



The Federal Democratic Republic of Ethiopia  
Ministry of Health

# Ethiopian Guide to Clinical Nutrition Care for Children and Adults with HIV



## **TRAINEES MANUAL**

A Three day Training Course  
for Clinical Care Providers

September 2008

**Draft Revised Trainees Manual**  
May 2010

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**ABBREVIATIONS AND ACRONYMS**

AIDS	Acquired immune deficiency syndrome
ALIDRAA	Ask, listen, identify, discuss, recommend, agree, and make a follow-up appointment
ART	Antiretroviral therapy
BMI	Body mass index
CNP	Critical Nutrition Practice
CTC	Community-based Therapeutic Care
FADUA	Frequency, adequacy, density, utilization and active feeding
FBF	Fortified Blended Food
FBP	Food by prescription
FHAPCO	Federal HIV and AIDS Prevention and Control Office
HIV	Human immunodeficiency virus
IMNCI	Integrated Management of Neonatal and Childhood Illnesses
MOH	Ministry of Health
MUAC	Mid-upper arm circumference
NCP	Nutrition care plan
OI	Opportunistic infection
OVC	Orphans and vulnerable children
OTP	Out patient therapeutic program
PLHIV	People living with HIV
RUTF	Ready-to-use therapeutic food
USAID	U.S. Agency for International Development
UNICEF	United Nations Children's Fund
VIPP	Visualization in program planning
WHO	World Health Organization

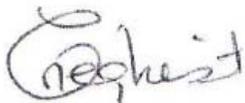
## FOREWORD

The HIV care and support program emphasizes nutrition as an important component contributing to the effectiveness and improved quality of clinical care provided to people living with HIV. This clinical nutrition guide has been prepared to complement and upgrade existing nutrition services provided by health services.

This clinical nutrition guide aims at reinforcing skills and knowledge of health care providers designated provide nutrition services in conjunction with other clinical services for PLHIV. It uses a simplified tool to assist assessment, classification and management of the nutrition need of PLHIV based on the magnitude of their nutrition problems.

It is the expectation of the Federal HIV and AIDS Prevention and Control Office (FHAPCO) that each care provider will be oriented and benefiting from this guide as a way of improving the clinical nutrition care services.

FHAPCO would also like to express sincere thanks to USAID and PEPFAR for providing the required financial and technical assistance through AED/FANTA.



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This training manual is a product of feedback from partners working in the area of nutrition and HIV. Gratitude is expressed to all who have contributed their recommendations. Special thanks go to staff from FHAPCO and the Ministry of Health for their technical input, participation, and leadership support throughout the writing and review process.

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September 2008

## **INTRODUCTION**

This training manual is intended to equip health care providers with skills to provide clinical nutrition care for people living with HIV (PLHIV). The manual consists of tools and methodologies that trainers can use to train health care providers to counsel HIV-positive clients on critical nutrition practices and services. The training is based on the principles of Integrated Management of Neonatal and Childhood Illnesses (IMNCI).

### **Objectives of the Training**

1. Orient health care providers in using the algorithm for care and management of malnutrition for PLHIV in Ethiopia.
2. Reinforce the knowledge of health care providers on the critical nutrition practices for PLHIV to improve the quality of nutrition care and counselling.
3. Reinforce health care providers' negotiation techniques to improve PLHIV nutrition practices.

### **Target Audience**

This manual is intended for trainers of health care providers who provide care to PLHIV. The manual is intended for use during in-service training, but trainers can also integrate it into pre-service courses as deemed appropriate.

### **Trainers**

The course requires two - three facilitators per each class of 25 - 30 participants. One of the facilitators should be the course director. The facilitators will support participants in demonstrations, group discussions, and role plays to strengthen skills. Facilitators should have expertise in nutrition programming, counselling skills, experience in adult training, basic knowledge of HIV and AIDS, and familiarity with the Ethiopian national guidelines on nutrition and HIV/AIDS.

### **Description of the Training**

The manual uses an adaptation of (draft) WHO clinical algorithms to describe links between nutrition care and other clinical care and support services for PLHIV. These algorithms will be integrated into and referenced in existing care delivery standards to ensure harmonization and complementarities.

Note: The use of the term “client” in this manual refers to either a PLHIV or a caregiver.

Clinical nutrition care is presented in charts with sequences of steps. The charts use the IMNCI format: Assessment, Classification, and Nutrition Care Plans. The Assessment step focuses on taking clients' history and assessing their nutritional status. The Classification step consists of determining the severity of malnutrition based on the assessment information. Nutrition care plans are descriptions and schedules of services or support to be provided to clients.

**Clinical Nutrition Guide for PLHIV: Sample Timetable for Three-Day Training**

<b>Day One</b>				
<b>Time and Sessions</b>	<b>Activity</b>	<b>Topic</b>	<b>Time allotted</b>	<b>Responsible</b>
8:00 – 8:30am	Registrations			
8:30am: 9:30am	Session 1	Introduction and Expectations	30'	
		Objectives	5'	
		Ground rules and Admin issues	'5'	
		Pre test	30	
9:30am – 10:30	Session 2	Basics of Nutrition	50'	
<b>10:30 – 10:50am</b>	<b>Tea Break</b>			
10:50 – 11:30am	Session 2 Contd'	Locally available foods and calorie contents	40'	
11:30 - 12:30pm	Session 3	Nutrition and HIV Interaction	60'	
<b>12:30 – 1:30pm</b>	<b>Lunch</b>			
Session Three				
1:30pm - 3:00pm	Session 4	Assessment and Classification of Nutritional Status in PLHIV and OVCs	1hr:30'	
<b>3:00 - 3:20pm</b>	<b>Tea Break</b>			
3:20 – 4:30pm	Session 4 Contd'	Nutritional Assessment and Classification in Children and	1hr:10'	

		Adults with HIV- The National Algorithm		
4:30 – 5:30pm	Session 5	Counseling: The Critical Nutrition Practices	60'	
5:30 pm	Daily Evaluation and End of the Day 1			
<b>Day Two</b>				
<b>Session and Time</b>	<b>Session</b>	<b>Topic</b>		
8:30 – 8:40am	Wrap-up of Day One	Highlights of Day 1 Activities	10'	
8:40 – 10:00am	Session 5 Contd'	Counseling: Communication skills and Counseling Steps (ALIDRA)	1hr:20'	
10:00am – 10:30am	Session 5 Contd'	Nutrition Support: Therapeutic and Supplementary Feedings	30'	
<b>10:30 – 10:50am</b>	<b>Tea Break</b>			
10:50 – 12:30am	Session 6	Nutritional Management in PLHIV and OVC Care plan A (Children/Adults)	1hr:40'	
<b>12:30- 1:30pm</b>	<b>Lunch</b>			
1:30 – 2:45pm	Session 6 Contd'	Nutritional Management in PLHIV and OVC Care Plan B (Children/Adults)	1hr:15'	
2:45pm – 3:30pm	Session 6 Contd'	Nutritional Management in PLHIV and OVC Care Plan C (Children /Adults)	45'	

<b>3:30 – 3:50pm</b>	<b>Tea Break</b>			
3:50 – 4:20pm	Session 7	Dietary Management of HIV Associated Symptoms	30'	
4:20 – 5:15	Session 8	Nutrition and ARV drugs	55'	
5:15pm – 5:30pm	Session 9	Filed practice	30'	
	Activity 9 Contd'	Objectives and Preparation for Field Practice Daily Evaluation		
<b>Day Three</b>				
8:00am – 10:45am	Activity 9 Contd'	Field Practice	2hrs:45	
<b>10:45 – 11:00am</b>	<b>Tea Break</b>			
11:00 – 12:30pm	Activity 9 Contd'	Feedback from the Field Practice	1hr:30'	
<b>12:30 – 1:30pm</b>	<b>Lunch</b>			
1:30 – 2:15pm	Session 10	Linkages to Community HIV care and Support Programs	45'	
2:15 – 2:55pm	Session 11	Logistics	40'	
2:55-3:15	Session 12	M&E	20	
<b>3:15 – 3:35pm</b>	<b>Tea break</b>			
3:35pm– 4:30pm	Session 12 Contd'	M&E	55	
4:30pm – 5:30	Session 13	Daily Evaluation Post Test Course Evaluation Certificates and Closure	60'	

## **Module A: Basics of Nutrition**

### **Session 1: INTRODUCTION**

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## SESSION 2: Introduction to clinical of Nutrition

### Basics of clinical Nutrition

#### Purpose

In this session, participants will review the basics of nutrition, to inform the nutrition education and counselling they will conduct with PLHIV.

#### Learning Objectives

By the end of the session, participants will be able to:

- Define the terms food, nutrition and calorie
- Discuss what macronutrients and micronutrients are and their importance
- Explain the average daily calorie and common micronutrient needs by age and sex
- Explain the importance of dietary diversity and its role in promoting good nutrition

#### Handout 1: Important points on basics of Nutrition

**Food** is anything that provides the body with nutrients. In addition to its most critical biological importance to the body, food also has cultural and religious values.

**Nutrition** is the body's process of taking in and digesting food; using it for growth, reproduction, immunity, breathing, work, and health; and storing nutrients and energy in appropriate parts of the body.

**Nutrients** are chemical substances in food that can be metabolized to provide energy to maintain, repair, or build body tissues. They include macronutrients and micronutrients.

**In nutrition, Calorie is a measure used to express Food energy, which** is the amount of energy obtained from food that is available through cellular respiration. Each gram of food is associated with a particular amount of energy. Fat has the highest amount of energy per gram, 9 Calories (kcalories), Proteins and Carbohydrates provide 4 Calories (kcalories) per gram.

**Macronutrients = are nutrients that are needed by the body in large amount and which provide energy. These are** carbohydrates, proteins, and fats

**Micronutrients** are nutrients that the body needs only in small amounts; these substances enable the body to produce enzymes, hormones and other substances essential for proper growth and development. These are dietary minerals and vitamins. Though needed in a very small amount the

consequences of their absence are severe. Iodine, vitamin A and iron are most important in global public health terms and in Ethiopia; their lack represents a major threat to the health and development of populations the world over, particularly children and pregnant women in low-income countries.

**Importance- what happens to the body when there is deficiency?**

The insufficient, excessive or imbalanced consumption of micronutrients and macronutrients leads to a state of malnutrition resulting in a number of nutrition disorders..

**Undernutrition** = Inadequate amount, combination, and timeliness of energy or nutrients to carry out needed physiological functions. Undernutrition impairs growth, leads to wasting and stunting and ultimately death due to infectious and metabolic complication.

**Overnutrition** = More energy and nutrients than the body needs over time

In the developing world, because of the high prevalence of undernutrition malnutrition often denotes undernutrition and the associated complications.

**Energy requirement (ER):** This is the amount of food energy needed to balance energy expenditure in order to maintain body size, body composition and a level of necessary and desirable physical activity, and to allow optimal growth and development of children, deposition of tissues during pregnancy, and secretion of milk during lactation, consistent with long-term good health. For healthy, well-nourished adults, it is equivalent to total energy expenditure. There are additional energy needs to support growth in children and in women during pregnancy, and for milk production during lactation. Energy requirements also increase during illnesses like HIV. Refer table 1 for average daily energy requirements

Table 1: **Average Daily Energy Requirements in Calories** (Source: WHO, 1993)

	Status/Age	Energy Need (C)
<b>Men</b>	Average Active	2430
<b>Women</b>	Average active	2170
	Pregnant	2460
	Lactating	2570
<b>Children</b>	6–11 months old	730
	1–3 years old	1250
	2–5 years old	1500
	5–10 years old	1800

<b>Boys</b>	10–14 years old	2360
	15–18 years old	2800
<b>Girls</b>	10–14 years old	2040
	15–18 years old	2100

Micronutrient daily requirements are measured by recommended nutrient intake (RNI) which varies with age, sex and physiologic status. Refer to table 2 for details;

Table 2: Recommended daily micronutrient intake (RNA ) for selected micronutrient

<b>Nutrient</b>	<b>Unit</b>	<b>RNI</b>	<b>Child 1 - 3 Yrs</b>	<b>RNI Child 4 – 6 Yrs</b>	<b>RNI Child 7 – 10 Yrs</b>	<b>RNI Female: 19 – 50Yrs</b>	<b>RNI Male: 19 -50Yrs</b>	<b>RNI Pregnant Women</b>
Vitamin A	mg re	0.4000	0.4000	0.4500	0.5000	0.5000	0.6000	0.8000
Iron	mg	18.6000	11.6000	12.6000	17.8000	29.4000	13.7000	30.0000
Iodine	mg	0.0900	0.0900	0.0900	0.0900	0.1500	0.1500	0.2000

### **Dietary diversity**

Eating a variety of food from each of the food groups helps to ensure that you are getting a balanced diet. This includes both macro and micronutrients.

The four food groups

1. Cereals and staple grains (energy foods): *Chose whole grain foods more often*
2. Animal foods, legumes, nuts (body-building foods)
3. Fruits and vegetables (protective foods): *Chose a wide variety of fruits and vegetables, particularly brightly colored fruit and vegetables as they tend to have more micronutrients.*
4. Fats and sugar (extra energy foods)

## Session 2. 2 Locally available food types and their calorie contents

### Purpose

To help participants identify locally available food types and their caloric contents so that it helps them grossly estimate and counsel the amount of calorie taken by clients and assess whether there is food diversification to meet the different micronutrient intakes.

### Learning Objectives:

By the end of the session, participants will be able to:

- List locally available food types and identify their groups
- Estimate the amount of calorie in the different meals and foods eaten locally

**Table 3: Common Ethiopian meals, each providing 700 – 850 kilocalories**

	One enjera with...		
	1 sauce	2 sauces	3 sauces
Shiro	5 small ladles shiro	4 small ladles shiro and one small ladle vegetable	3 small ladles shiro, 1 small ladle vegetable alicha, and 1 small ladle tomato salad
Miser	3 big ladles miser	2 big ladles miser sauce and 1 big ladle gommen	1 big ladle miser sauce , 1 small ladle gommen, and 1 small ladle tomato
Bozena shiro	5 small ladles bozena shiro	4 small ladles bozena shiro and 1 small ladle tomato salad	3 small ladles bozena shiro and 1 small ladle vegetable alicha, 1 small ladle tomato salad
Pumpkin	5 small ladles pumpkin	4 small ladles pumpkin and 1 small ladle vegetable alicha	3 small ladles pumpkin sauce, 1 small ladle vegetable alicha, and 1 small ladle tomato salad
Potato	5 small ladles potato	4 small ladles potato and 1 small ladle vegetable alicha	3 small ladles potato sauce , 1 small ladle vegetable alicha, and 1 small ladle ater kick
Ater kick	5 small ladles ater kick	4 small ladles ater kick and 1 small ladle vegetable alicha	3 small ladles ater kick , 1 small ladle vegetable alicha, and 1 small ladle tomato salad

	One enjera with...		
	1 sauce	2 sauces	3 sauces
Gommen	3 big ladles gommen	2 big ladles gommen with 2 small ladles shiro	1 big ladle gommen, 1 small ladle shiro, and 1 small ladle vegetable alicha
Siga	4.5 small ladles meat	3 small ladles meat sauce 1 small ladle vegetable	2 ladles meat sauce, 1 small ladle vegetable alicha and 1 small ladle tomato salad

N.B. Small ladle = 50 g

Medium ladle = 70 g

Large ladle = 100 g

**Table 4: Energy Values of Locally Available Snacks (Mekses)**

Snack (ingredients)	Amount in grams/ml	Calories	Protein
<b>Kolo</b> (roasted barley, wheat)	50 grams (1 small ladle)	195	5.1
<b>Nifro</b> (boiled wheat and chickpeas)	70 grams (1 medium ladle)	125	301
<b>Kitta/ambasha</b>	100 grams (1 slice)	222	6.8
<b>Beso juice</b> (beso and sugar)	55 grams (5 medium tablespoons beso and 1 teaspoon sugar)	205	5.05
<b>Beso firfir</b> (beso and oil)	65 grams (6 medium tablespoons beso and 1 teaspoon oil)	267	6.06
<b>Sweat potato</b>	100 grams (1 average-size sweet potato)	134	0.5
<b>Boiled milk</b>	140 ml (2 large coffee cups)	103	4.7
<b>Tea with sugar</b>	10 grams sugar (2 teaspoons)	40	0
<b>Ashuk</b> (roasted and boiled beans)	70 grams (1 large coffee cup)	192	11.48
<b>Mango</b>	100 grams (1 average-size mango)	44	0.30
<b>Banana</b>	100 grams (1 average-size banana)	88	0.8
<b>Fried bread unleavened</b> (wheat flour, spiced pepper, oil, salt, water)	300 grams	668	13.7
<b>Thick porridge</b> (wheat flour, oil, spiced pepper, salt, water)	350 grams	591	13.9
<b>Chopped enjera with meat sauce</b> (enjera, meat sauce)	300 grams	466	22.3

<b>Snack (ingredients)</b>	<b>Amount in grams/ml</b>	<b>Calories</b>	<b>Protein</b>
<b>Chopped enjera without meat sauce</b> (onion, pepper, oil, salt, water)	265 grams	456	7.6
<b>Split wheat (kinche)</b> (wheat, butter, salt)	160 grams	626	13.7

**N.B.** Small ladle = 50gm  
= 25 ml

Medium ladle = 70 gm

Teaspoon = 5 ml

Tablespoon

Large coffee cup = 70 ml

**Table 5: Energy Values of Bulk Foods:** *Values are for portions of 100 grams.*

<b>Food</b>	<b>Local name</b>	<b>Energy (kilo- calories)</b>	<b>Protein (Grams)</b>
<b>Cereals:</b>			
Barley, white, flour	Gebs, nech, duqyet	368	8.5
Corn, white, flour	Beqqollo, nech, duqyet	378	9.0
Sorghum, white, flour	Mashyilla, nech	375	8.1
Tef, red, flour	T'yef, qeyy, duqyet	355	9.0
Wheat, white, flour	Sindy, nech, duqyet	363	10.9
<b>Starchy roots and tubers:</b>			
False banana, flour	Inset, karta	196	.9
Potato Irish, raw	Yabesha dinnich, yalteqqe	104	1.3
Sweet potato, raw	Sikkwar dinnich, yalteqqe	136	1.3
<b>Legumes:</b>			
Kidney beans, whole, dried	Adengwarrye, difin, dereq	354	19.1
Lentil, split	Missir, kick	355	23.0
Peas, flour	Arer, duqyet	352	20.1
<b>Vegetables:</b>			
Carrot, raw	Carrot, yalteqqe	42	1.7
Cabbage, raw	T'iqill gommen, yalteqqe	21	.9
Ethiopian kale, raw	Gommen, yalteqqe	46	2.8
Onion (shallot), raw	Qeyy shinkurt, yalteqqe	71	1.06
Tomato, raw	Tyimatyim, yalteqqe	31	1.3
<b>Fruits:</b>			
Avocado, fresh	Avokado	110	1.6

<b>Food</b>	<b>Local name</b>	<b>Energy (kilo- calories)</b>	<b>Protein (Grams)</b>
Lemon, fresh	Lomyi	49	.4
Orange, fresh	Birtukan	34	.7
Pineapple, fresh	Ananas	35	.4
<b>Meat, poultry other animal products:</b>			
Beef, raw	Yeberye siga, t'rye	115	19.8
Mutton, raw	Yebeg siga, t'rye	91	19.7
Goat meat, raw	Yefiyyel siga, t'rye	99	19.9
Chicken, whole, raw	Doro, mulu, t'rye	93	16.4
Milk, cow, fresh	Yelam wetet, yaltefella	74	3.4
Egg, whole, raw	Inqulal, difin, t'rye	153	12.1
<b>Fish:</b>			
Lake fish, raw	Yehatq asa, t'rye	107	17.6
River fish, raw	Yewenz asa, t'rye	137	18.9
<b>Sugars:</b>			
Sugar, refined	Sikkwar	385	0.0
<b>Fats:</b>			
Butter, unspiced, raw	Qibye, qimem, yeellew, t'rye	735	1.3
Oil, niger seed, fresh	Zeyt, nug	896	0.0

Figure. Common serving and measuring utensils in Ethiopia



### Session 3 Nutrition and HIV Interaction

#### Purpose:

This session is intended to elucidate the importance of nutrition care for children and adults living with HIV by examining the interaction between the two and describing the consequences on nutritional status of the individual including the impact on treatment outcome and comprehend the role of Nutrition Assessment, Counselling & Support (NACS) in the context of the national nutrition programs.

#### Learning Objectives:

By the end of this session, participants will be able to:

Describe the effect of malnutrition on HIV infection

Describe the effect of HIV infection on nutritional status

Discuss the importance of good nutrition in PLHIV

- Describe the place of nutrition and HIV in the national program
- Explain components of Nutrition Assessment, Counselling & Support (NACS)

#### Handaout 2: The Link Between Nutrition And HIV

##### 1. The effects of malnutrition on HIV disease

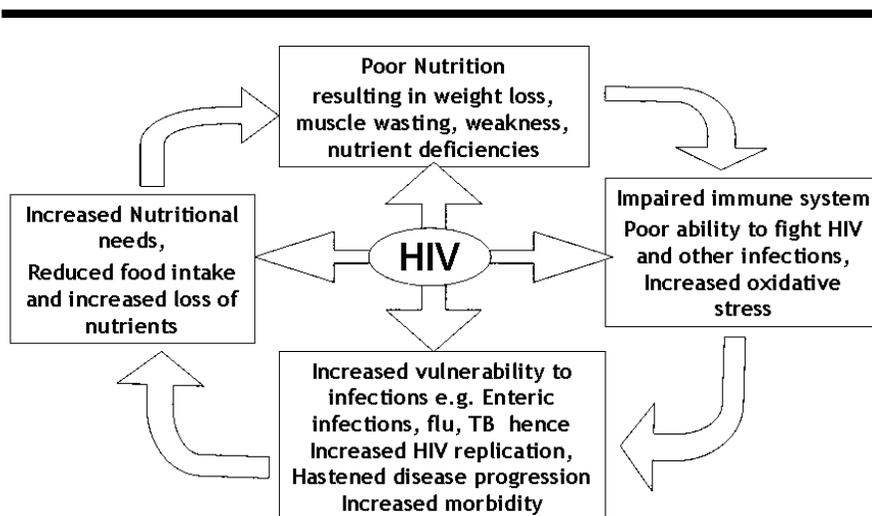
- Malnutrition weakens the immune system and thus the ability of the individual to fight the infection and control disease progression get weak
- Decreases CD4 count leads to appearance of opportunistic infections (OIs)
- Appearance of OIs leads to increase viral replication and further damage to the immune system
- Delays/weakens reaction to infections
- Malnutrition is associated with poor treatment outcome. Patient with SAM BMI < 16 are 4 to 5 times more likely to die in the first 90 days after starting ART. Patients with MAM are 2 to 3 times more likely to die in the first 90 days after starting ART

##### 1. Effects of HIV on nutrition

- Decreased amount of food consumed (for example, due to mouth and throat sores, loss of appetite, side effects of medications, household food insecurity, etc.).
- Decreased nutrient absorption due to HIV infection of intestinal cells, frequent diarrhoea and vomiting, and opportunistic infections.
- Increased energy requirement!!
  - asymptomatic adults requires 10-15 percent additional energy;
  - symptomatic adults require 20-30 percent additional energy;

- HIV-positive children who are symptomatic but not losing weight require 20-30 percent additional energy;
- HIV-positive children who are symptomatic and losing weight require 50 – 100 percent additional energy.)
- Unlike past believes, evidences have shown that there is no extra protein and micronutrients needs above the RDA.

## Vicious Cycle of Malnutrition and HIV



### 2. Effects of good nutrition on HIV

- Decreases weight loss
- May delay disease progression and death
- Reduces incidences of opportunistic infections
- Improves survival and HIV-related outcomes
- Improves quality of life

### **Handout 3: Nutritional care, Nutrition Assessment, Counselling & Support (NACS).**

The components of NACS are:

- Assessment
  - Anthropometry (BMI, MUAC, Wt/Ht, Growth monitoring)
  - Clinical
  - Dietary
  - Household food security
- Counselling
  - Clinical (including adherence)
  - Dietary (including WASH & food safety)
  - Psychosocial
  - Referral to social services including , Economic strengthening, livelihood & food security support
- Commodity Support
  - Therapeutic/supplementary Food support (Food By Prescription)
  - Safe Water Treatment
  - Multi-micronutrient supplements

#### **Session 4. Assessment and Classification of Nutritional Status in PLHIV and OVCs**

##### **Purpose:**

This session will provide health workers knowledge and skills in the assessment and classification of nutritional status in PLHIV and OVCs using anthropometric and clinical methods.

##### **Learning Objectives;**

By the end of the session, participants will be able to:

- Describe the indicators, references and cut – off points used to assess acute malnutrition between the age of 0 – 5 years
- Describe the indicators, references and cut – off points used to assess acute malnutrition in children >5 years, adolescents, adults and pregnant and lactating women
- Identify severe acute malnutrition using clinical criteria
- Describe additional criteria considered in the assessment of nutritional status in PLHIV
- Have the skill to correctly take weight, height/length and MUAC measurements necessary to compute the indicators

## Handout 4: Nutritional indices

There are 4 nutritional indices that can help to assess the nutritional status of individuals

- i. **Weight for Height or Length (W/H, W/L)**
- ii. Weight-for-Age:
- iii. BMI
- iv. MUAC

### 1. **Weight for Height or Length (W/H, W/L)**

Weight-for-height (W/H) compares a child's weight (in kilograms) with the weight (in kilograms) of a standard/reference child of the same height (in centimetres).

It assesses for wasting. It is particularly very useful in rural settings where families may not remember the exact age of the child. For children <24 months weight for length is taken.

- There are two international references to interpret the weight and height of children to a weight-for-age.
  - The WHO 2006 W/H Z-Score reference chart,
  - The NCHS % of the median reference chart.

### **Cut-off points to classify acute malnutrition based on weight for height:**

The table below shows classification of nutritional status in children less than 5 years using the indicator W/H. Cut-off points for both WHO 2006 – Z-Score and the NCHS % of the Median are shown in the table.

**Table :6 Classification acute malnutrition using weight for height**

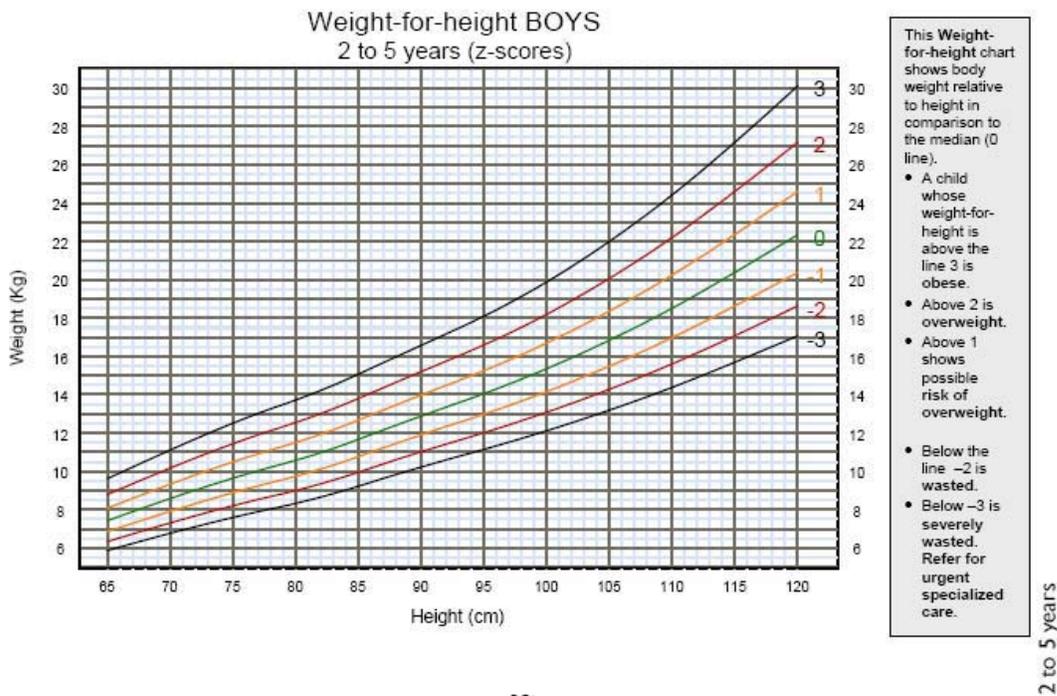
<b>Classification</b>	<b>W/H Cut-off points</b>
<b>Severe acute malnutrition</b>	<u>W/H</u> < - 3 Z-score or <70 percent of reference median
<b>Moderate acute malnutrition</b>	<u>W/H</u> < -2 Z-score or 70-80 percent of reference median
<b>Mild malnutrition</b>	<u>W/H</u> -1 to -2 Z-scores or 80-90 percent of reference median
<b>Not malnourished</b>	<u>W/H</u> > -1 Z-score or >90 percent of reference median

## WHO 2006 Weight-for-Height Charts





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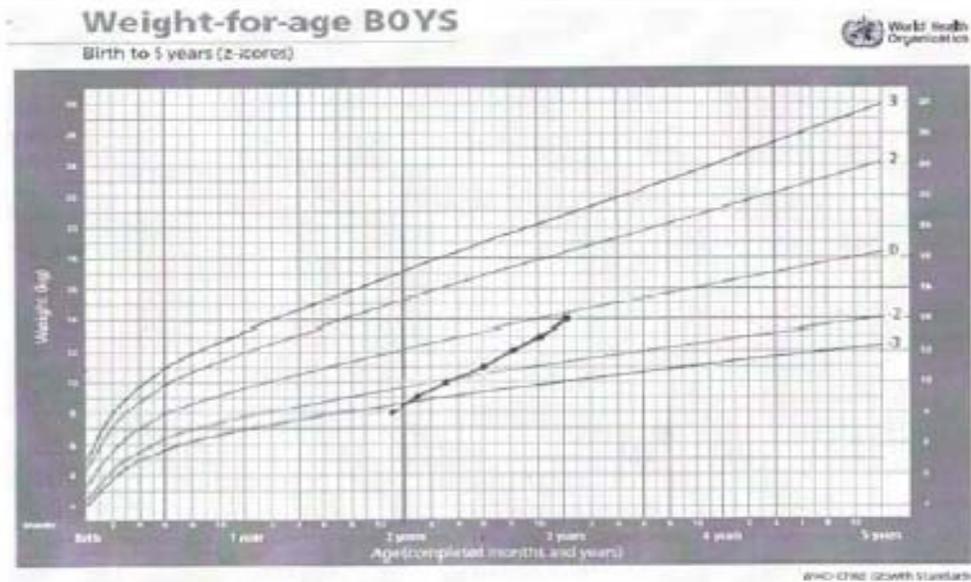
39

### Handout 5: Weight-for-Age:

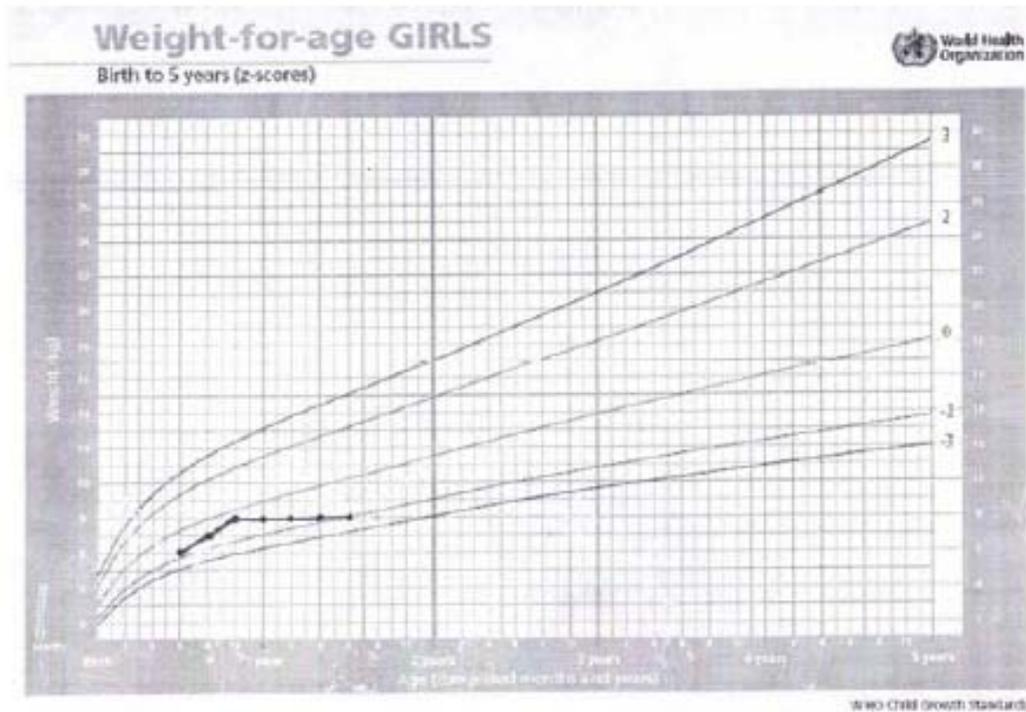
Weight for age is used to monitor the growth of children. Down ward crossing of growth curves indicate loss of weight and such children require further evaluation with regard to their nutrition and disease stage even if they may not be classified malnourished. Weight for age does not differentiate between acute and chronic weight loss unless the child has been under follow up with at least two or more weight measurements at different times and plotting. Children whose weight lies below the -3 Z score indicate severe wasting



The graph above shows that the child is losing weight progressively. Normally one should not wait until the child's weight reaches less than -3. Preventive measures should be introduced earlier.



The graph indicated progressive weight gain – catch up growth



Again the growth chart shows failure to gain weight. The child weight was the same during the visits one can mistakenly pass this as no weight loss had it not been plotted on a growth chart

## Handout 6: Mid-Upper-Arm –Circumference

MUAC is the circumference of the left upper arm, measured at the midpoint between the tip of the shoulder and the tip of the elbow using measuring or MUAC tape.

It is a simple, low-cost, objective method of assessing nutritional status. The MUAC is generally as good as other anthropometric measures in predicting subsequent mortality in community-based studies and among hospital admissions. MUAC is not used for infants less than 6 months.

Studies have shown that there is only partial overlap among children identified as having severe malnutrition using the two indicators. MUAC tends to pick young malnourished infants while W/H picks older malnourished children. For this reason it is advised to screen children 6m – 5 years using both indicators.

**Table 7: Below are MUAC Cut-off points for Children 6m – 5 years**

<b>MUAC Cut-off points</b>	<b>Classification</b>
6-11 months: <11 cm 12-59 months: <11 cm	Severe Acute Malnutrition
6-12 months: 11 – 12 cm mm 12-59 months: 11 – 13 cm	Moderate Acute Malnutrition
6-12 months: >12 cm 12-59 months: >13cm	Not malnourished

### Handout 7: BMI for children, adolescent and adults

Body Mass Index (BMI) is a number calculated from a person's weight and height. BMI is a reliable indicator of body fatness for people. BMI does not measure body fat directly, but research has shown that BMI correlates to direct measures of body fat, such as underwater weighing and dual energy x-ray absorptiometry (DXA). BMI can be considered an alternative for direct measures of body fat.

Additionally, BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems (*Source: cdc.gov*).

BMI is also used as measurement of malnutrition in children > 5 Years and adults in HIV care and treatment programs, although measurement of weight loss is the most common one.

If BMI is below the established cutoffs by WHO, nutrition intervention (improved diet, management of symptoms, or feeding assistance) is needed to slow or reverse the loss.

However, BMI does not account for changes in body composition that PLHIV may experience as a result of ART. BMI cutoffs are also not accurate in pregnant women or adults with oedema, whose weight gain is not linked to nutritional status. For these groups, MUAC can be an effective indicator of nutritional status. MUAC can also be problematic for individuals with changes in body composition due to ART (e.g., lipoatrophy).

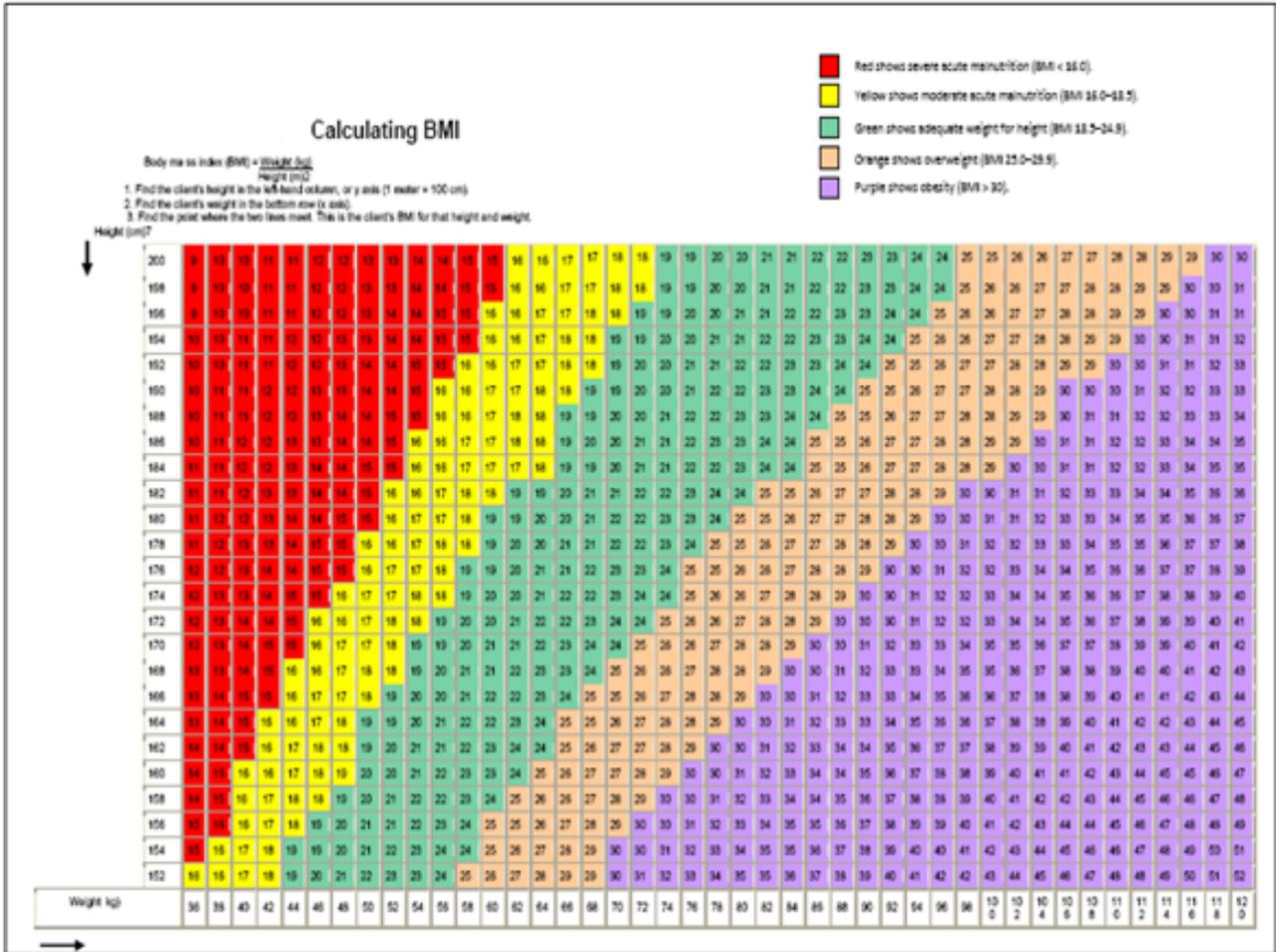
### Computing BMI for Adults, Adolescents and Older Children

BMI is calculated as the weight of the client in kilograms divided by the square of the height in meters.

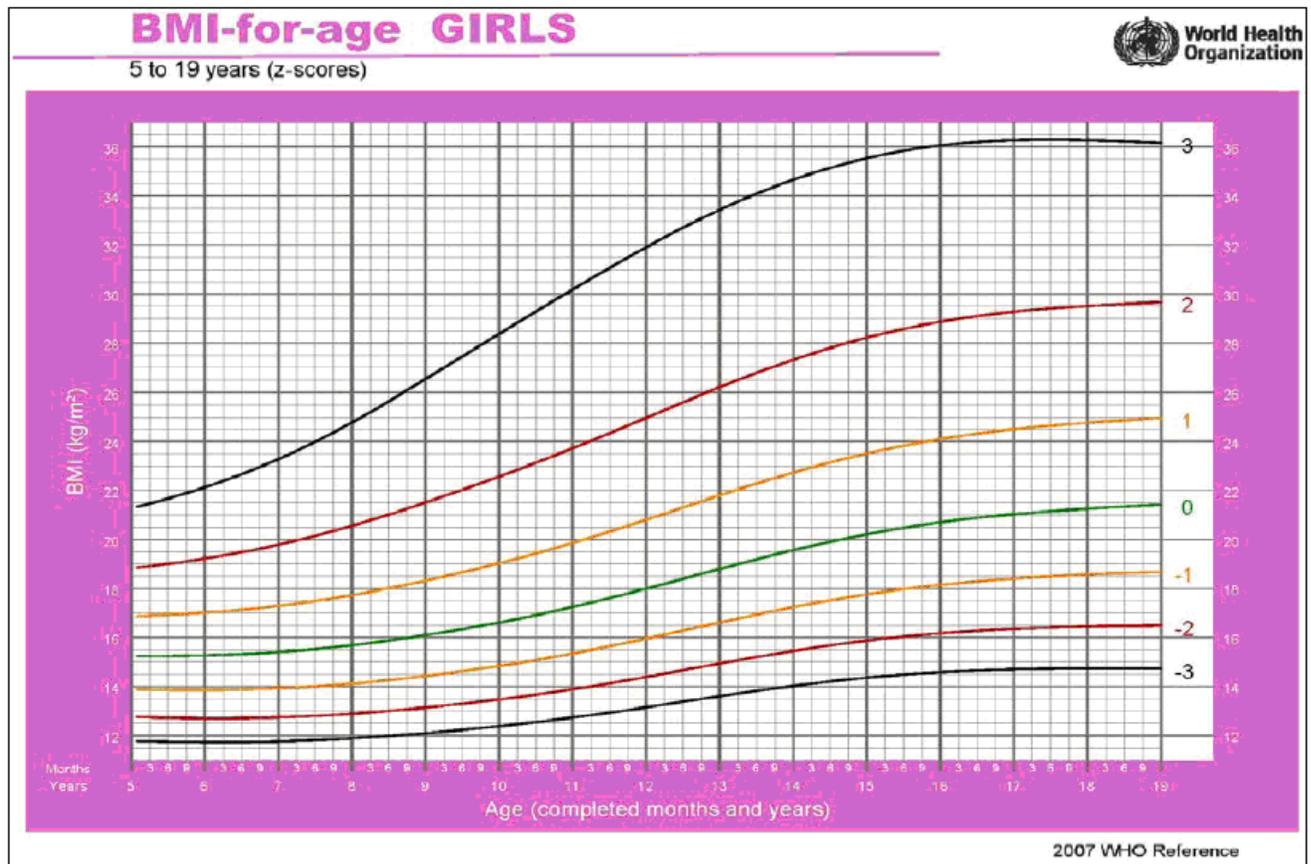
**Calculate body mass index (BMI).**

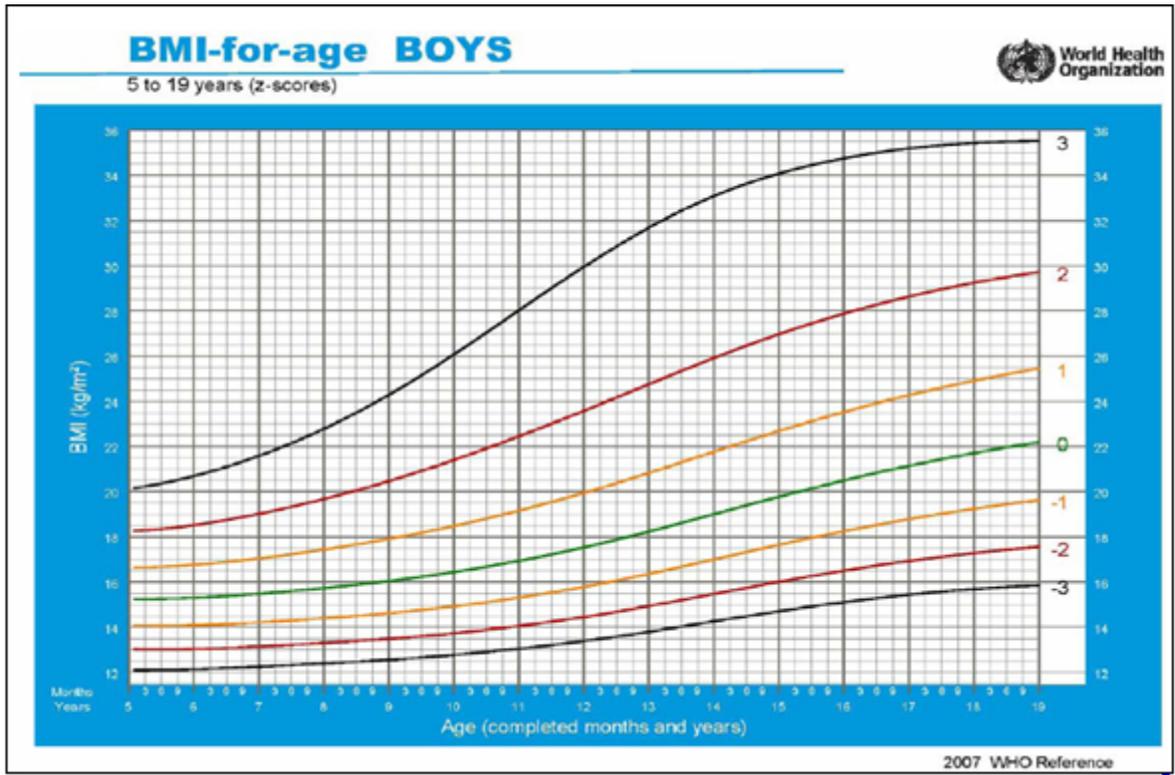
$$\frac{\text{Weight in kg}}{\text{Height in m}^2}$$

- Convert cm to m (1 m = 100 cm)
- Calculate BMI using the formula (or using the BMI chart on the following page):



**BMI-for-Age:** In children between the ages of 5 – 17 years, the computed BMI shall be compared against a BMI- for- Age Reference Table in annex 4 or the chart below , to decide whether the computed BMI indicates malnutrition or not, as children are in a dynamic growth process will show varying weight and height at different ages.





**Table 8: Classifying Nutritional Status for adults using BMI**

Adult BMI level	Nutritional Status
< 16 kg/m <sup>2</sup>	Severely malnourished
16 - 16.99 kg/m <sup>2</sup>	Moderately malnourished
17 - 18.49 kg/m <sup>2</sup>	Mildly malnourished
18.5 - 24.99 kg/m <sup>2</sup>	Normal weight
25 - 29.99 kg/m <sup>2</sup>	Overweight
> 30 kg/m <sup>2</sup>	Obese
<i>Source: WHO 1995</i>	

**Table 9: Classification of nutritional status for children 5-17 years using BMI-for-age**

<b>Children Aged 5 – 17 Yrs, BMI –for –Age</b>	<b>Nutritional Status</b>
< -3 SD	Severely malnourished
-2 to -3 SD	Moderately malnourished
-1 to -2 SD	Mildly malnourished
> -1 SD	Normal weight
<i>Source: WHO 2006</i>	

**MUAC: Mid-upper arm circumference (MUAC)** can be used for pregnant women or PLHIV with oedema, whose weight does not necessarily indicate their nutritional status. MUAC also can be used for patients who cannot stand to have their weight and height measured. MUAC is used as an alternative measure of “thinness” to weight-for-height. It is particularly used in children from one to five years; however, its use has been extended to include children over 65 cm in height – or children of walking age and adults. MUAC is not used for infants under six months old (*Source: Draft Ethiopian OTP Training Manual, 2007*).

#### MUAC Cut-off points for children age 5 – 14 Yrs

<b>Age</b>	<b>MUAC Level</b>	<b>Classification</b>
5-9 years:	<135 mm	<b>Severe Malnutrition</b>
10-14 years:	<160 mm	
5-9 years:	<145 mm	<b>Moderate Malnutrition</b>
10-14 years	<180 mm	
5-9 years:	>145 mm	<b>Normal</b>
10-14 years:	>180 mm	

#### MUAC Cut-off points for adults, pregnant and lactating women

<b>Nutritional Status</b>	<b>Severe AM</b>	<b>Moderate AM</b>	<b>Normal</b>
<b>MUAC Level</b>	<18.0 cm	18–21 cm	> 21 cm

## **Handout 8: Additional considerations in assessing and classifying malnutrition in the context of HIV**

In addition to determining clinical outcome complications also indicate in what set-up the client should get nutritional intervention, as an inpatient or outpatient setting.

Severely or moderately malnourished PLHIV/OVC who has any one of the following need in-patient care

If any of the danger signs

OR

- Infant < 6 months

- Severe bilateral oedema (++++)

OR

- Marasmus – Kwashiorkor (Wt/Ht < 70 %with oedema or MUAC < 110 mm with oedema)

### **1. Complications**

Presence of complications indicates that the client shall receive treatment as an inpatient both for HIV infected or non infected individual. According to SAM protocol/IMNCI guidelines the following are danger signs/ medical complications.

- medical complication
- High fever >39oC
- Hypothermia < 35oC
- Convulsion/fitting
- Persistent diarrhoea
- Bilateral oedema (++++)
- Severe dehydration
- Severe anaemia (paleness, palm pallor)
- Very weak/lethargy
- Extensive skin lesions
- Pneumonia, active TB, any chest in-drawing

### **2. Signs of Symptomatic Diseases**

Signs of symptomatic diseases do not directly determine the malnutrition classification, but they relate to nutrition problems that require special attention through provision of appropriate nutrition care services as the increase energy need. Major signs of symptomatic diseases include:

- Chronic lung diseases
- Persistent diarrhoea
- TB
- Fever
- Other chronic OIs and Malignancy

### **3. Significant Weight loss or Failure to Gain Weight**

Weight loss does not directly determine a malnutrition classification, but it is a sign of nutrition problems that require further assessment and actions, especially for children or when the weight loss is unintentional and of significant magnitude.

Signs for children are:

- Reported unintentional weight loss
- Confirmed unintentional weight loss of more than 5 percent of body weight over the past two months
- Growth faltering for children: eight loss or stagnation on two or more follow up

### **3. Dietary Practices**

Dietary practices alone do not directly determine a malnutrition classification but will identify individuals at risk of malnutrition due to insufficient macro and micronutrient intake. The amount, frequency, density and variety of food consumed should be assessed to inform counselling. Details will be covered in future chapters.

## Handout 9: Measuring Weight and Height

### 1. Measuring Weight

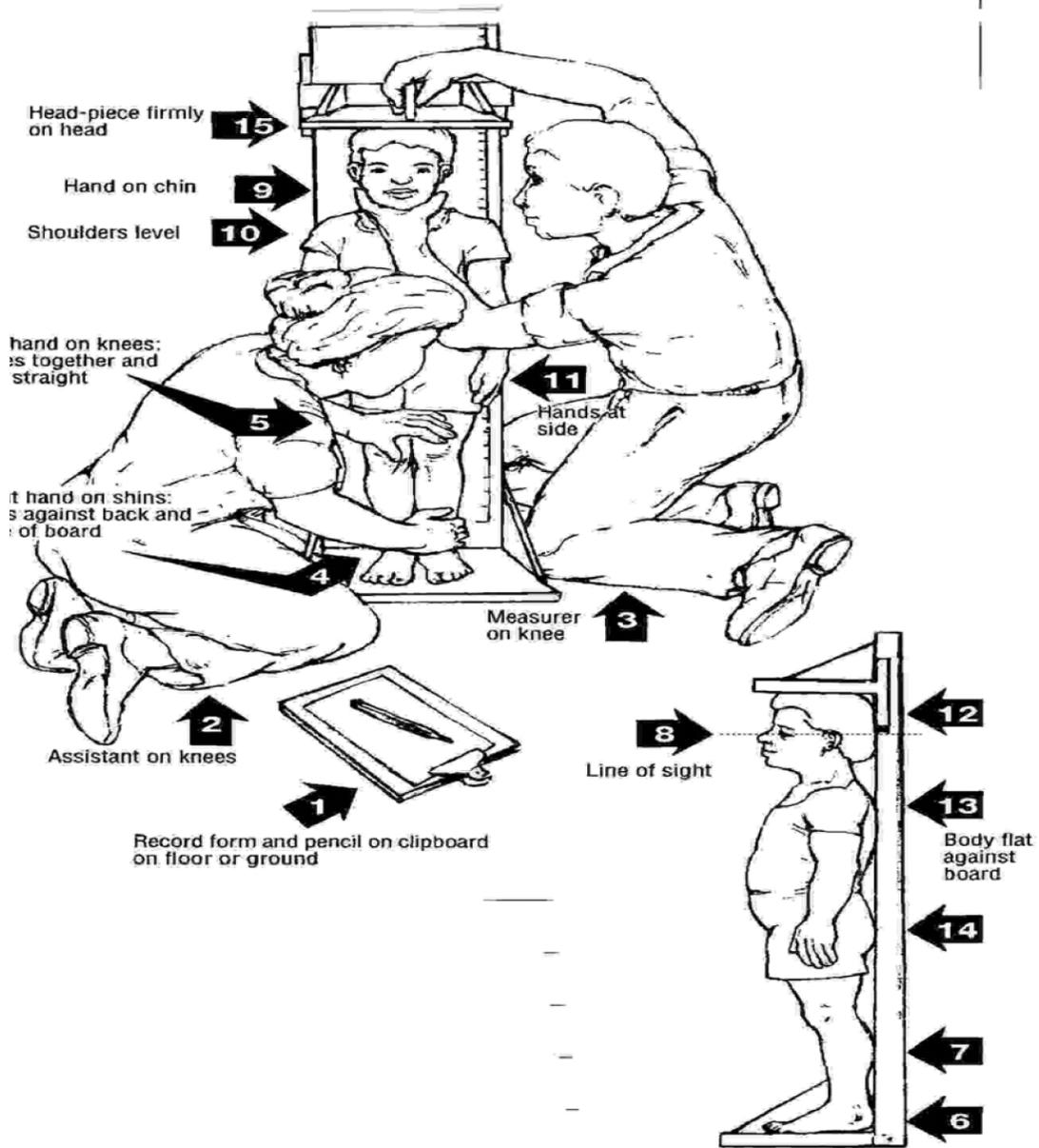
- Body weight is composed of protein, fat, water and bone
- Choose appropriate scale for the age of the client- adult scale Pediatric weighing scale.
- Children below the age of 2 years should be weight lying or sitting but make sure that they are at centre not at the edge of the scale.
- Make sure the scale pointer is at zero and is on flat stable surface.
- Ensure that it is functioning well by weighing a known weight – yours!
- Explain to the person or care taker that you are going to weigh the client
- Ask the person to take off shoes, hat, and scarves so that he/she is wearing minimum clothing. In case of young children remove also diapers
- Ask the person to stand straight on the centre of the balance platform (if the person cannot stand without help, take MUAC).
- Read the weight as soon as the indicator on the scale has stabilized.
- Record the weight to the nearest 0.1 kg.
- Make sure the weighing scale is calibrated to **zero** before each measurement is taken.
- Record the weight to the **nearest 100 grams**.

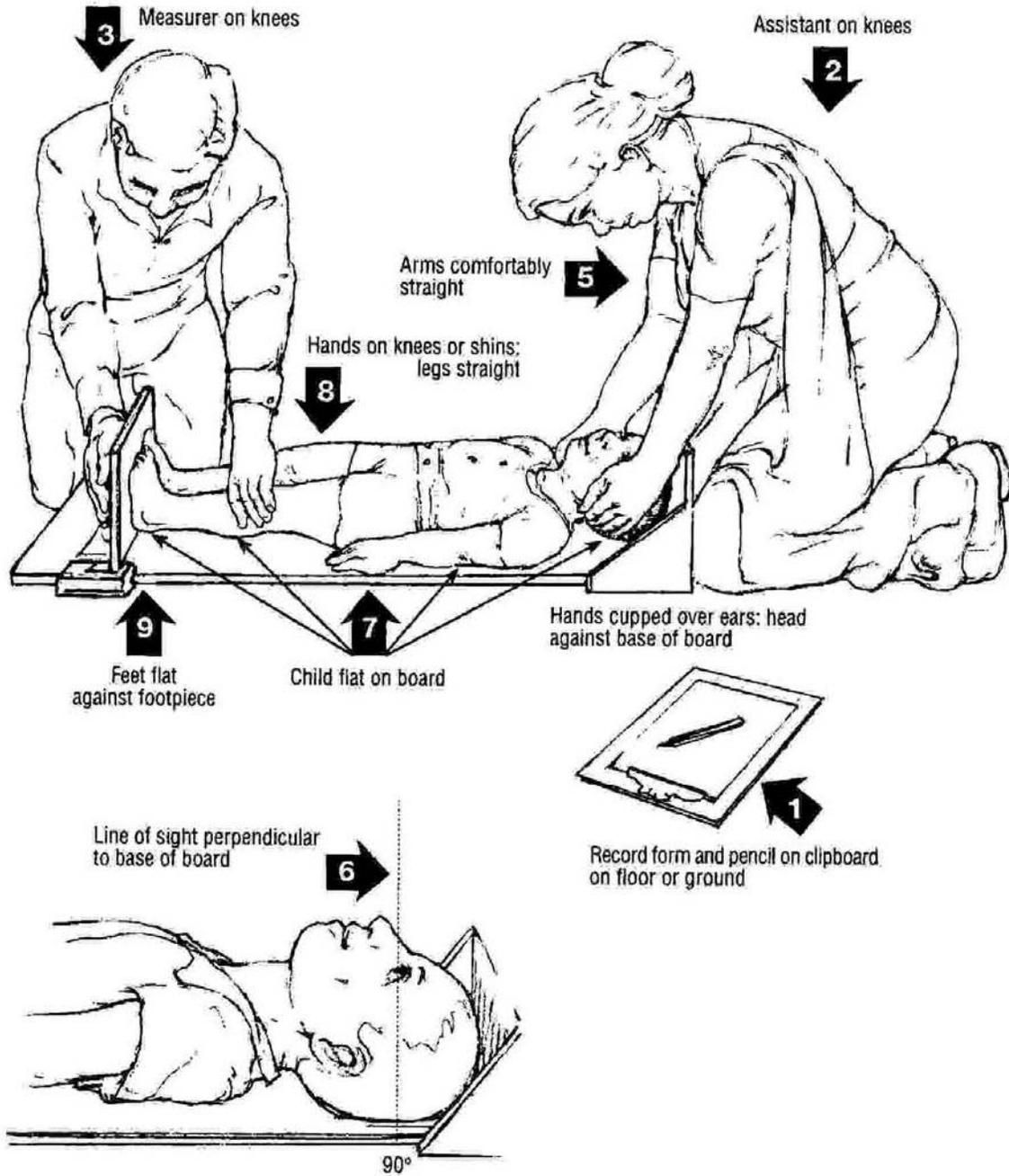


### 2. Measuring Height/Length

- Measure children who are 85 cm long or less (or under two years old) lying down. Measure taller children while they are standing.
- Make sure the client is barefoot and wearing no headgear.
- Make sure the client's shoulder blades, buttocks, and heels touch the vertical surface of the height/length board.
- Make sure the client's knees are fully straight and his/her hands are held down to the side.
- Make sure the client's neck is straight and his/her eyes look straight ahead.
- Place the headpiece of the height/length board firmly on the client's head.
- Read the measurement to the nearest 0.5 centimetre.

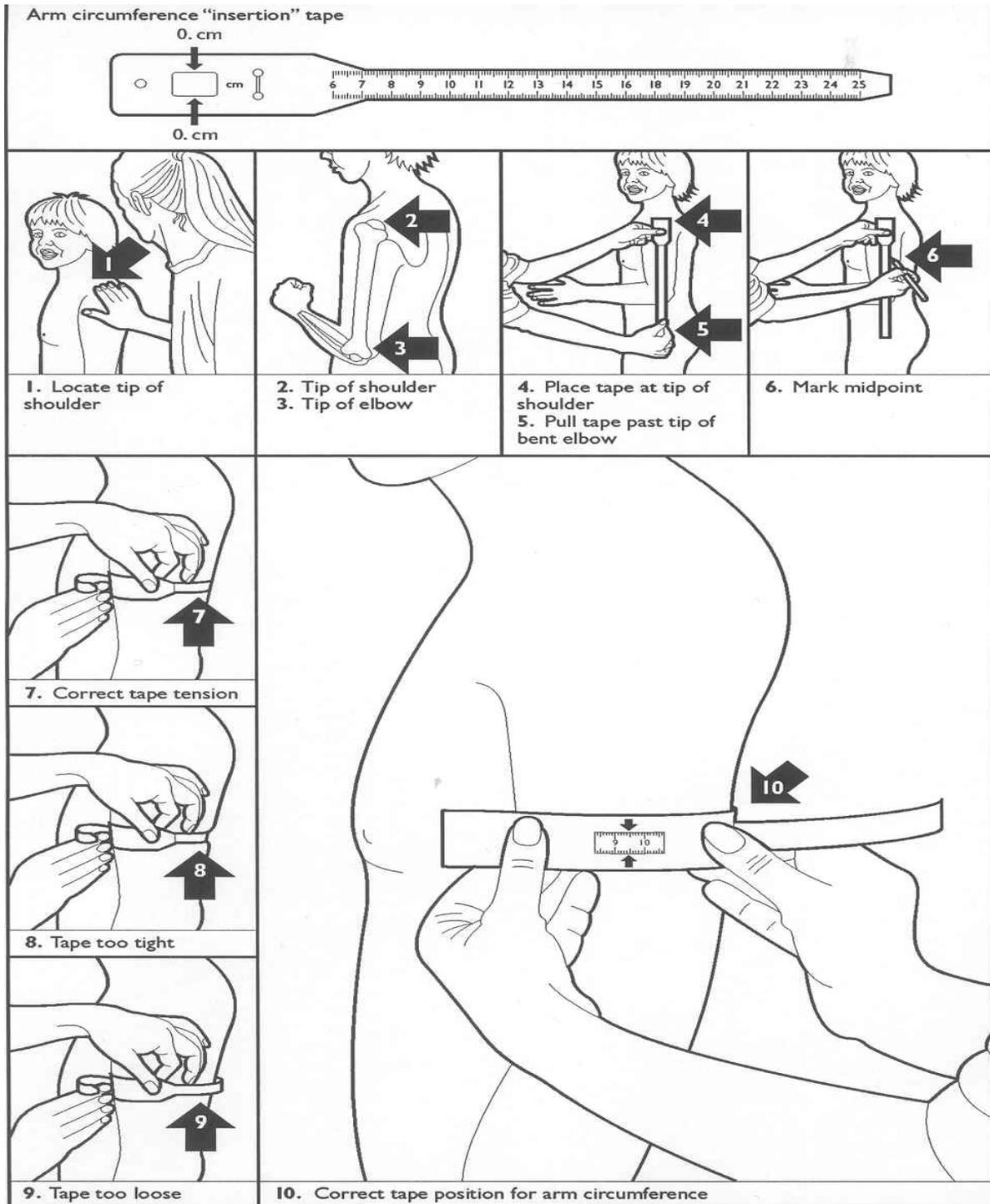
Good nutrition improves the quality of life and health of PLHIV. This is why it is important to monitor nutrition status at least once a month.





### **Handout 10: Measuring MUAC**

1. Keep your work at eye level. Sit down when possible. Very young children can be held by their mother during this procedure. Ask the mother/client to remove clothing that may cover the left arm.
2. Calculate the midpoint of the left upper arm by first locating the tip of the shoulder (arrows 1 and 2) with your finger tips. Bend the elbow to make a right angle (arrow 3). Place the tape at zero, which is indicated by two arrows, on the tip of the shoulder (arrow 4) and pull the tape straight down past the tip of the elbow (arrow 5). Read the number at the tip of the elbow to the nearest centimetre. Divide this number by two to estimate the midpoint. As an alternative, a piece of string can also be used for this purpose and the midpoint can be located by bending the string into half. Do not bend the tape as this will cause damage. Mark the midpoint with a pen on the arm (arrow 6).
3. Straighten the arm and wrap the tape around the arm at the midpoint. Make sure the numbers are right side up. Make sure the tape is flat around the skin (arrow 7).
4. Inspect the tension of the tape on the arm. Make sure the tape has the proper tension (arrow 7) and is not too tight or too loose (arrows 8 and 9). Repeat any step as necessary.
5. When the tape is in the correct position on the arm with correct tension, read and call out the measurement to the nearest 0.1cm (arrow 10).
6. Immediately record the measurement.



Source: How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children, United Nations, 1986.

## Handout 11: Assessment, Classification and Assignment into Care Plans- The National Algorithm

The Algorithm for Managing Malnutrition in PLHIV follows the IMNCI Case Management Model, which uses the following steps:

1. Assess and Classify.
2. Identify Treatment.
3. Treat.
4. Counsel.
5. Follow up.

The first two columns of the algorithm describe what to **ask**, **look/feel**, or measure in order to assess malnutrition. Once the health provider assesses the client's nutritional status, he/she compares it against internationally accepted standards/references and **classifies** the client by degree of malnutrition: severe malnutrition, moderate/mild malnutrition, or normal. The classification determines the **nutrition care plan** to use.

### Assess

Following the steps in the algorithm, the health care provider should refer to records or ask to determine the following:

- Noticeable weight loss over the past month or since the last visit.
- Any illness (e.g., cough, fever, diarrhoea, vomiting, poor appetite, persistent fatigue, mouth sore or oral thrush) lately.
- Type of medications the client is taking (for TB treatment or other kind).
- Level of appetite.
- What, how much, and how frequently the client is eating (or breastfeeding, if applicable).
- If the client has had noticeable changes in body composition/fat distribution, especially the thinning of limbs and face, breasts, stomach region, back/hump.

### Look/Examine, Measure

#### 1. Look for signs of severe wasting.

Remove some clothing if necessary to see properly.

For those under six months, signs of severe wasting (marasmus) include the following:

- Loss of subcutaneous fat. Look at the client from the side to see whether the fat of the buttocks is significantly reduced.
- Loss of muscle bulk around the shoulders, arms, buttocks, ribs, and legs. Is the outline of the ribs clearly visible? Are his/her hips small compared with the chest and abdomen?

- Sagging skin. In extreme cases, you see folds of skin that look like the client is wearing baggy pants, especially for children.

## 2. Check for the presence of oedema in both feet.

A child with (pitting) oedema in both feet may have kwashiorkor. Children with kwashiorkor or marasmic kwashiorkor should be treated on an inpatient basis if complicated. Using your thumb, press gently for 3 to 5 seconds on the top of each foot. The client has oedema if a dent remains after you lift your thumb. Nutritional oedema normally starts from the feet and extends upward to involve the arms and then the face. Oedema is classified as in the table below.

Observation	Classification
No oedema	(0)
Bilateral oedema in both feet (below the ankles)	+
Bilateral oedema in both feet and legs (below the knees)	++
Bilateral oedema in both feet, legs, arms, and face	+++

## 3. Measure weight, height and MUAC

Compute weight/height

- Measure MUAC
- Weight/age (If weight/height and MUAC measurements are not possible)
- BMI for age

## 4. Check for danger signs

- Intractable vomiting
- High fever
- Hypothermia  $< 35^{\circ}\text{C}$
- Convulsion/fitting
- Persistent diarrhoea
- Bilateral oedema (+++)
- Severe dehydration
- Extensive skin lesions

## 5. Check for Severe Anaemia

Palmar pallor is a sign of anaemia. Look at the skin of the client's palm. Hold the palm open by grasping it gently from the side (do not stretch the fingers backward). Compare the colour of the palm with your own. If the client's palm is pale with some pink areas, he/she has some palmar pallor. If the palm is very pale, the client has severe palmar pallor.

## Classification of Nutritional Status

There are three classifications for PLHIV nutritional status.

### *Severe Malnutrition*

#### Children

According to SAM protocol/IMNCI guidelines, any of the following indicates severe malnutrition:

- Signs of severe visible wasting among children under 6 months old, though there is not an agreed-upon standard for this
- Oedema in both feet
- W/H < -3 Z-scores (or < 70 percent) using median WHO standard/reference value (use new WHO standards, where possible)
- MUAC < 110 mm in children 6–12 months old
- Is this supposed to be the same value for both age groups? If so, why are they not in one grouping?
- MUAC < 110 mm in children 12-59 months old
- MUAC < 135 mm in children 5–9 years old
- MUAC < 160 mm in children 10–14 years old

#### Adults

- BMI <16 (non-pregnant/non post-partum)
- MUAC <180 mm (MUAC should be used for pregnant/post-partum women and for other adults whose height cannot be measured (e.g., cannot stand). BMI should be used to classify all other adults in clinical facilities.)

**NOTE:** For children, if there is more than one measure of severe malnutrition, it is suggested that the classification that places the client in the most severe category should be used to determine the nutrition care plan.

### *Moderate Malnutrition*

Children: Any of the following indicates moderate malnutrition:

- W/H < -2 Z-scores and > -3 Z-scores or 70-80 percent
- MUAC 110–120 mm for infants 6–12 months old
- MUAC 110–130 mm in children 12–59 months old
- MUAC 135–145 mm in children 5–9 years old
- MUAC 160–180 mm in children 10–14 years old

#### Adults

- BMI 16–17.99 (non-pregnant/non-post-partum)

- MUAC < 180–210 mm (MUAC should be used for pregnant/post-partum women and for other adults whose height cannot be measured (e.g., cannot stand). BMI should be used to classify all other adults in clinical facilities)

### ***Mild Malnutrition***

#### **Children:**

- W/H < -1 Z-scores and > -2 Z-scores or 80-90 percent using the median WHO standard/reference value

#### **Adults (non-pregnant/post-partum)**

- BMI 18–18.49

### **Normal/Appropriate Growth**

#### **Children**

- Weight gain parallel to or at a rate higher than the median growth curve
- W/H > 90 percent of median or > -1 Z-scores

#### **Adults**

- BMI >18.5
- MUAC >210 mm

### **Additional classification based on weight gain or growth pattern**

#### **Children**

##### **1. Poor weight gain**

- Poor weight gain Regardless of W/H, MUAC or BMI for age:
- Growth Curve Faltering
- Confirmed significant weight loss of > 5% since the last visit

##### **2. Growing well/Appropriate Growth**

- Weight gain parallel to or at a rate higher than the median growth curve

#### **Adults**

##### **1. Significant weight loss**

- Confirmed unintentional weight loss of > 5% since the last visit
- Reported weight loss (e.g., loose clothing which used to fit)

##### **2. Normal**

The absence of significant weight loss criteria

**Handout 12: Algorithm for Management of Malnutrition for PLHIV – Children**

ASSESS		CRITERIA	CLASSIFY	TREATMENT/CARE PLAN	
HISTORY	LOOK AND FEEL				
<p>Refer to records (or if needed ask to determine the following)</p> <p>1. Has the child lost weight in the past month/past visit</p> <p>2. Does the child have:</p> <ul style="list-style-type: none"> <li>Cough for more than 21 days? This may be due to HIV-related chronic disease such as LIP or to PCP, TB, pneumonia...</li> <li>Active TB on treatment</li> <li>Diarrhoea for 14 days or more</li> <li>Other chronic OI or malignancy</li> <li>Poor appetite</li> </ul>	<p>1. For those under 6 months of age, look for signs of severe visible wasting, e.g.:</p> <ul style="list-style-type: none"> <li>Loss of muscle bulk</li> <li>Sagging skin/buttocks</li> <li>Too weak/feeble to suckle</li> <li>Weight/height &lt; 70% and presence of bilateral oedema.</li> </ul> <p>2. Check the presence of oedema on both feet</p> <p>3. Measure the weight (kg) and height (cm)</p> <ul style="list-style-type: none"> <li>Compute weight-for-height for children &lt; 5 yrs.</li> <li>Compute BMI for age for children 5 -14 yrs.</li> </ul> <p>4. Measure the mid-upper-arm circumference (MUAC).</p> <p>5. If wt/ht and MUAC are not possible, then measure weight-for-age</p> <ul style="list-style-type: none"> <li>If weight-for-age is used, check the shape of the growth curve.</li> <li>Estimate percentage change in weight since last visit.</li> </ul> <p>Examine/observe for <b>danger signs/ medical complications</b> of:</p> <ul style="list-style-type: none"> <li>Intractable vomiting</li> <li>High fever &gt;39°C or malaria</li> <li>Hypothermia &lt;35°C</li> <li>Severe anaemia (paleness, palm pallor)</li> <li>Convulsions/fits</li> <li>Persistent diarrhoea</li> <li>Bilateral oedema +++</li> <li>Severe dehydration</li> <li>Extensive skin lesions</li> <li>Very weak/lethargy</li> <li>Pneumonia, active TB, any chest in-drawing.</li> </ul>	<p>Bilateral pitting <b>oedema</b> (in both legs)</p> <p><b>OR</b></p> <p><b>Weight-for-height.</b> Z-score below -3 or &lt; 70% of the WHO median reference value</p> <p><b>OR</b></p> <p><b>MUAC</b></p> <p>Infants 6 mo-1 2mo &lt;110mm                      Children 12 mo-59 mo &lt;110mm                      Children 5 yr-9 yr &lt;135mm                      Children 10 yr-14 yr &lt;160mm</p> <p><b>OR</b></p> <p><b>Visible signs</b> of severe malnutrition for &lt; six months</p> <p><b>OR</b></p> <p><b>BMI for age:</b> 5-17 years &lt;-3 Z-score</p>	<p><b>Severe or moderate malnutrition with complications</b></p> <p>If any of the danger signs</p> <ul style="list-style-type: none"> <li>OR Infant &lt; 6 months</li> <li>OR Severe bilateral oedema</li> <li>OR Marasmus, kwashiorkor (Wt/Ht &lt; 70 % with oedema</li> <li>OR MUAC &lt; 110 mm with oedema</li> <li>OR Poor appetite</li> </ul> <p><b>Severe malnutrition without complications</b></p> <ul style="list-style-type: none"> <li>W/H or MUAC cutoff for severe malnutrition</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>None of the danger signs/medical complication</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>No severe bilateral oedema</li> </ul> <p>AND</p> <ul style="list-style-type: none"> <li>&gt; 6 months of age</li> </ul>	<p><b>Admit or refer for inpatient care.</b></p> <p><b>NUTRITION CARE PLAN A (RED)</b></p>	
		<p><b>Ask all questions and complete all assessments with each child</b></p>	<p><b>Weight-for-height.</b> Z-score below -2 or 70 - 80% of the WHO median reference value</p> <p><b>OR</b></p> <p><b>MUAC</b></p> <p>Infants 6mo-12mo &lt;120mm                      Children 12 mo -59 mo &lt;130mm                      Children 6yr-9yr &lt;145mm                      Children 10yr-14yr &lt;180mm</p> <p><b>OR</b></p> <p><b>BMI for age:</b> 5-17 years z-score from -2 to -3</p>	<p>MODERATE MALNUTRITION</p>	<p><b>NUTRITION CARE PLAN B (YELLOW)</b></p>
			<p>Regardless of W/H, MUAC or BMI for age:                      Growth Curve Faltering                      Confirmed significant weight loss of &gt; 5% since the last visit</p>	<p>POOR WEIGHT GAIN</p>	
			<p>Regardless of W/H, MUAC or BMI for age:</p> <ul style="list-style-type: none"> <li>Chronic lung disease</li> <li>TB</li> <li>Persistent diarrhoea</li> <li>Other chronic OI or malignancy</li> </ul>	<p>Signs of SYMPTOMATIC DISEASE</p>	
			<p><b>Child is gaining weight</b></p> <p><b>Weight-for-height.</b> Z-score &gt; -2 or &gt; 80% of the WHO median reference value</p> <ul style="list-style-type: none"> <li>Maintaining weight to the given height <b>OR</b></li> </ul> <p><b>BMI for age:</b> 5-17 years &gt;-2 Z-score</p> <p>In the absence of signs of symptomatic disease and significant weight loss.</p>	<p>GROWING WELL</p>	

**Handout 13: Algorithm for Managing Malnutrition in PLHIV–Adult**

ASSESS		CRITERIA	CLASSIFICATION	TREATMENT/CARE PLAN
HISTORY	LOOK AND FEEL			
<p>Refer to records (or if needed ask to determine the following)</p> <p>1. Has client lost weight in the past month/past visit?</p> <p>2. Has the client had:</p> <ul style="list-style-type: none"> <li>▪ Active TB (on treatment)?</li> <li>▪ Diarrhoea for more than 14 days?</li> <li>▪ Other chronic OI or malignancy (e.g., oesophageal infections)?</li> <li>▪ Mouth sores/oral thrush?</li> </ul> <p>3. Has the client had noticeable changes on body composition/ fat distribution?</p> <ul style="list-style-type: none"> <li>▪ Thinning of limbs and face</li> <li>▪ Fat distribution on the limbs, breasts, stomach region, back/hump</li> </ul> <p>4. Has the client experienced the following?</p> <ul style="list-style-type: none"> <li>▪ Nausea/vomiting</li> <li>▪ Persistent fatigue</li> <li>▪ Poor appetite</li> </ul>	<p>1. Check for oedema on both feet (and sacrum). In adults, rule out other causes of symmetrical oedema (pre-eclampsia, severe proteinuria, kidney diseases (e.g., nephrotic syndrome, acute renal diseases, chronic renal diseases), acute filariasis, heart failure and wet beriberi).</p> <p>2. Measure weight (kg) and height (cm).</p> <p>3. Compute BMI (adults)</p> <p>4. Measure MUAC (pregnant and post-partum women and/or adults who cannot stand straight).</p> <p>5. Examine for conditions that cause secondary malnutrition as in above and as in history.</p> <p>6. Examine/observe for complications and danger signs:</p> <ul style="list-style-type: none"> <li>• High fever &gt;39oC</li> <li>• Hypothermia &lt; 35oC</li> <li>• Convulsion/fitting</li> <li>• Persistent diarrhoea</li> <li>• Bilateral oedema (++++)</li> <li>• Severe dehydration</li> <li>• Severe anaemia (paleness, palm pallor)</li> <li>• Very weak/lethargy</li> <li>• Extensive skin lesions</li> <li>• Pneumonia, active TB, any chest in-drawing</li> </ul>	<p>Bilateral pitting <b>oedema</b> (both legs)</p> <p><b>Adults (non-pregnant/post-partum)</b></p> <p>BMI &lt; 16 kg m<sup>2</sup></p> <p>(If BMI cannot be measured, use MUAC cutoff below.)</p> <p><b>Pregnant/postpartum women</b></p> <p>MUAC&lt;180 mm</p>	<p><b>SEVERE/MODERATE malnutrition with complications</b></p> <p>If client has any of the danger signs or severe oedema</p> <p>(Severe dehydration, poor appetite and bilateral oedema)</p> <p><b>Acute malnutrition without complications</b></p> <p>If client has BMI or MUAC less than the severe malnutrition cutoff and does not have any of the danger signs</p>	<p><b>Admit or refer for inpatient care.</b></p> <p><b>NUTRITION CARE PLAN A (RED)</b></p>
		<p><b>Adults (non-pregnant/post-partum)</b></p> <p>BMI 16 - 16.99 Moderate</p> <p>BMI 17 - 18.49</p> <p>(If BMI cannot be measured, use MUAC cut-off below.)</p> <p><b>Pregnant/postpartum women</b></p> <p>MUAC 180 - 210 mm</p>	<p><b>MODERATE malnutrition</b></p>	<p><b>NUTRITION CARE PLAN B (YELLOW)</b></p>
		<p><b>Regardless of BMI or MUAC:</b></p> <p>Confirmed unintentional weight loss of &gt; 5% since the last visit</p> <p>Reported weight loss (e.g., loose clothing which used to fit)</p>	<p><b>Significant weight loss</b></p>	
		<p><b>Regardless of BMI or MUAC:</b></p> <p>Chronic lung disease</p> <p>TB</p> <p>Persistent diarrhoea</p> <p>Other chronic OI or malignancy</p>	<p><b>Signs of SYMPTOMATIC DISEASE</b></p>	
		<p><b>Adults (non pregnant/post-partum) BMI ≥ 18.5 ;</b></p> <p>(If BMI not possible, use MUAC)</p> <p><b>Pregnant/post-partum MUAC ≥ 210 mm</b> in the absence of signs of symptomatic disease and significant weight loss</p>	<p><b>NORMAL</b></p>	<p><b>NUTRITION CARE PLAN C (GREEN)</b></p>

**MODULE B: Nutrition Interventions in PLHIV**

**SESSION 5: Nutrition Interventions in PLHIV**

**1. Counselling**

**Purpose**

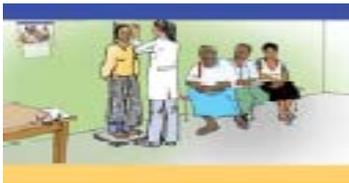
In this session, participants will identify seven critical nutrition practices (CNP) and corresponding messages for improving and maintaining good nutrition among PLHIV through counselling.

**Learning Objectives**

By the end of the session, participants will be able to:

- Discuss the role of counselling in the nutritional management in PLHIV
- Describe the seven critical nutrition practices for PLHIV.
- Discuss key messages to communicate the critical nutrition practices for PLHIV.

**Handout 14: Critical Nutrition Practices for PLHIV**

<p><b>1. See a health care provider for periodic nutrition assessment (especially weight).</b></p>	
<p><b>2. Increase energy intake by eating a variety of foods, especially energy-rich foods, and eating more frequent meals, especially if sick.</b></p>	

<p><b>3. Maintain high levels of hygiene and sanitation.</b></p>	
<p><b>4. Drink plenty of clean and safe (boiled or treated) water.</b></p>	
<p><b>5. Maintain a healthy lifestyle by avoiding unprotected sex, alcohol, tobacco, sodas, and other coloured and sweetened drinks and do physical activity (exercise).</b></p>	
<p><b>6. Seek early treatment for infections and manage symptoms through diet.</b></p>	
<p><b>7. Take medicines as advised by the health worker and manage food and drug interactions or side effects.</b></p>	

**Key Nutritional practices with explanation**

<b>Key Message</b>	<b>Explanation</b>
<b>1. See a health care provider for a periodic nutrition assessment (especially weight).</b>	
<ul style="list-style-type: none"> <li>▪ If you have symptoms related to HIV, get weighed every month by a health care provider.</li> <li>▪ If you are not showing symptoms associated with HIV, get weighed at least every 3 months.</li> <li>▪ Keep a record of your weight in a book or on a weight chart.</li> <li>▪ Seek clinical care if you unintentionally lose more than 6 kg of weight in 2 or 3 months.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Periodic weight helps you track the trend of weight change and take action early.</li> <li>▪ Unintentional weight loss or gain may imply poor health and lead to hospitalization.</li> <li>▪ Unintentional weight loss of more than 6 kg in 2–3 months indicates that your health or eating habits are not adequate to maintain your weight or that the disease is fast progressing to AIDS.</li> </ul>
<b>2. Increase energy intake by eating a variety of foods, especially energy-rich foods, and eating more frequent meals, especially if sick.</b>	
<ul style="list-style-type: none"> <li>▪ Eat locally available and affordable foods from each food group for varied meals and to increase energy intake.</li> <li>▪ Eat five times a day (three meals and two snacks in a day).</li> <li>▪ Eat at least two cups of food (70 ml each) at each meal.</li> <li>▪ Eat foods from the different food types at each meal.</li> </ul>	<ul style="list-style-type: none"> <li>▪ People with HIV need to consume more energy every day than uninfected people of the same age, gender, and level of physical activity.</li> <li>▪ The extra energy needed is based on the stage of the HIV illnesses.</li> <li>▪ Eating a varied diet ensures that your body gets all the nutrients required.</li> <li>▪ HIV infection affects digestion and absorption.</li> <li>▪ Increasing energy intake helps you get enough energy and other nutrients (proteins and micronutrients) that your body needs.</li> <li>▪ Fruits and vegetables help to strengthen immunity.</li> </ul>

<b>Key Message</b>	<b>Explanation</b>
<ul style="list-style-type: none"> <li>▪ Enrich meals with energy-dense foods such as groundnut paste, oil/fat, sugar or honey, or milk powder.</li> <li>▪ If your weight falls below normal, eat supplementary foods that are high in energy, protein, and micronutrients, such as corn-soy blend, where they are available and affordable.</li> <li>▪ If you have lost a lot of weight (look wasted), seek clinical support from a health facility that offers antiretroviral therapy (ART).</li> <li>▪ Caregivers: Practice “active support” (prepare and/or feed) when the client has no appetite or is not eating enough.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Most staple foods are low in energy and nutrient density and therefore need enrichment or fortification.</li> <li>▪ Severe weight loss requires medical care. The clinical staff may have to admit you or provide you with special foods to treat the malnutrition.</li> </ul>
<b>3. Maintain high levels of hygiene and sanitation.</b>	
<ul style="list-style-type: none"> <li>▪ Wash your hands with flowing water and soap after using the toilet and before handling and preparing food to avoid infection.</li> <li>▪ Be careful when buying ready-to-eat foods because they may be contaminated from being prepared or handled in unhygienic environments.</li> </ul>	<ul style="list-style-type: none"> <li>▪ People with HIV can easily get infections. These can make you feel weak, vomit, have diarrhoea, and lose your appetite.</li> <li>▪ Diarrhoea affects digestion or absorption of food and sheds essential nutrients from your body.</li> </ul>
<b>4. Drink plenty of clean and safe (boiled or treated) water.</b>	
<ul style="list-style-type: none"> <li>▪ Drink plenty of clean safe water; about eight glasses per day.</li> <li>▪ Boil or treat drinking water.</li> <li>▪ Have enough clean safe drinking water in the home at all times for drinking, making juice, and taking medicine.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The body needs water to remove the toxins caused by HIV or the antiretroviral medications.</li> <li>▪ Drink only clean, treated water to prevent infections such as diarrhoea.</li> </ul>
<b>5. Maintain a healthy lifestyle by avoiding unprotected sex, alcohol, tobacco, sodas, and other coloured and sweetened drinks and do physical activity (exercise)</b>	

<b>Key Message</b>	<b>Explanation</b>
<ul style="list-style-type: none"> <li>▪ Practice safer sex, using condoms.</li> <li>▪ Avoid alcohol, especially if you are taking medicines.</li>   <li>▪ Avoid smoking cigarettes and taking drugs without prescription.</li>   <li>▪ Limit your intake of junk food such as chips, sodas, and sugary foods such as cakes and candies.</li>   <li>▪ Seek help at the nearest health facility to manage depression and stress.</li> <li>▪ Get enough rest.</li> <li>▪ If possible, exercise regularly by doing household chores, walking or running</li> </ul>	<ul style="list-style-type: none"> <li>▪ Practicing safer sex avoids infection and transmission of other sexually transmitted infections.</li> <li>▪ Alcohol interferes with digestion, absorption, storage, and utilization of food.</li> <li>▪ Smoking interferes with appetite and increases your risk of cancer and respiratory infections, particularly tuberculosis.</li>   <li>▪ Most sweetened, coloured drinks sold in shops contain water, sugar, food colour and artificial flavour — they are not fruit juice. Junk foods have little nutrition value and can even harm your health so try to avoid eating them.</li> <li>▪ Stress and depression may interfere with your appetite and hence reduce food intake.</li> <li>▪ Inadequate sleep may result in more fatigue and a feeling of ill health that affects appetite and strength. Regular exercise is necessary to strengthen and build muscle, improve appetite, manage stress, and improve overall health and alertness.</li> </ul>
<b>6. Seek early treatment for infections and manage symptoms through diet.</b>	
<ul style="list-style-type: none"> <li>▪ Seek immediate clinical help for management of illness.</li>   <li>▪ Inform the health care provider of any traditional remedies or nutrition supplements you are taking.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Illnesses affect the body's intake, digestion, absorption, and use of food. Late treatment of illnesses affects your nutritional status.</li>   <li>▪ Always seek advice from a health professional concerning use of nutrition supplements.</li> </ul>

Key Message	Explanation
<ul style="list-style-type: none"> <li>▪ Manage symptoms with dietary practices at home where possible.</li> </ul> <p>Also refer to <b>Handout 5: Managing Symptoms Associated with HIV in Adults.</b></p>	<ul style="list-style-type: none"> <li>▪ Be aware of the aggressive advertising of some nutrition supplements that may have false claims.</li> <li>▪ Nutrition supplements should not replace food and do not treat HIV.</li> <li>▪ Some traditional herbs may affect the way other drugs act in the body and can make the drugs ineffective or produce side effects.</li> <li>▪ Dietary management can help manage certain symptoms, reduce their severity, and enable continued food consumption.</li> </ul>

<b>7. Take medicines as advised by the health worker and manage food and drug interactions or side effects.</b>	
<ul style="list-style-type: none"> <li>▪ Take all medicines as advised by the health worker.</li> <li>▪ Work with a health care provider or counsellor to make and maintain a drug-food schedule to help you plan times to take your medicines in relation to meals. Ask someone to help you keep the schedule.</li> <li>▪ Ask about the side effects that are likely to result from drugs.</li> <li>▪ Ask how you can manage drug side effects at home.</li> <li>▪ Always adhere to the drug regimen given by health care providers.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Not following your drug and food schedule may affect the effectiveness of the drugs or produce side effects that can affect your health or nutrition status.</li> <li>▪ Not adhering to prescribed drug regimens may make your body resistant to the drugs, making them less effective and possibly requiring you to change to stronger drugs.</li> </ul>

## **2. Communication Skills and Counselling Steps (ALIDRA)**

### **Purpose**

In this session, participants will learn the basic principles of counselling to effectively negotiate do-able actions with PLHIV and their home-based caregivers to improve nutrition and feeding practices.

### **Learning Objectives**

By the end of the session, participants will be able to:

- Identify listening and learning skills.
- Differentiate among counselling, teaching/guidance, and giving advice.
- Discuss the goals of counselling.
- List the steps used in counselling.

### **Handout 15: Listening and Learning Skills**

For effective counselling of people living with HIV, apply the following skills. They will elicit useful information about the client's nutrition and health status and help you decide appropriate counselling methods, interventions, and referrals.

#### **1. Use helpful non-verbal communication**

- a. Keep your head level with the client's.
- a. Pay attention.
- b. Remove barriers.
- c. Take time.
- d. Use appropriate touch.

#### **2. Ask open-ended questions.**

#### **3. Use responses and gestures that show interest.**

#### **4. Reflect back what the client says.**

#### **5. Empathize -- show that you understand how the client feels.**

#### **6. Avoid using words that sound judgemental.**

### **Counselling**

- Provides the client with information
- Asks the client about his/her situation and spends time listening
- Suggests small do-able actions
- Helps the client make a decision to try some small do-able action

- Is an interactive process between counsellor and client

### **The Goals of Counselling**

- To effectively communicate behaviours the client can practice to improve nutrition
- To help the client try small do-able actions to improve nutrition
- To judge when the client should be referred for further clinical assessment or counselling.

### **Teaching/Guidance**

- Provides appropriate and accurate information to enable a client to make important choices that affect his/her life
- Is all about giving information
- Involves a learner (client) and trainer (health care provider who is thought to have solutions to the client's problems)
- Is only part of counselling

### **Giving Advice**

- Is a more experienced or knowledgeable person telling a less-experienced or less-knowledgeable person what to do?
- Is necessary if the client cannot make decisions (e.g., is too young or lacks experience)?

**Handout 16: Counselling Observation Checklist (ALIDRAA)**

Put a check mark in the boxes next to the counselling skills you observe.

- Greets the client (and caregivers) and establishes confidence
- Asks** the client (and caregivers) about current feeding practices
- Listens** to what the client (and caregivers) say
- Identifies** key difficulties, if any, and selects with the client (and caregivers) the most important one to work on
- Discusses** feeding options
- Recommends and negotiates do-able actions** to help the client (and caregivers) select the best option to try, depending on their context and resources
- Helps the client (and caregivers) **Agree** to try one of the options and asks them to repeat the agreed-upon, do-able action
- Makes an **Appointment** for the follow-up visit.

Name one or more things the counsellor did well.

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Name one thing you would recommend the counsellor to try to improve next time.

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## **Handout 17: Therapeutic and Supplementary Feedings**

### **Purpose**

In this session, participants will be introduced with the recommended therapeutics and supplementary food for the management of acute malnutrition in PLHIV.

### **Learning Objectives**

By the end of the session, participants will be able to:

- Define the terms therapeutic food and its nutritional value
- Discuss the use of RUTF, FBF, F-75, and F-100
- Explain in which condition they should use these product
- Explain how to prepare FBF, F75 and F-100

### **Therapeutic foods**

Therapeutic foods are foods designed for specific, usually nutritional, therapeutic purposes. The common therapeutics foods currently used in the management of acute malnutrition includes Plumpy nut, BP-100, F-75 and F-100.

#### **1. Plumpy Nut**

Plumpy 'nut is an energy dense, fortified, ready to use therapeutic food designed for the treatment of acute malnutrition in children and adults in during the rehabilitation phase in therapeutic feeding centers or at home. The plumpy nut nutritional specification is close to that of F100 therapeutic milk, except that plumpy nut contains iron.

It contains vitamins A, B-complex, C, D, E, and K, and minerals calcium, phosphorus, potassium, magnesium, zinc, copper, iron, iodine, sodium, and selenium. See table below for detail micronutrient content.

### **Nutritional Value**

- Energy 545 kcal/100 g (500 kcal/92g)
- Protein 13.6 g/ 100g
- Fat 35.7 g/100g

<b>Micronutrient level of Plumpy nut</b>		
<b>Nutrient</b>	<b>Unit</b>	<b>Nutrients per 100g</b>
Vitamin A	mg re	0.95
Vitamin B1 (thiamine)	mg	0.5
Vitamin B2 (riboflavin)	mg	0.6
Niacin (B3)	mg NE	5.0
Vitamin B6	mg	0.6
Vitamin B12	mg	0.0016
Folate	mg DFE	0.034
Vitamin C	mg	50.00
Vitamin D	mg $\alpha$ -TE	0.0175
Vitamin E	mg	20.00
Vitamin K	mg	0.0225
Iodine	mg	0.1050
Copper <sup>2</sup>	mg	1.6
Iron	mg	12.00
Zinc	mg	12.5
Phosphorus <sup>2</sup>	mg	450.0
Magnesium	mg	110.0
Calcium	mg	450.0
Potassium <sup>2</sup>	mg	1250.0
Selenium	mg	00.025
Sodium <sup>2</sup>	mg	290.0

This product is semi solid, oil based and easy to eat for young children with out any preparation. It is safe to store it in a dry place at room temperature and has a 2 year shelf life.

- Plumpy nut dose not contain water and is therefore resistant to any bacterial contamination. So, opened packets of plumpy nut can be kept safely and eaten at a later time – the other family members should not eat any that is left over at a particular meal.
- Clients with moderate appetites and eat slowly can be provided with small regular meals of RUTF to eat as often as possible (every 3 to 4 hours)
- For breast-fed children, **always** give breast milk before the RUTF
- Always offer plenty of clean water to drink while eating RUTF
- This product should not be used for normal feeding, neither for patients below 6 months of age.

## 2. Fortified Blended Food (FBF)

Fortified blended food is supplementary food designed for the treatment of acute moderate malnutrition. FBF is fortified with essential micronutrients and pre-cooked flour but not instant product; it is designed to be cooked/fried or baked.

FBF is prepared from Maize (57.00%), Soy Beans (24.40%), Sugar (5.00%), Vegetable Oil (5.00%), Skim Milk Powder (8.00%), Premix (0.10%), Calcium Carbonate (0.30%), Potassium Chloride (0.10%), Sodium Chloride (0.10%). See table below for detail micronutrient content.

### Nutritional Value

- Energy 400 kcal/100 g

Nutritional facts of Fortified Blended Food (FBF)		
Nutrient	Unit	Nutrients per 100g
Vitamin A	mg re	0.1300
Vitamin B1 (thiamine)	mg	0.3300
Vitamin B2 (riboflavin)	mg	0.3300
Niacin (B3)	mg NE	3.9600
Vitamin B6	mg	0.3300
Vitamin B12	mg	0.0006
Folate	mg DFE	0.0300

Vitamin C	mg	19.8000
Vitamin D	mg $\alpha$ -TE	0.0033
Vitamin E	mg	3.3000
Vitamin K	mg	0.0099
Iodine	mg	0.0594
Copper <sup>2</sup>	mg	0.0000
Iron	mg	3.8280
Zinc	mg	0.0000
Phosphorus <sup>2</sup>	mg	303.6000
Magnesium	mg	0.0000
Calcium	mg	330.0000
Potassium <sup>2</sup>	mg	1980.0000
Selenium	mg	0.0112
Sodium <sup>2</sup>	mg	660.0000

### 3. F-100 and F-75 formula milk

F-75 and F-100 therapeutic milk are a formula milk designed for the treatment of severe acute malnutrition in in-patient set up. F-75 (75 kcal /100 ml), is used during the initial phase of treatment, while F-100 (100 kcal/100 ml) is used during the rehabilitation phase, after the appetite has returned and medical complication subsided.

These formulas can easily be prepared from the basic ingredients: dried skimmed milk, sugar, cereal flour, oil, mineral mix and vitamin mix (see Table 7). They are also commercially available as powder formulations that are mixed with water.

#### Preparation of pre-paced F75

- Add either one large packet of F75 to 2 L of water or one small packet to 500 ml of water.
- Where very few children are being treated smaller volumes can be mixed using the red scoop (20 ml water per red scoop (4.1gm) of F75 powder).
- Close the sachets appropriately by rolling down the top
- Don't use over left solution after 2 hours of preparation

**Preparation of pre-paced F-100**

- Add one packet of 100 to 2 L of water
- Where very few children are being treated smaller volumes can be mixed using the red scoop (18 ml water per red scoop (4.1gm) of F100 powder).
- Close the sachets appropriately by rolling down the top
- Don't use over left solution after 2 hours of preparation

**Preparation of F100 DILUTED**

- Dilute F100 one packet into 2.7l of water instead of 2L to make F100 diluted.

**To make small quantities of F100 diluted,**

- Use 100ml of F100 already prepared and add 35ml of water, then you will get 135ml of F100 diluted.
- Don't make smaller quantities.
- If you need more than 135ml, use 200ml of F100 and add 70ml of water, to make 270ml of F100 diluted and discard any excess waste.

<b>Composition of F-75 and F-100 diets</b>		
<b>Constituent</b>	<b>Amount per 100 ml</b>	
	<b>F-75</b>	<b>F-100</b>
Energy	75 kcal <sub>th</sub> (315 kJ)	100 kcal <sub>th</sub> (420 kJ)
Protein	0.9g	2.9g
Lactose	1.3g	4.2g
Potassium	3.6 mmol	5.9 mmol
Sodium	0.6 mmol	1.9 mmol
Magnesium	0.43 mmol	0.73 mmol
Zinc	2.0 mg	2.3 mg
Copper	0.25 mg	0.25 mg
Percentage of energy from:		
protein	5%	12%
fat	32%	53%
Osmolarity	333 mOsmol/l	419 mOsmol/l

## **MODULE C: SUPPORT**

### **SESSION 6: Nutritional Management in PLHIV and OVC**

#### **Purpose**

In this session, participants will learn provide nutritional care for PLHIV and OVC with different degree of nutritional status in out patient and in-patient care according to the national nutrition and HIV guideline.

#### **Objectives**

By the end of the session, participants will be able to:

- Identify the components of nutritional care under each care plan
- Provide therapeutic and supplementary foods to malnourished PLHIVs
- follow clients in different care plan

### **Handout 18: Clinical and Nutrition Management in Care Plan A - Children and Adults**

#### **I. Clinical and Nutrition Management in Care Plan A - Children**

First decide if the patient requires inpatient admission for management of the malnutrition.

The followings are indications for direct inpatient admission

1. Infant age < 6 months
2. Presence of danger signs
3. Presence of medical complications
4. Severe oedema (+++)
5. Miasmic Kwashiorkor

Patients who do not have the above listed conditions shall undergo appetite test to decide whether to manage the nutritional problem in an outpatient or inpatient setting. Admit to in-patient if the apatite test is failed.

See Annex 1 on how to conduct an appetite test and review the participants.

#### ***Inpatient Management***

1. Manage Danger signs
2. Prevent and Manage Medical complications as indicated
3. Start therapeutic feeding according to the national SAM guidelines
  - **Phase 1 -**
    - Give F-75 only (amount strictly based on weight). F75 is used during this phase to promote recovery of normal metabolic function and nutrition-electrolyte balance.

- Weight gain is dangerous at this stage; that is why F75 is formulated.
- Provide routine medications as per the national guideline (review routine medications in the annex)
- Monitor progress
- Transit to Transition Phase when appetite returns and edema starts to subside, medical complications resolved, no IV line or NGT required
- **Transition Phase-** Helps for recovery of metabolic function.
  - Give F-100 based on the weight of the child
  - At the same time start giving RUTF gradually
  - Monitor weight gain (shall not exceed 6g/kg/day)
  - Continue the routine medications
  - Monitor clinical progress
  - Transit to Phase 2/OTP when the child consumes 90% of the recommended daily intake and edema is significantly decreased (from ++ to +)
- **Phase 2** – aims to promote rapid weight gain
  - Inpatient management with either RUTF or F100 if there is:
    - No capable caretaker for outpatient management.
    - Unacceptable home circumstances.
    - No RUTF supply or no operational OTP program in the vicinity of the client.
  - OTP is preferred unless the above conditions exist

#### During OTP

- Use RUTF according to Weight in Table 1 and demonstrate **to the caregiver how to use RUTF**, and give enough supplies to last to the next return date.
- Continue giving routine medications/supplementation as in table 10
- A weight gain of greater than 8 g/kg/day is expected
- **Follow-up Visit for phase 2 or OTP**
  - Follow up with all children after 2 weeks
  - **Ask** if the patient finished the RUTF given in the last visit. Is there any complaint for example diarrhoea, vomiting, fever, or any other complaint.
  - **Asses** for any danger-signs and medical complications
  - Perform appetite-test-every visit
  - Take anthropometric measurement and record
    - Weight-every visit
    - Oedema-every visit
    - Standard clinical sign (vital sign)-every visit
    - MUAC-every visit
    - Height/Length-every month/BMI for age
  - If they are gaining weight adequately (> 8 g/kg/day for children), you can follow-up monthly.

- If they are not gaining weight, have worsening oedema, or have been losing weight for more than two months, and failure to pass appetite test at any visit, consider further investigation and treatment according to the national protocol.

#### 4. Counsel on key messages:

- Need for periodic weight monitoring
- How to increase energy density of diets at home
- How to manage key symptoms through diet modification (especially, nausea, loss of appetite, diarrhoea, mouth sores/rash)
- Any possible drug-food interactions
- Sanitation and hygiene, especially making food and drinking water safe.
- If outpatient clients can tolerate, gradual introduction of **home foods** can be encouraged.

#### 5. Transition to Care Plan B

- W/H > -2 Z-scores or 80 percent median (use 85 percent if no supplemental food)

OR

- MUAC > 110 mm 6 months – 59 months
- MUAC > 135 mm 5-9 years
- MUAC > 160 mm 10-14 years

OR

BMI for age- >-2SD

AND

- No oedema for two consecutive visits
- Minimum stay in nutrition care plan A (OTP ) for two months month

*Note: If child stays in nutrition plan A for 3 months with out fulfilling the above criteria, transfer to nutrition care plan B and investigate reason for failure and take action*

**Table: 10 Routine medication for SAM**

	Direct admission to inpatient care (Phase 1)	Direct admission to outpatient care (Phase 2)
Vitamin A	<ul style="list-style-type: none"> <li>▪ 1 dose at admission(conditional)</li> <li>▪ 1 dose on discharge</li> <li>▪ Do not give when transferred to OTP Management -- it will be given in OTP</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1 dose on the 4<sup>th</sup> week (4<sup>th</sup> visit)</li> </ul>
Folic Acid	<ul style="list-style-type: none"> <li>▪ 1 dose at admission if signs of anaemia</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1 dose at admission if signs of anaemia</li> </ul>
Amoxicillin	<ul style="list-style-type: none"> <li>▪ Every day in Phase 1, and 4 more days in transition</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1 dose at admission and give treatment for 7 days at home</li> </ul>
Malaria	<ul style="list-style-type: none"> <li>▪ According to national protocol</li> </ul>	<ul style="list-style-type: none"> <li>▪ According to national protocol</li> </ul>
Measles (from 9 months old)	<ul style="list-style-type: none"> <li>▪ 1 vaccine at admission if no card</li> <li>▪ 1 vaccine at discharge</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1 vaccine on the 4<sup>th</sup> week (4<sup>th</sup> visit)</li> </ul>
Iron	<ul style="list-style-type: none"> <li>▪ Add to F100 in Phase 2</li> </ul>	<ul style="list-style-type: none"> <li>▪ No iron; it is already in all RUTF</li> </ul>
Deworming	<ul style="list-style-type: none"> <li>▪ 1 dose at the start of Phase 2</li> </ul>	<ul style="list-style-type: none"> <li>▪ 1 dose on the 2<sup>nd</sup> week (2<sup>nd</sup> visit)</li> </ul>

## II. Clinical and Nutrition Management in Care Plan A - Adults (30 minutes)

First decide if the patient requires inpatient admission for management of the malnutrition

The followings are indications for direct inpatient admission

1. Presence of danger signs
2. Presence of medical complications
3. Severe oedema (+++)

Patients who do not have the above listed conditions shall undergo appetite test to decide whether to manage the nutritional problem in an outpatient or inpatient setting.

See Annex 1 on how to conduct an appetite test and review the participants. Admit the patient to in-patient care if the apatite test is failed

### *Inpatient Management*

1. Manage Danger signs

2. Prevent and Manage Medical complications as indicated
3. Start therapeutic feeding according to the national SAM guidelines

- **Phase 1 -**

- Give F-75 only (amount strictly based on weight). F75 is used during this phase to promote recovery of normal metabolic function and nutrition-electrolyte balance.
- Weight gain is dangerous at this stage; that is why F75 is formulated.
- Provide routine medications as per the national guideline (review routine medications in the annex)
- Monitor progress
- Transit to Transition Phase when appetite returns and edema starts to subside, medical complications resolved, no IV line or NGT required

- **Transition Phase-** Helps for recovery of metabolic function.

- Give F-100/RUTF based on weight
- At the same time start giving RUTF gradually until the patient takes 3 – 4 sachets daily
- Monitor weight gain (shall not exceed 6g/kg/day)
- Continue the routine medications
- Monitor clinical progress
- Transit to Phase 2/OTP when the adult consumes 90% of the recommended daily intake and edema is significantly decreased (from ++ to +)

- **Phase 2 –** aims to promote rapid weight gain

- Inpatient management with RUTF and FBF:
  - Unacceptable home circumstances.
- OTP is preferred unless the above conditions exist
- During OTP use RUTF – (3sachets of Plumpynut, 500kcal per sachet) and FBF (400gm, 400kcal per 100gm) and demonstrate **how to use RUTF and FBF** and give enough supplies to last to the next return date.
- Continue giving routine medications/supplementation as per the national guideline
- Ensure that weight gain is not due to fluid accumulation.

**Follow-up Visit**

- Follow up every month
- **Ask** if the patient finished the RUTF and FBF given in the last visit. Ask if there is any complaint for example diarrhoea, vomiting, fever, or any other complaint.
- **Asses** for any danger-signs and medical complications
- Perform appetite-test-every visit
- Take anthropometric measurement and record
  - Weight-every visit
  - Oedema-every visit

- Standard clinical sign (vital sign)-every visit
- MUAC-every visit
- BMI quarterly
- If they are not gaining weight, have worsening oedema, or have been losing significant weight for more than two months, and failure to pass appetite test at any visit, consider further investigation and treatment according to the national protocol.

#### 4. Counsel on key messages:

- Need for periodic weight monitoring
- How to increase energy density of diets at home
- How to manage key symptoms through diet modification (especially, nausea, loss of appetite, diarrhoea, mouth sores/rash)
- Any possible drug-food interactions
- Sanitation and hygiene, especially making food and drinking water safe.
- If outpatient clients can tolerate, gradual introduction of **home foods** can be encouraged.

#### 5. Transition to Care Plan B

- BMI > 16 (can use 17 if no supplemental food) OR
- MUAC >180 mm (client admitted with MUAC)

AND

- Client has appetite
- Can eat home food
- No oedema for two consecutive visits
- Minimum stay in Nutrition care plan A (OTP) for two months

*Note: If the patient stays in nutrition plan A for 3 months with out fulfilling the above criteria, transfer to nutrition care plan B and investigate reason for failure and take action*

## Handout 19: Nutrition Care Plan B for Children and Adults

### I. Nutrition Care Plan B (OTP) for children

#### 1. Nutritional management

For children with moderate malnutrition, provide therapeutic and supplementary food using the protocol given in Nutrition Care Plan B

#### A. In situation where there is therapeutic and supplementary foods:

- Provide **RUTF (500 kcal/sachet) and 200 g of FBF (400 kcal/100 g)** daily as stated in table 6.2 below and in adequate amount for two weeks or one month every visit.
- Demonstrate **how to use RUTF and FBF** and give enough supplies to last to the next return date.

Supplementary food rations for HIV-positive children		
Age group	RUTF	FBF
6 months – 11 months	one 92 g. sachet of RUTF	0g.
12 months – 23 months	one 92 g. sachet of RUTF	100 g.
24 months – 59 months	one 92 g. sachet of RUTF	100 g.
5 years – 9 years	one 92 g. sachet of RUTF	200 g.
10–14 years	one 92 g. sachet of RUTF	200 g.

#### B. Nutrition Management in situation where there is no therapeutic and supplementary foods:

- Counsel parents on increasing energy intake using home prepared recipes as follows:
  - Additional energy needs. To meet their additional energy needs, HIV-infected individuals need to consume the following additional quantities of energy in addition to a full daily diet:
    - Children 6–12 months old: Additional 120–150 kcal/day
    - Children 12–23 months old: Additional 160–190 kcal/day

- Children 2–5 years old: Additional 200–280 kcal/day
- Children 6–9 years old: Additional 260–380 kcal/day
- Children 10–14 years old: Additional 340–400 kcal/day
- Adults: Additional 525 kcal/day

See Table 6.3 for adaptation of these quantities to local snacks.

<b>Additional Energy Requirements of Symptomatic PLHIV</b>		
Age	Additional (20-30%) energy (kcal) per day due to HIV	Snack examples that can be given in addition to the meals and snacks
6 months – 11 months	120-150 kcal/day	One medium size mango and banana
12 months – 23 months	160-190 kcal/day	Quarter enjera fetfet with meat sauce
2 - 5 years	200-280 kcal/day	1 Medium cup beso drink and 1 banana
6– 9 years	260-380 kcal/day	1 large cup of beso firfir and 1 large cup of nifro
10–14 years	260–380 kcal/day	1 average size slice of kitta/ambasha
15–17 years	350-400 kcal/day	2 big-size cup kinche (split wheat)
18+ years	350-400 kcal/day	3 big-size cups of chechebsa

## **2. Provide routine medicines and Supplementation**

- Ensure adequate micronutrient intake. If the client’s diet is not varied enough to provide sufficient micronutrients, give a daily micronutrient supplement that provides 1 RDA of vitamins and minerals. Clients who are anaemic may need iron supplementation.
- Provide vitamin A supplements to children every six months according to the national protocol.
- De-worm regularly, every six months.

### **2.Counsel on key messages:**

- a. Need for periodic weight monitoring
- b. How to increase energy density of diets at home
- c. How to manage key symptoms through diet modification (especially, nausea, loss of appetite, diarrhoea, mouth sores/rash)
- d. Any possible drug-food interactions
- e. Sanitation and hygiene, especially making food and drinking water safe.
- f. If outpatient clients can tolerate, gradual introduction of **home foods** can be encouraged.

### 3. Clinical Management

- Ensure cotrimoxazole prophylaxis is provided to HIV-positive children, per the national protocol.
- Clinically stage and assess the client for ART.
- If the client is on ART, assess clinical and immunological response.
- If the client is a child, assess the mother's health, need for ART, and ability to care for other children.

### 4. Follow-up Visit

- Follow up with all children every 2 weeks or 4 weeks (if the child is gaining weight or if they are coming from a far place.)
- **Ask** if the patient finished the RUTF and FBF given in the last visit. Is there any complaint for example diarrhoea, vomiting, fever, or any other complaint.
- **Asses** for any danger-signs and medical complications, check for appetite test
- Take anthropometric measurement and record
  - Weight-every visit
  - Oedema-every visit
  - Standard clinical sign (vital sign)-every visit
  - MUAC-every visit
  - Height/Length-every month/BMI for age
- A weight gain of greater than 8 g/kg/day is expected
- If they are not gaining weight, or develop oedema, or have been losing weight for more than two months, and failure to pass appetite test at any visit, consider further investigation and treatment according to the national protocol.

### 5. Transition to Care Plan C

Children should graduate from food supplementation when they have received at least two months of RUTF and FBF and fulfil the following:

- $W/H > -2$  Z-scores or 80 percent median (use 85 percent if no supplemental food)  
OR
- MUAC  $> 120$  mm 6 months – 12 months

- MUAC > 130 mm 12 months – 59 months
  - MUAC > 145 mm 6-9 years
  - MUAC > 180 mm 10-14 years
  - BMI for age for 5-17 years >-2 Z score
- AND
- No weight loss
  - No signs of symptomatic disease

*Note; for clients admitted to nutrition care plan B directly they should stay in nutrition care plan B for maximum of 3 months except children 6-24 months who will stay until they are 24 months old.*

## II. Nutrition Care Plan B (OTP) for Adults

### 1. Nutritional management

For adults with moderate malnutrition, provide therapeutic and supplementary food using the protocol given in Nutrition Care Plan B as follows:

#### A. In situation where there is therapeutic and supplementary foods:

- Provide **one 92 g sachet of RUTF (500 kcal/sachet) and 200 g of FBF (400 kcal/100 g)** daily and adequate amount for one month every visit.
- Demonstrate **how to use RUTF and FBF** and give enough supplies to last to the next return date.
- Educate the client on how to **improve household food (increase energy and improve taste)** and achieve the extra food requirements appropriate for the disease stage.

#### B. Nutrition Management in situation where there is no therapeutic and supplementary foods:

- Counsel client to increase energy in foods to consume 20 to 30 percent more energy from home foods based on current weight, as shown in Table 6.3.

<b>Additional Energy Needs of Symptomatic PLHIV</b>		
Age (years)	Additional (20-30 percent) energy (kcal) per day due to HIV	Food-based approach. Give in addition to meals and other snacks
15–17	700 (in addition to 2800 kcal daily need)	2-3 large size coffee cups kinche (split wheat)
18+	525 - 600 (in addition to 2170-2430 daily need)	3 large size coffee cups of chechebsa
<i>Pregnant and post-partum women</i>	525 - 600 (in addition to 2455 – 2670)	2 large size coffee cups of beso firfir

- Give the client a daily micronutrient supplement that provides 1 RDA of a wide range of vitamins and minerals, unless supplementary food or daily diet is already providing sufficient micronutrients. Clients who are anaemic may need iron supplementation.

## 2. Counsel on key messages:

- Need for periodic weight monitoring
- How to increase energy density of diets at home
- How to manage key symptoms through diet modification (especially, nausea, loss of appetite, diarrhoea, mouth sores/rash)
- Any possible drug-food interactions
- Sanitation and hygiene, especially making food and drinking water safe.
- If outpatient clients can tolerate, gradual introduction of **home foods** can be encouraged.

## 3. Clinical Management

- Ensure that cotrimoxazole prophylaxis is provided as per the national protocol for HIV-positive adults with CD4 counts less than 350 and WHO stage 3 and 4
- **If client is HIV positive but not on ART, refer to assessment for ART.**
- If the **client is on ART and losing weight**, assess a) non-adherence, b) related side-effects (vomiting, abdominal pain, diarrhoea, poor appetite, taste change), c) opportunistic infection (e.g., TB, diarrhoea), d) development of immune reconstitution syndrome or late ART-related side effects (e.g., lactic acidosis signs such as abdominal pain, vomiting, or fast breathing), or

e) possible early sign of treatment failure if on ART for longer than six months (do a check of CD4 levels), and f) lipoatrophy. **Refer if indicated.**

- Assess inadequate food intake by evaluating a) energy density of the food, b) quantity of food intake, and c) food access problems. **Support appropriately.**

## 2. Follow-up Visit

- Follow up every month
- **Ask** if the patient finished the RUTF and FBF given in the last visit. Ask if there is any complaint for example diarrhoea, vomiting, fever, or any other complaint.
- **Assess** for any danger-signs and medical complications
- Perform appetite-test-every visit
- Take anthropometric measurement and record
  - Weight-every visit
  - Oedema-every visit
  - Standard clinical sign (vital sign)-every visit
  - MUAC-every visit
  - BMI quarterly
- **Review the plan** with the client in one month. If the client is responding, review the plan every one to two **months depending** on response.
- If the client is **not gaining weight for three or more months** or if he/she continues to **lose weight for two or more months**, refer the client to specialized investigation and care.

## 5. Transition to Nutrition Care Plan C

- **Change to Nutrition Plan C** when adult has been in Nutrition Care Plan B for at least 2 months AND there has been no weight loss in the past month AND there are no signs of symptomatic disease AND
  - BMI  $\geq 18.5$ , or MUAC  $> 210$  for adults (non pregnant adults)
  - MUAC  $> 210$  mm (for pregnant and lactating women)

*Note: for clients admitted to nutrition care plan B directly they should stay in nutrition care plan B for 3 months*

## **Handout 20: Nutrition Care Plan C for Children and Adults**

For children with appropriate growth, normal nutritional status, and no signs of symptomatic disease, following are some key messages:

Key message. **Preventive measures** such as good hygiene, immunizations for children, and regular vitamin A supplements protect PLHIV against infection and undernutrition. **Physical activity** helps PLHIV develop and maintain strong muscles and improves their sense of well-being.

Key message. Counselling on the **7 Critical Nutrition Practices** from Session 3 is very important to help maintain good health and nutritional status.

Key message. PLHIV should be **referred** to other health care facilities or programs when specific needs are identified or other resources are required. The frequency and interval between reviews depends on the condition and needs of the client.

Key message. Asymptomatic PLHIV require 10 percent additional energy due to virus replication and changes in metabolism. Quantities and example snacks to meet these requirements are given in Table 3 below.

### **I. Clinical and Nutrition Management of Mildly Malnourished and Normal Children**

#### ***1. Clinical Management***

- Clinically stage and assess the client for ART.
- If the client is on ART, assess the clinical and immunological response (e.g., take blood biochemical measures at least every six months).
- Counsel on adherence to immunisations (for children), de-worming, micronutrient supplementation, hygiene and sanitation, and management of drug-related side effects.

## 2. Nutrition Management

<b>Additional Energy Requirements of Asymptomatic PLHIV</b>		
Age	Additional (10%) energy (kcal) per day due to HIV	Snack examples that can be given in addition to the meals and snacks
6 months – 11 months	60-75 kcal	1 medium size banana and mango each
12 months – 23 months	80-95 kcal	One medium size banana
2 years - 5 years	100-140 kcal	1 medium size sweet potato
6 years – 9 years	130-190 kcal	1 large cup of asuk (roasted and boiled beans)
10 years – 14 years	170-230 kcal	1 slice kitta/ambasha
15 years – 17 years	200 kcal	1 big size tea cup of beso firfir
18+ years	200 kcal	1 big size tea cup of beso juice

### *Nutrition Counselling*

- Assure the mother or caregiver that the child is growing well.
- **Counsel on key messages and critical nutrition Practices:** a) the need for periodic weight monitoring, b) how to increase the energy density of diets at home, c) how to manage **diet-related symptoms** (especially nausea/vomiting, poor appetite, diarrhoea, mouth sores/thrush), d) any possible drug-food interactions, e) and sanitation and hygiene, especially making food and drinking water safe.
- If they are breastfeeding, counsel on optimal breastfeeding or, if on replacement feeding, emphasise proper feeding, safety and avoiding mixed feeding.
- If the child is of complementary feeding age emphasise optimal complementary feeding practices (FADUA -- Frequency, Adequacy, Density, Utilization and Active feeding and variety).

***Routine Supplementation***

- Ensure adequate micronutrient intake. If the child's diet is not varied enough to provide sufficient micronutrients, give a daily micronutrient supplement that provides 1 RDA of vitamins and minerals. Clients who are anaemic may need iron supplementation.
- Provide vitamin A supplements to children every six months according to the national protocol.
- De-worm regularly, every six months.

***3. Follow Up Management***

- Review in two to three months, but tell the caregiver to return earlier if problems arise.
- If the client is a child, assess the mother's health, her need for ART, and her ability to care for other children.

**II. Clinical and Nutrition Management of Mildly Malnourished and Normal Adults*****1. Clinical Management***

- If the client is on ART, determine whether the client is adhering to treatment and managing diet-related symptoms well.
- Ensure that cotrimoxazole prophylaxis is provided as per the national protocol for HIV-positive adults with CD4 counts under 350 and WHO stage 3 and 4.

<b>Additional Energy Needs of Asymptomatic PLHIV</b>		
Age (years)	Additional (10%) energy (kcal) per day due to HIV	Food-based approach Give as addition to meals and other snacks
15–17	280 (in addition to 2800 kcal daily need)	1 large coffee cup of beso firfir
18+	225 (in addition to 2170-2430 daily need)	1 large coffee cup of kolo
<i>Pregnant and post-partum women</i>	225 (in addition to 2455 – 2670)	2 medium coffee cups of chechebsa

## ***2. Nutrition Management***

Counsel the client to eat enough food to meet increased energy/nutrient needs plus 10 percent energy, as shown in Table 3.

### ***Nutrition Counselling***

- **Counsel on key messages and critical nutrition practices:**
- The need for periodic weight monitoring
- How to increase the energy density of diets at home
- How to manage **diet-related symptoms** (especially nausea/vomiting, poor appetite, diarrhoea, mouth sores/thrush)
- Any possible drug-food interactions
- Sanitation and hygiene, especially making food and drinking water safe.

## ***3. Follow up Management***

- **Advise** the client and caregiver of the need for periodic weighing
- **Review the plan** with the client in two to three months or earlier if problems arise.

**Handout 21: Case study****Part 1**

Kebede is a 47-month-old boy and has been brought to the clinic by his mother because he is not eating well. His mother says he has lost weight in the past two months and has had diarrhoea and a cough. He weighs 9.3 kg. His height is 91 cm. He looks thin (his ribs can be seen). He has no oedema on either foot. No blood has been seen in his stool, and he has not had a fever. He is on no medications. He looks pale. His eyes are not sunken, but there is a prolonged skin pinch. He is not thirsty. His respiratory rate is 42/min (slightly fast). He has generalised lymphadenopathy, finger clubbing, and parotid enlargement. There is no in-drawing or bronchial breath sounds, but both lung fields show coarse crepitations. Kebede's Growth Chart is shown below. He had all of his immunisations. His mother says she is HIV infected and Kebede was also diagnosed with HIV during a hospital admission last year. The health care provider makes an appointment for the mother to come back in five months.

**Part 2**

Kebede's mother brings him back on the agreed-upon date (one month later). The child looks better, and his mother is happier. It has been three months since he was able to leave the outpatient severe malnutrition program. He now weighs 10.9 kg, and his height is 92.1 cm. His mother reports no diarrhoea or other illnesses and says his weight did not change the last two weighings. Five months ago Kebede was seen at the ART initiation site, and it was agreed that he should start first-line ART, which Kebede's mother has been collecting every month. The ART site team counselled his mother on treatment and adherence. The results of the sputum test were negative for TB.

**Part 3**

It is seven months since Kebede first arrived at the health centre. He is now living with his grandmother. The grandmother has been coming for two months to collect Kebede's supplementary feedings (6 kg of FBF per month). Today she is collecting the last ration. His mother has been hospitalized twice in the past three months. She is also on ART. Kebede looks well. He weighs 13.2 kg, and his height is 93 cm. He had diarrhoea last week, which was treated at home using traditional herbs. He is now going to school for six to seven hours a day.

**Part 4**

Fifteen months since the first contact, Kebede has responded well to ART. He is still in school and is attending the ART clinic every two months. Although his weight had increased to 14.5 kg by the time he was 62 months old, in the past two months, his weight has dropped to 11.5 kg. His mother died four months ago, and he is now being cared for by his grandmother along with six other children. His

grandmother reports that Kebede has had poor appetite the past few weeks. He has not vomited nor complained of stomach pains. He seems to be adhering to his medications.

## Handout 22: Self Assessment: Requirements for Clinical Nutrition Care of PLHIV

<b>Human Resources, Materials, and Equipment</b>		
1.	Every site providing HIV services has at least one staff member who is taking anthropometric measurements of HIV-positive clients.	
2.	Every site providing HIV services has at least two staff members who are providing nutrition care and food prescription and distribution.	
3.	Every site providing HIV services has at least two health care providers trained in the HAPCO/FMOH “Guide to Clinical Nutrition Care” course.	
4.	Every site providing HIV services has a functioning scale for adults and children that measures weight in kilograms to the nearest 100 grams.	
5.	Every site providing HIV services has one height/length board that measures height or length in centimetres to the nearest centimetre.	
6.	Every site providing HIV services has mid-upper arm circumference (MUAC) tapes for adults and children that measure MUAC to the nearest millimetre for pregnant and post-partum women, children, and adults who cannot have height measured.	
7.	Every site providing HIV services has utensils (e.g., bowls, stove, etc.) to demonstrate the use or preparation of recommended and prescribed foods such as RUTF and fortified blended foods.	
8.	Every site providing HIV services has copies of the algorithms for managing malnutrition in HIV-infected children and adults in Ethiopia.	
9.	Every site providing HIV services has at least one set of nutrition and HIV counselling cards for Ethiopia.	
10.	Every site has data entry forms and a compilation system that includes nutrition data.	
11.	Every site providing HIV services has copies of BMI, weight/height, and BMI-for-age charts.	
<b>Nutrition Assessment and Classification</b>		
12.	Every person living with HIV (PLHIV) or orphan or vulnerable child (OVC) coming to the site is weighed to the nearest 100 grams and measured (to the nearest centimetre), or has MUAC taken if they are pregnant or lactating or if weight or height cannot be measured accurately.	

13.	Body mass index BMI (for adults), weight-for-height (for children under 15 years old), or MUAC (for pregnant and post-partum women, children, or clients whose weights or heights cannot be measured) is computed for each client and recorded on the client record sheets every month for children under 5 and symptomatic adults, and every three months for asymptomatic adults.	
14.	Every client is assessed for critical symptoms (e.g., severe dehydration, severe anaemia, diarrhoea, vomiting, oral sores or thrush, anorexia, TB or other opportunistic infections) that may affect nutritional status.	

<b>Nutrition Care Plan</b>		
15	Every PLHIV and OVC is managed using a nutrition care plan which is based on his/her nutritional status and health condition.	
16	Every PLHIV is counselled on the need to: a) have their weight monitored periodically; b) increase intake of energy-rich foods; c) maintain healthy sanitation and hygiene; d) drink plenty of clean and safe water (boiled/treated water); e) maintain healthy living to prevent stress and depression and promote nutrient absorption and use; f) do physical activity; g) manage diet-related symptoms at home; and h) manage drug-food interactions.	
17	Every PLHIV, OVC, and caregiver who qualifies for a nutrition care plan has his/her weight measured each time he/she comes to collect the food and his/her weight recorded on the client record form.	
18	Every PLHIV, OVC, and caregiver who is eligible for a nutrition care plan is told why he/she qualifies for the food, the purpose of the food, and when he/she is expected to exit from the program.	
19	Eligibility (entry and exit) criteria for a nutrition care are plan posted where service providers and clients can see them clearly.	
20	Every severely malnourished PLHIV or OVC is given an “appetite test” before being counselled on home management of severe malnutrition.	
21	Every PLHIV or OVC who is eligible for a nutrition care plan is prescribed FBP (or a mix of different kinds of FBP) according to national FBP guidelines, depending on nutritional status and physiological state, in a quantity adequate to last until the next return date.	
22	Every PLHIV or OVC or caregiver who is eligible for a nutrition care plan is given a demonstration on how to prepare and use the prescribed food(s).	

23	Every PLHIV or OVC or caregiver who receives a nutrition care plan is counselled at the earliest possible contact on his/her safe weight to exit the program, preparation and use of the FBP, adherence, and safe food handling.	
24	FBP is not distributed as an infant food for children under six months old, except for the management of severe acute malnutrition and health care providers reinforcing the message that infants should be exclusively breastfed for six months.	
<b>Nutrition Commodities and Infrastructure</b>		
25	Every site providing clinical nutrition care has nutrition supplements according to the treatment protocol and care plan (e.g., RUTF, FBF, micronutrient supplements etc.).	
26	Every site providing clinical nutrition care has BCC counselling tools for counselling critical nutrition behaviour.	
27	Every site has adequate infrastructure for storing nutrition supplements and commodities	

**Session 7: Dietary Management of HIV associated symptoms****Handout 23: Managing Symptoms Associated with HIV in children and Adults**

(Adapted from FANTA 2001, Pronsky et al. 2001, Nerad 2003, Castleman et al. 2004, and WHO 2003.)

<b>Illness</b>	<b>Diet</b>	<b>Care and Nutrition Practices</b>
Anorexia (appetite loss)	<ul style="list-style-type: none"> <li>▪ Try to stimulate appetite by eating favourite foods.</li> <li>▪ Eat small amounts of food more often.</li> <li>▪ Select foods that are more energy dense.</li> <li>▪ Avoid strong-smelling foods.</li> </ul>	<ul style="list-style-type: none"> <li>▪ If appetite loss is a result of illness, seek medical attention for treatment.</li> </ul>
Diarrhoea	<ul style="list-style-type: none"> <li>▪ Drink lots of fluids (soups, diluted fruit juices, boiled water, and tea) to avoid dehydration.</li> <li>▪ Avoid strong citrus fruits (orange, lemon) because they may irritate the stomach.</li> <li>▪ Consume foods rich in soluble fibre (millet, banana, peas, and lentils) to help retain fluids.</li> <li>▪ Consume fermented foods (porridges, yogurt).</li> <li>▪ Consume easily digestible foods (rice, bread, millet, maize porridge, potato, sweet potato, crackers).</li> <li>▪ Eat small amounts of food frequently and continue to eat after illness to recover weight and nutrient loss.</li> <li>▪ Eat soft fruits and vegetables (bananas, squash, cooked and mashed green bananas, mashed sweet potato, and mashed carrots).</li> <li>▪ Eat eggs, chicken, or fish for protein.</li> <li>▪ Drink nonfat milk if there is no problem with lactose.</li> <li>▪ Boil or steam foods.</li>   <li>▪ <i>Avoid or reduce intake of these foods:</i> <ul style="list-style-type: none"> <li>▪ Some dairy products such as milk</li> <li>▪ Caffeine (coffee and teas) and alcohol</li> <li>▪ Fatty foods</li> <li>▪ Fried foods and extra oil, lard, or butter</li> </ul> </li> </ul>	<p><u>Prevention</u></p> <ul style="list-style-type: none"> <li>▪ Drink plenty of clean boiled water.</li> <li>▪ Wash hands with soap and water before handling, preparing, serving, or storing foods.</li> <li>▪ Wash hands with soap and water after using a toilet or latrine or cleaning a child after defecation.</li> </ul> <p><u>Treatment</u></p> <ul style="list-style-type: none"> <li>▪ Drink more fluids to prevent dehydration. Prepare rehydration solutions using oral rehydration salt packets or a home-made solution of 1 litre of boiled water, 4 teaspoons of sugar, and 1/2 teaspoon of iodized salt.</li> <li>▪ Go to a health centre if symptoms such as severe dehydration (low or no urine output), fainting, dizziness, shortness of breath, bloody stools, high fever, vomiting, severe abdominal pain, or diarrhoea) persist for more than three days.</li> </ul>

Illness	Diet	Care and Nutrition Practices
Fever	<ul style="list-style-type: none"> <li>▪ Gas-forming food (cabbage, onions, carbonated soft drinks)</li> <li>▪ Eat soups rich in foods that give energy and nutrients (maize, potatoes, and carrots).</li> <li>▪ Drink plenty of liquids.</li> <li>▪ Drink teas from lemon, guava, and gum tree.</li> <li>▪ Drink more than usual, beyond thirst.</li> <li>▪ Continue to eat small, frequent meals as tolerated.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drink fluids to prevent dehydration, particularly clean boiled water.</li> <li>▪ Bathe in cool water.</li> <li>▪ Rest.</li> <li>▪ Take two aspirin or Panadol, if available, with meals three times a day.</li> <li>▪ Go to the health centre in case of:               <ul style="list-style-type: none"> <li>– Fever lasting several days and not relieved with aspirin</li> <li>– Loss of consciousness</li> <li>– Severe body pain</li> <li>– Yellow eyes</li> <li>– Severe diarrhoea</li> <li>– Convulsion/seizure</li> </ul> </li> </ul>
Nausea and vomiting	<ul style="list-style-type: none"> <li>▪ Eat small and frequent meals.</li> <li>▪ Eat foods such as soups, unsweetened porridge, and fruits such as bananas.</li> <li>▪ Eat lightly salty and dry foods (e.g., crackers) to calm the stomach.</li> <li>▪ Drink herbal teas and lemon juice in hot water.</li> <li>▪ Avoid spicy and fatty foods.</li> <li>▪ Avoid caffeine (coffee/tea) and alcohol.</li> <li>▪ Drink liquids such as clean boiled water.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Avoid an empty stomach; nausea is worse if nothing is in the stomach.</li> <li>▪ Avoid lying down immediately after eating; wait at least 20 minutes to avoid vomiting.</li> <li>▪ Rest between meals.</li> </ul>
Thrush	<ul style="list-style-type: none"> <li>▪ Eat soft, mashed foods (carrots, scrambled eggs, mashed potatoes, bananas, soups, porridge).</li> <li>▪ Eat cold or room-temperature foods.</li> <li>▪ Avoid spicy, salty, or sticky foods; these may irritate mouth sores.</li> <li>▪ Avoid sugary foods; these cause yeast to grow.</li> <li>▪ Avoid strong citrus fruits and juices that may irritate mouth sores.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Seek medical attention for treatment.</li> <li>▪ If a spoon or cup is available, use it to eat small amounts of foods.</li> <li>▪ Tilt head back when eating to help with swallowing.</li> <li>▪ Rinse mouth with boiled warm salt water after eating to reduce irritation and keep</li> </ul>

Illness	Diet	Care and Nutrition Practices
	<ul style="list-style-type: none"> <li>▪ Avoid alcohol.</li> <li>▪ Drink plenty of liquids.</li> </ul>	<ul style="list-style-type: none"> <li>▪ infected areas clean so yeast cannot grow.</li> </ul>
Anaemia	<ul style="list-style-type: none"> <li>▪ Eat more iron-rich foods (eggs, fish, meat, and liver), green leafy vegetables (collard greens, spinach), legumes (beans, lentils, groundnuts), nuts, oil seeds, and fortified cereals.</li> <li>▪ Take iron supplements.</li> </ul>	<ul style="list-style-type: none"> <li>▪ If available, take one iron tablet a day with food. Take with vitamin C (tomatoes, orange juice) to help with absorption.</li> <li>▪ Drink fluids to avoid constipation.</li> <li>▪ Treat malaria and hookworm.</li> </ul>
Muscle wasting	<ul style="list-style-type: none"> <li>▪ Increase food intake by increasing quantity of food and frequency of consumption.</li> <li>▪ Improve quality and quantity of foods by providing a variety of foods.</li> <li>▪ Increase energy foods in cereals and other staples.</li> <li>▪ Eat small, frequent meals.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Do regular weight-bearing exercise to build muscles.</li> </ul>
Constipation	<ul style="list-style-type: none"> <li>▪ Eat foods that are high in fibre (maize, whole-wheat bread, green vegetables, washed fruits with the peel).</li> <li>▪ Drink plenty of liquids.</li> <li>▪ Avoid processed or refined foods.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Avoid using intestinal cleansing practices (e.g., enemas and medications).</li> <li>▪ Drink plenty of fluids, including boiled water.</li> </ul>
Bloating or Heartburn	<ul style="list-style-type: none"> <li>▪ Eat small, frequent meals.</li> <li>▪ Avoid gas-forming foods (cabbage, soda).</li> <li>▪ Drink plenty of fluids.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Eat long enough before sleeping so food can digest.</li> </ul>
Tuberculosis	<ul style="list-style-type: none"> <li>▪ Consume foods high in protein, energy, iron, and vitamins.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Seek medical attention immediately.</li> <li>▪ Consult medical personnel about taking food with medications.</li> <li>▪ If taking Isoniazid for treatment, take a vitamin B6 supplement to avoid a deficiency.</li> </ul>
Loss of taste or abnormal taste	<ul style="list-style-type: none"> <li>▪ Use flavour enhancers (salt, spices, herbs, and lemon).</li> <li>▪ Chew food well and move it around in mouth to stimulate receptors.</li> </ul>	

## Session 8: Nutrition and ARV drugs

### Handout 24: Nutrition and ARV drugs

1. Effects of ARV Drugs on Nutrition
  - Decreased intake due to reduced appetite
  - Nausea and vomiting
  - Direct stimulation of the drug resulting in reduced appetite and hence reduced intake
  - Reduced absorption due to diarrhoea
  - Pancreatitis resulting in abnormal fat absorption and glucose abnormalities
  - Abnormal metabolism; mitochondrial dysfunction interfering with oxidative metabolism of fat resulting into lipoatrophy, lipohyperatrophy.
  - Hyperlipidemia, myocardial infarction, diabetes mellitus
  - Anaemia as a result of the use of the antifolate drugs cotrimoxazole, fansidar, and zidovudine
  - Hypoglycaemia due to quinidine
  - Improved health, resulting in improved appetite
  
2. Effect of Nutrition on ARV Drugs
  - Increases absorption – EFV increase by high-fat diet leads to toxicity
  - Decreases absorption so that some drugs need to be taken on an empty stomach (e.g., didanosine, certain protease inhibitors)
  
3. Failure to Gain Weight
 

Most PLHIV will gain weight once started on ART. Failure to gain weight can result from the following:

  - Failure to take ART correctly, either due to non-adherence or vomiting (severe wasting with other symptoms such as abdominal pain, vomiting, or fast breathing may be a sign of lactic acidosis)
  - Early side effects of ART can cause nausea/vomiting, fatigue, and dyspepsia
  - Late side effects of ART can cause lipoatrophy, insulin resistance, and lipidemia
  - Malnutrition
  - Opportunistic infections such as TB
  - Immune reconstitution syndrome
  - Late ART-related side effects such as lactic acidosis or lipodystrophy
  - Inadequate food intake because of inadequate food supply, preparation, or caregiving
  - Early signs of treatment failure if on ART for longer than six months

If very low weight persists or the client presents with visible severe wasting or oedema in both feet, depending on resources available:

- **Refer urgently.**
- Assess ART adherence.
- If possible, repeat the CD4 count test to check for immunological failure.
- Investigate for OIs, especially TB, and manage according to national protocols.
- Assess dietary intake and food security. Refer the client to a dietician or social worker if necessary.
- If these resources are not available, refer the client to an ART site for investigation and management.

- If these resources are available, review the client every two to four weeks and monitor weight until the cause of poor weight gain is identified and managed.
- If the client continues to lose weight, refer urgently to an ART site.
  - ⇒ Also monitor the nutritional needs for ART and adherence to other medicines
  - ⇒ Counsel on family planning
  - ⇒ Monitor for food insecurity and link with appropriate support mechanisms

Key message. At some point PLHIV need antiretroviral treatment (ART). They still need appropriate and adequate nutrition to achieve the full benefits of ART. Growth of children on ART is a good indicator of response to treatment and ongoing adherence. Although ART can change the way the body uses fats, proteins, and energy, these metabolic changes can generally be managed without stopping treatment.

Key message. ART response could be assessed through clinical (weight and growth), immunological, and virological methods.

Key message. Some drugs interact with food in ways that can affect nutritional status and effectiveness of the drugs. Management of these interactions and adherence to medications is important, and use of drug-food timetables can help. Refer to the messages under Critical Nutrition Practice Number 7 for more information. Refer to **Handout 25: Drugs Commonly Taken by PLHIV, Likely Side Effects, and Recommended Dietary Practices to Increase Drug Efficacy.**

### Handout 25: Drugs Commonly Taken by PLHIV, Likely Side Effects, and Recommended Dietary Practices to Increase Drug Efficacy

Medication	Purpose	Recommended to be taken with...	Potential side effects
Abacavir (ABC)	Antiretroviral	Can be taken without regard to food.	Nausea, vomiting, fever, allergic reaction, anorexia, abdominal pain, diarrhoea, anaemia, rash, hypotension, pancreatitis, dyspnea, weakness, insomnia, cough, and headache
Didanosine (ddl)	Antiretroviral	With water only, 1 hour before or 2 hours after eating. Avoid alcohol. Do not take with juice or antacid that has aluminium or magnesium.	Anorexia, diarrhoea, nausea, vomiting, pain, headache, weakness, insomnia, rash, dry mouth, loss of taste, constipation, stomatitis, anaemia, fever, dizziness, and pancreatitis.
Efavirenz	Antiretroviral	Can be taken with food, but do not take with a high-fat meal. Avoid alcohol.	Elevated blood cholesterol levels, elevated triglycerides levels, rash, dizziness, anorexia, nausea, vomiting, diarrhoea, dyspepsia, abdominal pain, flatulence
Indinavir (IDV)	Antiretroviral	One hour before or 2 hours after meal. Drink at least 1,500 ml of fluid daily. Do not drink grapefruit juice, as it may lower the level of medicine in the blood.	Nausea, abdominal pain, headache, kidney stones, taste changes, vomiting, regurgitation, diarrhoea, insomnia, ascites, weakness, and dizziness. May increase the risk of lipodystrophy.
Lamivudine (3TC)	Antiretroviral	Can be taken without regard to food. Avoid alcohol.	Nausea, vomiting, headache, dizziness, diarrhoea, abdominal pain, nasal symptoms, cough, fatigue, pancreatitis, anaemia, insomnia, muscle pain, & rash.
Lopinavir	Antiretroviral	Can be taken without regard to food.	Abdominal pain, diarrhoea, headache, weakness, and nausea. May increase the risk of lipodystrophy and/or diabetes.
Nelfinavir	Antiretroviral	With a meal or light snack.	Diarrhoea, flatulence, nausea, abdominal pain, and rash. May increase the risk of lipodystrophy.
Nevirapine (NVP)	Antiretroviral	Can be taken without regard to food.	Nausea, vomiting, rash, fever, headache, skin reactions, fatigue,

<b>Medication</b>	<b>Purpose</b>	<b>Recommended to be taken with...</b>	<b>Potential side effects</b>
			stomatitis, abdominal pain, drowsiness, paresthesia. High hepatotoxicity.
Ritonavir	Antiretroviral	With a meal if possible.	Nausea, vomiting, diarrhoea, hepatitis, jaundice, weakness, anorexia, abdominal pain, fever, diabetes, headache, dizziness. May increase the risk of lipodystrophy.
Saquinavir	Antiretroviral	With a meal or light snack within 2 hours of a high-fat meal and high-calcium meal. Avoid garlic supplements.	Mouth ulceration, taste changes, nausea, vomiting, abdominal pain, diarrhoea, constipation, flatulence, weakness, rash, and headache. May increase the risk of lipodystrophy.
Stavudine (d4T)	Antiretroviral	Can be taken without regard to food. Limit the consumption of alcohol.	Nausea, vomiting, diarrhoea, peripheral neuropathy, chills and fever, anorexia, stomatitis, diarrhoea, anaemia, headaches, rash, bone marrow suppression, and pancreatitis. May increase the risk lipodystrophy.
Tenofovir (TDF)	Antiretroviral	With food.	Abdominal pain, headache, fatigue, and dizziness
Zidovudine (AZT)	Antiretroviral	With no food or with a low-fat meal. Do not take with a high-fat meal. Avoid alcohol.	Anorexia, anaemia, nausea, vomiting, bone marrow suppression, headache, fatigue, constipation, fever, dizziness, dyspnea, insomnia, muscle pain, and rash
Isoniazid	Treatment of tuberculosis	Take 1 hour before or 2 hours after meals. May cause possible reactions with foods such as bananas, beer, avocados, liver, smoked or pickled fish, yeast and yogurt. May interfere with vitamin B <sub>6</sub> metabolism and require vitamin B <sub>6</sub> supplementation. Avoid alcohol.	Anorexia and diarrhoea.
Rifampin	Treatment of tuberculosis	Take on an empty stomach 1 hour	Nausea, vomiting, diarrhoea and loss of appetite.

<b>Medication</b>	<b>Purpose</b>	<b>Recommended to be taken with...</b>	<b>Potential side effects</b>
		before or 2 hours after meals. Avoid alcohol.	
Fluconazole	Treatment of candida (thrush)	With food	Nausea, vomiting, diarrhoea. Can be used during breastfeeding.
Nystatin	Treatment of thrush	With food	Infrequent occurrence of diarrhoea, vomiting, nausea
Sulfonamides: Sulfamethoxazole, Cotrimoxazole (Bactrim <sup>®</sup> , Septra <sup>®</sup> )	Antibiotic for treatment of pneumonia and toxoplasmosis	With food	Nausea, vomiting, and abdominal pain
Chloroquine	Treatment of malaria	With food	Stomach pain, loss of appetite, nausea, vomiting. Not recommended for women who are breastfeeding
Quinine	Treatment of malaria	With food	Abdominal or stomach pain, diarrhoea, nausea, vomiting, lower blood sugar
Sulfadoxine and Pyrimethamine (Fansidar <sup>®</sup> )	Treatment of toxoplasmosis	With food and continuous drinking of clean boiled water. Folic acid supplementation needed.	Nausea, vomiting, taste loss, and diarrhoea. Not recommended if folate deficient and for women who are breastfeeding.

*Source:* Adapted from FANTA 2001, Pronsky et al. 2001, Nerad 2003, Castleman et al. 2004, and WHO 2003.

## Session 10: linkages to community support program

### Purpose:

This session introduces participants to the needs of economic strengthening opportunities and other support programs for the malnourished PLHIV and OVC clients; and explains the designed economic strengthening strategies for linkages.

### Learning Objectives

By the end of the sessions, participants will be able to:

- State the economic strengthening strategies and opportunities for the FBP beneficiaries
- Explain the role of partners in their areas of intervention for economic strengthening
- Explain the process of referral linkages of beneficiaries from FBP to other services and vice versa

## Handout 26: linkages to community support program

### 1. The need for Economic Strengthening Opportunities

USAID Ethiopia's Food by Prescription (FBP) program provides nutritional support to malnourished PLHIVs and OVCs through the provision of therapeutic food commodities to clients. Nonetheless, nutritional support would not address the multifaceted needs and challenges of PLHIVs and OVCs single-handedly, and it would be difficult, if not impossible, to graduate clients from the program.

Hence, FBP seeks establishing linkages with interventions that aim to strengthen economic and social opportunities of clients in order to graduate clients from the program once their health status is restored so that the limited resource will be used to help others in need. It must also ensure beneficiary graduation after they receive support for the minimum duration necessary to achieve programmatic objectives.

### 2. Basic Strategies

#### *a. IGA*

Opportunities are actively sought for Income Generating Activities (IGA), skills, vocational training, access to community saving groups efforts and other similar efforts sponsored by Government and other partners. IGA and Community Self Help Groups have demonstrated positive results but the targeting of suitable clients, selection of activities, market assessments, adequate standards for support and safeguards against failure all present challenges to implementers and participants.

There are no national guidelines to govern the implementation of IGAs. Nevertheless, at the town level clients will be carefully selected to participate in IGAs as part of the graduation strategy and the program will advocate for development of national protocols and standards.

***b. Urban Gardening***

As clients' health status improves they will also be assessed by local coordination bodies for suitability to participate in urban agriculture. Urban gardens and agricultural schemes can provide a range of benefits including nutritious fresh food, economic income, improved skills and increased social capital and mobility. Beneficiaries participating in agricultural projects will be encouraged and trained to establish their own gardens as a result of the skills and experience they gain from the projects they participate in.

***c. Back to Work Initiative***

Involving the public and private sectors in assisting PLHIVs to develop improved livelihoods is another aspect of the graduation strategy of the program. Mapping of town level employers will be conducted and processes towards the establishment of town level contracts aimed at placing PLHIVs in paid employment will be stimulated by the program. Getting PLHIV and OVCs into paid employment provides the most realistic strategy for long term self reliance.

### **3. Linkages Designs**

The over all linkage will have a double phase. The first one will be done at regional level in order to have the buy-in of the key stakeholders in the linkage process. This will mainly be done by the facilitating organization like USAID/FBP program and the following will be the main steps to follow

#### **Proposed Strategic Steps to make linkages at regional levels-**

1. Sensitize the program to the relevant government offices, NGOs, Networks and other key stakeholders
2. Explicitly state what is going to be done with the program and what is missing
3. Have a consultative discussion and support joint planning for consequent implementation; and
4. Support the establishment of national strategies, protocols and guidelines on linkages.

The second phase of the linkage process will take place at health facility level and the health workers are responsible for the following main activities:

1. Identify clients who are in need of economic support
2. Referr the clients to the suitable service
3. Confirm the referral with a written communication; and
4. Record the services referred and secured.

## Session 11: Logistics

### *Purpose*

In this session the participants will be familiar how to manage, dispense and keep record of Food by Prescription commodities in health facilities to maximize proper utilization and minimize loss.

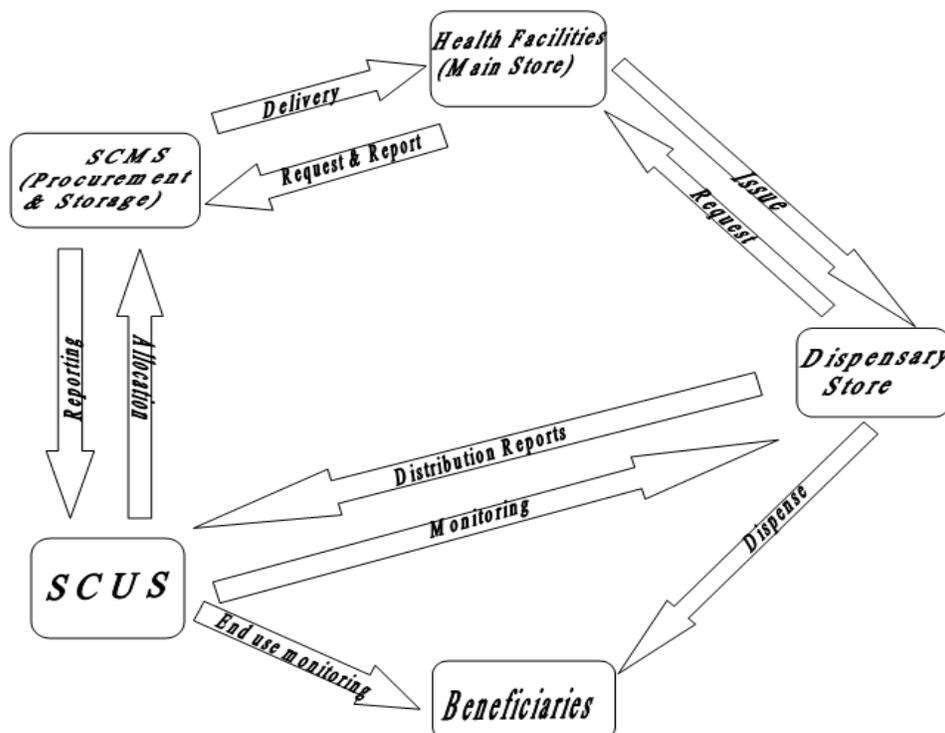
### *Learning Objective:*

The objective of this training is to provide a brief guideline to health workers:

- how to manage, and dispense Food By Prescription (FBP) commodities
- keep record of the commodities
- maximize proper utilization and minimize loss of the commodities
- strengthen the link between health workers and pharmacists (dispensary)

## Handout 27: Stock Transaction, Management and dispensing

### 1. FBP commodities logistic system



## 2. Health workers and pharmacists responsibilities

Health workers (Doctors, Health officers, and Nurses,) have the following responsibilities with regard to FBP commodities management at health facilities

- Provide Prescription with the right amount of Plumpy'nut and FBF to clients according to the national protocol for Nutrition and HIV
- Counsel clients on proper utilization of Plumpy'nut and FBF
- Register the amount of Plumpy'nut and FBF on the registration book
- Make sure beneficiaries get their entitled amount in the previous visit
- Check the amount the client consumed during each visit

### **In consultation with the pharmacist,**

- Ensure the Plumpy'nut and FBF are available
- Ensure there is space in the dispensary room
- Inform the Pharmacists the estimated beneficiaries per month
- Make sure Plumpy'nut and FBF are refilled regularly

### **Pharmacists Responsibilities include:**

#### **a) Before Dispensing**

- Avail space in the dispensary room.
- Request and withdraw Plumpy'nut, FBF and Waterguard (*WohaAgar*) food from store based on the suitable factor... (Beneficiary number, Space...)
- Ensure the quality of commodity is according to the standard procedure for storage.
- Update bin card/ stock card, distribution ledger book.

#### **b) During Dispensing**

- Verify client identity.
- Ensure the right amount of Plumpy'nut, FBF and Waterguard (*WohaAgar*) is issued to clients
- Conduct random check of expiry dates.
- Ensure clients get proper nutrition counselling before leaving the dispensary room

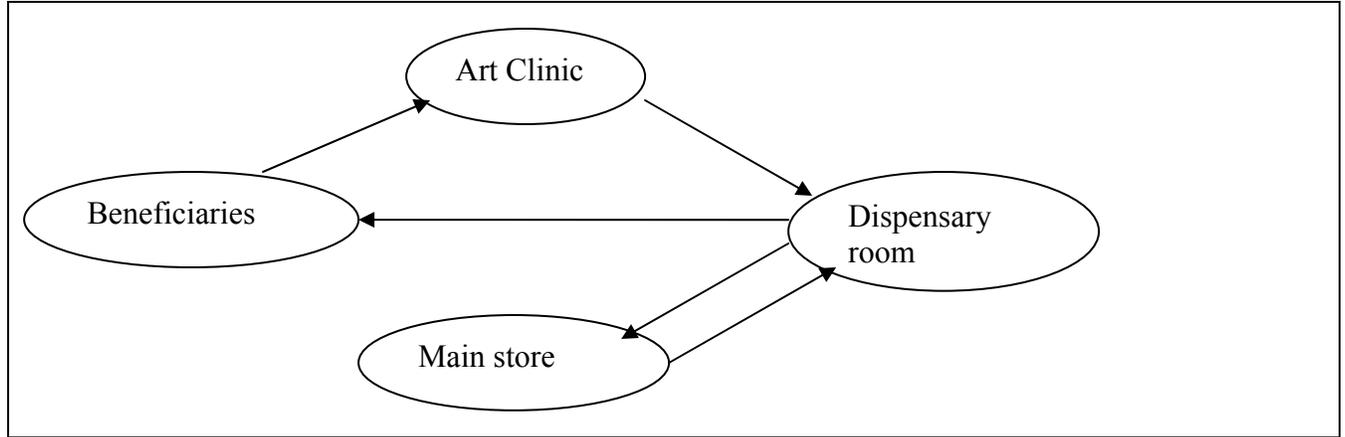
#### **c) After Dispensing.**

- Conduct a brief inventory of the day or the week.
- Reconcile receipt, issue and balance along with number of clients.
- Compile consumption report monthly and send to concerned unit/ staff like PFSA/SCMS
- Place request to refill the commodities every two month

## 3. Dispensing system to clients

### **A. PLHIV adults and children:**

As these groups of the beneficiaries are presumably regular clients of the ART clinic and/or ART dispensary room, the best way of dispensing FBP food to this people is through the ART dispensary room. However, each beneficiary is supposed to be referred from the ART clinic based on the standard nutritional criteria.



**B. HIV status unknown children: (Discussion and Group work)**

For malnourished OVC whose HIV status is not known or negative, the Plumpy’nut and FBF should be dispensed through either at OTP room or general pharmacy. The decision is left to the facilities.

**4. Group work on the advantage and disadvantage of distributing plumpy Nut and FBF through paediatric OTP Vs general Pharmacy**

**1. Pediatrics OTP.**

Advantages/Opportunities	Disadvantage/ Risks

**2. General Pharmacy.**

Advantages/Opportunities	Disadvantage/ Risks

## **Session 12: Monitoring and Evaluation**

### **Purpose**

This session introduces participants to know the importance of monitoring and evaluation in nutrition and HIV program implementation. It also introduces the data collection formats, namely, “the Registration Book and Monthly Reporting Format”, and how to record, analyze and report.

### **Learning Objectives**

By the end of the session, participants will be able to:

- Describe the similarities and differences of monitoring and evaluation
- Know Nutrition and HIV/FBP program indicators and their importance
- Describe the contents of Registration Book and Reporting Format
- Record data in the registration book
- Consolidate and report data using the monthly reporting format
- Know the interpretation and analysis of the indicators at facility level

### **Handout 28: Monitoring and Evaluation**

Monitoring and evaluation are critical components and tools that gauge the Food By Prescription program. Monitoring is the routine ongoing assessment of activities applied to assess resources invested (inputs) in the program, services delivered (outputs) by the program, outcomes that are related to the program. Evaluation is non-routine assessment and is concerned with the extent to which desired changes have occurred in the light of program objectives, and whether the project is responsible for such changes.

Monitoring and evaluation (M&E) information are used to inform and improve program design, management and supervision. Collection of nutrition-related information from clients is an important component of nutritional care and support that helps increase awareness among PLHIV, counsellors and other service providers about a client’s diet and nutritional status, thereby supporting care, treatment and counselling processes.

By and large monitoring nutrition program should help to:

- Assess the quantity, quality and timeliness of program inputs;
- Verify that inputs are transformed, through activities, into outputs that generate results;
- Provide information to improve targeting;
- Identify operational constraints to program effectiveness thus helping managers to improve implementation;
- Determine if a process or service, such as food fortification, is meeting national or some other accepted/set standards;
- Determine whether a program is servicing the target groups.

On the other hand evaluation is important since it can help to:

- Determine the worth or value of on-going programs;
- Increase the effectiveness of program management and administration;
- Identify impacts that are attributable to a program;
- Provide information that will permit cost-effectiveness comparisons;
- Redesign an on-going program or shape a new program;
- Satisfy the accountability requirements of donors and program sponsors.

## 1. INDICATORS

Monitoring and evaluation exercise cannot be commenced without the use of markers called indicators. For each FBP input, process, output, outcome and impact to be measured, a verifiable and measurable indicator is identified. This enables to monitor each stage of the program implementation and identify gaps that may require additional attention or resources. The following are the selected programmatic indicators for FBP:

Number of clients clinically assessed and found to be severely malnourished
Number of clients clinically assessed and found to be moderately malnourished
Number of clients who received nutritional counseling
Number of clients who received therapeutic and/or supplementary food
Number of clients graduated during the reporting period
Number of clients relapsed during the reporting period
Number of clients who were lost to follow up
Number of clients received supplementary and/or therapeutic products on time
Number of beneficiaries reported adequate consumption of the supplementary and/or therapeutic products
Number of clients who died during the reporting period
Number of clients defaulted from the service
Number of non responder clients
Number of clients transferred in
Number of clients transferred out

Number of clients who got community linkage during the reporting period
Number of clients who get employed during the reporting period
Number of clients considered to be defaulted/lost to follow and returned back to the service

The above indicators are developed for overall FBP and measure the progress made as a result of this particular intervention.

## Standardized Recording and reporting system

To generate the above listed indicators, it is important to have a uniform data collection and reporting system. Standard recording and reporting ensures that key information gets stored. This helps in: easy retrieval by care providers to get an overview of the patient's progress over time; exchange of information between the different health care providers as well as with FBP staff; and facilitate compilation and comparison of indicators at different levels, and most importantly measure the progress made by each patient and the program itself.

### 2. Registration Book

The Registration Book is the basic source of information for FBP programmatic implementation that is routinely gathered and monitored.

The rationales for the registration book are to document the following:

- (a) Routine performance indicators that are indicated above
- (b) Patient management – such as Identification of patients lost to follow-up;
- (c) In-depth analysis – such as measuring outcomes etc

The **Registration Book** is a book that contains information for a certain number of patients at a time. Each row in the register contains complete information about a patient. In this book standard information is noted under categories.

Effective care and support program requires keeping track of the patient's baseline and follow-up care and treatment history. Any health care provider and program manager involved in the implementation of the project needs to know key treatment details and what was done on previous visits.

The register book is designed to be used from the time of patient admission evaluation to treatment through successive visits to graduation, based on the discharge criteria. The register contains key individual information to be recorded uniformly for all registered patients. The register book contains details on key identification, socio-demographic, anthropometric, nutritional support/ therapeutic information that are included as a one time information in the first visit. Successive columns are filled for each visit/every month until the patient graduates from the program.

#### 2.1. Information recorded in the Registration Book and instructions

Hereunder explanations are made on the detail of the variables and information is provided.

Information to be recorded	Instructions for recording		When to record
FBP registration and Medical record number	Write Medical record and FBP registration number in column (1) and (2). The numbers should be unique, i.e. the same number cannot be attributed to more than one patient.		At 1 <sup>st</sup> visit
Name	Write the name of the client in column (3)		At 1 <sup>st</sup> visit
Sex	Write the sex of the client in column (5)		At 1 <sup>st</sup> visit
Age	Write the age of the client in years in column (4)		At 1 <sup>st</sup> visit
City/sub city	Write the city or sub city of the client in column (7)		At 1 <sup>st</sup> visit
Kebele	Write the kebele of the client in column (8)		At 1 <sup>st</sup> visit
House. Number	Write the house number of the client in column (9)		At 1 <sup>st</sup> visit
Date	Write the date of the first registration, admission, and each successive visit		At 1 <sup>st</sup> visit and as applicable
Employment status	Employed- having a job especially one that pays wages or a salary Not employed - Not having a job especially one that pays wages or a salary		At admission
Category	HIV Negative and OVC	Orphan and Vulnerable children tested for HIV and Negative	At admission  And as applicable
	OVC and on ART	HIV positive OVC taking ART (ART taking OVC) Also indicate the time when ART started	
	OVC and on Pre-ART	HIV Positive OVC who enrolled in the chronic care but not started ART	
	OVC and unknown HIV status	OVC who is not tested for HIV	
	Adult and on ART	HIV Positive adult taking ART Also indicate the time when ART started	
	Adult and on Pre-ART	HIV Positive adult enrolled in the chronic care but not started ART	
	Pregnant and on pre-	HIV positive pregnant woman not started	

	ART	ART	
	Pregnant and on ART	HIV positive pregnant woman who is started ART	
	Lactating and on ART	HIV positive lactating woman who is on ART	
	Lactating and on Pre-ART	HIV positive lactating woman who is not started ART	
Anthropometry (column 13-18)	Measure the MUAC and record Measure the Height and record Measure the Weight and record Observe the existence of Bilateral pitting Oedema and record Calculate the BMI and record Calculate wt/ht and record		Every visit every 2 weeks for children and monthly for adults
Nutritional status (column 19)	Based on national protocol classify the client and record as: Severely Malnourished (SAM) or Moderately Malnourished (MAM)		Every visit
Total CD4 (mm3)	Write CD4 count corresponding to these time points.		As applicable
Functional Status Performance: A/B/C	Write the appropriate performance scale (A, B or C) at each of these time points. A - for a normally active patient. B - for a patient who was bedridden for less than half of the day during last month. C - for a patient who was bedridden for more than half of the day during last month.		Every visit
Appetite test (column 22)	After the appetite test as indicated in the national protocol write pass or fail		At admission and every visit

Poor weight gain (column 23)	Write yes or no for based on the Rate of Weight Gain of a (child ) client the previous Weight measures	At admission
Sign of S/D	0= no sign, 1=TB, 2= others 3=both	
Admission Status	New – If the client qualified the entry criteria and admitted to the service for the first time Write Transferred in - If the client has been in FBP program and is transferred from other health facility Relapsed - If the client graduated but once again meets entry criteria Return After Default - If the client defaulted and then return to the program (continue the treatment)	As applicable
Nutritional counselling	Record whether the client has been offered nutritional counselling or not as Yes and No	Every visit
Nutritional Support	Record the type and the amount in sachets of supplementary and therapeutic foods provided to clients	Every visit
Outcome	Write the outcome of he treatment as :  Died - If the client died during the course of treatment Graduated - If the client is discharged meeting the exit criteria Defaulted – If the client is absent for two consecutive visits Non-responder- If the client doesn't meet the exit criteria after 6 months in the program Lost to follow - If the client is absent for two consecutive visits Transfer out - If the client qualified the entry criteria but transferred to other health facility due to different reasons Admitted to in patient – If the client is in the program and is admitted as in inpatient	Every visit starting from the 2 <sup>nd</sup> visit
Linkage to programs	Write whether the client is linked to an organization/association for economic strengthening and other purposes as Yes or No	Every visit starting from the 2 <sup>nd</sup> visit

### 3. Monthly/Quarterly Reporting (Format)

The FBP program Monthly Report uses a cross-sectional approach to record the project's performance. This is to mean that the indicators are compiled at a one point in time (at the end of each month). The indicator describes the cumulative number of clients disaggregated by age sex and type of service they obtained for the reporting period.

The monthly (quarterly) reporting format is divided into existing clients and new clients. Each category contains clients divided into groups based on sero- status, which is again subdivide into “Pre – ART and “on ART”. Disaggregating is also made on the basis of age and sex, adult female being further sub – categorized into pregnant, lactating and others. The first column of the reporting format contains all the indicators that show the activities performed in each facility, and which the cumulative of the activities are summarized from the registration book and recorded here.

To fill the reporting format, information for each indicator is obtained from the registration book as pointed out in the following table. Follow the instruction presented in the table below.

No	Information to be recorded	Instructions for recording
1	Number of clients clinically assessed and found to be severely malnourished	This information is obtained from the nutritional status column (19) in the Register Book and the cumulative for the reporting period will be recorded here for the first visit and the column varies accordingly for the other visits.
2	Number of clients clinically assessed and found to be moderately malnourished	This information is obtained from the nutritional status column (19) in the Register Book and the cumulative for the reporting period will be recorded. Column 19 is for the first visit and it varies for the next visits accordingly.
3	Number of clients who received nutritional counselling	The cumulative of the nutritional counselling is obtained from column (26) of Register Book for the first visit and the column number varies accordingly with the other visits
4	Number of clients who received therapeutic and/or supplementary food	The total number of clients who received therapeutic food is obtained from the register book in columns (27 & 28) depending upon the type of support and the column varies accordingly for the next visits.
5	Number of clients graduated during the reporting period	This refers to the number of clients graduated during the reporting period and the cumulative of which is obtained from the column 29 of the register book. The column number varies accordingly with the

		next visits.
6	Number of clients relapsed during the reporting period	This refers to the number of clients relapsed during the reporting period and the cumulative of which is obtained from the column 29 of the register book
7	Number of clients who were lost to follow up	This refers to the number of clients who are lost to follow during the reporting period and the cumulative of which is obtained from the column 29 of the register book
8	Number of clients received supplementary and/or therapeutic products on time	This information is obtained from the register book and the cumulative be recorded in the 27 monthly report
9	Number of beneficiaries reported adequate consumption of the supplementary and/or therapeutic products	This is obtained from the 42 <sup>nd</sup> column of the register book by counting those reported adequate consumption of the food
10	Number of clients who died during the reporting period	This is obtained from the 29 <sup>th</sup> column of registry book for the first visit
11	Number of clients defaulted from the service	This is obtained from the 29 <sup>th</sup> column of the registry book by counting those who are defaulted
12	Number of non responder clients	This is obtained from the 29 <sup>th</sup> column of the registry book by counting those who are non responders
13	Number of clients transferred in	This is obtained from the 25 <sup>th</sup> column of the registry book by counting those who are transferred in to the facility
14	Number of clients transferred out	This is obtained from the 29 <sup>th</sup> column of the registry book by counting those who are transferred to another health facility
15	Number of clients who got community linkage during the reporting period	This is obtained from column 30 of the registry book by counting those who got linkage service
16	Number of clients who get employed during the reporting period	This is obtained from column 38 for 2 <sup>nd</sup> visit, and for other visits also accordingly, of the registry book by counting those who are employed

#### 4. DATA ANALYSIS AND INTERPRETATION

The data that are being collected at the facility level is used at all levels for different purposes and indicators. At the facility level, some of the data could be used to confirm whether the activities are on the write track or not; whether there is a requirement for additional corrective measure or not. Some examples are cited in the following table.

Indicator	Possible interpretation
Number of clients who received nutritional counselling	<p>Identifies if the facilities are achieving sufficient coverage of nutritional counselling for the adult clients, as a critical component of service coverage.</p> <p>Since all adult clients should be given nutritional counselling services, the target should aim at 100% achievement of the indicator. Low values or significant decreases in this indicator may call for service providers and managers to identify and address service delivery gaps, such as negligence of service providers, lack of capacity etc. Appropriate follow-up should be designed and implemented.</p>
Number of clients who died during the reporting period	<p>Checks if the facilities are performing well in improving the lives patients or not which is one of the critical component of programs.</p> <p>Since clients should be given proper therapeutic services, the target should aim at reducing from the baseline death rate. High values or significant increases in this indicator may call for service providers and managers to identify and address service delivery gaps, such as negligence of service providers, lack of etc. Appropriate follow-up should be designed and implemented.</p>
Number of clients defaulted from the service	<p>Spots out if the facilities are performing well in retaining the clients to appear in all the visits and adhere to the prescriptions there are provided.</p> <p>Since clients are expected to attend all the visits and obtain the necessary services, the target should aim at reducing from the</p>

	<p>baseline default rate. High values or significant increases in this indicator may call for service providers and managers to identify and address the causes of defaults such as service delivery gaps, patient side difficulties. Appropriate follow-up should be designed and implemented.</p>
Number of clients who were lost to follow up	<p>Spots out if the facilities are performing well in retaining the clients to appear in all the visits and adhere to the prescriptions there are provided.</p> <p>Since clients are expected to attend all the visits and obtain the necessary services, the target should aim at reducing from the baseline lost to follow rate. High values or significant increases in this indicator may call for service providers and managers to identify and address the causes of lost to follow such as service delivery gaps, patient side difficulties. Appropriate follow-up should be designed and implemented.</p>

**Table 11: Case studies**

R N	Name	Age mm/Y Y	Sex	HIV Status	Admission/1 <sup>st</sup> visit	2 <sup>nd</sup> visit	3 <sup>rd</sup> visit	4 <sup>th</sup> visit	5 <sup>th</sup> visit	6 <sup>th</sup> visit
1	Gadissa Geteta	30 mm	M	-ve	MUAC =10.8 cm No Oedema Idii bbybdaaaNNN No medical complication pass appetite test	MUAC =11.4cm No Oedema No medical complication and pass appetite test	MUAC =11.8 cm No Oedema No medical complication and pass appetite test	MUAC =12.4 cm No Oedema No medical complication Appetite test=pass	MUAC =13.cm No Oedema No medical complication Appetite test=pass	MUAC =13.6 cm No Oedema No medical complication Appetite test=pass
2	Hadas Kirose	62 mm	F	+ve	MUAC =12.8 cm No Oedema No medical complication pass appetite test	MUAC =13.1 cm No Oedema No signs of symptomatic disease appetite test=pass	MUAC =13.5 cm No Oedema No medical complication appetite test=pass	Absent	Absent	MUAC =12.4cm No Oedema Has cough for 2 weeks, fever and apatite test =failed
3	Lamiso Bonja	27 yy	M	+ve	BMI =17.2 No Oedema No signs of symptomatic disease	BMI =17.6 No Oedema No medical complication pass appetite test	BMI =18 No Oedema No signs of symptomatic disease appetite test=pass	BMI=18.6 Oedema No signs of symptomatic disease appetite test =pass		
4	Bekabil Salelew	34 yy	M	+ve	BMI = 15.2 Has signs of symptomatic disease	BMI =14.6 No improvement in his clinical condition	Absent	Absent	Home care givers found that the person was died during last month	
5	Tesfsansh Alemu	25mm	F	+ve	MUAC 11.3cm No oedema No medical complication His weight decreased in the last two consecutive follow up Appetite test =pass	MUAC 11.6cm No oedema No medical complication Appetite test =pass	MUAC 12cm No oedema No medical complication Appetite test =pass	MUAC 12.2 cm No oedema No medical complication Appetite test =pass	MUAC 12.4cm No oedema No medical complication Appetite test =pass	MUAC 12.6cm No oedema No medical complication Appetite test =pass

**Annex 1: Appetite test*****Why do the appetite test?***

◆ Malnutrition changes the way infections and other diseases express themselves – children affected by the classical IMCI diseases and who are malnourished frequently show no signs of these diseases. However, the major complications lead to a loss of appetite. Most importantly, the signs of severe malnutrition itself are often interpreted as dehydration in a child, that is not actually dehydrated. The diagnosis and treatment of dehydration are different in these patients. Giving conventional treatment for dehydration to the severely malnourished is very dangerous.

◆ Even though the definition and identification of the severely malnourished is by anthropometric measurements, there is not a perfect correlation between anthropometric and metabolic malnutrition. It is mainly metabolic malnutrition that causes death. Often the only sign of severe metabolic malnutrition is a reduction in appetite. By far the most important criterion to decide, if a patient should be sent to in- or out- patient management, is the Appetite Test. A poor appetite means that the child has a significant infection or a major metabolic abnormality, such as liver dysfunction, electrolyte imbalance, cell membrane damage or damaged biochemical pathways. These are the patients at immediate risk of death. Furthermore, a child with a poor appetite will not take the diet at home and will continue to deteriorate or die. As the patient does not eat the special therapeutic food (RUTF), the family will take the surplus and become habituated to sharing.

***How to do the appetite test?***

1. The appetite test should be conducted in a separate quiet area.
2. Explain to the carer the purpose of the appetite test and how it will be carried out.
3. The carer, where possible, should wash his/her hands.
  1. The carer should sit comfortably with the child on his lap and either offers the RUTF from the packet or put a small amount on his finger and gives it to the child.
  2. The carer should offer the child the RUTF gently, encouraging the child all the time. If the child refuses, then the carer should move to quiet, private area and continue to quietly encourage the

child and take time over the test. The test usually takes a short time, but may take up to one hour.

The child **must not** be forced to take the RUTF.

3. The child needs to be offered plenty of water to drink from a cup as he/she is taking the RUTF.
4. It is essential, that the health worker observes the child eating the RUTF, before the child can be accepted for out-patient treatment

#### Amount of RUTF for the appetite test

This is the <i>minimum</i> amount that malnourished patients should take to pass the appetite test			
<i>Plumpy'nut</i>		<i>BP100</i>	
Body weight (Kg)	Sachets	body weight (Kg)	Bars
Less than 4 kg	1/8 to 1/4	Less than 5 kg	1/4 to 1/2
4-6.9	1/4 to 1/3	5-9.9	1/2 to 3/4
7-9.9	1/3 to 1/2		
10-14.9	1/2 to 3/4	10-14.9	3/4 to 1
15-29	3/4 to 1	15-29	1 to 1 1/2
Over 30kg	>1	Over 30 kg	>1 1/2

Source National protocol for management of severe acute malnutrition, 2007

**Annex 2: World Health Organization (WHO) Growth Standards**

<b>WHO 2006 Standard Population Weight-for-Length BOYS Z-Scores</b>					<b>WHO 2006 Standard Population Weight-for-Length GIRLS Z-Scores</b>				
<b>Length (cm)</b>	<b>Median weight (kg)</b>	<b>-1 SD</b>	<b>-2 SD</b>	<b>-3 SD</b>	<b>Length (cm)</b>	<b>Median weight (kg)</b>	<b>-1 SD</b>	<b>-2 SD</b>	<b>-3 SD</b>
45.0	2.4	2.2	2.0	1.9	45.0	2.5	2.3	2.1	1.9
45.5	2.5	2.3	2.1	1.9	45.5	2.5	2.3	2.1	2.0
46.0	2.6	2.4	2.2	2.0	46.0	2.6	2.4	2.2	2.0
46.5	2.7	2.5	2.3	2.1	46.5	2.7	2.5	2.3	2.1
47.0	2.8	2.5	2.3	2.1	47.0	2.8	2.6	2.4	2.2
47.5	2.9	2.6	2.4	2.2	47.5	2.9	2.6	2.4	2.2
48.0	2.9	2.7	2.5	2.3	48.0	3.0	2.7	2.5	2.3
48.5	3.0	2.8	2.6	2.3	48.5	3.1	2.8	2.6	2.4
49.0	3.1	2.9	2.6	2.4	49.0	3.2	2.9	2.6	2.4
49.5	3.2	3.0	2.7	2.5	49.5	3.3	3.0	2.7	2.5
50.0	3.3	3.0	2.8	2.6	50.0	3.4	3.1	2.8	2.6
50.5	3.4	3.1	2.9	2.7	50.5	3.5	3.2	2.9	2.7
51.0	3.5	3.2	3.0	2.7	51.0	3.6	3.3	3.0	2.8
51.5	3.6	3.3	3.1	2.8	51.5	3.7	3.4	3.1	2.8
52.0	3.8	3.5	3.2	2.9	52.0	3.8	3.5	3.2	2.9
52.5	3.9	3.6	3.3	3.0	52.5	3.9	3.6	3.3	3.0
53.0	4.0	3.7	3.4	3.1	53.0	4.0	3.7	3.4	3.1
53.5	4.1	3.8	3.5	3.2	53.5	4.2	3.8	3.5	3.2
54.0	4.3	3.9	3.6	3.3	54.0	4.3	3.9	3.6	3.3
54.5	4.4	4.0	3.7	3.4	54.5	4.4	4.0	3.7	3.4
55.0	4.5	4.2	3.8	3.6	55.0	4.5	4.2	3.8	3.5
55.5	4.7	4.3	4.0	3.7	55.5	4.7	4.3	3.9	3.6
56.0	4.8	4.4	4.1	3.8	56.0	4.8	4.4	4.0	3.7
56.5	5.0	4.6	4.2	3.9	56.5	5.0	4.5	4.1	3.8
57.0	5.1	4.7	4.3	4.0	57.0	5.1	4.6	4.3	3.9
57.5	5.3	4.9	4.5	4.1	57.5	5.2	4.8	4.4	4.0
58.0	5.4	5.0	4.6	4.3	58.0	5.4	4.9	4.5	4.1
58.5	5.6	5.1	4.7	4.4	58.5	5.5	5.0	4.6	4.2
59.0	5.7	5.3	4.8	4.5	59.0	5.6	5.1	4.7	4.3
59.5	5.9	5.4	5.0	4.6	59.5	5.7	5.3	4.8	4.1
60.0	6.0	5.5	5.1	4.7	60.0	5.9	5.4	4.9	4.5
60.5	6.1	5.6	5.2	4.8	60.5	6.0	5.5	5.0	4.6
61.0	6.3	5.8	5.3	4.9	61.0	6.1	5.6	5.1	4.7

61.5	6.4	5.9	5.4	5.0	61.5	6.3	5.7	5.2	4.8
62.0	6.5	6.0	5.6	5.1	62.0	6.4	5.8	5.3	4.9
62.5	6.7	6.1	5.7	5.2	62.5	6.5	5.9	5.4	5.0
63.0	6.8	6.2	5.8	5.3	63.0	6.6	6.0	5.5	5.1
63.5	6.9	6.4	5.9	5.4	63.5	6.7	6.2	5.6	5.2
64.0	7.0	6.5	6.0	5.5	64.0	6.9	6.3	5.7	5.3
64.5	7.1	6.6	6.1	5.6	64.5	7.0	6.4	5.8	5.4
65.0	7.3	6.7	6.2	5.7	65.0	7.1	6.5	5.9	5.5
65.5	7.4	6.8	6.3	5.8	65.5	7.2	6.6	6.0	5.5
66.0	7.5	6.9	6.4	5.9	66.0	7.3	6.7	6.1	5.6
66.5	7.6	7.0	6.5	6.0	66.5	7.4	6.8	6.2	5.7
67.0	7.7	7.1	6.6	6.1	67.0	7.5	6.9	6.3	5.8
67.5	7.9	7.2	6.7	6.2	67.5	7.6	7.0	6.4	5.9
68.0	8.0	7.3	6.8	6.3	68.0	7.7	7.1	6.5	6.0
68.5	8.1	7.5	6.9	6.4	68.5	7.9	7.2	6.6	6.1
69.0	8.2	7.6	7.0	6.5	69.0	8.0	7.3	6.7	6.1
69.5	8.3	7.7	7.1	6.6	69.5	8.1	7.4	6.8	6.2
70.0	8.4	7.8	7.2	6.6	70.0	8.2	7.5	6.9	6.3
70.5	8.5	7.9	7.3	6.7	70.5	8.3	7.6	6.9	6.4
71.0	8.6	8.0	7.4	6.8	71.0	8.4	7.7	7.0	6.5
71.5	8.8	8.1	7.5	6.9	71.5	8.5	7.7	7.1	6.5
72.0	8.9	8.2	7.6	7.0	72.0	8.6	7.8	7.2	6.6
72.5	9.0	8.3	7.6	7.1	72.5	8.7	7.9	7.3	6.7
73.0	9.1	8.4	7.7	7.2	73.0	8.8	8.0	7.4	6.8
73.5	9.2	8.5	7.8	7.2	73.5	8.9	8.1	7.4	6.9
74.0	9.3	8.6	7.9	7.3	74.0	9.0	8.2	7.5	6.9
74.5	9.4	8.7	8.0	7.4	74.5	9.1	8.3	7.6	7.0
75.0	9.5	8.8	8.1	7.5	75.0	9.1	8.4	7.7	7.1
75.5	9.6	8.8	8.2	7.6	75.5	9.2	8.5	7.8	7.1
76.0	9.7	8.9	8.3	7.6	76.0	9.3	8.5	7.8	7.2
76.5	9.8	9.0	8.3	7.7	76.5	9.4	8.6	7.9	7.3
77.0	9.9	9.1	8.4	7.8	77.0	9.5	8.7	8.0	7.4
77.5	10.0	9.2	8.5	7.9	77.5	9.6	8.8	8.1	7.4
78.0	10.1	9.3	8.6	7.9	78.0	9.7	8.9	8.2	7.5
78.5	10.2	9.4	8.7	8.0	78.5	9.8	9.0	8.2	7.6
79.0	10.3	9.5	8.7	8.1	79.0	9.9	9.1	8.3	7.7
79.5	10.4	9.5	8.8	8.2	79.5	10.0	9.1	8.4	7.7
80.0	10.4	9.6	8.9	8.2	80.0	10.1	9.2	8.5	7.8
80.5	10.5	9.7	9.0	8.3	80.5	10.2	9.3	8.6	7.9
81.0	10.6	9.8	9.1	8.4	81.0	10.3	9.4	8.7	8.0

81.5	10.7	9.9	9.1	8.5	81.5	10.4	9.5	8.8	8.1
82.0	10.8	10.0	9.2	8.5	82.0	10.5	9.6	8.8	8.1
82.5	10.9	10.1	9.3	8.6	82.5	10.6	9.7	8.9	8.2
83.0	11.0	10.2	9.4	8.7	83.0	10.7	9.8	9.0	8.3
83.5	11.2	10.3	9.5	8.8	83.5	10.9	9.9	9.1	8.4
84.0	11.3	10.4	9.6	8.9	84.0	11.0	10.1	9.2	8.5
84.5	11.4	10.5	9.7	9.0	84.5	11.1	10.2	9.3	8.6
85.0	11.5	10.6	9.8	9.1	85.0	11.2	10.3	9.4	8.7
85.5	11.6	10.7	9.9	9.2	85.5	11.3	10.4	9.5	8.8
86.0	11.7	10.8	10.0	9.3	86.0	11.5	10.5	9.7	8.9
86.5	11.9	11.0	10.1	9.4	86.5	11.6	10.6	9.8	9.0
87.0	12.0	11.1	10.2	9.5	87.0	11.7	10.7	9.9	9.1
87.5	12.1	11.2	10.4	9.6	87.5	11.8	10.9	10.0	9.2
88.0	12.2	11.3	10.5	9.7	88.0	12.0	11.0	10.1	9.3
88.5	12.4	11.4	10.6	9.8	88.5	12.1	11.1	10.2	9.4
89.0	12.5	11.5	10.7	9.9	89.0	12.2	11.2	10.3	9.5
89.5	12.6	11.6	10.8	10.0	89.5	12.3	11.3	10.4	9.6
90.0	12.7	11.8	10.9	10.1	90.0	12.5	11.4	10.5	9.7
90.5	12.8	11.9	11.0	10.2	90.5	12.6	11.5	10.6	9.8
91.0	13.0	12.0	11.1	10.3	91.0	12.7	11.7	10.7	9.9
91.5	13.1	12.1	11.2	10.4	91.5	12.8	11.8	10.8	10.0
92.0	13.2	12.2	11.3	10.5	92.0	13.0	11.9	10.9	10.1
92.5	13.3	12.3	11.4	10.6	92.5	13.1	12.0	11.0	10.1
93.0	13.4	12.4	11.5	10.7	93.0	13.2	12.1	11.1	10.2
93.5	13.5	12.5	11.6	10.7	93.5	13.3	12.2	11.2	10.3
94.0	13.7	12.6	11.7	10.8	94.0	13.5	12.3	11.3	10.4
94.5	13.8	12.7	11.8	10.9	94.5	13.6	12.4	11.4	10.5
95.0	13.9	12.8	11.9	11.0	95.0	13.7	12.6	11.5	10.6
95.5	14.0	12.9	12.0	11.1	95.5	13.8	12.7	11.6	10.7
96.0	14.1	13.1	12.1	11.2	96.0	14.0	12.8	11.7	10.8
96.5	14.3	13.2	12.2	11.3	96.5	14.1	12.9	11.8	10.9
97.0	14.4	13.3	12.3	11.4	97.0	14.2	13.0	12.0	11.0
97.5	14.5	13.4	12.4	11.5	97.5	14.4	13.1	12.1	11.1
98.0	14.6	13.5	12.5	11.6	98.0	14.5	13.3	12.2	11.2
98.5	14.8	13.6	12.6	11.7	98.5	14.6	13.4	12.3	11.3
99.0	14.9	13.7	12.7	11.8	99.0	14.8	13.5	12.4	11.4
99.5	15.0	13.9	12.8	11.9	99.5	14.9	13.6	12.5	11.5
100.0	15.2	14.0	12.9	12.0	100.0	15.2	13.7	12.6	11.6
100.5	15.3	14.1	13.0	12.1	100.5	15.2	13.9	12.7	11.7
101.0	15.4	14.2	13.2	12.2	101.0	15.3	14.0	12.8	11.8

101.5	15.6	14.4	13.3	12.3	101.5	15.5	14.1	13.0	11.9
102.0	15.7	14.5	13.4	12.4	102.0	15.6	14.3	13.1	12.0
102.5	15.9	14.6	13.5	12.5	102.5	15.8	14.4	13.2	12.1
103.0	16.0	14.8	13.6	12.6	103.0	15.9	14.5	13.3	12.3
103.5	16.2	14.9	13.7	12.7	103.5	16.1	14.7	13.5	12.4
104.0	16.3	15.0	13.9	12.8	104.0	16.2	14.8	13.6	12.5
104.5	16.5	15.2	14.0	12.9	104.5	16.4	15.0	13.7	12.6
105.0	16.6	15.3	14.1	13.0	105.0	16.5	15.1	13.8	12.7
105.5	16.8	15.4	14.2	13.2	105.5	16.7	15.3	14.0	12.8
106.0	16.9	15.6	14.4	13.3	106.0	16.9	15.4	14.1	13.0
106.5	17.1	15.7	14.5	13.4	106.5	17.1	15.6	14.3	13.1
107.0	17.3	15.9	14.6	13.5	107.0	17.2	15.7	14.4	13.2
107.5	17.4	16.0	14.7	13.6	107.5	17.4	15.9	14.5	13.3
108.0	17.6	16.2	14.9	13.7	108.0	17.6	16.0	14.7	13.5
108.5	17.8	16.3	15.0	13.8	108.5	17.8	16.2	14.8	13.6
109.0	17.9	16.5	15.1	14.0	109.0	18.0	16.4	15.0	13.7
109.5	18.1	16.6	15.3	14.1	109.5	18.1	16.5	15.1	13.9
110.0	18.3	16.8	15.4	14.2	110.0	18.3	16.7	15.3	14.0

Annex 3 BMI for age for children and adolescent 5-17 years

BMI chart for determining nutritional status of HIV+ children and adolescents (age 5-18 years)

BOYS				HEIGHT (CM)																				GIRLS															
3SD	-2SD	-1SD		100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	3SD	-2SD	-1SD														
13.0	12.5	12.0	11.5	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139		
14.3	13.2	12.3		140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	
14.8	13.6	12.7		150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	
15.1	13.9	12.9		160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
15.5	14.2	13.2		170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205
16	14.7	13.6		180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	
16.7	15.2	14		190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	
17.2	15.7	14.5		200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	
17.9	16.2	14.9		210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	
18.5	16.7	15.3		220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	
19	17.1	15.6		230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	
19.4	17.4	15.8		240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	
SEVERELY MALNOURISHED	MODERATELY MALNOURISHED	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED																					SEVERELY MALNOURISHED	MODERATELY MALNOURISHED	MODERATELY MALNOURISHED	SEVERELY MALNOURISHED												

BMI chart for determining nutritional status of HIV+ children and adolescents (age 5-18 years)

AGE (YRS)	BMI	HEIGHT (CM)																														AGE (YRS)	BMI			
		100						110						120						130																
		105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134					
5-4	13.0	13.1	13.2	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	5-4	11.8	12.0	12.3
6-4	13.3	13.4	13.5	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	6-4	11.8	12.0	12.3
7-4	13.6	13.7	13.8	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	7-4	12.2	12.3	12.7
8-4	13.9	14.0	14.1	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	8-4	12.2	12.3	12.7
9-4	14.2	14.3	14.4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	9-4	12.2	12.3	12.7
10-4	14.5	14.6	14.7	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	10-4	12.5	13.7	15.1
11-4	14.8	14.9	15.0	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	11-4	12.9	14.1	15.6
12-4	15.1	15.2	15.3	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	12-4	13.4	14.6	16.3
13-4	15.4	15.5	15.6	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	13-4	13.8	15.2	16.9
14-4	15.7	15.8	15.9	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	14-4	14.2	15.7	17.5
15-4	16.0	16.1	16.2	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	15-4	14.5	16.2	18.1
16-4	16.3	16.4	16.5	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	16-4	14.9	16.7	18.7
17-4	16.6	16.7	16.8	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	17-4	14.7	16.4	18.5
18-4	16.9	17.0	17.1	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	18-4	14.7	16.5	18.6
19-4	17.2	17.3	17.4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	19-4	15.1	17.0	19.2
20-4	17.5	17.6	17.7	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20-4	15.6	17.5	19.7
21-4	17.8	17.9	18.0	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21-4	16.1	18.0	20.2
22-4	18.1	18.2	18.3	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	22-4	16.6	18.5	20.7
23-4	18.4	18.5	18.6	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	23-4	17.1	19.0	21.2
24-4	18.7	18.8	18.9	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	24-4	17.6	19.5	21.7
25-4	19.0	19.1	19.2	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	25-4	18.1	20.0	22.2
26-4	19.3	19.4	19.5	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	26-4	18.6	20.5	22.7
27-4	19.6	19.7	19.8	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	27-4	19.1	21.0	23.2
28-4	19.9	20.0	20.1	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	28-4	19.6	21.5	23.7
29-4	20.2	20.3	20.4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	29-4	20.1	22.0	24.2
30-4	20.5	20.6	20.7	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	30-4	20.6	22.5	24.7
31-4	20.8	20.9	21.0	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	31-4	21.1	23.0	25.2
32-4	21.1	21.2	21.3	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	32-4	21.6	23.5	25.7
33-4	21.4	21.5	21.6	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	33-4	22.1	24.0	26.2
34-4	21.7	21.8	21.9	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	34-4	22.6	24.5	26.7
35-4	22.0	22.1	22.2	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	35-4	23.1	25.0	27.2
36-4	22.3	22.4	22.5	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	36-4	23.6	25.5	27.7
37-4	22.6	22.7	22.8	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	37-4	24.1	26.0	28.2
38-4	22.9	23.0	23.1	23.2	23.3	23.4	23.5	23.6	23.7	23.8	23.9	24.0	24.1	24.2	24.3	24.4	24.5	24.6	24.7	24.8	24.9	25.0	25.1	25.2	25.3	25.4	25.5	25.6	25.7	25.8	25.9	26.0	38-4	24.6	26.5	28.7
39-4	23.2	23.3																																		

## **Annex 4: Safe Water System & Hand Washing Guide**

The Safe Water System (SWS) is a household-based water quality intervention that has been developed in response to the need for inexpensive, alternative means of water treatment and storage in the short to medium term for populations lacking access to safe water. Although this guide was designed to be used to promote the use of safe water and hand hygiene practices among people living with HIV/AIDS (PLWHA) and their families, the principles apply to all members of the community, and particularly those who are particularly vulnerable to diarrhoea such as PLWHA and children less than 5 years old. The Safe Water System intervention has three components:

### ***The Wuha agar Bottle***

#### **What is Wuha agar?**

- Wuha agar is a 1.25% sodium hypochlorite solution (dilute bleach) which is used to disinfect water and make it safe for drinking.

#### **When should you use Wuha agar?**

- Every time you refill your water container, you should treat the water with Wuha agar. Water should be treated YEAR ROUND.
- You should even treat your water if you have piped water and store it because the water can become contaminated during storage.
- Wuha agar is a household water treatment intervention and should not be used in boreholes or community wells.

#### **How much Wuha agar should be added to a 20 litre container?**

- 1 capful is sufficient for clear water
- 2 capfuls for dirty water
- For containers larger than 20 litres, the dose of Wuha agar should be increased proportionately (e.g. 2 capfuls should be used to treat clear water in a 40 litre container)

#### **How long does the bottle last before it expires?**

- The product's shelf life is 12 months if UNOPENED.
- After the bottle is opened in the home, the solution should be used up within two months because the introduction of air causes it to lose its potency.

#### **When is the water safe to drink after treating it?**

- Treat the water and shake or stir the container. Then wait ½ hour (30 minutes) before drinking.

#### **Where should the bottle of Wuha agar be stored?**

- Out of sunlight, out of the reach of children, in a cool, dry place.

#### **What are other purposes of using Wuha agar besides using it for drinking water?**

- Treated water should also be used for washing fruits and vegetables, cleaning kitchen utensils, and can be used for hand washing. 75

#### **Is Wuha agar a prevention or a treatment for diarrhoea?**

- Wuha agar is prevention for diarrhoea, whereas Oral Rehydration Solution (ORS) is a treatment for dehydration caused by diarrhoea.

#### **What does water treated with Wuha agar taste like?**

- Wuha agar has a chlorine or metallic taste to it. It is important to tell your clients that a slight odor of chlorine means that their water is safe to drink.

#### **Safety Issues and Health Impact: Wuha agar is dilute and safe**

- If Wuha agar is accidentally ingested in large quantities by children, there are only minor, transient effects on health.

The WHO recommends chlorination of water for populations facing a risk of disease and death from contaminated water. There may be a very small risk of cancer from drinking visibly dirty water treated with chlorine over many decades; however, the WHO is clear that water treatment with chlorine is the priority for people facing a high current risk of waterborne disease. The benefits of Wuha agar therefore far outweigh any very small risk of contracting cancer. Chlorinated water is the norm in most developed countries. Chlorine is used widely in city piped water systems.

#### ***The Recommended Container***

- Covered buckets with taps and covered clay pots

#### **Components of Proper Hand Washing**

Hand washing is the number one prevention against the spread of person-to-person infection.

Hand washing is the cornerstone of infection-control practice.

#### **Benefits of integrating proper hand washing into daily hygiene routine:**

- 1) Hand washing with soap is the number one prevention against spread of infection from person to person.
- 2) Hand washing with soap is the cornerstone of infection-control practice.

#### **Key elements to remember when teaching your clients about hand washing:**

- 1) Use soap every time you wash your hands.
- 2) How you wash your hands is just as important as when you wash them. Just rinsing them is not enough!
- 3) Unwashed (or poorly washed) hands can transfer harmful microorganisms to other people.
- 4) Discourage multiple uses of washbasins from eldest generation to youngest generation.

Instead, change the water after each use and be sure to use treated water or use the pouring method.

5. Encourage clients to share the hand washing message with their family, neighbours, and friends.

#### **When should you tell your clients to wash their hands?**

- 1) After going to the latrine
- 2) After cleaning up a child or after a child defecates
- 3) Before preparing or eating food
- 4) Before and after tending to someone who is sick
- 5) After handling uncooked foods, particularly raw meat, poultry, or fish
- 6) After blowing your nose, coughing, or sneezing
- 7) After handling an animal or animal waste



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