ጤና ሚኒስቴር - ኢትዮጵያ
MINISTRY OF HEALTH - ETHIOPA
የዜጎች ጤና ለሃገር ብልጽግና !
HEALTHIER CITIZENS FOR PROSPEROUS NATION!

Adolescent Nutrition Implementation Guideline For Ethiopia

March,2023

Adolescent Nutrition Implementation Guideline for Ethiopia

Foreword

The government of Ethiopia has demonstrated its commitment to improving the population's nutrition by developing its first-ever food and nutrition policy, an implementation strategy (2021-2030), as well an adolescent and youth health strategy. Moreover, nutritional elements have been incorporated into the national development plan, and mainstreamed into various sectoral strategies and programmes to ensure their proper implementation.

The national Food and Nutrition Strategy (FNS) has 13 strategic objectives, of which the fourth focuses on adolescent nutrition. These objectives need an overarching strategic document to guide implementation at all levels. To facilitate this, the Ministry of Health in collaboration with FNS-implementing sectors developed and endorsed this Adolescent Nutrition Implementation Guideline. The guideline is intended to to give proper attention for the first time to adolescent nutrition as key to realizing the national food and nutrition policy and strategy.

The guideline aims to serve as a roadmap for food and nutrition service providers, programme managers in different FNS-implementing sectors, partners, academics and researchers at all levels. The goal is to improve coordination and integration among actors to ensure optimal nutritional status, productivity and longevity across the life-cycle. In this guideline, nutrition interventions are standardized to ensure consistent quality, with a particular focus on those targeting adolescents.

Achieving the goals of this guideline will require firm commitment, accountability, coordination, communication, ongoing monitoring and evaluation as well as strong linkages between different stakeholders. If we all strive towards these then I assure you that we will achieve the global goal of ending all forms of malnutrition by 2030. We must prioritize, and invest our resources towards, nutrition for a healthy and productive nation.

LIA TADESSE, MD, MHA,

MINISTER OF HEALTH

Federal Democratic Republic of Ethiopia, Ministry of Health. Adolescent Nutrition Implementation Guideline, Addis Ababa. (2023).

Contact Information: Ministry of Health, Nutrition Coordination Office Sudan Street Post Office Box 1234, Telephone: +251 11 5517011 Fax: +251 11 551 9366 Email: moh@moh.gov.et Website: www.moh.gov.et Addis Ababa, Ethiopia.

Acknowledgments

This Adolescent Nutrition Implementation Guideline aims to comprehensively address issues of adolescent nutrition according to a multi-causal framework for understanding malnutrition. Producing it involved multiple reviews and various stakeholders.

The Ministry of Health particularly acknowledges the tireless efforts of the technical working group in drafting and subsequently reviewing the guideline, with technical inputs from various stakeholders. UNICEF also deserves special appreciation for hiring the consultant to facilitate the overall development process. UNICEF, Nutrition International and Alive & Thrive deserve thanks for financing the consultative events.

All Regional Health Bureaus, universities (Haromaya, Hawassa, Gondar, Debre Markos, Bahir Dar, and Addis Ababa) and partners (UNICEF, Nutrition International, Alive & Thrive, Save the Children International, ECSC-SUN, CARE Ethiopia, Concern World Wide, Global alliance for improved nutrition(GAIN), Result 4 development (R4DA), AMREF Health Africa) for their technical support. The following individuals in the list below deserve special thanks for contributing their considerable knowledge and experience to the development of this guideline.

Name of Participant	Organization	Name of Participant	Organization
Hiwot Darsene	MOH	Dr. Wossen Assefa	Result for Development (R4D)
Yirgalem Mengistu	MOH	Metasebia Legesse	CARE Ethiopia
Dr Belaynesh Yifru	MOH/UNICEF/	Halemichael Kefene	Concern Worldwide
Birara Melese	MOH/Alive & Thrive	Sinksar Moges	UNICEF
Gelila Zewdu	MOH/UNICEF/	Dr Bekele Nigussie	ECSCU-SUN-SCI
Kidist Woldesenbet	MOH	Abdurahman Seid	MOTRI
Abera Dibabe	MOH	Tona Zema	Hawassa University
Gobane Dea	MOH	Ismaiel Ali	Gonder University
Firehiwot Girma	MOH	Sintayehu Tsigie	MOH
Frezer Abebe	MOH	Ashenafi Getachew	MOE
Professor Tefera Belachew	Jimma University	Abdulatif Mohammed	MOWSA
Segedu Ayele	UNICEF	Emebet Teshome	MOA
Amare Bekalu	Debre Markos University	Shibiru Kelbesa	MOH
Mulat Tirfie	Bahir Dar University	Tarekegn Negese	MOH
Zenebu Yimam	SCI-GTN	Tadesse Kebede	EPHI
Dr Kedir Teji	Haromaya University	Abebe Tilaye	MOH
Ermias Mekuria	Nutrition International	Yosef Beyene	EPHI
Tamirat Tafesse	Alive & Thrive	Hayleyessus Teffera	MOWE
Meheret Tena	ECSCU-SUN-SCI	Nigatu Abebe	MOE
Hana Yemane	GAIN	Abera Degefa	ORHB
Amare Demsie	University of Gondar		

Hiwot Darsene

Lead Executive Officer,

Nutrition Coordination Office,

Ministry of Health,

Ethiopia

Executive Summary

This Adolescent Nutrition Implementation Guideline was prepared based on the key recommendations identified by the FNS, a comprehensive review of the best available evidence, as well as the framework developed for the preparation of the guideline. Adolescence is especially a critical period. It constitutes the last window of opportunity to readdress the growth deficits accrued during pregnancy, infancy and early childhood. Addressing adolescent nutrition can thus break inter-generational cycles of malnutrition.

The guideline was developed by taking into account the different causes of malnutrition, based on principles derived from a life-cycle approach; the global conceptual framework; and a food based approach. The guideline will enable different stakeholders and professionals working on nutrition-sensitive and nutrition-specific interventions to implement their programmes related to adolescent nutrition effectively, and efficiently, in a sustainable manner. It can also be used by researchers, academi and those working in related sectors to better integrate adolescent nutrition interventions.

The various interventions follow multisectoral approaches for curbing adolescent malnutrition, and target causes including health problems, food and nutrition insecurity, issues related to gender, eating disorders, early pregnancy and poverty. The evidence-based interventions outlined include: promoting healthy diets through counselling, WASH, deworming, nutrition supplementation, school feeding, management of acute malnutrition, and preventing early marriage and pregnancy. Moreover, the guideline incorporates adolescent nutrition interventions for vulnerable adolescents living in exceptionally difficult circumstances such as: chronic illness, street life, internal displacement, refugee camps, pastoral/agro-pastoral and disaster-prone areas.

The guideline clearly identifies the different interventions and delivery modalities (platforms); the roles and responsibilities of various sectors; and areas for integration and collaboration in order to ensure maximum efficiency. It also maps out mechanisms for enhancing nutrition literacy among adolescents and their families, the relevant implementing sectors and the appropriate policy environment based on the socio-ecological model. Finally, it indicates which monitoring and evaluation frameworks for adolescent nutrition interventions are in line with the FNS, the Food-Based Dietary Guideline and other relevant policies and strategies such as the social protection policy, Productive Safety Net Programme and School feeding programs.

Acronyms and Abbreviations

ANC	Antenatal Care
ART	Antiretroviral Treatment
ASBCC	Adolescent Social Behaviour Change Communication
BCC	Behaviour Change Communication
BMI	Body Mass Index
BAZ	Body Mass Index for Age Z Score
CD	Communicable Disease
CSO	Civil Society Organization
DA	Development Agent
DALY	Disability-Adjusted Life Years
ECC	Enhanced Community Conversations
EMIS	Education Management Information System
EPHI	Ethiopian Public Health Institute
EPI	Expanded Programme on Immunization
FNC	Food and Nutrition Council
FNS	Food and Nutrition Strategy
FNTC	Food and Nutrition Technical Committee
FP	Family Planning
FTC	Farmers Training Centres
GBV	Gender-Based Violence
HC	Health Centre
HDAs	Health Development Army
HEWs	Health Extension Workers
HFs	Health Facilities
HP	Health Post
HPV	Human Papillomavirus
HWs	Health Workers

IDPs	Internally Displaced Population/People
IFA	Iron and Folic Acid
IPC	Interpersonal Communication
ITN	Insecticide Treated Net
KAP	Knowledge Attitude and Practice
MHM	Menstrual Hygiene Management
NCD	Non-Communicable Disease
OPD	Outpatient Department
PNC	Postnatal Care
PSNP	Productive Safety Net Program
PTC	Pastoralist Training Center
RBC	Red Blood Cell
RDA	Recommended Dietary Allowance
RIS	Routine Information System
SAM	Severe Acute Malnutrition
SBCC	Social Behavior Change Communication
SD	Standard Deviation
SEM	Socio-Ecological Model
TB	Tuberculosis
TOR	Terms of Reference
TT	Tetanus Toxoid Vaccine
UN	United Nations
VHL	Village Health Leader
WASH	Water Sanitation and Hygiene
WASHCO	Water and Hygiene Sanitation Committee
WDAs	Women's Development Army
WHO	World Health Organization

Definition of Terms

- **Adolescence** – the period from 10 to 19 years, when an individual undergoes major physical growth, mental development and psychological changes.
- **Anorexia nervosa** – eating disorder characterized by restricted eating, loss of weight and a fear of putting on weight.
- **Binge eating disorder** – eating disorder characterized by recurrent periods of binge eating (can include eating much more than normal, feeling uncomfortably full, eating large amounts when not physically hungry). Feelings of guilt, disgust and depression can follow binge eating episodes. Binge eating does not involve compensatory behaviors.
- **Bulimia nervosa** – periods of binge eating (often in secret), followed by attempts to compensate by excessively exercising, vomiting, or periods of strict dieting. Binge eating is often accompanied by feelings of shame and of being "out of control".
- **Social mobilization** – the process of bringing together all societal and personal influences to raise awareness and demand for health care, assist in the delivery of resources and services, and cultivate sustainable individual and community involvement.
- **Menstrual Hygiene Management (MHM) or menstrual health and hygiene (MHH)** – access to menstrual hygiene products to absorb or collect the flow of blood during menstruation, privacy to change the materials, and access to facilities to dispose of used menstrual management materials.
- **Early marriage and early pregnancy** – marriage before the age 21 years and pregnancy before 24 years, respectively.
- **Productive Safety Net Program (PSNP)** - is a program aiming at reducing food insecurity vulnerability by providing economic opportunities and building resilience to crises through cash transfers, public works, and nutritional feeding programmes.
- **Protective Safety Net Programme (PSNP)** – a programme aimed at reducing adolescent food insecurity and vulnerability by providing economic opportunities and building resilience to crises, through unconditional cash or kind transfers, and nutritional feeding to protect life and livelihoods including school attendance of adolescents.
- **Thinness** – Body Mass Index for age Z-score (BAZ) or standard deviation <-2.
- **Stunting** – Height for age Z-score (HAZ) or Standard deviation <-2.
- **Overweight** – Body Mass Index for age Z-score (BAZ) or standard deviation > +1.
- **Obesity** – Body Mass Index for age Z-score (BAZ) or standard deviation > +2.
- **Food Diversity** – the consumption of food from diversified food sources such as vegetables, fruit, cereals, meat, fish, and dairy products, in order to receive the nutrients necessary for a healthy diet.
- **Food Variety** – the consumption of different types of food regardless of the source of food.

- **Malnutrition** – the condition that develops when the body is deprived of vitamins, minerals and other nutrients it needs to maintain healthy tissues and organ function. Malnutrition includes either undernourishment or over-nourishment.
- **Nutrition-Specific Interventions** – interventions that address the immediate determinants of malnutrition targeted directly by the health sector. These include Vitamin A and Zinc supplementation, exclusive breastfeeding, promotion of dietary diversity and treatment of malnutrition.
- **Nutrition-Sensitive Interventions** – interventions that indirectly improve food and nutrition security. These include multi-sectoral actions that address the underlying and basic determinants of malnutrition.
- **Food** – anything edible in the form of solid, semisolid or liquid, as defined by the specific culture and religion, that consists of essential nutrients used in the body of an organism to sustain growth and vital processes.
- **Nutrition/Nourishment** – the optimal level of nutrients, such as proteins, carbohydrates, fat, vitamins, minerals, fiber and water, compatible with long term health, growth, development, reproduction, functionality and survival.
- **Self-Efficacy** – refers to an individual's belief in their capacity to execute behaviours necessary to produce specific performance attainments.
- **Substance Use** – the use of illegal drugs or the use of prescription or over-the-counter drugs or alcohol for the purposes other than those for which they are meant to be used, or in excessive amounts. Substance abuse may lead to social, physical, emotional and job-related problems.
- **Vigorous Physical Activity** – activity that causes large increases in breathing or heart rate, such as carrying or lifting heavy loads, digging or construction work, for at least 10 minutes continuously.
- **Moderate-Intensity Physical Activity** – activity that causes small increases in breathing or heart rate, such as brisk walking or carrying light loads for at least 10 minutes continuously.
- **Light-Intensity Physical Activity** – activity that does not lead to a sweat or shortness of breath, such as a leisurely walk.
- **Junk Foods** – ultra-processed foods such as cakes and biscuits, fast foods (e.g. hot chips, burgers and pizzas), chocolate and sweets, processed meat (e.g. bacon), snacks (e.g. chips), sugary drinks (e.g. sports, energy and soft drinks), alcoholic drinks that contain high calories from sugar or fat and possible sodium, but with little nutritional value and fiber.
- **Sugar Sweetened Foods** – foods that have sugar as a flavor ,such as soda (e.g. Coca Cola, Mountain Dew, Sprite, Ginger Ale, Root Beer), ports drinks (e.g. Gatorade, PowerAde), sweetened iced tea (e.g. Arizona, Lipton, Snapple), sweetened coffee drinks (e.g. bottled iced coffees, coffee, drinks with sugar or flavoring syrups, blended drinks like Frappuccino).

- **Food Taboo** – the deliberate avoidance of a specific food item from food preferences for reasons other than simple dislike.
- **Adolescent / Youth-Friendly Services** – services that are accessible and appropriate for adolescents and are in the right place, at the right price and delivered in the right style to be acceptable to young people.
- **Healthy Food Environment** – physical spaces or entry points where food is purchased or obtained, and the infrastructure that supports access to these entry points. They also include the personal determinants of consumer food choices, and the socio-political milieu and cultural norms that influence these interactions.
- **School Feeding** – daily snacks or meals to school-attending children and adolescents in order to alleviate short-term hunger and improve the nutritional status of the students as well as their school performance.
- **Food and Nutrition Service Providers** – professionals from implementing sectors who are trained in food and nutrition and provide the indicated food and nutrition interventions via different delivery platforms.

List of Tables and Figures

List of Tables

List of Figures

Table of Contents

CHAPTER 1: INTRODUCTION

According the WHO adolescence is defined as the period from 10 to 19 years, when an individual undergoes major physical growth, mental development and psychological changes. (1-6). This period is divided into early adolescence (10-13 years), which is characterized by the onset of puberty, growth, curiosity, anxiety, egocentrism and peer influence; middle adolescence (14-17 years) which is characterized by change from concrete to abstract thinking, identity, self-image and romantic and sexual relationships; and late adolescence (18-19 years), characterized by an increased independence, experimentation and important personal and future and occupational decisions. (7).

It is a transition phase, in which an individual is no longer a child but not yet an adult, with the fastest physical growth in the life span following infancy.(8). The growth spurt during this period is associated with hormonal, cognitive and emotional changes that make adolescents especially vulnerable. It is also a critical period in terms of the accretion and acquisition of 40 to 60 percent of adult peak bone mass, (9-10) and significant proportion of adult height. (11) Consequently, there is a greater demand for macro- and micro-nutrients. Peer pressure, evolving food choices and habits, as well as changes in lifestyle can affect dietary and nutrient intake. (8). Suboptimal nutrition during this period can result in malnutrition with consequences (12-15) health, growth, sexual development and education.

Globally, 340 million adolescents were overweight and obese in 2016, (16) with the majority being in developed and rapidly developing countries. Adolescents in developing countries including those in sub-Saharan Africa are not spared this problem. (17) In fact, in developing countries, an increasing burden of overweight and obesity co-exists with continued high prevalence of underweight and micro-nutrient deficiencies.(18) In Ethiopia, the pooled prevalence of overweight/obesity was 11.4% (19) and 20.7%, while 27.5% were underweight and stunted, respectively (20).

In addition to overweight/obesity, underweight and, stunting deficiencies of in micro-nutrients including Folic Acid, Iodine, Vitamin A, and Zinc have significant impact on the health outcomes of adolescents in lower and middle income countries. (21) . Iron requirements for adolescents are notably high in developing countries due to higher prevalence of parasitic infections, disease and low bioavailability of of dietary ironIron. (22-23). Iron-deficiency anemia was ranked as the leading cause of adolescent disability adjusted life years (DALYs) lost in 2015 with highest rates experienced in South-East Asia followed by African low and middle income countries. In Ethiopia, 19.9% and 18.2% of late adolescent girls and boys aged 15-19 were anemic, respectively(EDHS 2016). Dietary Calcium has been identified as a nutrient of greater concern for adolescents, because of the accelerated muscular, skeletal and endocrine development during puberty, than in any other population group except pregnant women (25). Paradoxically, even in countries including Ethiopia with abundant sunshine, there is a high prevalence of Vitamin D deficiency among adolescents. (26-27). A pocket study done in conducted in Ethiopia found that, shows 42% of school adolescents were Vitamin D deficient. (27).

An increased rate of growth, development and sexual maturation of adolescents increases the demand for Iodine, (28) Folic Acid and

Vitamin B-12. (25). Because of higher energy demands the requirements for vitamins including thiamine, riboflavin and niacin are high as they are involved in the metabolism of macronutrientmacro-nutrients. (29).

There are multiple drivers of adolescent malnutrition, including behavioural, psychological, social, gender, economic, environmental and systemic (policy) factors.

1.1. Rationale for the guideline

Adolescents constitute one quarter of the Ethiopian population, with adolescence representing the last opportunity for redeeming growth deficits accrued during the child's first 1000 days. This is especially important in the case of Ethiopia, with its high prevalence of childhood stunting. Effective interventions are needed to reduce the share of the adult population with poor health and low productivity; the triple burden of malnutrition during childhood and adolescence has not only acute health consequences, but can also lead to chronic NCDs at a later age. Moreover, poor nutrition during adolescence is associated with low educational attainment(43), weak productivity(15) and poverty(44). It can also increase the risk of adverse birth outcomes.

Negative health and behavioural development can feed conflict (45-47) and instability. Thus, investing in nutrition during adolescence can break the inter-generational cycle of malnutrition by enhancing the human capital the country needs to reap a demographic dividend (48).

Ethiopia's government has demonstrated its commitment to improved food and nutrition by formulating and executing food and nutrition policies and strategies. This guideline aims to provide overall direction and guidance on delivery modalities and contact points, coordination and integration of interventions and stakeholders, different SBCC approaches, and guidance to frontline workers, program managers, and other actors working to address adolescent nutrition issues.

1.2. Scope of the guideline

This guideline describes how to promote optimal nutrition and prevent and eliminate all forms of malnutrition in adolescents, including nutritional assessment/screening, treatment of acute malnutrition, SBCC, counselling, micronutrient supplementation, dietary fortification, diet diversification, and optimal feeding and caring practices to break the intergenerational cycle of malnutrition.

This guideline will act as a guiding roadmap for all stakeholders in a range of nutrition-specific and nutrition-sensitive sectors to support adolescent nutrition implementation.

Nutrition service providers, program managers, and FNS food and Nutrition Strategy implementers are among those who will use this guideline.

1.3. Conceptual framework

This conceptual framework (Figure 1) for adolescent nutrition interventions considers the various layers of malnutrition causes (immediate, underlying and basic).

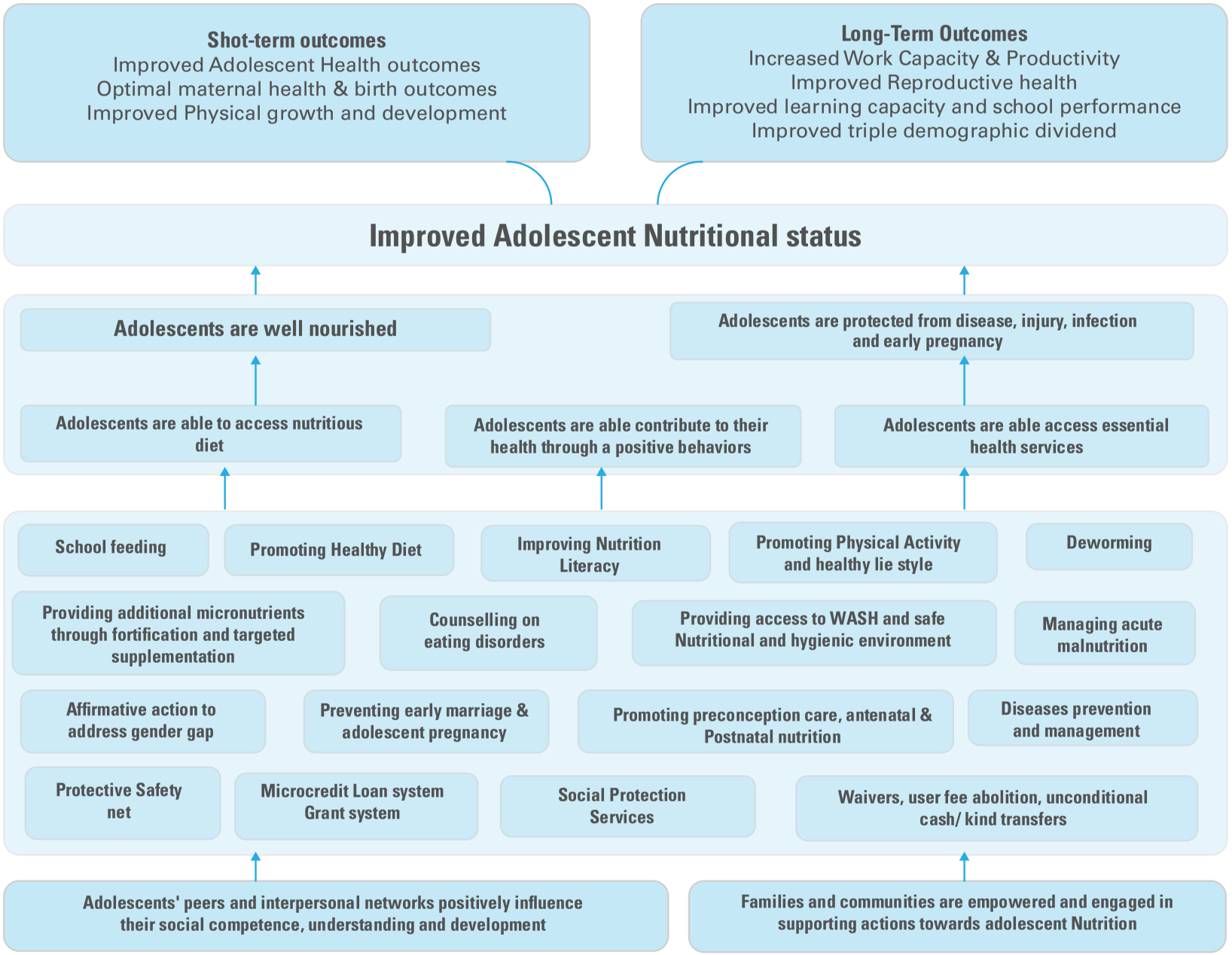


Figure 1. Conceptual framework for adolescent nutrition interventions

Source: Adapted from WHO. Guideline: Implementing effective actions for improving Adolescent Nutrition. WHO, 2018; Available from: file:///C:/Users/PC/Downloads/9789241513708-eng.pdf.

OBJECTIVES

1.4. General objective

To provide details of nutrition-specific and sensitive-interventions, delivery modalities and practical guidance to adolescent nutrition implementers at all levels through enhanced multi-sectoral coordination and collaboration.

Specific objectives

- To provide details of nutrition-specific and sensitive-interventions for adolescents in various scenarios.
- To indicate potential service delivery modalities within sectoral platforms.
- To define clear roles and responsibilities among FNS-implementing sectors in relation to adolescent nutrition.
- To provide guidance on SBCC interventions for adolescent nutrition.
- To provide guidance on adolescent nutrition planning, implementation, monitoring, evaluation and learning.

CHAPTER 2: NUTRITIONAL REQUIREMENTS OF ADOLESCENTS

2.1. Macro-nutrient requirements

Adolescence is a critical period for cognitive, physical and psychological development. Girls gain relatively more fat, while boys gain relatively more muscle. Thus, the requirement for macro-nutrients (energy as well as proteins) peaks during adolescence. Table 1 below shows requirements based on habitual activity levels.

Table 1. Girls' energy requirement in a population with three levels of habitual physical activity

Age	Weight	Light Physical Activity		Moderate Physical Activity		Heavy Physical Activity	
		Daily Energy Requirement		Daily Energy Requirement		Daily Energy Requirement	
		kcal/d	kcal//kg/day	kcal/d	kcal//kg/day	kcal/d	kcal//kg/day
9 -10	30.5	1575	52	1850	61	2125	70
10 -11	34.73	1700	49	2000	58	2300	66
11-12	39.2	1825	47	2150	55	2475	63
12-13	43.8	1925	44	2275	52	2625	60
13-14	48.3	2025	42	2375	49	2725	57
14-15	52.1	2075	40	2450	47	54	65
15-16	55.0	2125	39	2500	45	2875	52
16-17	56.4	2125	38	2500	44	2875	51
17-18	56.7	2125	37	2500	44	2875	51

Source: Energy requirements, FAO/WHO/UNU, 2001(49).

Table 2. Boys' energy requirement in populations with three levels of habitual physical activity

Age	Weight	Light Physical Activity		Moderate Physical Activity		Heavy Physical Activity	
		Daily Energy Requirement		Daily Energy Requirement		Daily Energy Requirement	
		kcal/d	kcal//kg/day	kcal/d	kcal//kg/day	kcal/d	kcal//kg/day
9 -10	29.7	1675	56	1975	67	2275	76
10 -11	33.3	1825	55	2150	65	2475	74
11-12	37.5	2000	53	2350	62	2700	72
12-13	42.3	2175	51	2550	60	2925	69
13-14	47.8	2350	49	2775	58	3175	66
14-15	53.8	2550	48	3000	56	3450	65
15-16	59.5	2700	45	3175	53	3650	62
16-17	64.4	2825	44	3325	52	3825	59
17-18	67.8	2900	43	3400	50	3925	57

Source: Energy requirement, FAO/WHO/UNU, 2001(49).

2.2. Micro-nutrient requirements

Micro-nutrients play a crucial role in adolescent nutrition. Iron and folate requirements increase during adolescence due to rapid growth, with sharp increase in lean body mass and blood volume. Meanwhile, the high burden of infectious diseases, parasitic infestations and low bioavailability of Iron from diets, means that Iron requirement in adolescence is higher. This is especially true among girls, as some Iron is also lost during menstruation. Zinc is known to be essential for growth and sexual maturation during puberty, enhancing bone formation and inhibiting bone loss. Iodine is also very important for high growth velocity in adolescents as well as for the needs of the fetus in case of pregnancy. The requirements of other minerals and vitamins such as Calcium and Vitamins A, C, and D also increase during this period. The daily requirements of these minerals and vitamins are summarized in the table below (Table 3).

Table 3. Adolescents' micro-nutrient requirements (RDA) by sex, pregnancy and lactation

Status of adolescents	Age (yrs.)	Micro-nutrients of Public Health Importance							Good to Know				
		Iron (mg)/ day	Iodine (µg)/ day	Folate (µg)/ day	Zinc (mg)/ day	Vitamin A (µg RE)/day	Vitamin D (µg/ day)	Calcium (mg)/ day	Calcium (mg)/ day	Vitamin C (mg)/ day	Vitamin B12 (µg/day)	Niacin (mg/ day)	Thiamin
Girls	9 -13	8	120	300	8	600	15	1300	26	45	2.4	16	1.1
	14 - 18	15	150	400	9	700	15	1300	26	65	2.4	16	1.1
Boys	9 -13	8	120	300	8	600	15	1300	34	45	2.4	16	1.2
	14 - 18	11	150	400	11	900	15	1300	34	75	2.4	16	1.2
Pregnancy	<18	27	220	600	12	750	15	1300	29	80	2.6	18	1.4
Lactation	<18	10	290	500	13	1200	15	1300	38	115	2.8	17	1.5

Chapter 3: Key Adolescent Nutritional Interventions

Adolescent nutrition includes both nutrition-specific and nutrition-sensitive interventions that address different layers of problems relating to adolescent nutrition.

3.1. Nutrition-specific interventions

Nutrition specific interventions are actions that address the immediate determinants of malnutrition targeted directly by the health sector. These include: nutritional assessments and counselling; early detection and management of acute malnutrition; micro-nutrient supplementation; promotion of the consumption of diverse, fortified, bio fortified and safe foods; healthy eating behaviours etc. The detailed of the interventions are elaborated below.

3.1.1. Nutrition assessment

3.1.1.1. Anthropometric assessment (BMI-for-age)

Nutritional status assessment is the key component of nutrition-specific interventions, and can be determined using anthropometric measurements, biochemical, clinical and dietary methods (the ABCDs). Anthropometric indexes used for assessing adolescent nutritional status are BMI for age for acute malnutrition BMI for age Z-score (BAZ)) and height for age Z-score (HAZ) for chronic malnutrition. BMI-for-age is an anthropometric assessment, appropriate for identifying specifically the nutritional status of non-pregnant adolescents (thinness, overweight, obesity). Mid-upper arm circumference is the only anthropometric measurement that can be used for assessing acute malnutrition in pregnant adolescents. Stadiometer/ heightometer, weight scales, adult MUAC taps and WHO BMI-for-age growth reference chart for boys and girls are required to conduct BMI-for-age assessments. The process of BMI-for-age measurement should consider: accurate measurement, calibration of instruments, standardizations of anthropometric measurement procedures and measurers; validation of scales; interpretations and actions. The cut-off values for the classification of nutritional status for adolescent are shown in Table 4.

Table 4. Nutritional status classification of adolescents 10-19 years of age for acute malnutrition

Classification		BMI-for-age Z-score
Body Mass index for Age(BAZ)	Severe thinness	<-3SD
	Moderate thinness	≥-3SD &<-2 SD
	Normal	≥-2SD &+1SD
	Overweight	>+1SD & ≤ +2SD
	Obese	>+2SD
Height For Age(HAZ)*	Normal	≥-2SD
	Moderate Stunting	≥ -3SD & < -2 SD
	Severe Stunting	<-3 SD

Source: National Obesity Observatory (NOO), 2011.

** WHO ANTHROPLUS MANUAL, 2007.*

Adolescents who are pregnant with MUAC <20.5 cm should be considered as severely malnourished based on data from Jimma University Longitudinal Family Survey of Adolescents (2005-2015).

3.1.1.2. Biochemical assessments

Biochemical assessment includes detection of nutrients and their biomarkers in the body using samples of blood, urine, plasma or stools. The most frequently used specific laboratory tests include measurements of hemoglobin, serum ferritin, transferrin saturation, T3, T4, erythrocyte folate levels or serum folate levels, 1,25 dihydroxycholecalciferol, alkaline phosphatase, plasma retinol level, red cell Zinc level, cholesterol, HDL, LDL, triglycerides, fasting glucose, renal function, and liver enzyme levels. Vitamin levels and hemoglobin levels in the blood or urine of individuals can be assessed by this method.

Biochemical assessment helps to identify key micro-nutrients and other nutritional deficiencies of adolescents through laboratory tests. Biochemical assessment is performed at laboratory facilities by trained health service providers in health facilities. It is recommended whenever a clinical assessment of individuals gives an indication of nutritional risks. The assessment is also very helpful for early detection of nutritional deficiencies and risks.

3.1.1.3. Clinical assessment

Clinical assessment of nutritional status involves a detailed history, a thorough physical examination, and the interpretation of the signs and symptoms associated with malnutrition. It makes it possible to explore nutritional deficiencies and health risks once they show signs and/or symptoms such as paleness, bitot's spots and skin disease.

Clinical assessment can be executed by health and nutrition service providers at any point of contact: i.e. integrated with anthropometric assessment in schools (an entry point to reach more adolescents), and out of schools such as youth-friendly services, youth clubs, health facilities and community platforms.

History – nutritional status assessments should focus on, but not be limited to, the following issues:

Body weight and appetite – presence of weight loss, or weight gain; weight status before the nutritional problem started; presence of recent change in appetite (increase or decrease); and suspected reason for weight change

Medical history – presence of cardiovascular disease, HIV/AIDS, TB, Diabetics Melitus, food allergies, some forms of cancer, surgical and medical history or medication use, light headedness, weakness.

Eating disorder – anorexia nervosa, bulimia nervosa, food intolerance, binge eating or emotional eating, difficulty chewing or swallowing.

Physical examination: This examination focuses on signs of nutrient deficiency or excess. These signs usually appear only when the deficiency is advanced and are not to be expected in marginal deficiencies. The physical examination should start with a general visual assessment of the patient. Typical signs for selected nutritional deficiencies are presented in Table 5 below.

Table 5. Typical indicators of clinical signs for nutritional deficiencies

Deficiency	Clinical signs and symptoms
Protein	Edema, skin, hair and nail problems, loss of muscle mass, greater risk of bone fractures, stunted growth in adolescent and increased severity of infections.
Protein, calories	Interosseous muscle atrophy, squaring off of shoulders, poor hand grip and leg strength
Zinc (during acute malnutrition)	Dermatosis: abnormally light or dark in color, shedding of skin in scales or sheets, and ulceration of the skin of the perineum, groin, limbs, behind the ears, and in the armpits that could be seen in children with acute malnutrition (Acrodermatitis entero-hepatica) + (mild): discoloration or a few rough patches of skin + + (moderate): multiple patches on arms and/or legs + + + (severe): flaking skin, raw skin, fissures (openings in the skin) Dysgeusia (test in acuity) – distorted sense of taste
Vitamin A	Follicular hyperkeratosis Night blindness Bitot's spots (superficial foamy white spots on the conjunctiva (white part of the eye) Corneal clouding: opaque appearance of the cornea (the transparent layer that covers the pupil and iris) Corneal ulceration: break in the surface of the cornea (a sign of severe vitamin A deficiency), blindness Skin infection/irritation/
Niacin	Casal's necklace, dermatitis, dementia, diarrhea
Vitamin C	Petechia, spongy bleeding gums, poor wound healing, wound dehiscence
Vitamin C, Vitamin K	Purpura, Ecchymosis, bleeding tendency
Iron	Pale tongue, palmar pallor, conjunctival pallor, koilonychias, geophagia (Pica), poor nail capillary filing
Iron, Vitamin B12, folate	Conjunctival pallor, pallor, weakness, neural tube defect, neuropathy, koilonychias
Riboflavin, pyridoxine, niacin	Angular stomatitis/cheilosis (dry, cracking, ulcerated lips), peripheral neuropathy
Riboflavin, niacin, B vitamins, Iron, folate	Glossitis (inflammation and swelling of the tongue), pallor, neural tube defect, angular stomatitis (cheilosis)
Vitamin C , riboflavin	Bleeding gums, red eye syndrome,
Riboflavin and Niacin	Red tongue, angular stomatitis (cheilosis), red eye syndrome, dermatitis
Vitamin D deficiency	Rickets manifesting with pain or tenderness in the bones of the arms, legs, pelvis, or spine, stunted growth and short stature, bone fractures, muscle cramps. Teeth deformities, such as: delayed tooth formation, holes in the enamel, skeletal deformities, including an oddly shaped skull, bowlegs, or legs that bow

3.1.1.4. Dietary assessment

Dietary assessment is used to estimate both food and fluid intakes. It provides information on dietary quantity, quality, frequency, eating patterns, identification of cultural and religious patterns, and reasons for inadequate and/or excessive food and nutrients intake. The results are compared with recommended dietary practices and recommended dietary allowance (RDA). Dietary assessment methods such as weighed record method, estimated (food diary) method, 24-hours dietary recall, food frequency questionnaire (FFQ), and dietary history methods can be used to estimate both inadequate and excessive food and nutrient intakes. The 24-hours dietary recall method can be executed at any point of contact integrated with an anthropometric assessment.

Furthermore, adolescents that need further health and nutrition interventions (malnourished adolescents; those with HIV/ADS; those with a history of substance abuse, mental health, eating disorder; those with TB or Diabetics Melitus; pregnant girls; those in emergency situations; IDPs and street adolescents) have to be referred to health facilities or the appropriate department at the health facilities for screening, counselling, follow-up and treatment.

Recommended actions for adolescent nutrition assessment

- Conduct regular nutritional assessment on quarterly and/or at any point.
- Inform individual adolescents about their BMI-for-age Z-score result as normal, low (thin) or high (overweight/obese), clinical finding and dietary practice.
- Provide nutrition education/counselling for adolescents to practice or continue practicing healthy dietary behaviour, whatever the result.
- Ensure parents of adolescents are informed about the BMI-for-age status of their children and encourage their children to adopt healthy adolescent nutrition behaviours.
- Make sure to arrange a separate counselling session for parents of adolescents whose BMI-for-age score is low or high, or link to health facility/other departments for further treatment and management.
- Train health/nutrition professionals, teachers, volunteers and HEWs on anthropometric assessment.
- Ensure adequate nutrition assessment equipment and supplies are available at service delivery points.
- Conduct recommended laboratory tests whenever a clinical assessment of individuals gives an indication of nutritional risks
- Asses the symptom of malnutrition, medical history and dietary practice of adolescents in relation to anthropometric assessments.
- Advocate, mobilize and communicate for the nutritional assessment at all levels including to community members and parents

3.1.2. Management of acute malnutrition

Acute malnutrition is a form of under-nutrition caused by a decrease in food consumption and/or illness that results in sudden weight loss or oedema (fluid retention). Acute malnutrition can be moderate or severe, and prolonged malnutrition can cause stunted growth, otherwise known as stunting.

Recommended Actions

- Link adolescents who are pregnant and with MUAC <20.5 cm to TSFP, PSNP
- Promote provision of locally available nutrient-rich or fortified supplementary foods for adolescents with moderate acute malnutrition
- Provide counselling based on their nutritional status on appropriate nutritional practice and refer adolescents with severe acute malnutrition (thinness) (BMI for age < -3 SD) to the nearest health facilities for further assessment and management
- Link malnourished adolescents in food insecure household with livelihood interventions and social protection programme schemes
- Assess for micro-nutrient deficiencies and treat accordingly
- Offer nutritional counselling and information on optimal and healthy weight

Adolescent with moderate acute malnutrition:
■ Classification : BMI-for-age Z-score <-2 and ≥ -3 ■ Admission criteria : BMI-for-age Z-score <-2 for boys and non-pregnant girls and MUAC ≥20.5 to <21.5 cm or based on weight (Annex 5) for pregnant adolescents ■ Treatment protocol : Counselling on balanced diet ■ Discharge criteria : BMI-for-age Z-score ≥ -2 for boys and girls non-pregnant girls and MUAC ≥ 21.5 cm for pregnant adolescents
Adolescents with severe acute malnutrition without complication
■ Classification : BMI-for-age Z-score <-3 or bilateral pitting edema for boys and non-pregnant girls and MUAC <20.5 cm for pregnant adolescents ■ Admission criteria : BMI-for-age Z-score< -3 or bilateral pitting Edema or bilateral pitting edema for boys and girls and non-pregnant girls and MUAC <20.5 cm or based on weight (Annex 5) for pregnant adolescents ■ Treatment protocol : refer to Annexes 6-9: ■ Discharge criteria : BMI-for-age Z-score ≥ -3 or MUAC> 20.5 cm for pregnant adolescents
Adolescent with severe acute malnutrition with complication
■ Classification : BMI-for-age Z-score <-3 or bilateral pitting edema + secondary infection ■ Admission criteria BMI-for-age Z-score < -3 or bilateral pitting edema for boys and girls and non-pregnant girls and MUAC <20.5 cm or based on weight(annex 5) for pregnant adolescents ■ Treatment protocol : refer to annexes 6-9: ■ Discharge criteria : BMI-for-age Z-score ≥ -3 and no infection Or MUAC> 20.5 cm for pregnant adolescents

NB: The above classification will be implemented where it is fessible.

3.1.3. Improving diet diversity of adolescents

Ensuring minimal diet diversity is a key dimension of diet quality and micro-nutrient adequacy; consuming a minimum of five food groups out of ten is recommended for adolescents to meet the minimal dietary diversity. According to the national food-based dietary guideline, there should be at least four food groups in each meal (Table 6).

Table 5. The 10 food groups for minimum dietary diversity score of adolescents

Food Groups	Pictures	Food Groups	Pictures
Grains, white roots and tubers, and plantains		Eggs	
Pulses (beans, peas and lentils)		Dark green leafy vegetables	
Nuts and seeds		Other vitamin A-rich fruits and vegetables	
Milk and milk products		Other vegetables	
Meat, poultry, and fish		Other fruits	

Source: FAO, 2013

Recommended actions:

- Provide nutrition counselling and support for adolescents and their guardians to improve diet diversity.
- Promote the consumption of fortified and bio-fortified foods
- Promote diet diversity targeting both in-school and out-of-school adolescents and their influencers at multiple levels through SBCC interventions
- Enhance skills of adolescents and their guardians in appropriate menu planning and preparation for more diversified food consumption
- Prevent consumption of unhealthy foods prepared and served at street vendors, and school environments.

3.1.4. Promoting adequate meal frequency

Adolescents have unique nutrient as well as energy requirements, due to their rapid growth and development. Most adolescents may not eat enough meals, or may skip meals for reasons discussed in the introduction. To balance the increased energy demands, adolescent should consume adequate and diversified meals for breakfast, lunch and dinner. In addition, at least one healthy snack should be consumed per day. The total energy pool for adolescents is recommended to be 45 to 65 percent from carbohydrate, 20 to 35 percent from fat and 10 to 35 percent from protein.

Recommended actions:

- Provide nutrition education/counselling by engaging parents, focusing on the consumption of an adequate number of diverse meals per day, and at least one healthy snack
- Link food in-secured households with livelihood interventions and social protection programmes such as rural and urban PSNPs
- Ensure the energy adequacy of meals provided through school feeding programme by performing regular follow-up and monitoring
- Implement SBCC interventions to engage influencers at multiple levels for improved energy adequacy
- Involve and train SME/private sector actors to produce or process foods which consider adolescents' nutritional needs and preferences to avoid consuming much of it to mitigate obesity.
- Counsel adolescents on the consumption of adequate energy based on their habitual physical activity, age and sex

3.1.5. Promoting healthy diet and healthy eating behaviour

Adolescents are encouraged to limit empty calories (calories derived from foods with no nutrients), high fat diet, free sugars and salt. Unhealthy behaviours such as skipping meals, unhealthy dieting and repeated weight loss attempts, as well as sedentary behaviours, remain common among adolescents in the urban and semi-urban areas. Eating disorders such as anorexia nervosa, bulimia nervosa are also emerging problems especially among urban and semi-urban areas adolescents. They are characterized by abnormal eating behaviours, a preoccupation with food and an obsession with weight and body shape. They can lead to serious physical and mental health outcomes and are associated with high levels of comorbidities such as depression, anxiety and substance abuse. Nutrition education should address major barriers to healthy perceptions of food and eating practices among adolescents.

Recommended actions:

- Promote and counsel adolescents and guardians on limiting salt (not more than 5 gm./day; 2 gm. sodium per day) and sugary foods (less than 10 percent from the total energy intake) and beverage consumption
- Promote and counsel adolescents and guardians on increased fruits, vegetables and dietary fiber consumption.=
- Counsel and educate adolescents on avoiding unhealthy eating and weight control practices
- Promote multi-sectorial nutrition responses to increase accessibility of healthy foods
- Integrate mental health promotion strategies and traditional health education approaches

- Implement SBCC interventions to engage influencers at multiple levels to promote healthy food choices among adolescents
- Promote availability of nutritious, safe, affordable, and sustainable foods
- Advocate for the enforcement of policies that protect adolescents from the marketing of unhealthy foods and beverages, including in schools and beyond
- Promote a healthy lifestyle through regular physical exercise, reducing alcohol intake, avoiding smoking, drugs and other illegal substances
- Promote consumption of safe and quality foods that are protected from misbranding, adulteration and mislabeling

3.1.6. Micro-nutrients deficiency control and prevention for adolescents

Requirements of micro-nutrients such as Iron, Vitamin A, Calcium, Vitamin D, Vitamin B12 and Zinc increase during adolescence. They are essential for adolescents' cognitive and physical development (refer to the daily micro-nutrients requirement of adolescents in Table 3). Iron, Iodine and Vitamin A deficiencies contribute to the highest burden of micro-

nutrient deficiencies among adolescents and are associated with increased maternal and infant mortality. According to the national micro-nutrient survey (EPHI 2016), micro-nutrient deficiency among preschool and school children is high, and Zinc, Vitamin A and Iodine deficiencies are public health problems. In such a situation, consumption of micro-nutrient rich foods, fortified and bio-fortified is key (refer to the micro-nutrient deficiency control and prevention guideline for adolescents).

A. Iron Folic Acid supplementation (WIFAS) for adolescent girls

The Weekly Iron Folic Acid Supplementation (WIFAS) programme is designed to provide weekly IFA supplements for in-school and out-of-school adolescent girls. WHO recommends the intervention in areas where the prevalence of anemia in women of reproductive age is >20%. The goal of WIFAS supplementation for adolescents is to contribute to the reduction in anemia among adolescent girls.

Recommended actions:

- Provide 60 mg of Iron and 2.8 mg of Folic Acid orally for in-school and out-of-school adolescent girls at least once a week for three consecutive months, twice yearly.
- Counsel and educate adolescents on the benefits of adherence to WIFAS
- Counsel and educate on Iron-rich food consumption, Iron-absorption enhancers (citrus fruits) and inhibitors (coffee, tea immediately after meals)
- Promote utilization of safe water, proper hygiene and sanitation practices
- Identify the supplementation delivery approach with the relevant stakeholders (possible options: Observed WIFAS, and Take Home WIFAS for schoolgirls (Annex 14)
- Promote healthy diets and lifestyles
- Establish a coordination platform between education and health sectors as a subgroup of the existing multisectoral platform
- Create awareness and provide orientation on WIFAS implementation for different stakeholders and the wider community
- Preposition the supplies and job aids necessary to implement WIFAS such as: IFA supplementation as per national guideline, registers and SBCC tools
- Maintain proper documentation of select target groups and model adolescents disaggregated by in-school and out-of-school girls
- Monitor and report the implementation on a regular basis using standard monitoring tools
- Counsel on other anemia prevention actions
- Promote the support required from parents, family and community members, teachers and HEWs (Annex 15)

B. Food fortification and bio-fortification

Fortified and bio-fortified foods provide essential micro-nutrients for adolescents, especially when access to a healthy, diverse and nutrient-rich diet is neither available nor affordable.

Recommended actions:

- Promote the consumption of fortified foods
- Promote the proper utilization of fortified foods e.g. Iodized salt in-school feeding programme and at the household level
- Promote the consumption of bio-fortified foods

3.1.7. Nutrition care and support for adolescents with common CDs

a) Preventing intestinal parasites through regular deworming programme

Deworming is an intervention programmes designed to prevent anemia among adolescents. WHO recommends deworming by providing a single-dose albendazole (400 mg) or mebendazole (500 mg) to each adolescent annually, or biannually, based on the prevalence. It is recommended as a public health intervention for all adolescent girls and boys living in areas where the baseline prevalence of any soil-transmitted helminths infection is 20 percent or higher. It should be provided annually. Biannual administration is recommended where the baseline prevalence is over 50 percent. Pregnant adolescent girls should be linked to a health facility for deworming services, and ANC follow-up should be managed based on the national ANC guideline.

Recommended actions:

- Give albendazole (400 mg) or mebendazole (500 mg) to adolescent girls and boys annually or biannually
- Record and report the service
- Counsel on the benefit and side effect of deworming
- Counsel on the hygiene and sanitation actions to prevent intestinal parasites
- Refer/provide a similar dose, as above, to pregnant adolescent girls in the third trimester

b) Nutrition care and support for adolescents with HIV/AIDS and/or TB

Nutrition and infectious diseases are inter-related. First, nutrition affects the human body immune system. Good nutrition increases immunities and prevents the occurrence of infectious diseases such as TB. But compared to other population groups, adolescents face additional barriers to accessing health services in order to receive appropriate nutritional assessment and counselling.

Recommended actions:

- Implement optimum nutritional screening, counselling and support through improved adolescent-friendly HIV/TB services
- Promote the consumption of locally-available nutrient-dense or fortified foods
- Treat malnourished adolescents with TB/HIV according to the acute malnutrition guideline.
- Counsel on adherence to TB or HIV/AIDS treatments
- Check nutritional status (especially weight) upon scheduled visits to clinic

- Promote eating more diverse food
- Promote high standards of hygiene and sanitation
- Drink plenty of clean and safe (boiled or treated) water
- Maintain a healthy lifestyle and practice infection control at home
- Promote consumption of minimum dietary diversity

c) Other communicable disease prevention

Schools and other platforms should consider the prevention of other CDs such as malaria, acute watery diarrhea, COVID-19 and seasonal epidemics/pandemics. All the relevant CD prevention measures must be integrated into nutrition education and counselling sessions.

Recommended actions:

- Collaborate with the schools and surrounding environment to prevent communicable diseases
- Early screening and treatment
- Appropriate prevention activities such as prophylaxis and vaccination
- Adequate disease specific nutritional care and counselling to more susceptible groups
- Promote the implementation WASH practices

3.1.8. Adolescents with non-communicable diseases and substance abuse

Addressing NCDs among adolescents is a global priority, and one of the Sustainable Development Goals. Overweight, obesity, diabetics, cardiovascular disease and cancer are considered as NCDs common among adolescents. These chronic diseases can be caused or exacerbated by unhealthy dietary practices. Adolescents who develop these diseases require special nutritional support.

Recommended actions:

- School feeding programmes should consider the need of those adolescents with chronic diseases, based on their condition.
- Link adolescents with chronic diseases to the respective health services.
- Link adolescents with chronic diseases to nutrition and treatment adherence counselling and other adolescent nutrition services.

3.1.9. Addressing substance abuse in adolescents

Adolescents are vulnerable to the effects of substance use and are at increased risk of suffering from long-term health consequences including nutritional deficiencies. The most common substance abuse includes alcohol consumption, khat chewing and cigarette smoking.

Recommended actions:

- Advocate consistently for the development and enforcement of policies to minimize substance abuse
- Increase substance abuse prevention messaging.
- Promoting substance-free school environments
- Improve access to appropriate counselling and referral to rehabilitation centers for adolescents affected by substance abuse

3.1.10. Promoting physical activity and age-appropriate body weight and height

According to the WHO, physical activity is any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity is important for energy balance, weight control and the prevention of obesity and other NCDs. In adolescent ages sedentary behaviors tend to increase while routine daily physical activity tends to decline. Physical inactivity is one of the leading risk factors for NCDs and related mortality. People who are insufficiently active have a 20% to 30% increased risk of death compared to people who are sufficiently active. Physical activity also contributes to the development of musculoskeletal tissues, bone health and reduces the risk of depression and anxiety among adolescents.

Recommended actions:

- Promote adequate regular aerobic physical activity, daily 60 minutes of moderate to vigorous intensity at least three times per week
- Create enabling environment at schools for nutritional screening and physical activity
- Promote and provide public awareness programmes on physical activity using adolescent-friendly media (social media, community radios, mini-media and other media)
- Promote limits to the amount of time spent being sedentary, particularly the amount of recreational screen time
- Recommend activities in the form of play, games, sports, transportation, exercise and physical education at schools, and within families and communities
- Promote quality physical education at schools to support children to develop behavior patterns that will keep them physically active throughout their lives
- Health care providers should counsel and support patients to be physically active
- Promote the establishment of school recreational sites, playgrounds in mass residential houses, youth associations and clubs

3.2. Nutrition-sensitive interventions

Nutrition-sensitive program have the potential to improve the food and nutrition security of adolescents by addressing the underlying and basic determinants of malnutrition. These interventions can also help to scale up nutrition-specific interventions and create a conducive environment for adolescents to grow and develop to their full potential. Nutrition-sensitive interventions in agriculture, water and energy, education, women and social affairs, as well as the communication and health sectors, all have enormous potential. They promise to enhance the scale and effectiveness of nutrition-specific interventions; improve the nutritional status of adolescents by integrating their strong nutrition goals and actions; and focus on improving adolescents' physical and mental health, nutrition, time allocation, and, ultimately, empowerment.

Table 6. Nutrition-sensitive interventions and potential actors, their roles, responsibilities, and integration within existing programmes

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Increase the proportion of adolescents enrolled in primary and secondary education with special emphasis on adolescent girls	Education	Girls who receive an education are less likely to marry young and more likely to lead healthy, productive lives. Increasing the proportion of women/girls enrolled in primary and secondary education will contribute to their empowerment **Recommended actions** ■ Increase educational opportunities for girls through formal and non-formal channels ■ Improve the balance between the number of female and male students. ■ Promote the enrollment of out-of-school adolescent girls in schools ■ Advocate and create awareness in the community in order to increase the enrollment of adolescent girls	■ Women's and men's development groups ■ Community networks, ■ Schools ■ Religious leaders and other community influencers- ■ Mass media
Create supportive environment to keep girls in school	Education/Water and Energy/Women and Social Affairs	Keeping girls safe at school will delay marriage until 21 years of age, by training teachers to be gender-aware, easing the workload of girls at home **Recommended actions** ■ Promoting and increasing access to girl-friendly infrastructure in schools such as WASH facilities and menstrual hygiene management services and products. ■ Reducing school-related gender based violence against girls in and around school and in the community also prevents girls from accessing and completing education . ■ Reinforce the implementation of the national coasted roadmap to end child marriage and FGM/cutting ■ Strengthening gender clubs in schools	

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Support school feeding programme	Education/Health/ Agriculture	School feeding programme (SFP) is intended to provide daily snacks or meals to school-attending children and adolescents. It is intended to alleviate short-term hunger and improve the nutritional status of the students as well as improve their school performance. To maximize the nutritional impact of the school feeding programme, making the school feeding nutrition-sensitive with safe and diversified locally-available and culturally-acceptable foods is very important. **Recommended actions** ■ Reinforce the effective implementation of the national school feeding programme ■ Promote blanket coverage of the school feeding programme across schools in Ethiopia ■ Promote diverse foods through school gardening and market linkage for vegetables, fruits, animal source diets (e.g. dairy) and protein rich grains ■ Micro-nutrient mix/powder should be considered to enrich the foods and fill the nutrient gaps ■ Support MOE to produce a minimum standardized menu plan including nutritious foods such as fruits, vegetables, dairy and other animal source foods ■ Ensure and monitor school meals meet the minimum standards (include four or more food groups) ■ Monitor food safety regularly ■ Integrate adolescent nutrition service with School Feeding programme (Nutrition assessment, education/counseling, micro-nutrient supplementation etc.,) ■ Encourage to implement home-grown School Feeding programme based on the context of the area ■ Promote budget allocation for School Feeding programme	■ Schools ■ Community and family ■ Health system ■ Media

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Support school gardening	Education/Agriculture/ Health	■ Allocate budget for school gardening programme ■ Advocate school gardening programme as part of planning and monitoring programme; gardens are an effective way to promote life-long healthy eating habits and connect students to the natural world ■ Create linkages between practical school gardening with classroom sessions to show reality-based learning ■ Establish school gardening among primary and secondary schools ■ Provide different agricultural inputs and supplies (fruit, vegetable seeds, poultry, farm equipment's) to school gardening ■ Create linkages with agriculture development agents for technical support	■ Advocacy and awareness creation in the community, using women and men development groups, community networks ■ Advocacy to government decision makers including in the school system. ■ Religious leaders and other community influencers ■ Mass media
Improve adolescent girls' and boys' life skills for nutrition	Education/MOLSA	Adolescents will become change agents for their own and their parents' nutrition) **Recommended actions** ■ Provide life skill training to all adolescent boys and girls ■ Advocate resource mobilization and allocation for life skill training ■ Enhance adolescent girls' abilities to resist forced sex ■ Building self-esteem and developing life skills in areas such as communication and negotiation ■ Improving their links to social networks and their ability to obtain social support ■ Students should receive 40 to 50 hours training per year to affect behaviour change based on the revised education curriculum.	■ Education system ■ WASH platforms

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Promote consumption of diversified and healthy diets among adolescents	Education/Health/ Agriculture	■ Promote school health and nutrition services ■ Promote and implement school WASH practices ■ Implement school feeding programmes ■ Establish school nutrition clubs ■ Disseminate food and nutrition messages by using school mini-media. ■ Promote and implement school gardening for fruits, vegetables and crops. ■ Ensure food and nutrition courses are incorporated in all school levels' curriculum ■ Ensure regular health and nutrition education (with the health sector) ■ Ensure the availability and usage of SBCC materials ■ Promote prevention and control of harmful traditional practices/ food taboos, early marriage and early pregnancy ■ Promote prevention Harmful practices (smoking cigarettes, chewing Khat, drinking alcohol) ■ Conduct short-term and long-term food and nutrition trainings (undergraduate, gradual, post graduate and shorter term training for teachers, programme managers/leaders) ■ Mobilize and allocate sufficient budget for school nutrition activities ■ Use standardized food and nutrition recipes and menus for school feeding and even for higher education meal serving ■ Provide safe, quality, diversified, nutritious foods at primary and higher training institutions	■ School WASH programme ■ School health and nutrition programmes ■ School feeding programmes ■ School clubs ■ School gardening ■ School mini-media ■ Higher education channels including social media
Prevention of substance use in-school environment	Education/Health/ Women and Social Affairs	■ Detection and management of hazardous and harmful alcohol and drug use ■ Create awareness about the effect of substances on health and nutrition as per the age of adolescents. ■ School-based interventions for prevention of emotional disorders and adolescent suicide, substance abuse and self-harm, including life skills education	■ School ■ Community ■ Youth centres

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Enhance access of adolescents to safe food by increasing availability through optimal market linkage	Trade and Regional Integration	■ Promotion of healthy foods and discouraging unhealthy foods (adulteration, misbranding, mis-labeling). ■ Ensure availability of foods items at schools, cooperatives, community at affordable prices	■ Market chain and linkage (cost estimation and implementation) ■ Regulation of safety and quality for locally produced and imported foods (licensing, inspection and enforcement) ■ Unions, cooperatives and consumer associations
Enhance access of vulnerable adolescents to optimal nutrition services	Woman and Social Affairs	■ Create awareness about adolescent nutrition ■ Promote consumption of nutritious foods ■ Providing psychosocial training for adolescent girls and boys ■ Forming and strengthening, capacity building of Woman Development Army for Nutrition ■ Promote Harmonized Training Packages (early marriage and pregnancy) ■ Ensure adolescents are targeted for urban and rural PSNP ■ Ensure the most nutritionally vulnerable adolescents are targeted for any social protection support ■ Promote gender equity/affirmative action ■ Establish and support youth friendly centres and create linkages with nutrition services ■ Provide financial and inputs support to adolescent to engage them in different IGA activities ■ Promote girls' education through mobilizing out-of-school girls to back to schools	■ PSNP (urban and rural) ■ Prevention and control of harmful traditional practice (early marriage, early pregnancy, food taboo) ■ Implementation of maternity leave ■ WDAs

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Promote delaying of Marriage before the age of 21 years and pregency till the age of 24 years	Woman and Social Affairs/ Education/ MOH	■ Promote delaying of marriage of girls until 21 years of age by influencing family and community norms. ■ Enforce and formulate laws and policies to prohibit marriage of girls before 18 years of age ■ Strengthen inter-sectoral collaboration to create an enabling environment where girls have the agency and ability to make their own health and wellbeing decisions ■ Promote delaying the age of marriage until 21 and pregnancy until 24 years of age ■ Provide support to teachers and school officials in reporting chains against forced marriages perpetuated by their parents ■ Engage men, women and boys in adolescent girls empowerment	■ Adolescent/youth-friendly health facilities ■ Harmful practice prevention platforms; legal support; home visits
Ensure economic support to vulnerable adolescents to enable them access programmes	Finance	■ Ensure the allocated budget for food and nutrition are targeting adolescents at all levels ■ Monitor the proper utilization of the allocated budget for food and nutrition ■ Identify innovative and local resource mobilization schemes (government and non-government sources) ■ Conduct resource mapping and resource tracking exercises ■ Facilitating microcredit/credit/grant systems	■ Loan and credit services ■ FNS-implementing sectors
Generate new knowledge and evidence for improving adolescent nutrition	Universities and research institutions and professional associations	■ Prioritizing, conducting, publishing different research on adolescent nutrition ■ Generating new knowledge and evidence for adolescent nutrition (bio-fortification, modification, breeding) ■ Ensure school meals and food prepared for adolescent student are safe, diversified and nutritious	■ Introduce new courses ■ Evidence generation and dissemination ■ Technology advancement and transfer ■ Community services ■ Capacity building

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Supporting pregnant adolescents	Health	■ Unintended and/or early pregnancy, unsafe abortion has detrimental consequences on health and nutritional status of adolescents. Pregnant adolescents are at higher risk of nutritional deficiencies with poor pregnancy and birth outcomes. ■ Counsel on healthy eating behaviour and minimum dietary diversity ■ Provide weight gain monitoring services for improved optimal birth outcomes ■ Link vulnerable pregnant adolescents with social protection programmes (PSNP, any food support etc.) ■ Link and support pregnant adolescents to early ANC service and follow ups ■ Provide IFA Supplement ■ Provide deworm services after the first trimester	■ Health facility, schools, community, youth club/centers
Contribute to the availability and consumption of safe and quality food by adolescents through social responsibility efforts	Private sectors	■ Provide safe, diversified, and nutritious food items are delivery to the consumer through fair Price. ■ Discharge their social responsibility regarding adolescent nutrition ■ Engage private sector in producing and promoting healthy diet consumption and discouraging unhealthy eating behaviour ■ Engage private sector in producing and promoting healthy diet and discouraging unhealthy eating behaviour	■ Food and nutrition association ■ Investment in food production, processing and distribution ■ Volunteer Service ■ Market linkages
Strengthen adolescents' nutrition literacy	Health/Education	■ Increase their knowledge about their health and nutritional status, and where and when to obtain health and nutrition services ■ Increase their knowledge of healthy diets and minimum dietary diversity ■ Increase access to adolescents for relevant health and nutrition services provided in the school and out-of-school platform.	■ Adolescent/youth-friendly health facilities/services ■ Schools ■ Youth clubs/centers

Interventions	Responsible Sector	Nutrition-sensitive actions and roles of actors	Delivery platforms, area of integration and stakeholders
Prevention and management of adolescents' eating disorders (Anorexia nervosa, Bulimia Nervosa and binge eating)	Health/Education	■ Foster a healthy relationship with food ■ Avoid using food as a reward, or for bribes or punishment. ■ Encourage adolescents to feel good about their bodies ■ Encourage self-esteem ■ Professional help for eating disorders ■ Encourage family meal time ■ Encourage social eating	■ Adolescent/family/ community ■ School ■ Health facility
Access to improved hygiene, sanitation and safe environments	Education, Ministry of Water and Energy/ MOH/ MOLSA	**Recommended actions** Encourage school teachers, girls club and community structures to play a key role in educating and supporting school girls to manage their menses hygienically with pride and dignity and to practice WASH activities. ■ Make sanitary kits available for adolescent girls at all schools through local production/ procurement of sanitary pads and monthly distribution to all in-school menstruating girls ■ Implement school, facility, home and community WASH practices (access to safe and clean water, hand washing facilities; separate boys and girls latrines) ■ Conduct dialogue and discussion sessions about menstruation openly so that girls can develop better understanding, confidence and skills to manage their menstruation with pride and dignity and dispose of used menstrual material safely without further endangering the environment. ■ Menstrual hygiene management: Teaching menstrual hygiene to a teenage girl involves guiding them to track their periods, use hygiene products such as a sanitary pad (reusable or disposable), or tampon, and their safe disposal after use. A teenage girl should also be given directions on the correct usage of these products, and the frequency of changing these products ■ Promote brushing teeth twice a day, flossing and going to the dentist regularly	■ Schools ■ Health facilities ■ Youth centres ■ Community WASH facilities ■ Households ■ Sport centres

Chapter 4: Coordination and Integration

4.1. Coordination and integration for adolescent nutrition

To ensure effective coordination and integration, there should be common structures comprising all stakeholders implementing and supporting adolescent nutrition programs at all levels in accordance with the FNS coordination platform.

4.1.1. National, Regional/City administration, Zonal, Woreda and Kebele-level coordination platforms

At the national level, the food and nutrition council (FNC) will be the main coordinating body. It is composed of FNS-implementing sectors, UN agencies, donors, CSOs, academic institutions, private sector and association representatives. The Prime Minister, Regional Presidents, City Mayors, Zonal and Woreda Administrative bodies shall lead, coordinate and ensure the implementation of the FNS interventions at the various levels. It is also responsible for providing policy and strategic direction, budget allocation, and monitoring of the FNS implementation.

The FNTC will be established and strengthened at all implementation levels. The technical committee will be chaired by the health sector and co-chaired by agriculture and education sectors. (For more information please refers the multi-sectoral nutrition coordination guideline.)

Under the FNC technical committee there are four steering committees which include programme management, National Food Fortification, food safety and quality, monitoring and evaluation, and research steering committees.

Adolescent Nutrition Technical Working Group composition and role (national, regional, zonal/ woreda)

- Health – chair
- Education – co-chair
- Agriculture – secretary
- Women and Social Affairs – member
- Culture and Sport – member
- Water and Energy– member
- Partners – member
- Private sectors representatives – member
- Academia representatives – member
- Adolescent Nutrition Technical Working Group should be established under the programme management steering committee at all levels.
- The committee will comprise of those sectors with significant contributions to the improvement of adolescent nutrition
- The committee is responsible for handling the technical matters at all levels

4.1.2. Kebele and community-levels

The Kebele and community level technical committee comprises of: Kebele Manager (Chairperson); Kebele administrator; HEWs; Agricultural DAs; Youth Association chair; Parent-Teacher Association representatives; WASHCO representatives; community representatives; Kebele Women's Association representatives; Youth Association; Kebele-level cabinet members; school directors; primary health care unit director; and private sector representatives.

Roles of the committee:

- Prepare term of reference (TOR)
- Identify target groups including adolescents for food and nutrition services
- Prepare and implement joint plan
- Agenda setting
- Conduct regular food and nutrition technical committee meetings
- Conduct joint supportive supervision
- Prepare and provide feedback to FNS-implementing actors
- Conduct joint performance review meeting
- Document and share best practices

Responsibility of the committee members:

- Kebele Manager – chair
- School director and Health centre director – co-chairs
- HEW – Secretary
- Other committee members are responsible for regularly and actively participating in all committee meetings
- Each member will implement sector-specific roles and produce relevant reports

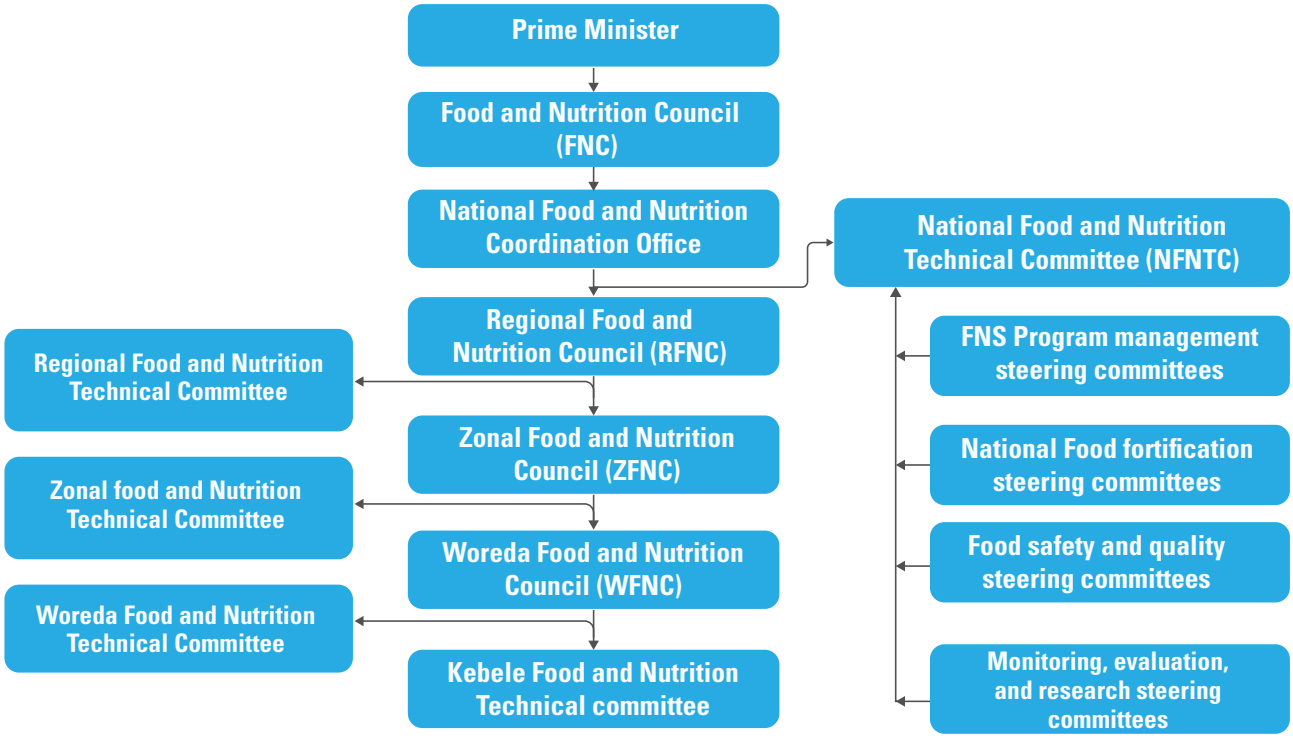


Figure 2: Institutional arrangements for multi-sectorial Food and Nutrition Strategy (source: FNS, 2021)

4.2. Integration

Integration of adolescent nutrition interventions can be done within sectors or across sectors. Intra-sector integration and coordination is needed to better harmonize those adolescent nutrition programmes being implemented in different departments or directorates within the same sector.

Inter-sectoral integration, by constrast, is to harmonize adolescent nutrition interventions such as nutrition-specific and nutrition-sensitive interventions implemented by different sectors. This is in order that they may complement each other and thus have a greater impact on nutritionally vulnerable adolescents.

To achieve this each sector is required to commit to the following:

- Review sector goals and objectives through the lens of adolescent nutrition
- Define each sector's role and responsibility with respect to adolescent nutrition
- Create a common understanding within sectors and across sectors
- Establish an institutional structure and capacity for nutrition programme implementation
- Develop and harmonize a sector-specific nutrition plan with adolescent nutrition interventions

Chapter 5: Implementation Modality

Adolescent nutrition interventions are implemented through multi-sectoral engagement. This involves sectors such as health, agriculture, education, water and energy, and women and social affairs. and using different platforms through various entry points. Interventions should also target both in-school and out-of-school adolescents. The table below provides a list of nutrition activities and delivery platforms.

Table 7. Implementation modality and integration of adolescent nutrition interventions

Platform	Nutrition intervention	Contact point
Health facility	■ Screening and assessment, treatment and rehabilitation (micro-nutrient deficiency, SAM, substance abuse) ■ Anemia prevention (WIFAS, Deworming, ITN utilization) ■ Nutrition education and counselling (safe and adequate water, hygiene and sanitation, dietary modification, dietary diversity, adequate meal frequency, healthy eating behaviour, physical activity, preventing adolescent pregnancy, substance abuse)	Youth friendly service unit, OPD, ART and TB clinics, ANC, PNC, FP, EPI in hospital, HC and HP levels
School	■ Screening, assessment and referral (BMI-for-Age, Micro-nutrient deficiency, SAM) ■ Anemia prevention (WIFAS, Deworming) ■ Nutrition education and counselling ■ Promoting child rights (girls education, prevention of early marriage and child paid labour before the age of 18 years) ■ Life skills training (assertiveness, decision making, menu planning, school gardening) ■ Providing access to WASH services ■ School feeding programme	School clubs (nutrition, health, gender, mini media, flag ceremony, etc.) Mass media (community local media, school radio and television) School clinic Classroom Parent-teacher forums

Community	■ Screening, assessment and referral, (micro-nutrient deficiency, SAM) ■ Anemia prevention (WIFAS, deworming, ITN utilization) ■ Nutrition education and counselling (safe and adequate water, hygiene and sanitation, dietary diversity, dietary modification, adequate meal frequency, healthy eating behaviour, physical activity, preventing substance abuse) ■ Preventing early marriage ■ Preventing early pregnancy ■ Promoting child rights (girls education, prevention of early marriage, child labour) ■ Homestead gardening ■ Adolescent nutrition advocacy and social mobilization ■ Promote nutritious indigenous food	Traditional/community gatherings Youth centres Households FTC Outreach sites Religious institutions Public library All companies and factories Large-scale farms (tea, coffee) Small-scale businesses
Household	■ Nutrition education and counselling (safe and adequate water hygiene and sanitation, dietary diversity, dietary modification, adequate meal frequency, healthy eating behaviour, physical activity, preventing adolescent early marriage and pregnancy, substance abuse) ■ Homestead gardening (seed and seedling provision) ■ Small ruminant raring and poultry ■ Animal husbandry ■ Bee keeping ■ Fishery ■ Water harvesting ■ Animal fattening	Health outreach visits Religious and community leaders Community media

Chapter 6: Adolescent nutrition social and behaviour change communication strategy

6.1. Introduction

Social and behaviour change in adolescent nutrition aims to influence and improve eating habits and lifestyle by strengthening capacities and confidence, and by fostering an enabling environment. SBCC change interventions involve engaging with adolescents, their families and other key stakeholders in schools and communities, in order to promote participation, inclusion and meaningful dialogue. (50)

Figure 2 illustrates the orbits of influence in the SEM framework and corresponding SBCC strategies.

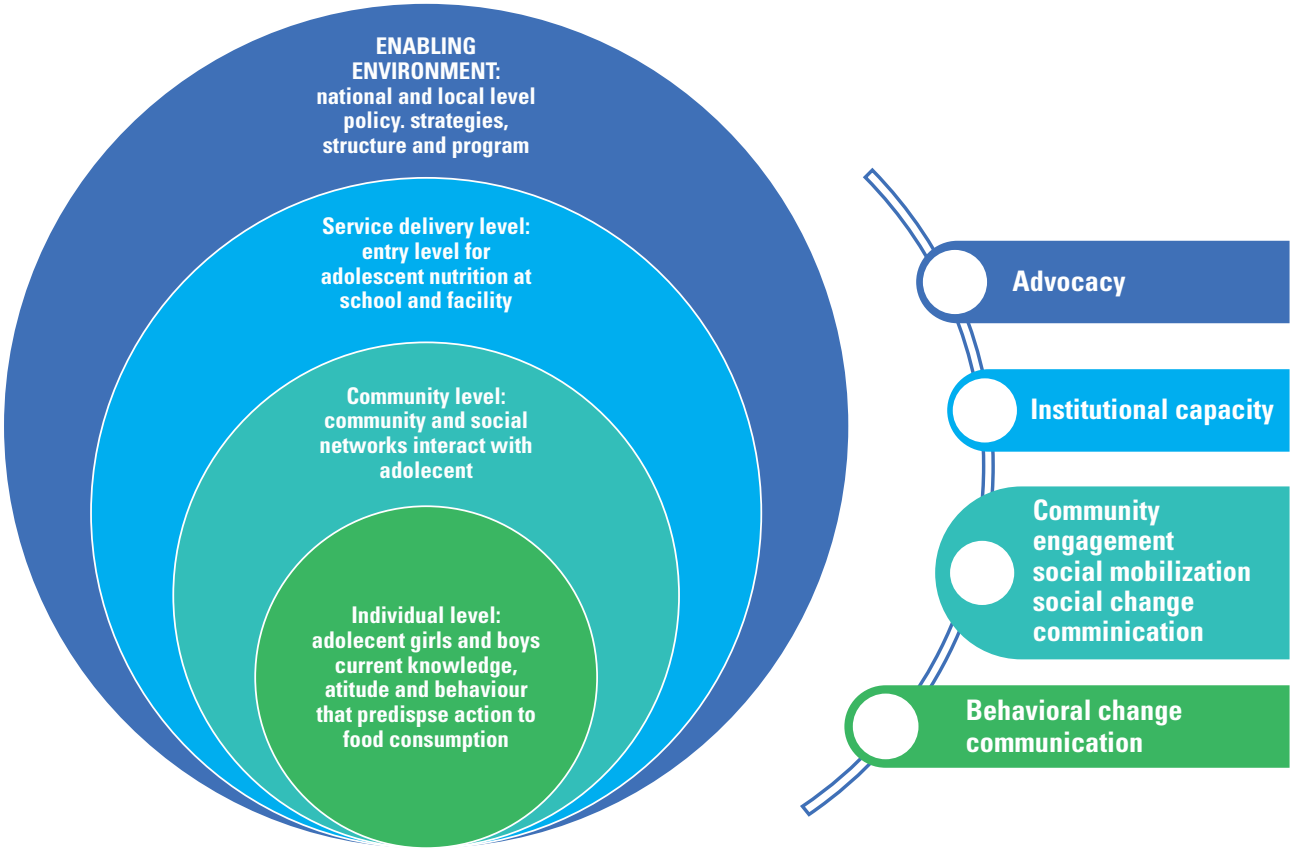


Figure 3: Socio-ecological model framework (SEM) for adolescent nutrition SBC (Source: White, 2015)(52)

In using the SEM, the SBC strategy assumes that the barriers and challenges identified through research and stakeholder engagement cannot be addressed within a singular framework of analysis. For detailed information please refer to Annex 10.

6.2. Implementation strategies

Improving the feeding and caring practices of adolescents through comprehensive nutrition service delivery at all levels requires strong advocacy, lobbying, social mobilization, and behaviour change communication activities.

6.2.1. Advocacy for adolescent nutrition

Advocacy is a process to influence decisions within political, economic, social systems and institutions. It is an important tool to gain political commitment and stakeholder support, secure resources for adolescent nutrition programming and to create an enabling environment for practicing healthy behaviour among adolescents. As adolescence is the second window of opportunity to avert malnutrition, evidence-based adolescent nutrition advocacy needs updated information in order to convince decision-makers at different levels, through activities such as media campaigns, public speaking, and publishing research.

Lobbying is a specialized form of advocacy. It is a strategic, planned, and informal way of influencing decision-makers. Characteristics of lobbying are open (two-way) communication, influencing by linking the interests of different stakeholders, creating win-win situations, and investing in long-term relationships with decision-makers.

6.2.2. Social and community mobilization

Social mobilization is a process that raises awareness and motivates people to demand change or a particular development. Social mobilization usually comes about through the participation of institutions, community networks, civic societies, and religious. It typically involves a broad-scale movement and engages a large number of people in action.

Social mobilization is most effective when composed of a mix of advocacy, community participation, partnerships and capacity-building activities for sustained action and behavior change.

Social mobilization may often take place at the national-level among civil society organizations, donors, and parts of government, in order to build coalitions for certain issues, though it can also be done at the local-level with similar techniques. Coalitions here can involve community leaders, spiritual and traditional leaders, women's groups, and other organized segments of the community.

Social and community mobilization requires activities including publicity, public discussions, dissemination of information using mass and community media, and the coordination of stakeholders to promote and increase awareness of adolescent nutrition within the community.

Community engagement

This engagement can be considered at four different levels:

- Inform and mobilize the community to participate in addressing immediate short-term concerns related to adolescents
- Consult and involve the community to improve adolescent nutrition service delivery
- Collaborate with the community to set priorities
- Empower the community to develop systems for self-governance, to implement interventions, and develop sustainable mechanisms for development with partners

The following steps help to conduct community mobilization:

- Prepare to mobilize
- Organize the community for action
- Explore adolescent nutrition problems and set priorities
- Plan together
- Act together
- Evaluate together, and prepare to scale-up and re-plan

Key interventions to improve community participation and ownership of adolescent nutrition improvement and service utilization:

- Ensure the participation of marginalized groups such as people living with disability, adolescent living emergency situations
- Include adolescent nutrition key messages in the existing VHL training manuals and job aids
- Develop the capacity of platforms for underserved communities to influence public policy on adolescent nutrition and wellbeing
- Improve the skills of frontline workers on demand creation for adolescent nutrition services.
- Empower individuals, families and communities to engage in out-of-school and in-school adolescent nutrition service design and delivery mechanisms.

6.2.3. Behavioural Change Communication (BCC)

BCC refers to a stage of awareness/ knowledge/practice of desired behaviors to help position communication activities and messages according to the "Stages of Behaviour Change." It involves face-to-face dialogue with individuals or groups to inform, motivate, solve problems or plan with the objective to promote and sustain behavior change. Social mobilization and behaviour change communication will focus on igniting change at the community, household, and individual levels.

The main objective of BCC is to change the knowledge, skills, attitudes and practices of the priority target audience in optimal feeding practices, lifestyle, WASH and other behaviours.

The following are BCC interventions to improve adolescent nutrition outcomes:

- Inclusion of nutrition education in the formal curriculum
- Strengthening the provision of counselling services
- Utilize and disseminate adolescent nutrition message via print and electronic media
- Encourage Community Conversations through HEW outreach at schools and other local gatherings
- Conduct home visits and nutrition counselling for individuals, couples and families using take-home materials; radio programming
- Social media messaging – social media messaging includes massages through channels such as Instagram, WhatsApp, Line, Telegram, YouTube and Facebook
- Local champions who can promote nutrition through media (both social and mass media). Role model adolescents, their parents/families and teachers who feature via social media, broadcast and print media programmes can show case

their innovative ideas, stories of change and proposals to improve quality of school snacks and meals; boost the preparation, sale and intake of diverse, locally available nutritious foods; and share fun activities that boost physical fitness among their peers. There is also a need to advocate through popular sports shows to promote physical activity among adolescents

- Material development – communication materials aimed at specific participant groups will be required to reinforce the nutrition modules and provide content for the mass and social media components. These materials need to be tailored with user-friendly nutrition messages and technical content
- Information booklets for parents and caregivers need to be developed and disseminated. Booklets will provide home-based support and reinforcement for the key messages on nutrition and physical activity
- Guides for health care provider, religious leaders and community influencers for interpersonal communication and counselling

BCC strategic planning processes start with planning efforts for strategic communication, bringing different sectors' perspectives, and experiences to the table, as well as understanding the target audience.

6.2.4. Adolescent nutrition counselling

Nutrition counselling is a process of finding solutions together with the adolescent, and sometimes with their families, as a means to increase adolescent nutritional literacy, improve their dietary intake and physical activities towards addressing a wide range of adolescent malnutrition and its intergenerational impacts.

Unlike nutrition education, nutrition counselling is a two-way process during which the adolescent is actively involved in describing their problems, in analyzing the causes and identifying the available resources and solutions..

Counselling is an important skill, and the GALIDRA steps outlined in the box below will help to counsel adolescents effectively.

GALIDRAA

Greet the client Ask him or her to sit down and then exchange introductions to establish a comfortable atmosphere.

Ask the client about his or her situation and current practices using open-ended questions and familiar language.

Listen to what the client and/or caregiver says. Notice body language, use probing questions, and reflect back what the client says to make sure you understand it correctly.

Identify the client's key problems and help select the most important ones to address.

Discuss options, considering what is realistic and using visual materials to engage the client and/or caregiver in discussion.

Ask the client to repeat what he or she understood from the discussion and what action he or she Agrees to try at home.

Make a follow-up **A**ppointment and ask the client to repeat the date.

Chapter 7: Monitoring and Evaluation

7.1. Introduction

The aim of planning, monitoring and evaluation is to improve service provision by measuring the progress of output, outcome and impact indicators. The indicators included in this guideline are aligned with the national HSTP II targets and the national FNS (2021-2030), as well as the targets set by the global SDGs for 2030.

7.2. Monitoring

Monitoring of the adolescent nutrition activities and results will be done through routine collection, analysis, interpretation and dissemination of data using standardized tools and procedures. The frequency of monitoring activities will be undertaken monthly, quarterly, biannually and annually as outlined in the reporting frequency of the adolescent nutrition framework.

7.3. Evaluation

The adolescent nutrition program evaluation aims to provide credible information and learning for decision-makers to identify ways for achieving desired results. It examines the relevance, effectiveness, efficiency and impact of programs/interventions. Impact and outcome indicators of adolescent nutrition should be incorporated into the EDHS, food and nutrition survey and other country specific assessments, and evaluated within an agreed timeframe.

7.4. Accountability and learning

Accountability encompasses four primary components: transparency, standardization, responsiveness, and participation. It aims to commit and respond to, and balance, the needs of implementing sectors in adolescent nutrition programs.

Learning involves assessing what works well or what does not work well, and which aspects have more influence on the achievement of results and so can be replicated. Learning should be participatory, documented and shared with stakeholders. Approaches to guide learning include: comparing results across time to determine which ones contribute to achieving the set tasks and expected results, facilitation of both levels of learning through formal or informal learning by sharing learning experiences (positive and negative) with relevant bodies using different platforms such as peer learning, performance review meeting, experience exchange visit, organizing workshops to reflect on lessons learned, and documentation of best practices. Figure 7 below shows the hierarchy of accountability and data flows among the different tiers of implementing sectors.

7.5. Adolescent nutrition monitoring and evaluation framework

Monitoring and evaluation of adolescent nutrition interventions aims at measuring inputs and outputs, outcome and impact (Figure 1). The framework helps to ensure a systematic monitoring and evaluation of adolescent nutrition interventions, and serves as a measure of accountability and learning.

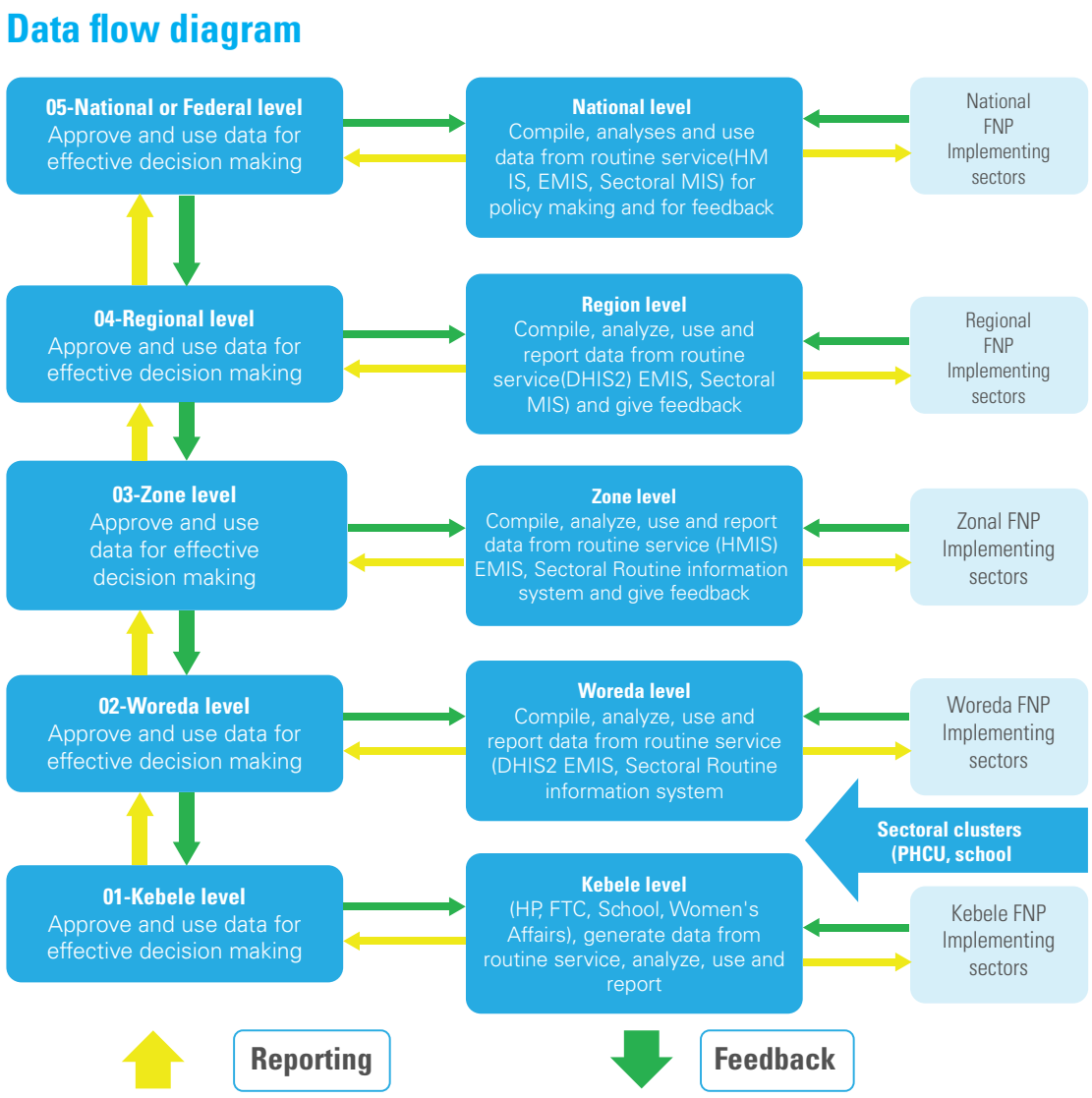
7.6. Reporting and feedback

Standard recording and reporting formats with the selected adolescent nutrition indicators will be used for all adolescent nutrition interventions. The selected adolescent nutrition indicators are expected to measure quality of the service provision.

Feedback is important for improving the performance of adolescent nutrition interventions, by ensuring that the data can be used to influence decision-making and strengthen accountability. Therefore, feedback should be provided following all supportive supervisions, and should be part of the data analysis of routine reports.

Figure 7 presents the different levels of accountability, the reporting hierarchies and the data flows in the nutrition-implementing sectors. It depicts horizontal and vertical connections, reporting and feedback loops at different levels.

Figure 6. Data flow and reporting cycle of adolescent nutrition implementation



REFERENCE

1. Anderson JW, Patterson K: "Snack foods: comparing nutrition values of excellent choices and 'junk foods'." Journal of the American College of Nutrition (2005), 24(3):155-156.

2. Ventura EE, Davis JN, Goran MI: "Sugar content of popular sweetened beverages based on objective laboratory analysis: focus on fructose content." Obesity (2011), 19(4):868-874.

3. Victor M-R: :Food taboos: their origins and purposes." Journal of Ethno-biology and Ethno-medicine, (2009).

4. World Health Organization: "Adolescent friendly health services: an agenda for change." (2003). https://apps.who.int/iris/handle/10665/67923

5. Vandevijvere, S., & Swinburn, B. (2014): "Creating healthy food environments through global benchmarking of government nutrition policies and food industry practices." Archives of Public Health, 72(1), 1-3.

6. World Health Organization, (2017); "Strategic Guidance on accelerating Actions for Adolescent Health in South-East Asia Region". Asia Pac. J. Clin. Nutr, 26.

7. American Academy of Pediatrics, Stages of adolescence, (2022). https://www.healthychildren.org/English/ages-stages/teen/Pages/Stages-of-Adolescence.aspx

8. Das, Jai K., et al: "Nutrition in adolescents: physiology, metabolism, and nutritional needs." Annals of the New York Academy of Sciences 1393.1, (2017): 21-33.

9. Cooper C, Westlake S, Harvey N, Dennison E: "Developmental origin osteoporotic fractures" in Goldberg G, Prentice A, Prentice A, Filteau S, Simondon K, editors. Breast feeding: early influences on later health. Dordrecht, the Netherlands: Springer, (2009). p. 217–36.

10. Golden, Neville H., et al: "Optimizing bone health in children and adolescents." Pediatrics 134.4, (2014): e1229-e1243.

11. Van den Berg, Gerard J. Nystedt P, et al: "Critical periods during childhood and adolescence: a study of adult height among immigrant siblings", (2009).

12. Belachew, Tefera, et al: "Gender differences in food insecurity and morbidity among adolescents in southwest Ethiopia." Pediatrics 127.2, (2011): e398-e405(a).

13. Belachew, T., Lindstrom, D., Hadley, C. et al: "Food insecurity and linear growth of adolescents in Jimma Zone, Southwest Ethiopia. Nutrition Journal 12, 55, (2013) https://doi.org/10.1186/1475-2891-12-55

14. Belachew, Tefera, et al: "Food insecurity and age at menarche among adolescent girls in Jimma Zone Southwest Ethiopia: a longitudinal study." Reproductive Biology and Endocrinology 9.1, (2011): 1-8(b).

15. Belachew, T., Hadley, C., Lindstrom, D. et al: "Food insecurity, school absenteeism and educational attainment of adolescents in Jimma Zone Southwest Ethiopia: a longitudinal study". Nutrition Journal 10, 29, (2011). https://doi.org/10.1186/1475-2891-10-29(c).

16. World Health Organization: "Obesity and Overweight Factsheet", (2021). https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight#:~:text=The%20prevalence%20of%20overweight%20and,19%25%20of%20boys%20were%20overweight.

17. Bhurosy, Trishnee, and Rajesh Jeewon: "Overweight and obesity epidemic in developing countries: a problem with diet, physical activity, or socioeconomic status?" The Scientific World Journal, (2014).

18. Rah, Jee Hyun, et al. "The Triple Burden of Malnutrition Among Adolescents in Indonesia." Food and Nutrition Bulletin 42.1_suppl, (2021): S4-S8.

19. Diddana TZ. "Prevalence of Overweight/Obesity and Its Association with Socioeconomic Status in Ethiopia: Systematic Review and Meta-Analysis." Journal of Obesity and Weight-Loss Medicine, (2021), 7:042 Volume 7 | Issue 1 DOI: 10.23937/2572-4010.1510042

20. Berhe K, Kidanemariam A, Gebremariam G, Gebremariam A: "Prevalence and associated factors of adolescent undernutrition in Ethiopia: a systematic review and meta-analysis". BMC Nutrition, (2019) Dec 9;5:49. doi: 10.1186/s40795-019-0309-4. PMID: 32153962; PMCID: PMC7050743.

21. Centres for Disease Control and Prevention: "Micro-nutrient Facts". Available at: https://www.cdc.gov/ immpact/micro-nutrients/index.html. Updated March 31, 2015. Accessed July.

22. Worku N, Erko B, Torben W, Belay M, Kasssu A, Fetene T, Huruy K,(2009): "Malnutrition and intestinal parasitic infections in-school children of Gondar, North West Ethiopia". Ethiopian Medical Journal. Jan;47(1):9-16. PMID: 19743775.

23. Mengistu, Getachew et al: "Iron Deficiency Anemia among In-School Adolescent Girls in Rural Area of Bahir Dar City Administration, North West Ethiopia." Anemia Vol, (2019) 1097547. 21 Mar. 2019, doi:10.1155/2019/1097547

24. CSA and ICF. Demographic and health Survey of Ethiopia, (2016). https://dhsprogramme.com/pubs/pdf/FR328/FR328.pdf.

25. Spear, B.A., Adolescent Growth and Development. Journal of the American Dietary Association, (2002), 102.

26. Wagner, Carol L., and Frank R. Greer. "Prevention of rickets and vitamin D deficiency in infants, children, and adolescents." Pediatrics 122.5, (2008): 1142-1152.

27. Wakayo T, Belachew T, Vatanparast H, Whiting SJ. "Vitamin D deficiency and its predictors in a country with thirteen months of sunshine: the case of school children in central Ethiopia." PLoS ONE. 2015;10 (3):e0120963. doi:10.1371/journal.pone.0120963.

28. Shils, Maurice E.; Shike, Moshe; Ross, A. Catharine; Caballero, Benjamin; Cousins, Robert J.Modern Nutrition in Health and Disease, 10th Edition, Lippincott Williams & Wilkins , 2006.

29. Mielgo-Ayuso, J., Aparicio-Ugarriza, R., Olza, J., Aranceta-Bartrina, J., Gil, Á., Ortega, R. M., Serra-Majem, L., Varela-Moreiras, G., & González-Gross, M, (2018): "Dietary Intake and Food Sources of Niacin, Riboflavin, Thiamin and Vitamin B_6 in a Representative Sample of the Spanish Population." The Anthropometry, Intake, and Energy Balance in Spain (ANIBES) Study †. Nutrients, 10(7), 846. https://doi.org/10.3390/nu10070846

30. Mesfin B, Misganaw B, Hunegnaw MT, Muhammad EA: "Goiter and Its Associated Factors among Adolescent High School Girls at Tach Armachiho District, Northwest Ethiopia: An Institution-Based Cross-Sectional Study." Journal of Nutrition and Metabolism, (2020);2020:3695952. Published 2020 Oct 23. doi:10.1155/2020/3695952

31. Zeru AB, Muluneh MA, H Giorgis KK, Menalu MM, Tizazu MA: "Iodine Deficiency Disorder and Knowledge about Benefit and Food Source of Iodine among Adolescent Girls in the North Shewa Zone of Amhara Region." Journal of Nutrition and Metabolism, (2021);2021:8892180. Published 2021 Jan 13. doi:10.1155/2021/8892180. https://www.who.int/news-room/fact-sheets/detail/physical-activity.

32. Man CS, Salleh R, Ahmad MH, Baharudin A, Koon PB, Aris T: "Dietary Patterns and Associated Factors Among Adolescents in Malaysia: Findings from Adolescent Nutrition Survey", (2017). International Journal of Environmental Research and Public Health (2020);17(10):3431. Published 2020 May 14. doi:10.3390/ijerph17103431

33. Morris, A. M., & Katzman, D. K, (2003): "The impact of the media on eating disorders in children and adolescents." Paediatrics and Child Health, 8(5), 287–289. https://doi.org/10.1093/pch/8.5.287.

34. Belachew, Tefera, et al: "Food insecurity, food based coping strategies and suboptimal dietary practices of adolescents in Jimma zone Southwest Ethiopia." PloS one 8.3 (2013): e57643.

35. Garney, W., Wilson, K., Ajayi, K. V., Panjwani, S., Love, S. M., Flores, S., Garcia, K., & Esquivel, C. (2021): "Social-Ecological Barriers to Access to Healthcare for Adolescents: A Scoping Review." International Journal of Environmental Research and Public Health, 18(8), 4138. https://doi.org/10.3390/ijerph18084138

36. Abuosi, A. A., & Anaba, E. A, (2019): "Barriers on access to and use of adolescent health services in Ghana". Journal of Health Research.

37. Chattopadhyay, A., Sethi, V., Nagargoje, V.P. et al: "WASH practices and its association with nutritional status of adolescent girls in poverty pockets of eastern India." BMC Women's Health 19, 89 (2019). https://doi.org/10.1186/s12905-019-0787-1

38. Johnston, R, (2017): "Overview of WASH-related SDG Targets"(6.1 and 6.2). https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=Overview+of+WASH-related+SDG+Targets+%286.1+and+6.2%29&btnG=

39. MoH: "Be Healthy to Learn and Learn to be Healthy." Addis Ababa, Ethiopia, August, (2017).

40. MoH: "National Nutrition Programme II", (2016-2022. https://leap.unep.org/countries/et/national-legislation/national-nutrition-programme-nnp-ii-2016-2020

41. MoH: "National Nutrition Programme II", (2016-2022).

42. FDRE: Food and Nutrition Policy, November, (2018).

43. FDRE. Food and Nutrition Policy, May, (2021).

44. Siddiqui F, Salam RA, Lassi ZS, Das JK: "The intertwined relationship between malnutrition and poverty." Frontiers in Public Health, (2020) Aug 28;8:453.

45. Liu, J., & Raine, A. (2011): "Malnutrition and externalizing behaviour" In Lifetime Nutritional Influences on Cognition, Behaviour and Psychiatric illness (pp. 301-322). Woodhead Publishing.

46. Gesch B, (2013): "Adolescence: Does good nutrition = good behaviour?" Nutrition and Health, 22(1), 55–65. https://doi.org/10.1177/0260106013519552

47. Magnes T-J, (2020): "Child malnutrition breeds aggression and violence, and we will reap the bitter lockdown harvest" https://www.dailymaverick.co.za/article/2020-09-07-child-malnutrition-breeds-aggression-and-violence-and-we-will-reap-the-bitter-lockdown-harvest/

48. Patton, G. C., Sawyer, S. M., Santelli, J. S., Ross, D. A., Afifi, R., Allen, N. B., ... & Viner, R. M, (2016): "Our future: a Lancet commission on adolescent health and wellbeing." The Lancet, 387(10036), 2423-2478.

49. FAO/WHO/UNU: "Report of a Joint FAO/WHO/UNU Expert Consultation" Rome, 17–24 October, (2001). https://www.fao.org/3/y5686e/y5686e.pdf.

50. Roberts S, Collins P, Rattray M: "Identifying and managing malnutrition, frailty and sarcopenia in the community: a narrative review." Nutrients, (2021) Jul 5;13(7):2316.

51. United Nations Children's Fund, Social and Behavioural Change Communication Strategy: Improving Adolescent Nutrition in Indonesia, UNICEF, Jakarta, (2021). https://www.unicef.org/indonesia/media/9221/file/Executive%20summary%20of%20social%20behavioural%20change%20communication%20strategy.pdf

52. White F: "Primary health care and public health: foundations of universal health systems". Medical Princinples and Practice, (2015);24 (2):103-16. doi: 10.1159/000370197. Epub 2015 Jan 9. PMID: 25591411; PMCID: PMC5588212.

53. Kennedy G, Razes M, Ballard T, Dop M, editors: "Measurement of dietary diversity for monitoring the impact of food based approaches." International Symposium on Food and Nutrition Security, Rome, (2010)

54. Federal Government of Ethiopia, Ministry of Health, Ethiopian Public Health Institute, Ethiopia: "Food-Based Dietary Guidelines–2022". Addis Ababa, Ethiopia, (2022).

55. WHO: "Physical Activity", 26 November, (2020). file:///C:/Users/Prof.%20Tefera/Downloads/9789240015128-eng%20(1).pdf

56. FAO: "Guidelines for measuring household and individual dietary diversity", (2013). https://www.fao.org/3/i1983e/i1983e

ANNEXES Annex 1: Monitoring and evaluation matrix

Description of Indicator	Type of indicator	Numerator	Denominator	Disaggregation	Data source	Frequency of reporting	Responsible body
Proportion of schools, primary health care units and youth centres providing screening service for adolescents	Process	Number of schools, primary health care units and youth centres providing screening service for adolescents	Total number of schools, primary health care units and youth centres	School, primary health care unit, Youth centre	Administrative Report	Monthly	MoH, MoE, MoWSA Youth centre
Number of mass media programmes broadcast on adolescents nutrition issues	Process	Number of broadcasted on adolescents nutrition issues	Total number of programmes broadcast	Language, Type of intervention	Administrative Report	Quarter	Media agency
Proportion of farmers and private sector actors producing healthy food (fruit and vegetables) in place of harmful substance like khat and alcohol	Process	Total number of farmers and private sector actors producing healthy food (fruit and vegetables) in place of harmful substance like khat and alcohol	Total number of farmers and private sectors actors	Region	Survey	Five years	MoA
Proportion of schools with playgrounds/ running space for physical activity	Process	Number of schools with playgrounds/running space for physical activity	Total number of schools	Residence	Administrative Report/ Education Management of Information System (EMIS)	Biannually	MoE
Proportion of schools with regulations on healthy food, environment and substance-use prevention	Process	Number of schools with regulations on healthy food, environment and substance0use prevention	Total number of schools	Residence	Administrative Report	Annually	MoE

Number of supportive supervisions conducted at all adolescent service contact points (schools health facilities and youth centre)	Process	Number of supportive supervisions conducted	Number of supportive supervisions planned	Administrative level and sectors	Administrative Report	Quarterly	Implementing sectors
Number of review meetings conducted	Process	Number of review meetings conducted	Number of review meeting planned	Administrative level and sectors	Administrative Report	Annually	Implementing sectors
Number of health professionals trained in adolescent nutrition	Process	Number of health professionals trained in adolescent nutrition	Number of health professionals planned for training biannually	Administrative level and sectors	Administrative Report	Annually	MoH
Proportion of adolescents trained in life skills	Process	Numbers of adolescents trained in life skills	Total number of adolescents	Sex, Residence	Administrative Report (EMIS)	Annually	MoE, MoWSA
Proportion of schools with school gardening	Process	Number of schools with school gardening	Total number of schools	Residence	Administrative Report (EMIS)	Annually	MoE
Proportion of schools with school nutrition clubs	Process	Number of schools with school nutrition clubs	Total number of schools	Residence	Administrative Report (EMIS)	Annually	MoE
Proportion of eligible adolescents screened for malnutrition	Output	Number of adolescents screened for malnutrition	Total number of eligible adolescents	Under nutrition, over nutrition, norma	Administrative Report (EMIS)	Monthly	MoH, MoE, MoWSA
Proportion of adolescents screened for malnutrition who were counselled	Output	Number of adolescents screened for malnutrition who were counselled	Total number of adolescents screened for malnutrition	Sex, Age (early/late adolescent)	Administrative Report (EMIS)	Quarterly	Primary health care unit, School, Youth centre

Proportion of adolescents educated on healthy diets and lifestyles	Output	Number of adolescents educated on healthy diets and lifestyles	Number of adolescents in the catchment area	Sex	Administrative Report (EMIS)	Monthly	MoH, MoE
Proportion of adolescent girls given weekly Iron Folic Acid Supplementation (WIFAS)	Output	Number of adolescent girls given weekly Iron Folic Acid Supplementation (WIFAS)	Number of adolescent girls in the catchment area (both in-school and out-of-school)	10-14 years, 15-19 years	Administrative Report (EMIS)	Monthly	MoH, MoE MoE
Proportion of adolescents who received deworming tablets	Output	Number of adolescents who took deworming tablets/dewormed with albendazole 400mg/ Mebendazole 500mg	Number of adolescents in the catchment area (both in-school and out-of-school)	10-14 years, 15-19 years, Sex, Dose	Administrative Report (EMIS)	Monthly	MoH, MoE
Proportion of households with adolescents with access to improved agriculture technologies	Output	Number of households with adolescents with access to improved agriculture technologies	Total number of households	Residence	Administrative Report	Biannually	MOA
Proportion of adolescents reached with messages about fortified foods	Output	Number of adolescent reached with messages about fortified foods.	Total number of adolescents	Sex, Residence	Survey, Assessment	Annually/ ad hoc	MoH, MoTRI
Proportion of adolescents with HIV/ TB provided with nutritional screening	Output	Number of adolescents with HIV/TB provided with nutritional screening	Number of adolescent boys and girls in the catchment with HIV/TB	Sex, Age	Administrative Report (HMIS)	Monthly	MoH

Proportion of adolescents with HIV/ TB who received acute malnutrition treatment	Output	Number of adolescents with HIV/TB provided with acute malnutrition treatment	Number of adolescent boys and girls in the catchment with HIV/TB	Sex, Age, Urban, Rural	Administrative Report (HMIS)	Monthly	MoH
Proportion of adolescents with HIV/ TB provided with nutritional counselling	Output	Number of adolescents with HIV/TB provided with nutritional counselling	Total number of adolescents in the catchment with HIV/TB	Sex	Administrative Report	Monthly	MoH
Proportion of schools providing school feeding programme	Output	Number of schools with school feeding programmes during the reporting period	Total number of schools in the catchment area	Urban, Rural	Administrative Report (EMIS)	Periodically on-demand, Annually	MoE
Proportion of school feeding programmes with minimum of four food groups per meal	Output	Number of schools with school feeding programme that provide minimum of four food groups per meal	Total number of schools with school feeding programme	Urban, Rural	Administrative Report (EMIS)	Periodically on-demand, Annually	MoE
Number of nutrition education sessions delivered using different contact points	Output	Number of nutrition education sessions delivered using different contact points	Total planned sessions	School Primary health care unit, Youth centre	Administrative Report	Quarterly	MoE MoH MoWSA
Proportion of vulnerable households with adolescents linked to social protection/ livelihood interventions	Output	Number of vulnerable households with adolescents linked to social protection/ livelihood interventions	Total number of vulnerable households	Residence	Administrative Report	Quarterly	MoA MoWSA
Proportion of adolescent girls who received menstrual hygiene management support	Output	Number of adolescent girls who received menstrual hygiene management support	Total number of menstruating adolescent girls	Residence	Administrative Report	Quarterly	MOE MoWSA

Proportion of adolescent girls who completed primary school	Outcome	Number of adolescent girls who completed primary school	Total number of adolescent girls in the catchment area	Rural, Urban	Administrative Report	Annually	MoE
Proportion of adolescent girls who completed secondary school	Outcome	Number of adolescent girls who completed secondary school	Total number of adolescent girls in the catchment area	Rural, Urban	Administrative Report	Annually	MoE
Primary school enrollment, gross gender parity index (GPI)	Outcome	Number of female students enrolled in primary education	Number of male students enrolled in primary education	Rural, Urban	EMIS-school records / Administrative Report	Annually	MoE
Proportion of schools with WASH facilities	Outcome	Number of Schools with WASH facilities	Total number of schools	Urban, Rural	Administrative Report	Annually	MoE, MoWE
Proportion of schools with girl-friendly (sex-segregated) WASH facilities	Outcome	Schools with girl-friendly (sex-segregated) WASH facilities	Total number of schools	Urban, Rural	Survey	Annually	MoE, MoWE
Proportion of adolescents using substances including khat, cigarette and alcohol	Outcome	Number of adolescents using substances including khat, cigarette and alcohol	Total number of adolescents assessed	Sex, Residence	Survey	Five years	MoH
Proportion of adolescent pregnancies	Outcome	Number of adolescent pregnancies between age 10-19 years	Total number of pregnancies	Age, Urban, Rural	HMIS, Survey	Monthly, Five years	MoH
Proportion of adolescent girls married before the age of 21 years	Outcome	Number of young girls who married before the age of 21 years	Total number of young girls	Age	Survey, Administrative Report	Annually, 2.5 / 5 years	MoWSA

Proportion of adolescents who consumed fortified foods	Outcome	Number of adolescents who consumed fortified foods	Total number of adolescents	Sex, Residence	Survey, Assessment	Annual/ad hoc	MoTRI
Proportion of adolescents who consumed diversified (at least five food groups/day)	Outcome	Number of adolescents who consumed diversified (at least five food groups/ day)	Total number of adolescents included in the assessment	Sex Age (early/late adolescent	Survey	2.5 / 5 years	EPHI, CSA
Prevalence of adolescent malnutrition (underweight, stunting, overweight, obesity)	Impact	Number of adolescents aged with malnutrition	Total number of eligible adolescents	Urban, Rural, Sex	Survey	2.5 / 5 years	EPHI, CSA
Proportion of adolescents with healthy food choices and eating habits	Impact	Number of adolescents with healthy food and eating habits	Total number of adolescents included in the survey	Sex, Age, Urban, Rural	Survey	2.5 / 5 years	MoH, EPHI
Proportion of adolescents with goiters	Impact	Number of adolescents with goiters	Total No. of adolescents included in the assessment	Sex Age (early/late adolescent	Survey	2.5 / 5 years	EPHI, CSA
Prevalence of adolescents with anemia	Impact	Number of anemic adolescents aged	Total number of adolescents included in the assessment	Sex Age (early/late adolescent	Survey	2. 5 / 5 years	EPHI, CSA
Prevalence of micro-nutrient deficiencies (Zinc, Iron, vitamin A, Iodine)	Impact	Number of adolescents with micro-nutrient deficiencies	Total number of eligible adolescents	Urban, Rural, Sex	Survey	2. 5 / 5 years	EPHI

Annex 2. Integrated adolescent monthly report format

Region_____Zone_____Woreda_____Reporting month_____	
Activity	Number
Health	
Adolescent Nutrition Service	
Total number of adolescents aged 10-19 years screened for malnutrition	
Adolescent Aged 10-19 screened for nutrition-Normal	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number
Adolescent Aged 10-19 screened for nutrition-Underweight	
10-14-Male	Number
-Female	Number
15-19-Male	Number
Female	Number
Adolescent Aged 10-19 screened for nutrition-Overweight	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number
Adolescent Aged 10-19 screened for nutrition-Obese	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number
Adolescent Aged 10-19 screened for nutrition-Very Obese	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number

Number of adolescent girls given weekly Iron Folic Acid supplementation (WIFAS)	
10-14-Female	Number
15-19-Female	Number
Number of adolescents who received deworming tablets	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number
Number of adolescents with HIV/TB provided with nutritional screening	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number
Number of adolescents with HIV/TB provided with nutritional counselling	
10-14-Male	Number
-Female	Number
15-19-Male	Number
-Female	Number
Number of adolescent pregnancies	
10-14-Female	Number
15-19-Female	Number

Annex 3. Integrated adolescent quarterly report format

Region_____Zone_____Woreda_____Reporting month_____	
Activity	Number
Health	
Number of supportive supervisions conducted	
Number of review meetings conducted	
Number of professionals trained n adolescent nutrition	
Number of nutrition education sessions delivered	
Total number of adolescents aged 10-19 years screened for malnutrition	
Number of adolescents who received deworming tablets	
Number of adolescent girls given weekly Iron Folic Acid supplementation (WIFAS)	
Agricultural sector	
Number of nutrition education sessions delivered on production of diversified foods	
Number of vulnerable households with adolescents linked to social protection/ livelihood interventions	
Number of households with adolescents with access to improved agricultural inputs	
Number of schools supported in school gardening	
MoWSA	
Number of schools with girl-friendly (sex-segregated) WASH facilities	
Number of adolescent girls who married before the age of 21 years	
Number of adolescents trained in life skills	
Number of nutrition education sessions delivered	
Number of adolescent girls who received menstrual hygiene management support	
MOE	
Number of schools providing school feeding programmes	
Number of adolescent girls who completed primary school	
Number of adolescent girls who completed secondary school	
Number enrolled in primary school, gross gender parity index (GPI)	
Proportion of schools with WASH facilities	
Proportion of schools with playgrounds/running space for physical activity	
Proportion of schools with school gardening	
Proportion of schools with school nutrition clubs	
Number of nutrition education sessions delivered	
Proportion of adolescent girls who received menstrual hygiene management support	
Total number of adolescents aged 10-19 years screened for malnutrition	
Number of adolescents who received deworming tablets	
Number of adolescent girls given weekly Iron Folic Acid supplementation (WIFAS)	

Annex 4. Adolescent nutrition register

Ministry of Health
ጤና ሚኒስቴር

Adolescent Nutrition Register

						Deworming		Nutrition Screening and Consulting for adolescent															Month________				Month________				Month________				Month________				Month________				Month________				
S.N	MRN	Full Name	Woreda / Kebele	Got or Ketena	Age/ Sex(F/M)	Dose-1 (DD/MM/YY)	Dose-2 (DD/MM/YY)	intervention		Ham	Neh	Mes	Tik	Hid	Thas	Tir	Yek	Meg	Miaz	Ginb	Sen	Weekly_IFA	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	Remark
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
								Date of Visit (Write Day only)	Nutritional Screening																																						
									Nutritional Consulting																																						
								BMI for age/MUAC	Nutritional Screening																																						
									Nutritional Consulting													Date (DD/MM/YY)																									
								Classification write code (N,U,O, Ob,Vob)	Nutritional Screening																																						
									Nutritional Consulting																																						
								Date of Visit (Write Day only)	Nutritional Screening																																						
									Nutritional Consulting																																						
								BMI for age (MUAC only for Pregnant)	Nutritional Screening																																						
									Nutritional Consulting													Date (DD/MM/YY)																									
								Classification write code (N,U,O, Ob,Vob)	Nutritional Screening																																						
									Nutritional Consulting																																						
								Date of Visit (Write Day only)	Nutritional Screening																																						
									Nutritional Consulting																																						
								BMI for age	Nutritional Screening																																						
									Nutritional Consulting													Date (DD/MM/YY)																									
								Classification write code (N,U,O, Ob,Vob)	Nutritional Screening																																						
									Nutritional Consulting																																						

Count Dose	Count Dose	Count normal	
		Count undernutrition	
		Count overweight	
		Count obise	
		Count very obise	

Count:
Adolsecent who received IFA

Annex 5: Admission and discharge weight for severely malnourished children and adolescents

Admission weight	Discharge weight
18.5	22.5
19	23
19.5	23.5
20	24
21	26
22	27
23	28
24	29
25	30
26	32
27	33
28	34
29	35
30	36
31	38
32	39
33	40
34	41
35	43
36	44
37	45
38	46
39	47
40	49
41	50
42	51
43	52

Admission weight	Discharge weight
44	53
45	55
46	56
47	57
48	58
49	60
50	61
51	62
52	63
53	64
54	66
55	67
56	68
57	69
58	70
59	72
60	73

Admission weight	Discharge weight
61	74
62	75
63	77
64	78
65	79
66	80
67	81
68	83
69	84
70	85
71	86
72	87
73	89
74	90
75	91

Source: Adapted from Ministry of Health. Protocol for the management of severe acute malnutrition, Federal Ministry of Health, Ethiopia, 2007. Available from: https://www.ennonline.net/attachments/897/ethiopia-sam-guideline-march-2007.pdf.

Annex 6. Phase 2 amount of F100 or RUTF to give at each feed for five or six feeds per day

Class of weight (kg)	6 feeds/ day		5 feeds/d	
	F100	RUTF	F100	RUTF
	ml/feed	g/feed	ml/feed	g/feed
15.0 - 19.9	550	100	650	120
20.0 - 24.9	650	120	780	140
25.0 - 29.9	750	140	900	160
30.0 - 39.9	850	160	1000	180
40 - 60+	1000	180	1200	220

Source: Adapted from Ministry of Health. Protocol for the management of severe acute malnutrition, Federal Ministry of Health, Ethiopia, 2007. Available from: https://www.ennonline.net/attachments/897/ethiopia-sam-guideline-march-2007.pdf.

Annex 7. Amount of F75 to give during Phase 1

Class of weight (kg)	8 feeds per day	6 feeds per day	5 feeds per day
	ml for each feed	ml for each feed	ml for each feed
15 - 19.9	260	**300**	400
20 - 24.9	290	**320**	450
25 - 29.9	300	**350**	450
30 - 39.9	320	**370**	500
40 - 60+	350	**400**	500

Source: Adapted from Ministry of Health. Protocol for the management of severe acute malnutrition, Federal Ministry of Health, Ethiopia, 2007. Available from: https://www.ennonline.net/attachments/897/ethiopia-sam-guideline-march-2007.pdf.

Annex 8. Transition Phase: amount of RUTF to give

Class of weight	Paste	Plumpy Nut	BP100	total
	Gram/ day	Sachets/ day	Bars/ day	kcal
15 - 19.9	370	4.00	7.0	2000
25 - 39	450	5.00	8.0	2500
40 - 60+	500	6.00	10.0	2700

Source: Adapted from Ministry of Health. Protocol for the management of severe acute malnutrition, Federal Ministry of Health, Ethiopia, 2007. Available from: https://www.ennonline.net/attachments/897/ethiopia-sam-guideline-march-2007.pdf.

Annex 9. Phase 2 (out-patients): amount of RUTF to give

Class of weight (kg)	RUTF Paste		PLUMPY'NUT®		BP100®	
	Grams per day	Grams per week	sachet per day	sachet per day	bars per day	bars per day
15.0 - 19.9	450	3200	5	35	9	63
20.0 - 29.9	500	3500	6	40	10	70
30.0 - 39.9	650	4500	7	50	12	84
40 - 60+	700	5000	8	55	14	98

Source: Adapted from Ministry of Health. Protocol for the management of severe acute malnutrition, Federal Ministry of Health, Ethiopia, 2007. Available from: https://www.ennonline.net/attachments/897/ethiopia-sam-guideline-march-2007.pdf.

Annex 10. Summary of barriers and recommended behavioural practices for adolescent nutrition interventions

Level of analysis	Barriers	SBCC strategies	Approaches and tactics	Recommended behavioural practice
Enabling environment	■ Insufficient attention given to adolescents to tackle malnutrition ■ Limited amount of funding ■ Weak multi-sectoral collaboration and accountability systems related to policy and strategy implementation (school health framework implementation) ■ Formal school curricula do not include adolescent nutrition ■ Current community engagement strategy does not specifically target adolescents who are not in school ■ Health extension programme packages do not include Adolescent nutrition in detail ■ Low coverage of school feeding programme ■ Limitations in the enforcement of marketing unhealthy diets ■ Marginalization and disempowerment of adolescent groups with many context (street kids, orphans and IDPs)	Advocacy	Develop advocacy tools for policy-makers Media sensitization and training for journalists Public awareness campaigns School anniversary or national nutrition day Advocate for mainstreaming adolescent nutrition Build capacity with pre-service and in-service trainings. Use intermediaries (e.g. influencers	Promote ownership and allocate budget for adolescent nutrition at all levels Create multisectoral coordination body for effective coordination and collaboration on adolescent health among the sectors School curricula should include adolescent nutrition

Institution-level	**Programme level:** ■ Inadequate evidence behavioural barriers on adolescent nutrition and documented practical experience (knowledge management system) ■ Poor capacity in designing and implementation of adolescent SBCC **Health Facilities:** ■ Limited adolescent nutrition services ■ Lack of availability and utilization of adolescent nutrition SBCC materials at facilities ■ Adolescents are not consulted on the extent of nutrition services currently serving them, or how they can be better designed to meet their needs. **Schools:** ■ Limited functionality of health and nutrition clubs ■ Lack of SBCC materials for mini-media ■ Limited engagement of school communities on adolescent health and nutrition education ■ Limited linkages between health facilities and schools ■ Lack of playgrounds	Strengthening institution capacity	Capacity building such as training n how design and implement SBCC interventions, and knowledge management for adolescent Media orientation Experience sharing for SBCC best practiceS at school, health facilities, youth centres or in the community Prioritize adolescent nutrition behavioural evidence gaps for research institutions Develop need-based SBCC materials such as mini-media for schools and job aids for health facilities	Adolescent girls/ boys should be supplemented with vitamins and minerals Promote proper adolescent nutrition counselling and healthy feeding practices Establish youth-friendly service providers Increase coverage of school feeding programme Increase practice of gardening Increase market availability of nutritious foods Avoid marketing of substances such alcohol, khat and cigarette to adolescents Create safe environments around schools

	■ Limited awareness and practice on school gardening ■ Limited awareness of teachers in adolescent nutrition ■ Lack of awareness about diversifying food for school feeding **Media:** ■ Lack of media engagement in promotion of healthy diets and lifestyle ■ Promotion and advertisement of unhealthy foods such as junk, sweets, fried and ultra-processed foods			Incorporate adolescent nutrition services incorporated as one component of health service package Use chool mini-media for nutrition education Media to avoid promoting unhealthy food
Community-level	■ Limited culture of gardening in both urban and rural settings ■ Lack of awareness of adolescent nutrition among the community ■ Food taboos related to menstruation and the controlling girls' sexual urges ■ Food prioritized for boys over girls ■ Expectations that families should eat the same food together instead of prioritizing adolescents due to their unique needs ■ Existing social norms and cultures including child marriage and adolescent pregnancy ■ Weak decision-making power of women related to consumption of nutritious food	Social mobilization and community mobilization	Political mobilization, Community mobilization, Government mobilization, Corporate mobilization Beneficiary mobilization.	Increase availability of diversified foods for adolescent girls/boys Increase healthy food intake and avoid intake of unhealthy foods/beverages and substances Notify the relevant regulatory bodies about enablers of harmful practices in the community Discourage early marriage and early pregnancy Increase practice of backyard gardening

	■ Limited presence of community-level multi-sectoral interventions			Increase the engagement of adolescent girls and boys Strengthen the school health and nutrition clubs
Individual-level	■ Limited awareness of nutritious food ■ Consumption of a high carbohydrate diet and lower intake of proteins, vegetables and fruits ■ Limited awareness of backyard gardening ■ Preference for packaged snacks, highly processed foods and sugary beverages ■ Peer pressure (preference for packed and sweet foods, substance use) ■ Lack of physical exercise ■ Skills gap among girls making it hard to convince their families to provide the required diet ■ Low use of health service and youth centres ■ Adolescent addiction to social media and technology (mobile games, computer games)	BCC	Print media (newsletters, banners, posters, brochures, flyers, billboards, factsheets, bulletins, magazines, t-shirt and other materials with printed messages), Electronic media (TV, Radio, social media, mini and mass media)	**Adolescent girls and boys:** Increase intake of diversified foods Increase intake of animal source foods, energy and calorie rich food Increase consumption of Iron-rich foods and avoid the uptake of tea/coffee to reduce inhibition of Iron absorption Adolescent girls make their own decisions regarding nutritious food intake, early marriage and pregnancy Increase the uptake of micro-nutrient supplementation

	■ Smoking and substance abuse among adolescents ■ Toxic body image norms that motivate boys to be big and strong and girls to be skinny			Avoid consumption of junk foods and sweetened foods and beverages Increase physical exercise Parents and care-givers: Diversify diets (animal source foods, energy and calorie-rich foods) provided to adolescent girls/boys Discourage use of unhealthy foods/ beverages and substances Discourage early marriage and early pregnancy Increase practice of backyard gardening

Annex 11. WHO simplified tables for BMI-for-age for adolescent boys

BMI-for-age BOYS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
10: 0	120	12.8	13.7	14.9	16.4	18.5	21.4	26.1
10: 1	121	12.8	13.8	15.0	16.5	18.5	21.5	26.2
10: 2	122	12.8	13.8	15.0	16.5	18.6	21.6	26.4
10: 3	123	12.8	13.8	15.0	16.6	18.6	21.7	26.6
10: 4	124	12.9	13.8	15.0	16.6	18.7	21.7	26.7
10: 5	125	12.9	13.9	15.1	16.6	18.8	21.8	26.9
10: 6	126	12.9	13.9	15.1	16.7	18.8	21.9	27.0
10: 7	127	12.9	13.9	15.1	16.7	18.9	22.0	27.2
10: 8	128	13.0	13.9	15.2	16.8	18.9	22.1	27.4
10: 9	129	13.0	14.0	15.2	16.8	19.0	22.2	27.5
10: 10	130	13.0	14.0	15.2	16.9	19.0	22.3	27.7
10: 11	131	13.0	14.0	15.3	16.9	19.1	22.4	27.9
11: 0	132	13.1	14.1	15.3	16.9	19.2	22.5	28.0
11: 1	133	13.1	14.1	15.3	17.0	19.2	22.5	28.2
11: 2	134	13.1	14.1	15.4	17.0	19.3	22.6	28.4
11: 3	135	13.1	14.1	15.4	17.1	19.3	22.7	28.5
11: 4	136	13.2	14.2	15.5	17.1	19.4	22.8	28.7
11: 5	137	13.2	14.2	15.5	17.2	19.5	22.9	28.8
11: 6	138	13.2	14.2	15.5	17.2	19.5	23.0	29.0
11: 7	139	13.2	14.3	15.6	17.3	19.6	23.1	29.2
11: 8	140	13.3	14.3	15.6	17.3	19.7	23.2	29.3
11: 9	141	13.3	14.3	15.7	17.4	19.7	23.3	29.5
11: 10	142	13.3	14.4	15.7	17.4	19.8	23.4	29.6
11: 11	143	13.4	14.4	15.7	17.5	19.9	23.5	29.8
12: 0	144	13.4	14.5	15.8	17.5	19.9	23.6	30.0
12: 1	145	13.4	14.5	15.8	17.6	20.0	23.7	30.1
12: 2	146	13.5	14.5	15.9	17.6	20.1	23.8	30.3
12: 3	147	13.5	14.6	15.9	17.7	20.2	23.9	30.4
12: 4	148	13.5	14.6	16.0	17.8	20.2	24.0	30.6
12: 5	149	13.6	14.6	16.0	17.8	20.3	24.1	30.7
12: 6	150	13.6	14.7	16.1	17.9	20.4	24.2	30.9

BMI-for-age BOYS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12: 7	151	13.6	14.7	16.1	17.9	20.4	24.3	31.0
12: 8	152	13.7	14.8	16.2	18.0	20.5	24.4	31.1
12: 9	153	13.7	14.8	16.2	18.0	20.6	24.5	31.3
12: 10	154	13.7	14.8	16.3	18.1	20.7	24.6	31.4
12: 11	155	13.8	14.9	16.3	18.2	20.8	24.7	31.6
13: 0	156	13.8	14.9	16.4	18.2	20.8	24.8	31.7
13: 1	157	13.8	15.0	16.4	18.3	20.9	24.9	31.8
13: 2	158	13.9	15.0	16.5	18.4	21.0	25.0	31.9
13: 3	159	13.9	15.1	16.5	18.4	21.1	25.1	32.1
13: 4	160	14.0	15.1	16.6	18.5	21.1	25.2	32.2
13: 5	161	14.0	15.2	16.6	18.6	21.2	25.2	32.3
13: 6	162	14.0	15.2	16.7	18.6	21.3	25.3	32.4
13: 7	163	14.1	15.2	16.7	18.7	21.4	25.4	32.6
13: 8	164	14.1	15.3	16.8	18.7	21.5	25.5	32.7
13: 9	165	14.1	15.3	16.8	18.8	21.5	25.6	32.8
13: 10	166	14.2	15.4	16.9	18.9	21.6	25.7	32.9
13: 11	167	14.2	15.4	17.0	18.9	21.7	25.8	33.0
14: 0	168	14.3	15.5	17.0	19.0	21.8	25.9	33.1
14: 1	169	14.3	15.5	17.1	19.1	21.8	26.0	33.2
14: 2	170	14.3	15.6	17.1	19.1	21.9	26.1	33.3
14: 3	171	14.4	15.6	17.2	19.2	22.0	26.2	33.4
14: 4	172	14.4	15.7	17.2	19.3	22.1	26.3	33.5
14: 5	173	14.5	15.7	17.3	19.3	22.2	26.4	33.5
14: 6	174	14.5	15.7	17.3	19.4	22.2	26.5	33.6
14: 7	175	14.5	15.8	17.4	19.5	22.3	26.5	33.7
14: 8	176	14.6	15.8	17.4	19.5	22.4	26.6	33.8
14: 9	177	14.6	15.9	17.5	19.6	22.5	26.7	33.9
14: 10	178	14.6	15.9	17.5	19.6	22.5	26.8	33.9
14: 11	179	14.7	16.0	17.6	19.7	22.6	26.9	34.0
15: 0	180	14.7	16.0	17.6	19.8	22.7	27.0	34.1

BMI-for-age BOYS

10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
15: 1	181	14.7	16.1	17.7	19.8	22.8	27.1	34.1
15: 2	182	14.8	16.1	17.8	19.9	22.8	27.1	34.2
15: 3	183	14.8	16.1	17.8	20.0	22.9	27.2	34.3
15: 4	184	14.8	16.2	17.9	20.0	23.0	27.3	34.3
15: 5	185	14.9	16.2	17.9	20.1	23.0	27.4	34.4
15: 6	186	14.9	16.3	18.0	20.1	23.1	27.4	34.5
15: 7	187	15.0	16.3	18.0	20.2	23.2	27.5	34.5
15: 8	188	15.0	16.3	18.1	20.3	23.3	27.6	34.6
15: 9	189	15.0	16.4	18.1	20.3	23.3	27.7	34.6
15: 10	190	15.0	16.4	18.2	20.4	23.4	27.7	34.7
15: 11	191	15.1	16.5	18.2	20.4	23.5	27.8	34.7
16: 0	192	15.1	16.5	18.2	20.5	23.5	27.9	34.8
16: 1	193	15.1	16.5	18.3	20.6	23.6	27.9	34.8
16: 2	194	15.2	16.6	18.3	20.6	23.7	28.0	34.8
16: 3	195	15.2	16.6	18.4	20.7	23.7	28.1	34.9
16: 4	196	15.2	16.7	18.4	20.7	23.8	28.1	34.9
16: 5	197	15.3	16.7	18.5	20.8	23.8	28.2	35.0
16: 6	198	15.3	16.7	18.5	20.8	23.9	28.3	35.0
16: 7	199	15.3	16.8	18.6	20.9	24.0	28.3	35.0
16: 8	200	15.3	16.8	18.6	20.9	24.0	28.4	35.1
16: 9	201	15.4	16.8	18.7	21.0	24.1	28.5	35.1
16: 10	202	15.4	16.9	18.7	21.0	24.2	28.5	35.1
16: 11	203	15.4	16.9	18.7	21.1	24.2	28.6	35.2
17: 0	204	15.4	16.9	18.8	21.1	24.3	28.6	35.2
17: 1	205	15.5	17.0	18.8	21.2	24.3	28.7	35.2
17: 2	206	15.5	17.0	18.9	21.2	24.4	28.7	35.2
17: 3	207	15.5	17.0	18.9	21.3	24.4	28.8	35.3
17: 4	208	15.5	17.1	18.9	21.3	24.5	28.9	35.3
17: 5	209	15.6	17.1	19.0	21.4	24.5	28.9	35.3
17: 6	210	15.6	17.1	19.0	21.4	24.6	29.0	35.3

BMI-for-age BOYS

10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
17: 7	211	15.6	17.1	19.1	21.5	24.7	29.0	35.4
17: 8	212	15.6	17.2	19.1	21.5	24.7	29.1	35.4
17: 9	213	15.6	17.2	19.1	21.6	24.8	29.1	35.4
17: 10	214	15.7	17.2	19.2	21.6	24.8	29.2	35.4
17: 11	215	15.7	17.3	19.2	21.7	24.9	29.2	35.4
18: 0	216	15.7	17.3	19.2	21.7	24.9	29.2	35.4
18: 1	217	15.7	17.3	19.3	21.8	25.0	29.3	35.4
18: 2	218	15.7	17.3	19.3	21.8	25.0	29.3	35.5
18: 3	219	15.7	17.4	19.3	21.8	25.1	29.4	35.5
18: 4	220	15.8	17.4	19.4	21.9	25.1	29.4	35.5
18: 5	221	15.8	17.4	19.4	21.9	25.1	29.5	35.5
18: 6	222	15.8	17.4	19.4	22.0	25.2	29.5	35.5
18: 7	223	15.8	17.5	19.5	22.0	25.2	29.5	35.5
18: 8	224	15.8	17.5	19.5	22.0	25.3	29.6	35.5
18: 9	225	15.8	17.5	19.5	22.1	25.3	29.6	35.5
18: 10	226	15.8	17.5	19.6	22.1	25.4	29.6	35.5
18: 11	227	15.8	17.5	19.6	22.2	25.4	29.7	35.5
19: 0	228	15.9	17.6	19.6	22.2	25.4	29.7	35.5

2007 WHO Reference

Annex 12. WHO simplified tables for BMI-for-age for adolescent girls

BMI-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
10: 0	120	12.4	13.5	14.8	16.6	19.0	22.6	28.4
10: 1	121	12.4	13.5	14.9	16.7	19.1	22.7	28.5
10: 2	122	12.4	13.5	14.9	16.7	19.2	22.8	28.7
10: 3	123	12.5	13.6	15.0	16.8	19.2	22.8	28.8
10: 4	124	12.5	13.6	15.0	16.8	19.3	22.9	29.0
10: 5	125	12.5	13.6	15.0	16.9	19.4	23.0	29.1
10: 6	126	12.5	13.7	15.1	16.9	19.4	23.1	29.3
10: 7	127	12.6	13.7	15.1	17.0	19.5	23.2	29.4
10: 8	128	12.6	13.7	15.2	17.0	19.6	23.3	29.6
10: 9	129	12.6	13.8	15.2	17.1	19.6	23.4	29.7
10: 10	130	12.7	13.8	15.3	17.1	19.7	23.5	29.9
10: 11	131	12.7	13.8	15.3	17.2	19.8	23.6	30.0
11: 0	132	12.7	13.9	15.3	17.2	19.9	23.7	30.2
11: 1	133	12.8	13.9	15.4	17.3	19.9	23.8	30.3
11: 2	134	12.8	14.0	15.4	17.4	20.0	23.9	30.5
11: 3	135	12.8	14.0	15.5	17.4	20.1	24.0	30.6
11: 4	136	12.9	14.0	15.5	17.5	20.2	24.1	30.8
11: 5	137	12.9	14.1	15.6	17.5	20.2	24.2	30.9
11: 6	138	12.9	14.1	15.6	17.6	20.3	24.3	31.1
11: 7	139	13.0	14.2	15.7	17.7	20.4	24.4	31.2
11: 8	140	13.0	14.2	15.7	17.7	20.5	24.5	31.4
11: 9	141	13.0	14.3	15.8	17.8	20.6	24.7	31.5
11: 10	142	13.1	14.3	15.8	17.9	20.6	24.8	31.6
11: 11	143	13.1	14.3	15.9	17.9	20.7	24.9	31.8
12: 0	144	13.2	14.4	16.0	18.0	20.8	25.0	31.9
12: 1	145	13.2	14.4	16.0	18.1	20.9	25.1	32.0
12: 2	146	13.2	14.5	16.1	18.1	21.0	25.2	32.2
12: 3	147	13.3	14.5	16.1	18.2	21.1	25.3	32.3
12: 4	148	13.3	14.6	16.2	18.3	21.1	25.4	32.4
12: 5	149	13.3	14.6	16.2	18.3	21.2	25.5	32.6
12: 6	150	13.4	14.7	16.3	18.4	21.3	25.6	32.7

BMI-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12: 7	151	13.4	14.7	16.3	18.5	21.4	25.7	32.8
12: 8	152	13.5	14.8	16.4	18.5	21.5	25.8	33.0
12: 9	153	13.5	14.8	16.4	18.6	21.6	25.9	33.1
12: 10	154	13.5	14.8	16.5	18.7	21.6	26.0	33.2
12: 11	155	13.6	14.9	16.6	18.7	21.7	26.1	33.3
13: 0	156	13.6	14.9	16.6	18.8	21.8	26.2	33.4
13: 1	157	13.6	15.0	16.7	18.9	21.9	26.3	33.6
13: 2	158	13.7	15.0	16.7	18.9	22.0	26.4	33.7
13: 3	159	13.7	15.1	16.8	19.0	22.0	26.5	33.8
13: 4	160	13.8	15.1	16.8	19.1	22.1	26.6	33.9
13: 5	161	13.8	15.2	16.9	19.1	22.2	26.7	34.0
13: 6	162	13.8	15.2	16.9	19.2	22.3	26.8	34.1
13: 7	163	13.9	15.2	17.0	19.3	22.4	26.9	34.2
13: 8	164	13.9	15.3	17.0	19.3	22.4	27.0	34.3
13: 9	165	13.9	15.3	17.1	19.4	22.5	27.1	34.4
13: 10	166	14.0	15.4	17.1	19.4	22.6	27.1	34.5
13: 11	167	14.0	15.4	17.2	19.5	22.7	27.2	34.6
14: 0	168	14.0	15.4	17.2	19.6	22.7	27.3	34.7
14: 1	169	14.1	15.5	17.3	19.6	22.8	27.4	34.7
14: 2	170	14.1	15.5	17.3	19.7	22.9	27.5	34.8
14: 3	171	14.1	15.6	17.4	19.7	22.9	27.6	34.9
14: 4	172	14.1	15.6	17.4	19.8	23.0	27.7	35.0
14: 5	173	14.2	15.6	17.5	19.9	23.1	27.7	35.1
14: 6	174	14.2	15.7	17.5	19.9	23.1	27.8	35.1
14: 7	175	14.2	15.7	17.6	20.0	23.2	27.9	35.2
14: 8	176	14.3	15.7	17.6	20.0	23.3	28.0	35.3
14: 9	177	14.3	15.8	17.6	20.1	23.3	28.0	35.4
14: 10	178	14.3	15.8	17.7	20.1	23.4	28.1	35.4
14: 11	179	14.3	15.8	17.7	20.2	23.5	28.2	35.5
15: 0	180	14.4	15.9	17.8	20.2	23.5	28.2	35.5

BMI-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
15: 1	181	14.4	15.9	17.8	20.3	23.6	28.3	35.6
15: 2	182	14.4	15.9	17.8	20.3	23.6	28.4	35.7
15: 3	183	14.4	16.0	17.9	20.4	23.7	28.4	35.7
15: 4	184	14.5	16.0	17.9	20.4	23.7	28.5	35.8
15: 5	185	14.5	16.0	17.9	20.4	23.8	28.5	35.8
15: 6	186	14.5	16.0	18.0	20.5	23.8	28.6	35.8
15: 7	187	14.5	16.1	18.0	20.5	23.9	28.6	35.9
15: 8	188	14.5	16.1	18.0	20.6	23.9	28.7	35.9
15: 9	189	14.5	16.1	18.1	20.6	24.0	28.7	36.0
15: 10	190	14.6	16.1	18.1	20.6	24.0	28.8	36.0
15: 11	191	14.6	16.2	18.1	20.7	24.1	28.8	36.0
16: 0	192	14.6	16.2	18.2	20.7	24.1	28.9	36.1
16: 1	193	14.6	16.2	18.2	20.7	24.1	28.9	36.1
16: 2	194	14.6	16.2	18.2	20.8	24.2	29.0	36.1
16: 3	195	14.6	16.2	18.2	20.8	24.2	29.0	36.1
16: 4	196	14.6	16.2	18.3	20.8	24.3	29.0	36.2
16: 5	197	14.6	16.3	18.3	20.9	24.3	29.1	36.2
16: 6	198	14.7	16.3	18.3	20.9	24.3	29.1	36.2
16: 7	199	14.7	16.3	18.3	20.9	24.4	29.1	36.2
16: 8	200	14.7	16.3	18.3	20.9	24.4	29.2	36.2
16: 9	201	14.7	16.3	18.4	21.0	24.4	29.2	36.3
16: 10	202	14.7	16.3	18.4	21.0	24.4	29.2	36.3
16: 11	203	14.7	16.3	18.4	21.0	24.5	29.3	36.3
17: 0	204	14.7	16.4	18.4	21.0	24.5	29.3	36.3
17: 1	205	14.7	16.4	18.4	21.1	24.5	29.3	36.3
17: 2	206	14.7	16.4	18.4	21.1	24.6	29.3	36.3
17: 3	207	14.7	16.4	18.5	21.1	24.6	29.4	36.3
17: 4	208	14.7	16.4	18.5	21.1	24.6	29.4	36.3
17: 5	209	14.7	16.4	18.5	21.1	24.6	29.4	36.3
17: 6	210	14.7	16.4	18.5	21.2	24.6	29.4	36.3

BMI-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
17: 7	211	14.7	16.4	18.5	21.2	24.7	29.4	36.3
17: 8	212	14.7	16.4	18.5	21.2	24.7	29.5	36.3
17: 9	213	14.7	16.4	18.5	21.2	24.7	29.5	36.3
17: 10	214	14.7	16.4	18.5	21.2	24.7	29.5	36.3
17: 11	215	14.7	16.4	18.6	21.2	24.8	29.5	36.3
18: 0	216	14.7	16.4	18.6	21.3	24.8	29.5	36.3
18: 1	217	14.7	16.5	18.6	21.3	24.8	29.5	36.3
18: 2	218	14.7	16.5	18.6	21.3	24.8	29.6	36.3
18: 3	219	14.7	16.5	18.6	21.3	24.8	29.6	36.3
18: 4	220	14.7	16.5	18.6	21.3	24.8	29.6	36.3
18: 5	221	14.7	16.5	18.6	21.3	24.9	29.6	36.2
18: 6	222	14.7	16.5	18.6	21.3	24.9	29.6	36.2
18: 7	223	14.7	16.5	18.6	21.4	24.9	29.6	36.2
18: 8	224	14.7	16.5	18.6	21.4	24.9	29.6	36.2
18: 9	225	14.7	16.5	18.7	21.4	24.9	29.6	36.2
18: 10	226	14.7	16.5	18.7	21.4	24.9	29.6	36.2
18: 11	227	14.7	16.5	18.7	21.4	25.0	29.7	36.2
19: 0	228	14.7	16.5	18.7	21.4	25.0	29.7	36.2

2007 WHO
Reference

Annex 13. WHO simplified tables for height-for-age for adolescent girls

Height-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
10: 0	120	119.4	125.8	132.2	138.6	145.0	151.4	157.8
10: 1	121	119.9	126.3	132.7	139.2	145.6	152.0	158.4
10: 2	122	120.4	126.8	133.2	139.7	146.1	152.6	159.0
10: 3	123	120.8	127.3	133.7	140.2	146.7	153.1	159.6
10: 4	124	121.3	127.8	134.2	140.7	147.2	153.7	160.2
10: 5	125	121.7	128.2	134.8	141.3	147.8	154.3	160.8
10: 6	126	122.2	128.7	135.3	141.8	148.3	154.8	161.4
10: 7	127	122.7	129.2	135.8	142.3	148.9	155.4	162.0
10: 8	128	123.2	129.7	136.3	142.9	149.4	156.0	162.6
10: 9	129	123.6	130.2	136.8	143.4	150.0	156.6	163.1
10: 10	130	124.1	130.7	137.3	143.9	150.5	157.1	163.7
10: 11	131	124.6	131.2	137.8	144.5	151.1	157.7	164.3
11: 0	132	125.1	131.7	138.3	145.0	151.6	158.3	164.9
11: 1	133	125.5	132.2	138.9	145.5	152.2	158.9	165.5
11: 2	134	126.0	132.7	139.4	146.1	152.7	159.4	166.1
11: 3	135	126.5	133.2	139.9	146.6	153.3	160.0	166.7
11: 4	136	127.0	133.7	140.4	147.1	153.8	160.6	167.3
11: 5	137	127.4	134.2	140.9	147.7	154.4	161.1	167.9
11: 6	138	127.9	134.7	141.4	148.2	154.9	161.7	168.4
11: 7	139	128.4	135.2	141.9	148.7	155.5	162.2	169.0
11: 8	140	128.9	135.7	142.4	149.2	156.0	162.8	169.6
11: 9	141	129.3	136.1	142.9	149.7	156.5	163.3	170.1
11: 10	142	129.8	136.6	143.4	150.2	157.1	163.9	170.7
11: 11	143	130.3	137.1	143.9	150.7	157.6	164.4	171.2
12: 0	144	130.7	137.6	144.4	151.2	158.1	164.9	171.8
12: 1	145	131.2	138.0	144.9	151.7	158.6	165.4	172.3
12: 2	146	131.6	138.5	145.3	152.2	159.1	165.9	172.8
12: 3	147	132.0	138.9	145.8	152.7	159.5	166.4	173.3
12: 4	148	132.5	139.3	146.2	153.1	160.0	166.9	173.8
12: 5	149	132.9	139.8	146.7	153.6	160.5	167.4	174.3
12: 6	150	133.3	140.2	147.1	154.0	160.9	167.8	174.7

Height-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12: 7	151	133.7	140.6	147.5	154.4	161.3	168.3	175.2
12: 8	152	134.1	141.0	147.9	154.8	161.8	168.7	175.6
12: 9	153	134.5	141.4	148.3	155.2	162.2	169.1	176.0
12: 10	154	134.8	141.8	148.7	155.6	162.6	169.5	176.4
12: 11	155	135.2	142.1	149.1	156.0	162.9	169.9	176.8
13: 0	156	135.6	142.5	149.4	156.4	163.3	170.3	177.2
13: 1	157	135.9	142.8	149.8	156.7	163.7	170.6	177.6
13: 2	158	136.2	143.2	150.1	157.1	164.0	171.0	177.9
13: 3	159	136.5	143.5	150.4	157.4	164.3	171.3	178.2
13: 4	160	136.9	143.8	150.8	157.7	164.7	171.6	178.6
13: 5	161	137.2	144.1	151.1	158.0	165.0	171.9	178.9
13: 6	162	137.4	144.4	151.3	158.3	165.3	172.2	179.2
13: 7	163	137.7	144.7	151.6	158.6	165.5	172.5	179.4
13: 8	164	138.0	144.9	151.9	158.8	165.8	172.7	179.7
13: 9	165	138.2	145.2	152.1	159.1	166.0	173.0	179.9
13: 10	166	138.5	145.4	152.4	159.3	166.3	173.2	180.2
13: 11	167	138.7	145.7	152.6	159.6	166.5	173.5	180.4
14: 0	168	139.0	145.9	152.8	159.8	166.7	173.7	180.6
14: 1	169	139.2	146.1	153.1	160.0	166.9	173.9	180.8
14: 2	170	139.4	146.3	153.3	160.2	167.1	174.1	181.0
14: 3	171	139.6	146.5	153.5	160.4	167.3	174.2	181.2
14: 4	172	139.8	146.7	153.6	160.6	167.5	174.4	181.3
14: 5	173	140.0	146.9	153.8	160.7	167.7	174.6	181.5
14: 6	174	140.1	147.1	154.0	160.9	167.8	174.7	181.6
14: 7	175	140.3	147.2	154.1	161.0	168.0	174.9	181.8
14: 8	176	140.5	147.4	154.3	161.2	168.1	175.0	181.9
14: 9	177	140.6	147.5	154.4	161.3	168.2	175.1	182.0
14: 10	178	140.8	147.7	154.5	161.4	168.3	175.2	182.1
14: 11	179	140.9	147.8	154.7	161.6	168.4	175.3	182.2
15: 0	180	141.0	147.9	154.8	161.7	168.5	175.4	182.3

Height-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
15: 1	181	141.2	148.0	154.9	161.8	168.6	175.5	182.4
15: 2	182	141.3	148.1	155.0	161.9	168.7	175.6	182.5
15: 3	183	141.4	148.2	155.1	162.0	168.8	175.7	182.5
15: 4	184	141.5	148.3	155.2	162.0	168.9	175.7	182.6
15: 5	185	141.6	148.4	155.3	162.1	169.0	175.8	182.6
15: 6	186	141.7	148.5	155.4	162.2	169.0	175.9	182.7
15: 7	187	141.8	148.6	155.4	162.3	169.1	175.9	182.7
15: 8	188	141.9	148.7	155.5	162.3	169.1	176.0	182.8
15: 9	189	141.9	148.7	155.6	162.4	169.2	176.0	182.8
15: 10	190	142.0	148.8	155.6	162.4	169.2	176.0	182.8
15: 11	191	142.1	148.9	155.7	162.5	169.3	176.1	182.9
16: 0	192	142.2	148.9	155.7	162.5	169.3	176.1	182.9
16: 1	193	142.2	149.0	155.8	162.6	169.3	176.1	182.9
16: 2	194	142.3	149.1	155.8	162.6	169.4	176.1	182.9
16: 3	195	142.3	149.1	155.9	162.6	169.4	176.2	182.9
16: 4	196	142.4	149.2	155.9	162.7	169.4	176.2	182.9
16: 5	197	142.4	149.2	155.9	162.7	169.4	176.2	182.9
16: 6	198	142.5	149.2	156.0	162.7	169.5	176.2	182.9
16: 7	199	142.5	149.3	156.0	162.7	169.5	176.2	182.9
16: 8	200	142.6	149.3	156.0	162.8	169.5	176.2	182.9
16: 9	201	142.6	149.4	156.1	162.8	169.5	176.2	182.9
16: 10	202	142.7	149.4	156.1	162.8	169.5	176.2	182.9
16: 11	203	142.7	149.4	156.1	162.8	169.5	176.2	182.9
17: 0	204	142.8	149.5	156.2	162.9	169.5	176.2	182.9
17: 1	205	142.8	149.5	156.2	162.9	169.6	176.2	182.9
17: 2	206	142.9	149.5	156.2	162.9	169.6	176.2	182.9
17: 3	207	142.9	149.6	156.2	162.9	169.6	176.3	182.9
17: 4	208	142.9	149.6	156.3	162.9	169.6	176.3	182.9
17: 5	209	143.0	149.6	156.3	162.9	169.6	176.3	182.9
17: 6	210	143.0	149.7	156.3	163.0	169.6	176.3	182.9

Height-for-age GIRLS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
17: 7	211	143.1	149.7	156.3	163.0	169.6	176.3	182.9
17: 8	212	143.1	149.7	156.4	163.0	169.6	176.3	182.9
17: 9	213	143.1	149.8	156.4	163.0	169.6	176.3	182.9
17: 10	214	143.2	149.8	156.4	163.0	169.7	176.3	182.9
17: 11	215	143.2	149.8	156.4	163.0	169.7	176.3	182.9
18: 0	216	143.2	149.8	156.5	163.1	169.7	176.3	182.9
18: 1	217	143.3	149.9	156.5	163.1	169.7	176.3	182.9
18: 2	218	143.3	149.9	156.5	163.1	169.7	176.3	182.9
18: 3	219	143.3	149.9	156.5	163.1	169.7	176.3	182.9
18: 4	220	143.4	149.9	156.5	163.1	169.7	176.3	182.9
18: 5	221	143.4	150.0	156.5	163.1	169.7	176.3	182.9
18: 6	222	143.4	150.0	156.6	163.1	169.7	176.3	182.9
18: 7	223	143.4	150.0	156.6	163.1	169.7	176.3	182.8
18: 8	224	143.5	150.0	156.6	163.1	169.7	176.3	182.8
18: 9	225	143.5	150.0	156.6	163.1	169.7	176.3	182.8
18: 10	226	143.5	150.0	156.6	163.2	169.7	176.3	182.8
18: 11	227	143.5	150.1	156.6	163.2	169.7	176.2	182.8
19: 0	228	143.5	150.1	156.6	163.2	169.7	176.2	182.8

2007 WHO Reference

Annex 14. WHO simplified tables for height-for-age for adolescent boys

Height-for-age BOYS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
10: 0	120	118.7	125.0	131.4	137.8	144.2	150.5	156.9
10: 1	121	119.0	125.4	131.8	138.2	144.6	151.0	157.4
10: 2	122	119.3	125.8	132.2	138.6	145.1	151.5	157.9
10: 3	123	119.7	126.2	132.6	139.1	145.5	152.0	158.5
10: 4	124	120.0	126.5	133.0	139.5	146.0	152.5	159.0
10: 5	125	120.4	126.9	133.4	140.0	146.5	153.0	159.5
10: 6	126	120.7	127.3	133.8	140.4	146.9	153.5	160.1
10: 7	127	121.1	127.7	134.3	140.8	147.4	154.0	160.6
10: 8	128	121.4	128.1	134.7	141.3	147.9	154.5	161.1
10: 9	129	121.8	128.5	135.1	141.7	148.4	155.0	161.7
10: 10	130	122.2	128.8	135.5	142.2	148.9	155.5	162.2
10: 11	131	122.5	129.2	135.9	142.7	149.4	156.1	162.8
11: 0	132	122.9	129.7	136.4	143.1	149.8	156.6	163.3
11: 1	133	123.3	130.1	136.8	143.6	150.3	157.1	163.9
11: 2	134	123.7	130.5	137.3	144.1	150.8	157.6	164.4
11: 3	135	124.1	130.9	137.7	144.5	151.3	158.2	165.0
11: 4	136	124.5	131.3	138.2	145.0	151.9	158.7	165.6
11: 5	137	124.9	131.7	138.6	145.5	152.4	159.3	166.1
11: 6	138	125.3	132.2	139.1	146.0	152.9	159.8	166.7
11: 7	139	125.7	132.6	139.6	146.5	153.4	160.4	167.3
11: 8	140	126.1	133.1	140.0	147.0	154.0	160.9	167.9
11: 9	141	126.5	133.5	140.5	147.5	154.5	161.5	168.5
11: 10	142	126.9	134.0	141.0	148.0	155.0	162.1	169.1
11: 11	143	127.4	134.4	141.5	148.5	155.6	162.7	169.7
12: 0	144	127.8	134.9	142.0	149.1	156.2	163.3	170.3
12: 1	145	128.3	135.4	142.5	149.6	156.7	163.9	171.0
12: 2	146	128.7	135.9	143.0	150.2	157.3	164.5	171.6
12: 3	147	129.2	136.4	143.6	150.7	157.9	165.1	172.2
12: 4	148	129.7	136.9	144.1	151.3	158.5	165.7	172.9
12: 5	149	130.2	137.4	144.6	151.9	159.1	166.3	173.6
12: 6	150	130.7	137.9	145.2	152.4	159.7	167.0	174.2

Height-for-age BOYS
10 to 19 years (z-scores)

World Health Organization

Year: Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
12: 7	151	131.2	138.5	145.7	153.0	160.3	167.6	174.9
12: 8	152	131.7	139.0	146.3	153.6	160.9	168.3	175.6
12: 9	153	132.2	139.5	146.9	154.2	161.6	168.9	176.3
12: 10	154	132.7	140.1	147.5	154.8	162.2	169.6	176.9
12: 11	155	133.2	140.6	148.0	155.4	162.8	170.2	177.6
13: 0	156	133.8	141.2	148.6	156.0	163.5	170.9	178.3
13: 1	157	134.3	141.7	149.2	156.7	164.1	171.6	179.0
13: 2	158	134.8	142.3	149.8	157.3	164.7	172.2	179.7
13: 3	159	135.4	142.9	150.4	157.9	165.4	172.9	180.4
13: 4	160	135.9	143.4	151.0	158.5	166.0	173.5	181.1
13: 5	161	136.4	144.0	151.5	159.1	166.6	174.2	181.8
13: 6	162	137.0	144.5	152.1	159.7	167.3	174.8	182.4
13: 7	163	137.5	145.1	152.7	160.3	167.9	175.5	183.1
13: 8	164	138.0	145.7	153.3	160.9	168.5	176.1	183.7
13: 9	165	138.6	146.2	153.8	161.5	169.1	176.7	184.4
13: 10	166	139.1	146.7	154.4	162.1	169.7	177.4	185.0
13: 11	167	139.6	147.3	154.9	162.6	170.3	178.0	185.6
14: 0	168	140.1	147.8	155.5	163.2	170.9	178.6	186.3
14: 1	169	140.6	148.3	156.0	163.7	171.4	179.1	186.9
14: 2	170	141.1	148.8	156.5	164.3	172.0	179.7	187.4
14: 3	171	141.6	149.3	157.1	164.8	172.5	180.3	188.0
14: 4	172	142.1	149.8	157.6	165.3	173.1	180.8	188.6
14: 5	173	142.5	150.3	158.1	165.8	173.6	181.3	189.1
14: 6	174	143.0	150.8	158.5	166.3	174.1	181.8	189.6
14: 7	175	143.4	151.2	159.0	166.8	174.6	182.3	190.1
14: 8	176	143.9	151.7	159.5	167.2	175.0	182.8	190.6
14: 9	177	144.3	152.1	159.9	167.7	175.5	183.3	191.1
14: 10	178	144.7	152.5	160.3	168.1	175.9	183.7	191.5
14: 11	179	145.1	152.9	160.7	168.5	176.3	184.1	191.9
15: 0	180	145.5	153.4	161.2	169.0	176.8	184.6	192.4

Height-for-age BOYS
10 to 19 years (z-scores)

World Health Organization

Year; Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
15: 1	181	145.9	153.7	161.5	169.4	177.2	185.0	192.8
15: 2	182	146.3	154.1	161.9	169.7	177.5	185.4	193.2
15: 3	183	146.7	154.5	162.3	170.1	177.9	185.7	193.5
15: 4	184	147.1	154.9	162.7	170.5	178.3	186.1	193.9
15: 5	185	147.4	155.2	163.0	170.8	178.6	186.4	194.2
15: 6	186	147.7	155.5	163.3	171.1	178.9	186.8	194.6
15: 7	187	148.1	155.9	163.7	171.5	179.3	187.1	194.9
15: 8	188	148.4	156.2	164.0	171.8	179.6	187.4	195.2
15: 9	189	148.7	156.5	164.3	172.1	179.9	187.7	195.4
15: 10	190	149.0	156.8	164.6	172.4	180.1	187.9	195.7
15: 11	191	149.3	157.1	164.9	172.6	180.4	188.2	196.0
16: 0	192	149.6	157.4	165.1	172.9	180.7	188.4	196.2
16: 1	193	149.9	157.6	165.4	173.1	180.9	188.7	196.4
16: 2	194	150.1	157.9	165.6	173.4	181.1	188.9	196.7
16: 3	195	150.4	158.1	165.9	173.6	181.4	189.1	196.9
16: 4	196	150.6	158.4	166.1	173.8	181.6	189.3	197.0
16: 5	197	150.9	158.6	166.3	174.0	181.8	189.5	197.2
16: 6	198	151.1	158.8	166.5	174.2	181.9	189.7	197.4
16: 7	199	151.3	159.0	166.7	174.4	182.1	189.8	197.5
16: 8	200	151.5	159.2	166.9	174.6	182.3	190.0	197.7
16: 9	201	151.7	159.4	167.1	174.7	182.4	190.1	197.8
16: 10	202	151.9	159.6	167.2	174.9	182.6	190.2	197.9
16: 11	203	152.1	159.7	167.4	175.0	182.7	190.3	198.0
17: 0	204	152.2	159.9	167.5	175.2	182.8	190.4	198.1
17: 1	205	152.4	160.0	167.7	175.3	182.9	190.5	198.2
17: 2	206	152.5	160.2	167.8	175.4	183.0	190.6	198.2
17: 3	207	152.7	160.3	167.9	175.5	183.1	190.7	198.3
17: 4	208	152.8	160.4	168.0	175.6	183.2	190.8	198.4
17: 5	209	153.0	160.5	168.1	175.7	183.3	190.8	198.4
17: 6	210	153.1	160.6	168.2	175.8	183.3	190.9	198.4

Height-for-age BOYS
10 to 19 years (z-scores)

World Health Organization

Year; Month	Months	-3 SD	-2 SD	-1 SD	Median	1 SD	2 SD	3 SD
17: 7	211	153.2	160.8	168.3	175.8	183.4	190.9	198.5
17: 8	212	153.3	160.9	168.4	175.9	183.4	191.0	198.5
17: 9	213	153.4	160.9	168.5	176.0	183.5	191.0	198.5
17: 10	214	153.5	161.0	168.5	176.0	183.5	191.0	198.5
17: 11	215	153.6	161.1	168.6	176.1	183.6	191.1	198.6
18: 0	216	153.7	161.2	168.7	176.1	183.6	191.1	198.6
18: 1	217	153.8	161.3	168.7	176.2	183.6	191.1	198.6
18: 2	218	153.9	161.4	168.8	176.2	183.7	191.1	198.6
18: 3	219	154.0	161.4	168.9	176.3	183.7	191.1	198.6
18: 4	220	154.1	161.5	168.9	176.3	183.7	191.1	198.6
18: 5	221	154.2	161.6	169.0	176.4	183.8	191.1	198.5
18: 6	222	154.2	161.6	169.0	176.4	183.8	191.1	198.5
18: 7	223	154.3	161.7	169.0	176.4	183.8	191.2	198.5
18: 8	224	154.4	161.7	169.1	176.4	183.8	191.2	198.5
18: 9	225	154.5	161.8	169.1	176.5	183.8	191.2	198.5
18: 10	226	154.5	161.8	169.2	176.5	183.8	191.1	198.5
18: 11	227	154.6	161.9	169.2	176.5	183.8	191.1	198.5
19: 0	228	154.6	161.9	169.2	176.5	183.8	191.1	198.4

2007 WHO Reference

Annexes 15: Implementation modality of WIFAS

Modality 1: In-school approach – All girls in target schools would receive one combined Iron and Folic Acid (IFA) tablet containing ferrous fumarate or ferrous gluconate equivalent to 60mg elemental Iron, and 2800 microgram(mcg) Folic Acid tab, once a week under direct observation of the designated member of staff (class teacher, HEW or health care provider). In instances where a girl misses a weekly dose, the dose is given on another day within the same week. However, if this is not possible, the following week's dose is given when it is due. Girls should not receive a double dose of IFA tablets in the same day or week.

Modality 2: Health facility-based approach – Out-of-school adolescents would receive one combined IFA tablet containing ferrous fumarate or ferrous gluconate equivalent to 60mg elemental Iron, and 2800 microgram (mcg) Folic Acid tab, through the routine health contact points (facility-based). Out-of-school girls would also take their supplement through other community-based modalities such as: girls-to-girls approaches, youth clubs, religious institutions and community gatherings.

Observed WIFAS – Fixed-day supervised consumption of IFA tablets by adolescent girls in front of a provider (teacher/HEW).

Take Home WIFAS – Adolescent girls will take IFA tablet home with them and consume it on a select fixed day. They may be provided with a four-week IFA tablets to be consumed at home and checked for compliance every other day when they get back to school/health facility for each week during the month and refill the next month and so on.

ጤና ሚኒስቴር - ኢትዮጵያ
MINISTRY OF HEALTH - ETHIOPIA

Adolescent Nutrition Implementation Guideline For Ethiopia

March, 2023