An illustration of a woman with dark hair tied back, wearing a blue short-sleeved top, sitting on a stool. She is holding a baby in her lap, who is wearing a pink shirt and a yellow patterned wrap. The woman is using a spoon to feed the baby from a small green bowl. The background features a light orange grid pattern.

National Guideline on Adolescent, Maternal Infant and Young Child Nutrition

June 2016
Addis Ababa, Ethiopia

Foreword

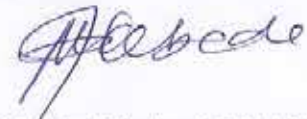
This document serves as an implementation guide for the adolescent, maternal, infant and young child nutrition in Ethiopia. It has incorporated up to date information and recommendations from the latest in the field.

Ethiopia, through progressive implementation of different program interventions has made progress in improving maternal and child health. An evidence based reduction in child mortality by providing optimal infant and young child feeding. Short stature reflects previous poor socioeconomic conditions and inadequate nutrition during childhood and adolescence.

The intergenerational malnutrition cycle has to be broken through intergenerational implementation of selected cost effective nutrition activities. The National Nutrition Program has clearly shown that life cycle approach of tackling of malnutrition is the strategy of the government. The other area of focus is empowering women to improve nutritional status of women and children. This shown clearly by integrating gender into all the programs and linkage to livelihood activities.

One of the strategy to reduce anemia and spina bifida is iron folate supplementation. Pregnant women are supplemented with iron folate during pregnancy. This strategy has decreased anemia in women of child bearing age.

I strongly believe that this national guideline for Adolescent, Maternal, Infant and Young Child Nutrition will be useful in improving the nutrition services needed for the target group. Promising the implementation of the guideline I would like to thank the invaluable contribution of all individuals and organizations participated in the preparation of the Adolescent, Maternal, Infant and Young Child Nutrition guideline.



Kebede Worku(MD,MPH)

State Minister

Acknowledgments

The National Adolescent, Maternal, Infant and Young Child Nutrition (AMIYCN) guideline is developed to achieve the specific interventions stated under strategic objective 1 and 2 of the revised National Nutrition Program, corresponding initiatives and activities. It is developed with the context of and in compliance with national policies, strategies and programs.

The guideline built upon the past and continues to achieve nutrition program implementation in the country. The guideline is also believed to guide the practical support needed for feeding in exceptionally difficult circumstances, including low birth weight infants, malnourished children, infants and children in emergencies, infants born to HIV-positive parents and other vulnerable children living under challenging circumstances.

The Federal Democratic Republic of Ethiopia, Ministry of Health gratefully acknowledges the technical and financial support provided by partners and particularly individuals to the development of the guideline.



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PREFACE

Infant and young child feeding are a cornerstone of care for childhood development. World-wide, about 30per cent of children under five are stunted as a consequence of poor feeding and repeated infections. The figure in Ethiopia stands at 44per cent (EDHS 2011), much higher than the global average and one of the highest in sub-Saharan Africa.

Food insecurity and malnutrition in adolescents and pregnant women, compounded by gender discrimination, leads to an intergenerational cycle of nutrition problems which manifest as stillbirths, miscarriages, low birth weight, growth failure, increased risk of maternal and neonatal mortality and morbidity, impaired cognitive development, sub-optimal productivity in adults and reduced economic growth for the nation.

Strategies to improve Adolescent Maternal Infant and Young Child Nutrition (AMYCN) are a key component of the child survival and development programs and act as important tools in breaking the malnutrition intergenerational cycle. The guideline provides nutrition practitioners with guidance as to how to counsel and support optimal nutrition practices at different levels of the cycle and during special health conditions.

Adolescent Nutrition: There is increased nutritional need for adolescents. This is related to the fact that adolescents gain up to 50per cent of their adult weight, more than 20per cent of their adult height, and 50per cent of their adult skeletal mass during this period (WHO 2005)¹. Caloric and protein requirements are maximal. The main nutrition problems affecting adolescent populations worldwide include under nutrition, iron deficiency and anemia; iodine deficiency; Vitamin A deficiency; calcium deficiency and other specific nutrient deficiencies like zinc and folate, and obesity (WHO 2005).

Improving adolescent girls' nutrition and delaying their first pregnancy is an effective intervention to break this intergenerational cycle of malnutrition. One major reason for focusing on adolescents is that this period of life offers a unique opportunity to break a range of vicious cycles that are passed from one generation to the next, such as poor health and nutrition, poverty, gender discrimination and violence. Early intervention is particularly critical in adolescent girls, whose nutritional status is marginal to begin with, so that they enter their first pregnancy in a better nutritional state.

Cognizant to these prevailing health and nutritional problems in adolescents and its consequences, the Government of Ethiopia (GoE) endorsed important policies, strategies and programs with a view towards improving the situation. This guideline is in line with the existing policies and points out how adolescent girls must receive health and nutrition services and support from health facilities, schools, their families and communities.

Maternal Nutrition: A mother's nutritional status, diet and lifestyle influence pregnancy and lactation outcomes and can have lasting effects on her offspring's health. Inadequate intakes of certain micronutrients such as folic acid and iodine during pregnancy, can contribute to birth defects and/or the inability of the child to develop to his/ her full cognitive potential.

After conception has occurred, a diversified diet that supports appropriate maternal weight gain and meets maternal and fetal micronutrient needs contributes to creating a favorable intrauterine

environment to support optimal pregnancy outcomes. Good nutrition continues to be important after birth since a diet with insufficient levels of critical nutrients during lactation can deplete maternal stores and may lower micro-nutrient levels in breast milk.

Malnutrition in adolescents and pregnant women, compounded by gender discrimination, leads to an intergenerational cycle of nutrition problems, which manifests as stillbirths, miscarriages, low birth weight, growth failure, increased risk of maternal and neonatal mortality, impaired cognitive development, sub-optimal productivity in adults and reduced economic growth for the nation.

A diversified diet that supports appropriate maternal weight gain and meets maternal and fetal nutrient needs contributes to creating a favorable intrauterine environment. However, for a variety of reasons; pregnant and lactating women often do not consume the recommended amounts of essential nutrients.

Body Mass Index (BMI) is one of the measures used to determine a woman's nutritional status. It is a measure of thinness or obesity. Measuring BMI prior to pregnancy is important because it allows a health worker to determine the weight that should be gained during pregnancy.

Infant and Young Child Feeding (IYFC): The various elements of the Community IYCF Counselling Package are based on several WHO/UNICEF IYCF guidance documents, training and other materials, including the WHO/UNICEF Breastfeeding, Complementary Feeding and Infant and Young Child Feeding Counselling training courses.

The commonly practiced optimal infant and young child feeding practices are as follows:
Initiation of breastfeeding within one hour after birth, six months of exclusive breastfeeding, continued breastfeeding for two years or beyond, timely, adequate, safe and age appropriate complementary foods and feeding after completed six months.

Moreover, this guideline incorporates IYCF practices into exceptionally difficult circumstances. This includes IYCF practice in the context of Mother-to-Child Transmission of HIV (MTCT).

In line with the World Health Organization guidance on Essential Nutrition Actions (ENA), IYCF in emergency situations are also part of the guideline. Children in these circumstances are at a high risk of malnutrition and, therefore, require special attention and support to ensure optimal IYCF.

Finally, the guideline also includes the monitoring and evaluation frameworks of AMIYCN, which are in line with the Global Strategy for IYCF, NNP and other relevant national policies and guidelines as cited within this document.

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ACRONYMS

AMIYCN	Adolescent Maternal Infant and Young Child Nutrition
ANC	Antenatal Care
ART	Anti- Retroviral therapy
ARV	Anti-Retroviral
BCC	Behavioral Change Communication
BFHI	Baby Friendly Hospital Initiative
BMI	Body Mass Index
BMS	Breast Milk Substitute
DRI	Dietary Reference Index
EDHS	Ethiopian Demographic Health Survey
ENA	Essential Nutrition Action
FMOH	Federal Ministry of Health
HC	Health Center
HEP	Health Extension Program
HEW	Health Extension Workers
HH	House Hold
HIV	Human Immune Deficiency virus
HMIS	Health Information Management System
HP	Health Post
IEC	Information Education and Communication
ILO	International Labor Organization
IMNCI	Integrated Management of Neonatal and Childhood Illness
ITN	Insecticide Treated Net
IUGR	Intra Uterine Growth Retardation
IYCF	Infant and Young Child Feeding
LBW	Low Birth Weight
MTCT	Mother to Child Transmission
MUAC	Mid -Upper Arm Circumstance
NNP	National Nutrition Program
NTD	Neural Tube Defect
PMTCT	Prevention of Mother to Child Transmission
RNA	Ribo- Nuclie Acid
USI	Universal Salt Iodization
WHO	World Health Organization

CHAPTER I

ADOLESCENT NUTRITION

I. INTRODUCTION

The term adolescents as defined by the World Health Organization (WHO) in 1986 includes persons aged 10-19 years. There are also other definitions for adolescents as a person 10-21 years (WHO 2005). Whenever, more attention is given to exposure to HIV, the period of youth/adolescence ranges from 10-24 years.

The term youth encompasses ages 10 to 24 years, while the term adolescents as defined by WHO (1986a) includes persons aged 10-19. Adolescents are sometimes designated as 'children', for instance, in the UN Convention on the Rights of the Child of 1989, which applies to all individuals below 18 years of age.

The Ethiopian National Nutrition program (NNP 2013-2015) has considered adolescent as a person's age between 10-19 years, mainly because of the contribution of delaying first pregnancy until age of 19 which is very important for reduction of low birth weight and stunting. This guideline is in line with the NNP 2013-2015 regarding the definition of adolescents, as a person who is aged 10-19 years.

Adolescence is a period of gradual transition from childhood to adulthood that normally begins with the onset of signs of puberty. It is characterized by important physiological, psychological and social changes. Adolescents are far from being a homogeneous group, in terms of development, maturity and lifestyle. Even for a given place and age, there is a great deal of diversity depending on personal and environmental factors. During adolescence teens develop a stronger recognition of their own personal identity, including recognition of a set of personal moral and ethical values, and greater perception of feelings of self-esteem or self-worthies.

Table 1: Psychosocial processes and the sub-stages of adolescent development

Sub-stage	Emotionally Related	Cognitively Related	Socially Related
Early adolescence	Adjustment to a new body image, adaption to emerging sexuality	Concrete thinking; early moral concepts	Strong peer effect
Middle adolescence	Establishment of emotional separation from parents	Emergence of abstract thinking, expansion of verbal abilities and conventional morality; adjustment to increased school demands	Increased health risk behavior; sexual interest in peers; early vocational plans
Late adolescence	Establishment of a personal sense of identity; further separation from parents	Development of abstract, complex thinking; emergence of post-conventional morality	Increased impulse control; emerging social autonomy; establishment of vocational capability

Source: Reprinted from Ingersoll GM, Psychological and social development. In; McAnamey E. Textbook of adolescent medicine ©1992, with permission from Elsevier.

There is increased nutritional need at this stage, related to the fact that adolescents gain up to 50per cent of their adult weight, more than 20per cent of their adult height, and 50percent of their adult skeletal mass during this period (WHO 2005). Caloric and protein requirements are maximal. There is increased physical activity, combined with poor eating habits and other considerations, example menstruation and pregnancy which contribute to accentuating the potential risk for adolescents of poor nutrition. The main nutrition problems affecting adolescent populations worldwide include under nutrition, Iron deficiency anemia; Iodine deficiency; Vitamin A deficiency; Calcium deficiency and other specific nutrient deficiencies like zinc, foliate, and obesity (WHO 2005).

Health services in developing countries focus mainly on preschool-age children and women who are pregnant, with the consequence that the health needs of adolescents are not being adequately met. Adolescence is the most neglected period of the life cycle. It is not getting the required attention while adolescents make up over 20 percent of the total world population. This high percentage of the population faces a series of serious nutritional challenges not only affecting their growth and development but also their livelihood as adults. Yet, adolescents remain a largely overlooked, difficult to measure, and hard-to-reach population., Adolescent pregnancy is a worldwide concern, particularly in areas of poverty and social disadvantage. According to the 2013 Lancet, globally approximately 10 million girls married before age of 18. The decision to marry very young girls fails to take account of the health risks. WHO reports that complications of pregnancy and childbirth are the leading cause of death in young women between 15 to 19 years. Of the 16 million adolescent girls who give birth every year, UNICEF estimates 50,000 of them die, almost all in low- and middle-income countries. Small girls are likely to become small women who are more likely to be mothers of small babies so that the malnutrition cycle will continue. In addition to under nutrition, there is growing evidence that fetal malnutrition is a risk factor for chronic diseases in later life, in particular coronary heart disease, type-2 diabetes, and metabolic disease (Barker 1994).

Improving adolescent girls' nutrition and delaying their first pregnancy is a promising intervention point to break this intergenerational cycle of malnutrition. One major reason for focusing on adolescents is that this period of life is a unique opportunity to break a range of vicious cycles of structural problems that are passed from one generation to the next, such as poor health and nutrition, poverty, gender discrimination and violence. Adolescence is the time in life besides the critical window of the first 1,000 days to break the malnutrition cycle when the velocity of growth actually increases. Preparing for the

demands of childbearing and breastfeeding is timely in adolescent girls and, above all, preventing premature pregnancy and its associated risks for both mother and child.

Early intervention is particularly critical in adolescent girls whose nutritional status is marginal to begin with, so that they enter their first pregnancy in a better nutritional state. Thus, improving adolescent girls' nutrition before pregnancy may also contribute to breaking the vicious cycle of malnutrition, poverty and chronic disease consider about disability. Improving adolescent girls' nutrition has the following reproductive health benefits (Gillespie 1997).

- Increased pre-pregnancy weight and body stores of nutrients, thus, contributing to improved future pregnancy and lactation outcome, while preserving the mother's nutritional status and well-being.
- Improved iron status with reduced risk of anemia in pregnancy, low birth weight, maternal morbidity and mortality, and with enhanced work productivity and perhaps linear growth;
- Improved folate status, with reduced risk of neural tube defects in the newborn and megaloblastic anemia in pregnancy.

Improving adolescent girls' nutrition has benefits other than for reproduction. The well-being and long term nutritional health of women are legitimate goals in themselves. Women are also the key to household food security and nutrition (Quisumbing 1998).Improving their nutritional status and enhancing their nutrition-related skills is therefore likely to have long-range benefits for themselves, their families and the community

1.1 Situation Analysis for adolescent girls: National context

Regarding the nutritional status of adolescents, Ethiopia is not different from other low income countries. The Ethiopian Demographic and Health Survey (EDHS) 2011revealed that the proportion of non-pregnant adolescents aged 15-19 years with chronic malnutrition (BMI <18.5) was 36percent. It is well recognized that the size and body composition of the mother at the start of pregnancy is one of the strongest influences on fetal growth (Kramer, 1987). According to the EDHS 2011 the median age for a first marriage is around 16.5 years. Twelve percent of adolescent girls (aged 15–19) are either already mothers or pregnant with their first child. Prevalence of anemia in adolescents aged 15-19 years was 13percent. The EMDHS 2014 states that the fertility among adolescents age 15-19 in Ethiopia is 65 births per 1,000 women. Although this shows clear improvement from 2011 (79 births per 1,000 women), efforts should be continued to promote preconception care, family planning, delayed age at first pregnancy, prolonging of inter-pregnancy interval and psychosocial care. Put the regional specific data for comparisons

Cognizant to these prevailing health and nutritional problems in adolescents and its consequences, the Government of Ethiopia endorsed important policies, strategies and programs to improve the situation:

- **National Adolescent and Youth Reproductive Health Strategy (AYRHS 2006):** with the vision to enhance reproductive health and well-being among young people in Ethiopia ages;
- **The National Nutrition Program (NNP 2016-2020):** with one of the five strategic objectives

focused on improving the nutritional status of women and adolescents;

- **The Youth Policy, issued in 2000:** calls for major interventions to enhance youth participation in the development of the country;
- **The Policy on HIV/AIDS,** launched in 1998, recognizes the increased vulnerability of young people;
- **The Revised Family Laws, amended in 2000:** protect young women's rights such as against forced marriages;
- **The Revised Penal code:** penalizes sexual violence and many of the Traditional Harmful Practices (THPs).

Adolescent girls must receive health and nutrition services and support from health facilities, their families and communities. It is necessary not only for their own health and optimal reproductive performance, but also to prevent malnutrition among the next generation. There is a need to ensure that adolescent girls are not forced to get married before the age of 18 and that they have access to youth friendly reproductive health services to delay prevent their first pregnancy until age of 19(NNP 2013). Ethiopia is confronting a large population growth of 2.6percent per annum, which puts tremendous pressure on the health service infrastructure. One of the most effective interventions to address the rapid population growth is to empower young people to make informed choice on their reproductive health and fertility (AYRH guideline 2006).

II. RATIONALE

2.1. Nutritional requirement of adolescents: Protein and calorie

Due to biological and physiological changes that begin during puberty and continue throughout adolescence, there are increased nutritional requirements for adolescents. Those factors which increases nutrition requirements include:

- Sexual maturation;
- Increases in height and weight;
- Completion of skeletal growth accompanied by a marked increase in skeletal mass; and
- Changes in body composition.

Young adolescents experience a growth spurt marked by a rapid increase in body size, as well as readily apparent structural changes. With the onset of puberty, young adolescents experience physiological changes that include development of the reproductive system. Nutrition interventions need to be tailored to the developmental level of each individual adolescent.

Table 2: Recommended Caloric (Kcal) and protein intakes for adolescents

	Calorie (Kcal)		Protein (grams)	
Age (Years)	Kcal/day	Kcal/cm*	Grams/day	Grams/cm
Females				
11-14	2,200	14.00	46	0.29
15-18	2,200	13.5	4	0.27
19-24	2,200	13.4	46	0.28
Males				
11-14	2,500	15.9	45	0.29
15-18	3,000	17.0	59	0.34
19-24	2,900	16.4	58	0.33

*2.54 cm = 1 in

- The Dietary Reference Index (DRI) for energy is based upon the assumption of a light to moderate activity level;
- Adolescents who are more physically active than average may require additional energy to meet their daily caloric needs;
- Adolescents who are not physically active and in a condition that limits mobility will require less energy to meet their needs.

2.2 Micronutrients requirements for Adolescents

- Mineral and vitamin needs during adolescence are increased due to the rapid growth and development;
- Calcium needs during adolescence are greater than they are in either childhood or adulthood because of the dramatic increase in skeletal growth;
- The need of iron also increases with rapid growth and the expansion of blood volume and muscle mass. The onset of menstruation imposes additional iron needs for girls;
- Zinc is important in adolescence because of its role in growth and sexual maturation; And infection
- Vitamins are also very important to ensure appropriate growth and development during adolescence.
- Iodine is important for proper growth and development
- Dietary fiber is important for normal bowel function, and may play a role in the prevention of chronic disease.

2.3 Understanding adolescent's behaviors:

There are several factors which influence and impact upon adolescents' nutrition and eating behaviors. In order to develop a factual understanding of adolescents' nutrition and eating behavior, it is necessary to consider such behavior from an ecological perspective. Below are some of the factors affecting adolescent's nutritional behavior.

Outside influences such as a general lack of access to food; this mostly leads to under nutrition;

1. Availability and access to in urban and semi urban areas fast food outlets, school tuck-shops, food stores and vendors in the vicinity may play a role in adolescents' decision-making;
2. Individual factors such as the psychological and biological factors immediately drive to certain behavior;
3. Family factors such as parental food preferences;
4. Social environment, in which the adolescent lives, in terms of peers which plays a strong role and community perception like food taboos specific for adolescents;
5. The macro-environment which needs to be understood in terms of the society in which the adolescent finds himself/herself (food taboos and other social norms);
6. Peer pressure
7. Mass media advertisement, etc.

The above factors can be summarized in three interacting levels of influence which impact upon adolescent eating behavior. These are personal, environmental and macro-systems.

2.3.1 Healthy diet and common eating behavior

A healthy diet provides enough calories and nutrients for growth and health. Healthy diet plans can help to prevent health problems such as anemia, eating disorders, diabetes and obesity. Adolescents gain 75per cent of adult height, 50per cent of adult weight and 40per cent of adult bone mass during adolescence. Therefore, adolescents should have a balanced diet which allows them to improve their overall health and well-being.

Graph 1: factors affecting adolescent's nutritional behaviors

What is healthy eating?

Healthy eating is a great way to:

- Have energy all day long;
- Get the vitamins and minerals the body needs;
- Stay strong for different activities;
- Reach maximum height;
- Maintain a healthy weight;
- Prevent unhealthy eating habits, such as skipping meals and feeling overly hungry at the next meal.
- Aiming for regular meals and healthy snacks;
- Eating foods from all of the food groups each day to meet nutritional needs;
- Balancing nutrient-rich foods with moderate amounts of other foods, such as sweets;
- Eating when hungry and stopping when full.

2.3.2 Common eating behaviors

The cognitive, physical, social and lifestyle changes during adolescence can create profound changes in their eating patterns. Teens, as a group, tends to snack, miss meals, eat away from home, consume fast foods, and diet (especially among girls) more frequently than younger children.

1. Snacking

Adolescents consume at least one snack per day. However, if the adolescent has a high BMI then the snacks should be low in sugar, sodium and fat and high in vitamins and minerals.

2. **Dieting and weight control behaviors**

Dieting is a common and widespread practice among adolescents, especially girls.

3. **Non-traditional eating patterns**

A central issue in adolescence is the establishment of identity. Because food is charged with symbolic meaning, it may be used as a means of establishing individualization and expressing one's identity and uniqueness. Food choices convey strong messages about the individual to friends, family and the outside world. Eating patterns such as vegetarianism may be adopted as a way of exploring new roles and lifestyles, testing adult restrictions or becoming interested in global or environmental issues.

4. **Adolescent perceptions on food and eating**

Adolescent food choices and eating behavior are influenced by taste, hunger, convenience, availability and parental and cultural influences. Many adolescents feel that healthy eating is not a primary concern during the teenage years. Adolescents say that in order to improve their eating, healthy foods should be appealing and taste good and more widely available.

2.3.3 Major barriers of adolescents' perception on food and eating

1. Lack of time: most adolescents think that they are too busy to worry about food and eating right.
2. Inconvenience of eating healthy: adolescents think that healthy foods are more difficult to prepare and are difficult to obtain in certain settings.
3. Lack of self-discipline: many adolescents think that they did not have adequate self-discipline to eat healthy foods, since they had strong preferences for unhealthy foods e.g. soft drinks.
4. Lack of a sense of urgency- the feeling that "I will worry about it later on in life".

Most adolescents associate chronic diseases with "old age" and the long term benefits of good health and eating practices do not outweigh the short term advantages of certain unhealthy activities. Many of the activities, which according to teenagers are unhealthy, such as smoking, drinking and drugs are inextricably intertwined with age-appropriate developmental issues of identity, self-concept, friendship, independence, and authority.

Physical exercise and sport are equally important requirements for health of adolescents. In low-income countries in contrast, adolescents' livelihoods may involve heavy physical work, which has a direct bearing on their energy requirements and their weight status. It is very important to relate the concepts of adolescent eating behavior, exercise and food choice with their local environmental context.

III. NUTRITION ASSESSMENT AND INTERVENTIONS FOR ADOLESCENTS

3.1. Nutritional Assessment for adolescents

Appropriate assessment of nutrition-related problems and risks in adolescents should be a primary responsibility of health-care services. The common assessment methods are:

1. Nutritional status assessment using appropriate anthropometry: this is a simple, and yet extremely useful initial approach to adolescent nutrition.
2. Rapid dietary assessment: whenever a nutritional problem is suspected, and it is used as a basis for nutrition counseling.
3. Physical examination; feasible in a clinical setting.
4. Laboratory assessment Example: hemoglobin test
5. Barrier analysis
6. Household food security

Background information on locally common food and nutrition problems and on food habits in the area should be assessed. There are additional methods of nutritional assessment which are needed beyond anthropometry and dietary enquiry for the 'nutritional examination'. For instance, to detect specific nutrient deficiencies (iron, vitamin A and iodine in particular), clinical, biochemical and functional methods are appropriate to specific needs and settings. Physical signs of malnutrition and specific micronutrient deficiencies are important to keep in mind, with emphasis on those that are likely to commonly occur within the area

3.1.1 Nutritional anthropometry

Anthropometric assessment of adolescents is more complex than children's because of the transition in body composition, and of the variable timing of the growth spurt. Anthropometric assessment of adolescents based on BMI can be done as routine in health care facilities, and also in school health and nutrition programs.

Anthropometric assessment allows the detection of adolescents exposed to under-nutrition and/ or over-nutrition and to screen adolescent girls who will likely be at risk when and if they are pregnant because of low stature. Anthropometric data may help identify stunting, underweight, overweight and obesity.

Stunting, or short height for age, may reflect malnutrition in the past without representing a current problem that can be tackled. The assessment of obesity and adiposity level is more difficult in adolescents than in adults because of rapid changes in body composition. Before puberty, males and females have similar proportions of fat (15per cent and 19per cent respectively), muscle and lean body mass. During puberty, the rate of linear growth increases to reach that of 2 year-old children. In

girls, fat increases to 23per cent at age 20, while it decreases to 12per cent in boys (Gran & Clark 1976) verify with recent finding if any change.

Table 3: Elements of Nutrition screening and Assessment for Adolescents

Elements of a Nutrition Screening and Assessment for Adolescents				
	Medical and Psychological History	Growth and Development	Diet and Physical Activity	Routine Screenings and Laboratory Tests
Components of an initial Nutrition Screening	Medical history Psychosocial history Status and history	Body Mass Index (BMI) Sexual Maturation Rating (SMR)	Meal and snacking patterns Nutrient and non nutrient supplement use Food security Food allergies/ Intolerances Special dietary practices Alcohol consumption Physical activity and competitive sports	Hemoglobin (Females) Serum Cholesterol or blood lipids Blood pressure
Indications for a In-depth Nutrition Assessment	Chronic disease Substance use Poverty and/or homeless Depression or dysthymia Disordered eating Eating disorders Body image disorders Pregnancy or lactation	Underweight Overweight At-risk for overweight Delayed sexual maturation Short stature or stunting	Food insecurity Meal skipping Inadequate micronutrient intake Excessive intake of total or saturated fat Food allergy or intolerance Vegetarian diet Use of non-nutritional or herbal supplements Competition in competitive sports Chronic dieting Fasting Alcohol consumption	Hypertension Hyperlipidemia Iron deficiency anemia
Source: Jamie Stang, Division of Epidemiology, University of Minnesota				

The BMI chart (Elster 1995) represents a useful tool elsewhere for weight management and prevention. BMI measurement of adolescents is recommended whenever and wherever feasible, irrespective of the main type of nutrition problems to be expected, and without waiting for more specific reference data. Whether too high or too low, inadequate BMIs in adolescents should trigger an appropriate response from health-care providers. BMI measures weight in relation to height. It's an accurate way of telling whether or not weight is in the healthy range.

Steps

- Weigh and measure: weigh adolescents on the calibrated scale and measure the height in cm using height board;
- Calculate BMI using formula (Weight in kg/height (cm)²);

- Interpret the BMI to classify nutritional status;
- Gather more information on dietary practice and conduct counselling for the mother accordingly.

The BMI data should be plotted on age and gender appropriate growth charts to determine the appropriateness of weight for height and the presence of potential growth disorders. Table 3 illustrates indicators of weight for height status.

Table 3: Classification of children and adolescents 5-19 years of age

	BMI-for-age Z-score
Severe thinness:	<-3SD
Thinness:	≥ -3 SD & < -2 SD
Overweight:	>+1SD & ≤+2 SD
Obesity:	>+2SD

Adolescents who are found to be <-2SD of BMI for age and gender are classified as underweight and should be referred to a health care provider for evaluation of potential metabolic disorders, chronic health conditions, or eating disorders. Adolescents with a BMI ≥ +1SD of BMI for age are classified as overweight and should be referred for a complete medical evaluation to determine potential obesity-related complications.

Maturational indicators are needed in addition to anthropometry, for there are differences in the timing of growth spurt. More practical indicators are in girls, median age of menarche and in boys, median age of attainment of adult voice, which both occur roughly one year after peak height growth velocity.

Severe malnutrition is usually seen as a problem of pre-school age children exclusively. It may also occur as a primary disorder in adolescents and adults in extreme conditions of deprivation and famine, although it is often encountered in association with other illnesses, notably chronic infections, which should be assessed and treated at the same time as malnutrition

3.1.2 Dietary inquiry and motivational assessment to behavioral change

Anthropometric assessment has to be complemented with an assessment of adolescents' eating patterns, even if this is done using a rather crude method. Adolescents could be at risk for nutrition-related health problems that require the attention of nutritionist or health care professional. Nutrition risk factors may be physical, biochemical, psychological or environmental in nature also consider social. Drug nutrient interactions may alter digestion, absorption or the bioavailability of nutrients in the diet. Health care providers should learn to screen for nutritional risks. Adolescents with minor or nor risk factors should be provided with basic nutrition education and anticipatory guidance to prevent nutrition problems. Food frequency questionnaires (Annex 1a) have been found valid and useful to examining the eating patterns and intakes of adolescents.

Adolescents should be directly involved in identifying priority areas for behavior change. Allowing teens to review the results of their dietary assessment is an excellent way to get them involved. One or two behaviors have been chosen at a time behavior change motivation to make these changes. Use of the guide to assess adolescent's willingness to change is helpful (Annex 1b)

3.2 Nutrition Intervention for Adolescents

3.2.1 Integration of health, nutrition and development programs for adolescents

As for any other age group, and perhaps even more so, interventions using an integrated approach for the development of the whole adolescent are required. The most effective and sustainable programs reportedly offer a variety of services, including counselling, family-life education, training in life and job skills, as well as physical examinations, treatment of diagnosed conditions, and Family reproductive health services. To this end, interventions for adolescents should include:

1. Provide accurate knowledge through SBCC
2. Build skills;
3. Provide counselling;
4. Improve access to health and nutrition services; and
5. Create safe and supportive environments.

In this guideline, it is recommended to use a mix of delivery channels/ platforms-schools, community and health facility—to provide nutrition services. This would enable more adolescents to be reached using the above five key interventions.

A) School-based

There may not be enough time to address all relevant nutrition and health issues within the education curriculum. While advocating for inclusion of nutrition in to school curricula, extra-curricular nutrition activities are important.

1. Conduct periodic nutrition screening or assessment using appropriate tools (BMI for age , dietary enquiry);
2. Provide nutrition messages and conduct nutrition education through classrooms, school clubs, school based mini-media and PTAs which involves teaching the adolescent about the importance of nutrition;
3. Provide life skill training for adolescent associations/groups so that they can negotiate and influence the community to change harmful traditions and social norms affecting adolescent health and nutrition such as prevention of early marriage, gender based violence and food taboos ;
4. Provide appropriate tools and educational materials that reinforce messages about healthy eating;
5. Provide skills based essential trainings for making dietary changes, and providing information on how to sustain behavior change;

6. Conduct individual counseling sessions by skilled counselor according to specific needs of individual adolescents;
7. Involve adolescents in school gardening activities which can be replicated at household and community levels;
8. Promote and support girls' education;
9. Provide school based biannual de-worming.
10. Prevention of early marriage

B) Community Based

1. Advocacy and networking in order to influence socio cultural norms and values and fight HTPs that aggravate the problem of malnutrition and health related problems among adolescents;
2. Use existing associations/ federations to closely work with local government as well as community based structures such as 'Mahiber', 'Idir', 'Ikub' and 'Senbete' to influence and effect decision in alleviating the problems of malnutrition among adolescents;
3. Capacity building of out of school adolescents such as orphans and street children on life skills, healthy eating, nutrition, livelihood to make them the main actors in alleviating the problem of malnutrition and its effects;
4. Train adolescents and support them to facilitate peer-to-peer discussion on continuous participatory learning process using the 'triple A' behavioral change model;
5. Create platforms among adolescents to share their good practices and challenges so that they learn from each other;
6. Gender: Give significant emphasis on the gender dimension of nutrition. Proper attention must be given to increasing the number of married and unmarried adolescent girls as an actor, as well as beneficiaries of this program to discuss and address gender issues;
7. Provide facilitation guideline/manual adapted from Youth to Youth manual integrating nutrition, livelihood and Sexual and Reproductive Health (SRH) so that experiential learning will take place;
8. Support the trained adolescents to organize mass education to deliver information to the community at large. These include organizing drama shows, coffee ceremonies, question and answer sessions, panel discussions and distributing information, education and communication materials on regular basis using different social gatherings;
9. Provide tailored Information Education and Communication (IEC)/ Behavioral Communication and Change (BCC) materials focusing on specific issues such as posters, leaflets, easy to understand user friendly newsletters, booklets, Billboards and other IEC materials on Nutrition, HTPs, adolescent sexuality, life skills and livelihood options for adolescents.
10. Limited income of families is one of the contributing factors for malnutrition. Hence, economic empowerment of older adolescent is very important. Link older adolescents with small scale

and micro enterprises, saving and credit groups and microfinance institution based on the local context for economic support;

11. Support them to be engaged in nutrition sensitive home based income generation activities such as vegetable gardening
12. Parental training

C) Health sector

1. Conduct social behavioral change communication using all opportunities such as Health Extension Program (HEP) outreach, community conversation, school health programs etc... on:
 - a. Optimal adolescents food and nutrition practices
 - b. Prevention and management of under-nutrition
 - c. Prevention of overweight and obesity
 - a. Prevention of eating disorders
 - d. Prevent early marriage before 18 years of age
 - e. Shift of social norms on food taboos that prevent adequate nutrition for adolescent girls
 - f. Promotion of girls education
 - g. Promotion and support the development of life skills (such as assertiveness, negotiating decision and to prevent HTPs);
2. Conduct individual counselling for adolescent nutrition as per specific need. Use the tailored intervention stage guide for counselling; (Annex 1c)
3. Provide comprehensive and nutritional assessment and counselling services for adolescents during HEP outreach and house to house visits;
4. Conduct regular monitoring of the nutritional status of adolescents during school health service programs;
5. Provide school based biannual de-worming and biannual health facility based deworming for out of school adolescents;
6. Ensure adolescents access to micronutrient services:
 - a. Promote the use of iodized salt and strengthen enforcement of the Universal Salt Iodization (USI) regulation
 - b. Provide school and facility based biannual de-worming.

- c. Promote the use of fortified foods;
 - d. Provision of intermittent iron folate supplementation
7. Provide youth friendly reproductive health services at facility level to:
 - a. prevent first pregnancy until 19 years of age
 - b. Use family planning methods
 - c. Promote utilization of adolescent friendly reproductive health services;
8. Promote economic empowerment for out of school adolescents through various economic strengthening opportunities;
9. Provide youth-friendly nutrition counselling for pregnant adolescents as part of ANC;
10. Provide clinical care for infections and other conditions:
 - a. Treatment and follow up for adolescents with diabetes mellitus
 - b. Adolescents with HIV/AIDS, TB
 - c. Chronic non communicable diseases
 - d. Food allergies and intolerances;
11. Management of acute malnutrition in adolescents, particularly in emergency situations.

IV. ADOLESCENTS WITH SPECIAL HEALTH NEED

Adolescent with special care are adolescents who are at increased risk for chronic physical, developmental, behavioral, or emotional condition and who require health and related services. They are at risk from nutrition-related health problems that require the attention of a nutritionist or health care professional. Nutrition risk factors may be physical, social, biochemical, psychological or environmental in nature. Drug nutrient interactions may alter digestion, absorption or the bioavailability of nutrients in the diet. Psychological factors play a role in an individual's ability to accept and cope with a disability or treatment plan. For example, depression may alter an individual's appetite and motivation to follow a specified diet plan. Consider disability both mental and physical.

Common nutrition problems for the adolescent with special health care needs may include:

- Altered energy and nutrient needs
- Delayed or stunted linear growth
- Underweight
- Overweight or obesity
- Bowel problems

- Drug-nutrient interaction
- Appetite disturbance
- Unusual food habit (e.g. pica)
- Dental and gum disease
- And others

Health care providers should learn to screen for nutritional risk factors. Adolescents with minor or non-risk factors should be provided with basic nutrition education and anticipatory guidance to prevent nutrition problems.

Table 5: Nutrition screening parameters and criteria for referral for adolescents with special health care needs

	Screening Data	Criteria for Referral to a Dietitian
Anthropometric	Weight Height Weight/height Body Mass Index Triceps skinfold (if atrophy of lower extremities > 85per cent)	Weight/height ≤ 5th percentile Weight/height ≥ 95th percentile Height/age ≤ 5th percentile BMI > 85th percentile Triceps skinfold < 5th percentile
Biochemical	Hemoglobin Hematocrit	Hemoglobin ≤ 11 g/100 dLb Hematocrit ≤ 34per cent
Clinical/Medical	Medical condition known to affect nutrition (e.g., vomiting, reflux), elimination problems, medications, and appetite or dental problems.	A diagnosis of heart disease, cancer, diabetes mellitus, HIV/AIDS, cerebral palsy, inborn errors of metabolism, malabsorption syndrome, cystic fibrosis, renal disease, or spina bifida. Recurring vomiting or reflux, chronic diarrhea or constipation, severe dental caries, long-term use of medications that interfere with nutrition, megavitamin use, or prolonged decrease in appetite with weight loss, or growth failure.
Diet/Feeding	Feeding method (e.g., by mouth, tube, parenteral) Therapeutic diet Ability to eat independently Significant food aversions or Allergies	Tube feeding or parenteral nutrition Therapeutic diet Inability to self-feed Limited diet due to food aversions or allergies
Other/ Household food security	Parental or professional Concern	Unresolved concerns regarding diet, nutrition or growth

4.1. Support Adolescents with HIV/AIDS

Malnutrition is common in HIV infection, and indeed it was one of the earliest identified complications of AIDS. The principal nutritional issues in HIV infection are the interrelationships between nutritional status and the progression of the disease, and the risk of vertical transmission of HIV through breastfeeding. Therefore, health facilities should provide appropriate services as per the national protocol

4.2. Management of Acute malnutrition in adolescents, particularly in emergency situations

Severe malnutrition is usually seen as a problem of pre-school age children exclusively. It may also occur as a primary disorder in adolescents and adults in extreme conditions of deprivation and famine. Although, it is often encountered in association with other illnesses, notably chronic infections, it should be treated at the same time as malnutrition. Treatment and support will be as per acute malnutrition guidelines.

4.3. Prevention of eating disturbances

Unnecessary dieting is a highly prevalent behavior amongst better-off adolescents in the urban and semi urbans. On the one hand, unnecessary dieting and repeated weight loss attempts in themselves be a risk factor for obesity; on the other hand, it is well recognized that frequent dieting is one of the chief risk factors for eating disorders such as bulimia nervosa and therefore appropriate counselling is crucial.

4.4. Prevention and management of obesity in adolescents

The prevalence of obesity is ever-increasing, and not only in developed countries. Its prevention is regarded as crucial and sensible for developing countries, and adolescents have to be regarded as a priority target group. Once obesity is established, its treatment is costly and by and large ineffective. Use overweight screening graph (Annex 1d) and counsel accordingly.

CHAPTER II

MATERNAL NUTRITION

I. INTRODUCTION

A mother's nutritional status, diet and lifestyle influence pregnancy and lactation outcomes and can have lasting effects on her offspring's health. Inadequate intakes of certain micronutrients during pregnancy, such as folic acid and iodine, can contribute to birth defects and/or the inability of the child to develop to his or her full cognitive potential. In addition, maternal overweight and obesity are increasing globally and present major challenges for health care providers and their clients since overweight and obesity are associated with several adverse pregnancy outcomes including birth defects, gestational diabetes, pre-eclampsia and cesarean section. Under nutrition and overconsumption during fetal life may also influence the infant's cognition and future risk of coronary heart disease, type 2 diabetes, stroke and hypertension. A mother's consumption of potentially harmful substances, such as alcohol, during pregnancy can also have irreversible negative consequences.

Good nutrition is important during pregnancy and lactation. With the growing body of evidence indicating that a woman's nutritional status and health related behaviors both prior to and during pregnancy influence pregnancy outcomes and the child's future health. Mothers should be counselled on risks such as diabetics, hypertension and obesity; the use of iron folate and consuming diversified food which is good for good pregnancy outcome.

Women's nutrition affects a wide range of health and social issues, including family care and household food security (FANTA, 2000). Malnutrition in adolescents (see Chapter I) and pregnant women, compounded by gender discrimination, leads to an intergenerational cycle of nutrition problems which manifest as stillbirths, miscarriages, low birth weight, growth failure, increased risk of maternal and neonatal mortality, impaired cognitive development, sub-optimal productivity in adults and reduced economic growth for the nation.

1.1 Situation Analysis for pregnant and lactating women: National context

The 2011 EDHS revealed that the level of chronic malnutrition among women in Ethiopia is relatively high, with 27 per cent of women either thin or undernourished—that is, having a BMI of less than 18.5 kg/m². Similarly, the prevalence of anemia amongst women in the reproductive age group (15–49) was found to be 17 per cent (EDHS 2011).

The recent food consumption survey (EPHI 2013) which was conducted during the lean season of 2013 found maternal dietary intake, that carbohydrates contributed to 73.5per cent of the total energy intake of women which is considerably higher than the recommended 45-65per cent, fat accounted for 16.5per cent of the total energy intake compared to the recommended 20-35per cent necessary to obtain the essential fatty acids and protein only 9.7per cent of the energy intake which is lower than the recommendation of 10-35per cent of total energy(IoM 2005)

The mean energy intake for women of reproductive age was 1,726 Kcal/day which is less than the recommended mean intake of 2,000 Kcal/day. For micronutrients, 13per cent of women were found to have inadequate iron intake, for zinc, 50per cent of women had an inadequate intake. Finally 82per cent of women are not consuming sufficient vitamin A (EPHI 2013).

II. RATIONALE

2.1. Nutritional requirements during pregnancy & lactation

Good nutrition is important for all pregnant women and contributes to maternal health and optimal birth outcomes. Inadequate food intake, poor dietary quality, and untreated infections before and during pregnancy increase the risk of maternal mortality and morbidity and are risk factors for negative birth outcomes such as infants with Low Birth Weight (LBW) or Intrauterine Growth Restriction (IUGR).

New evidence from Lancet 2013 further reinforces the importance of the nutritional status of women at the time of conception and during pregnancy, both for the health of the mother and for ensuring healthy fetal growth and development. Pregnant women need to consume adequate quantities of nutritionally dense foods to meet their own nutritional requirements and the requirements of the growing fetus and prepare for lactation. Lactating women need additional energy to support the production of breastmilk.

Physiological changes of women during pregnancy and lactation that increase nutritional requirement

- During pregnancy a women nutrient requirement increases. This is because of the need of nutrient for the growing fetus during pregnancy as well as for her own energy need;
- Energy needs increase during the second and particularly the third trimester of pregnancy;
- Lactation also places high demands on maternal stores of energy, protein, and other nutrients. These stores need to be established, conserved, and replenished starting from pregnancy time. The energy, protein, and other nutrients in breastmilk come from a mother's own body stores, and to a lesser extent, from her diet;
- During pregnancy there is increased red blood cell mass to cater for higher iron requirements;
- Iron is also needed by the developing fetus, thus creating additional demand.

2.2. Energy Needs during Pregnancy and Lactation

A diversified diet that supports appropriate maternal weight gain and meets maternal and fetal nutrient

needs contributes to creating a favorable intrauterine environment. However, for a variety of reasons; pregnant and lactating women often do not consume the recommended amounts of essential nutrients. Inadequate micronutrient intake during pregnancy and lactation has been attributed to factors such as increased nutritional needs, maternal age, geography, and socioeconomic status.

a) Pregnancy weight gain

FAO/WHO/UNU recommends that healthy, well-nourished women should gain 10 to 14 kg during pregnancy, with an average of 12 kg in order to increase the probability of delivering full-term infants with an average birth weight of 3.3 kg, and to reduce the risk of fetal and maternal complications (FAO/WHO/UNU 2001).

Based on BMI results, women who are underweight, overweight, or obese should receive counseling regarding appropriate diet for adequate weight gain during pregnancy.

Ideal Weight gain during pregnancy based on BMI status (FAO/WHO/UNU 2001)

BMI < 19.8 **12.5-18kg**

BMI 19.8 to 26.0 **11.5-16kg**

BMI > 26.0 to 29.0 **7-11.5kg**

b) Recommended Energy intake and Caloric needs for pregnant women

The energy cost of pregnancy (measured in calories or kilojoules) includes energy needed for accretion of maternal, fetal and placental tissues, increases in the mother's basal metabolism, and the mother's physical activity level. Women are advised to increase their daily calorie intakes during pregnancy according to their pre-pregnancy body weight, physical activity level, and week gestation. The suggested calorie increase for women who conceive at a body weight in the normal range is 360 calories a day in the second trimester and 475 calories a day in the third trimester (FAO/WHO/UNU 2001).

c) Recommended Energy intake and Caloric needs for lactating women

Exclusive breastfeeding is recommended during the first six months of life, with introduction of complementary foods and continued breastfeeding thereafter (WHO, 2001). The energy requirement of a lactating woman is defined as the level of energy intake from food that will balance the energy expenditure needed to maintain a body weight and body composition, a level of physical activity and breastmilk production that are consistent with good health for the woman and her child, and that will allow economically necessary and socially desirable activities to be performed.

Fat stores accumulated during pregnancy may cover part of the additional energy needs in the first few months of lactation. Postpartum loss of body weight is usually highest in the first three months, and generally greater among women who practice exclusive breastfeeding, but the extent to which the energy mobilized supports lactation depends on the gestational weight gain and the nutritional status of the mother. Therefore, well-nourished women with adequate gestational weight gain should increase their food intake by 505 kcal/day for the first six months of lactation, while undernourished women and those with insufficient gestational weight gain should add to their personal energy demands 675 kcal/day during the first semester of lactation. Energy requirements for milk production in the second

six months are dependent on rates of milk production, which are highly variable among women and populations (FAO/WHO/UNU 2001).

TABLE 6: Recommended additional daily calorie intake during pregnancy and lactation

	Kcal/day
Pregnancy	
1st Trimester	0
2nd	340
3rd	475
Lactation 1st 6 months	
Undernourished women or poor weight gain	505
Well-nourished women	675

2.3. Micronutrient requirements during pregnancy and lactation

2.3.1. Folate and Folic Acid

Folate is central in the production of cells, particularly red blood cells, for nucleic acid synthesis, cell division, and for normal serum homocysteine levels. Adequate folic acid intake prior to conception and during the first 28 to 30 days of pregnancy is associated with a reduced risk of Neural Tube Defects (NTDs).

The recommended intake of folate that women of childbearing age, with no history of a NTD-affected pregnancy, have to consume is 400 to 800 µg of folic acid daily from foods and/or vitamin supplements before and during early pregnancy, while women with a history of a NTD-affected pregnancy should consult with their physician about taking 4 mg of folic acid daily to prevent a recurrence of NTD.

2.3.2. Iron deficiency

A) Improving iron intake

Iron is vital to the production of hemoglobin, and energy production, fetal immunity, and development of the central nervous system. Iron deficiency affects more than 2 billion people globally, making it the most common nutrient deficiency in the world. Iron deficiency is more common in developing countries. Iron-deficiency anemia during pregnancy has been associated with an increased risk for preterm birth, low birth weight, and perinatal mortality.

The recommended iron intakes by WHO is based on the bioavailability of dietary iron consumed 30-60mg of elemental iron for pregnant and 15 mg/day for lactating. If a woman is diagnosed with anemia in a clinical setting, she should be treated with 120 mg of elemental iron and folic acid (400 µg or 0.4 mg) daily until her hemoglobin concentration rises to normal. She can then switch to the standard antenatal dose to prevent recurrence of anemia (WHO 2012).

B) Preventing iron loss

Schistosomiasis and soil-transmitted helminth infections are among the most common infections in developing countries and can impair nutritional status by causing:

- internal bleeding which can lead to loss of iron and anemia;
- malabsorption of nutrients;
- diarrhea; and
- Loss of appetite which can lead to a reduction in energy intake.

WHO recommends periodic treatment with anthelmintic (deworming) medicines, without previous individual diagnosis to all at-risk people living in endemic areas. The recommended drug for pregnant women is a single doze albendazole during the second trimester.

2.3.3. Zinc

Zinc performs many functions and is a part of every cell in the body. Zinc is essential for growth and development, as well as reproduction and immunity. The primary function of zinc is to promote cell reproduction and tissue growth and repair. It serves as a part of more than 70 enzymes including alcohol dehydrogenase, alkaline phosphatase, and Ribonucleic acid (RNA) polymerases. Zinc also provides a structural function for copper-zinc superoxide dismutase. Table 7 shows the WHO recommended Nutrient intake for zinc depending on the diet and bioavailability. In Ethiopia, one can assume a low bioavailability as the diet is rich in phytates.

TABLE 7: WHO recommended nutrient intakes for zinc during pregnancy and lactation

	High bioavailability (mg/day)	Moderate bioavailability (mg/day)	Low bioavailability (mg/day)
Pregnancy			11
1st trimester	3.4	5.5	14
2nd trimester	4.2	7	20
3rd trimester	6	10	
Lactation			
1st trimester	5.8	9.5	19
2nd trimester	5.3	8.8	17.5
3rd trimester	4.3	7.2	14.4

2.3.4. Calcium

The skeleton and teeth serve as reservoirs for about 99per cent of the body's calcium; the remaining is found in blood, extracellular fluid, muscle, and other tissues, where it plays a role in vascular contraction and vasodilation, muscle contraction, and nerve transmission.

The recommended intake for calcium by WHO for pregnant and lactating women is 1,000 mg/day. This increases to 1,200 mg/day during the last trimester of pregnancy. During pregnancy, adaptive maternal responses to fetal calcium needs include an enhanced efficiency in absorption.

Many women in their childbearing years do not consume adequate calcium. Women who cannot satisfy their calcium needs through food should take separate supplements. The WHO establishes an upper limit on calcium intake of 3,000 mg/day as a supplement for those who are not using calcium rich foods. WHO guidelines (WHO 2011 Micronutrient Guideline) recommend calcium supplementation 1.5 to 2.0 g elemental calcium per day for pregnant women residing in areas where dietary calcium intake is low to help prevent preeclampsia.

III. NUTRITIONAL ASSESSMENT AND INTERVENTION PRE-PREGNANCY

3.1 Nutritional assessment pre-pregnancy - Anthropometry

To offer proper nutrition services, health workers need to establish the nutritional status of women 15-49 years using anthropometry (BMI and Middle Upper Arm Circumference (MUAC)). Suggested contact points for this activity are health facilities and HEP contact points.

BMI is one of the measures used to determine a woman's nutritional status. It is a measure of thinness or obesity. Measuring BMI prior to pregnancy is important because it allows a health worker to determine the weight that should be gained during pregnancy.

A) Assessment using BMI (Annex -2) :

Below 18.5 – Underweight (chronic energy deficiency); 19 – 24.9 – Normal; 25 – 30 – Overweight; > 30 - Severe overweight (obese) There is a strong relationship/association between low pre-pregnant weight and height, and intra uterine growth retardation of the fetus.

B) Assessment using MUAC:

Other assessment methods; biochemical(hemoglobin and hematocrit), clinical (medical condition known to affect nutrition (e.g., vomiting, reflux), elimination problems, medications, and appetite or dental problems, dietary assessment (ability to eat significant food) or house hold food security has to be assessed.

3.2 Nutrition intervention pre-pregnancy

Health workers should provide nutrition education and counseling prior to pregnancy in order to promote maternal health and good pregnancy outcomes. Nutrition education should be conducted for individuals at health facilities. The counseling should include: variety of foods, frequency of foods, hygiene, focus on locally available foods, and Importance of the adequate nutrition before pregnancy, folic acid supplementation and prevention of anemia

IV. NUTRITION ASSESSMENT AND INTERVENTIONS DURING PREGNANCY

Antenatal care offers an opportunity for assessment of the nutritional status of a pregnant woman, as well as the assessment of essential nutritional actions and continuous monitoring throughout pregnancy. The interventions during antenatal care are categorized as: nutritional status assessment; micronutrient supplementation; nutrition education/counseling during antenatal care and managing common nutrition related physiological disturbances during pregnancy.

4.1 Nutrition assessment during pregnancy - Anthropometry during antenatal care

A) Assessment using weight gain

The weight recommended weight gain is based on pre-pregnancy BMI, women who were underweight, overweight, or obese should receive counseling regarding appropriate diet for adequate weight gain during pregnancy.

Ideal Weight gain during pregnancy based on BMI status (FAO/WHO/UNU 2001)

BMI < 19.8 **12.5-18kg**

BMI 19.8 to 26.0 **11.5-16kg**

BMI > 26.0 to 29.0 **7-11.5kg**

B) Assessment using MUAC:

A woman at pre-conception is considered underweight when the MUAC reading is < 21cm. A pregnant or lactating woman whose MUAC is less than 23.5cm are considered to be underweight.

4.2 Nutritional intervention during antenatal care

The relevance of a nutrition assessment during pregnancy is for monitoring the progress of pregnancy and detecting risk factors for the mother, the fetus and/or the infant associated with nutritional deficiencies. A pregnant woman who is underweight or micronutrient deficient is more likely to have poor birth outcomes, affecting both mother and baby. On the other hand, a pregnant woman who is overweight has an increased risk of coronary heart disease, high blood pressure, high blood cholesterol, and diabetes that can complicate a pregnancy.

TABLE 8: Comprehensive nutrition assessment during Pregnancy

Assessment	What to Ask or Measure
Nutrition history	<ul style="list-style-type: none"> • Dietary intake (frequency, quantity and diversity) • Eating habits (dieting, craving, food myths & taboos) • Food intolerance and dislikes • Fatigue and physical activity • Nausea, vomiting • Availability of clean and safe water • Sanitation and hygiene practices in food preparation and handling (personal hygiene, food preparation and handling) • Daily intake of iron and folic acid supplements • Use of iodized salt
Physical Assessment	<p>Anthropometric measurements:</p> <ul style="list-style-type: none"> • Height • Pre-pregnancy weight • Weight gain during pregnancy • MUAC <p>Other physical features</p> <ul style="list-style-type: none"> • Edema • Pallor (palm, tongue, conjunctiva) • Goiter
Medical history	As per the national ANC guideline
Lab investigation	As per the national ANC guideline
Micronutrient control	<p>Provide iron folic acid to prevent anemia on confirmation of pregnancy</p> <p>Treat anemia in confirmed cases</p> <p>Provide albendazole during 2nd or 3rd trimester</p>

Source: Regional Centre for Quality of Health CARE, FANTA, and LINKAGES. 2003.

CHAPTER III

INFANT AND YOUNG CHILD FEEDING

I. BREASTFEEDING

I.1. Introduction

Breast milk contains all the nutrients required by an infant for the first six months of life. Breastfeeding has other benefits including protection from illness for the infant, psychological bonding between the mother and her infant, and economic savings as well as benefits to mothers, families and communities. Breastfeeding also improves the health of mothers by decreasing the risk of bleeding after delivery, promoting child spacing and helping to prevent breast and ovarian cancers. At the macro-scale, it offers substantial monetary savings for the nation as well as the individual family with its economic and ecological benefits.

Early initiation of breastfeeding helps bonding between the mother and her baby. It prevents postpartum hemorrhage and increases breast milk production. However, only 51per cent of mothers initiate breastfeeding within the recommended one-hour after delivery. There is also evidence that rooming/bedding in of mother and baby is important for purposes of practicing breastfeeding on demand, bonding and the baby's temperature control. Pre-lacteal feeds are not only a source of infection but also interfere with establishing breastfeeding. To maximize the benefits of breastfeeding, it must be exclusive for the first six months of the child's life. Data indicates that only 52per cent of mothers with infants 0 to 6 months were exclusively breastfeeding.

An infant should be exclusively breastfed for the first six months of life. Thereafter, complementary foods should be introduced while breastfeeding continues for up to two years or more. Nevertheless, mothers and families will need more information and support in order to achieve these optimal infant and young child feeding practices.

I.2. Objective

- Ensure timely initiation of breastfeeding within the first hour of birth; and
- Protect, promote, and support exclusive breastfeeding for the first six months and start complementary food with continued breastfeeding up to two years and beyond.

1.3. Implementation

The main actions would entail, to

- a) Counsel and support all mothers to initiate breastfeeding within an hour of delivery, give colostrum; and
- b) Counsel and support all mothers to exclusively breastfeed their infants for the first six months of the infant's life.

Implementation will require that mothers are counselled/educated on the benefits and importance of breastfeeding during pregnancy and that the counselling and support continues throughout the period of lactation. It will require that the following recommendations be implemented:

- Ensure rooming in/bedding in of mothers and newborn babies, with provision of support for the mothers to make early contact with their babies for at least one hour, combined with the initiation of breastfeeding within the first hour;
- Encourage mothers to feed their infants colostrum or “first milk” and counsel them to breastfeed frequently on demand, both by day and night. Strengthen information and communication on the importance of avoiding pre-lacteal feeds such as water, glucose water, teas and herbal preparations for newborn babies;
- Support mothers to position and correctly attach the baby to the breast, and to completely empty one breast before offering the second, in order to ensure that the infant gets the rich hind milk as well as to avoid breast problems;
- Counsel mothers to breastfeed frequently on demand, both day and night. This will be at least 10-12 times in 24 hours. The more times a baby breastfeeds, the more milk will be produced as suckling stimulates milk production. Infants do not need water or other liquids to maintain good hydration, even in hot climates; Offering foods to infants before six months reduces breastmilk intake and interferes with a full absorption of breastmilk nutrients;
- Counsel and support the mothers to continue or even increase the frequency of breastfeeding when the mother or the child is sick. Where the infant is unable to suckle, expressed breast milk should be fed by cup or tube;
- Counsel and educate mothers on how to identify breastfeeding difficulties, including breast conditions, and the need to promptly seek medical care from a trained service provider;
- Counsel mothers to maintain a child health card or mother/child health passport to monitor the growth and development of the child; to take their children to health promotion sessions; to ensure timely immunization; and to make sure that the child sleeps under an Insecticide Treated Net (ITN);
- Promote key Essential Nutrition Actions (ENA) messages at all relevant contact points;
- Ensure that all health facilities offering maternity services implement the Baby Friendly Hospital Initiative (BFHI) and become certified as Baby-Friendly, according to the BFHI Requirements in 4.1.1;

- Implement and monitor the Code on the Marketing of Breast Milk Substitutes (BMS) according to the national law as summarized in 4.1.9;
- Ensure that employers protect and promote Maternity Rights and Benefits as outlined in 4.1.1; and
- In emergency situations, follow the steps outlined in 3.2.4: Practical Steps to Ensure Appropriate Infant and Young Child Feeding in Emergencies.

2. COMPLEMENTARY FEEDING

2.1. Introduction

Breast milk becomes inadequate for the baby's nutritional requirements six months after birth and other foods become necessary. To ensure that optimal requirements for the infant and young child are met, complementary foods should be introduced on time, ensuring that they are, nutritionally adequate, safe and fed to the infant appropriately. In Ethiopia, only 49.2 per cent of infants at 6 to 8 months of age were receiving solid or semi-solid complementary foods. Amongst children 6 to 23 months, only 4 per cent were fed in accordance with recommended IYCF practices (four or more food groups and minimum number of times). Almost half of Ethiopian children (49 per cent) were fed at least the minimum number of times and only 5 per cent were fed according to minimum standards with respect to food diversity.

Infants and young children may not be fed adequately when they or their mothers are sick. When a sick baby stops breastfeeding/feeding, she or he loses weight very rapidly and takes longer to recover. Sick infants and children need to be fed more frequently than usual in order to meet their nutritional requirements. Micronutrient deficiencies are fairly common among Ethiopian children as evidenced by any anemia rate of 44.2 per cent and moderate anemia of 20.4 per cent. This makes consumption of micronutrient supplements and fortified foods essential for all children.

2.2. Objective

- Promote timely introduction of nutritionally adequate complementary foods.

This will be done by counselling and supporting parents to introduce adequate, safe and appropriate complementary foods at six months of the infant's age while they continue breastfeeding for up to two years or beyond.

2.3. Implementation

Implementation will require the following actions to be implemented:

- Introduce soft, semi-solid diversified complementary foods at six months of the child's age and continue breastfeeding until two years of age or beyond;

- Give the complementary food 3- 5 times a day depending on the age, and increase the amount as the infant grows older;
- Encourage parents to practice active feeding, meaning that they should interact with the infant during feeding times rather than forcing them to eat;
- Encourage parents to practice high standards of hygiene when handling the infant's food, and also to maintain sanitation standards and food/water safety;
- Promote the use of a variety of nutritious, locally available foods for infants and young children, ensuring that the food is of the right variety, consistency (thickness) amount, feed frequency, nutrient density (especially related to energy and micronutrients)and hygienically prepared food;
- Encourage parents/caretakers and guide them to give liquids using clean cups without spouts and not to use bottles or teats;
- Encourage parents to ensure that their infants and children receive vitamin A supplements every six months starting at six months of age, and de-worming medicines every 6 months starting at one year of age until the children are 5 years old;
- Counsel and support mothers to space births 2 - 3 years apart in order to achieve the optimal duration of breastfeeding;
- Counsel mothers to continue monitoring the growth of their children through 5 years of age, and maintain the child growth card or mother/child health passport for recording this growth.

2.4. Prioritizing and selecting interventions to improve complementary feeding

- Multiple interventions will be required for improving complementary feeding of children age 6-23 months. The impact of many interventions depends on factors such as the food security situation, cultural/ traditional complementary feeding practices, and the availability and affordability of nutrient dense diversified local foods;
- In all contexts—both food secure and food insecure situations—three core action areas are suggested. These include:
 - a. IYCF counselling and communication on optimal feeding and care practices
 - b. Optimal use of locally available foods
 - c. Strategies to improve availability and affordability of quality complementary foods.
- Improved complementary feeding should be identified and prioritized based on the situational assessment and as part of the process of translating the Global Strategy for Infant and Young Child Feeding;
- Locally available and acceptable foods should be used for complementary feeding whenever possible;

- Traditional household techniques that improve nutritional content of commonly consumed plant-based foods, as well as availability and consumption of animal source foods should be assessed and exploited;
- In addition, analyses of typical diet need to take into consideration, the presence of anti-nutrients and inhibitors of absorption when assessing adequacy of nutrient intake. Analysis of diets will allow the identification of the main nutrient gaps;
- In many instance micronutrients like iron, iodine, zinc, vitamin A and vitamin D are deficient in local complementary foods;
- In cases where the energy and protein density of the foods is adequate or can be enhanced through better use of locally available foods, but the requirements for certain micronutrients is not possible to meet with locally available foods, supplementation need be considered;
- Use of micronutrient powders with complementary foods is useful to improve the micronutrient quality of complementary foods at a low cost;
- It is important to assess the availability of industrially-processed fortified complementary foods marketed for young children, especially in a context of increased urbanization where access is high. This option is particularly important for groups of the population that can afford it;
- Social protection programs like the Productive Safety Net Program (PSNP) need be linked with a provision of counselling and education with supplements, vouchers for specific products or conditional cash transfers are among the important approaches to improving complementary feeding for poor families.

3. IYCF IN EXCEPTIONALLY DIFFICULT CIRCUMSTANCES

3.1 Infant and Young Child Feeding within Context of HIV Infection

3.1.1. Introduction

The predominant type of virus responsible for infections in Ethiopia is the HIV-1 type of virus. Mother-to-Child Transmission of HIV (MTCT) accounts for the vast majority of new infections among children in the country. Infants can acquire HIV from their infected mothers during pregnancy, at the time of delivery, or after birth through breastfeeding. Transmission through breastfeeding accounts for 5 to 20per cent of MTCT. However, with various interventions for Prevention of Mother-To-Child Transmission of HIV (PMTCT), the rate can be reduced by 50- 95per cent. The key interventions for PMTCT include routine offers of HIV testing and counselling and testing during pregnancy; provision of Antiretroviral Drugs (ARVs) to the HIV-infected pregnant women and their infants; and appropriate infant feeding. Current evidence indicates that exclusive breastfeeding and the use of ARVs greatly reduce MTCT.

Replacement Feeding (RF), if it is exclusive, eliminates MTCM HIV through breast milk while offering acceptable nourishment for the child. However, exclusive replacement feeding, which is not prepared properly as per the instructions and is given to the baby in an unhygienic way, carries the risk of diarrhea, pneumonia and malnutrition.

In Ethiopia, adult HIV prevalence is 1.5per cent (DHS 2011). Besides the dominant heterosexual transmission, the vertical virus transmission from mother to child accounts for more than 90per cent of pediatric AIDS. As the PMTCT program provides both prevention of HIV transmission from mother to child and enrolment of infected pregnant women and their families into ARV treatment and care, it has been adopted by the Government of Ethiopia in an effort to mitigate the impacts of the epidemic within the population in general and amongst children in particular.

The National Guidelines on the Prevention of Mother-to-Child Transmission (MTCT) of HIV in Ethiopia was issued in July 2007. Ethiopia has adopted the recommendations for public health approaches which was released by the World Health Organization in 2010. These recommendations deal with ARVs treating pregnant women and preventing HIV infections in infants.

3.1.2. Objective

The main aim is to minimize/reduce HIV transmission through breastfeeding. This can be done in two ways:-

a) For mothers who are HIV negative and those with unknown HIV status

Counsel and support the mothers to exclusively breastfeed for the first six months of the infant's life, introducing complementary foods thereafter, and continue breastfeeding for the two years and beyond as per the recommendation.

b) For HIV infected mothers

Counsel and support the mothers based the infant feeding options for HIV positive according to in the National PMTCT Guidelines Review Recommendations and provide the appropriate key messages.

3.1.3. Implementation modalities

The following are the means used implementation within an Ethiopian context:

1. During antenatal care for known HIV positive mother

- Explain to the mother that even if there is a small risk of HIV transmission by breastfeeding, breast milk is shown to give the best chance of survival even for babies born to HIV-positive mothers
- Encourage mothers to breastfeed exclusively for the first six months
- Review the Key Messages for HIV-positive mothers on breastfeeding (Table 2)

- Make sure mother is consistently on ART, complying with option B+
- Inform mother that infant needs to take ART for the first six weeks after delivery

2. Post-partum for known HIV positive mother

- Encourage and support exclusive breast feeding at each postnatal visit
- Monitor growth and development of baby
- Ensure infant follow-up and access to early infant diagnosis service and cotrimoxazole preventive therapy
- Avoid mixed feeding, feed only breast milk until six months old
- Introduce complementary feeding at six months and continue breastfeeding until 12 months (when infant can get adequate calories without breast milk)
- Counsel mothers on safe breastfeeding practice emphasize on positioning and attachment
- Promptly manage breast problems like mastitis, cracked nipples etc.
- Provide nutritional and psychosocial support to mothers

Box 1: Preferred infant feeding method with HIV

- Exclusive breastfeeding for the first 6 months
- Avoid mixed feeding, feed only breast milk until 6 months old
- Introduce complementary feeding at 6 months and continue breastfeeding until 12 months (when infant can get adequate calories without breast milk)
- Counsel mothers on safe breastfeeding practice
- Promptly manage breast problems like mastitis, cracked nipples etc
- Ensure eligible mothers are on antiretroviral treatment for their own benefit
- Provide nutritional and psychosocial support to mothers

Box 2: Alternative feeding method

- This is for the minority of women who choose replacement feeding
- Review optimal replacement feeding principles, including use of cup and spoon and avoiding mixed feeding and bottle feeding
- Make sure mother can safely provide formula
- No breastfeeding with replacement feeding [mixed feeding]
- Provide clear information about risks of formula; that it is not currently recommended
- Mothers should use commercial infant formula. Home-modified animal milk should only be used as a temporary measure since it does not provide the micronutrient needs of infants <6 months.
- Ensure mother has an uninterrupted supply of formula for at least 12 months
- Teach mother how to prepare the replacement feeding and provide intensive counseling on hygienic preparation of formula at each visit
- Avoid bottle feeding, in order to avoid the risk of diarrhea and malnutrition
- Ensure close follow-up to monitor growth and nutritional status monthly to prevent malnutrition and gastroenteritis during the first two years of life

Box 3: Infant Feeding: Key Messages

- Infant feeding counselling and support for HIV-positive mothers who choose to breastfeed:
- Support the mother's choice
- Encourage exclusive breastfeeding for six months
- Advise the mother *never* to mix feed as this may increase risk of HIV transmission and illness or death from diarrhoea and other illnesses
- Ensure correct positioning and attachment to prevent mastitis and damage to mother's nipples:
 - Advise the mother to return immediately if she encounters breast or nipple problems, or if the baby has any difficulty feeding
 - Ensure follow-up during first week after discharge to assess attachment and positioning and the condition of mother's breasts
 - Ensure infant follow-up and access to early infant diagnosis service and cotrimoxazole preventive therapy
- Introduce appropriate complementary feeding at six months
- Continue breastfeeding for 12 months with appropriate ARV prophylaxis
- Ensure maternal health and nutrition, specially enrolment into HIV/ART care.

3.2. Infant and Young Child Feeding in Emergencies

3.2.1. Introduction

In line with the WHO guidance on ENA, due consideration must be given to infants and young children in emergency situations. Children in these circumstances stand a high risk of malnutrition and therefore require special attention and practical support to ensure optimal IYCF. In emergency situations, children are among the most vulnerable victims. Uncontrolled distribution of breast milk 'substitutes' mainly in refugee or in other camp situations can increase the already high risk of diarrheal disease, malnutrition and death.

Such circumstances call for a special and supportive environment for health, community, and emergency workers, as well as families, in order to support appropriate IYCF as required. The special supportive environment may also include additional food, water, shelter, and health care services. In difficult circumstances, including emergencies, the additional resources needed (such as clean water sources and fuel) for the safe use of artificial/replacement feeds are also usually scarce. There is an overall need to minimize the risks and dangers of artificial feeding to infants and their families under such circumstances.

The best food for all infants in exceptionally difficult circumstances is their own mother's milk unless medically contraindicated, given the multiple benefits that accrue from breastfeeding. Only when the mother is absent or otherwise unable to breastfeed should replacement feeding be implemented. Exclusive breastfeeding for the first six months is very important for infant nutrition and health in difficult circumstances because it is safe, acceptable, and affordable to many families. However, after six months, there should be timely introduction of nutrient dense complementary foods. If there is no possibility for the infant to be breastfed or fed expressed breast milk by cup and replacement feeding becomes necessary, the following critical issues must be addressed:

- Ensure that action is based on an assessment of the factors affecting infant and young feeding practices in the specific situation.(the health workers should identify those children who needs substitute feeds);
- Emphasize protecting, promoting, and supporting breastfeeding and ensuring timely, nutritionally adequate, safe, and appropriately fed complementary foods, consistent with the age and nutritional needs of older infants and young children;
- Create a mechanism for coordinating and monitoring infant feeding activities, with a lead agency nominated to manage infant feeding issues and a framework for action agreed by all parties;
- Eliminate all practices that undermine breastfeeding. Donations of infant formula and other BMS should be systematically refused and any requirements for BMS and replacement feeding should be met by purchasing supplies;
- Recognize the special needs of women feeding infants and support them in every way;

- Minimize the dangers in feeding to infants and their families;
- Increase awareness and knowledge about the benefits of breastfeeding amongst all stakeholders in emergency situations.

3.2.2: Objectives of IYCF during emergencies

- Promote and support optimal feeding for infants and young children in emergencies and other special circumstances. The main action here will be to:

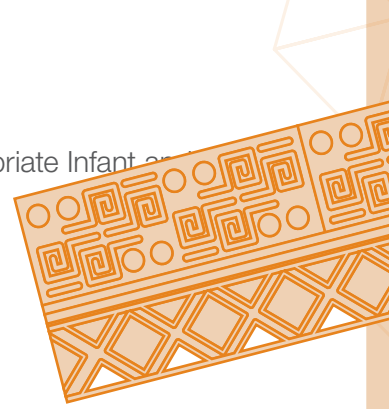
Counsel and support the mothers, caretakers, and families to practice optimal IYCF in emergencies and other exceptional circumstances

3.2.4: Implementation

Implementation will require that the following be implemented: -

- Put emphasis on protecting, promoting, and supporting breastfeeding plus ensuring timely, nutritionally adequate, safe, and appropriately given complementary foods, consistent with the age and nutritional needs of older infants and young children;
- Guide health workers to identify infants who need to be fed with BMS, ensuring that a suitable substitute is provided and fed safely for as long as is needed by the infants concerned;
- Ensure that whenever BMS are required for social or medical reasons, for example, for orphans or in the case of HIV positive mothers, they are provided for as long as the infants concerned need them;
- 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 National Guidelines;
- Use donations of BMS and feeding utensils for children in difficult circumstances only if approved and cleared by the FMOH before distribution. Feeding bottle and cups with spouts should not be 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;
- Avoid separating mothers and their infants to facilitate continued feeding and care;
- Ensure that health workers have accurate and up-to-date information about infant feeding policies, guidelines and practices, and that they have the specific knowledge and skills required to support children and their caregivers in all aspects of IYCF in emergency situations;
- Adopt the BFHI standards, 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 for whom breastfeeding is actually the best option.

Additional guidance on optimal IYCF in Annex 6.1: Practical Steps to Ensure Appropriate Infant and Young Child Feeding during Emergencies.



3.3. Feeding of low birth weight infants

3.3.1 Objective

The main aim here is to promote adequate breast milk intake for LBW babies.

The approach will be based on two scenarios, these are:

First - Mothers of infants who are born with low birth weight but can suckle should be encouraged to breast feed, unless there is a medical contra-indication; and

Second, mothers of low birth weight infants who cannot suckle well shall be encouraged and assisted to express breast milk and to give it by cup, spoon or nasogastric tube.

3.3.2. Implementation

- Care for very small babies, less than 30 weeks gestational age, should be provided in the health facility, together with their mothers. They usually require feeding through nasogastric tubes for giving expressed breast milk. Slightly larger infants, about 30-32 weeks gestational age, can usually take feeds from a small cup or can be fed with cup and spoon. Infants of about 32 weeks gestational age or more are usually able to start suckling on the breast. They can be cared for in the home using the “Kangaroo mother care” method. Infants from about 34-36 weeks gestational age can take most of what they require directly from the breast;
- All LBW babies should be followed up and weighed regularly to make sure that they are getting all the breast milk that they need for adequate growth;
- All LBW babies should be provided with $\frac{1}{4}$ tablet of iron (50mg) daily since they are at higher risk of iron deficiency and iron deficiency anemia. Iron supplements should begin at 2 months and continue until the infant is on complementary feeding. This should be in conjunction with measures to prevent and control malaria;
- It is NOT recommended to give folic acid supplements.

CHAPTER IV

Implementation, Monitoring & Evaluation

4.1. Introduction

The implementation of this guideline will be in line with the Global Strategy for YCF, National Nutrition Program, the other relevant national policies and guidelines cited in this document.

4.1.1. Policy Implications - Regulatory Action

- a) Advocate for adoption and application of a policy on maternity entitlements, consistent with the International Labour Organization (ILO) Maternity Protection Convention and Recommendations ILO Maternity Protection Convention, 2000 No. 183 and Maternity Protection Recommendation, 2000 No. 191), in order to facilitate breastfeeding by women in paid employment:.
- b) Ensure that processed complementary foods are marketed for use at an appropriate age, and that they are safe, culturally acceptable, affordable and nutritionally adequate, in accordance with relevant Codex Alimentarius standards; and
- c) Ensure in country supportive policy environment for the implementation of the International Code of Marketing of Breast milk Substitutes and other related WHO resolutions.

Box 5: Maternity Protection Convention C-183 (2000)

The main provisions of the 2000 Convention can be summarized as follows:

- Applies to all employed women, including those in atypical forms of dependent work.
- Provides for 14 weeks maternity leave (12 weeks in the previous 1954 Convention).
- Maternity leave shall include a period of six weeks compulsory leave after childbirth.
- Where cash benefits are paid with respect to leave based on previous earnings, this must be at least 2/3 previous earnings.
- Includes the right to return to the same position or an equivalent position at the same rate as at the end of maternity leave.
- Includes the right to one or more daily breaks or a daily reduction of hours of work to breastfeed her child.
- These breaks or the reduction of daily hours of work shall be counted as working time and remunerated accordingly.

Recommendation 191 of MPC 183 of 2000:

- An increase in the length of maternity leave from 14 to 18 weeks.
- Facilities for breastfeeding at or near the workplace.
- Adoptive parents have the right to maternity leave.
- Adoptive parents have a right to maternity benefits.

Box 6: Summary of the Main Provisions of the CODE on Marketing Breast Milk Substitutes

- No advertising of breast milk substitutes and other similar products to the public
- No free samples to mothers
- No promotion in health service facilities
- No company personnel to advise mothers
- No gifts or personal samples to health workers
- No pictures of infants or other pictures idealizing artificial/replacement feeding, on the labels of the products
- Information to health workers should be scientific and factual
- Information on artificial/replacement feeding, including that on labels, should explain the benefits of breastfeeding and the costs and dangers associated with artificial/replacement feeding
- Unsuitable products, such as sweetened condensed milk, should not be promoted for babies

4.1.2 Advocacy and Social Mobilization

- Advocacy for optimal AMIYCN will be crucial for the successful implementation of these guidelines. Advocacy will be done at various levels including at the federal, regional, zonal and woreda levels. Social partners, including community networks and groups, will be targeted in an effort to encourage support for interventions promoting optimal AMIYCN. Efforts will be made to:
 - Ensure that all who are responsible for communicating with the general public, including health professionals, educational and media authorities, provide accurate and complete information about appropriate adolescent, maternal and infant and young child nutrition practices, taking into account prevailing social, cultural and environmental circumstances;
 - Ensure that adolescent girls are not forced to get married before the age of 18 and that they have access to youth friendly reproductive health services to delay their first pregnancy until the age of 19. Promote shift of social norms on food taboos preventing adequate nutrition for adolescent girls;
 - Coordinate the development, adoption and enforcement of nutrition related policy and legislation and resource mobilization, while improving the involvement of the private sector. (enforcement of salt iodization; enforcement maternity leave in public and private sectors and extension of maternity leave to align with minimum ILO recommendations; Code of Marketing on Breast Milk substitutes (BMS);
 - Organize and coordinate with government and private media institutions for harmonized, targeted nutrition messaging.
- Strengthen the capacity of Health Extension Workers (HEWs), Agriculture Extension Workers and Health Development Army (HDAs) to communicate appropriate, targeted nutrition messages to promote optimal caring practices amongst women/girls and men/boys;
- Ensure that the quality and quantity of nutrition messages and materials are appropriate at all levels.
- Increase the adoption of appropriate nutritional practices at family level;; Increase community participation in the promotion of nutrition practices;
- Ensure access for mothers, fathers and other caregivers to objective, consistent and complete information about appropriate feeding practices, free from commercial influences. In particular, they need to know about the recommended period of exclusive and continued breastfeeding; the appropriate time for introduction of complementary foods; what types of food to give, how much and how often; and how to feed these foods safely;
- Increase access to ANC and education about breastfeeding, to delivery practices, which support breastfeeding, and to follow-up care, which helps to ensure continued breastfeeding; and
- Ensure that community-based support networks participate actively in the planning and provision of services.

4.1.3 Capacity Building

Capacity building, in terms of improving and providing the necessary skills for health and community-based workers will be a key strategy.

Training and education (in service) of health care providers on maternal and adolescent nutrition, the benefits and management of breastfeeding, re-lactation, infant feeding in the context of HIV, “Kangaroo” care, appropriate complementary feeding, and all other aspects of optimal IYCF will be emphasized. Similarly, community based workers and networks such as HEW and HDAs will need training, follow-up support, and educational/counseling tools on AMIYCN. Capacity building to strengthen the utilization of data captured for AMIYCN in the Health Management Information System (HMIS) will also be necessary.

Health workers shall be trained or sensitized on preparedness and support for AMIYCN in difficult 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. The need to promote training/sensitization of the relevant workers at federal, regional, zonal and district levels in preparedness for AMIYCN to ensure that it will remain supported even in difficult circumstances.

4.1.4 Information Education and Communication (IEC)

During implementation, an Information, Education and Communication (IEC) strategy will be employed to create awareness on all aspects of optimal AMIYCN. This will involve the use of print and electronic media as well as interpersonal communication and the community dialogue approach.

Community mobilization will be a key intervention in the implementation of these guidelines. Creation of awareness at the community level is essential to ensure implementation of optimal infant feeding practices.

Community leaders, HEWs and HDAs will be sensitized to promote and support optimal AMIYCN. Communities will be encouraged to initiate and/or strengthen support groups for the promotion of optimal IYCF, along with other activities.

Parents, caretakers, families, and communities will be given information on production, storage, preparation and utilization of food through demonstrations, taking into account different cultures.

4.1.5 Counselling and Follow-Up

Counseling services will be strengthened to empower parents, caretakers and families to make informed decisions about IYCF at well baby clinics, during immunization sessions, at in- and out- patient services for sick children, nutrition services, reproductive health and maternity services. The parents and families will then be supported to implement their decisions so that optimal IYCF is achieved.

Additional counseling and support will be offered to mothers working outside of their homes to enable them to practice optimal IYCF.

Caretakers shall be counseled to use cups for feeding their infants when opting for the IYCF option of replacement feeding or when using exclusive breast milk.

Counseling of parents and sensitization of the communities about the feeding of sick infants and young children will be done. When mothers fall sick, they will be encouraged and supported to continue feeding their infants and young children. Efforts will be made to ensure that mothers and infants are not separated under any circumstances.

Community and facility based counselling services will be available for mothers with regard to their own nutrition. Adolescent girls will have access to nutrition assessment and counselling services at community level, as well as in schools.

4.1.6 Integration, Coordination and Collaboration

Strategic linkages will be forged with the different sectors programs and policies in order to achieve the maximum impacts while implementing these AMIYCN Guidelines. Coordination and collaboration enhances the effective participation of key stakeholders, maximizes the use of resources, provides guidance, and sets standards of achievement. Whereas the Federal Ministry of Health (FMOH) will be the principal implementer of these guidelines, given the multi-sectoral nature of the interventions required, other important stakeholders will be involved as recommended in the section on roles and responsibilities.

Harmonization of messages and integration of AMIYCN in initiatives targeting women and children such as BFHI, Integrated Management of Neonatal and Childhood Illness (IMNCI), PMTCT, ART, and Home Based Care (HBC) programs as well as other reproductive health interventions, will be actively pursued. The ENA approach shall be used as a means of ensuring IYCF promotion at the various key contact points (ANC, delivery, postnatal/family planning, immunizations, growth monitoring/well child, Therapeutic Supplementary Feeding (TSF) and Outpatient Therapeutic Program as well as sick child consultations), in addition to promotion at schools and within the community. Good nutrition for pregnant women and lactating mothers will be promoted at all contact points. It will be important to strengthen the use of community based health workers, peer counselors, and mother support groups as well as links with agricultural and other extension workers in the promotion of optimal AMIYCN.

Any agency/partner involved in the procurement, management, distribution, targeting, and use of formula milk and related products by children in difficult circumstances shall do so in accordance with the National directives on Marketing of Breast Milk Substitutes and should get clearance from the FMHACA.

Monitoring growth and development of infants and young children as a routine nutrition intervention, with particular attention to low birth weight and sick infants, and those born to HIV positive mothers will be done while also ensuring that mothers and families receive appropriate counseling.

In order to effectively conduct growth monitoring programs at community levels, it will be necessary to build the capacity of HEW on growth monitoring and counseling through integrated refresher training, supportive supervision and on the job mentoring. It will also be necessary to capacitate the HDA and leaders for community mobilization. Positive nutrition practices should be promoted and. Mother to mother support groups, especially in the Developing Regional States would be facilitated. .

4.1.7 Resource Mobilization

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

4.1.8 Health Care Service Actions

Ensure that hospital routines and procedures remain fully supportive of the successful initiation and establishment of breastfeeding through implementation of the BFHI, monitoring and reassessing already designated facilities and expanding the initiative to include clinics, health centers and pediatric hospitals.

Ensure effective therapeutic feeding of sick and malnourished children, including the provision of skilled breastfeeding support when required.

Box 7: Ten Steps to Successful Breastfeeding (in maternity services)

- Have a written breastfeeding policy that is routinely communicated to all health care staff
- Train all health care staff in skills necessary to implement this policy
- Inform all pregnant women about the benefits and management of breastfeeding
- Help mothers initiate breastfeeding within a half-hour of birth
- Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants
- Give newborn infants no food or drink other than breast milk unless medically indicated
- Practice rooming in - allow mothers and infants to remain together-24 hours a day
- Encourage breastfeeding on demand
- Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants
- Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic

Train health workers who care for mothers, children and families with regard to:

- a) Counseling and assistance skills needed for breastfeeding and complementary feeding
- b) Feeding during illness and malnutrition
- c) Adolescents and Maternal nutrition
- d) Health workers' responsibilities under the International Code of Marketing of Breastmilk Substitutes

Mothers/caretakers need access to skilled support to help them initiate and sustain appropriate feeding practices, as well as to prevent and overcome difficulties. Trained health workers should provide this support, as a routine part of regular prenatal, delivery and postnatal care and in well baby and sick child services.

Provide guidance on appropriate complementary feeding with emphasis on the use of suitable, locally available foods, which are safely prepared and fed to young children.

Enable mothers to remain with their hospitalized children to ensure continued breastfeeding and adequate complementary feeding and, where feasible, allow breastfed children to stay with their hospitalized mothers.

4.1.9 Community level actions

Promote development of community-based support using the One to Five networks of the development army is helpful for appropriate AMIYCN practices. Community level actions will enhance the support and companionship of fathers and other community member in their roles as family providers and caregivers. This should be promoted and encouraged at the community level.

4.2: Monitoring & Evaluation

4.2.1 Introduction

Monitoring and evaluation at all levels will be done to ensure that the implementation of the Guidelines is proceeding well and that the desired results are being achieved and documented. Quality monitoring will be done to alert managers about actual and potential weaknesses, problems and shortcomings so that timely adjustments and corrective actions can be made to improve the program design, work plan and AMIYCN component in the NNP action plan. It will also determine whether various components of the AMIYCN guidelines have been successfully integrated into the NNP, planning and action as well as increase accountability of stakeholders and partners. To facilitate measuring the implementation progress, a monitoring plan has been adopted from the NNP M&E framework, which has clear and measurable targets and indicators.

At each of the service delivery level (community worker/health post, health facility, hospital) and administrative level (woreda), the zonal or regional level and the federal level, tools that could be used to facilitate and monitor implementation against annual targets for the numbers of caregivers and children reached will be developed, disseminated and utilized.

4.2.2 Indicators

The process, outcome and impact indicators will be assessed routinely and periodically. The following will be the targets and/or indicators that will be used to measure progress and impact on AMIYCN interventions:

4.2.2.1. Process (Output) Indicators

(a). *Policy*

- Programmatic technical working group under MOH will be established. This working group will be answerable National Nutrition Technical Committee(NNTC) and mandated to oversee the implementation of AMIYCN guidelines;
- Proportion of government budget allocated for nutrition out of the total health budget
- Social protection programs must include child nutrition component/conditions;
- Agriculture extension programs must include nutrition education components;
- Agriculture extension programs must include homestead food production components; and
- Agriculture extension programs include support of animal food source production.

(b). *National*

- Directives on BMS endorsed, enforced, and monitoring activities implemented;
- New Maternity protection legislation in place;
- Comprehensive, up to date multi-sectoral AMIYCN guidelines endorsed;
- Pre-service curricula (medical, nursing, etc.) includes updated, comprehensive AMIYCN content;
- AMIYCN reflected in emergency preparedness and response plan.

(c) *Health System Level:*

- per cent of woredas included AMIYCN activities in their sectoral micro-plans;
- Proportion of Health Center (HC) and hospitals providing comprehensive and routine nutrition assessment and counseling services for adolescents integrated with youth-friendly health services;

- per cent proportion of HC & hospitals providing counseling on maternal nutrition during ANC and postnatal/postpartum services;
- Proportion of primary schools integrating a comprehensive nutrition education and promotion activities targeting adolescents;
- # and per cent of hospitals that are certified baby-friendly within last 5 years;
- # and per cent of hospitals implementing the six priority steps for successful breastfeeding (1,3, and 6-9);
- # and per cent of health workers trained on blended integrated learning nutrition module;
- # and per cent of health facilities with at least one HW trained on blended integrated learning nutrition module;
- # and per cent of mothers who received nutrition counselling during ANC at least once per cent of children <2 who attend monthly GMP session and received IYCF counseling,

Health facility or other survey, exit interviews:

- per cent of health facilities with workers trained on counselling on AMIYCF;
- per cent of health workers trained and used at least 4 out of 6 counselling skills during individual counselling;
- per cent of trained health workers who used at least 3 out of 4 communication skills during group sessions;
- per cent of caregivers of children <2 who reported receiving at least one individual counselling session during the last 6 months;
- per cent of caregivers of children <2 who reported receiving at least one group education session during the last 6 months;
- per cent of caregivers of children <2 who were able to correctly state at least three essential breastfeeding practices;
- per cent of caregivers of children <2 who were able to correctly state at least three essential CF practices;
- per cent health facilities with AMIYCN indicators reported as part of routine monitoring mechanisms (HMIS, PMTCT, etc.)

(d). *Community level*

Routine monitoring:

- # and per cent of woredas with trained HEWs conducting planned AMIYCN activities
- # and per cent of woredas with trained HDAS to support AMIYCN promotion and community mobilization
- # and per cent of woredas with mother support groups in DRS regions meeting/conducting AMIYCV activities at least once per month

Household (HH) surveys/rapid surveys/SQUEAC

- per cent of woredas with active community worker providing AMIYN counselling;
- per cent of woredas in DRS regions with mother support groups meeting/conducting activities at least once per month;
- per cent of HEWs who reported receiving at least one supervisory visit during the last 6 months;
- per cent of caregivers of children <2 who reported receiving at least one individual counselling session in the last 6 months;
- per cent of caregivers of children <2 who reported receiving at least one group education session in the last 6 months;
- per cent of pregnant mothers correctly state at least two essential maternal nutrition practices;
- per cent of caregivers of children <2 who were able to correctly state at least three essential breastfeeding practices;
- per cent of caregivers of children <2 who were able to correctly state at least three essential CF practices;
- per cent of caregivers of children 6-23m who report giving iron-fortified foods or supplements in the past 24 hours.

4.2.2.2. Outcome Indicators

- per cent of pregnant women who are not eating one additional meal during pregnancy; per cent of adolescents delayed first pregnancy at least until the age of 19;
- per cent of pregnant women who are anemic;

- per cent of infants initiated to breastfeeding within 1 hour of birth;
- per cent of infants under 6 months of age exclusively breastfed;
- per cent of infants between 6-8 of age with complementary foods introduced;
- per cent of children still breastfeeding at 12-15 months;
- per cent of young children still breastfeeding between 20-23 months of age;
- per cent of infants 6-23 months who had the minimum dietary diversity;
- per cent of infants 6-23 months who had the minimum meal frequency;
- per cent of infants and young children 6-23 months of age who received a minimum acceptable diet; and
- per cent of infants 6-23 months who received an MNP, LNS or fortified complementary food in target areas.

4.2.2.3. Impact Indicators

- per cent of women of reproductive age (15-49 years) with BMI <18.5
- per cent of stunted children under 5 years of age (HAZ < - 2);
- per cent of underweight children under 5 years of age (WAZ < - 2);
- per cent of wasted children under 5 years of age (WHZ < - 2); and
- per cent of overweight children <5 years of age.

4.3. Roles and Responsibilities

Cabinet, Parliamentarians and Judiciary

As one component of the Political and National Development Agenda:

- Position AMIYCN as a priority on the national agenda;
- Provide support for laws, regulations, policies, strategies and programs dealing with AMIYCN, including maternity protection regulations as per the ILO standard;
- Ensure compliance with the existing laws and regulations.

Public Service

- Act as the principal implementer and coordinator of all the interventions aimed at achieving the goal and objectives of these Guidelines and ensure that other health plus related policies and strategies are in harmony with these guidelines;
- Liaise with and coordinate the AMIYCN activities of the federal ministries assigned responsibility within this document;
- Facilitate nutrition training of service professionals, health workers and all others who work with adolescents, women and caregivers on IYCN, in recognizing malnutrition and LBW, following the BFHI, and preparedness for AMIYCN in difficult circumstances, in order to ensure competence in these areas;
- Disseminate and monitor the national directives on the Marketing of Breast Milk Substitutes
- Conduct nutrition needs assessments to identify mothers and children in difficult circumstances;
- Undertake training/sensitization of service providers on monitoring and evaluating the impact of using various replacement feeds for infants, particularly those exposed to HIV;
- Recruit, empower and employ nutritionists and hospital dieticians to strengthen nutrition services nationwide;
- Develop promotional materials to support implementation of the Guidelines, including tools for AMIYCN counselling, job aides and information materials for mothers;
- Harmonize nutrition related materials on AMIYCN; and
- Harmonize and integrate existing nutrition intervention packages and guidance on PMTCT.

Private Sector

- Adhere to the international CODE and national directives on the Marketing of Breast Milk Substitutes
- Provide maternity and entitlement to employees in accordance with the Employment Act;
- Create a working environment that promotes optimal IYCF;
- Provide necessary facilities and time for breastfeeding, expression of breast milk and/or preparation of replacement feeds;

UN and Donors

- Enhance advocacy for AMIYCN and contribute to the mobilization of resources to facilitate implementation of prioritized interventions;
- Provide funds for the implementation of the AMICN Guidelines;

- Provide technical support, especially on staff training, development of appropriate tools, the management of malnutrition and LBW manuals, tools and job aides in an integrated manner;
- Provide support to the FMoH the Federal States to implement their roles and responsibilities.

Health System

- Strengthen the structures, services, and interventions needed for the implementation of these policy guidelines;
- Train health facility staff and HEWs AMIYCN as part of the blended integrated nutrition learning module and integrated refresher training
- Train health facility staff on BFHI;
- Strengthen referral linkages between the nutrition related services and routine HIV/AIDS testing and counselling at service delivery points;
- Empower communities with the knowledge and skills necessary to implement this Guideline;
- Disseminate the directives on Marketing of Breast Milk Substitutes at all levels.
- Develop comprehensive implementation strategies including the monitoring framework for implementation of the Guidelines; In collaboration with partners, carry out intensive social mobilization of all stakeholders at all levels to promote and protect optimal AMIYCN

Regulatory Bodies

- Ensure that imported foods and equipment for infants and young children maintain the standards specified by the National Standards, the directives on Marketing of Breast Milk Substitutes;
- Monitor the implementation of the directives on Marketing of Breast Milk Substitutes and report findings to the relevant government authorities for action.

NGO and CBO

- AMIYCN should mainstreamed into the agendas of the relevant Central and Local Government officials;
- Advocate for the child's rights to food and nutrition;
- Provide technical support to Federal States, local governments and communities to facilitate AMIYCN, as well as implementation of other relevant roles and responsibilities;
- Where possible provide direct support to mothers, families, communities or congregations, especially those under difficult circumstances.

Communities and Families

- Community leaders should participate in the sensitization and mobilization of their members in activities relevant for optimal AMIYCN;
- Community leaders should organize social support networks for affected families and take steps to minimize stigmatization and discrimination;
- Provide love and attention to children in difficult circumstances as well as protect and promote appropriate AMIYCN practices;
- Mothers should exclusively breastfeed for the first six months of a child's life;
- Mothers and primary caregivers should take responsibility to learn what is required in safely preparing foods and feeding infants and young children; particularly pay attention to hygiene, correct mixing and feeding methods;
- Mothers and primary caregivers should form and/or participate in Mother Support Groups and alert the nearest health facility or stakeholders in the community for more support;
- Fathers should develop an interest in promoting, supporting and protecting maternal nutrition and IYCF, in addition to actively participating in decision making on IYCF in the family;
- Fathers should provide physical, psychological and financial support during pregnancy, delivery and lactation for optimal AMYICN, including participating in the provision of care to infants and young children.

Media

- In collaboration with relevant Central and Local Government officials, the print, electronic and theatre media should inform the public on all AMIYCN issues;
- Abide by the international Marketing of Breast Milk Substitute CODE and its national directives especially with regard to advertisements.

Universities, tertiary and health training institutions

- Consider AMIYCN trainings as an integrated course in related disciplines;
- Ensure that training on AMIYCN includes sufficient hands-on experience empowering graduates to promote, protect, and support optimal AMICN;
- Promote research in priority topics related to IYCF.

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Annexes

ANNEX 1a.- Sample food frequency questionnaire for adolescents

Sample Food Frequency Questionnaire for Adolescents

Food Frequency Form

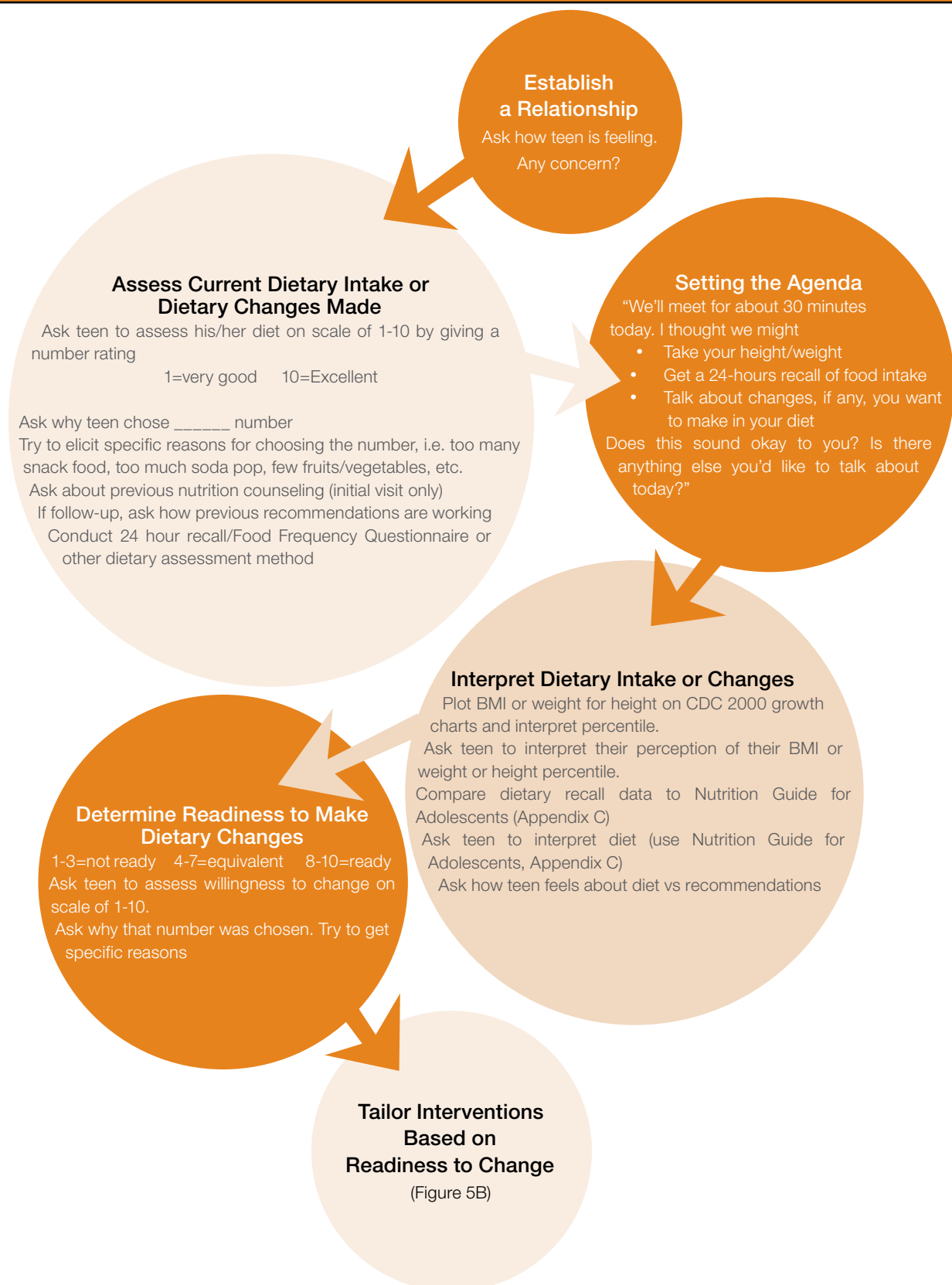
How often do you eat the following foods? (Put an "x" on the line)

	More than once/day	Once/day	2-3 times/ week	Seldom	Never
Milk					
Cheese, yogurt					
Ice cream					
Meat, fish, poultry					
Eggs					
Peanut butter, nuts					
Dry beans, peas, tofu, soy					
Citrus fruits, juice (i.e., orange grapefruit, tomato)					
Dark green leafy or deep orange vegetables (i.e. collards, broccoli, carrots, squash, sweet potatoes)					
Other fruits, vegetables, potatoes					
Bread, cereals, rice, pasta					
Sweets (cakes, donuts, pies, cookies, candy)					
Salty snacks; potato chips, corn chips, tortilla chips, pretzels, etc.					
Soda pop, kool-Aid					
Alcohol (beer, wine, etc)					
Coffee, tea					
Vitamins, herbs, other supplements					
Fast food					

Reprinted with permission from Story M.Stang J.ed.s. Nutrition and the pregnant adolescent: a practical reference guide. Minneapolis, MN: Center for leadership, education and Training in Maternal and Child Nutrition, Division of Epidemiology, University of Minnesota; 2000 (Appendix C2, p.237). <http://www.epi.umn.edu/let/pubs/nmpa.shtm>

ANNEX 1b.- Assessing adolescent willingness to change

Adolescent Willingness to Change



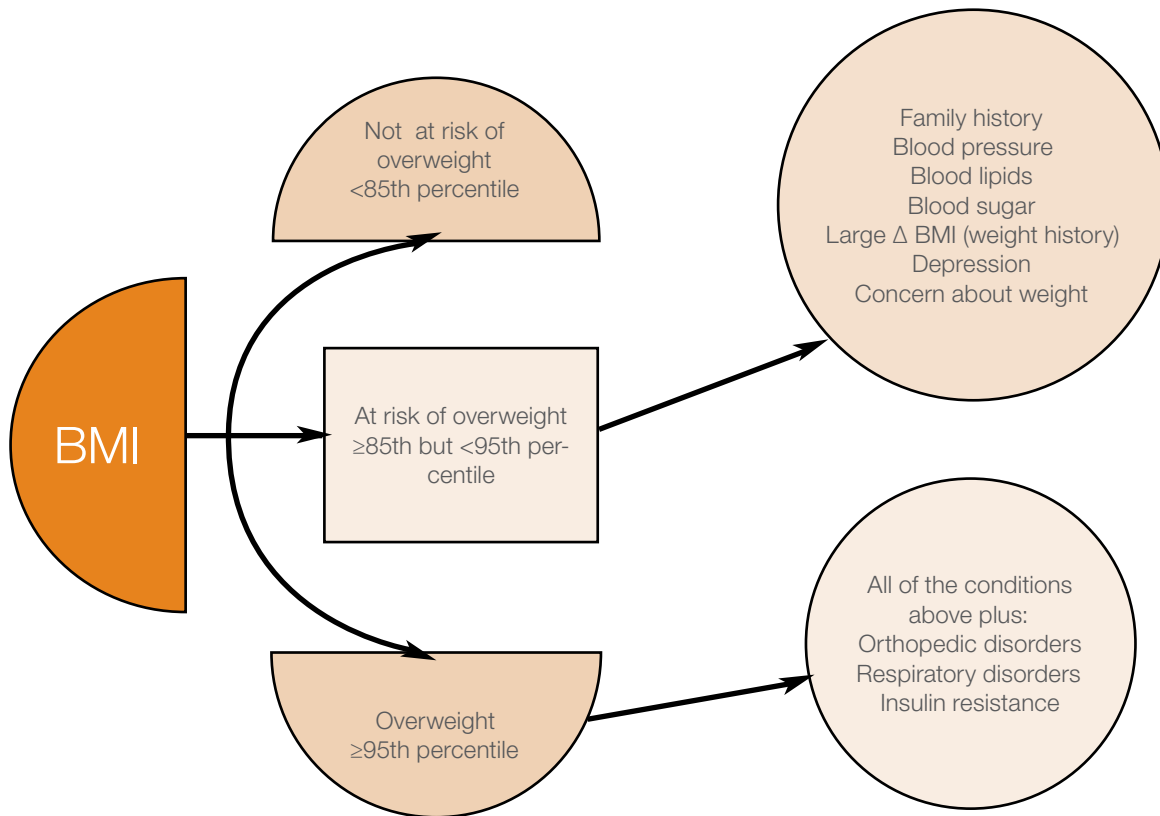
Source: Adapted from Berg-Smith SM, Stevens VJ, Brown KM, et al. A brief motivational intervention to improve dietary adherence in adolescents. Health Education Research: Theory and Practice 1999;14 (3) : 399-410

ANNEX 1c. – Tailored intervention stages for adolescents

Tailored Intervention Stages		
Stage 1. Teen is Not Ready to Make Dietary Change	Stage 2. Teen is Ambivalent about Dietary Change	Stage 3. Teen is Ready to Make Dietary Change
<p>Practitioner Goal: To increase teen’s knowledge of need for good nutrition and to educate/motivate.</p> <ul style="list-style-type: none"> • Ask what would be needed to increase teen’s willingness to make dietary changes. • Ask how you could help teen to become ready to change. • Reinforce your respect for teen even if teen chooses not to make changes. • Offer advice such as “I would recommend you increase your vegetable intake. However it’s your choice. If you decide at some time that you might want to eat more vegetables, then I will be glad to help you. In the meantime, may I call you periodically just to see how you’re doing?” • Ask open ended questions. • Offer advice (with permission) and emphasize choice and personal responsibility. 	<p>Practitioner Goal: To motivate and empower teen and to understand factors related to ambivalence.</p> <ul style="list-style-type: none"> • Explore hesitancy. Ask about like and dislikes in current diet or request a list of pros and cons or making dietary change • Ask about “healthy eating” habits or pros of making change first to set positive tone. Then ask cons of unhealthy habits • Ask what teen feels the next step should be • Offer to maintain contact periodically to check on teen’s progress. 	<p>Practitioner Goal: To help teen develop a plan and to define and negotiate specific strategies</p> <ul style="list-style-type: none"> • Ask what teen thinks needs to be changed • Ask for specific ideas of methods. • Help set small, realistic goals for 1-2 changes and make suggestions on how to measure changes. • Choose rewards for achieving goals. • Make a follow-up appointment to monitor progress
<p>Source: Adapted from Berg-Smith SM, Stevens VJ, Brown KM, et al. A brief motivational intervention to improve dietary adherence in adolescents. <i>Health Education Research: Theory and Practice</i> 1999,14(3): 399-410.</p>		

ANNEX 1d – Recommended overweight screening in adolescence

Schematic Representation of Recommended Overweight Screening in Adolescence



Source: Adapted from Himes JH, Dietz WH. Guideline for overweight in adolescent preventive service: recommendations from an Expert Committee. Am J Clin Nutr 1994;49:307-316.

Annex 2: Malnutrition in women

Moderate and severe thinness, underweight, overweight, obesity (WHO, 2010)

What do these indicators tell us? The values for BMI are age-independent for adult populations and are the same for both genders. BMI may not, however, correspond to the same degree of fatness in different populations due, in part, to different body proportions. The health risks associated with increasing BMI are continuous, and the interpretation of BMI grading in relation to risk may differ for different populations.

How are they defined? BMI is a simple index of weight-to-height commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m²). For example, an adult who weighs 58 kg and whose height is 1.70 m will have a BMI of 20.1: $BMI = 58 \text{ kg} / (1.70 \text{ m} \times 1.70 \text{ m}) = 20.1$

BMI < 17.0 indicates moderate and severe thinness

BMI < 18.5 indicates underweight

BMI 18.5–24.9 indicates normal weight

BMI ≥ 25.0 indicates overweight

BMI ≥ 30.0 indicates obesity

What are the consequences and implications?

Moderate and severe thinness: A BMI < 17.0 indicates moderate and severe thinness in adult populations. It has been linked to clear-cut increases in illness in adults studied in three continents and is therefore a further reasonable value to choose as a cut-off point for moderate risk. A BMI < 16.0 is known to be associated with a markedly increased risk for ill health, poor physical performance, lethargy and even death; this cut-off point is therefore a valid extreme limit. Underweight: The cut-off point of 18.5 for underweight in both genders has less experimental validity as a cut-off point for moderate and severe thinness but is a reasonable value for use pending further, comprehensive studies. The proportion of the population with a low BMI that is considered a public health problem is closely linked to the resources available for correcting the problem, the stability of the environment and government priorities. About 3–5 per cent of a healthy adult population has a BMI < 18.5.

Overweight: Overweight (BMI ≥ 25) is a major determinant of many non-communicable diseases, including non-insulin-dependent diabetes mellitus, coronary heart disease and stroke, and increases the risks for several types of cancer, gallbladder disease, musculoskeletal disorders and respiratory symptoms. In some populations, the metabolic consequences of weight gain start at modest levels of overweight.

Obesity: Obesity (BMI ≥ 30) is a disease that is largely preventable through lifestyle changes. The costs attributable to obesity are high, not only in terms of premature death and health care but also in terms of disability and a diminished quality of life.

Cut-off values for public health significance...>30...

Indicator	Prevalence cut-off values for public health significance
Adult BMI < 18.5 (underweight)	5-9per cent: Low prevalence (warning sign, monitoring required)
	10-19per cent: Medium prevalence (poor situation)
	20-39per cent: High prevalence (serious situation)
	≥ 40per cent: Very high prevalence (critical situation)

Reference: WHO, 1995

Annex 3 - Practical Steps to Ensure Appropriate Infant and Young Child Feeding in Emergencies

1. Ensure that action is based on an adequate understanding of the factors affecting infant feeding practices in the specific situation.

- A rapid assessment should be carried out immediately at the onset of the emergency, including information on pre-crisis infant feeding practices and the impact of prevailing conditions on infants and the ability of mothers to breastfeed and care for children. Where possible, information should be accessed on demographics and numbers of infants, orphans, etc.
- A second stage emergency assessment should be carried out in conjunction with the implementation of early relief activities. It should include mobilization of the affected population to participate in problem identification, solution and support; assess resource requirements; and identify mechanisms to actively involve local international partners. The prevalence of malnutrition among infants younger than 6 months should be assessed by their inclusion in nutrition surveys.

2. Create a mechanism for coordinating and monitoring infant feeding activities.

- A lead agency should be nominated to manage infant feeding issues. A framework for action should be agreed upon.
- Representatives of national and international agencies involved in food aid, social services and health/nutrition should meet regularly through the framework of a specific forum to address infant feeding issues.

Monitoring of interventions includes:

- Mortality/morbidity of infants;
- Provision of infant feeding support;
- Procurement, distribution and use of BMS or complementary foods; and
- Quality of infant foods supplied and/or used by the affected population;
- Include infant feeding issues in initial screening for new arrivals. Information collection on number of infants and unaccompanied infants and infant feeding practices.

3. Eliminate practices that undermine breastfeeding.

Donations of infant formula and other BMS should be systematically refused (i.e. any requirements for BMS should be met by purchasing of supplies).

Dried milk powder should NEVER be distributed as part of a general ration programme because of the risk that it could be used as a BMS. Rather, it should be mixed with other foods (such as blended foods) or provided under strictly supervised wet feeding conditions.

Bottles and teats should never be accepted or distributed; cups without spouts should be used instead.

Where Ultra Heat Treated (Long-life Milk) is distributed, it should be clearly labeled with an appropriate health message.

4. Recognize the special needs of women feeding infants.

Effective referral systems (e.g. registration, health/nutrition services) should be established at the outset.

Where appropriate, provide secluded shelter areas for breastfeeding, including rest areas in transit centers.

Where appropriate, facilitate and prioritize access to food aid, water, etc., for women with infants and young children.

Provide additional fortified food supplements for pregnant and lactating women and young children.

Integrate support services for infant feeding issues into health and growth monitoring services, as well as at unaccompanied children and nutrition rehabilitation centers (e.g. supplementary and therapeutic centers).

5. Minimize the dangers in feeding to infants and their families

Ensure that certain criteria are met where BMS is provided such as:

- Infant is assessed by a qualified nutrition or health worker to verify needs;
- BMS is distributed and targeted only to infants who have an established requirement;
- The supply is continued as long as the child needs it;
- The labels must be in a language that the mother understands and must adhere to the specific labeling requirements of the International Code of Marketing of Breast Milk Substitutes. This can be achieved by relabeling brand products or purchasing generically labeled products that display no company logos or advertisements;
- The delivery of BMS to the mother is accompanied by practical information on how to safely prepare the milk (e.g., how to cup feed and how to sterilize);
- There is no display of brand name products;
- BMS are prepared in accordance with the relevant Codex Alimentarius standards;
- Any facility supporting mothers who are unable to breastfeed should provide separate facilities for mothers who are breastfeeding and those who are using BMS;
- Procurement of small amounts of generic BMS (by a designated agency) should be made available for specific cases in need.

6. Increase awareness and knowledge about the benefits of maternal nutrition and infant feeding among all stakeholders in emergency situations.

National expertise should be available as a resource for all emergency agency staff to gain a better understanding of the good practices of maternal nutrition and IYCF and to assist agencies in developing strategies to develop good practices.

Ensure that expertise at national and district level is available to train health workers and community-based staff in AMIYCN issues so as order to ensure that consistent and well informed advice is given.

Ensure breastfeeding promotion via health workers, multiple channels for example, radio, print media etc.

Ensure that an infant's nutritional needs and those of women and children will be met

National Guideline
on Adolescent, Maternal
Infant and Young Child Nutrition



Federal Democratic
Republic of Ethiopia

Ministry of Health