 6 months maternity leave. The ILO maternity protection convention 2000 No. 183 recommends at least 14 weeks (98 days) of paid maternity leave. Kenya has amended the legislation to allow women to take maternity

leave together with annual leave. However there is inadequate support of working mothers who are breastfeeding due to non-compliance by some employers in granting the recommended maternity provision. There is need for employers to fully implement this provision to support breastfeeding mothers.

1.5 PURPOSE OF THE MATERNAL INFANT AND YOUNG CHILD NUTRITION GUIDELINES

The National MIYCN guidelines will guide the implementation of MIYCN strategies to improve developmental and growth outcomes in children. These strategies include interventions to improve the maternal nutritional status; early initiation of and exclusive breastfeeding for 6 months; support for continued breastfeeding along with appropriate complementary feeding from 6 months up to 2 years and beyond; support to ill and malnourished children; and micronutrient supplementation and fortification.

The guidelines also seek to support implementation of appropriate MIYCN practices in emergency situations in the country due to the experiences in recurring drought related emergencies and for women who are increasingly seeking employment outside the home in both formal and informal sectors. Challenges still exist in feeding preterm and low birth weight (LBW) infants, malnourished infants and young children, orphaned children and children in other exceptionally difficult circumstances.

In Kenya, the HIV pandemic and the attendant risk of mother-to child transmission (MTCT) of HIV through breastfeeding continues to pose unique challenges to the promotion of breastfeeding, even among families without infected individuals. The Ministry has reviewed available scientific evidence regarding infant and young child feeding and has come to a conclusion that breastfeeding with appropriate use of anti-retroviral drugs for mother and child is the best option for overall well-being and survival of HIV exposed children. The provisions of IYCN counseling, support, and follow up for HIV positive mothers and feeding of the HIV-exposed infant's remains a great challenge. These guidelines are designed to cover the entire spectrum of MIYCN and will provide an operational guide for enhancing the nutrition, health, growth and development of infants' young children, as well as strengthening the care and support services to their parents/caretakers in order to achieve optimal MIYCN.

In promoting appropriate MIYCN Practices, the shift of focus is to community-based behavioral change approaches to improve maternal nutrition, breastfeeding and complementary feeding practices.

1.6 GOAL

To improve the nutritional status, health, growth and development and the survival of infants and young children in Kenya, through optimal feeding practices and improved maternal nutrition.

1.7 OBJECTIVES

- Establish a supportive policy environment for optimal maternal nutrition and infant and young child nutrition through appropriate communication and advocacy efforts.
- To promote, protect and support exclusive breastfeeding for six months, optimal complementary feeding with continued breastfeeding for two years and beyond, and feeding of children 3 years and above.
- To promote strategies addressing critical micronutrient deficiencies affecting women of reproductive age and young children.
- To promote and support optimal infant feeding, nutrition and care to minimize the risk of mother to child transmission of HIV through breastmilk and maximize child survival
- To promote and protect appropriate MIYCN practices for infants and children in difficult and special situations including Integrated Management of Acute Malnutrition (IMAM) support for infants, young children, pregnant and lactating mothers.
- Strengthen the nutrition assessment, care, support, and follow-up services for pregnant and lactating women, adolescents, infants and young children.
- To strengthen MIYCN care, support, referral, follow-up and linkages at all levels of health care service delivery (KEPH).
- To optimize advocacy and communication efforts and capacity building to increase support and awareness of MIYCN practices.
- To specify roles and responsibilities of stakeholders in promoting appropriate MIYCN practices for mothers and children.
- Strengthen research, monitoring and evaluation of MIYCN interventions at all levels

1.8 Guiding Principles

Optimal infant and young child feeding practices should be guided by the following principles:

1. Every child has the right to basic nutrition, shelter and health care as spelt out in section 53 (1c) of the Constitution of Kenya (2010)
2. Every person has the right to be free from hunger, and to have adequate food of acceptable quality as spelt out in section 43 (1c) of the Constitution of Kenya (2010)
3. Children should achieve the highest attainable standard of health (Children's Act, 2001).
4. Children's survival, growth and development should be protected.
5. Infant and young child feeding interventions should be implemented within a life-cycle approach (NHSSP).
6. National, county and district-based interventions for infant and young child feeding should adopt a public health approach where interventions that have the highest impact on nutrition and well-being of the general population should be promoted.
7. Interventions that aim to improve infant and young child feeding should be comprehensive, integrated and equitably distributed.

8. Infants and young children should be appropriately fed during the first 5 years of life, with specific attention to the first 2 years of life, to prevent under nutrition and over nutrition
9. Special, individualized attention should be given to children in exceptionally difficult and special circumstances.
10. All members of society should adhere to the Kenya Breast-milk Substitutes (Regulations and Control) Act, 2012.
11. Every person has the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care as spelt out in section 43 (1a) of the Constitution of Kenya (2010);
12. A female employee is entitled to three months maternity leave plus her annual leave with full pay. No female employee shall forfeit her annual leave entitlement on account of having taken her maternity leave. A male employee is entitled to two weeks paternity leave with full pay (Employment act, 2007)
13. Every woman has a right to be free from any form of discrimination. The Convention on the Elimination of All Forms of Discrimination against Women, 1984

1.9 SCOPE OF THE MIYCN GUIDELINES

The National Maternal, Infant and Young Child Nutrition Guideline will be used by health care providers and other stakeholders; including managers and supervisors implementing maternal and child health and nutrition programmes. The guidelines are meant to provide guidance for health and nutrition interventions for mothers, infants and children from conception to 5 years of life.

CHAPTER 2: MATERNAL NUTRITION

2.1 General information

Good maternal nutrition is important for a successful pregnancy, child delivery and lactation. Pre-pregnancy nutrition influences a woman's ability to conceive, determines the fetal growth and development and the size of the fetus and its overall health as well as the health of the mother. Malnutrition prior and around pregnancy makes the placenta fail to develop fully therefore it cannot optimally nourish the fetus. Underweight and overweight women experience more complications during pregnancy and delivery than normal women. Anemic women are more likely to deliver low birth weight infants and low folic acid levels are associated with an increased risk of low birth weight and birth defects. Adequate weight gain during pregnancy is essential for foetal growth and desired weight gain is based upon pre-pregnancy weight using BMI criteria and pre-conception nutritional status of the woman. Teenage mothers also need extra care, more food and more rest than an adult mother as she adds her own immaturity and growth needs to those imposed on her by the pregnancy.

2.2 Specific Objectives

1. To strengthen maternal nutrition assessment (including weight monitoring for pregnant women) and counseling within the healthcare system.
2. Strengthen and advocate for the uptake and utilization of iron and folate supplements among women of reproductive age and postpartum Vitamin A supplementation.
3. To promote appropriate maternal nutrition practices in emergency situations including Integrated Management of Acute Malnutrition (IMAM) support for pregnant and lactating mothers.
4. Promote maternal nutrition interventions for all HIV positive mothers
5. To strengthen integration of maternal nutrition interventions for pregnant and lactating women with existing maternal newborn and child, youth and adolescent health and related services.

2.3 Key issues and Justification

- The 1,000 days between a woman's pregnancy and her child's 2nd birthday offer a critical window of opportunity to shape healthier and more prosperous futures.
- One quarter of women 15-49 are overweight or obese and 12 percent of women are considered thin (BMI<18.5) (KNBS and ICF Macro, 2010).
- 42% of women of reproductive age are anemic with a prevalence of 55% among pregnant women (GOK, 1999).
- 2.5% of women take iron supplementation for 90 days during pregnancy (KNBS and ICF Macro, 2010).
- 9.1% of mothers have Vit A Deficiency (GOK,2008) and only 46% of the women were reported to have received vitamin A supplements postpartum (KNBS and ICF Macro, 2010).

2.4 Policy Guidelines, recommendations and key messages

Policy guideline 1: All Pregnant women and lactating mothers should have access to and should be knowledgeable about the need for an adequate and nutritious diet

Recommendations and key messages

Encourage and support mothers to:

- Eat one extra small meal or “snack” each day in addition to 3 meals to provide energy and nutrition for her and the growing baby.
- Eat a diversified diet, to ensure variety in the food choices using the locally available foods. Choose foods from at least 3-4 food groups at every meal (refer to Annex 1: *Healthy Food Guide Pyramid*) e.g. Wholegrain and cereals, roots and tubers, pulses and legumes, animal source foods (meat, fish, poultry, eggs), sprouted pulses, green leafy vegetables, nuts and seeds, milk and milk products, fresh fruits and vegetables, meat, fish, poultry, eggs).
- Encourage daily consumption of fruits, vegetables, legumes, and whole grain cereals to promote healthy weights.
- Take plenty of fluids and water.
- Avoid taking tea or coffee with meals as it inhibits iron absorption and it can interfere with the body’s use of the foods.
- Consume Iodized salt as a pregnant woman requires sufficient iodine for brain development of the child in the womb.
- Take small frequent meals
- Engage in some form of physical activity to stay healthy
- Review with the mother the factors that commonly affect nutrition intake and give advice
- Integrate nutritional health promotion into primary health care services to encourage healthy lifestyles.

How to cope with the food-related problems during pregnancy

1. Morning sickness

About 70% of women suffer from sickness, usually in early pregnancy - around week 9-10. Later, by the end of the 4th month of pregnancy, symptoms usually disappear or become much milder. To relieve the symptoms of sickness, try to:

- eat small but frequent meals (with about 2 hour intervals)
- avoid smells and foods that make your sickness worse
- eat more nutritious carbohydrate foods: try dry toasts or crackers, breakfast cereals, fruits and vegetable salads at any time during the day
- eat less fatty and sugary foods

2. Constipation

35-40% of pregnant women suffer from constipation during pregnancy.

How to deal with the problem:

- drink plenty of fluid such as plain water (6-8 cups a day)
- increase intake of foods rich in fiber (whole meal bread, brown rice, wholegrain cereals, fresh and dried vegetables and fruits, especially prunes and figs)

Remember, iron supplements can sometimes cause or aggravate the symptoms of constipation.

3. Heartburn

May occur anytime during pregnancy, but symptoms usually get worse at the end of pregnancy. Also a common problem - about 30-50% of pregnant women suffer from heartburn.

Some suggestions on how to deal with the problem:

- Avoid chocolate, fatty foods, alcohol and mint, especially before bedtime - they tend to relax oesophageal muscle so that acid from the stomach regurgitates up into the oesophagus more easily
- Avoid acidic and spicy foods that may irritate mucosa (tomato, citrus fruits and juices, vinegar, hot pepper, etc.)
- Milk and dairy products can temporarily relieve the symptoms of heartburn
- Eat slowly, drink fluids between meals rather than with meals eat small frequent meals, do not eat large meals before bedtime
- Sleep well propped up, not lying flat

Remember to always find the cause of the heartburn from the foods consumed and advice the mother before recommending on taking antacid medications. Some antacids can bind iron in foods and make iron unavailable to absorb.

Policy guideline 2: Provide and promote intake of iron/folate through antenatal care services and support other strategies to address maternal anemia

Recommendations and key messages

- Mothers should be encouraged to take iron/folate tablets to prevent anemia daily during duration of pregnancy irrespective of their hemoglobin levels (60mg of iron and 400 µg folic acid every day).
- Encourage the mother to take 400ug of folic acid daily around the time of conception to significantly reduce the incidence of neural tube defects. Folate supplementation should be started in the first trimester of pregnancy to prevent birth defects.
- Provide information on possible side effects and how to avoid trouble-some side-effects when giving iron/folate supplements.

- Promote an adequate diet rich in iron. Rich sources of iron include liver, milk, eggs, legumes, dark green leafy vegetables.
- Discourage consumption of tea and coffee with a meal or shortly after a meal as it inhibits iron absorption.
- Encourage use of Vitamin C rich fruits and vegetables such as tomato, guava, mango, pineapple, orange and other citrus fruits as they enhance iron absorption. Germination, fermentation and soaking of cereals and legumes improve the bioavailability of iron by reducing the content of phytate, a substance in food that inhibits iron absorption.
- Provide de-worming tablets to help prevent anemia (Mebendazole given during 2nd trimester) as per the National Focused Antenatal Care (FANC) guidelines.
- Provide Intermittent Presumptive Treatment (IPT) for malaria to all mothers in malaria endemic areas according to the National FANC Guidelines.
- In case of folic acid more than 400µg, delay intake of folic acid supplementation for two weeks (14 days) after taking SP (folic acid reduces the efficacy of SP).
- Counsel the mother on how to prevent malaria by sleeping under an insecticide-treated mosquito net (ITN) and take anti-malarial tablets (IPT) as prescribed.
- Promote and encourage early seeking of treatment for infections
- Encourage and promote good hygiene practices.

Policy guideline 3: Support optimal maternal nutrition through healthy weight gain during pregnancy and lactation.

Recommendations and key messages

- Counsel mothers on adequate weight gain during pregnancy
- Monitor weight gain of all mothers attending ANC throughout pregnancy. Pregnant women need to gain an average of 1 kg per month, a minimum of 0.5kgs per month for the first trimester and there after a minimum of 1-1.5kgs per month for the last six months.
- Provide the counseling and support to pregnant women with inadequate or excess weight gain.

Table 3: Recommended weight gain in pregnancy

BMI Index (BMI pre-conception)	Appropriate weight to gain
Underweight(BMI<18.5)	12.5-18 kg
Normal weight (BMI 18.5-24.9)	12-15 kg
Overweight (BMI 25-29.9)	7-11.5 kg
Obese (BMI >30)	6 kg
Twin pregnancy	16.0-20.5
Adolescent pregnancy	Upper end of recommended values

Source: PMTCT Training guide 2005, Institute of Medicine, 2009

Note: The recommended index for assessing nutritional status for pregnant women is Mid-Upper Arm Circumference (MUAC). See chapter 6

Policy guideline 4: Pregnant and lactating women at risk, that is, adolescents, women with low weights, HIV-positive women, and women in emergency situations, should receive special attention to support optimal care.

Recommendation and key messages

Adolescents

- Conduct routine nutrition assessments through school based and community based health programmes.
- Promote improved quantity and dietary quality of school meals.
- Promote dietary diversification by encouraging consumption of a variety of locally available foods.
- Provide or recommend vitamin-mineral supplements if their usual nutritional intake is below standard.
- Integrate nutritional health promotion into primary health care services to encourage healthy lifestyles.
- Provide education on the risks and harmful effects of alcohol and drug abuse.
- Provide folic acid supplementation before conception and throughout the early months of pregnancy to prevent neural tube defects.
- Educate all teenage girls on the importance of delaying the first pregnancy until their own growth is achieved (usually 20 to 24 years).
- Promote abstinence to prevent unwanted pregnancies, HIV and STIs
- Prevent and encourage early seeking of treatment for infections
- Encourage parents especially men, to give girls and boys equal access to education (under nutrition decreases when girls/women receive more education).
- Encourage families to delay early marriage for young girls.
- Discourage intake of fast foods and processed foods.
- Discourage intake of coffee and tea with meals.
- In addition, pregnant teens, like other pregnant women, need to ensure adequate protein and vitamin intake, including vitamins A, C and D.
- Encourage good hygiene practices.
- Encourage use of Insecticide treated nets (ITNs)

HIV positive women

- All pregnant, lactating women, their families, and communities should be sensitized on the importance of good feeding practices for pregnant and lactating women.
- Encourage HIV-positive women to: Increase their energy intake by 10% (i.e. one additional

snack per day) if they are asymptomatic or by 20-30% (which is 2 or 3 snacks a day) if they are symptomatic and have their weight monitored frequently and seek medical care immediately if their weight reduces significantly (e.g. by 10% or more).

- Counsel them on the dietary management and appropriate interventions for diarrhea, nausea, vomiting, malabsorption, loss of appetite and oral thrush as these conditions may prevent weight gain as well as have a profound impact on nutritional status.
- Counsel and support them to practice food safety and hygiene.

During Pregnancy

- Advise and encourage pregnant women to start ANC clinic visits in the first three months of pregnancy.
- Administer folate and iron supplementation for 180 days during pregnancy.
- Advise them to promptly get treatment for malaria and the use of treated mosquito net and IPT.
- Provide them with deworming and information on prevention of hookworm infestations.
- All HIV positive pregnant women should be provided with infant feeding information.
- All HIV positive pregnant or lactating mothers' weight should be monitored. When women do not attend antenatal care sessions on a monthly basis, weight during the interval between visits can be calculated and converted to assess whether the rate was at least one kilogram per month. As with uninfected women, those gaining less than one kg per month in the second and 3rd trimester should be referred to a hospital immediately where they can receive more care.
- If the weight gain is below the recommended range at the end of the pregnancy, a comprehensive nutrition assessment should be carried out as this may indicate a possible problem. Some examples of possible problems include inappropriate energy intake, food insecurity and opportunistic infections.
- Encourage primary prevention and counsel on safe sex; family planning; self-care; and preparing for the future.
- Evaluate and provide ARVs according to the ART/PMTCT guidelines.
- Encourage partner involvement.

During labor and delivery:

- Provide ARVs according to the ART/PMTCT guidelines;
- Labor and delivery is a period of high energy expenditure. At this time, the woman needs energy which should be provided in the form of light foods and drinks that are high in energy such as **yoghurt, milk, fruits, soup and fruit juice**. Restricting food and fluids can be distressing to the laboring women. Higher intake of fluids helps prevent dehydration and is associated with shorter duration of labor and reduced need for augmentation of labor with oxytocin.

- Following a normal delivery a woman may be hungry and should have access to food. Maternity units should therefore ensure that some food is available for women who deliver at night.

During post-partum and beyond:

- Provide ARVs for mother and infant for duration of breastfeeding;
- Encourage early initiation of breastfeeding and support for EBF if breastfeeding is the infant feeding choice;
- Prevent, and manage breastfeeding conditions;
- Mothers with poor nutritional status who are exclusively breastfeeding should be given nutritional support
- Care for thrush and oral lesions;
- Support replacement feeding if that is the mother's infant feeding choice;
- Give immunizations, and do growth monitoring and promotion for baby;
- Give insecticide-treated mosquito nets and encourage the mother to sleep under the net;
- Counsel on timely and appropriate complementary feeding at 6 months;
- Treat illness and infections promptly;
- Counsel on safe sex;
- Offer family planning counseling

Policy guideline 5: Promote utilization of family planning and other health services for all women during antenatal and postnatal care to optimize MIYCN.

Recommendations and key messages

- Encourage the mother to attend ANC services at least four times during pregnancy.
- Provide the Mother and Child Health booklet to all pregnant women in her first ANC Visit.
- Encourage family planning by discussing with the mother on the available and most appropriate family planning method for their individual situations.
- Immunize all pregnant women with Tetanus Toxoid (TT) according to the National schedule.
- Provide education on the risks and harmful effects of alcohol and drug abuse.

CHAPTER 3: INFANT AND YOUNG CHILD NUTRITION

3.1 General information

Appropriate infant and young child feeding practices include exclusive breastfeeding for the first 6 months of life, followed by gradual introduction of complementary foods. Feeding practices play a crucial role in determining optimum development of infants. Poor infant feeding practices have adverse effects on the health and nutrition status of children, which in turn has consequences on mental and physical development of the child.

3.2 Specific Objectives

1. To ensure timely initiation of breastfeeding within the first hour of birth.
2. To Promote, protect, and support exclusive breastfeeding for the first six months of a child's life and continued breastfeeding up to two years of age or beyond.
3. To promote the timely introduction of appropriate, safe and adequate complementary foods while continuing to breastfeed for two years and beyond.
4. To ensure optimal nutrition for children 24 to 59 months.
5. Ensure support for the implementation of the 10 steps to successful breastfeeding (BFHI)
6. To ensure vitamin A supplementation for children 6 – 59 months and addition of MNPs to complementary foods for children 6-23 months

3.3 Key Issues and justification

- 42% of mothers do not initiate breastfeeding within the first hour of delivery; and 54% of babies are given pre-lacteal feeds
- 68% of mothers with infants 0 to 6 months do not exclusively breastfeed.
- 25% of children below 1 year are bottle fed
- Only 39% children 6 – 24 months receive optimal complementary feeding.
- Complementary foods are introduced as early as first month and by 6 months, 84% of infants are receiving complementary feeds (KDHS 2003). By 4-5 months, 60% of the children are introduced to other foods (KDHS 2008).
- Complementary foods introduced are usually low in energy and micronutrients, unhygienically prepared and stored, which predispose infants to diarrhea and inadequate diets leading to growth faltering.
- Only 5.7 facilities in Kenya are certified as Baby Friendly


3.4 Policy guidelines, recommendations and key messages

Policy guideline 1: Promote, protect and support exclusive breastfeeding for the first six months of life and continued breastfeeding for two years and beyond.

Recommendations and Key messages

A. Counsel mothers on the Benefits and importance of breastfeeding during antenatal, intra-partum and postnatal visits:

Table 4: Importance of breastfeeding

Importance of breastfeeding for the infant/young child	Importance of breastfeeding for the mother	Importance of breastfeeding for the family	Importance of breastfeeding for the community/nation
<p>Breast milk:</p> <p>Saves infants' lives.</p> <p>Human breast milk perfectly meets the needs of human infants</p> <p>Is a whole food for the infant, and covers all babies' needs for the first 6 months.</p> <p>Promotes adequate growth and development, thus helping to prevent stunting.</p> <p>Is always clean.</p> <p>Contains antibodies that protect against diseases, especially against diarrhoea and respiratory infections.</p> <p>Is always ready and at the right temperature.</p> <p>Is easy to digest. Nutrients are well absorbed.</p> <p>Contains enough water for the baby's needs.</p> <p>Helps jaw and teeth development; suckling develops facial and jaw structure.</p> <p>Frequent skin-to-skin contact between mother and infant leads to bonding, better psychomotor, affective and social development of the infant.</p> <p>The infant benefits from the colostrum, which protects him/her from diseases (Colostrum is the yellow or golden [first] milk the baby receives in his or her first few days of life. It has high concentrations of nutrients and protects against illness. Colostrum is small in quantity. The colostrum acts as a laxative, cleaning the infant's stomach).</p> <p>Long-term benefits of breastfeeding include reduced risk of obesity and diabetes</p>	<p>Breastfeeding is more than 98% effective as a contraceptive method during the first 6 months if the mother is exclusively breastfeeding, day and night and if her menses/period has not returned.</p> <p>Putting the baby to the breast immediately after birth facilitates the expulsion of placenta because the baby's suckling stimulates uterine contractions.</p> <p>Breastfeeding reduces the risk of bleeding after delivery.</p> <p>When the baby is immediately breastfed after birth, breast milk production is stimulated.</p> <p>Immediate and frequent suckling prevents engorgement.</p> <p>Breastfeeding reduces the mother's workload (no time is involved in going to buy the formula, boiling water, gathering fuel, or preparing formula).</p> <p>Breast milk is available at anytime and anywhere, is always clean, nutritious and at the right temperature.</p> <p>Breastfeeding is economical: formula costs a lot of money, and the non-breastfed baby or mixed-fed baby is sick much more often, which brings costs for health care.</p> <p>Breastfeeding stimulates a close bond between mother and baby.</p> <p>Breastfeeding reduces risks of breast and ovarian cancer.</p>	<p>Mothers and their children are healthier.</p> <p>No medical expenses due to sickness that other milks could cause.</p> <p>There are no expenses involved in buying other milks, firewood or other fuel to boil water, milk or utensils.</p> <p>Births are spaced if the mother is exclusively breastfeeding in the first six months, day and night, and if her menses/period has not returned.</p> <p>Time is saved because there is less time involved in purchasing and preparing other milks, collecting water and firewood, and there is less illness-required trips for medical treatment.</p>  <p>Note: Families need to help mother by helping with non-infant household chores.</p>	<p>Healthy babies make a healthy nation.</p> <p>Savings are made in health care delivery because the number of childhood illnesses are reduced, leading to decreased expenses.</p> <p>Improves child survival because breastfeeding reduces child morbidity and mortality.</p> <p>Protects the environment (trees are not used for firewood to boil water, milk and utensils, and there is no waste from tins and cartons of breast milk substitutes). Breast milk is a natural renewable resource. Not importing milks and utensils necessary for the preparation of these milks saves money that could be used for something else.</p>

B. Counsel mothers on and practice optimal breastfeeding practices

1. Place infant skin-to-skin with mother immediately after birth

- Skin-to-skin with mother keeps the newborn warm and helps stimulate bonding or closeness, and brain development this is done by assisting the mother to place the baby on her tummy immediately after delivery.
- Skin-to-skin helps the “let down” of the milk/colostrum (Colostrum is the first thick, yellowish milk that contains antibodies which protects baby from illness).
- There may be no visible milk in the first hours. For some women it even takes a day or two to experience the “let down”. It is important to continue putting the baby to the breast to stimulate milk production and let down.

2. Initiate breastfeeding within the first hour of birth

- *Ensure there is rooming in:* Keep the baby with the mother in the same bed for unlimited breastfeeding
- Give newborn infants no food or drink-- no water, no infant formula (pre-lacteal feeds) other than breast milk unless medically indicated. Support the mother to attach and position the baby to initiate breastfeeding immediately within 1 hour after delivery.
- Assist the mother to breastfeed frequently from birth as it helps the baby to learn to attach and also helps to prevent engorgement and other complications.
- In the first few days, the baby may feed only 2 to 3 times /day. If the baby is still sleepy on day 2, the mother may express some colostrum and give it from a cup.



Figure 2: Support the mother to initiate breastfeeding within the first hour after birth

Benefits of Early Initiation

Note: Breastfeeding in the first few days:

- It facilitates milk production.
- It helps in the release of oxytocin hormone which helps the uterus to contract and control post-partum bleeding.
- The baby gets colostrum which has the following benefits:
 1. Rich in Antibodies - protects against allergy & infection
 2. Many white cells - protects against infection
 3. Purgative - clears meconium helping to prevent jaundice
 4. Growth factors - helps intestine to mature, prevents allergy and intolerances
 5. Rich in Vitamin A – prevents and reduces severity in case of infection

3. Encourage and promote exclusive breastfeeding for infants from birth up to six months (no food or drink, not even water should be given to the baby during this period)

- Breast milk is all the infant needs for the first 6 months.
- Do not give anything else to the infant before 6 months, not even water.
- Breast milk contains all the water a baby needs, even in a hot climate.
- Giving water will fill the infant and cause less suckling; less breast milk will be produced.
- Water and other liquids and foods for an infant less than six months can cause diarrhoea.

4. Breastfeed frequently, day and night

- After the first few days, most new-borns want to breastfeed frequently, 8 to 12 times /day. Encourage the mother to frequently breastfeed as this helps to produce lots of breast milk.
- Once breastfeeding is well-established, breastfeed 8 or more times day and night to continue to produce plenty of (or lots of) breast milk. If the baby is well attached, contented and gaining weight, the number of feeds is not important.
- More suckling (with good attachment) makes more breast milk.

5. Encourage breastfeeding on demand

- Breastfeed on demand every time the baby wants to breastfeed
- Crying is a late sign of hunger. Encourage the mother to breastfeed every time the baby demands.
- Advise the mother to observe the early signs that baby wants to breastfeed e.g.
 - Restlessness
 - Opening mouth and turning head from side to side
 - Putting tongue in and out
 - Sucking on fingers or fists

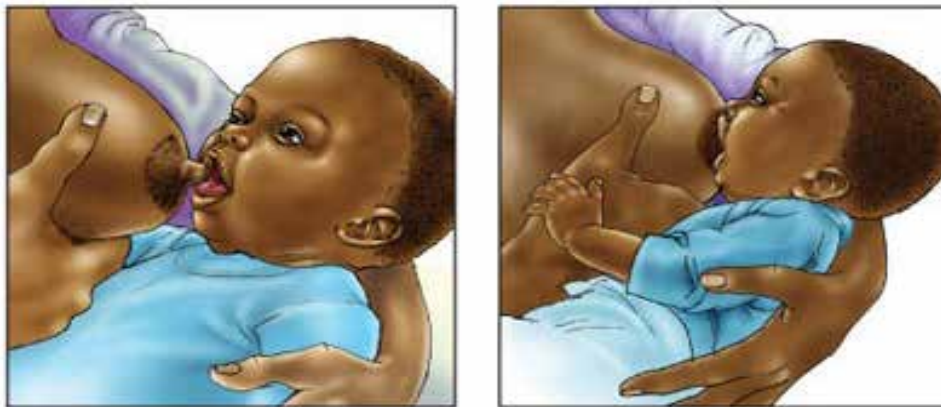
6. Let infant finish one breast and come off by him/herself before switching to the other breast.

- Ensure that the baby empties one breast before switching from one breast to the other as this prevents the infant from getting the nutritious 'hind milk'
- The 'fore milk' has more water content and quenches infant's thirst; the 'hind milk' has more fat content and satisfies the infant's hunger

7. Good positioning and attachment

- During a breastfeed the health worker should observe the 4 signs of good positioning:
 - baby's head and body should be in line, and
 - baby should approach the breast, nose to nipple
 - baby should be held close to the mother's body, and
 - Mother should support the baby's whole body, not just the neck and shoulders with her hand and forearm.

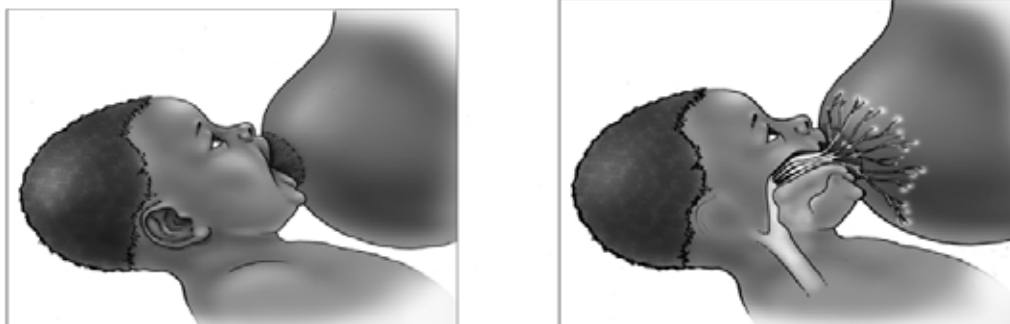
Figure 3: Good positioning



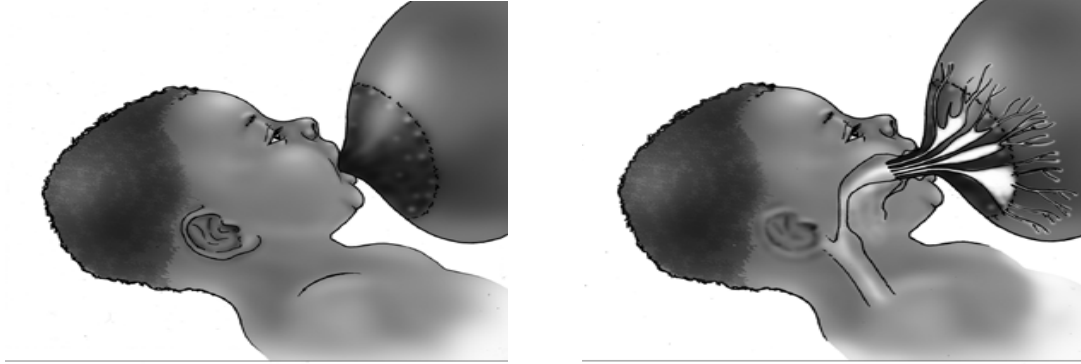
- 4 signs of good attachment are:
 - Mouth wide open,
 - chin touching breast,
 - more areola showing above than below the nipple, and
 - lower lip turned out.

Figure 4: Attachment of the baby to the breast

a. Good attachment



b. Poor attachment



8. Show mothers how to breastfeed and to maintain lactation even if they should be separated from their infants

How to exclusively breastfeed if you work away from home

- Encourage the mother to breastfeed exclusively and often when with the baby especially at night.
- If the mother is not able to take the baby to work to breastfeed during the breastfeeding breaks encourage her to practise expressing milk and cup feeding before going to work.
- Teach the mother on how to train her helper or the baby's caregiver on feeding expressed breastmilk from a cup
- Express milk every 3 hours to keep up the milk supply and to prevent engorgement.
- Breastmilk kept in a clean container keeps for 8 hours in a cool place or for 24 hours in a refrigerator.
- Do not use a bottle, cup with spout or a pacifier as these are difficult to keep clean.

How to hand express milk

- Wash your hands well
- Sit or stand comfortably, and hold a clean container near your breast
- Place your thumb on the upper edge of the areola and your fast finger below the nipple and areola, opposite the thumb. Support your breasts with your other fingers.

Figure 5: How to hand express

- Press your thumb and first finger inwards towards the chest. Press your breast behind the nipple and areola between your finger and the thumb so that you are pressing on milk ducts beneath the areola.



- Press and release in a rolling movement. This should not hurt. After pressing a few times milk starts to come out.
- Then press the areola from the sides so that all the milk is expressed from all parts of the breast.



- Express each breast for at least 3-5 minutes until the flow slows; repeat with both breasts
- Keep the milk in a cool dry place. Do not directly heat the milk as this kills the anti-infective substances. (See Chapter 4 on guidelines for heat-treating breastmilk for mothers known to be HIV infected)

9. Continue breastfeeding for 2 years of age or longer

- The health worker should encourage the care giver to continue breast feeding the baby as breast milk contributes a significant proportion of energy and nutrients during the complementary feeding period and helps protect babies from illness.

10. Continue breastfeeding when infant or mother is ill

- Encourage the mother to breastfeed more frequently when the child is ill. The nutrients and immunological protection of breast milk are important to the infant when mother or infant is ill.
- Breastfeeding provides comfort to a sick infant.

11. Avoid feeding bottles. Do not give any feeds using bottles or teats

- The health worker should encourage the care giver to give foods or liquids by cup to reduce nipple confusion and the possible introduction of contaminants.

- Teach caregiver on how to feed a baby using a cup
 - Wash your hands
 - Hold the baby sitting upright or semi-upright on your lap
 - Place the estimated amount of milk for one feed into the cup.
 - Hold the small cup of milk to the baby's lips.
 - Tip the cup so that the milk just reaches the baby's lips.

Figure 6: How to cup feed the baby



- The cup rests lightly on the baby's lower lip, and the edges of the cup touch the outer part of the baby's upper lip.
- The baby becomes alert, and opens his mouth and eyes. A low-birth-weight (LBW) baby starts to take the milk into his mouth with his tongue. A full term or older baby sucks the milk, spilling some of it. **DO NOT POUR** the milk into the baby's mouth. Just hold the cup to his lips and let him take it himself.
- When the baby has had enough, he closes his mouth and will not take any more. If he has not taken the calculated amount, he may take more next time, or you may need to feed him more often. Measure his intake over 24 hours - not just at each feed.

12. Foster the establishment of breastfeeding support groups and other support groups and refer mothers to them on discharge from hospital or clinic

A. Reinforce and observe the Breast Milk Substitutes (Regulations and Control) Act and subsequent World Health Assembly (WHA) resolutions.

The Breast-milk Substitutes (Regulations and Control) Act helps provide safe and adequate nutrition for infants and children by:

- Protecting and promoting breastfeeding
- Supporting proper and informed use of breast milk substitutes when necessary
- Promoting acceptable marketing and distributing practices for breastmilk substitutes

All health care workers should adhere to the regulations of the Act which include:

- No advertising of breast-milk substitutes and other products to the public
- No free samples to mothers
- No promotion of breast-milk substitutes in the health service
 - remove advertisements, pictures or posters containing logos of breast-milk substitutes from health facilities
- Do not accept any free samples and supplies of breast-milk substitutes(e.g. bottles);
- Do not allow any publicity by the manufacturers or agents of Breast-milk substitutes
- Distributing infant formula in the health facility can undermine the message that breastfeeding is the preferred infant-feeding option.
- No company representatives to contact mothers
- No free or subsidized supplies of formula to hospital
- No gifts or personal samples to health care workers
 - refuse to accept or use other gifts or equipment with brand names, scholarships or support for conferences or meetings from breast-milk substitutes companies
- No word or pictures idealizing artificial feeding
- Only scientific and factual information should be given to health care workers
- All information on artificial feeding to explain the benefits and superiority of breastfeeding and the costs and hazards of artificial feeding. Health care workers should clearly explain to mothers:
 - the benefits and superiority of breastfeeding
 - the negative effect of introducing partial formula-feeding (mixed feeding)
 - the difficulty of reversing the decision not to breastfeed
- No advertising of formula products in donation of equipment
- No promotion of infant-feeding products in health care systems
- No donations (free or low-cost supplies) of breastmilk substitutes in any part of health care systems
- No display of products within the scope of the code in health facilities
 - make sure that any formula used in a health care facility is kept away from mothers who do not need it
- Instructions by health care workers on the use of infant formula only to mothers or family members who need to use it
- Clear explanation of hazards of improper formula use
- Responsibility of donors, as well as institutions or organizations concerned, to make sure of a continual supply of infants needing formula

B. Reinforce maternity protection as per ILO Convention 2002 and the Kenya Employment Act 2007 for an enabling environment to safely practice exclusive breastfeeding in the first 6 months of life.

This policy guideline should be used with reference to Kenya Employment Act 2007 and the workplace support for breastfeeding mothers.

- Every organization/institution should not engage pregnant and breastfeeding women in work, which has been established to significantly risk the health of the mother and the unborn child.
- Upon production of medical certificate or other appropriate certification stating the date of birth of the child, a female employee shall be entitled to three months maternity leave with full pay as cited in the Kenya Employment Act 2007.
- A female employee shall not forfeit her annual leave entitlement on account of having taken her maternity leave.
- A male employer shall be entitled to two weeks paternity leave with full pay.
- In the event of illness (certified by a registered medical practitioner) arising out of pregnancy or confinement affection of the employee or her child, the mother should be granted additional leave as the employer may deem fit.
- Ensure community and workplace support for breastfeeding mothers through creation of mother/baby friendly communities/workplaces/health facilities for breastfeeding mothers.

Policy guideline 2: Promote, protect and support appropriate and optimal complementary feeding for 6 to 24 months through the use of locally available home based foods for complementary feeding.

Complementary foods should meet the basic criteria of frequency, amount, texture (thickness), variety, adequacy, active feeding and hygiene (**FATVAH**). Key messages for improving feeding of 6 to 24 months should focus on improving dietary intake of 6 food groups including from the following:

- Protein including animal-source foods such as meat, chicken, eggs, fish or milk
- Protein including plant-source legumes, seeds and pulses such as beans, peas, lentils, green grams and sesame seeds.
- locally available cereals such as maize/millet and sorghum, and roots and tubers such as potatoes, cassava, and sweet potatoes
- Vitamin A rich fruits and vegetables such as mango, pawpaw, carrots, pumpkin and,
- Other fruits and vegetables such as banana, pineapple, watermelon, cabbage and avocado
- Oils or fats to increase the energy density of foods

Key messages and recommendations

Counsel and encourage the mothers to:

1. Introduce complementary feeds at six months and continue breastfeeding for 2 years or longer
 - Starting other foods in addition to breast milk at six completed months helps a child grow strong and healthy.
 - After the age of six months, breast milk and other forms of milk alone are not adequate to meet the baby's nutritional requirements.
 - Complementary foods should be introduced gradually in addition to breast- milk or other forms of milk.
 - Breastfeeding should continue to be an important component of the diet, providing up to half or more of the nutritional requirements between the age of 6-12 months, and up to 1/3 between the ages of 12-24 months.
2. Give variety of complementary feeds - 2 to 3 different family foods: staple, legumes, vegetables/fruits, and animal foods at each serving
 - a. Animal-source foods: flesh foods such as *chicken, fish, liver, and eggs* and *milk and milk products*
 - b. Staples: grains such as *maize, wheat, rice millet and sorghum* and roots and tubers such as *sweet potatoes, potatoes*
 - c. Legumes such as *beans, lentils, peas, groundnuts* and seeds such as *sesame*
 - d. Vitamin A-rich fruits and vegetables such as *mango, papaya, passion fruit, oranges, dark-green leaves, carrots, yellow sweet potato and pumpkin*, and other fruits and vegetables such as *banana, pineapple, watermelon, tomatoes, avocado, eggplant and cabbage*
 - e. Add a small amount of fat or oil to give extra energy (additional oil will not be required if fried foods are given, or if baby seems healthy/ fat)
3. Encourage mothers to prepare foods with more energy and nutrient rich by;
 - Use less water to make a thicker porridge. (not to make the Food thin and runny)
 - Toast cereal grains before grinding them into flour. Toasted flour does not thicken so much, so more flour is needed to make porridge hence more calories.
 - Take out a mixture of the solid pieces in the soup or stew such as beans, vegetables, meat and the staple. Mash this to a thick puree and feed to the child instead of the liquid part of the soup.
 - Replace some (or all) of the cooking water with fresh or soured milk, coconut milk, or cream.
 - Add a spoonful of milk powder after cooking.
 - Mix pre-cooked legume, pulse or bean flour with the staple flour before cooking to increase protein content.

- Stir in a paste made from nuts or seeds such as groundnut paste (peanut butter) or sesame seed paste.
- Add a spoonful of margarine, ghee or oil. Fat is a concentrated source of energy and substantially increases energy content of food without increasing the bulk. The false belief in the community that a young child cannot digest fat has to be dispelled with by informing that a young infant digests fat present in breast milk and all other foods like cereals and pulses and that the fat and oils are required for the digestion and absorption of the fat soluble vitamins.
- Advise mothers to avoid milling multi-mix flours e.g. 2 legumes and 4 cereals. These are not recommended as they have anti-nutrients that bind calcium leading to rickets
 1. Encourage the mothers to gradually increase the frequency, amount, texture (thickness/consistency), and give variety of foods. See Table (6)
 2. Use iodized salt in preparing family foods.
 3. Provide vitamin A supplementation to infant and young child beginning at 6 months and, every six months until 5 years.
 4. Give 10 small sachets of multiple micronutrient powders every month beginning at 6 months (one sachet should be taken after every 3 days).
 5. Encourage use of fortified complementary foods

Table 5: Amounts of foods to offer

Age	Texture	Frequency	Amount of food per meal
6-8 months	Start with thick porridge, well mashed foods. Continue with mashed family foods	2-3 meals per day plus frequent breastfeeds Depending on the child's appetite 1-2 snacks may be offered	Start with 2-3 tablespoonfuls per feed increasing gradually to ½ of a 250 ml cup
9-11 month	Finely chopped or mashed foods, and foods that baby can pick up	3-4 meals plus breastfeeds Depending on the child's appetite 1-2 snacks may be offered	½ of a 250 ml cup/bowl
12-23 months	Family foods, chopped or mashed if necessary	3-4 meals plus breastfeeds Depending on the child's appetite 1-2 snacks may be offered	¾ to one 250 ml cup/ bowl
If baby is not breastfed, give in addition: 1-2 cups of milk per day, and 1-2 extra meals per day Use multiple micronutrient powders with complementary foods			

Source: WHO/UNICEF (2006), *Infant and Young Child Feeding Counseling Guide*

1. Encourage the child to breastfeed more and continue eating during illness and provide extra food after illness.
2. Ensure hygienic preparation and handling of food by:
 - Washing your hands with soap and water after using the toilet, washing or cleaning baby's bottom and before preparing food or feeding
 - Use clean utensils to cook and feed the baby.

- Foods intended to be given to the child should always be stored and prepared in hygienic conditions to avoid contamination, which can cause diarrhoea and other illnesses
- Ensuring that the child's food is well cooked.
- Avoiding storing cooked food but if necessary, store in a cool place and re-heating thoroughly before giving to the baby.
- All utensils should be washed well and kept covered.
- Use clean filtered and boiled or treated water.
- Avoid contact between raw and cooked foods to avoid contamination
- Store food and water in clean covered containers and protect from (insects, rodents and other animals).
- Ensure proper waste disposal.

3. To ensure active/Responsive Feeding for Young Children by:

- Encourage the child to learn to eat with lots of patience
- Introducing one food at a time to reduce confusion and to identify the foods the baby is allergic to.
- Let the child eat from his/her own plate (caregiver then knows how much the child is eating)
- Sit down with the child, be patient and actively encourage him/her to eat.
- Offer food the child can take and hold; the young child often wants to feed him/herself. Encourage him/her to, but make sure most of the food goes into his/her mouth.
- Mother/father/caregiver can use her fingers (after washing) to feed child.
- Feed the child as soon as he or she starts to show early signs of hunger.
- If your young child refuses to eat, encourage him/her repeatedly; try holding the child in your lap during feeding.
- Engage the child in “play” trying to make the eating session a happy and learning experience, not just an eating experience.
- The child should eat in his/her usual setting.
- As much as possible, the child should eat with the family in order to create an atmosphere promoting his/her psycho-affective development.

CHAPTER 4: INFANT FEEDING IN THE CONTEXT OF HIV AND AIDS

4.1 Introduction

Mothers who test HIV positive need to be counseled and provided with appropriate information in order to make informed choices on appropriate infant feeding. The HIV pandemic and the attendant risk of mother-to-child transmission (MTCT) of HIV through breastfeeding continue to pose unique challenges to the promotion of breastfeeding. Substantive data indicates that in the absence of interventions, the overall Mother to Child Transmission (During Pregnancy, Labor and delivery with breastfeeding for up to 2 year) may be responsible for 30 – 45% of HIV infections in infants and young children (WHO/UNICEF 2006). Prevention of Mother to Child Transmission (PMTCT) has become a key intervention to reduce both the spread and the effects of the pandemic. The rate of HIV infection in breastfed infants is cumulative and increases with duration of breastfeeding. Mixed feeding increases the risk of HIV transmission by 10.8 times (Coovadia 2006, Iliff 2005, Coutoudis 2005, Leroy 2005). Recent scientific evidence shows that with ART prophylaxis for both the mother and their infants, the rates of HIV transmission during exclusive breastfeeding for 6 months can decrease to less than 5% (Iliff 2005). The government has reviewed available evidence regarding infant and young child feeding and has come to a conclusion that breastfeeding with appropriate use of anti-retroviral drugs for mother and child is the best option for overall well-being and survival of HIV exposed children.

Early diagnosis of HIV in children has made it possible to classify HIV- exposed children into three categories, namely:

- HIV-exposed but not HIV-infected
- HIV-exposed and HIV-infected
- HIV-exposed but with unknown HIV status

These categories are useful for deciding appropriate care and treatment for HIV-exposed children, including IYCF.

Table 6: Timing and Risks of HIV Transmission in the absence of intervention

During Pregnancy	5-10%
During Labor and delivery	10-15%
During Breast feeding	5-20%
Overall Without Breast feeding	15-25%
Overall with Breast feeding until six months	25-35%
Overall with breast feeding until 18 -24 months	30-45%

Transmission patterns in breastfeeding and non-breastfeeding population (De Cock, Jama 2000).

4.2 Specific Objectives

1. To support and promote exclusive breastfeeding for the first six months of a child's life with appropriate use of ARV's for the mother and the child.
2. To promote optimal complimentary feeding from 6 months with continued breastfeeding for the first 12 months of life for the HIV-exposed children.
3. To strengthen health care service delivery to achieve optimal support for appropriate infant feeding for the HIV positive mothers.
4. To upscale and enhance community level support and mechanisms for optimal infant and young child feeding practices for HIV exposed children.

4.3 Key issues and justification

- Only 63% of all the pregnant women have been tested for HIV
- 9% of pregnant women are HIV positive (KAIS 2007)
- 72% of pregnant women living with HIV received ARVs for PMTCT (Kenya Universal Access Report, 2008)

4.4 Policy guidelines, recommendations and key messages

Note: These policy guidelines should be used with reference to PMTCT guidelines.

Policy guideline 1: Breastfeeding with appropriate use of antiretroviral drugs for the mother and baby is the best option for overall well-being and survival of HIV exposed children.

1. All mothers who are HIV negative or are of unknown status should be encouraged and supported to exclusively breastfeed for the first 6 months and continue breastfeeding with appropriate complementary feeding after 6 months for a period of 24 months and beyond.
2. Mothers known to be HIV-infected (and whose infants are HIV uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods after 6 months, and continue breastfeeding for the first 12 months of life. Both mother and their infants should receive prophylaxis or anti-retroviral treatment in line with the national recommendations.
 - Breastfeeding should only stop once a nutritionally adequate and safe diet without breastmilk can be provided.
 - Both mother and their infants should receive prophylaxis or anti-retroviral treatment in line with the national recommendations.
 - If a mother is exclusively breastfeeding:
 - Counsel the mother to adhere to the recommended optimal breastfeeding practices
 - Identify breast conditions of the HIV-infected mother and treat (Refer to chapter

- Breastfeeding and ARVs should continue until 12 months
 - Cessation of breastfeeding at 12 months should not be early, abrupt or rapid. Mothers known to be HIV-infected who decide to stop breastfeeding at any time should stop gradually within one month and ensure that they continue and adhere to their ARV prophylaxis because there is a high risk chance of HIV infection. Infants who have been receiving ARV prophylaxis should continue prophylaxis for one week after breastfeeding is fully stopped.
 - Encourage HIV testing for the infant
3. Mothers known to be HIV-infected who decide to stop breastfeeding at any time should stop gradually within one month. Mothers or infants who have been receiving ARV prophylaxis should continue prophylaxis for one week after breastfeeding is fully stopped. Stopping breastfeeding abruptly is not advisable.
 4. Mothers known to be HIV-infected (and whose infants are HIV infected) should exclusively breastfeed their infants for the first 6 months of life, introducing appropriate complementary foods after 6 months, and continue breastfeeding up to 24 months of life and beyond. Mothers should be assessed for appropriate anti-retroviral treatment and infants should be started on HAART in line with the national recommendations (MOPHS/MOMS, 2010)
 - An HIV-infected mother with cracked nipples, mastitis (inflammation of the breast), abscess, or thrush/Candida (yeast infection of the nipple and breast) has increased risk of transmitting HIV to her baby and so should:
 - stop breastfeeding from the infected breast and seek prompt treatment
 - continue breastfeeding on demand from uninfected breast
 - express breast milk from the infected breast(s) and either discard it or heat-treat it before feeding to baby

Expressed heat treated breastmilk

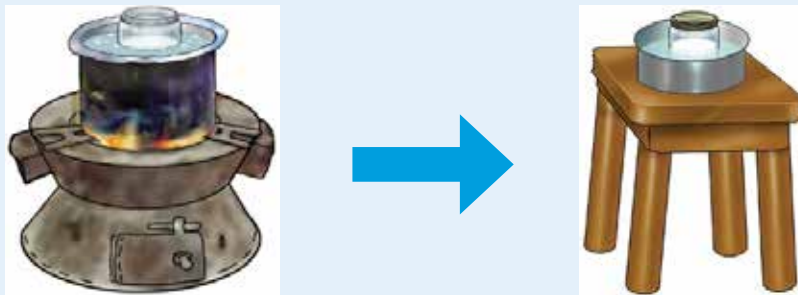
Mothers known to be HIV-infected may consider expressing and heat treating breast milk as an interim feeding strategy in special circumstances such as:

- when the infant is born with low birth weight; or
- is otherwise ill in the neonatal period and unable to breastfeed; or
- when the mother is unwell and temporarily unable to breastfeed; or
- has a temporary breast health problem such as mastitis; or
- to assist mothers to stop breast feeding; or
- If antiretroviral drug are temporarily not available.

How to heat-treat breast milk

- Express breast milk into a glass cup/jar
- Add water to a pot to make a water bath up to the 2nd knuckle of the index finger, over the level of the breast milk in the glass cup/jar (Note that the glass cup/jar must be taller than the water level in the pot)
- Bring water to the boiling point. The water will boil at 100° C, while the temperature of the breast milk in the glass cup/jar reaches about 70° C and will be safe and ready to use.

Figure 7: How to heat-treat breast milk



- Remove the breast milk from the water and cool the breast milk to the room temperature (not in fridge).
- Give the baby the breast milk by cup.



- Once breast milk is heat-treated, it should be used within 8 hours.

5. HIV positive women (and whose infants are HIV uninfected or of unknown HIV status), who choose not to breastfeed, should be given information on the special conditions (AFASS) that should be met. If these conditions are met, she should be counseled and supported to do exclusive replacement feeding using infant formula for the first 6

months and appropriate complementary feeds introduced at 6 months. Infants of these mothers should be provided with appropriate antiretroviral treatment.

- The replacement feeding option is also accompanied with provision of ARVs for the mother and the infant (the latter for six weeks after delivery)
- The mother should give the baby infant formula from birth. Educate and counsel them to feed their infants using open cups rather than feeding bottles with teats or spouted cups.
- Ensure that the marketing, procurement and distribution of BMS complies with the Regulations on the Marketing of Infant and Young Child Foods
- If exclusively replacement feeding:
 - Avoid any mixed feeding
 - Avoid any dilution of formula
 - Help mother read instructions on formula tin
 - Make sure mother is preparing formula correctly, feeding with a cup and not a bottle, washing hands and cleaning utensils properly

AFASS

Acceptable:

The mother perceives no barrier to choosing and executing the option for cultural or social reasons, or for fear of stigma and discrimination.













Feasible:

The mother (or family) has adequate time, knowledge, skills and other resources to prepare and feed the infant, and the support to cope with family, community and social pressures.

Affordable:

The mother or family can pay for the purchase/production, preparation and use of the feeding option, including all ingredients, fuel and clean water and equipment, without compromising the health and nutrition spending of the family. The table below shows the number of tins of formula your baby will need each month. The average cost for a tin of infant formula is Ksh. 800. Therefore, it will cost at least Kshs 35,200 to purchase formula for feeding your baby for the first 6 months of life.

Table 7: Number of infant formula tins required for a child from birth to six months

Baby's Age in Months	450g tins needed Per month	400g tins needed Per month
1		
2		
3		
4		
5		
6		

Sustainable:









Availability of a continuous and uninterrupted supply for all ingredients and commodities needed for safely implementing the feeding option, for as long as the infant needs it.

Safe:

Replacement foods are correctly and hygienically prepared and stored in nutritionally adequate quantities, and fed with clean hands using clean utensils, preferably with cups.

Source: IYCF trainers guide

Table 8: How to prepare infant formula

	Make sure that you have clean water to mix with the infant formula. If you can, prepare the water that you will need for the whole day. Bring the water to a rolling boil for at least 2 minutes and then pour into a thermos or container.
	The utensils should be washed with clean water and soap.
	Sun or air dry the dishes on a rack
	Wash your hands clean water and soap.
	Organize all of the utensils you will need. Always use a special cup or container to measure the boiled water. Always use the special scoop that comes with the tin of infant formula to measure the infant formula powder.
	Follow the instructions for preparation that are on the formula tin. Use the marked cup or glass to measure the boiled and cooled water.
	Measure infant formula using the scoop or spoon which is in the formula tin.
	Prepare enough infant formula for one feed at a time.

6. Emphasize to HIV positive women that whether they choose breastfeeding or replacement feeding, the infant feeding option must be exclusive for the first six months with NO mixed feeding. Mixed feeding before 6 months carries the following risks:

- Increased risk of HIV transmission to the infant(possibly due to irritation of the immature intestinal mucosa)
- Breast milk is replaced with less nutritious food
- Increased risk of diarrhea in infants
- It is essential that HCWs emphasize importance of exclusive breastfeeding for HIV-infected mothers who choose to breastfeed. Mixed feeding accounts for 10.8 times risk of MTCT.
 - i. At 6 month if replacement feeding is AFASS avoidance of breastfeeding is recommended.
 - ii. Vitamin and mineral supplements should only be provided when medically appropriate

HIV-infected women will need counseling to avoid mixed feeding if they transition to replacement feeding before six months

Policy guideline 2: Promote integration of PMTCT interventions into all MCH services and provision of information and supportive counseling to mothers who are HIV positive on optimal infant feeding.

Recommendations and key messages

1. Protect, promote and support exclusive breastfeeding for all infants in the first 6 months of life regardless of the HIV status of their mothers.
2. Incorporate PMTCT interventions in all health care practices.
3. Encourage caregivers/mothers that are HIV positive to timely introduce appropriate complementary foods while continuing with their infant feeding of choice.
4. Provide information to pregnant and lactating women utilizing MCH or family planning services and those considering becoming pregnant on mother to child transmission of HIV.
5. Provide continued counseling and psychosocial support to mothers who are HIV positive to sustain their feeding option.
6. Ensure that counseling of HIV positive mothers on infant feeding options should be on a one-to-one basis either before or during pregnancy, and the postnatal period.
7. Complementary feeding guidelines for the HIV positive children are the same as for the HIV negative children and the preparation of the meals should take account of the following: choice of food, amount of food, and food safety and hygiene (refer to policy guideline 2 on Chapter 2).
8. Energy requirement for the HIV positive children is 10% more to maintain growth in asymptomatic children; whereas the symptomatic without weight loss would require 20-30% energy. Symptomatic with weight loss require about 50-100% more energy than

healthy children. However protein requirements are the same as those for uninfected child. It should be based on individual child's symptoms and needs. Micronutrients requirements are the same as for those of uninfected child. It should however consider possible deficiencies.

9. Periodic nutritional assessment and growth monitoring

- Growth is a very sensitive indicator of HIV progression on children. Poor growth is an indicator of CD4 decline and the development of opportunistic infections
- Weighing, charting and interpretation of the child's weight and height on the mother child booklet should be done by a trained staff member.
- In the first 5 years, nutritional assessment should be done every month in keeping with the recommendation for all children.

10. Assess feeding practices and dietary intake during every contact, including dietary-related problems (e.g. poor appetite, chewing, swallowing, intolerance, food taboos and history of nutritional supplementation.

11. If the growth of the child is faltering:


- Carry out a physical examination to rule out thrush or oral ulcers, gastrointestinal bleeding and signs of systemic infections./assess feeding practices
- Support the mother/caregivers to ensure the child receives the adequate amount of energy, protein and micronutrients to meet increased demand. It should be based on locally available foods.
- Children should also receive universal vitamin A supplementation and targeted multiple micronutrient supplementation which include iron if there are no contraindications. Delay oral iron supplementation until the child regains appetite and starts to gain weight (usually after 2 weeks)

12. If the child is losing or has lost lean body mass it is possible he/she is having symptoms of AIDS. Take the following actions:

- Provide oral nutritional supplementation if it is not possible, enteral and parental alimentation feeding option should be considered
- Refer the child for ARV assessment and recruitment to the treatment programme if they meet the national criteria

13. Discourage harmful cultural practices

Figure 8: MIYCN Policy Statement



MINISTRY OF PUBLIC HEALTH AND SANITATION

NATIONAL POLICY ON MATERNAL, INFANT AND YOUNG CHILD NUTRITION

Summary Statement

Every facility providing Maternal and Child Health (MCH) services should:

- (1) Adhere to the National Maternal, Infant and Young Child Nutrition Policy, which should be routinely communicated to all health staff and publicly displayed;
- (2) Train all health care staff in skills necessary to implement this policy;
- (3) Provide information to all pregnant and lactating mothers and their partners on the benefits and management of breastfeeding;
- (4) Assist mothers initiate breastfeeding within the first one hour of birth;
- (5) Give newborn infants no food or drink other than breast milk unless medically indicated (Details in the National MIYCN guidelines);
- (6) Show mothers how to breastfeed and to maintain lactation even if they should be separated from their infants;
- (7) Practice rooming-in, allow infants to remain together with the mother 24 hours a day;
- (8) Encourage breastfeeding on demand;
- (9) Encourage and actively promote exclusive breastfeeding for infants up to six months;
- (10) Provide information and demonstrate to mothers how to introduce and prepare appropriate and nutritious complementary foods to their infants after six months;
- (11) Encourage mothers to breastfeed for at least 24 months (see infant feeding and HIV guidelines below);
- (12) Foster the establishment of infant and young child nutrition support groups and refer mothers to them on discharge from hospital or clinic;
- (13) Not accept any free samples and supplies of breast-milk substitutes;
- (14) Not allow any publicity by the manufacturers or agents of breast-milk substitutes;
- (15) Give no pacifiers, artificial teats or feeds using bottles to all infants;
- (16) Ensure that health workers do not accept any gifts or materials from manufacturers of breast milk substitutes and designated products.

INFANT FEEDING AND HIV GUIDELINES

ALL PARENTS SHOULD BE GIVEN INFORMATION ON:

<ul style="list-style-type: none"> Benefits of exclusive breastfeeding for 6 months and continue breastfeeding for 2 years Risks of mother to child transmission of HIV Prevention and management of breastfeeding problems * Appropriate complementary feeding Promotion of good maternal nutrition and self-care 	<ul style="list-style-type: none"> Importance of micronutrients Counsel on child spacing Prompt treatment of infections Importance of HIV counselling and testing Reinforcing risk reduction to couple
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HIV COUNSELLING AND TESTING

<p>HIV NEGATIVE MOTHERS</p> <ul style="list-style-type: none"> Reinforce risk reduction Promote exclusive breastfeeding 	<p>HIV POSITIVE MOTHERS</p> <ul style="list-style-type: none"> Guidance and support on exclusive breastfeeding and appropriate ARVs for mother and baby Reinforce optimal feeding practices for minimizing transmission 	<p>MOTHERS NOT TESTED</p> <ul style="list-style-type: none"> Promote & support exclusive breastfeeding Encourage HIV counselling & testing Reinforce risk reduction** 	<p>INFANTS WITH SPECIAL NEEDS</p> <ul style="list-style-type: none"> Infants with medical contraindications*** Support re-lactation where possible
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<p>Exclusive Breastfeeding and ARV medications:</p> <ul style="list-style-type: none"> Reinforce the benefits of exclusive breastfeeding Give information on optimal infant feeding, including early initiation, exclusive breastfeeding for the first six months, appropriate introduction of optimal complementary feeding with continued breastfeeding for the first 12 months of life and appropriate use of ARV drugs for mother and child. Reinforce information on the need for ARV prophylaxis for the baby to be continued until one week after complete cessation of breast feeding or where the mother is on ART; the need for adherence to her therapy. Advise on avoidance of and the associated risks of mixed feeding Give information on care of the breast as well as prevention and management of breast conditions Provide access to relevant anti-retroviral drugs for the baby and the mother during the breastfeeding period. Provide reliable family planning 	<p>Mothers Choosing Not To Exclusively Breastfeed:</p> <ul style="list-style-type: none"> Advise mother on risks associated with replacement feeding and mixed feeding Ensure mother meets the conditions necessary for replacement feeding (see National MIYCN guidelines) Give information on safe preparation, storage and appropriate feeding techniques for chosen replacement foods Counsel on care of the breast to avoid engorgement Provide reliable family planning Ensure provisions in Code of marketing of breastmilk substitutes are adhered to
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* Breastfeeding problems (Abscess, mastitis, engorged breasts, cracked and inverted nipples)
 ** For women who have features of clinical AIDS manage as HIV positive
 *** Replacement feeding using a specialized formula is necessary in rare cases of metabolic disorders of the infant such as galactosemia, maple syrup urine disease and phenylketonuria.

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 Date: 1st August 2012

CHAPTER 5: INFANT AND YOUNG CHILD FEEDING IN DIFFICULT AND SPECIAL CIRCUMSTANCES

5.1 Low Birth Weight Infants and Pre-term Infants

5.1.1 General information

Low birth weight (LBW) has been defined by the World Health Organization (WHO) as weight at birth less than 2500 g. The global prevalence of LBW is 15.5%, which means that about 20.6 million such infants are born each year, 96.5% of them in developing countries. In Kenya, 5.4% of infants are born LBW (KDHS 2008/09).

Low birth weight (LBW) <2500grams, is one of the most important contributing factors to neonatal and infant death, illness, and malnutrition. LBW could be as a consequence of pre-term birth (delivery before 37 completed weeks) or due to small size for gestational age (SGA, defined as weight for gestation <10th percentile) or both. In addition, depending on the birth weight reference used a variable but small proportion of LBW infants are born at term and are not SGA. Intrauterine growth restriction, defined as a slower than normal rate of fetal growth, is usually responsible for SGA. LBW thus defines a heterogeneous group of infants: some are born early, some are born at term but are SGA, and some are both born early and SGA. Being born with LBW is generally recognized as a disadvantage for the infant. LBW infants are at higher risk of early growth retardation, infectious disease, and developmental delay. LBW is also associated with reduced chances of survival during infancy and childhood and where they survive, LBW is associated with increased risk of obesity, diabetes and heart disease in later life. Optimal maternal nutrition during pregnancy reduces the chances of delivering a LBW baby. Good feeding practices can reduce the increased risks of morbidity and mortality associated with LBW.

Classification by gestational age

1. Large for gestational age (LGA): >90th percentile (2 SD from mean birth weight)
2. Appropriate for gestational age (AGA): 10th – 90th percentile (birth weight length and head circumference in the normal)
3. Small for gestational age (SGA): <10th percentile (\leq 2SD below mean birth weight and or length)

Low birth weight babies

1. Low Birth Weight (LBW): Birth weight < 2500 grams.
2. Very Low Birth Weight (VLBW): Birth weight < 1500 grams
1. Extremely Low Birth Weight (ELBW): Birth weight < 1000 grams and greater than 750grams
2. Preterm born before 37 completed weeks of gestation

These guidelines focus on the feeding of clinically stable LBW infants. Some of the questions and recommendations focus only on VBLW infants (birth weight less than 1.5 kg). They do not specifically address the feeding of infants with a birth weight less than 1.0 kg (ELBW), who are often clinically unstable and may require parenteral nutrition. Further, the guidelines do not provide separate recommendations for the two groups of LBW infants, preterm and small for gestational age (SGA), because of lack of evidence.

5.1.2 Specific objective

To provide optimal nutrition support and care for low birth weight and pre-term infants.

5.1.3 Key issues and justification

In Kenya 6% of infants are born with low birth weight and this can have detrimental effect on the child's survival and/or achievement of their potential developmental milestones.

Preterm babies (born before 37 weeks gestation) tend to have more problems than term babies who are small (less than 2.5 kg at birth) and require specialized care due to prematurity. However, because the baby's gestational age is not always known, this guide refers to preterm babies and low birth weight term babies collectively as "small babies." If the **baby's gestational age is known**, use this, when possible, to guide diagnosis and management decisions. Remember that the more preterm or the smaller the baby is, the more likely the baby is to have problems.

A small baby:

- may have a problem that is specific to small babies (e.g. jaundice of prematurity) but may also have any other problem that a full-size, term baby can have (e.g. jaundice associated with sepsis);
- Has a different resting posture than a term baby, and this is not necessarily an indication of a problem (e.g. floppiness).

Small babies are prone to complications. Some problems that small babies are particularly susceptible to include:

- Feeding difficulty: Feeding difficulty is a common problem; as the baby grows, feeding ability improves;
- Abnormal body temperature: Low body temperature (hypothermia) may be caused by exposure to a cold environment (low ambient temperature, cold surface, or draught), or the baby may be wet or under-dressed for age and size. Elevated body temperature (hyperthermia) may be caused by exposure to a warm environment (e.g. high ambient temperature, sun exposure, or overheating by an incubator or radiant warmer). Hypothermia and hyperthermia may also be signs of illness, such as sepsis. Kangaroo mother care is the recommended method of maintaining a small baby's body temperature. This method of care is recommended for babies who do not have a serious illness, and particularly for those who weigh less than 1.8 kg.);
- breathing difficulty, such as respiratory distress syndrome and apnoea;

- necrotizing enterocolitis;
- jaundice of prematurity;
- intraventricular bleeding;
- anaemia; To prevent iron deficiency anaemia, give small babies an oral iron preparation to give elemental iron 2 mg/kg body weight once daily from two months of age up to 23 months of age);
- Low blood glucose.

Regardless of what other problems they may have, all small babies require special considerations for feeding, fluid management, and maintenance of normal body temperature (ideally using kangaroo mother care), which are described below. In addition, review the chapters in the National guidelines on essential newborn care, 2012 and the National Guidelines for Quality Obstetric and Perinatal Care for general management instructions applicable to all newborn babies.

5.1.4 POLICY GUIDELINES, RECOMMENDATIONS AND KEY MESSAGES

5.1.4.1 Feeding and Fluid Management of Small Babies

5.1.4.1.1 General Principles of Feeding Small Babies

Small babies often have difficulty feeding simply because they are not mature enough to feed well. Good feeding ability can usually be established by 34 to 35 weeks post-menstrual age. Until that time, substantial effort may be needed to ensure adequate feeding. Provide special support and attention to the mother during this difficult period.

1. Explain to the mother that:
 - her breast milk is the best food for the baby;
 - Breastfeeding is especially important for a small baby. **No baby is too sick or too small to receive breast milk;**
 - it may take longer for a small baby to establish breastfeeding;
 - it is usually normal if the baby:
 - tires easily and suckles weakly at first;
 - suckles for shorter periods of time before resting;
 - falls asleep during feeding;
 - Pauses for long periods between suckling.
2. Have the mother keep the baby at the breast for a longer period of time and allow long pauses between suckling, or a long, slow feed. Assure the mother that breastfeeding will become easier once the baby becomes bigger.
3. Have the mother follow the general principles of exclusive breastfeeding (Chapter 3)
4. Ensure that the baby is fed frequently:

- If the **baby weighs 1.25 to 2.5 kg**, feed the baby at least eight times in 24 hours (i.e. every three hours);
 - If the **baby weighs less than 1.25 kg**, feed the baby at least 12 times in 24 hours (i.e. every two hours);
5. Follow the guidelines in Tables 10 to 15 to determine the required daily volume of feeds and/or fluid.
 6. If the baby is not suckling well enough to receive an adequate volume of milk:
 7. Encourage the mother to give expressed breast milk using an alternative feeding method (using a cup or a nasal gastric tube);
- Teach the mother how to express breast milk, if necessary
 - Encourage the mother to express breast milk at least eight times in 24 hours.
 - Assess feeding ability twice daily, and encourage and support the mother to begin breastfeeding as soon as the baby shows signs of readiness to suckle (rooting reflex) unless treatment of the baby's illness prevents breastfeeding (e.g. the baby is receiving oxygen).
 - Record the following each time the baby is fed:
 - time of feeding;
 - amount and kind of milk given (e.g. expressed breast milk or breastmilk substitute);
 - any feeding difficulty.
 - Calculate the volume of milk required according to the baby's age and weight.

5.1.4.1.2 VOLUMES OF FLUID AND FEEDS DURING THE FIRST DAYS OF LIFE

- Determine the required volume of fluid according to the baby's age (**Table 9**; for small babies [less than 2.5 kg at birth or born before 37 weeks gestation]. Note that Table 1 combines the volumes of IV fluid and feeds (day 1 is the day of birth).
- Subtract the volume of feeds the baby is receiving from the total daily volume required to determine the necessary volume of IV fluid.
- Adjust the volume of feeds and/or fluid if directed to do so by another chapter (e.g. if the **baby is placed under a radiant warmer or is receiving phototherapy**, increase the volume of feeds and/or fluid by 10% of the total daily volume per day because of increased loss of water from the skin).
- Convert the total volume into ml per hour or drops per minute.

Table 9: Total daily feed and fluid volumes for babies from birth

	Days of life						
	1	2	3	4	5	6	7+
ml/kg body weight of feeds and/or fluid	60	80	100	120	140	150	160+

See Tables 10 to 15 for fluid volumes for small babies (less than 2.5 kg at birth or born before 37 weeks gestation)

- Ensure that the baby is receiving enough milk by assessing the baby's growth.
 - Choose the most appropriate alternative feeding method
- 1. Cup feeding – follow the cup feeding guidelines on chapter 3
- 2. Hand-expressing breast milk into the baby's mouth
 - Ensure that the mother can properly express breast milk
 - Have the mother:
 - hold the baby with the baby's mouth close to her nipple;
 - express the breast until some drops of milk appear on the nipple;
 - let the baby smell the nipple and attempt to suck, and allow some breast milk to fall into the baby's mouth;
 - express more drops of breast milk after the baby swallows;
 - end the feeding when the baby closes her/his mouth and is no longer interested in feeding.

Ask the mother to repeat this process every one to two hours if the baby weighs less than 1.5 kg or every two to three hours if the baby weighs 1.5kg or more.

- 3. Feeding expressed breast milk by nasogastric tube
 - Ensure that the mother can properly express breast milk
 - Insert a gastric tube if one is not already in place.
 - Confirm that the tube is properly positioned before each feeding.
 - Encourage the mother to hold the baby and participate in feedings.
 - Determine the required volume of milk for the feed according to the baby's age (Table 9).
 - Remove the plunger of a high-level disinfected or sterile syringe (of a size large enough to hold the required volume of milk) and connect the barrel of the syringe to the end of the gastric tube:
 - If a high-level disinfected or sterile syringe is not available, use a clean (washed, boiled or rinsed with boiled water, and air-dried) syringe;
 - If a suitable syringe is not available, use any other suitable, clean funnel that connects securely to the gastric tube.

- Pour the required volume of milk for the feed into the syringe with the “tip” of the syringe pointed downward.
- Have the mother hold the syringe 5 to 10 cm above the baby or suspend the tube above the baby and allow the milk to run down the tube by gravity. Do not force milk through the tube using the plunger of the syringe. Using this method, each feeding should take 10 to 15 minutes. If the flow of milk is too fast, slightly pinch the tube below the syringe to slow down the flow.
- When the feeding is finished, remove, wash, and high-level disinfect or sterilize the syringe, and cap the tube until the next feeding.
- Progress to feeding by cup/spoon when the baby can swallow without coughing or spitting milk. This could be in as little as one or two days, or it may take longer than one week.
- Replace the gastric tube with another clean gastric tube after three days, or earlier if it is pulled out or becomes blocked, and clean and high-level disinfect or sterilize it.
 - i. Be sure the mother always attempts to breastfeed the baby before offering expressed breast milk, unless the baby cannot be breastfed;
 - ii. If necessary, the mother can improve the flow of milk by expressing a small amount of milk before allowing the baby to attach to the breast.

BREAST-MILK SUBSTITUTES

- If the **mother cannot breastfeed or express breast milk**, use a commercial breast-milk substitute. (Note that the following instructions are for the health care provider. Ensure that the mother knows how to properly prepare the breast-milk substitute before discharging the baby.)
 - LBW infants who are able to breastfeed should be put to the breast as soon as possible after birth when they are clinically stable.
 - Once a container of breast-milk substitute is open, use the substitute within the recommended time according to the manufacturer’s instructions (e.g. use liquid breast-milk substitute within four hours of opening the container).
 - Check the expiry date of the breast-milk substitute.
 - Use aseptic technique to prepare the breast-milk substitute from liquid concentrates or powders, using high-level disinfected or sterile utensils and containers, and sterilized or boiled and cooled water.
 - Wash hands with soap and water.
 - Determine the required volume of milk for the feed according to the baby’s age (**Table 9**)
 - Measure the breast-milk substitute and water, mix them, and feed the baby using a cup. Have the mother do this whenever possible.
 - Store remaining milk in a labeled container in a refrigerator for a maximum of 24 hours.
1. Ensure that the baby is receiving enough milk by assessing the baby’s growth.
 2. If the **baby is not gaining weight adequately** (less than 15 g/kg body weight per day over three days), have the mother express breast milk into two different cups. Have her give

the contents of the second cup, which contains more of the fat-rich hind milk, to the baby first, and then supplement with whatever is required from the first cup.

3. If the **baby is vomiting or has abdominal distension or episodes of apnoea or if more than 20% of the previous feed is retained in the stomach (gastric residual) just before the next feed** (when fed by gastric tube):
 - Stop feeding. Establish an IV line, and give IV fluid at maintenance volume according to the baby's weight and age (**Tables 10 to 15**) for 12 hours;
 - Reassess the baby after 12 hours:
 - If the baby's condition is improving, restart feeds, observing carefully;
 - If the baby's condition is not improving, continue giving IV fluid at maintenance volume for another 12 hours. Then restart feeds, giving the same volume as the last feed and observing the baby carefully.
4. If the baby is being fed by gastric tube and there is an increasing volume of gastric residuals (milk remaining in the stomach from the previous feed), suspect necrotizing enterocolitis.

5.1.4.1.3 FEED AND FLUID VOLUMES FOR SMALL BABIES

Small babies require different feed and fluid volumes based on their condition and weight. Review the categories below to determine the appropriate total daily fluid and feed volumes for the baby.

BABIES WITHOUT MAJOR ILLNESS

1.75 to 2.5 KG

Allow the baby to begin breastfeeding. If the **baby cannot be breastfed**, give expressed breast milk using a cup. Use **Table 9** to determine the required volume of milk for the feed based on the baby's age.

1.5 TO 1.749 KG

Give expressed breast milk using a cup every three hours according to **Table 10** until the baby is able to breastfeed.

Table 10: Volumes of breast milk for a baby weighing 1.5 to 1.749kg without major illness

	Days of life						
Feed volume every three hours (ml/feed)	1	2	3	4	5	6	7
	12	18	22	26	30	33	35

1.25 TO 1.49 KG

- Give expressed breast milk by gastric tube every three hours according to Table 11.
- Progress to feeding by cup as soon as the baby can swallow without coughing or spitting.

Table 11: Volumes of breast milk for a baby weighing 1.25 to 1.49 kg without major illness

	Days of life						
Feed volume every three hours (ml/feed)	1	2	3	4	5	6	7
	10	15	18	22	26	28	30

LESS THAN 1.25 KG

- Establish an IV line, and give only IV fluid (according to **Table 12** for the first 48 hours.
- Give expressed breast milk by gastric tube every two hours starting on day 3, or later if the baby's condition is not yet stable, and slowly decrease the volume of IV fluid while increasing the volume of oral feeds according to **Table 12**
- Progress to feeding by cup/spoon as soon as the baby can swallow without coughing or spitting.

Table 12: Volumes of IV fluid and breast milk for all babies weighing less than 1.25 kg

	Days of life						
	1	2	3	4	5	6	7
IV fluid rate (ml/hour or microdrops/minute)	4	4	3	3	2	2	0
Feed volume every two hours (ml/feed)	0	0	3	5	8	11	15

SICK BABIES

1.75 TO 2.5 KG

If the **baby does not initially require IV fluid**, allow the baby to begin breastfeeding. If the **baby cannot be breastfed**, give expressed breastmilk using a cup. Determine the required volume of milk for the feed based on the baby's age (**Table 9**)

If the **baby requires IV fluid**:

- Establish an IV line, and give only IV fluid (according to **Table 13**) for the first 24 hours;
- Give expressed breast milk using a cup every three hours starting on day 2 or later if the baby's condition is not yet stable, and slowly decrease the volume of IV fluid while increasing the volume of oral feeds according to **Table 13**.

Table 13: Volumes of IV fluid and breast milk for a sick baby weighing 1.75 kg to 2.5 kg

	Days of life						
	1	2	3	4	5	6	7
IV fluid rate (ml/hour or microdrops/minute)	5	4	3	2	0	0	0
Feed volume every three hours (ml/feed)	0	6	14	22	30	35	38

1.5 TO 1.749 KG

Establish an IV line, and give only IV fluid (according to **Table 14**) for the first 24 hours. Give expressed breast milk by gastric tube every three hours starting on day 2, or later if the baby's condition is not yet stable, and slowly decrease the volume of IV fluid while increasing the volume of oral feeds according to **Table 14**.

Progress to feeding by cup as soon as the baby can swallow without coughing or spitting.

Table 14: Volumes of IV fluid and breast milk for a sick baby weighing 1.5 to 1.749 kg

Days of life							
	1	2	3	4	5	6	7
IV fluid rate (ml/hour or microdrops/minute)	4	4	3	2	2	0	0
Feed volume every three hours (ml/feed)	0	6	13	20	24	33	35

1.25 TO 1.49 KG

- Establish an IV line, and give only IV fluid (according to **Table 15**) for the first 24 hours.
- Give expressed breast milk by gastric tube every three hours starting on day 2, or later if the baby's condition is not yet stable, and slowly decrease the volume of IV fluid while increasing the volume of oral feeds according to **Table 15**.
- Progress to feeding by cup as soon as the baby can swallow without coughing or spitting.

Table 15: Volumes of IV fluid and breast milk for a sick baby weighing 1.25 to 1.49 kg

Days of life							
	1	2	3	4	5	6	7
IV fluid rate (ml/hour or micro drops/minute)	3	3	3	2	2	0	0
Feed volume every three hours (ml/feed)	0	6	9	16	20	28	30

LESS THAN 1.25 KG

- Give feeds and fluid as described for a well-baby less than 1.25 kg (**table 11**).

WEIGHT GAIN AND FEEDING AFTER SEVEN DAYS OF AGE

- It is normal for small babies to lose weight during the first 7 to 10 days of life. Birth weight is usually regained by 14 days of life unless the baby has been sick.
- Assess the baby's growth to ensure that the baby is gaining weight adequately.
- If the **baby still requires feeding using an alternative feeding method but is on full milk feeds**:
 - Increase the volume of milk in increments of 20 ml/kg body weight per day until the baby reaches 180 ml/kg body weight of breast milk per day;
 - Continue to increase the volume of milk as the baby's weight increases to maintain a volume of 180 ml/kg body weight of breast milk per day.

- If **weight gain is inadequate** (less than 15 g/kg body weight per day over three days):
- Increase the volume of milk to 200 ml/kg body weight per day;
- If **weight gain is inadequate for more than one week and the baby has been taking 200 ml/kg body weight breast milk per day**, treat for inadequate weight gain.

5.1.4.2 KANGAROO MOTHER CARE

Kangaroo mother care (KMC) is care of a small baby who is continuously carried in skin-to-skin contact by the mother and exclusively breastfed (ideally). At home other adult members of the family like the father can relieve the mother and can also do KMC. It is the best way to keep a small baby warm and it also helps establish breastfeeding. KMC can be started in the hospital as soon as the baby's condition permits (i.e. the baby does not require special treatment, such as oxygen or IV fluid). KMC, however, requires that the mother stay with the baby or spend most of the day at the hospital.

Important points:

All mothers irrespective of age, number of children, education, cultural or religious background, and socio-economic status can do it. However, the mother:

- Must be willing to do it
- Must be available all the time to provide the care needed
- Be of good general health: Ensure that the mother is fully recovered from any childbirth complications before she begins KMC.
- Needs a supportive family and community: Ensure that the mother has support from her family to stay at the hospital or return when the baby is ready for KMC and to deal with responsibilities at home. Discuss with the family, if possible, how they can support the mother so she can provide KMC.

Explain to the mother that KMC may be the best way for her to care for her baby once the baby's condition permits:

Advantages of Kangaroo Mother Care to the baby

- Keeps the baby warm
- The baby feeds more easily
- Episodes of apnoea are less frequent
- Infections are prevented
- Baby grows very well

Take the baby away from the mother only to change napkins (diapers), bathe, and assess for clinical findings according to the hospital's schedule, or as necessary.

Babies can be cared for using KMC until they are about 2.5 kg or 40 weeks post-menstrual age.

BEGINNING KMC

- While the baby is recovering from an illness, the mother can begin to hold the baby in skin-to-skin contact for short periods of time (one to three hours at a time).

- Once the baby's condition is stable and the baby does not require special treatment (e.g. oxygen or IV fluid), the mother can begin continuous KMC.
- When the baby is ready for KMC, arrange with the mother a time that is convenient for her. Ask her to wear light, loose clothing that is comfortable in the ambient temperature, provided the clothing can accommodate the baby.
- Ensure that the room is at least 25 °C.
- While the mother is holding the baby, describe to her each step of KMC, demonstrate them, and then allow her to go through the steps herself.
- Clothe the baby with a pre-warmed shirt open at the front, a napkin, a hat, and socks.
- Place the baby on the mother's chest:
 - Place the baby in an upright position directly against the mother's skin;
 - Ensure that the baby's hips and elbows are flexed into a frog-like position and the baby's head and chest are on the mother's chest, with the head in a slightly extended position.
- Place the baby on the mother's chest under the mother's clothes (Fig. 8) and cover with a pre-warmed blanket:
 - Special garments are not needed as long as the mother's clothes keep the baby firmly and comfortably in contact with her skin;
 - Use a soft piece of fabric (about 1 square metre), folded diagonally in two and secured with a knot. Make sure it is tied firmly enough to prevent the baby from sliding out if the mother stands, but not so tightly that it obstructs the baby's breathing or movement.
- After positioning the baby, allow the mother to rest with the baby, and encourage her to move around when she is ready.

Figure 9: Baby in Kangaroo mother care position under mother's clothes



BREASTFEEDING

- Have the mother attempt to breastfeed either when the baby is waking from sleep or when awake and alert.
- Have the mother sit comfortably, and help her with correct positioning and attachment, if necessary.

- If the **baby cannot be breastfed**, have the mother give expressed breast milk using a cup.

DAILY LIFE FOR THE MOTHER

- Emphasize to the mother that it is important that she wash her hands frequently.
- During the day, the mother can do whatever she likes: she can walk, stand, sit, or lie down.
- The best sleeping position for the mother during KMC is a reclining position. If the **mother's bed is not adjustable**, she can use several pillows to prop herself up. She may also sleep on her side.
- When the mother needs time away from the baby for hygiene or for any other reason, either:
 - have a family member carry the baby in skin-to-skin contact while the mother is unavailable; or
 - dress the baby, place in a warm bed, and cover until the mother or a family member is available to carry the baby in skin-to-skin contact.

Figure 10: Positions for KMC



MONITORING THE BABY'S CONDITION

- If the **baby is in continuous KMC**, measure the baby's temperature twice daily.
- Teach the mother to observe the baby's breathing pattern, and explain the normal variations. If the **baby stops breathing**, have the mother stimulate the baby to breathe by rubbing the baby's back for 10 seconds. If the baby does not begin to breathe immediately, resuscitate the baby using a bag and mask (**refer to the National guidelines on Essential Newborn Care, 2012**).
- Teach the mother to recognize danger signs (e.g. apnoea, decreased movement, lethargy, or poor feeding).
- Respond to any concerns the mother may have. If the **baby is feeding poorly**, determine if the mother's positioning and attachment technique is incorrect, the baby is still too immature, or the baby is becoming ill.

When to discharge home: Allow the baby home when:

- The baby in good health: When the baby is feeding well and there are no other problems requiring hospitalization, discharge the baby. This may be in a few days to weeks, depending on the initial size of the baby and other problems the baby may have.
- Exclusively breastfeeding
- Gaining weight (at least 15g/kg/day)
- Baby's temperature is stable
- When the mother is comfortable and confident: Ensure that the mother is comfortable with her ability to care for the baby and continue KMC at home and is able to come regularly for follow-up visits.

Follow up

- During the first week after discharge from the hospital, weigh the baby daily, if possible, and discuss any problems with the mother. Provide support and encouragement to the mother.
- After the first week, see the mother and the baby twice weekly until around 40 weeks post-menstrual age or when the baby weighs more than 2.5 kg. Weigh the baby and advise the mother to begin to wean the baby off KMC as soon as the baby becomes less tolerant of the position.
- Once the baby is weaned from KMC, continue to follow up monthly to monitor feeding, growth, and development until the baby is 5 years old.

5.1.4.3 ASSESSING GROWTH

GENERAL PRINCIPLES

The most commonly used method for monitoring and assessing growth is weight gain. Until breastfeeding is established, or if the baby is sick or small (less than 2.5 kg at birth or born before 37 weeks gestation), the baby may not gain, or may even lose, weight. Babies weighing 1.5 to 2.5 kg may lose up to 10% of their birth weight in the first four to five days after birth, and babies weighing less than 1.5 kg may lose up to 15% of their birth weight during the first 7 to 10 days after birth.

- Unless the baby requires immediate drugs or fluid based on body weight, weigh the baby at birth after the baby's temperature has stabilized or upon admission to:
 - identify low birth weight and anticipate problems associated with it;
 - have a reference value for monitoring growth;
 - calculate drug doses and volume of fluid to give, if necessary;
 - assess the adequacy of food and fluid intake.
- Weigh and assess weight gain twice weekly (note that weighing on the same two days each week establishes a routine that is easy to follow) until the baby is gaining weight for three consecutive assessments, and then weigh weekly for as long as the baby is in the hospital (unless directed to do so more frequently in another chapter):

- A minimum daily weight gain of 15 g/kg body weight per day over three days is desirable after the initial period of weight loss;
- After birth weight has been regained, weight gain during the first three months of feeding should be:
 - > 150 to 200 g per week for babies weighing less than 1.5 kg (i.e. 20 to 30 g per day);
 - > 200 to 250 g per week for babies weighing 1.5 to 2.5 kg (i.e. 30 to 35 g per day).

WEIGHING TECHNIQUE

- Use a precise and accurate scale, with 5- or 10-g increments, made especially for weighing babies
- Adjust/standardize the scale according to the manufacturer's instructions. If the **manufacturer's instructions are not available**, adjust the scale weekly or whenever the scale is moved.
- Place a clean cloth/paper in the weighing pan.
- Adjust the scale to zero with the cloth/paper in the pan.
- Place the naked baby gently on the cloth/paper.
- Wait for the baby to settle and the weight to stabilize.
- Read the weight to the nearest 5 or 10 g.
- Record the weight in the baby's record and plot it on the weight chart (below).

RECORDING WEIGHT

Figure 11 is a blank weight chart that can be used to monitor the weight of a sick or small baby. On the horizontal axis are spaces to record the number of days after admission. The vertical axis is for the weight in kilograms, stepped in 100-g increments and marked in 500-g increments, but the exact weight has been left blank so that the chart can be used for any baby irrespective of the starting weight.

If the **baby's birth weight is known**, mark it as day 0. Mark the admission day and fill in the starting weight at the appropriate level (e.g. 1.5, 2.0, 2.2 kg). Ensure that enough space is left on the vertical axis of the chart to plot initial weight loss. Chart the baby's weight while hospitalized, and calculate the weight gain/loss. See **Figure 12** for an example of a completed chart.

Figure 11: Blank weight chart

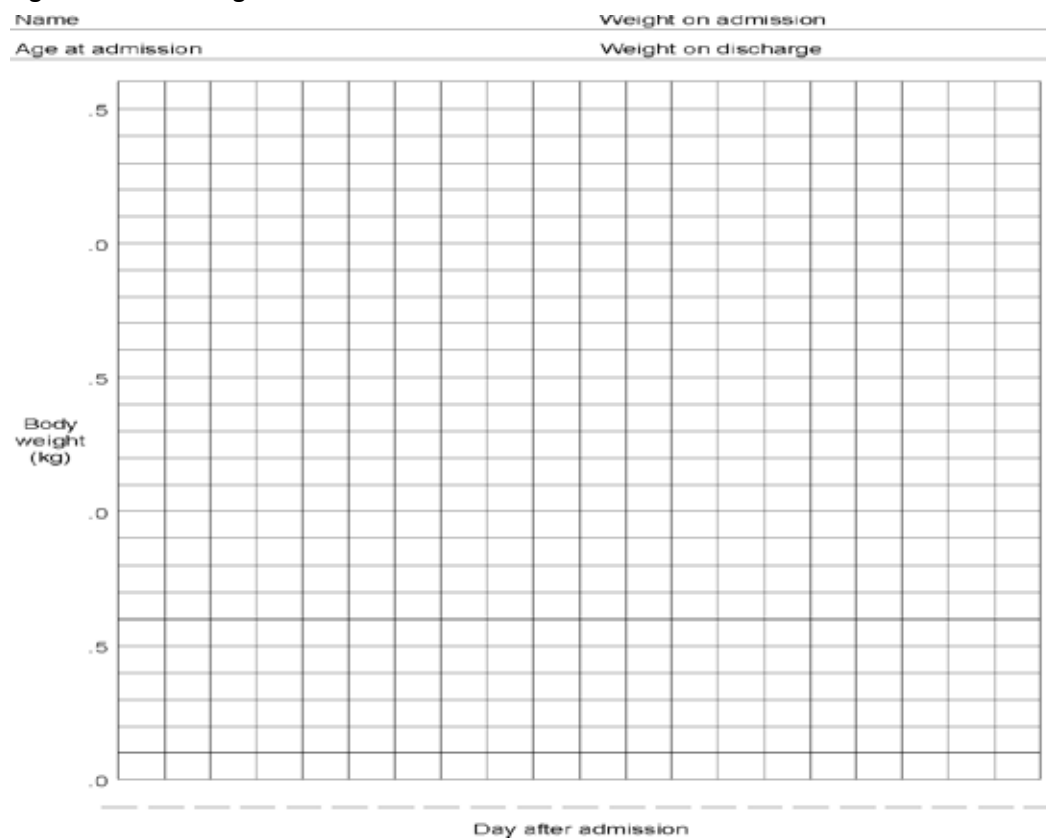
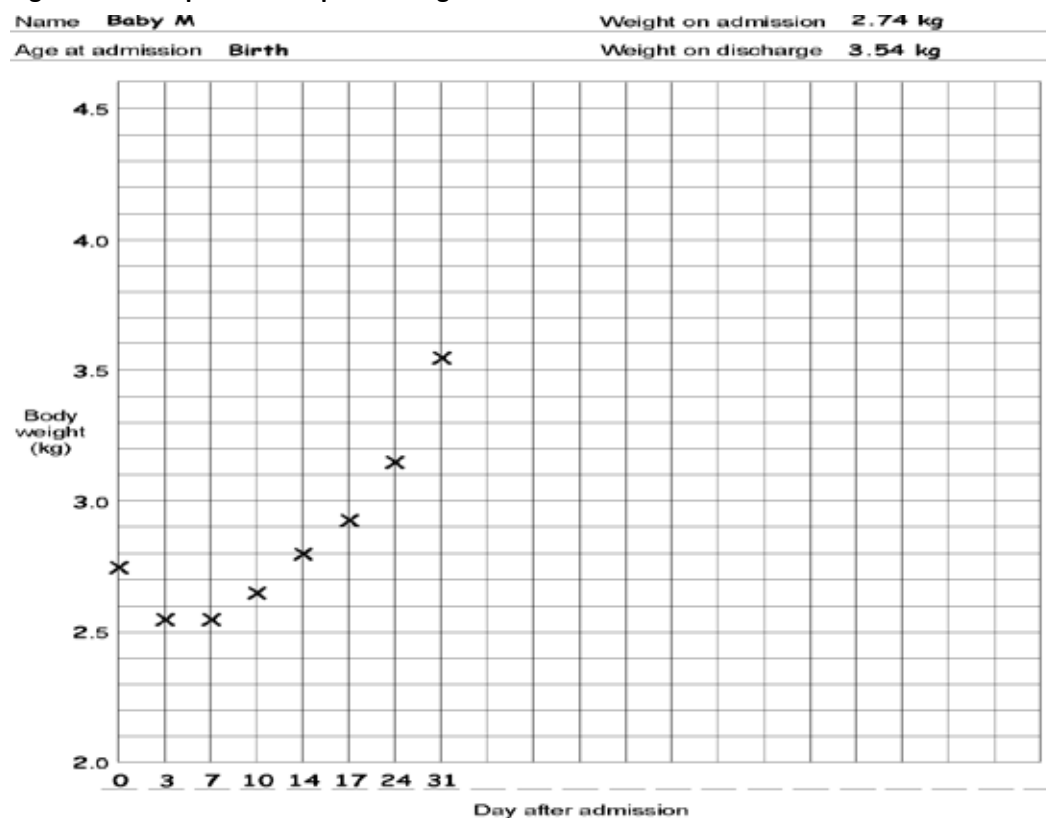


Figure 12: Example of a completed weight chart



5.1.4.4 CONFIRMING PROPER PLACEMENT OF GASTRIC TUBE

- Confirm proper placement of the tube:
 - Fill a syringe with 1 to 2 ml of air and connect it to the end of the tube. Use a stethoscope to listen over the stomach as air is quickly injected into the tube:
 - > If a whistling sound is heard through the stethoscope as the air is injected, the end of the tube is correctly positioned in the stomach;
 - > If a whistling sound is not heard, the tube is not properly positioned. Remove the tube and repeat the procedure.
 - Alternatively, test the acidity of the aspirate:
 - > Note that this method is only suitable for babies more than 24 hours old or small babies (less than 2.5 kg at birth or born before 37 weeks gestation) who are more than 48 hours old;
 - > Use a syringe to aspirate some fluid, and place a drop of fluid onto a strip of blue litmus paper: If the **litmus paper turns pink**, the fluid is acidic and the tip of the tube is correctly positioned in the stomach;
 - If the litmus paper remains blue, the tip of the tube is not in the correct position. Remove the tube and repeat the procedure.
- Replace the tube with another clean gastric tube after three days, or earlier if it is pulled out or becomes blocked, and clean and high-level disinfect or sterilize it.

5.1.4.5 MANAGEMENT OF SPECIFIC CONDITIONS

NECROTIZING ENTEROCOLITIS

- Establish an IV line if one is not already in place, and give only IV fluid at maintenance volume according to the baby's age for the first five days.
- Treat for sepsis, and ensure that the baby is not fed for the first five days.
- Insert a gastric tube and ensure free drainage.
- If an **abdominal mass becomes palpable**, it is likely that the baby has a bowel perforation or intestinal obstruction from an abscess. Organize transfer, and urgently refer to a tertiary hospital or specialized centre for surgery, if possible.
- Measure haemoglobin daily until bleeding stops, and then measure once more after 24 hours. If the **haemoglobin is less than 8 g/dl** (haematocrit less than 24%), give a blood transfusion.
- Check the baby's heart and respiratory rates every three hours for three days after the last blood transfusion.
- Observe the baby for five days. If, after the five-day period, **abdominal distension has decreased, there is minimal gastric aspirate, and the baby is passing non-bloody stool**:
 - Give the baby expressed breast milk by gastric tube;
 - Begin feeding the volume of milk required on day 1, regardless of the baby's age (**Table 9**);

- Once adequate volumes of milk are tolerated for 48 hours without vomiting, allow the baby to begin breastfeeding. If the baby cannot be breastfed, give expressed breast milk using an alternative feeding method.
- Observe the baby for 24 hours after discontinuing antibiotics:
 - > If the baby's heart and respiratory rates are stable, the baby has not required a transfusion for at least 48 hours and is feeding well, and there are no other problems requiring hospitalization, discharge the baby;
 - > Measure haemoglobin weekly for one month. If the haemoglobin is less than 8 g/dl (haematocrit less than 24%), give a blood transfusion;
 - > To prevent iron deficiency anaemia, give small babies an oral iron preparation to give elemental iron 2 mg/kg body weight once daily from two months of age up to 23 months of age.

SMALL BABY OR TWIN

- If the baby is small, see general principles of feeding small baby.
- If the baby is a twin, see Chapter 3 for information on feeding twins.
- Once the baby is feeding well and there are no other problems requiring hospitalization, discharge the baby.
- Follow up in two days to reassess feeding and weight gain.

INCORRECT POSITIONING AND ATTACHMENT

- Note previously recorded weights, if available, and weigh the baby daily.
- Help the mother improve her breastfeeding technique:
 - If the mother's breastfeeding technique is correct, reassure the mother, and continue to observe her technique during a three-day period;
 - If the mother's breastfeeding technique is incorrect, help the mother to achieve the correct technique;
 - If the baby has gained at least 15 g/kg body weight per day over three days, reassure the mother that her milk supply is adequate and explain appropriate feeding practices to her. If there are no other problems requiring hospitalization, discharge the baby;
 - If the baby has not gained at least 15 g/kg body weight per day over three days, treat for inadequate weight gain (below).

INADEQUATE WEIGHT GAIN

Note that the management described below for inadequate weight gain applies only to babies on full oral feeds via any method (breastfeeding or receiving expressed breast milk using an alternative feeding method). If the baby is receiving IV fluid and getting less than full (or no) oral feeds and daily weight loss is more than 5%, increase the total volume of fluid by 10 ml/kg body weight for one day to compensate for inadequate fluid administration.

- Note previously recorded weights and weigh the baby daily.

- Confirm poor weight gain if the baby has gained less than 15 g/kg body weight per day over the last three days.
- Check for and correct or treat obvious causes of inadequate weight gain:
 - Determine if the baby is being fed frequently enough (i.e. eight times in 24 hours), particularly at night. If the baby is being fed using an alternative feeding method, ensure that the baby is receiving the correct volume of feeds (Table 9);
 - Determine if the ambient temperature is optimal; if the ambient temperature is too cold or too hot, the baby will utilize more energy for temperature regulation and less for growth;
 - Look for signs of sepsis (e.g. poor feeding, vomiting, breathing difficulty);
 - Look for thrush in the baby's mouth;
- If poor weight gain is confirmed and there are no obvious causes or if an obvious cause was found and treated (e.g. the temperature has been corrected for three days or thrush or sepsis has been treated for seven days) and weight gain is still inadequate, work with the mother for three days to increase the quantity of breast milk that the baby receives.
- If the average measured weight gain after three days is at least 15 g/kg body weight per day:
 - Explain appropriate feeding practices to the mother and what to expect regarding her baby's growth;
- If there are no other problems requiring hospitalization, discharge the baby;
- Obtain follow-up weights weekly for one month to verify progress.
 - If the average measured weight gain after three days is less than 15 g/kg body weight per day despite the measures above:
 - Have the mother supplement breastfeeding by expressing breast milk between feedings and giving this to the baby as a supplement, using a cup, after the baby has breastfed;
 - If the mother cannot express breast milk, give the baby 10 ml of breast-milk substitute by cup after each time at the breast. Breast-milk substitute should not be used unless it can be ensured that the substitute is:
 - > available for the entire period needed (this might include some time after discharge);
 - > affordable for the health care facility as well as the family; used safely;
 - > prepared in a sterile manner according to instructions.
 - > Continue supplementation with expressed breast milk or breast-milk substitute until the baby's weight gain is at least 15 g/kg body weight per day for three consecutive days, and then decrease the supplementary feedings to 5 ml per feed for two days:
 - > If weight gain continues to be adequate (15 g/kg body weight per day or more) for two more days, discontinue supplements completely; If weight gain becomes inadequate again (less than 15 g/kg body weight per day), begin supplementing again with 10 ml of expressed breast milk or breast-milk substitute per feed, and repeat the process.

- > Monitor the baby's weight gain for three more days. If weight gain continues at the same or better rate, the baby is feeding well, and there are no other problems requiring hospitalization, discharge the baby.
- VLBW infants who are fed mother's own milk or donor human milk need not be given bovine milk-based human-milk fortifier. **VLBW infants who fail to gain weight despite adequate breast-milk feeding should be given human-milk fortifiers, preferably those that are human milk based. Fortification should continue till the infant reaches 40 weeks post menstrual age or attains 2kg (whichever is later).**

Special considerations for VLBW

1. A VLBW infant who is breast-milk fed should be given the following supplements:

- Vitamin D supplements at a dose ranging from 400 I.U to 1000 I.U. per day until 6 months of age.
- Daily calcium (120-140 mg/kg per day) and phosphorus (60-90 mg/kg per day) supplementation during the first months of life. This reduces metabolic bone disease in preterm VLBW infants.
- Iron 2-4 mg/kg per day (maximum 15mg/day) iron supplementation starting at 2 weeks to six months to reduce risk of severe anaemia.

Not recommended

- Daily oral vitamin A supplementation for LBW infants who are fed mother's own milk or donor human milk is not recommended at the present time because there is not enough evidence of benefits to support such a recommendation
 - Routine zinc supplementation for LBW infants who are fed mother's own milk or donor human milk is not recommended, because there is not enough evidence of benefits to support such a recommendation.
2. A VLBW infant who fails to gain weight despite adequate breast milk feeding should be given human-milk fortifiers, preferably human-based milk
 3. If a VLBW infant fed standard formula fails to gain weight, preterm formula should be given.
 4. VLBW infants should be fed 10ml/kg/d of enteral feeds, of preferably expressed breast milk, from the first day of life, with remaining fluid needs met by intravenous fluids.
 5. If a VLBW infants needs to be given intragastric tube feeding, this should be given as intermittent bolus feeds, by either oral or nasal feeding
 6. If a VLBW infant is fed by intragastric tube, feed volumes can be increased by up to 30ml/kg/d with careful monitoring for feed intolerance

SUSPECTED GASTROINTESTINAL MALFORMATION OR OBSTRUCTION

- Establish an IV line, and give only IV fluid at maintenance volume according to the baby's age (**Table 9**).
- If a **gastric tube was inserted**, keep it in place and ensure free drainage.
- Organize transfer, and urgently refer the baby to a tertiary hospital or specialized centre for surgery, if possible.

GASTRIC IRRITATION

- Allow the baby to begin breastfeeding. If the **baby cannot be breastfed**, give expressed breast milk using an alternative feeding method.
- If the baby has had two successful breastfeeds, or is feeding well using an alternative feeding method, and there are no other problems requiring hospitalization, discharge the baby.
- If the **baby continues to regurgitate all feeds after 24 hours**, the problem is probably due to an abnormality of the gastrointestinal tract:
 - Establish an IV line, and give IV fluid at maintenance volume according to the baby's age (**Table 9**);
 - Organize transfer, and urgently refer the baby to a tertiary hospital or specialized centre for further evaluation, if possible.

DIARRHOEA

There are non-infectious causes of diarrhoea, but sepsis is the most common cause during the newborn period.

Observe strict infection prevention practices at all times when caring for any baby with diarrhea to prevent spreading one baby's infection to other babies in the newborn special care unit. Wear gloves when handling soiled napkins and other items used to care for the baby, and carefully wash hands after handling a baby with diarrhoea.

Problems

- The baby is passing stool with increased frequency.
- The baby's stool is watery or green, or contains mucus or blood.

Findings

- Review the findings from the general history and examination and obtain the following additional information to determine the probable diagnosis
- Ask the mother (or whoever brought the baby in):
 - Is the baby being fed any foods or fluid other than breast milk?
 - What does the baby's stool look like? Is it watery or green, or does it contain mucus or blood?
 - How frequently has the baby been passing stool?

- Look for:
 - > signs of dehydration (e.g. sunken eyes or fontanelle, loss of skin
 - > elasticity, or dry tongue and mucous membranes); signs of sepsis (e.g. poor feeding, vomiting, breathing difficulty;

General management

- Allow the baby to begin breastfeeding. If the **baby cannot be breastfed**, give expressed breast milk using an alternative feeding method.
- If the **mother is giving the baby any food or fluid other than breast milk**, advise her to stop giving them.
- Give oral rehydration solution (ORS) for every diarrhoeal stool passed:
 - If the baby is able to feed, have the mother breastfeed more often, or give ORS 20 ml/kg body weight between breastfeeds using a cup.
 - If the baby is not feeding well, insert a gastric tube, and give ORS 20 ml/kg body weight by tube;
 - If prepackaged ORS is not available, make ORS as follows:
 - > Use recently boiled and cooled water;
 - > To 1 litre of water, add:
 - > sodium chloride 3.5 g;
 - > trisodium citrate 2.9 g (or sodium bicarbonate 2.5 g);
 - > potassium chloride 1.5 g;
 - > glucose (anhydrous) 20 g (or sucrose [common sugar] 40 g).
 - If the **baby has signs of dehydration or sepsis**, establish an IV line, and give IV fluid while allowing the baby to continue to breastfeed:
 - > If there are signs of dehydration, increase the volume of fluid by 10% of the baby's body weight on the first day that the dehydration is noted;
 - > If the **baby receives a sufficient volume of fluid** to meet rehydration and maintenance requirements and to replace ongoing losses, the use of ORS is not necessary;
 - Assess the baby again in 12 hours:
 - > If the **baby is still having diarrhoeal stools**, continue the increased volume of IV fluid for an additional 24 hours;
 - > If the **baby has not had a diarrhoeal stool in the last 12 hours**, adjust fluid to maintenance volume according to the baby's age (Table 9).
 - Determine the probable diagnosis.

Management of nosocomial diarrhoea

- If the **diarrhea developed while the baby was hospitalized and more than one baby with diarrhea from the same ward is seen within a two-day period**, suspect a nosocomial infection.

- Isolate the baby from other babies, if possible.
- Treat for sepsis.
- Continue to provide general management for diarrhea.

LOW BLOOD GLUCOSE

Problem

Low blood sugar is defined as when the baby's blood glucose is less than 45 mg/dl (2.6mmol/l).

Management

BLOOD GLUCOSE LESS THAN 25 MG/DL (1.1MMOL/L)

- Establish an IV line if one is not already in place. Give a bolus of 2 ml/kg body weight of 10% glucose IV slowly over five minutes.
- If an **IV line cannot be established quickly**, give 2 ml/kg body weight of 10% glucose by gastric tube.
- Infuse 10% glucose at the daily maintenance volume according to the baby's age (**Table 9**).
- Measure blood glucose 30 minutes after the bolus of glucose and then every three hours:
 - If the **blood glucose is less than 25 mg/dl**, repeat the bolus of glucose (above) and continue the infusion;
 - If the **blood glucose is less than 45 mg/dl but is at least 25 mg/dl at any measurement**, continue the infusion and repeat the blood glucose measurement every three hours until the blood glucose is 45 mg/dl or more on two consecutive measurements;
 - Once the blood glucose is 45 mg/dl or more for two consecutive measurements, follow instructions for frequency of blood glucose measurements after blood glucose returns to normal.
- Allow the baby to begin breastfeeding. If the **baby cannot be breastfed**, give expressed breast milk using an alternative feeding method.
- As the baby's ability to feed improves, slowly decrease (over a three-day period) the volume of IV glucose while increasing the volume of oral feeds. Do not discontinue the glucose infusion abruptly.

BLOOD GLUCOSE LESS THAN 45 MG/DL BUT AT LEAST 25 MG/DL

- Allow the baby to begin breastfeeding. If the **baby cannot be breastfed**, give expressed breast milk using an alternative feeding method.
- Measure blood glucose in three hours or before the next feed:
 - If the **blood glucose is less than 25 mg/dl**, treat as described above;
 - If the **blood glucose is still less than 45 mg/dl** but at least 25 mg/dl, increase the frequency of breastfeeding or increase the volume of expressed breast milk given;
 - Once the blood glucose is 45 mg/dl or more on two consecutive measurements, follow instructions for frequency of blood glucose measurements after blood glucose returns to normal (below).

FREQUENCY OF BLOOD GLUCOSE MEASUREMENTS AFTER BLOOD GLUCOSE RETURNS TO NORMAL

- If the **baby is receiving IV fluid for any reason**, continue blood glucose measurements every 12 hours for as long as the baby requires IV fluid. If the **blood glucose is less than 45 mg/dl**, treat as described above.
- If the **baby no longer requires or is not receiving IV fluid**, measure blood glucose every 12 hours for 24 hours (two more measurements):
 - If the blood glucose is less than 45 mg/dl, treat as described above;
 - If the blood glucose remains normal, discontinue measurements.

FEEDING DIFFICULTY

Feeding difficulty is common in babies during the first days of life. The difficulty is associated with incorrect breastfeeding technique, small size, or illness.

Small babies often have difficulty feeding; as they grow, feeding improves.

Problems

- The baby fed well at birth but now is feeding poorly or has stopped feeding.
- The baby has not fed well since birth.
- The baby is not gaining weight (proven or suspected).
- The mother has not been able to breastfeed successfully.
- The baby is having difficulty feeding and is small or a twin.

Findings

- Review the findings from the general history and examination and obtain the following additional information to determine the probable diagnosis.
- Ask the mother:
 - How do you feed the baby?
 - How much did the baby weigh at birth and any time afterwards?
- Ask the mother to put the baby to her breast. Observe her breastfeeding for about five minutes, assessing for correct positioning and attachment. If the **baby is not ready to feed**, continue with general management (below), and observe the mother's technique the next time the baby is ready to feed.

General management

- If the **baby has been coughing, choking, or regurgitating since the first attempt to feed**, try to insert a gastric tube:
 - If the **gastric tube does not pass or the tip of the tube returns and the baby is choking and vomiting immediately after swallowing**, the baby likely has esophageal atresia or tracheo-esophageal fistula, and urgent surgery is necessary. Organize transfer, and urgently refer the baby to a tertiary hospital or specialized centre for surgery, if possible;

- If the **gastric tube passes**, confirm proper placement of the tube in the stomach, aspirate the stomach contents, and determine the cause of the feeding problem.

VOMITING AND/OR ABDOMINAL DISTENSION

Spitting or regurgitation of small quantities of milk after a feed is common in a newborn baby, is usually transitory, and has no effect on growth.

Problems

- A baby is vomiting:
 - forcefully;
 - regardless of method of feeding;
 - entire feedings after every feed;
 - bile or blood.
- A baby has abdominal distension.

Findings

- Review the findings from the general history and examination, and obtain the following additional information to determine the probable diagnosis.
- Ask the mother (or whoever brought the baby in):
 - Did the vomiting begin at the first feed or did it start later?
 - How long after a feeding does the baby vomit?
 - What does the vomitus look like? Is it frothy, or does it contain bile or blood?
 - Has the baby passed meconium? Was meconium in the amniotic fluid?
 - Are your nipples cracked or sore?
- Look for:
 - abdominal tenderness (baby cries when abdomen is gently pressed);
 - imperforate anus

General management

- Insert a gastric tube via the nasal route:
 - If the **gastric tube does not pass or the tip of the tube returns and the baby is choking and vomiting immediately after swallowing**, the baby likely has esophageal atresia or tracheo-esophageal fistula, and urgent surgery is necessary.
 - Organize transfer, and urgently refer the baby to a tertiary hospital or specialized centre for surgery, if possible;
 - If the **gastric tube passes**, confirm that the tube is properly positioned in the stomach, and aspirate the stomach contents
- If the **baby appears to be seriously ill** (e.g. floppy and lethargic) **or small** (less than 2.5 kg at birth or born before 37 weeks gestation), establish an IV line, and give IV fluid at maintenance volume according to the baby's age (**Table 9**).

- Determine the probable cause of vomiting and/or abdominal distension. If the **cause of vomiting cannot be determined**, see **management below**.

CAUSE OF VOMITING NOT DETERMINED

- Establish an IV line, and give only IV fluid at maintenance volume according to the baby's age (**Table 9**) for the first 12 hours.
- Observe the baby for 12 hours.
- If the **baby has no other signs besides vomiting after the 12-hour period**:
 - Give expressed breast milk by gastric tube for 24 hours;
 - If these **feeds are retained**, allow the baby to begin breastfeeding, or give expressed breast milk using an alternative feeding method;
 - Remove the gastric tube after two successful feeds.
- If **vomiting continues or any other signs are present** (e.g. blood in vomitus, forceful vomiting, abdominal distension), try again to determine the cause of vomiting

If the **cause of vomiting still cannot be determined**, treat for sepsis

HYPOTHERMIA

Definition

This is a condition where the baby's temperature falls below 36.5°C (based on axillary temperature)

Causes

- Exposure to cold environment (Low ambient temperature, cold surface or draught)
- Wet baby
- Under-dressed baby
- Prematurity
- Delayed feeding
- Infections

Note: Classification of hypothermia:

- Low body temperature 35.5°C to 36.4°C
- Very low temperature less than 35.5°C

Diagnosis

- Baby feels cold on touch especially the extremities
- Poor feeding
- Axillary temperature below 36.5°C
- Extremities are blue and may be oedematous
- Heart rate may be low
- Difficulty in breathing or slow shallow breathing
- Lethargy
- Hardened skin

Prevention

- All newborn babies should be dried immediately after birth and provided with a warm environment
- Provide skin-to-skin contact with the mother and initiate breastfeeding as early as possible within one hour of birth
- Prevent conditions that precipitate hypothermia

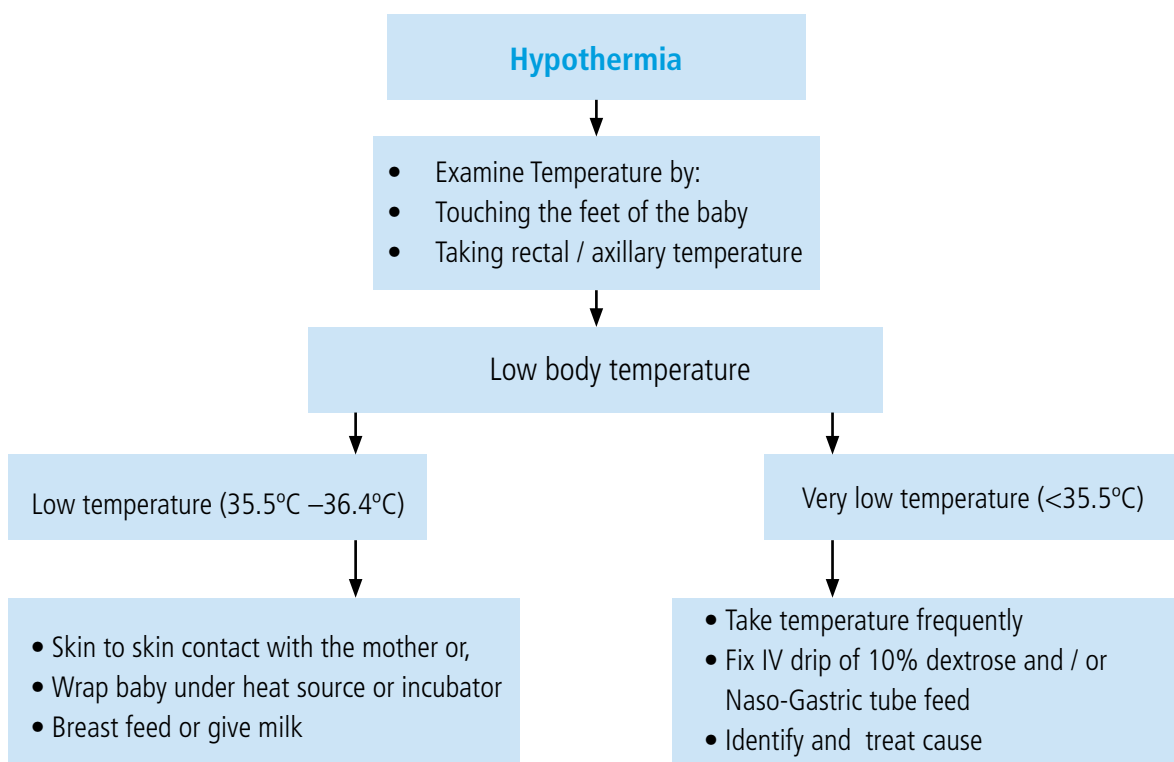
Management

Keep the baby warm by:

- Removing wet/cold clothes
- Skin-to-skin contact with the mother and cover with warm linen
- Adequately clothe the baby (including hat and socks)
- Keep clothed baby under radiant heat source; Nurse in a warm incubator if possible
- If baby is blue or having difficulty in breathing give oxygen
- Pass nasogastric tube and give breast milk or other milk if breast milk is contraindicated
- Re-check the temperature after one hour and repeat hourly until it reaches the normal range (36.50C -37.40C)
- If after the re-warming procedure the temperature does not rise, refer urgently

Investigate and treat the cause of hypothermia.

Figure 13: Management of Hypothermia



LARGE FOR GESTATIONAL AGE (LGA) BABY AND INFANT OF DIABETIC MOTHER

Definition

This is a baby with a birth weight of more than 4.0kg; OR
A baby whose birth weight is above the 90th percentile for the gestation.

Diagnosis:

Suspect or expect LGA if there is:

- History of diabetes in pregnancy
- History of previous large babies

Associated problems:

The following complications are associated with LGA babies

- Hypoglycemia
- Birth Asphyxia
- Birth injuries
- Jaundice
- In addition, babies born of a diabetic mother are prone to Infections and Respiratory distress syndrome

Prevention

- Adequate control of diabetes in pregnancy
- Anticipate and refer early to deliver in a health facility

Management

- Initiate breastfeeding immediately and continue feeding on demand. If the baby sleeps, wake him/her up and feed at least every three hours
- Closely monitor the baby to promptly recognize the associated problems
- Manage any complications detected
- Test the blood sugar levels where possible
- Keep the baby warm
- If the mother is not already diagnosed as diabetic, investigate to rule out diabetes mellitus. If confirmed positive, ***manage the diabetic mother or refer.***

WHO recommendations for low birth weight infants (2010)

LBW infants, including those with VLBW, who cannot be fed mother's own milk or donor human milk, should be fed standard infant formula.

VLBW infants who cannot be fed mother's own milk or donor human milk should be given preterm infant formula if they fail to gain weight despite adequate feeding with standard infant formula.

LBW infants, including those with VLBW, who cannot be fed mother's own milk or donor human milk, should be fed standard infant formula from the time of discharge until 6 months of age.

VLBW infants who are fed mother's own milk or donor human milk need not be given bovine milk-based human-milk fortifier. VLBW infants who fail to gain weight despite adequate breast-milk feeding should be given human-milk fortifiers, preferably those that are human milk based.

VLBW infants should be given vitamin D supplements at a dose ranging from 400 I.U to 1000 I.U. per day until 6 months of age.

VLBW infants who are fed mother's own milk or donor human milk should be given daily calcium (120-140 mg/kg per day) and phosphorus (60-90 mg/kg per day) supplementation during the first months of life.

VLBW infants fed mother's own milk or donor human milk should be given 2-4 mg/kg per day iron supplementation starting at 2 weeks

Daily oral vitamin A supplementation for LBW infants who are fed mother's own milk or donor human milk is not recommended at the present time because there is not enough evidence of benefits to support such a recommendation.

Routine zinc supplementation for LBW infants who are fed mother's own milk or donor human milk is not recommended, because there is not enough evidence of benefits to support such a recommendation.

LBW infants who are able to breastfeed should be put to the breast as soon as possible after birth when they are clinically stable.

VLBW infants should be given 10ml/kg per day of enteral feeds, preferably expressed breast milk, starting from the first day of life, with the remaining fluid requirement met by intravenous fluids.

LBW infants should be exclusively breastfed until 6 months of age.

LBW infants who need to be fed by an alternative oral feeding method should be fed by cup (or palladia which is a cup with a beak) or spoon.

VLBW infants requiring intragastric tube feeding should be given bolus intermittent feeds.

In VLBW infants who need to be given intragastric tube feeding, the intragastric tube may be placed either by the oral or nasal route, depending upon the preferences of health-care providers.

LBW infants who are fully or mostly fed by an alternative oral feeding method should be fed based on infants' hunger cues, except when the infant remains asleep beyond 3 hours since the last feed.

In VLBW infants who need to be fed by an alternative oral feeding method or given intragastric tube feeds, feed volumes can be increased by up to 30 ml/kg per day with careful monitoring for feed intolerance.

5.2 HOSPITALIZED INFANTS AND CHILDREN DURING AND AFTER ILLNESS

5.2.1 General information

These categories of vulnerable groups are at a higher risk of malnutrition due to their increased nutrient demand due to illness/medical conditions, compromised environment and attendant care. Their nutrient intake is affected by reduced appetite.

5.2.2 Specific objectives

- To provide optimal nourishment to the child to help fight infections without depleting nutrient reserves of his body.
- To reduce the risk of weight loss and other micronutrient deficiencies during and after illness

5.2.3 Key issues and justification

Nutrition care and support is critically important during this period to enable the child attain its potential development. Special attention must be paid to mitigation of malnutrition in the mother and the child, as the effects on the child of such malnutrition can result in severe and irreversible long-term physical and mental retardation.

5.2.4 Policy guidelines, recommendations and key messages

Policy guideline 1: Promote, protect and support breastfeeding in the best interests of the vast majority of infants and health care; personnel should not recommend formula feeding as an alternative to breastfeeding, unless there are legitimate medical reasons to do so.

Recommendations and key messages

- Enable mothers to remain with their hospitalized infants and young children and assist/support them to ensure continued breastfeeding and adequate complementary feeding.
- Breastfeed more frequently during illness, including diarrhoea to help the baby fight sickness, reduce weight loss and recover more quickly.
- Breastfeeding also provides comfort to your sick baby. If your baby refuses to breastfeed, encourage your baby until s/he takes the breast again.
- For babies less than 6 months, give baby only breast milk, medicines and fluids recommended by your doctor/health care provider.
- For babies older than 6 months, continue to breastfeed and provide more frequent feeds and fluids.
- If your baby is too weak to suckle, express breast milk to give the baby. This will help you to keep up your milk supply and prevent breast difficulties.
- After each illness, increase the frequency of breastfeeding to help your baby regain health and weight.
- When you are sick, you can continue to breastfeed your baby.
- The mother may need extra food and support during this time.
- Replacement feeding using a specialized formula is only necessary: in rare cases of

metabolic disorders of the infant, such as galactosemia, maple syrup urine disease and phenylketonuria; and in some cases of maternal illness e.g. life-threatening illness, and when a mother makes an informed decision not to breastfeed.

Policy guideline 2: Provide an adequate age-appropriate diet for hospitalized children while continuing to promote breastfeeding for up to two years and beyond and assess, refer and/or appropriately manage any child suspected of special metabolic conditions or difficulty feeding.

Recommendations and key messages

- Provide information and support to mothers, fathers and caregivers on feeding sick infants and young children.
- Promote and support the mother to breastfeed more frequently during and after illness, including diarrhoea, to help your baby fight sickness, prevent weight loss and recover more quickly.
- The baby needs more food and liquids while s/he is sick.
- If the child's appetite is decreased, counsel the mother to encourage him or her to eat small frequent meals.
- Encourage the mother to bring the child for weighing after an illness to make sure he / she gains enough weight for full recovery.
- The mother may need extra food and support during this time.
- When the mother is sick, she will also need plenty of liquids

Strategies to encourage children to eat more

During an illness

- Encourage the child to drink and to eat with lots of patience.
- Feed small amounts frequently.
- Give foods that the child likes most.
- Give a variety of nutrient-rich foods which are well prepared and attractively served.
- Continue to breastfeed (often ill children breastfeed more frequently).

During recovery

- Give extra breastfeeds.
- Feed an extra meal.
- Give an extra amount.
- Use extra-rich foods.
- Feed with extra patience and love.
- Give a variety of nutrient-rich foods which are well prepared and attractively served to stimulate appetite.

5.3 MALNOURISHED CHILDREN

5.3.1 General information

Malnutrition, including micronutrient deficiencies, is a significant public health problem in Kenya. According to Kenya Demographic and Health Survey 2008, prevalence of stunting, underweight and wasting are 35%, 16% and 6% respectively. Available data on Vitamin and Mineral deficiencies show high prevalence's especially for Vitamin A and Iron, in pregnant women, non-pregnant women and children under five years. This affects cognitive development, lowers school performance, adult productivity, reduces immunity and eventually contributes to high burden of infant and child morbidity and mortality.

The major factors contributing to high malnutrition in Kenya include; increasing food insecurity, as a result recurrent droughts and rising food prices, poor dietary diversity and poor access to fortified foods, inadequate quantities of food, and other underlying factors like poor hygiene, child care and feeding practices and low access to nutrition services.

Malnutrition is a direct or indirect cause of 54% of all childhood deaths. Many severely malnourished children are sent for inpatient care only after they become seriously ill. By then, they have severe wasting and/or oedema and very often have complications. Malnutrition affects the functioning of body organs hence special care is needed. Case fatality rate for severe malnutrition is high going up to 50% or more. Prompt and proper management of severe malnutrition will not only reduce mortality but also the impairment of growth and psychosocial development of children.

Over the years, children with severe malnutrition have been managed in the same way as sick well-nourished children without any special attention. This has resulted to high case fatality rates resulting from fluid overload, unattended infections, less than optimum feeds with missed night feeds and complications such as hypoglycemia, hypothermia and electrolyte imbalance among others. This necessitates for intensive capacity building of the clinicians and the nutritionists who are directly involved in the treatment and management of the clinical complications of children with moderate and severe malnutrition.

5.3.2 Specific objectives

To assist health workers in the assessment and appropriate management of services and/or counseling for the treatment of acute malnutrition both Moderate Acute Malnutrition (MAM) and Severe Acute Malnutrition (SAM) affecting the vulnerable population.

5.3.3 Key issues and justification

- 35% of children under five are stunted, while the proportion severely stunted is 14% (low height-for-age)
- 7% of children are wasted and 2% are severely wasted (low weight-for-age)
- 16% of children under-five are underweight (low weight-for-age) and 4% are severely underweight.
- 27% of children 6 months to 14 years are anemic (Malaria Indicator Survey results, 2010)

- The prevalence of severe anemia (Hb <8g/dl) in children 6–59 months is 5 per cent and that of moderate anemia (Hb 8–11g/dl) is 41 per cent (KMIS 2010).

5.3.4 Policy guidelines, recommendations and key messages

Policy guideline: Provide care and support according to existing protocols for Integrated Management of Acute Malnutrition at facility level to ensure the maximum recovery and minimal mortality is achieved.

Recommendations and key messages

- Assess for general signs of malnutrition using various nutrition assessment methods (Chapter 6) and determine the appropriate treatment based of IMAM guidelines.
- Provide treatment and care of malnourished children in health institutions or in communities as recommended in the existing national guidelines on Integrated Management of Acute Malnutrition.
- Counsel and support mothers of malnourished children to continue frequent breastfeeding and, to re-lactate where necessary and appropriate.
- Give nutrition education and support to mothers and caretakers on appropriate breastfeeding and complementary feeding practices using locally available foods, with an emphasis on using the existing community structures to disseminate the messages.
- Assist health and community workers to actively pursue growth monitoring and promotion (GMP) for all children so that malnutrition can be prevented and detected early. Encourage families and communities to take their children for regular growth monitoring and screening for malnutrition by weighing and/or taking their Mid Upper Arm Circumference (MUAC).
- Support appropriate infant feeding and complementary feeding practices and lifestyle practices to prevent over and under-nutrition.
- Strengthen regular growth monitoring and promotion for all children for prevention and early detection of malnutrition.
- Promote use of improved recipes and preparation methods for home based locally available foods including home fortification to address moderate and mild malnutrition.
- Encourage mothers/caretakers and their malnourished children to undergo routine HIV counseling and testing.
- Establish linkages between nutrition feeding programs (Outpatient Feeding Programme (OTP), Supplementary Feeding Programme (SFP), Food by Prescription and inpatient feeding) and HIV clinics for more comprehensive care.
- Provide sensory stimulation & emotional support through tender loving care; a cheerful, stimulating environment; structured play therapy for 15-30 minutes/day; physical activity as soon as the child is well enough; and maternal involvement when possible (e.g. comforting, feeding, bathing, play)

5.4 ORPHANS AND CHILDREN SEPARATED FROM THEIR MOTHERS

5.4.1 General information

These include children in institutional care, children separated from their mothers for a long time, children in foster care and children whose mothers are incapable of caring for them due to ill health or mental disabilities.

5.4.2 Specific objective

To provide optimal nutrition for orphaned and vulnerable children

5.4.3 Key issues and justification

Uncontrolled distribution of breastmilk substitutes mainly in refugee or other camp situations increases the already high risk of diarrheal disease, malnutrition and death.

Feeding the non-breastfed child is difficult, especially in a context of poverty, because the risk of illness and mortality associated with not breastfeeding is exacerbated. With the present epidemic of HIV/AIDS, how to feed the non-breastfed infant and young child is critical.

5.4.4 Policy guidelines, recommendations and key messages

Policy guideline: Support optimal nutrition for children under foster care, orphaned and separated from their mothers.

- Emphasize protecting, promoting, and supporting breastfeeding through use of expressed breastmilk where applicable and ensuring timely, nutritionally adequate, safe, and appropriate complementary foods, consistent with the age and nutritional needs of older infants and young children.
- Health workers should identify infants who need to be fed with breast milk substitutes (BMS), ensuring that a suitable substitute is provided and fed safely for as long as needed by the infants concerned.
- Ensure that whenever BMS are required for social or medical reasons, for example, for orphans, they are provided for the first six months. A child will require 44 tins of infant formula for the first 6 months of life.
- Accept the use of BMS in exceptionally difficult circumstances when the child's mother is not available, but the marketing and distribution of the BMS must be controlled and monitored in accordance with the Kenya Breast-milk Substitutes (Regulations and Control) Act, 2012.
- Use donations of BMS and feeding utensils for children in difficult circumstances only if approved and cleared by the MOH before distribution. Feeding bottles and cups with spouts should not be accepted.
- Health workers should have accurate and up-to-date information about infant feeding policies, guidelines and practices, and also specific knowledge and skills required to support children and their caregivers in all aspects of MIYCN in difficult circumstances.

- Provide a supportive environment for health, community, as well as families, to support appropriate MIYCN as required.
- If an infant is not breastfed after six months, in addition to the frequency and amounts of complementary foods fed to a breastfed child: give 1-2 cups of milk per day, and 1-2 extra meals per day.

5.5 INFANTS AND YOUNG CHILDREN IN EMERGENCY SITUATIONS

5.5.1 General information

Infants and young children in emergency situations are particularly vulnerable to inadequate nutrition, growth and development, morbidity, mortality and related child protection concerns. Uncontrolled distribution of breast milk substitutes mainly in refugee or other camps in emergency situations increases the already high risk of diarrheal disease, malnutrition and death. It is the policy of government to protect the rights of all pregnant women, lactating mothers, Infants and Young Children in emergency situations.

5.5.2 Specific objective

- Toprotect and support adequate, safe and appropriate (optimal) feeding for infants and young children in all types of emergencies, wherever they happen.

5.5.3 Key issues and justification

Optimal IYCN for children in emergencies and other difficult/special circumstances is not adequately promoted.

5.5.4 Policy guidelines, recommendations and key messages

Policy guideline: Ensure appropriate and optimal infant and young child nutrition in emergencies

Recommendations and key messages

- Protect and support of the nutritional, physical and mental health of both pregnant and breastfeeding women. The particular needs of caregivers who are grandparents, single fathers or siblings should be considered in order for them to offer optimal IYCN.
- Ensure that mothers and their infant are not separated or that separation is minimized as the first priority to ensure continuation of optimal infant feeding.
- Protect, promote and support exclusive breastfeeding and optimal complimentary feeding (assess need for supplementary food rations) in all emergency efforts and surveillance including rapid assessments.
- Strengthencoordinationandplanningwithin government and humanitarian coordination emergency fora to ensure technical representation for optimal maternal, infant and young child nutrition at all levels.
- Promote cross-sector engagement essential to protect and meet adequately and in time the broader nutritional needs of infants and young children and their mothers.

- Ensure that donations of BMS and feeding utensils for children in difficult circumstances are used only if approved and cleared by the MOH before distribution and that feeding bottles and cups with spouts are not accepted.
- Strengthen education and communication to ensure that children continue to be fed when they or their mothers fall sick. The feeding should be even more frequent during illness and while the child is recovering.
- Ensure policy, guidelines and standards for infant and young child feeding in emergencies (IYCF-E) including complementary feeding standards are followed and that systems support adherence.
- Minimize the risk of artificial feeding through ensuring that all emergency efforts comply with the Kenya Breast-milk Substitutes (Regulations and Control) Act, 2012.
- Adopt the Baby Friendly Hospital Initiative (BFHI) and Baby Friendly Community Initiative (BFCl), as well as other forms of protection and promotion of breastfeeding, and provide the necessary support to prevent spill-over of artificial feeding for those mothers where breastfeeding is actually the best option.

5.6 INFANTS OF ADOLESCENT MOTHERS

5.6.1 General information

The body of a teen or an adolescent girl is still growing and so she needs additional nutritional support to meet both her nutrient needs and that of her baby. Lack of proper nutrition leads to anemia, low weight gain, and intra-uterine growth retardation and other health problems to both the mother and the baby. Use of drugs and alcohol, including cigarette smoking is not safe for use in pregnancy and can complicate pregnancy by increasing the likelihood of premature birth and other complications. Premature birth and low birth weight can lead to brain damage and physical disabilities. Teen mothers are perfectly capable of having a healthy pregnancy and a healthy baby. All health workers should strengthen awareness and education to the youth to avoid early pregnancies.

5.6.2 Specific objectives

- To ensure the provision of appropriate and adequate nutrition care, counselling, support and follow up services for the teenage mothers.

5.6.3 Key issues and justification

- Pregnant teens need adequate energy, protein and intake of all essential vitamins and minerals for themselves and for nourishment of the foetus.
- Pregnant teens need almost twice as much iron and folate as the average teenager, 30 mg daily.
- In addition, they require more calcium and zinc than other pregnant women, as their own skeletons and bodies are still developing.
- Teens are more likely to have poor health habits. They eat poorly and frequently smoke,

use drugs and alcohol and engage in unsafe sex. This puts infants at risk for infections, chemical dependence and poor intrauterine growth.

5.6.4 Policy guidelines, recommendations and key messages

Policy guideline: Ensure a supportive environment, friendly health services and regulatory safety nets to enable teenage mothers to provide optimal care to their infants.

Recommendations and key messages

- Encourage mothers to remain together with their babies and be provided with the support they need to breastfeed optimally.
- Support adolescent mothers to exercise the most appropriate infant feeding options and care under all circumstances.
- Support adolescent mothers to continue schooling.
- Provide adolescent friendly health services.
- Enable adolescent mothers to remain with their hospitalized infants and young children to ensure continued breastfeeding and adequate complementary feeding.
- Assist in-patient lactating mothers to continue breastfeeding.
- Provide an adequate age-appropriate diet for hospitalized children while continuing to promote breastfeeding for up to two years and beyond.

5.7 CHILDREN IN DAYCARE AND EARLY CHILDHOOD CENTERS AND OTHER INSTITUTIONS

5.7.1 General information

Child care or day care is care of a child during the day by a person other than the child's legal guardians, performed by someone outside the child's immediate family provided in nurseries, crèches, by a nanny or family child care provider caring for children in their own homes. Early Childhood Centres are formal structures, with education, child development, and discipline. They provide kindergarten and early learning education services. The children in this category also include those children in foster care, mothers suffering from physical or mental disabilities, drug or alcohol dependence; or mothers who are imprisoned or part of any disadvantaged and/or otherwise marginalized populations.

5.7.2 Specific objectives

- To promote access to nutritious meals and related health and nutrition services for the children in day-care centres and school-going children through institutional feeding and the institution's health and nutrition programmes.

5.7.3 Key issues and justification

- Children attending as day-care center usually get a substantial part of their daily food in the center and therefore a high proportion of the basic dietary requirement has to be provided there.

- Malnutrition in early childhood has been shown to affect school enrolment, attendance, and overall performance. A malnourished child cannot adequately benefit from instructional and learning materials and programmes. Good nutrition is therefore, essential to realize the learning potential of children and to maximize returns to educational investments.
- There are limited and fragmented nutrition interventions for day-care centers, school going children and other institutions in the country and therefore the need to advocate for and strengthen systems that ensure coordination of nutrition services, programmes and projects at national, county and community levels in all institutions.
- There is need to build institutional and human capacities for the effective delivery of nutrition services and the design, development and implementation of relevant nutrition programmes, projects and interventions in all institutions.

5.7.4 Policy guidelines, recommendations and key messages

Policy guideline: Support optimal nutrition for children in day care centers, early childhood centers, prisons and other institutions.

Recommendations and key messages

- Day Care facilities and other institutions must provide children with balanced meals and snacks in between meals and ensure that they meet the basic criteria of frequency, amount, texture, variety, active feeding and hygiene (FATVAH) to ensure the nutritional requirement of the children are met
- Provide safe, clean drinking water and ensure that it is always available.
- Encourage flex time at workplaces for mothers to breastfeed their children at the daycare centers.
- Ensure that nutrition and feeding of children complies with guidelines of the Kenya Breast-milk Substitutes (Regulations and Control) Act, 2012.
- Ensure that meal times are a pleasant part of the daily programme in the day-care centers and other institutions and be helpful in developing good eating habits.
- Provide objective, consistent and complete information about appropriate feeding practices, free from commercial influence to mothers and caregivers of children. In particular, provide information on the recommended period of exclusive and continued breastfeeding; the timing of the introduction of complementary foods; what types of food to give, how much and how often; and how to feed these foods safely.
- Work closely with other sectors to ensure all day care centers adhere to set standards that create a pleasant, safe and practical living and learning environment that cultivates learning and supports a child's needs to foster child development.

5.8 CHILDREN WITH DISABILITIES AND SPECIAL NEEDS

5.8.1 General information

Children with disabilities are at increased risk for under-nutrition due to a myriad of emotional, physical, and social stresses that may include financial factors; chronic use of medications, complicated feeding problems, and delays in the development of feeding skills. For many children with special needs, especially those with particular medical problems, one of the primary goals of eating is to get proper nutrition. Because these children may need special diets, it is important to make sure that nutritional needs are being met, regardless of what other strategies are used to help with mealtimes and feeding.

Physical abilities includes the child's ability to sit in a good, safe position for feeding, and their ability to use their jaw and mouth (cheeks, lips, tongue, teeth) to get food into their mouth, move it around (or chew it up), and swallow it safely. Many times children with special needs have difficulty with these parts of eating, and need specialized equipment for positioning and feeding. Sometimes there are special techniques that the adult can use in feeding the child that can be helpful, also.

5.8.2 Specific objectives

- To ensure the provision of optimal nutrition care, counselling and support services for children with disabilities and special needs

5.8.3 Key issues and justification

Approximately 2.4% of children 0-14 years are living with disabilities (Kenya National Survey for Persons with disability 2007- KNSPWDs). Taking care of children with special needs can be traumatizing and expensive to the caregiver and family and hence the need for psychosocial support services.

Feeding a child who has Hyperactive Gag Reflex: A common feeding problem faced by children with disabilities is a hyperactive gag reflex. Everyone has a gag reflex. If you put your finger down your throat, you will find it and maybe find your lunch, too. This is normal, but if a child has a hyperactive gag reflex it can cause problems with obtaining proper nutrition. This can occur in varying degrees. Some children may gag one or two times throughout a meal, and some may gag at the sight of certain foods or other objects. Often, the hyperactive gag reflex is related to foods with certain textures the child finds offensive. The problem of a hyperactive gag reflex can often be addressed through a desensitization process.

Cerebral palsy: Children with cerebral palsy or similar diagnoses often have difficulty participating in mealtime routines, both socially and physically. They often depend on an adult caregiver to participate in the meal with them by preparing and setting up their food, feeding them, or helping them to eat. Despite this, it is important for both the child and the adult to be able to enjoy mealtimes as much as possible, since food and mealtimes in many cultures are important times for social interaction with family and friends, celebration, etc. Listed below are some of the aspects of feeding that may be difficult.

Medical considerations: If there are ongoing medical concerns, consult with a physician before beginning any intervention for feeding problems. This would include things like problems with weight gain or weight loss, digestive problems, dental problems, swallowing problems, seizures, diabetes, allergies, etc. Also, be sure that all adults involved in helping a child at meals are aware of medical issues and medications currently prescribed for the child. Transition from being tube fed to eating by mouth also requires careful planning and attention

5.8.4 Policy guidelines, recommendations and key messages

Policy guideline: Provide guidance and support to caregivers of children with disabilities and special needs to ensure optimal nutrition needs of their children.

Recommendations and key messages

- Consult with the physician for ongoing medical concerns, before beginning any intervention for feeding problems. This would include things like problems with weight gain or weight loss, digestive problems, dental problems, swallowing problems, seizures, diabetes, allergies.
- Ensure all adults involved in helping a child at meals are aware of the medical issues and medications currently prescribed for the child. Transition from being tube fed to eating by mouth also requires careful planning and attention.
- **Ensure Safety** when feeding the child: This includes attention to medical concerns, making sure the child is not eating/being fed too quickly, that they are not being given foods that they cannot chew and swallow easily, and that they are strapped safely in their chair during meals in case the adult must leave them for a short time during the meal.
- Provide **optimal nutrition** for the infant or young child: For many children with special needs, especially those with particular medical problems, one of the primary goals of eating is to get proper nutrition. Because these children may need special diets, it is important to make sure that nutritional needs are being met, regardless of what other strategies are used to help with mealtimes and feeding.
- **Mealtime routines** are important for the child because they can affect the child's mood and readiness to eat, and they are important for the adult caregiver because they can affect the adult's stress level and ability to pay attention to the child. Mealtime routines may also include thinking about the ways that food and mealtime activity can be meaningful and enjoyable for the child.
- **Physical Abilities:** This includes the child's ability to sit in a good, safe position for feeding, and their ability to use their jaw and mouth (cheeks, lips, tongue, teeth) to get food into their mouth, move it around (or chew it up), and swallow it safely. Many times children with special needs have difficulty with these parts of eating, and need specialized equipment for positioning and feeding. Sometimes there are special techniques that the adult can use in feeding the child that can be helpful, also.
- **Sensory:** This includes all the things the child hears, sees, smells, tastes and feels during a meal. Some children are sensitive to some sensations, such as lots of noise around them

while they eat, or they don't like the feel of lumpy foods in their mouth. Sometimes changing the environment slightly or working up to more difficult food textures can help the child feel less stressed and better able to eat calmly.

- **Communication and Social Interactions:** This includes the ways that the child lets the adult know what they want, how much they want, when they are finished, and soon, and how the adult gets or understands those messages and communicates with the child. It also includes how the child is able to interact socially with other family members or classmates who are also at the meal.
- **Self-feeding:** This includes all the ways that the child becomes more independent in feeding him or herself, and may be as simple as holding a bottle or cup, all the way up to using utensils without help. It often takes children with special needs more time and practice to learn some of these skills, and it often depends on what their physical skills are and whether they are motivated to feed themselves or not. There are many types of adapted cups, bowls, plates and utensils that can be useful in learning and doing self-feeding.

CHAPTER 6: NUTRITION ASSESSMENT, COUNSELING AND SUPPORT

6.1 General Information

Definition:

Nutrition assessment is the process by which the nutritional status of an individual is determined. It usually includes dietary history and intake data, biochemical data, clinical examination and health history, anthropometric data, psychosocial data.

Purpose

To obtain adequate information in order to:

- Identify nutrition-related problems, make nutrition diagnoses and take appropriate action.
- Evaluate patient/client/group's knowledge, readiness to learn, and potential for changing.
- Identify deviation from normal within a given population, e.g. a proportion of children with severe malnutrition greater than 4% is an indication of an emergency (*sphere standards*) (refer to chapter 8 on M&E).

6.2 Specific Objective

- To prevent malnutrition by early identification, public health interventions and nutrition education

6.3 Nutrition assessment

Table 16: Components of nutrition assessment

There are six components of nutritional assessment:

COMPONENETS OF NUTRITION ASSESSMENT		
A	Anthropometric measurements	Taking body measurements like weight, height, MUAC, hip, head and waist circumference, skin fold thickness etc. so as to identify nutrition status
B	Biochemical assessment	Using laboratory tests and analysis to identify nutritional deficiencies or excesses that result to poor health.
C	Clinical assessment	Evaluate health and disease condition for nutrition-related consequences
D	Dietary assessment	Review dietary intake for factors that affect health conditions and nutrition risk
E	Economic and social evaluation	Evaluate psychosocial, and behavioral factors related to food access, selection, preparation and understanding of health
F	Functionality	Evaluate physical activity and energy level of individuals that may affect health and nutrition status.

6.3.1 Maternal nutrition assessment

A woman's nutritional status should be assessed pre-conceptionally with the goal of optimizing maternal, fetal, and infant health. Pregnancy-related dietary changes should begin prior to conception, with appropriate modifications across pregnancy and during lactation.

Specific objectives

To strengthen maternal nutrition assessment (including weight gain monitoring for pregnant women) and counseling within the health system.

Key issues and justification

- One quarter of women 15-49 are overweight or obese and 12 percent of women are considered thin (BMI<18.5) (KNBS and ICF Macro, 2010).
- 42% of women of reproductive age are anemic with a prevalence of 55% among pregnant women (MOH and UNICEF, 1999).

Policy guideline: Strengthen regular nutrition assessment for pregnant and lactating women to optimize maternal, fetal, and infant health.

Recommendations and key messages

ANC providers should:

- Assess the nutritional status of all pregnant women.
- Treat, educate and provide nutrition counseling.
- Carry out follow up sessions.

Physical Assessment:

6.3.1.1 Pregnant Women

Anthropometric measurements for pregnant women include weight gain during pregnancy and Mid-upper-arm circumference:

Weight gain during pregnancy

- Counsel mothers on adequate weight gain during pregnancy
- Monitor weight gain of all mothers attending ANC throughout pregnancy. Pregnant women need to gain an average of 1 kg per month, a minimum of 0.5kgs per month for the first trimester and there after a minimum of 1-1.5kgs per month for the last six months.
- Provide the counseling and support to pregnant women with inadequate or excess weight gain.

Recommended weight gain in Pregnancy

BMI Index (BMI pre-conception)	Appropriate weight to gain
Underweight(BMI<18.5)	12.5-18 kg
Normal weight (BMI 18.5-24.9)	12-15 kg
Overweight (BMI 25-29.9)	7-11.5 kg
Obese (BMI >30)	6 kg
Twin pregnancy	16.0-20.5
Adolescent pregnancy	Upper end of recommended values

Source: PMTCT Training guide 2005, Institute of Medicine, 2009

MUAC (Mid-upper-arm circumference)

Pregnant and lactating mothers with indicates nutrition risk and should be provided nutrition counseling and support

1.1.1.2 Non-pregnant women

Maternal overweight and obesity increase the risk of perinatal mortality, premature delivery, major birth defects, and maternal obstetric complications, including hypertension and gestational diabetes. Women at all stages of the life cycle therefore need to adjust diet and physical activity levels to achieve and maintain a desirable weight for their own health as well as for better birth outcomes.

Two main methods of assessment used for adult women are BMI and waist circumference

Body Mass Index (BMI)

The Body Mass Index (BMI) for adult women is a proxy measure for human body fat based on an individual's weight and height, and is calculated by dividing one's weight in kilograms by height squared in meters. BMI provides a reliable indicator of body fatness for most people and is an easy to perform and inexpensive method used to screen for weight categories that may lead to health problems.

The formula is:

$$\text{The formula is: BMI} = \frac{\text{Weight (kg)}}{\text{Height (m)}^2}$$

Example: An adult weighing 80kg, and with a height of 165cm (1.65m)

BMI calculation: $80 \div (1.65)^2 = 29.38\text{Kg/m}^2$

Table 17: Classification of overweight and obesity in adult non-pregnant women according to BMI

Classification of overweight and obesity in adults BMI	Classification	Risk of Co morbidities
<18.5	Underweight	Low (but risk of other clinical problems)
18.6 – 24.9	Normal range	Average
25-29.9	Overweight	Increased
30 – 34.9	Obesity class I	High
35 – 39.9	Obesity class II	Severe
>= 40	obesity class III	Very Severe

Source: WHO 2003

From the example above, a person weighing 80 kg and with a height of 165cm (1.65m) will have a BMI of 29.38. This individual falls within the pre-obese range for BMI and has a moderate risk for comorbidities.

Waist Circumference (W.C)

Waist Circumference (W.C) is used in addition to BMI for a greater prediction of variance in health risk. The larger the waist circumference (high fat deposition), the higher the risk of onset of non-communicable diseases e.g. diabetes and cardiovascular diseases. Waist circumference (W.C) should be measured midway between the lower rib margin and the iliac crest.

Table 18: WHO cut-off points for waist circumference and risk of metabolic complications

	Men	Women	Risk of Metabolic Complications
Waist Circumference	> 94 cm	>80cm	Increased Risk
Waist Circumference	>102 cm	>88cm	Substantially Increased risk

Source: WHO 2003

Waist Hip Ratio (waist circumference divided by the hip circumference)

Is an indicator used to complement the measurement of BMI, to identify individuals at increased risk of obesity-related morbidity due to accumulation of abdominal fat (WHO, 2000a). The larger the waist hip ratio, the higher the risk of onset of non-communicable diseases. The hip circumference measurement should be taken around the widest portion of the buttocks

Table 19: WHO cut-off points for waist hip ratio and risk of metabolic complications

	Men	Women	Risk of Metabolic Complications
Waist hip ratio	≥0.90cm	≥0.85cm	Substantially Increased Risk

(Source WHO, 2008)

Individuals should therefore concentrate on developing habits that promote healthy lifestyles by eating healthy, engaging in daily physical activity and drinking plenty of clean, safe water.

Dietary Assessment for pregnant and lactating women

Assess on the following for effective counseling of the mother on her nutrition:

- Eating patterns: foods regularly consumed, frequency of meals
- Foods that are available and affordable
- Food intolerance and aversions
- Dietary problems
- Hygiene and food preparation and handling practices.
- Psychosocial factors contributing to inadequacy of intake, such as social isolation, depression, stigma.
- Fatigue and physical activity.
- Use of vitamin and mineral supplements and alternative practices.
- Living environment and functional status (income, housing, amenities to cook, access to food, attitude regarding nutrition and food preparation)
- Medical History
 - GI problems (e.g., diarrhea, abdominal pain, nausea, vomiting)
 - Pattern of bowel movements (constipation)
 - Presence of opportunistic infections
 - Concurrent medical problems (e.g. diabetes, hypertension, malaria)
 - Physical condition (examination)
- Medication Profile
 - Medication taken
 - Side effects of medications: Negative effects of food intake or malabsorption of nutrients
- Biochemical profile (where available): the following tests will help you assess the nutritional status of a pregnant woman
 - Serum albumin
 - Evaluation of anemia (iron, B12, and folate status)
 - Urinalysis (for the proteinuria)
- Indicators of nutritional status in HIV-infected pregnant women are the same as in non-infected pregnant women.
- Indicators of good nutritional status during pregnancy include:

- Weight gain: within 11.5 –16 kg
- Hemoglobin level \geq 11g/dl
- Absence of clinical signs of micronutrient deficiencies
- Indicators of malnutrition in pregnant women include:
 - Weight gain \leq 11.5 kg
 - Weight gain \leq 1kg/month in the last trimester of the pregnancy
 - Mid-upper arm circumference (MUAC) $<$ 23 cm
 - Hemoglobin level $<$ 11g/dl
 - Presence of goiter
 - Presence of clinical signs of micronutrient deficiencies

6.3.2 CHILDREN

The methods of assessment vary according to age as below.

Children 5 – 17 years

BMI for Age

This is a measure of weight and height based on age, and although it is calculated the same way as for adults, the criteria used to interpret the meaning and classify the BMI for children and teens is age and sex specific. This is because for children and teens, the amount of body fat changes with age and differs between girls and boys. As such, different reference charts are used for boys and girls (WHO, 1995) A BMI for age measure of between 1 and -2 Standard Deviation (SD) on the reference chart is considered normal.

See Annex 10 for BMI (weight and height) for age reference charts for boys and girls 5 – 17 years.

Children 0 – 59 months

Growth Monitoring and Promotion

Basic growth assessment, for children 0 to 59 months, involves regular measuring a child's weight and length or height, recording on the mother-child booklet and interpretation through comparing these measurements to growth standards. The purpose is to determine whether a child is growing “normally” or has a growth problem or trend towards a growth problem that should be addressed through counseling and follow-up with the purpose of promoting child health, development and quality of life.

Policy guideline: Strengthen regular growth monitoring and promotion for all children for prevention and early detection of malnutrition.

Assessing growth

- Monitor the growth of every child visiting the health facility

- Children should be weighed every month until they are five years and therefore parents should be given follow-up dates until their children are five years old.
- Mother-child booklets should be distributed free of charge and every mother/child pair should have one
- Review records or ask the mother to determine the child's name, sex, and date of birth.
- Use the age calculator/ or manually determine the child's age today.
- Make a visual assessment of the child (e.g. does the child appear thin, fat, active, lethargic)?
- Observe the child for signs of marasmus or kwashiorkor, overweight and micronutrient deficiencies.
- If there is any apparent oedema, check for oedema of both feet.
- Weigh the child.
- Measure the child's length or height.
- Plot the weight and length/height on the growth curve
- Record results on the Visit notes in the Mother Child Booklet
- Record results on the Child Health and Nutrition Information System (CHANIS) tally sheet.

Weighing a child

It is recommended to weigh children using a scale with the following features:

- Solidly built and durable
- Measures up to 15 kg for baby scale and 150 kg weighing both the mother and the baby
- Measures to a precision of 0.1 kg (100g)

Examples of such scales are electronic baby scale, paediatric beam balance, tare weighing scale. Other weighing scales available include the Salter scale and the bathroom scale.

Prepare for weighing

1. Explain to the mother the reasons for weighing the child, e.g,
 - see how the child is growing
 - how the child is recovering from a previous illness
 - how the child is responding to changes on feeding or care

Note:

- If the child is < 1 year, use the infant scale (baby beam) or 'tare' weighing scale
- If the child is less than 2 years old and is unable to stand still, take 'tared' weight.
- For children 2 years or older, weigh the child alone if the child can stand still.

2. Have the mother undress the child. Babies should be weighed naked; keep them warm until weighing. Older children should remain with minimal clothing, such as their underclothes.

N.B. A wet diaper, or shoes and jeans, can weigh more than 0.5 kg.

If it is too cold to undress a child, or if the child resists being undressed and becomes agitated, you may weigh the clothed child, but note in the records that the child was clothed. It is important to avoid upsetting the child so that the length/height measurements can also be taken.

When weighing a child using tared scale

“Tared weighing” means that the scale can be re-set to zero (“tared”) with the person just weighed still on it. Thus, a mother can stand on the scale, be weighed, and the scale tared. While remaining on the scale, if she is given her child to hold, the child’s weight alone appears on the scale. Tared weighing has two clear advantages:

- There is no need to subtract weights to determine the child’s weight alone (reducing the risk of error).
- The child is likely to remain calm when held in the mother’s arms for weighing.

Steps to follow

- Be sure that the tare weighing scale is placed on a flat, hard, even surface. It should not be placed on a loose carpet or rug, but a firm carpet that is glued down is acceptable. Since the scale is solar powered, there must be enough light to operate the scale.
- To turn on the scale, cover the solar panel for a second. When the number 0.0 appears, the scale is ready.

Explain the tared weighing procedure to the mother as follows.

- Stress that the mother must stay on the scale until her child has been weighed in her arms.
- Mother to remove her shoes and step on the scale to be weighed alone first.
- Ask the mother to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and remain still. The mother’s clothing must not cover the display or solar panel.
- After the mother’s weight appears on the display, tell her to remain standing on the scale.
- Re-set the reading to zero by covering the solar panel of the scale (thus blocking out the light) or by pressing the mother and baby sign on the battery-powered scale.
- Gently hand the baby to the mother and ask her to remain still.
- The child’s weight will appear on the scale.
- Plot this weight in the child’s growth chart (*mother & child health booklet*). Be careful to read the numbers in the correct order (as though you were viewing while standing on the scale).

Note: If a mother is very heavy (e.g. more than 100 kg) and the baby’s weight is relatively low (e.g. less than 2.5 kg), the baby’s weight may not register on the scale. In such cases, have a lighter person hold the baby on the scale.

Example

Mother's weight alone

Taring the scale

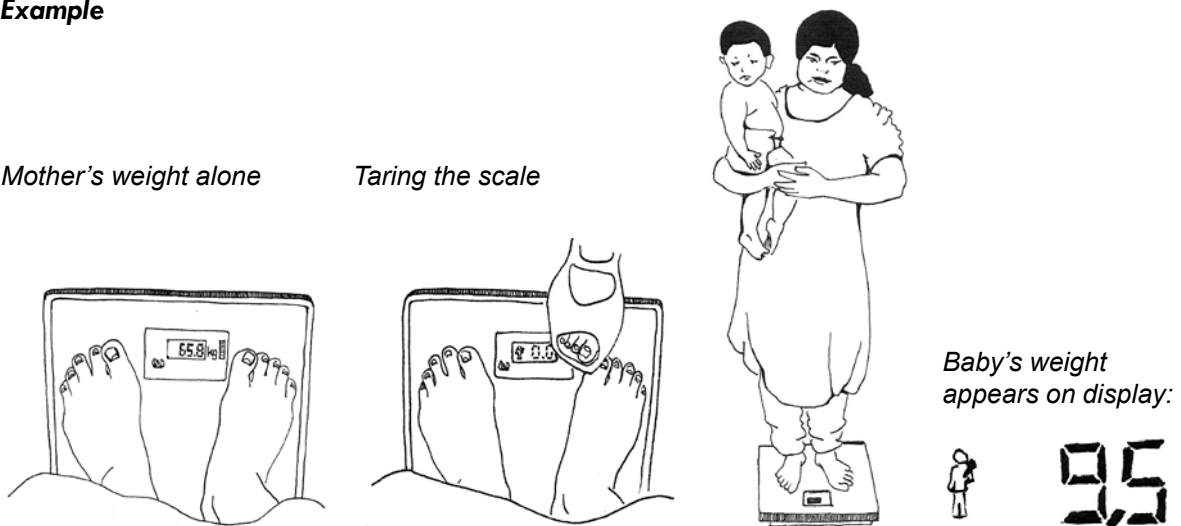


Figure 14: Using a tared scale

Note that the scale pictured above, weighs with a precision to the nearest 0.1 kg. **Precision** describes the smallest exact unit that the scale can measure. The **accuracy** of the measurements, however, depends on whether the scale is calibrated and whether the observer reads the display correctly.

Weigh a child alone with minimal weight

If a child is 2 years or older and can stand still, weigh the child alone. Ask the mother to help the child remove shoes and outer clothing. Talk with the child about the need to stand still. Communicate with the child in a sensitive, non-frightening way.

- To turn on the solar-powered scale, cover the solar panel for a second. For the battery powered scale, turn on the scale using the turn on button. When the number 0.0 appears, the scale is ready.
- Ask the child to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and to remain still until the weight appears on the display.
- Plot and record the child's weight to the nearest 0.1 kg.

N.B. For children who will not stand still, you will need to use the tared weighing procedure instead.



Figure 15: Child being weighed with minimal clothing

Measure length or height

Equipment needed to measure length is a length board (sometimes called an infantometer) which should be placed on a flat, stable surface such as a table.

To measure height, use a height board (sometimes called a stadiometer) mounted at a right angle between a level floor and against a straight, vertical surface such as a wall or pillar.

Depending on a child's age and ability to stand, measure the child's length or height. A child's length is measured lying down (recumbent). Height is measured standing upright.

- If a child is less than 2 years old, measure recumbent length.
- If the child is aged 2 years or older and able to stand, measure standing height.

Note: In general, standing height is about 0.7 cm less than recumbent length. This difference was taken into account in developing the WHO growth standards used to make the charts in the growth record.

- If a child less than 2 years old will not lie down for measurement of length, measure standing height and **add 0.7cm** to convert it to length.
- If a child aged 2 years or older cannot stand, measure recumbent length and **subtract 0.7 cm** to convert it to height.

Prepare to measure length or height

- Be prepared to measure length/height immediately after weighing, while the child's clothes are off. Check that the child's shoes, socks, and hair ornaments have been removed.
- Whether measuring length or height, the mother is needed to help with measurement and to soothe and comfort the child.
- Explain to the mother the reasons for the measurement and the steps in the procedure.
- Answer any questions that she may have.
- Show and tell her how she can help you.
- Explain that it is important to keep the child still and calm to obtain a good measurement.

Measure length

- Cover the length board with a thin cloth or soft paper for hygiene and for the baby's comfort.
- Ask the mother to place the baby on the length board herself and then help to hold the baby's head in place while you take the measurement. Show her where to stand when placing the baby down, i.e. opposite you, on the side of the length board away from the tape.
- Show her where to place the baby's head (against the fixed headboard) so that she can move quickly and surely without distressing the baby.

When the mother understands your instructions and is ready to assist:

- Ask her to lay the child on his back with his head against the fixed headboard, compressing the hair.
- Quickly position the head so that an imaginary vertical line from the ear canal to the lower border of the eye socket is perpendicular to the board. (The child's eyes should be looking straight up.) Ask the mother to move behind the headboard and hold the head in this position.

N.B. Speed is important. Standing on the side of the length board where you can see the measuring tape and move the footboard:

- Check that the child lies straight along the board and does not change position.
- Shoulders should touch the board, and the spine should not be arched.
- Observe if the child arches the back or moves out of position and adjust accordingly.
- Hold down the child's legs with one hand and move the footboard with the other.
- Apply gentle pressure to the knees to straighten the legs as far as they can go without causing injury.

Note: it is not possible to straighten the knees of newborns to the same degree as older children. Their knees are fragile and could be injured easily, so apply minimum pressure.

- If a child is extremely agitated and both legs cannot be held in position, measure with one leg in position.
- While holding the knees, pull the footboard against the child's feet. The soles of the feet should be flat against the footboard, toes pointing upwards. If the child bends the toes and prevents the footboard from touching the soles, scratch the soles slightly and slide in the footboard quickly when the child straightens the toes.
- Read the measurement, in centimetres to the last **completed** 0.1 cm. This is the last line that you can actually see. Plot and record the child's length in the Visit Notes of the Growth record.

Move quickly and surely to measure length accurately before the baby becomes agitated.

Source: National guideline for Integrated Management of Acute Malnutrition (PPT Slides)

Example

Following is a picture of part of a measuring tape. The numbers and longer lines indicate centimetre markings. The shorter lines indicate millimetres. The shaded box shows the position of the footboard when a length measurement is taken.

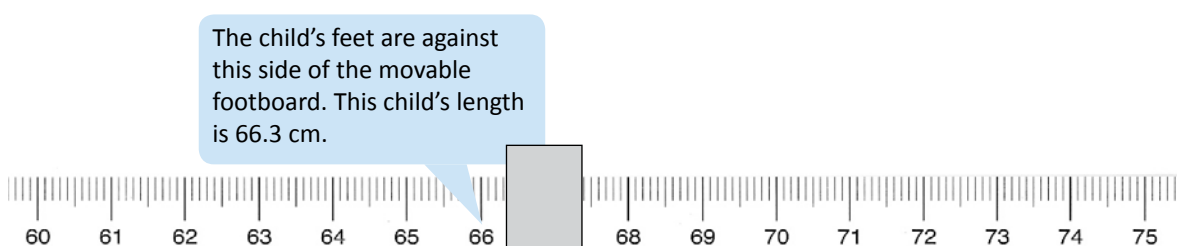


Figure 16: Measuring length

Measure standing height

Ensure that the height board is on level ground. Check that shoes, socks and hair ornaments have been removed.

Working with the mother, and kneeling in order to get down to the level of the child:

- Help the child to stand on the baseboard with feet slightly apart. The back of the head, shoulder blades, buttocks, calves, and heels should all touch the vertical board. This alignment may be impossible for an obese child, in which case, help the child to stand on the board with one or more contact points touching the board. The trunk should be balanced over the waist, i.e., not leaning back or forward.
- Ask the mother to hold the child's knees and ankles to help keep the legs straight and feet flat, with heels and calves touching the vertical board. Ask her to focus the child's attention, soothe the child as needed, and inform you if the child moves out of position.
- Position the child's head so that a horizontal line from the ear canal to the lower border of the eye socket runs parallel to the baseboard. To keep the head in this position, hold the bridge between your thumb and forefinger over the child's chin.
- If necessary, push gently on the tummy to help the child stand to full height.
- Still keeping the head in position use your other hand to pull down the headboard to rest firmly on top of the head and compress the hair.
- Read the measurement of the child's height in centimetres to the last **completed** 0.1 cm. This is the last line that you can actually see. Plot this height in the child's *growth chart* (mother & child health booklet).

Height measurement >85 cm/> 2yrs

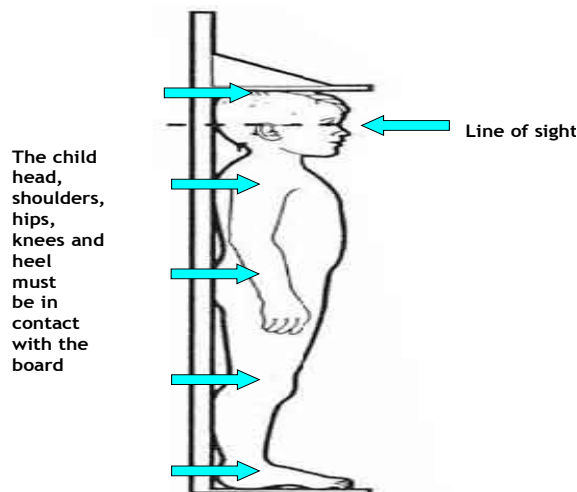


Figure 17: Measuring standing height

Source: National guideline for Integrated Management of Acute Malnutrition (PPT Slides)

Plot points for growth indicators

In order to plot points, one needs to understand the following:

- The horizontal reference line at the bottom of the graph which indicates the age of the child.
- The vertical reference line at the far left of the graph which indicates weight or length/ height..

Plotted point – the point on a graph where a line extended from a measurement on the horizontal line intersects with a line extended from a measurement on the vertical line.

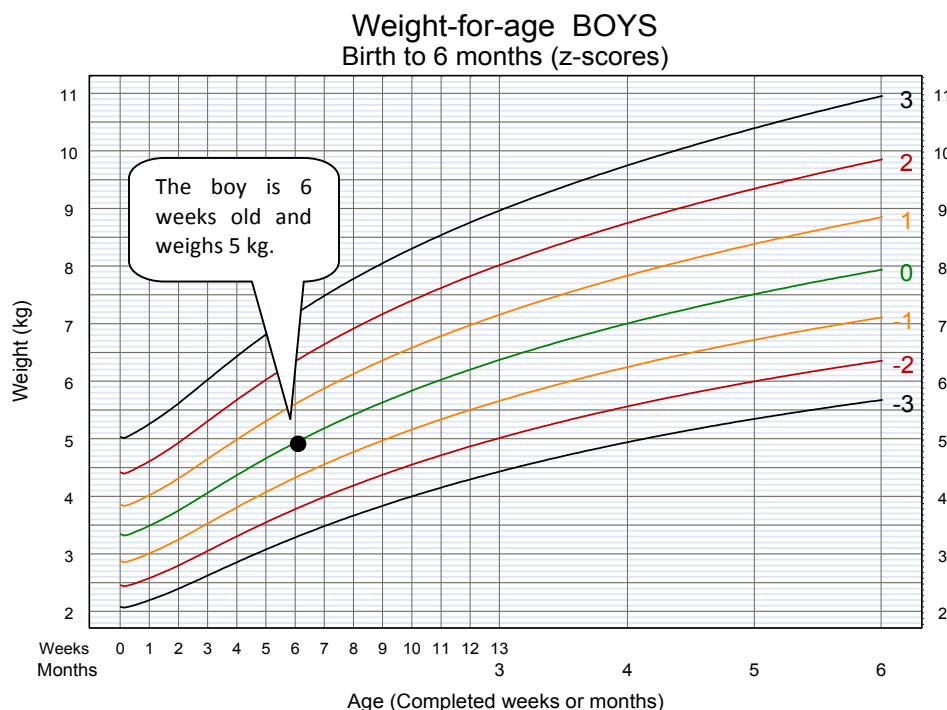
Plotting weight for Age

- Plot completed weeks, months and years on a vertical line (not between the vertical lines) on the mother and child health booklet.
- For horizontal line, Plot weight for age on or between the horizontal line as precisely as possible.
- When points are plotted for 2 or more visits join / connect the adjacent points with a straight line to better observe the trend.

Example

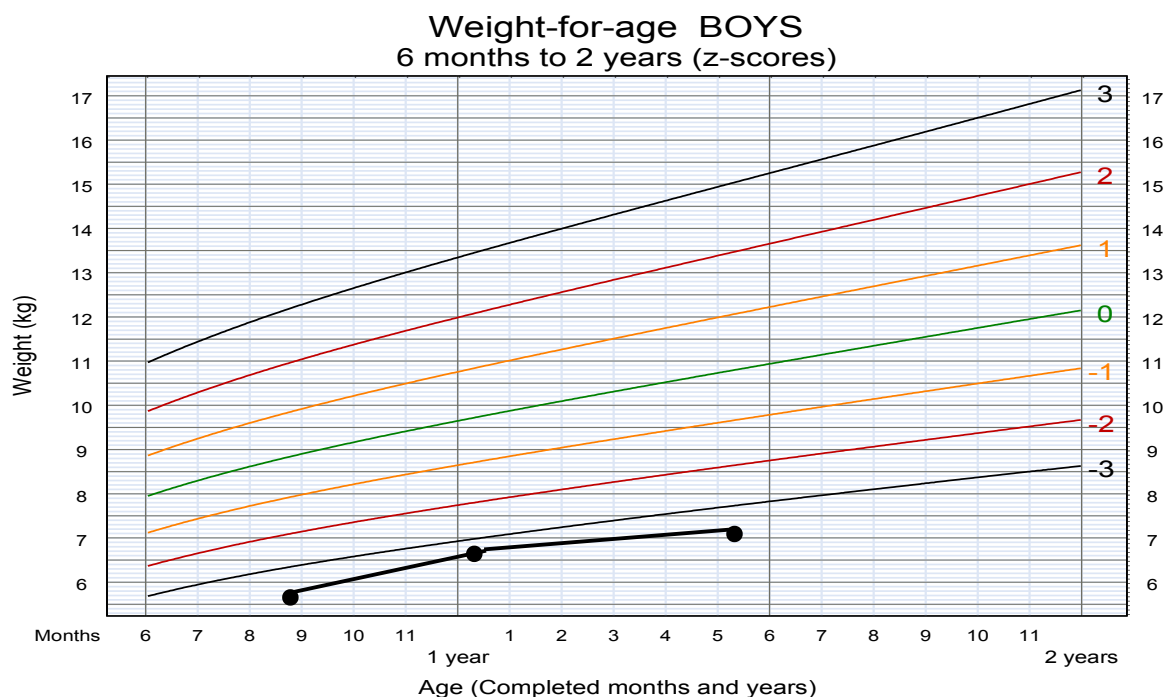
On the graph below, age (in weeks or months) is on the x axis; weight in kilograms is on the y axis. The horizontal lines represent 0.1 kg (100 g) increments. A point has been plotted for an infant boy who is 6 weeks old and weighs 5 kg. The curved lines on the graph are reference lines that will help you interpret the plotted points and trends; you will learn more about them in later sections of this module.

Figure 18: plotting weight for age



Example 2

The following graph shows weight-for-age at three visits of a boy. The horizontal lines represent 0.1 kg (100 g) increments.



Source: WHO Child growth standards, 2008

Plot length/height-for-age

Length/height-for-age reflects attained growth in length or height at the child's age at a given visit. This indicator can help identify children who are stunted (short) due to prolonged under-nutrition or repeated illness. Children who are tall for their age can also be identified, but tallness is rarely a problem unless it is excessive and may reflect uncommon endocrine disorders.

Age is plotted in completed weeks from birth until age 3 months; in completed months from 3 to 12 months; and then in completed years and months.

To plot length/height-for-age:

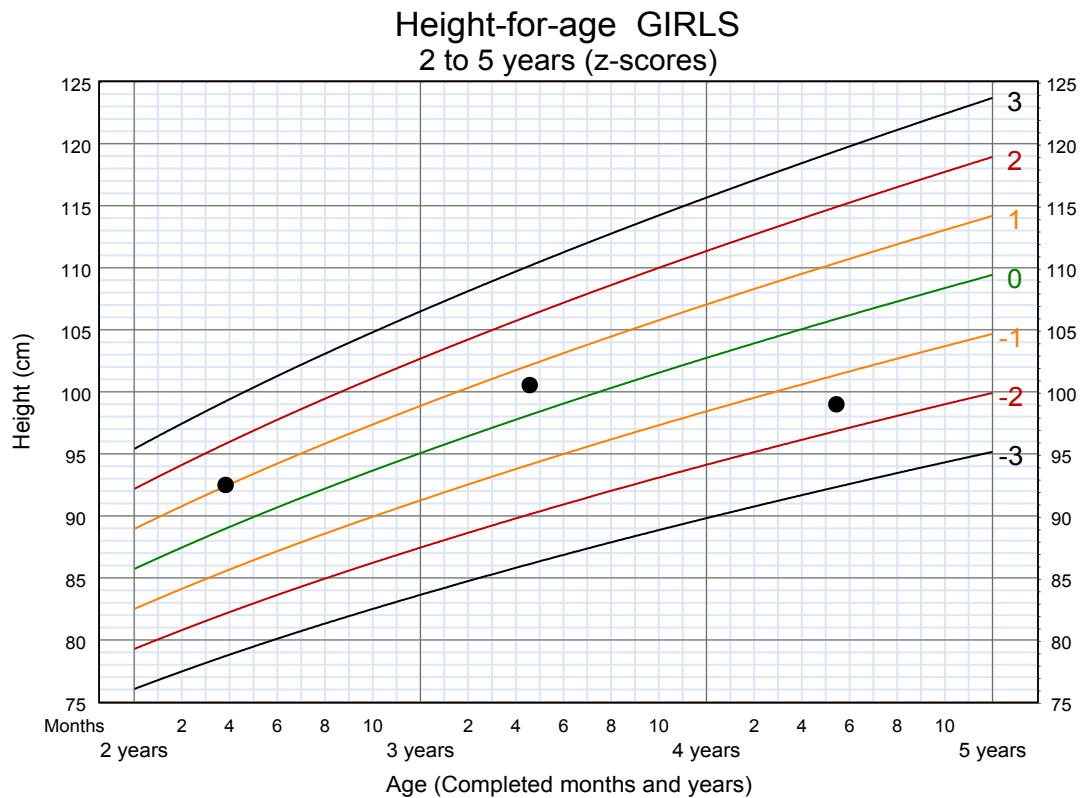
- Plot completed weeks, months, or years and months on a vertical line (not between vertical lines). For example, if a child is 5 ½ months old, the point will be plotted on the line for 5 months (not between the lines for 5 and 6 months).
- Plot length or height on or between the horizontal lines as precisely as possible. For example, if the measurement is 60.5 cm, plot the point in the middle of the space between horizontal lines.
- When points are plotted for two or more visits, connect adjacent points with a straight line to better observe the trend.

Judge whether a plotted point seems sensible, and if necessary, re-measure the child. For example, a baby's length should not be shorter than at the previous visit. If it is, one of the measurements was wrong.

Example 3 – Anna

The following graph shows Anna's height-for-age at three visits. The horizontal lines represent 1 cm increments. At the first visit, Anna was 2 years and 4 months of age and was 92 cm in height.

Figure 19: Plotting length/height for age



Source: WHO Child growth standards, 2008




Note:

- Plot measurements (weight/height) once per month on the child's growth chart
- If the measurements are taken more than once in a period of 4 weeks, the subsequent measurements should be recorded on the clinical notes and not plotted

Interpretation of weight /height for age

Z-score lines on the growth charts are numbered positively (1, 2, 3) or negatively (-1, -2, -3). In general, a plotted point that is far from the median in either direction (for example, close to the 3 or -3 z-score line) may represent a growth problem, although other factors must be considered, such as the growth trend, the health condition of the child and the height of the parents.

Table 20: interpreting weight/height for age

Z-SCORE	GROWTH INDICATORS	
	LENGTH/HEIGHT-FOR-AGE	WEIGHT-FOR-AGE
> 3	(See note 1 below)	OBESE
> 2 TO 3		OVERWEIGHT (See note 3 below)
-2 TO 2 	NORMAL HEIGHT FOR AGE	NORMAL WEIGHT FOR AGE
<-2 TO -3 	STUNTED (see note 2 below)	UNDER WEIGHT(see note 3 below)
< -3 	SEVERELY STUNTED	SEVERE UNDER WEIGHT (see note 4)

NOTES:

1. A child in this range is very tall. Tallness is rarely a problem, unless it is so excessive that it may indicate an endocrine disorder such as a growth -hormone-producing tumor. Refer a child in this range for assessment if you suspect an endocrine disorder .e.g. if parents of normal height have a child who is excessively tall for his /her age.
2. It is possible for a stunted or severely stunted child to become overweight.
3. Children falling in the category (± 2 to ± 3) need to be referred for nutritional counseling.
4. This is referred to as very low weight for age in IMCI training modules.(Integrated Management of Childhood Illness)
5. A plotted point above 1 shows possible risk. A trend towards the 2 Z-score shows definite risk
6. A plotted point below -1 shows a possible risk. A trend towards the -2 Z-score shows definite risk

Use of MUAC Tape

A MUAC tape is easy to use to identify a child or a pregnant and lactating woman with a very small mid-upper arm circumference Instructions on how to take MUAC is demonstrated below:

Figure 20: Using a MUAC tape

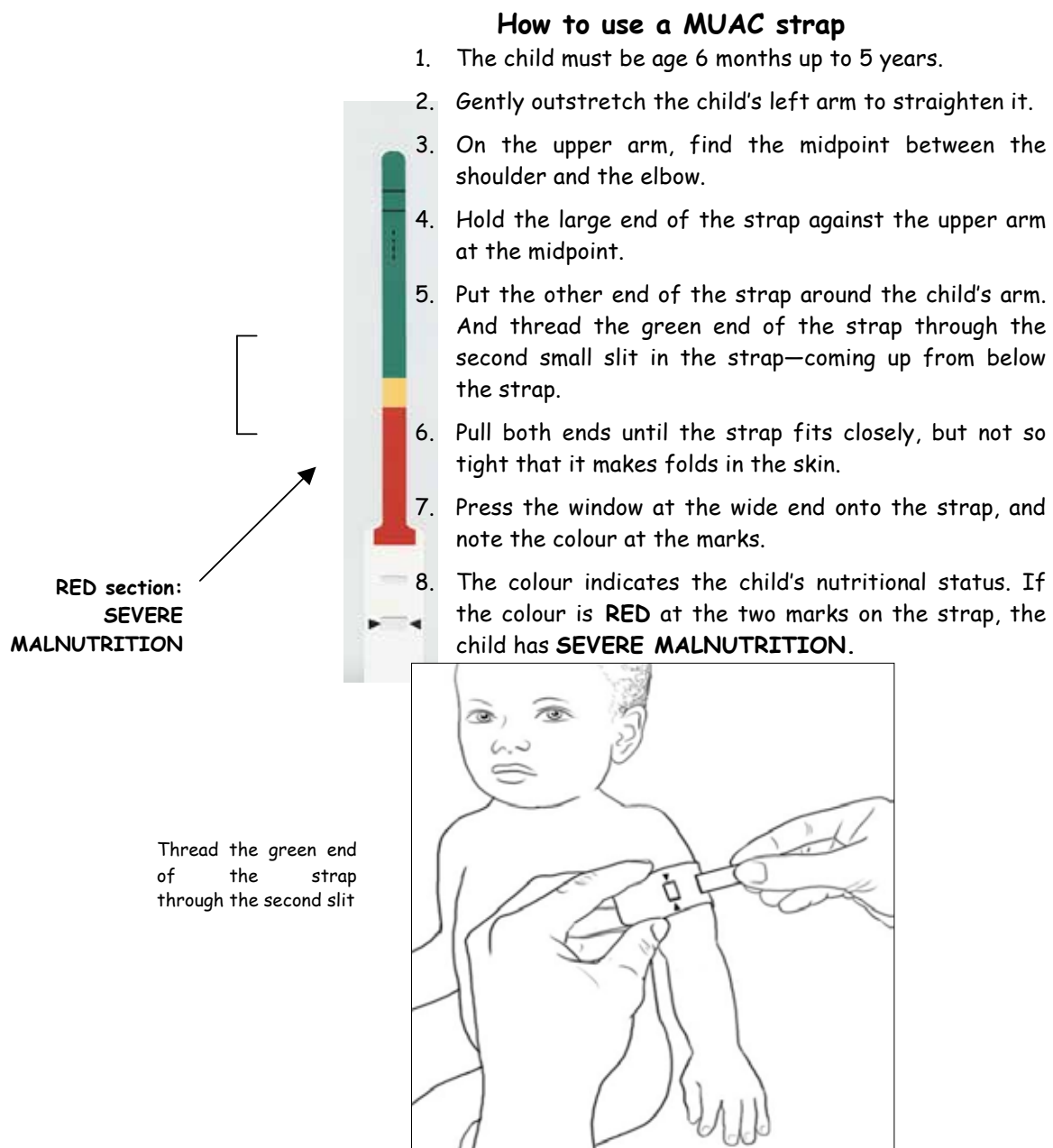


Table 21: MUAC criteria to identify malnutrition of children <5 years

Severely malnourished	Moderately malnourished	At risk of malnutrition
< 11.5 cm	11.5 to 12.4 cm	12.5 to 13.4 cm

Note:

The MUAC cut-off points are subject to revision/adjustments so as to suit special circumstances e.g. Nutrition Emergencies.

Feed-back and counseling

1. If the child is growing well, the next step is to provide appropriate feeding advice for the Child's upcoming age group, so that the child will continue to grow well
2. If there is a growth problem, or a trend towards a problem (at risk), interview the mother to Identify possible causes of the problem and Provide information on Infant and young child feeding (refer to feeding recommendations during sickness and health and care for development-(Mother and Child Health Booklet).

Key messages on regular growth monitoring and promotion

- Take your baby for growth monitoring and promotion **monthly** during the first five years.
- A healthy child who is growing well always gains a certain amount of weight every month. If your child is not gaining weight or is losing weight, there is a problem.
- Attending growth monitoring and promotion sessions can help identify nutrition problems your child may have early, such as severe thinness or swelling.
- Nutrition problems may need urgent treatment with special (therapeutic) foods.
- Measuring the upper arm of a child over 6 months (MUAC) also identifies severe thinness.
- During growth monitoring and promotion sessions, you can ask questions about your child's growth, health and nutrition.
- It is important to address poor growth and other signs of poor nutrition quickly, as soon as they are identified. If the problem is severe, you should immediately take your child to the nearest health facility.
- When you go to the health facility for growth monitoring, ask about family planning too.
- You should also ask about your baby's immunization schedule. Immunizations protect babies against several diseases.

Refer urgently for specialized care any child who has;

1. Clinical signs of Marasmus (e.g. appears severely wasted, like "skin and bones")
2. Clinical signs of kwashiorkor (e.g. generalized oedema; thin, sparse hair; dark or Cracking/peeling patches of skin)
3. Oedema of both feet.
4. Severely wasted (-3 Z-score)
5. Refer for investigations children with obesity (above 3Z-score)

Clinical assessment

When a child is undressed to prepare for weighing, certain clinical signs of severe under-nutrition may be apparent. It is important to recognize signs of **marasmus** and **kwashiorkor** since they require urgent specialized care that may include special feeding regimens, careful monitoring, antibiotics, etc. Regardless of their weight, children with these syndromes should be referred for urgent care.

Figure 21: Clinical signs of marasmus and kwashiorkor

Marasmus

Kwashiorkor



- Severe weight loss and wasting
- Ribs prominent
- Limbs emaciated
- Muscle wasting
- May have good appetite
- With correct treatment, good prognosis

Marasmic kwashiorkor:



- Kwashiorkor and marasmus are distinct conditions, but in communities where both occur, cases of severe under-nutrition often have features of both.



- Bi-lateral oedema and fluid accumulation
- Loss of appetite
- Brittle thinning hair
- Hair color change
- Apathetic and irritable
- Face may seem swollen
- High risk of death

Oedema of both feet:

- Oedema of both feet is a sign that a child needs referral, even if other signs of kwashiorkor are not present.
- The oedema must appear in both feet. (If the swelling is in only one foot, it may just be a sore or infected foot.)
- To check for oedema, grasp the foot so that it rests in your hand with your thumb on top of the foot. Press your thumb gently for a few (3) seconds.

- The child has oedema if a pit (dent) remains in the foot when you lift your thumb.
- A child with oedema of both feet is automatically considered severely underweight, regardless of what the scale shows. You should weigh and measure the child.
- Note the weight, length/height, and the oedema in the Visit Notes.
- When plotting the child's measurements, indicate on the graphs, near the relevant points, that the child has oedema.
- Refer the child for specialized care.

Figure 22: identifying bilateral oedema

For the sign to be present, the dent must clearly show on both feet.



Press your thumbs gently for *a few seconds* on the top of each foot.



Look for the dent that remains after you lift your thumb.

Recording other observations

If a child has marasmus, kwashiorkor, or oedema of both feet, is overweight or signs of micronutrient deficiencies record these observations in the Visit Notes and refer the child for specialized care.

Other observations about the child's appearance may also be recorded in the Visit Notes before weight and length/height are measured. The following terms may be useful in recording your observations.

Terms for recording observations about the child's appearance:

- Wasted (too thin)
- Normal (rounded contours, no noticeable excess fat)
- Overweight (noticeable fat)
- Obese (excess fat)

Look for signs of SEVERE MALNUTRITION:

- **Use a MUAC (Mid-Upper Arm Circumference) tape.** A small arm circumference (red on the MUAC strap) identifies severe malnutrition in children with severe wasting (very thin), a condition called **marasmus**.
- **Look at both of the child's feet for swelling (oedema).** This identifies severe malnutrition in children with the condition called **kwashiorkor**. Although these children have severe malnutrition, their bodies are swollen, round and plump, not thin.
- **Look for severe palmer pallor:** Compare the color of the child's palm with yours, or with that of the care giver. If the child's palm looks whiter than yours, he / she has **severe anemia**.

Other signs

- Skin rash or flaky/shiny patches of skin.
- Visible signs in the eye (e.g. bitot's spots associated with vitamin A deficiency, pus/inflammation, corneal clouding or ulceration).
- Overweight and obesity

Biochemical Assessment:

This involves analyzing laboratory results for nutrition and related tests. Examples include:

Table 22: Laboratory tests for nutrition and related parameters

Nutrient/parameter	Laboratory test
Iron	Serum ferritin
Vitamin A	Serum retinyl
Zinc	Serum zinc
Iodine	Urinary iodine
HIV	CD4 count
Helminthes	Stool and blood
Malaria	B/S for MPS

Dietary Assessment

- Breastfeeding assessment: frequency (day and night), technique (positioning and attachment) and duration on each breast
- Eating patterns: foods regularly consumed, frequency of meals, consistency of feeds
- Mode of feeding, e.g. breastfeeding, cup, cup and spoon, bottle
- Feeding technique e.g. responsive, active, forced
- Foods available and affordability

- Food intolerance and aversions
- Dietary problems
- Hygiene in food preparation and handling practices.
- Psychosocial factors contributing to inadequacy of intake, such as social isolation, depression, stigma.
- Use of vitamin and mineral supplements and alternative practices.

6.3.3 Nutritional counseling

Nutrition counselling is the application of principles of counselling to help a client make better decisions and plan actions to address food and nutrition issues.

The objectives of the nutrition counseling session are to:

- Inform a mother or other caregiver about the results of a child's growth assessment.
- Give appropriate feeding recommendations for a child's age.
- Interview a mother to investigate causes of under-nutrition.
- Give advice related to specific causes of under-nutrition.
- Interview a mother to investigate causes of overweight.
- Give advice related to specific causes of overweight.

This section describes how to counsel mothers of children who are **growing well** or who have **problems of under-nutrition or overweight**.

Counseling Techniques

In all of these situations, it is important to use good counseling techniques.

Listen to and learn from the mother:

- Ask open questions.
- Listen and make sure that you understand what the mother says.
- Use body language and gestures that show interest.
- Empathize, that is, show that you understand how the mother feels.

Build confidence and offer support:

- Recognize and praise what a mother is doing right.
- Avoid words that sound judging.
- Accept what the mother thinks and feels.
- Give relevant information in simple language.
- Make a few suggestions, not commands.
- Offer practical help.

a) Counsel a mother whose child is growing well

- If a child is growing well, compliment the mother on her child's growth. Then, depending on the child's age and the probable timing of the next visit:
- Review the feeding recommendations given in the *MCH booklet* for the child's current age group, and/or explain the feeding recommendations for the child's next age group if the child will enter that age group before the next visit.

Feeding recommendations should also give for the following:

- Feeding during illness.
- Feeding during persistent diarrhea

b) Counsel a mother whose child has a problem of under-nutrition

If a child has a problem of under-nutrition, it is important to investigate the causes of the problem before giving useful suggestions to the mother.

Investigate the causes by interviewing the mother/caregiver. Use the guide below

Step 1: Find out if the child is currently ill

Step 2: If not ill, initiate investigation of causes

Step 3: Ask about any recent changes in eating and/or breastfeeding

Step 4: Discuss age-specific questions about the child's feeding

Step 5: Ask about recurrent illnesses

Step 6: Assess possible underlying social and environmental causes

Step 7: Jointly with the caregiver, identify causes

Step 8: Counsel based on the assessment

Set a goal for improving growth of an undernourished child

- At the end of the discussion with the mother or other caregiver, it is important to set a reasonable time for the child's next visit and to set a general goal for improved growth.
- The next visit may be at the time that an immunization is required or at another convenient time.

c) Counsel a mother whose child has a problem of overweight

As with problems of under-nutrition, it is important to investigate the causes of overweight before giving advice to the mother.

Investigate the causes by interviewing the mother of any child who:

- is overweight
- has a growth trend towards overweight and obesity

Note

- A stunted child can be overweight or obese.
- An exclusively breastfed child may also be overweight or obese.
- Reassure the mother that such babies become leaner when they begin to crawl and walk. Encourage the mother to continue breastfeeding until 2 years of age and beyond.

6.3.4 Nutritional Support and follow-up

1. Provide care and support according to guidelines/protocols: IMAM, IMCI, MIYCN, at facility level to ensure the maximum recovery and minimal disability and mortality is achieved.
2. Support appropriate infant feeding and complementary feeding practices and lifestyle practices to prevent over and under-nutrition.
3. Support community based growth monitoring and promotion for early identification, referral and management.
4. Establish/strengthen mother support groups on various interventions e.g. breastfeeding
5. Establish appropriate community-based identification, rehabilitation, referral systems and follow-up to prevent relapse.
6. Trained, skilled health care personnel should manage the severely malnourished children in hospital or in the community, as well as support and teach the parents/caregiver on proper nutrition for that child.
7. Health facility should ensure effective therapeutic feeding of sick and malnourished children.
8. Therapeutic feeds (as per IMAM guidelines) should be provided in hospital or in the community until nutritional recovery is complete.

CHAPTER 7: MATERNAL, INFANT AND YOUNG CHILD NUTRITION (MIYCN) COMMUNITY LINKAGES

This section deals with linking mothers to other services that provide nutrition care and support services at the community level. Community participation is critical to the successful implementation of the MIYCN guidelines even though health care workers are the key implementers of these guidelines. The CHWs are the link persons between the mothers and the health facilities. They facilitate the continuum of care of the mothers and their children by ensuring that they adhere to the guidelines through counseling. Baby Friendly Community Initiative and workplace Support for breastfeeding mothers provide another channel for linking communities to health facilities. It is also important to develop links with community based organizations to support maternal and child nutrition at community level. CHWs have been used by facilities to track mothers for follow up appointments. The country is currently in the process of establishing community-based health and nutrition infrastructure.

7.1 Strategies for strengthening nutrition support and care for mothers, infants and children at community level

- Establishment of Community and mother support groups for optimal infant and young child feeding.
- Create awareness and advocacy on good nutrition practices through the media, print and other social structures in the community.
- Ensure family involvement, especially male partner in antenatal and postpartum breastfeeding and complementary feeding education.
- Advocate for baby-friendly workplaces.
- Training of existing community volunteers to promote optimal MIYCN including nutrition care and support in the context of HIV
- CHWs to conduct regular home visits to ensure that mothers are attending scheduled antenatal and post-natal clinics
- CHWs identify mothers and children who need specialized care and make referrals to the health facilities
- Organize regular mentoring and orientation for CHWs on new information.
- Orient community leaders on MIYCN in each district/county
- Conduct working sessions to develop clearly defined referral network among HWs, CHEWs and CHWs and other community services.

7.2 Follow-up

Follow-up is usually done to monitor a client's well-being.

- Done continuously both in the facility and home.
- The frequency of follow-up home visits depends on the nature of the identified problem.
- Follow-up will benefit a great deal if nutrition issues are integrated with other care and support activities.
- Include monitoring of health, nutrition and assessment of dietary intake during follow-up visits.
- Include counseling to address barriers to good nutrition
- Offer support and encouragement.

7.3 Referral

Referral links the clients to other services or service providers with more skills/experience or with better equipment. Types of referrals include:

- More counseling, or clinical services
- Infant and Young Child Nutrition counseling
- Clinical care
- PMTCT services
- Food supplementation or food security programs
- Mother to Mother support groups

7.4 Networking/Linkages

This involves a group of individuals, systems, or organizations interconnected or cooperating.

Tools and resources can be shared, making use of available resources more efficiently. Networking provides an opportunity for all care providers to exchange information, experience, referral and data collection. Networking improves and facilitates the provision of care to clients.

Care providers need to identify other sectors, groups, organizations and individuals who provide services related to or complementary to the services they provide. They should be able to:

- Identify and recognize people and organizations, who/which provide such services.
- Assist clients to use the services near to them.
- Give referral to different services available to their area. These services could be legal, assistance to OVC, spiritual, counseling, food assistance, etc.
- Share tools and resources like IEC materials and equipment during orientations.
- Communicate with partners informing them what you are doing and where.
- Participate in meetings between stakeholders in order to discuss and share successes, failures, problems and challenges.

- Exchange reports and ideas on experiences gained, lessons learned, strategies used in problem solving for services improvement.

The role of the Community Health worker:

- Creates rapport with the client
- Checks the general progress of the client(s) in terms of feeding and nutrition.
- Asks whether the client(s) tried the agreed practice
- Congratulates client for trying the new practice(s)
- Asks what happened when client tried the new practice
- Asks whether client made any changes to the new practice and why?
- Asks what difficulties client had, how s/he solved them, or help find ways to solve the difficulties s/he might have had
- Listens to the client's questions, concerns and doubts
- Assesses whether new complications have come up and addresses them
- Asks client if s/he likes the practice agreed on and if s/he thinks they will continue
- Praises the client and motivate them to continue the practice
- Talks to the client about a new practice, and encourage them to try it out
- Helps the client plan specific actions to take so as to improve their nutrition and feeding
- Gives the client additional handouts and materials if needed and available
- Updates the counselor's notes and data on the client
- Agrees on a date for the next visit

Structures that can form networks at community level may include:

- Households
- Community Units
- Village dispensary and Health centers
- District authorities
- Governmental and non-governmental organizations
- Community based organizations (CBOs)
- Faith based organizations (FBOs)
- Religious leaders, traditional leader or chiefs
- Community leaders and Influential persons in the community (opinion leaders)

Community participation is critical to the successful implementation of the guidelines. The participation should include the following:

- Community leaders should participate in the sensitization and mobilization of their members for nutrition related activities.
- The community should be supported to organize a social network at that level for HIV affected families and take steps to minimize stigmatization and discrimination

- Mobilize resources to support families and mothers with infants and young children.

Support to mothers in the community

- Promoting development of community-based support networks to help ensure appropriate infant and young child feeding, for example mother-to-mother support groups and peer or lay counselors, to which hospitals and clinics can refer mothers on discharge.
- Ensuring that community-based support networks not only are welcome within the health care system but also participate actively in the planning and provision of nutrition services.

Support Activities at District/County and Community levels

- Conduct bi-annual sensitization and awareness campaigns on optimal child feeding practices and maternal nutrition care and support among the local leaders, communities and caregivers.
- Conduct sensitization meetings with members of the civil societies to encourage their participation in the promotion of optimal child feeding practices and maternal nutrition care and support by orienting all NGOs on the MIYCN guidelines.
- Conduct bi-annual orientation and review meetings on the observation of the code of marketing of infant and young child foods by stakeholders.
- Conduct orientation meetings with mass media personnel to carry out campaigns to increase awareness by the public and employers on the need for maternity protection and support to lactating mothers through the media channels.
- Engage community based service providers and support groups in regular follow-up and support to pregnant and lactating women in all communities.
- Conduct trainings for CHWs for linking growth monitoring and promotion of the child to appropriate feeding practices according to age.

CHAPTER 8: IMPLEMENTATION, MONITORING AND EVALUATION OF MIYCN

8.1 IMPLEMENTATION OF THE MIYCN GUIDELINE

The implementation of these guidelines will be in tandem with National MIYCN Policy Guidelines and strategy and relevant national guidelines cited in this document. Mothers and children needing maternal, infant and young child nutrition care and support will be identified through well and sick child visits including immunization, mother and child clinics (MCH), pediatric wards, prenatal clinics, maternity wards, postnatal clinics, family planning clinic, outreach and community-based services.

8.1.1 CAPACITY BUILDING

Capacity building, in terms of improving the facilities, upgrading the infrastructure, and providing necessary skills for health and community workers is key to achieving optimal nutrition care and support.

Recommendations and key actions

- Training and education (in service and pre-service) of all health care providers in maternal nutrition, benefits and management of breastfeeding, re-lactation, infant feeding in the context of HIV, “Kangaroo” care, appropriate and optimal complementary feeding and all other aspects of optimal MIYCN will be stressed.
- Recruitment of additional nutritionists at the national, county and district levels is required in order to scale up the implementation of the MIYCN guidelines.
- Community based workers and networks such as community health workers should be trained on follow-up support, and educational/counseling tools on MIYCN.
- Strengthen health care workers knowledge and skills on management of acute malnutrition. Capacity building to strengthen utilization of data captured for MIYCN, including malnutrition and low birth weight data in the Health Management Information System (HMIS), is also necessary.

Disasters and emergencies can occur anywhere at any time, and usually when least expected. Most often decision makers and community health workers are caught unawares, and they depend on support from development partners and humanitarian agencies that operate under their own guidelines and practices.

Recommendations and key actions

- Health workers to be trained or sensitized on preparedness and support for MIYCN in difficult and special circumstances.
- On-going training and sensitization of health workers prior to emergencies makes them more prepared and less likely to be influenced by the outside agencies that respond and help.

- There is need to promote training/sensitization of the relevant workers at national and district levels in preparedness for MIYCN in difficult circumstances must be supported.

8.1.2 ADVOCACY, COMMUNICATION AND SOCIAL MOBILIZATION

During implementation, the IYCF Communication and Advocacy strategy will be employed to guide the advocacy, communication and social mobilization activities around MIYCN. Advocacy for optimal MIYCN is crucial for successful implementation of these guidelines.

Recommendations and key actions

- Advocacy should be done at various levels including National, County, District and Community.
- Social partners, including community networks and groups, should be targeted in an effort to encourage support for interventions promoting optimal MIYCN.
- Uses of print and electronic media as well as interpersonal communication, community dialogue approach and community mobilization are key interventions in the implementation of these guidelines.
- Creation of awareness at the community level is essential in ensuring implementation of optimal infant feeding practices.
- Community leaders, community health teams, and community resource persons to be sensitized to promote and support optimal MIYCN.
- Communities should be encouraged to initiate and/or strengthen support groups for the promotion of optimal MIYCN among other activities.
- Parents, caretakers, families, and communities should be given information on breastfeeding, complementary feeding and production, storage, preparation and utilization of food through demonstrations, taking into account different cultures.

8.1.3 CARE AND SUPPORT

Care and support services should be offered to pregnant and lactating women to enhance their reproductive performance.

Recommendations and key actions

- Mothers with poor nutritional status should be offered food supplements where possible in addition to other services.
- Male partners and other influential relatives are an important source of support for pregnant and lactating women. Besides financial, psychosocial, and physical support, they can help in reducing the women's workload and in removing the cultural and gender imbalances which would otherwise impede a mother's ability to practice optimal MIYCN.
- Efforts should be made to sensitize men and encourage them to participate in the health and nutrition activities that promote optimal MIYCN. Key areas for implementation are promotion of parental love, nutrition services, health care services, and education. Of particular significance is the provision of nutrition support and care during pregnancy

and the post-natal period to prevent LBW.

- Nutritional support for women, which should target those of reproductive age, includes provision of information on proper nutrition, iron/folic acid supplements, additional food supplementation and promotion of timely initiation and exclusive breastfeeding.
- Post-natal follow up and care services for mothers and infants, including those in a PMTCT programme, should be strengthened.
- Pregnant and lactating women should be supported by creating an enabling environment within health facilities, homes, communities, and work places.
- Ensure that all maternity units are baby-friendly, that there is enforcement of the Kenya Employment Act of 2007 as well as other laws and regulations which govern maternity protection, and that breastfeeding corners and baby/mother friendly communities and work places are established are all essential elements of this enabling environment.

8.1.4 COUNSELING AND FOLLOW-UP

Counseling services will be strengthened to empower parents, caretakers and families to make informed decisions about maternal, infant and young child nutrition.

Recommendations and key actions

- Parents and families should be supported to implement their decisions so that optimal MIYCN is achieved.
- Additional counseling and support should be offered to mothers working outside their homes to enable them to practice optimal MIYCN.
- Family caretakers should be counseled to use cup feeding when opting for the IYCF option of replacement feeding or when using expressed breastmilk (EBM).
- Counseling of parents and sensitization of the communities about the feeding of sick infants and young children should be done.
- When mothers fall sick they should be encouraged and supported to continue feeding their infants and young children.
- Efforts should be made to ensure that mothers and infants are not separated under any circumstances.

8.1.5 INTEGRATION, COORDINATION AND COLLABORATION

Strategic linkages will need to be forged with the different departments, programmes and policies in order to achieve the maximum impacts while implementing these MIYCN Guidelines. Coordination and collaboration enhances the effective participation of key stakeholders, maximizes the use of resources, provides guidance, and sets standards of achievement.

Recommendations and key actions

- The MOH will coordinate the implementation of these guidelines at the National and County levels.
- Counties and Districts should form County or District level MIYCN committees to be able to spearhead and monitor the activities in the MIYCN policy guidelines and strategy.

- Given the multi-sectoral nature of the interventions required, other important stakeholders should be involved as recommended in the section on roles and responsibilities.
- Harmonization of messages and integration of MIYCN in initiatives targeting women and children such as BFHI, IMCI, PMTCT, ART, and Home Based Care (HBC) programmes as well as other reproductive health interventions, should be actively pursued.
- The High impact nutrition interventions approach should be used as a means of ensuring MIYCN promotion at the various key contact points (ANC, delivery, post-natal/family planning, immunizations, growth monitoring/well child, and sick child consultations), in addition to promotion at schools and within the community.
- It is important to strengthen the use of community health workers, peer counselors, and mother support groups as well as links with agricultural and other extension workers in the promotion of optimal MIYCN.
- Any agency/partner involved in the procurement, management, distribution, targeting, and use of BMS and related products by children in difficult circumstances shall do so in accordance with the Maternal, Infant and Young Child Nutrition Policy guidelines and should get clearance from the MOH.

8.1.6 STRENGTHENING GROWTH MONITORING AND PROMOTION (GMP) INCLUDING SCREENING AND REFERRAL

In order to conduct GMP at the health facility and community levels, it will be necessary to build the capacity of facility and community based health workers, including growth promoters and leaders of mother support groups, on growth monitoring and counseling.

Recommendations and key actions

- Use of the national growth standards should be used alongside MUAC for identification of the malnourished. They can then be referred for further care and support.
- GMP carried out at the community level should be used as a contact point for promoting best MIYCN practices. Integration of Nutrition into Community Strategy is very critical.

8.1.7 RESOURCE MOBILIZATION

Implementation of this policy will require human, material, organizational and financial resources. The MOH in collaboration with other key stakeholders shall mobilize the necessary resources, which are necessary for the effective implementation of these guidelines.

8.1.8 ROLES AND RESPONSIBILITIES

Responsibilities and Roles for the Implementation of the National Maternal, Infant and Young Child Nutrition Guidelines

The Ministry of Health national level through the National Committee on Infant and Young Child Feeding and Maternal, Infant and Young Child Nutrition working group will:

- Support and monitor the implementation of the MIYCN policy, strategy guidelines and

indicators at all levels

- Support implementation of the maternity protection rights in line with ILO Maternity Protection Convention No. 183, the Kenya employment Act 2007 and workplace support for the breastfeeding mother.
- Strengthen and monitor the implementation Breast-milk Substitutes Act, marketing of complementary foods and subsequent relevant World Health Assembly Resolutions.
- Through the Ministry of Education and in collaboration with universities and research institutions develop and include infant and young child feeding in school curriculum.
- Strengthen collaboration with development partners to ensure adequate financial and technical support for infant and young child feeding.
- Ensure integration with cross-sectoral programmes (e.g. livelihood and agriculture) to promote optimal infant and child nutrition.
- Support implementation of national priorities on MIYCN at all levels.

The government will work with Development Partners to:

- Support identification and addressing of systems gaps including resource mobilization.
- Support policy development and advocacy to ensure global standards are adapted in a national context.
- Advocate for increased human, financial and institutional resources for the implementation of this policy.
- Provide technical and financial support to government and community efforts in capacity building, advocacy, social mobilization and service delivery for successful implementation of this policy.

The government will provide leadership to Industries, Private Sector and Enterprises to:

- Ensure that their conduct at every level conforms to the Breast-milk Substitutes Act and subsequent relevant World Health Assembly Resolutions.
- Monitor their marketing practices according to the Breast-milk Substitutes Act and subsequent relevant world Health Assembly Resolutions
- Address national programme priorities and ensure optimal health and nutrition well-being of children.
- Ensure workplace support for optimal MIYCN through the private and public sector signing and operationalizing statement of commitment for Better Business Practices for Children.

The government will support the Professional Associations to:

- Regulate their professional members and practice in accordance with national MIYCN standards and law.
- Establish a 'code of conduct' for their members to ensure the Breast-milk Substitutes Act and subsequent relevant World Health Assembly Resolutions are adhered to and the

violations are addressed accordingly.

The government will support the Kenya Nutritionist and Dieticians' Institute to:

- Provide technical support on training and capacity building to agencies and organizations involved in the implementation of this policy.
- Recognize achievements and promote the maintenance of standards in the implementation of various components of this policy.

Media Agencies will:

The mass media has a powerful impact on public perceptions of health issues. The media not only provides information but also helps to create or reinforce ideas about what is common sense or normal. Food advertising to children is extensive and significant. Much of the marketing is for foods high in saturated fats, refined sugars and salt whose high consumption is a risk factor for obesity. The government will support the print, electronic and theatre media to:

- Support the advocacy and communications components of the MIYCN policy guidelines, ensuring citizens have correct information to promote optimal infant and young child feeding.
- Be actively involved in advocacy and social mobilization for all the issues elaborated in this policy.
- Ensure adherence to standards under the Breast-milk Substitutes Act and subsequent relevant Health Assembly Resolutions.

Educational Institutions will:

- Ensure institutional standards, curriculum and related mechanisms for students and staff adhere to MIYCN policy guidelines and related national standards
- Ensure maternal, infant and young child nutrition is addressed through pre-service training of health workers and related professions.

Universities and Research Institutions will:

- Provide technical support to relevant agencies and organizations in conducting research on various components of infant and young child nutrition.
- Provide accurate information required to create awareness and develop appropriate intervention programmes for improved infant and young child nutrition.

Child Care Institutions will:

- Support sensitization of members on the MIYCN policy guidelines and ensuring adherence to policy directives.
- Provide services to ensure the continuum of care and nutrition support for children under five years

Communities will:

- Adhere to policy directives and support mothers and their infants to ensure optimal infant and young child feeding.
- Provide support for children with special needs within the communities

The County Health Management Teams and District Health Management Teams will:

- Ensure Coordination and planning the implementation of the MIYCN Policy guidelines, Policy Statement, Strategy and guidelines at County/District level.
- Engage and provide nutrition oversight to CBOs, FBOs and NGOs operating in the community
- Capacity building and Resource mobilisation
- Monitoring and Evaluation of MIYCN activities
- Ensure integration with cross-sectoral programmes (e.g livelihood and agriculture) to promote optimal infant and child nutrition.

The Roles at the Health Facility level

- Ensure the availability of the MIYCN policy guidelines, policy statement, strategy and guidelines at the health facilities.
- Ensure training of all health workers on the MIYCN policy guidelines, strategy and guidelines.
- Ensure that all the equipment, supplies and commodities are available at the facility for effective service provision.
- Provide the job aids on MIYCN at strategic positions for quick reference during counseling and service provision on maternal and child nutrition care and support
- Ensure the availability and access to IEC materials on MYCN to mothers.
- Develop a linkage and coordination as well as referral system with the communities through the CHWS.
- Conduct regular trainings and orientations to CHWs on MIYCN.
- Develop a system for continuous monitoring and follow up of patients with special nutrition needs.
- Conduct regular community outreach programmes.

The roles of the Community Health Units

- Promotion of nutrition activities through social mobilization and campaigns.
- Work with the relevant organizations and stakeholders to mobilize resources to support nutrition activities in the community.
- Assist in identifying the women and children with special nutrition needs and link them with service providers.
- Promote and support income-generating activities at household and community levels to alleviate poverty.
- Facilitate social mobilization for other services that support nutrition and health such as safe water, personal and environmental hygiene, the use of treated mosquito nets, family planning and HIV prevention
- Serve as a link between the health facilities and the communities through CHWs

8.2 MONITORING AND EVALUATION

Reporting, monitoring and evaluation are key functions that should be carried out as the MIYCN guideline is being implemented. Monitoring and evaluation of MIYCN activities will be guided by the Kenya National Monitoring and Evaluation framework and will be integrated in the existing infrastructure that collects, collates and analyses surveillance and service delivery data from various Service Delivery Points in the country.

8.2.1 Data collection, reporting, management and use

All the MIYCN programs/activities should have a record of basic information done at the service delivery point based on how often the service is offered e.g. daily. Reporting of service delivery nutrition activities will be on a monthly basis from the facility, districts and county levels. The reports are sent to the higher level through the DHIS. Each level (facility, district, county and national level) is required to analyze and consume the information at their level for decision making and to guide public health action. Data should be analyzed by comparing achievement against the set targets.

8.2.2 Monitoring and Evaluation

In order to maximize the standards in this guideline, the government will:

1. Ensure monitoring and evaluation of the implementation of this guideline shall be carried out at various levels as appropriate
2. Strengthen the national framework for monitoring and evaluation of infant feeding practices at all levels.
3. Ensure compliance with baby friendly health facilities through periodic monitoring and review to ensure compliance with the “Ten steps to successful breastfeeding”.
4. Ensure the growth and development of infants and young children is monitored as a routine nutrition intervention with particular attention from conception to two years, at-risk infants and young children especially low birth weight, sick infants and those born to HIV positive mothers.
5. Ensure any institutions using replacement feeding as a mechanism to address the needs of children that cannot be breastfed, meet pre-conditions (i.e. Baby Friendly Hospital / Health Centre Certification).
6. Ensure that any replacement feeding programme adhere to national guidelines and the Code for Marketing of Breastmilk Substitutes.
7. Ensure development of clear indicators and targets at national and county levels and annual tracking of the indicators.
8. Identify and advocate for MIYCN research priorities.

Monitoring

This is systematic and continuous process of examining data, procedures and practices to identify problems, develop solutions, and guide interventions. Monitoring also helps in measuring achievement of targets. The key steps in monitoring the MIYCN program will be:

- Developing/reviewing data collection and reporting tools
- Collection of data on nutrition programs
- Compare program output/outcome with set targets and baselines
- Use data for decision making and planning

The routine data that will be collected by the health worker and will be used to track Nutrition programme performance. Monitoring data will be collected through the Health Information System (HIS). The HIS is the routine source of health facility service statistics where DON will get required data directly through the DHIS. The HIS will rely on HWs at facility level to collect patient data and HIS staff to aggregate the data and report it on standardized forms. The routine data that will be collected through HIS for monitoring of activities will be: age/weight (Underweight), age/height (stunting), weight/height (wasting), and exclusive breastfeeding, integrated management of acute malnutrition (IMAM), Iron and folate supplementation in pregnant women and Vitamin A supplementation.

Types of monitoring indicators for these guidelines will include among others:

- Number of trainings on MIYCN
- Number of health workers trained on MIYCN
- Proportion of children seen at the health facility/community outreaches who are stunted/ underweight/wasted
- Number of infants who are breastfed within one hour of birth
- Number of MIYCN guidelines produced and distributed to health facilities and communities
- Number of HWs and CHWs trained on growth standards
- Number of children < 5 years attending growth monitoring sessions
- Number of pregnant mothers supplemented with iron and folate

Evaluation

This is a periodic assessment of overall program status that is performance/ effectiveness/ efficiency. It refers to analyzing at a pre-determined point in time; progress made towards meeting established goals and objectives periodic assessments will be conducted in ongoing nutrition interventions. Impact evaluation will be conducted along with the national health and demographic surveys while other national studies e.g. MICS will be explored as possible avenues to evaluate indicators. Some surveys will also be conducted periodically to inform nutrition programming such as Sentinel surveys conducted to determine SAM, GAM and MAM rates. Some evaluation indicators may include among others:

- Proportion of children who are underweight/ stunted/wasted at the population level
- Proportion of Health facilities certified as BFHI
- Proportion of community units that are implementing BFCI
- Proportion of children and mothers reporting dietary modifications
- Proportion of HIV exposed children and their mothers with improved nutrition status

Impact evaluation is usually carried out on a selected sample population. Impact evaluation requires careful planning and the development of scientific evaluation tools, which are acceptable by the standards of the scientific and ethical committees. It is expensive because it requires extra resources and well trained personnel, time and appropriate equipment. Information from the evaluation should be widely disseminated to all relevant stakeholders including policy makers.

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10 ANNEXES

ANNEX 1: HEALTHY FOOD PYRAMID

The national healthy food pyramid gives guidance on a nutritional way to eat, drink and remain healthy.



ANNEX 2: BREASTFEEDING POSITIONS



Cradle position



Cross cradle-Useful for newborns and small weak babies or any baby with a difficulty attachment.



Cross position for twins



Side-lying-

This position is more comfortable for the mother after delivery and it helps her to rest while breastfeeding. The mother and infant both lie on their sides facing each other

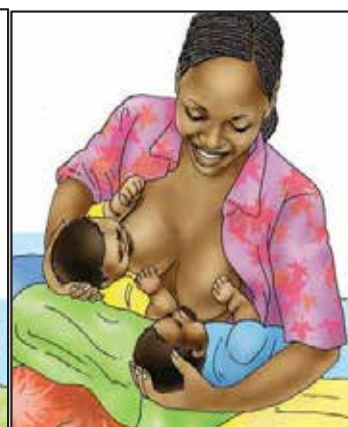


Under arm position

- This position is best used for
- After a caesarean section
 - When the nipples are painful
 - for small babies
 - Breastfeeding twins


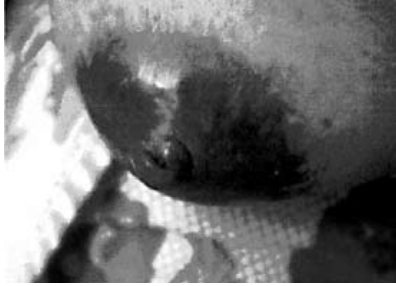
The mother is comfortable seated with the infant under her arm. The infant's body passes by the mother's side and his/her head is at breast level.


The mother support the infants head and body with her hand and forearm



Cross position for twins

ANNEX 3: COMMON BREASTFEEDING PROBLEMS

Breastfeeding Difficulty	Prevention	What to do
<p>Breast Engorgement</p>  <p>Photo by MwateChintu</p> <p>Symptoms:</p> <ul style="list-style-type: none"> Occurs on both breasts Swelling Tenderness Warmth Slight redness Pain Skin shiny, tight and nipple flattened and difficult to attach Can often occur on 3rd to 5th day after birth (when milk production increases dramatically and suckling not established) 	<ul style="list-style-type: none"> Put baby skin-to-skin with mother Start breastfeeding within an hour of birth Good attachment Breastfeed frequently on demand (as often and as long as baby wants) day and night: 8 to 12 times per 24 hours <p>Note: on the first day or two baby may only feed 2 to 3 times</p>	<ul style="list-style-type: none"> Improve attachment Breastfeed more frequently Gently stroke breasts to help stimulate milk flow Press around areola to reduce swelling, to help baby to attach Offer both breasts Express milk to relieve pressure until baby can suckle Apply warm compresses to help the milk flow before expressing Apply cold compresses to breasts to reduce swelling after expression
<p>Sore or Cracked Nipples</p>  <p>Photo by F. Savage King</p> <p>Symptoms:</p> <ul style="list-style-type: none"> Breast/nipple pain Cracks across top of nipple or around base Occasional bleeding May become infected 	<ul style="list-style-type: none"> Good attachment Do not use feeding bottles (sucking method is different than breastfeeding so can cause 'nipple confusion') Do not use soap or creams on nipples 	<ul style="list-style-type: none"> Do not stop breastfeeding Improve attachment making certain baby comes onto the breast from underneath and is held close Begin to breastfeed on the side that hurts less Change breastfeeding positions Let baby come off breast by him/herself Apply drops of breast milk to nipples Do not use soap or cream on nipples Do not wait until the breast is full to breastfeed Do not use bottles

Breastfeeding Difficulty	Prevention	What to do
<p>Plugged Ducts and Mastitis</p>  <p><i>Photo by F. Savage King</i></p> <p>Symptoms of Plugged Ducts:</p> <ul style="list-style-type: none"> • Lump, tender, localized redness, feels well, no fever <p>Symptoms of Mastitis:</p> <ul style="list-style-type: none"> • Hard swelling • Severe pain • Redness in one area • Generally not feeling well • Fever • Sometimes a baby refuses to feed as milk tastes more salty 	<ul style="list-style-type: none"> • Get support from the family to perform non-infant care chores • Ensure good attachment • Breastfeed on demand, and let infant finish/come off breast by him/herself • Avoid holding the breast in scissors hold • Avoid tight clothing 	<ul style="list-style-type: none"> • Do not stop breastfeeding (if milk is not removed risk of abscess increases; let baby feed as often as he or she will) • Apply warmth (water, hot towel) • Hold baby in different positions, so that the baby's tongue/chin is close to the site of the plugged duct/mastitis (the reddish area). The tongue/chin will massage the breast and release the milk from that part of the breast. • Ensure good attachment • For plugged ducts: apply gentle pressure to breast with flat of hand, rolling fingers towards nipple; then express milk or let baby feed every 2-3 hours day and night • Rest (mother) • Drink more liquids (mother) • If no improvement in 24 hours refer • If mastitis: express if too painful to suckle

Breastfeeding Difficulty	Prevention	What to do
<p>“Not enough” breast milk Perceived by mother</p> <ul style="list-style-type: none"> You “think” you do not have enough milk (Baby restless or unsatisfied) <p>First decide if the baby is getting enough breast milk or not (weight, urine and stool output)</p>	<ul style="list-style-type: none"> Put baby skin-to-skin with mother Start breastfeeding within an hour of birth Stay with baby Ensure good attachment Encourage frequent demand feeding Let baby release first breast first Breastfeed exclusively day and night Avoid bottles Encourage use of suitable family planning methods 	<ul style="list-style-type: none"> Listen to mother’s concerns and why she thinks she does not have enough milk Decide if there is a clear cause of the difficulty (poor breastfeeding pattern, mother’s mental condition, baby or mother ill) Check baby’s weight and urine and stool output (if poor weight gain refer) Build mother’s confidence – reassure her that she can produce enough milk Explain what the difficulty may be - growth spurts (2 to 3 weeks, 6 weeks, 3months) or cluster feeds Explain the importance of removing plenty of breast milk from the breast Check and improve attachment Suggest stopping any supplements for baby – no water, formulas, tea, or liquids Avoid separation from baby and care of baby by others (express breast milk when away from baby) Suggest improvements to feeding pattern. Feed baby frequently on demand, day and night. Let the baby come off the breast by him/herself Ensure mother gets enough to eat and drink The breasts make as much milk as the baby takes – if he or she takes more, the breasts make more (the breast is like a ‘factory’ – the more demand for milk, the more supply) Take local drink or food that helps mother to ‘make milk’ Ensure that the mother and baby are skin-to-skin as much as possible.
<p>Baby is not gaining weight: trend line on growth chart for infant less than 6 months is flat or slopes downward</p> <p>For infants after day 4 up to 6 weeks: at least 6 wets and 3 to 4 stools/ day</p>	<ul style="list-style-type: none"> Same as above 	<ul style="list-style-type: none"> Same as above If no improvement in weight gain after 1 week, refer mother and baby to nearest health facility

ANNEX 4: MICRONUTRIENT REQUIREMENTS IN PREGNANCY AND LACTATION

VITAMINS

NUTRIENT	DAILY REQUIREMENT	FUNCTIONS	SIGNS AND SYMPTOMS OF DEFICIENCIES	FOOD SOURCES
VITAMIN A	Non Pregnant: 500mcg/RE Pregnant: 800mcg/RE Lactating: 850mcg/RE	Maintenance of epithelial cells, mucous membranes and skin, immune system function, ensures good vision and bone growth	Poor dark adaptation, night blindness, growth failure, reduced resistance to infection.	Full-cream milk, fish oil, eggs, liver, carrots, mangos, papaya, pumpkin, yellow sweet potatoes, green leafy Vegetables.
VITAMIN B1	Non Pregnant: 1.1mg Pregnant: 1.4mg Lactating: 1.6mg	Energy metabolism, supports appetite and central nervous system functions	Beriberi, muscle weakness, anorexia, oedema, enlarged heart, confusion.	Whole-grain cereals, meat, poultry, fish, liver, milk, eggs, oil, seeds, and legumes.
VITAMIN B2	Non Pregnant: 1.1mg Pregnant: 1.4mg Lactating: 1.6mg	Energy metabolism supports normal vision, health and integrity of skin.	Inflammation of the tongue, angular Stomatitis, oedema and hyperemia of pharyngeal.	Milk, eggs, liver, meat, fish, yogurt, green leaves, whole-grained cereals, and legumes.
VITAMIN B3 (NIACIN)	Non Pregnant: 1.4mg Pregnant: 1.8mg Lactating: 1.7mg	Energy metabolism supports health and integrity of skin, nervous and digestive systems.	Pellagra, (3D's – Dermatitis, Diarrhea, Dementia)	Milk, eggs, meat, poultry, fish, peanuts, whole-grained cereals, unpolished rice, mushrooms.
VITAMIN B6 (PYRIDOXIN)	Non Pregnant: 1.3mg Pregnant: 1.9mg Lactating: 2.0mg	Metabolism and absorption of fats and proteins, converts tryptophan to niacin, helps to make red blood cells.	Inflammation of the tongue, lesions on the lips and corners of the mouth, peripheral neuropathy.	Legumes, potatoes, meat, fish, poultry, watermelon, oil seeds, maize, avocado, broccoli, green leafy vegetables.
VITAMIN B12 (COBALAMIN)	Non Pregnant: 2.4mg Pregnant: 2.6mg Lactating: 2.8mg	Required for synthesis of new cells, maintenance of nerve cells, metabolism of fatty acids and amino acids.	Anaemia, inflammation of the tongue, degeneration of peripheral nerves, skin hypersensitivity, dementia weakness and confusion.	Meat, fish, poultry, shellfish, cheese, eggs, milk
VITAMIN C (ASCORBIC ACID)	Non Pregnant: 45mg Pregnant: 50mg Lactating: 70mg	Antioxidant helps the body to use calcium and other nutrients to build bones and blood vessel walls, important for protein metabolism, increases non-heme iron and selenium absorption.	Scurvy, poor appetite, fatigue, retarded wound healing, bleeding gums.	Citrus fruits (guava, oranges etc); vegetables such as cabbage, green leaves tomatoes, peppers; Potatoes, yams and fresh milk.
VITAMIN D	Non Pregnant: 5mg Pregnant: 5mg Lactating: 5mg	Helps build bones and teeth.		Fish, milk, yoghurt/fermented milk, cheese, fortified fats, fortified cereals, eggs, liver

NUTRIENT	DAILY REQUIREMENT	FUNCTIONS	SIGNS AND SYMPTOMS OF DEFICIENCIES	FOOD SOURCES
VITAMIN E	Non Pregnant: 5mg Pregnant: 7.5mg Lactating: 7.5mg	Protects red and white blood cells membranes (Antioxidant), DNA synthesis, stimulates the immune system.	Anaemia in infants Abnormality of nerves and muscles, irritability, oedema.	Liver, milk fat, peanuts, green vegetables, corn oil, vegetable oils, whole grain products, egg yolk, nuts, soya, sunflower seeds, cotton seeds, coconut, tomatoes, sweet potatoes
VITAMIN K	Non Pregnant: 55mg Pregnant: 55mg Lactating: 55mg	Essential for blood clotting, important for bone health	Heavy menstrual bleeding in women, anemia, bruising, and bleeding of the gums or nose, osteoporosis, coronary heart disease	Green leafy vegetables, kales, cow pea leaves, cabbages, spinach, celery, liver, cereals

MINERALS

NUTRIENT	DAILY REQUIREMENT	FUNCTIONS	SIGNS AND SYMPTOMS OF DEFICIENCIES	FOOD SOURCES
IRON	Non Pregnant: 20mg Pregnant: 30mg Lactating: 32mg	Synthesis of haemoglobin, energy metabolism and utilization, antioxidant.	Anaemia, fatigue, pallor, hair loss, irritability, weakness, pica, brittle or grooved nails Impaired immune function	Red meat, liver, fish, poultry. Eggs, legumes, peanuts, cereals and dried fruits. Vitamin C, heme iron foods and fermented foods increase non-heme iron absorption.
FOLATE	Non Pregnant: 400mcg Pregnant: 600mcg Lactating: 500mcg	Synthesis of red blood cells, gastrointestinal cells and DNA.	Anaemia, neural tube defects in newborns.	Liver, green leafy vegetables, fish, legumes, groundnuts, oil seeds.
CALCIUM	Non Pregnant: 1000mg Pregnant: 1200mg Lactating: 1000mg	Grows strong bones and teeth, healthy nerves, heart, and muscles; develops heart rhythm and blood clotting.	skeletal abnormalities such as osteopenia, osteomalacia, osteoporosis and rickets, insomnia, premenstrual cramps, hypertension	Milk, yoghurt, traditional fermented milk, cheese, kales, spinach, simsim seeds, peas, white beans, sardines, broccoli, rhubarb
MAGNESIUM	Non Pregnant: 220mg Pregnant: 220mg Lactating: 270mg	Helps build strong bones and teeth; regulates insulin and blood sugar levels; builds and repairs tissue.	Sleep disorders, irritability, nausea and vomiting, abnormal heart rhythms, low blood pressure, confusion, muscle spasm and weakness, insomnia, poor nail growth	Green leafy vegetables, spinach, peas, nuts, pumpkin seeds, whole grains and cereals, broccoli
IODINE	Non Pregnant: 110mcg Pregnant: 120mcg Lactating: 200mcg	Regulates metabolism; helps nervous system develop.	Goiter, cretinism, hypothyroidism, mental retardation	Iodized salt, eggs, seafoods, dairy products

ZINC	Non Pregnant: 6.4mg Pregnant: 1st trimester: 3.4mg 2nd trimester: 4.2mg 3rd trimester: 6.0mg Lactating: 0–3 months: 5.8mg 4–6 months: 5.3mg 7–12 months: 4.3mg	Important for the function of many enzymes (antioxidant), involved in making genetic material, immune system function, smell and taste acuity, wound healing, important for growth and development	Reduced resistance to infection, skin ulceration, and stunted growth.	Organ meats, fish, poultry, eggs, whole grain cereals, legume, nuts, milk, yoghurt, vegetables, corn, guavas, pumpkin seeds,
SELENIUM	Non Pregnant: 26mcg Pregnant: 42mcg Lactating: 30mcg	Antioxidant, prevents the impairing of heart muscles, synthesis of glutathione peroxidase, phagocytic functions.	Reduced resistance to infection, joint deformities in children, damage to heart and skeletal muscles, lightening of skin and hair pigmentation.	Meat, eggs, seafood, whole grains, chicken liver, cooked sunflower seeds, plants grown in selenium rich soil.

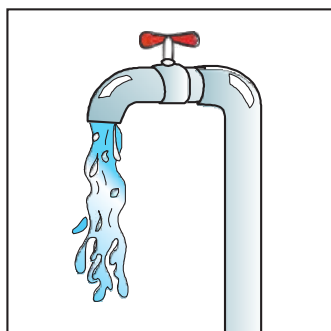
Source: Food and Agricultural Organization of the United Nations and World Health Organization: Human vitamin and mineral requirements. Report of a joint FAO/WHO consultation. Bangkok, Thailand 1998. Based on 15% bioavailability

ANNEX 5: BREASTFEED OBSERVATION JOB AID

Mother's name _____ Date _____	
Baby's name _____ Baby's age _____	
Signs that breastfeeding is going well: Signs of possible difficulty:	
GENERAL	
Mother: Mother: <ul style="list-style-type: none"> • Mother looks healthy • Mother relaxed and comfortable • Signs of bonding between mother and baby 	<ul style="list-style-type: none"> • Mother looks ill or depressed • Mother looks tense and uncomfortable • No mother/baby eye contact
Baby: Baby: <ul style="list-style-type: none"> • Baby looks healthy • Baby calm and relaxed • Baby reaches or roots for breast if hungry 	<ul style="list-style-type: none"> • Baby looks sleepy or ill • Baby is restless or crying • Baby does not reach or root
BREASTS	
<ul style="list-style-type: none"> • Breasts look healthy • No pain or discomfort • Breast well supported with fingers away from nipple 	<ul style="list-style-type: none"> • Breasts look red, swollen, or sore • Breast or nipple painful • Breast held with fingers on areola
BABY'S POSITION	
<ul style="list-style-type: none"> • Baby's head and body in line • Baby held close to mother's body • Baby's whole body supported • Baby approaches breast, nose to nipple 	<ul style="list-style-type: none"> • Baby's neck and head twisted to feed • Baby not held close • Baby supported by head and neck only • Baby approaches breast, lower lip/chin
BABY'S ATTACHMENT	
<ul style="list-style-type: none"> • More areola seen above baby's top lip • Baby's mouth open wide • Lower lip turned outwards • Baby's chin touches breast 	<ul style="list-style-type: none"> • More areola seen below bottom lip • Baby's mouth not open wide • Lips pointing forward or turned in • Baby's chin not touching breast
SUCKLING	
<ul style="list-style-type: none"> • Slow, deep sucks with pauses • Cheeks round when suckling • Baby releases breast when finished • Mother notices signs of oxytocin reflex 	<ul style="list-style-type: none"> • Rapid shallow sucks • Cheeks pulled in when suckling • Mother takes baby off the breast • No signs of oxytocin reflex noticed

ANNEX 6: CONDITIONS NEEDED FOR REPLACEMENT FEEDING IN SPECIAL CIRCUMSTANCES

- Is replacement feeding as a feeding option for you and your baby?



Access to safe water



Clean home environment



Good sanitation



Sufficient income



Safe storage for milk



Enough cooking fuel



Able to prepare night feeds



Good family support



Access to healthcare

ANNEX 7: FORM FOR ASSESSING READINESS FOR REPLACEMENT FEEDING (MOH, IYCF AND HIV COUNSELING CARDS)

Assessing the mother's situation

USE WITH: All HIV-positive women who are being counseled for the first time or who are thinking of changing their feeding option.

ASK: the questions in the left-hand column while pointing to the drawing that corresponds to each question. Her combined replies to these questions can help the woman to choose the most suitable method for her situation, after she has learned the advantages and disadvantages of each method.

FOR REPLACEMENT FEEDING TO BE A VIABLE OPTION: mothers should have all of the options in the final column unless those from the unclear column have a way forward.

MOST SUITABLE FEEDING METHOD		
QUESTIONS	BREASTFEEDING	REPLACEMENT FEEDING
Where do you get your drinking water?	River, stream, pond, or well	Piped water at home or can buy clean water
What kind of toilet do you have?	None or pit latrine	Water borne latrine or flush toilet
How much money could you afford for formula each month?*	Less than -----* available for formula each month	-----* available for replacement food each month
Do you have money for transportation to get formula when you run out	No	Always (unless expressing and heat-treating breast-milk)
Do you have a refrigerator with reliable power?	No, or irregular power supply	Yes, can continuously make replacement foods
Can you prepare each feed with boiled water and clean utensils	No	Yes, can continuously make replacement foods
How would you arrange night feeds	Preparation of milk feeds at night is difficult	Yes continuous preparation of milk feeds at night is possible
Does your family know you are HIV positive	No	Yes
Is your family supportive of milk feeding and are they willing to help?	Family not supportive and not willing to help, or don't know – can't discuss	Family supportive and willing to help

*You will need to know the monthly cost of formula in your community

ANNEX 8: KEY MIYCN INDICATOR COMPEDIUM

Indicator		Numerator/ denominator	Measurement/ calculation	Source documents	Frequency of data collection
1	% under-five children who are under-weight	Number of children under the age of 5 years attending MCH with weight for age below -2 SD	No. Underweight/Total weighed in CWC * 100	CHANIS tally MOH 704, CHANIS facility summary MOH 711A(facility), MOH 711 B(District)	Monthly
		Total number of children under 5 years weighed MCH clinic			
2	Proportion of children under-fives who are stunted	Number of children under the age of 5 years attending MCH with height for age below -2 SD	No. under- 5s with below -2 SD height for age in CWC/ total under-5s weighed in CWC * 100	CHANIS tally MOH 704, CHANIS facility summary MOH 711A(facility), MOH 711 B(District)	Monthly
		Total number of children under 5 years MCH clinic measured			
3	Percentage of children under the age of five years, who are wasted.	Number of under five year old children attending the CWC whose weight-for-height Z-score is below-2SD	Number of under five year old children attending the CWC whose weight-for-height Z-score is below-2SD divided by the number of children younger than 5 years attending the CWC Clinic screened for wasting./ population surveys multiplied by 100	MOH 713	Periodically during SMART surveys and surveillance activities
		number of children younger than 5 years attending the MCH Clinic screened for wasting./ population surveys			
4	Proportion of children 6-59 months receiving at least one dose of Vitamin A supplementation within six months	Number of children 6-59 months who received a dose of Vitamin A within 6 months	No. received VAS within 6 months/Total population projection of 6-59 Months children* 100	MOH 702 tally sheet, mother child booklet and summary sheet MOH 710	Monthly /biannually
		Total number of children 6-59 months in the catchment area			
5	Percentage of pregnant women receiving iron and folate supplements	Number of pregnant women who received iron/folate supplements at ANC during the month	No of pregnant women who were supplemented with iron/folate / total number of pregnant women in the catchment area * 100	ANC register– MOH 405, MOH 711 A, MOH 711 B, MOH 105	monthly
		Total number of pregnant women in the catchment area			
6	Percentage of children (new cases/re-attendances) with severe acute malnutrition receiving treatment	Number of new children (admitted into OTP or In-patient care) with severe acute malnutrition who received treatment at the end of the reporting month	Number of new children (admitted into OTP or In-patient care) with severe acute malnutrition who received treatment at the end of the reporting month divided by the number of children screened for malnutrition in the health facility multiplied by 100	MOH 368. MOH 409 and MOH 713	Monthly
		number of children screened for malnutrition in the health facility			

Indicator	Numerator/ denominator	Measurement/ calculation	Source documents	Frequency of data collection	
7	Percentage of new cases with moderate malnutrition receiving treatment	Number of new children (admitted into SFP) with moderate acute malnutrition at the end of the reporting month Number of children screened for malnutrition in the health facility	Number of new children (admitted into SFP) with moderate acute malnutrition at the end of the reporting month divided by the number of children screened for malnutrition in the health facility multiplied by 100	MOH 410 and MOH 713	Monthly
8	Percentage of children 1-5 years de-wormed at least twice at health facility during the year	Number of children 1-5 years de-wormed at health facility at least twice in health facilities Number of children below 5 years attending CWC.	Number of children 1-5 years de-wormed at health facility at least twice in health facilities expressed as a percentage of all children below the age of 5 years attending CWC multiplied by 2 visits per year.	MOH 704 and MOH 711	Monthly/biannual
9	Percentage of children under 5 years who are attending MCH for growth monitoring for the first time.	Number of Children under 5 years who are attending MCH for growth monitoring for the first time Total number of children under five years old in the catchment area	Number attending CWC for growth monitoring for new visits/ Population projection of under – 5s in catchment area. *100	CHANIS facility summary, MOH 704, MOH 105(district service delivery)	monthly
10	Proportion of infants initiated on breast milk within 1 hour after delivery	Number of new infants breastfed within the first hour after birth Number of live births delivered in a health facility	Number of new infants breastfed within the first hour after birth divided by the number of live births delivered in a health facility multiplied by 100	Maternity register, MOH 713	Monthly
11	Proportion of infants less than 6 months age of age exclusively breastfed	Number of infants less than 6 months of age who received only breast milk during the previous day (24hours recall) Total number of infants less than 6 months of age in the MCH clinic	No. of infants exclusively breastfeed/ total number children less than 6 months *100	CHANIS revised MOH 704, 713	monthly

ANNEX 9: DEFINITION OF CORE INDICATORS

1. Breast feeding initiation

Early initiation of breastfeeding: the proportion of children born in the last 24 months who were put to the breast within one hour of birth

$$\frac{\text{Children born in the last 24 months who were put to the breast within one hour of birth}}{\text{Children born in the last 24 months}}$$

Notes:

- This indicator is based on historical recall. The denominator and the numerator include living and deceased children who were born in the last 24 months
- It is recommended that the indicator be further disaggregated and reported for
 - live birth occurring in the last 12 months
 - live births occurring between the last 12 and 24 months

2. Exclusive breast feeding

Exclusive breastfeeding under 6 months: Proportion of infants 0 to <6 months of age who are fed exclusively on breast milk.

$$\frac{\text{Infants 0 to <6 months of age who received only breast milk during the previous day}}{\text{Infants 0 to <6 months of age}}$$

3. Continued breastfeeding at 1 year

$$\frac{\text{Proportion of children 6 to 24 months of age who received breast milk during the previous day}}{\text{Children 6 to 24 months of age}}$$

4. Introduction of complementary foods

Introduction of solid, semi-solid or soft foods: Proportion of infants 6 to 8 months of age who receive solid, semi-solid or soft foods

$$\frac{\text{Infants 6 to 8 months who received solid or semi-solid foods during the previous day}}{\text{Infants 6 to 8 months of age}}$$

Dietary diversity

1. Minimum dietary diversity: Proportion of children 6 – 23 months of age who receive foods from 4 or more food groups

$$\frac{\text{Children 6 – 23 months of age who receive foods from >4 or more food groups during the previous day}}{\text{Children 6-23 months of age}}$$

Children 6-23 months of age

Notes: the 7 food groups used for tabulation of this indicator are

- grains, roots and tubers
- legumes and nuts
- Dairy products (milk, yoghurt cheese)
- Flesh foods (meat, fish, poultry and liver/organ meats)

- eggs
- Vitamin A rich fruits and vegetables
- Other fruits and vegetables

Consumption of any amount of food from each food group is sufficient to count

2. Meal frequency

Minimum meal frequency: Proportion of breastfed and non-breastfed children 6-23 months of age who receive solid, semi-solid, or soft foods(but also including milk feeds for non-breastfed children) the minimum number of times or more

Breastfed children 6-23 months of age who receive solid, semi-solid, or soft foods the minimum number of times or more during the previous day

Breastfed children 6-23 months

And

Non breastfed children 6-23 months of age who receive solid, semi-solid, or soft foods the minimum number of times or more during the previous day

Breastfed children 6-23 months

Notes: Minimum is defined as:

- 2 times for breastfed infants 6-8 months
- 3 times for breastfed children 9-23 months
- 4 times for non-breastfed children 6-23 months
- Meals include both meals and snacks(other than trivial amounts), and frequency is based on caregiver report

3. Continued breastfeeding at 2 years

Proportion of children 20-23 months of age who are fed breastmilk

Children 20-23 months of age who are fed breastmilk

Children 20-23 months of age

Notes: The title of this indicator on continued breastfeeding reflects an approximation of the age range covered.

4. Bottle feeding of infants

Proportion of children 0-23 months of age who are fed with a bottle.

Children 0-23 months of age who are fed with a bottle during the previous day

Children 0-23 months

5. Under-fives who are underweight

Proportion of children under five years who are underweight

Number of children under the age of 5 years attending MCH with weight for age below -2 SD
Total number of children under 5 years weighed MCH clinic

ANNEX 10: BMI For Age Reference Chart for Children 5-17yrs

BMI for Age Reference Chart for Children 5 - 17 yrs

BOYS					GIRLS					
-3 SD		-2 SD		AGE Year: Month	-1 SD		-2 SD		-3 SD	
Severe		Moderate			Mild		Moderate		Severe	
Height(cm)	Weight(kg)	Height(cm)	Weight(kg)		Height(cm)	Weight(kg)	Height(cm)	Weight(kg)	Height(cm)	Weight(kg)
96.5	11.27	101.1	13.29	5: 1	104.8	15.27	100.1	12.73	95.3	10.72
96.9	11.36	101.6	13.42	5: 2	105.3	15.41	100.5	12.83	95.7	10.81
97.4	11.48	102	13.53	5: 3	105.8	15.56	101	12.96	96.1	10.90
97.8	11.57	102.5	13.66	5: 4	106.3	15.71	101.4	13.06	96.5	10.99
98.2	11.67	103	13.79	5: 5	106.8	15.85	101.9	13.19	97	11.01
98.7	11.79	103.4	13.90	5: 6	107.2	15.97	102.3	13.29	97.4	11.10
99.1	11.88	103.9	14.03	5: 7	107.7	16.12	102.7	13.40	97.8	11.19
99.5	11.98	104.3	14.14	5: 8	108.2	16.27	103.2	13.53	98.2	11.28
99.9	12.08	104.8	14.28	5: 9	108.6	16.39	103.6	13.63	98.6	11.37
100.4	12.20	105.2	14.39	5: 10	109.1	16.54	104	13.74	99	11.47
100.8	12.29	105.7	14.52	5: 11	109.6	16.70	104.5	13.87	99.4	11.56
101.2	12.39	106.1	14.63	6: 0	110	16.82	104.9	13.98	99.8	11.65
101.6	12.49	106.5	14.74	6: 1	110.5	16.97	105.3	14.08	100.2	11.75
102	12.69	107	15.00	6: 2	110.9	17.10	105.7	14.19	100.5	11.82
102.4	12.79	107.4	15.11	6: 3	111.3	17.22	106.1	14.30	100.9	11.91
102.8	12.89	107.8	15.22	6: 4	111.8	17.37	106.6	14.43	101.3	12.01
103.2	12.99	108.2	15.34	6: 5	112.2	17.50	107	14.54	101.7	12.10
103.6	13.09	108.7	15.48	6: 6	112.7	17.65	107.4	14.65	102.1	12.20
103.9	13.17	109.1	15.59	6: 7	113.1	17.78	107.8	14.76	102.5	12.29
104.3	13.27	109.5	15.71	6: 8	113.6	17.94	108.2	14.87	102.9	12.39
104.7	13.37	109.9	15.82	6: 9	114	18.06	108.6	14.98	103.2	12.46
105.1	13.48	110.3	15.94	6: 10	114.5	18.22	109	15.09	103.6	12.56
105.5	13.58	110.8	16.08	6: 11	114.9	18.35	109.5	15.23	104	12.65

BOYS						GIRLS								
-3 SD			-2 SD			-1 SD			-2 SD			-3 SD		
Severe			Moderate			Mild			Moderate			Severe		
Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)	
105.9	13.79		111.2	16.20	19.24	116.4	19.24		115.3	18.48	109.9	15.34	104.4	12.86
106.3	13.90		111.6	16.44	19.41	116.9	19.41		115.8	18.64	110.3	15.45	104.8	12.96
106.6	13.98		112	16.56	19.54	117.3	19.54		116.2	18.90	110.7	15.69	105.2	13.06
107	14.08		112.4	16.68	19.84	117.8	19.84		116.7	19.07	111.1	15.80	105.6	13.16
107.4	14.19		112.8	16.80	19.98	118.2	19.98		117.1	19.20	111.6	15.94	106	13.26
107.8	14.29		113.2	16.91	20.11	118.6	20.11		117.6	19.36	112	16.06	106.4	13.36
108.1	14.37		113.6	17.03	20.28	119.1	20.28		118	19.49	112.4	16.17	106.8	13.46
108.5	14.48		114	17.15	20.42	119.5	20.42		118.5	19.66	112.8	16.29	107.2	13.56
108.9	14.59		114.4	17.28	20.56	119.9	20.56		118.9	19.79	113.2	16.40	107.6	13.66
109.2	14.79		114.8	17.53	20.73	120.4	20.73		119.4	20.10	113.7	16.55	108	13.76
109.6	14.90		115.2	17.65	21.01	120.8	21.01		119.8	20.24	114.1	16.79	108.4	13.98
110	15.00		115.6	17.77	21.15	121.2	21.15		120.3	20.41	114.5	16.91	108.8	14.09
110.3	15.09		116	17.90	21.29	121.6	21.29		120.8	20.58	115	17.06	109.2	14.19
110.7	15.20		116.4	18.02	21.43	122	21.43		121.2	20.71	115.4	17.18	109.6	14.29
111	15.28		116.7	18.11	21.61	122.5	21.61		121.7	21.03	115.8	17.30	110	14.40
111.4	15.39		117.1	18.24	21.75	122.9	21.75		122.1	21.17	116.3	17.45	110.4	14.50
111.7	15.47		117.5	18.50	22.04	123.3	22.04		122.6	21.34	116.7	17.70	110.8	14.61
112.1	15.71		117.9	18.63	22.19	123.7	22.19		123.1	21.52	117.1	17.83	111.2	14.84
112.4	15.79		118.3	18.75	22.33	124.1	22.33		123.5	21.81	117.6	17.98	111.6	14.95
112.8	15.90		118.7	18.88	22.48	124.5	22.48		124	21.99	118	18.10	112	15.05
113.1	15.99		119	18.98	22.62	124.9	22.62		124.5	22.17	118.5	18.25	112.5	15.19
113.5	16.10		119.4	19.10	22.92	125.3	22.92		125	22.34	118.9	18.52	112.9	15.30
113.8	16.19		119.8	19.38	23.07	125.7	23.07		125.4	22.64	119.4	18.68	113.3	15.53
114.2	16.30		120.2	19.50	23.22	126.1	23.22		125.9	22.83	119.8	18.80	113.7	15.64
114.5	16.52		120.5	19.60	23.40	126.6	23.40		126.4	23.01	120.3	18.96	114.2	15.78
114.9	16.63		120.9	19.73	23.55	127	23.55		126.9	23.35	120.7	19.23	114.6	15.89
115.2	16.72		121.3	19.86	23.86	127.4	23.86		127.3	23.50	121.2	19.39	115	16.00
115.6	16.84		121.7	19.99	24.01	127.8	24.01		127.8	23.68	121.6	19.52	115.5	16.28

BOYS						GIRLS								
-3 SD			-2 SD			-1 SD			-2 SD			-3 SD		
Severe			Moderate			Mild			Moderate			Severe		
Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)	
115.9	16.93		122	20.24		128.2	24.16		128.3	24.03		122.1	19.68	
116.3	17.04		122.4	20.38		128.6	24.31		128.8	24.22		122.6	19.99	
116.6	17.27		122.8	20.51		129	24.63		129.3	24.41		123	20.12	
116.9	17.36		123.2	20.64		129.4	24.78		129.8	24.77		123.5	20.29	
117.3	17.47		123.5	20.74		129.8	24.94		130.3	24.96		124	20.60	
117.6	17.56		123.9	21.03		130.2	25.09		130.8	25.15		124.4	20.74	
118	17.68		124.3	21.17		130.6	25.41		131.2	25.48		124.9	20.90	
118.3	17.91		124.7	21.30		131	25.57		131.7	25.67		125.4	21.07	
118.7	18.03		125	21.41		131.4	25.73		132.2	25.87		125.8	21.36	
119	18.13		125.4	21.70		131.8	26.06		132.7	26.24		126.3	21.53	
119.3	18.22		125.8	21.84		132.2	26.22		133.2	26.44		126.8	21.71	
119.7	18.34		126.2	21.98		132.6	26.37		133.7	26.81		127.3	22.04	
120	18.58		126.5	22.08		133	26.53		134.2	27.01		127.8	22.21	
120.4	18.70		126.9	22.38		133.4	26.87		134.8	27.26		128.2	22.35	
120.7	18.79		127.3	22.53		133.8	27.03		135.3	27.64		128.7	22.69	
121.1	18.92		127.7	22.67		134.3	27.24		135.8	27.85		129.2	22.87	
121.4	19.16		128.1	22.81		134.7	27.58		136.3	28.24		129.7	23.05	
121.8	19.29		128.5	23.12		135.1	27.74		136.8	28.45		130.2	23.39	
122.2	19.41		128.8	23.23		135.5	27.91		137.3	28.84		130.7	23.57	
122.5	19.51		129.2	23.37		135.9	28.26		137.8	29.05		131.2	23.75	
122.9	19.79		129.7	23.72		136.4	28.47		138.3	29.26		131.7	24.11	
123.3	19.92		130.1	23.87		136.8	28.63		138.9	29.71		132.2	24.29	
123.7	20.05		130.5	24.01		137.3	29.03		139.4	29.93		132.7	24.65	
124.1	20.18		130.9	24.16		137.7	29.20		139.9	30.34		133.2	24.84	
124.5	20.46		131.3	24.48		138.2	29.60		140.4	30.55		133.7	25.03	
124.9	20.59		131.7	24.63		138.6	29.78		140.9	30.97		134.2	25.39	
125.3	20.72		132.2	24.82		139.1	29.99		141.4	31.19		134.7	25.58	
125.7	20.86		132.6	25.14		139.6	30.40		141.9	31.61		135.2	25.96	

BOYS						GIRLS					
-3 SD			-2 SD			-1 SD			-2 SD		
Severe			Moderate			Mild			Moderate		
Height(cm)	Weight(kg)	Height(cm)	Weight(kg)	Height(cm)	Weight(kg)	Height(cm)	Weight(kg)	Height(cm)	Weight(kg)	Height(cm)	Weight(kg)
126.1	21.15	133.1	25.33	140	30.58	142.4	31.84	135.7	26.15	128.9	21.60
126.5	21.28	133.5	25.49	140.5	30.99	142.9	32.26	136.1	26.49	129.3	21.73
126.9	21.42	134	25.86	141	31.21	143.4	32.49	136.6	26.68	129.8	22.07
127.4	21.75	134.4	26.01	141.5	31.43	143.9	32.92	137.1	26.88	130.3	22.24
127.8	21.89	134.9	26.39	142	31.86	144.4	33.36	137.6	27.26	130.7	22.55
128.3	22.06	135.4	26.58	142.5	32.08	144.9	33.59	138	27.42	131.2	22.72
128.7	22.36	135.9	26.78	143	32.51	145.3	33.99	138.5	27.81	131.6	22.86
129.2	22.54	136.4	27.16	143.6	32.79	145.8	34.22	138.9	27.98	132	23.17
129.7	22.71	136.9	27.36	144.1	33.22	146.2	34.63	139.3	28.33	132.5	23.35
130.2	23.05	137.4	27.56	144.6	33.45	146.7	34.86	139.8	28.53	132.9	23.49
130.7	23.23	137.9	27.95	145.2	33.94	147.1	35.27	140.2	28.89	133.3	23.81
131.2	23.41	138.5	28.20	145.7	34.18	147.5	35.46	140.6	29.06	133.7	23.95
131.7	23.76	139	28.60	146.3	34.67	147.9	35.87	141	29.42	134.1	24.28
132.2	23.94	139.5	28.80	146.9	34.96	148.3	36.07	141.4	29.59	134.5	24.42
132.7	24.12	140.1	29.05	147.5	35.46	148.7	36.48	141.8	29.76	134.8	24.53
133.2	24.48	140.6	29.45	148	35.70	149.1	36.90	142.1	30.09	135.2	24.86
133.8	24.71	141.2	29.71	148.6	36.21	149.4	37.05	142.5	30.26	135.6	25.01
134.3	24.89	141.7	30.12	149.2	36.51	149.8	37.47	142.8	30.59	135.9	25.12
134.8	25.26	142.3	30.37	149.8	37.03	150.1	37.63	143.2	30.76	136.2	25.41
135.4	25.48	142.9	30.83	150.4	37.32	150.4	38.00	143.5	31.09	136.5	25.53
135.9	25.86	143.4	31.05	151	37.85	150.8	38.20	143.8	31.22	136.9	25.86
136.4	26.05	144	31.52	151.5	38.10	151.1	38.58	144.1	31.56	137.2	25.98
137	26.28	144.5	31.74	152.1	38.63	151.3	38.69	144.4	31.69	137.4	26.05
137.5	26.66	145.1	32.00	152.7	38.94	151.6	39.07	144.7	31.83	137.7	26.36
138	26.85	145.7	32.48	153.3	39.48	151.9	39.23	144.9	32.12	138	26.47
138.6	27.09	146.2	32.70	153.8	39.74	152.1	39.56	145.2	32.26	138.2	26.55
139.1	27.48	146.7	33.14	154.4	40.29	152.4	39.72	145.4	32.56	138.5	26.86
139.6	27.67	147.3	33.41	154.9	40.79	152.6	40.05	145.7	32.69	138.7	26.93

BOYS						GIRLS					
-3 SD			-2 SD			-1 SD			-2 SD		
Severe			Moderate			Mild			Moderate		
Weight(kg)	Height(cm)	Weight(kg)	Height(cm)	Weight(kg)	Year: Month	Height(cm)	Weight(kg)	Year: Month	Height(cm)	Weight(kg)	Severe
140.1	28.07	147.8	33.86	155.5	14: 0	152.8	40.16	14: 0	145.9	32.78	139
140.6	28.27	148.3	34.09	156	14: 1	153.1	40.55	14: 1	146.1	33.09	139.2
141.1	28.47	148.8	34.54	156.5	14: 2	153.3	40.66	14: 2	146.3	33.18	139.4
141.6	28.87	149.3	34.77	157.1	14: 3	153.5	41.00	14: 3	146.5	33.48	139.6
142.1	29.08	149.8	35.23	157.6	14: 4	153.6	41.05	14: 4	146.7	33.57	139.8
142.5	29.44	150.3	35.47	158.1	14: 5	153.8	41.40	14: 5	146.9	33.66	140
143	29.65	150.8	35.70	158.5	14: 6	154	41.50	14: 6	147.1	33.97	140.1
143.4	29.82	151.2	36.12	159	14: 7	154.1	41.79	14: 7	147.2	34.02	140.3
143.9	30.23	151.7	36.36	159.5	14: 8	154.3	41.90	14: 8	147.4	34.11	140.5
144.3	30.40	152.1	36.78	159.9	14: 9	154.4	41.96	14: 9	147.5	34.37	140.6
144.7	30.57	152.5	36.98	160.3	14: 10	154.5	42.25	14: 10	147.7	34.47	140.8
145.1	30.95	152.9	37.41	160.7	14: 11	154.7	42.36	14: 11	147.8	34.51	140.9
145.5	31.12	153.4	37.65	161.2	15: 0	154.8	42.65	15: 0	147.9	34.78	141
145.9	31.29	153.7	38.03	161.5	15: 1	154.9	42.71	15: 1	148	34.83	141.2
146.3	31.68	154.1	38.23	161.9	15: 2	155	42.76	15: 2	148.1	34.87	141.3
146.7	31.85	154.5	38.43	162.3	15: 3	155.1	43.06	15: 3	148.2	35.14	141.4
147.1	32.02	154.9	38.87	162.7	15: 4	155.2	43.12	15: 4	148.3	35.19	141.5
147.4	32.37	155.2	39.02	163	15: 5	155.3	43.17	15: 5	148.4	35.24	141.6
147.7	32.50	155.5	39.41	163.3	15: 6	155.4	43.47	15: 6	148.5	35.28	141.7
148.1	32.90	155.9	39.62	163.7	15: 7	155.4	43.47	15: 7	148.6	35.55	141.8
148.4	33.03	156.2	39.77	164	15: 8	155.5	43.52	15: 8	148.7	35.60	141.9
148.7	33.17	156.5	40.17	164.3	15: 9	155.6	43.82	15: 9	148.7	35.60	141.9
149	33.30	156.8	40.32	164.6	15: 10	155.6	43.82	15: 10	148.8	35.65	142
149.3	33.66	157.1	40.72	164.9	15: 11	155.7	43.88	15: 11	148.9	35.92	142.1
149.6	33.79	157.4	40.88	165.1	16: 0	155.7	44.12	16: 0	148.9	35.92	142.2
149.9	33.93	157.6	40.98	165.4	16: 1	155.8	44.18	16: 1	149	35.97	142.2
150.1	34.25	157.9	41.39	165.6	16: 2	155.8	44.18	16: 2	149.1	36.01	142.3
150.4	34.38	158.1	41.49	165.9	16: 3	155.9	44.23	16: 3	149.1	36.01	142.3

BOYS						GIRLS					
-3 SD			-2 SD			-1 SD			-2 SD		
Severe			Moderate			Mild			Moderate		
Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)		Height(cm)	Weight(kg)	
150.6	34.47		158.4	41.90		166.1	50.76		149.2	36.06	
150.9	34.84		158.6	42.01		166.3	51.16		149.2	36.28	
151.1	34.93		158.8	42.11		166.5	51.29		149.2	36.28	
151.3	35.02		159	42.47		166.7	51.69		149.3	36.33	
151.5	35.12		159.2	42.58		166.9	51.81		149.3	36.33	
151.7	35.44		159.4	42.69		167.1	52.21		149.4	36.38	
151.9	35.53		159.6	43.05		167.2	52.28		149.4	36.38	
152.1	35.63		159.7	43.10		167.4	52.40		149.4	36.38	
152.2	35.67		159.9	43.21		167.5	52.75		149.5	36.65	
152.4	36.00		160	43.52		167.7	52.87		149.5	36.65	
152.5	36.05		160.2	43.63		167.8	53.22		149.5	36.65	
152.7	36.14		160.3	43.68		167.9	53.28		149.6	36.70	
152.8	36.19		160.4	44.00		168	53.34		149.6	36.70	
153	36.52		160.5	44.05		168.1	53.69		149.6	36.70	
153.1	36.57		160.6	44.10		168.2	53.75		149.7	36.75	
153.2	36.61		160.8	44.21		168.3	54.10		149.7	36.75	
153.3	36.66		160.9	44.53		168.4	54.16		149.7	36.75	
153.4	36.71		160.9	44.53		168.5	54.23		149.8	36.80	
153.5	36.99		161	44.58		168.5	54.51		149.8	36.80	
153.6	37.04		161.1	44.90		168.6	54.58		149.8	36.80	

Instructions

Step 1: Measurement

- ☒ Confirm that the age of the child in “years” and “months” is between 5 -17 yrs.
- ☒ Measure the child's height in “cm” and weight in “kg” and record on a piece of paper.

Step 2: Read the chart

- ☒ Go to the BMI for age 5 – 17 yrs reference chart and identify the column marked AGE at the centre of the chart.
- ☒ Find the age of the child on the chart, and place your index finger on this row. If the child is boy read the cells on the left side, if the child is a girl, read the cells on the right side. Choose the cell that is nearest to the actual height you have measured.

ANNEX 11: NATIONAL POLICY ON MICRONUTRIENT POWDERS



MINISTRY OF HEALTH

NATIONAL POLICY GUIDELINE ON HOME FORTIFICATION WITH MICRONUTRIENT POWDER (MNP) FOR CHILDREN 6-23 MONTHS IN KENYA

Purpose of Micronutrient Powder (MNP) Supplementation

To improve the micronutrient status of children 6-23 months by improving the quality of their complementary feeding.

Target Group	6-23 months
Dose and Frequency	Each child should receive 10 sachets per month to be consumed every third day and no more than one sachet per day.
Duration	Each child should receive 60 sachets within 6 months.
Delivery System	Health facility

Sachet formulation (1 gram)	Vitamin A: 400 µg RE, Vitamin D : 5 µg, Vitamin E: 5 mg, Vitamin C : 30 mg, Thiamine (vitamin B1): 0.5 mg, Riboflavin (vitamin B2) : 0.5 mg, Niacin (vitamin B3): 6 mg, Vitamin B6 (pyridoxine): 0.5 mg, Vitamin B12 (cobalamine): 0.9 µg, Folate :150 µg, Iron: 10 mg, Zinc: 4.1 mg, Copper:0.56 mg, Selenium: 17 µg, Iodine: 90.0 µg
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Note:

1. Do not combine MNPs with other specially formulated products, such as RUTF (ready-to-use therapeutic food) for treatment of SAM (Severe Acute Malnutrition) and RUSF (Ready-to-Use Supplementary Food) or fortified blended foods such as WSB++ (wheat-soy-blend) or CSB++ (corn-soy-blend) for treatment MAM (Moderate Acute Malnutrition)
2. MNPs should also be given in malaria endemic areas.
3. Behavior change communication strategy should promote awareness and correct use of MNP alongside the recommended breastfeeding practices and commencement of complementary foods at 6 months.

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 Director of Public health and Sanitation
 Ministry of Health, Kenya
9th August 2013



USAID
FROM THE AMERICAN PEOPLE



Maternal and Child Health
Integrated Program



World Health
Organization

