



The Federal Democratic Republic of Ethiopia  
Ministry of Health

# National Guidelines for HIV/AIDS and Nutrition



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A handwritten signature in black ink, appearing to be a stylized name, located below the main text.

Family Health Department  
Ministry of Health  
Federal Democratic Government of Ethiopia

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## Acronyms

AFASS	Acceptable, Feasible, Accessible, Sustainable, Safe
AED	Academy for Educational Development
AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante-Natal Care
ART	Anti-retroviral Therapy
ARV	Anti-Retroviral
AZT	Azidothymidine
BCC	Behaviour Change Communication
BMI	Body-Mass Index
CHC	Child Health Card
DHS	Demographic Health Survey
EBF	Exclusive Breastfeeding
ENA	Essential Nutrition Actions
ERF	Exclusive Replacement Feeding
FAO	Food and Agriculture Organization
FANTA	Food and Nutrition Technical Assistance Project
FDRE	Federal Democratic Republic of Ethiopia
FMoH	Federal Ministry of Health
GMP	Growth Monitoring & Promotion
HAART	Highly-Active Anti-Retroviral Therapy
HB	Haemoglobin
HBC	Home-Based Care
HCT	HIV Counselling and Testing
HIV	Human Immunodeficiency Virus
IF	Infant Feeding
IGA	Income Generating Activities
IU	International Units
KCAL	Kilocalorie
MCH	Maternal and Child Health
MTCT	Maternal to Child Transmission
MUAC	Mid-Upper Arm Circumference
NGO	Non-Government Organization
OI	Opportunistic Infection
ORS	Oral Rehydration Solution
OTP	Outpatient Therapeutic Program
OVC	Orphans and Vulnerable Children
PCR	Polymerase Chain Reaction
PLWHA	People Living With HIV/AIDS
PMTCT	Prevention of Maternal to Child Transmission
PNC	Post-Natal Care
RDA	Recommended Dietary Allowance
RUTF	Ready-to-use Therapeutic Food
STI	Sexually-transmitted Infection
TB	Tuberculosis
TFP	Therapeutic Feeding Program
TPF	Therapeutic Parenteral Feeding
WFP	World Food Program
WHO	World Health Organization

# **1. Introduction**

## **1.1 Objectives of guidelines**

These national guidelines define the nutrition actions for service providers to take in providing quality care and support to PLWHA at HIV counselling and testing (HCT), maternal and child health (MCH), anti-retroviral therapy (ART), orphans and vulnerable children (OVC), and home-based care (HBC) sites. The guidelines seek to assist the different categories of HIV/AIDS infected/affected people: adults, pregnant and lactating women, adolescents, severely malnourished adults and children, and people on medication.

As more and more partners, including ministries, donor agencies, and NGOs become involved in HIV/AIDS support, these national guidelines also provide a framework by which interventions can be harmonized across Ethiopia. It is expected that additional clinical guidelines and training course will be developed from this national guidelines.

## **1.2 Commitment of government and coordination of partners**

The Federal Democratic Republic of Ethiopia (FDRE) recognizes that HIV/AIDS and malnutrition exacerbate one another and that adequate nutrition slows disease progression and improves quality of life and the effectiveness of anti-retrovirals (ARVs) and other drugs. Although much has been done to date to fight HIV in Ethiopia, more effort must be focused on promoting nutrition for PLWHA. In nutrition, the FDRE sees an important opportunity to employ a cost-effective strategy in the management of HIV/AIDS.

## **1.3 Target audience**

The guidelines are targeted to PLWHA service providers, including counsellors, health and extension workers, teachers/trainers, and policymakers. They are intended for practical application as well as policy formulation and implementation.

## **1.4 Overview of the guidelines**

The guidelines provide a standardized approach to diverse conditions in Ethiopia. Each service provider needs to further adapt recommendations to her/his context, including to individuals to whom services are being provided. The guidelines can be used to:

- Provide dietary counselling and nutritional care to people living with or affected by HIV/AIDS.
- Create messages and materials that advocate adequate nutrition for PLWHA and others.

- Develop more detailed and specific operational guidelines and materials for service providers and PLWHA.
- Design monitoring and evaluation systems for nutritional components of HIV/AIDS programs/interventions.

The guidelines are organized around “contact points”, locations where the population encounters health providers and related professionals. Contact points are organized according to health context and are as follows:

- HIV counselling and testing
- Maternal and child health – PMTCT Site
- Anti-retroviral therapy
- Orphans and vulnerable children
- Home-based care

Each contact point contains key counselling messages, instructions for assessing nutritional status, and actions for the provider to take.

The following are strongly recommended in order to implement quality nutritional care and support in each of the above contact points:

- Staff trained in nutritional care and support.
- Counselling cards, BCC materials, copy of the guidelines, referral cards, child/maternal health cards.
- Scales, mid-upper arm circumference (MUAC) tapes, height-meters, etc.
- Multi-micronutrients, and other routine micronutrient supplements, like vitamin A, iron/folic acid, Zinc.
- Demonstration models.
- Food supplements.

The guidelines also include information on food security and monitoring the impact of the guidelines. Corresponding behaviour change communication (BCC) materials, including a counselling card, body mass index (BMI) chart, posters, and leaflets for patients are being developed and will be made available to providers with the distribution of the guidelines.

## **2. Background**

HIV/AIDS and malnutrition combine to undermine immunity of many people in Ethiopia.

### **2.1 – HIV/AIDS in Ethiopia**

Based on the 2003 sentinel surveillance findings (AIDS in Ethiopia 5<sup>th</sup> Report, FMOH, 2005), approximately 1.5 million (4% male and 5% female) people in Ethiopia have HIV/AIDS, of which 96,000 are children under 15 years of age. An estimated 98,000 new AIDS cases were reported in the adult population in 2003 (46% male and 54% female), as well 25,000 children. Some 245,000 PLWHA were in need of antiretroviral treatment (ART) in 2003. There were also an estimated 539,000 AIDS orphans in 2003.

### **2.2 – Nutrition in Ethiopia**

Ethiopia has one of the world's highest incidences of undernourished individuals. Approximately 49% of the population is without adequate nutrition (FAO, 2000). Ethiopia has high levels of food insecurity and is prone to acute food insecurity, primarily from draught, environmental degradation, and insufficient access to and availability of food.

According to the preliminary report of the Ethiopia Demographic and Health Survey 2005 and the 2000 DHS, 47% of children under five experience chronic and 24% severe malnutrition. One in four women of reproductive age has chronic energy deficiency and 27% have anaemia. Half of all infants are exclusively breastfed; many children did not receive vitamin A supplements in the six months prior to the study. Only 12% of mothers received vitamin A within 45 days of delivery. Given these high levels of malnutrition and vitamin A deficiency, it is likely that deficiencies in other micronutrients like zinc, iron, folate, and vitamin C also exist in Ethiopia.

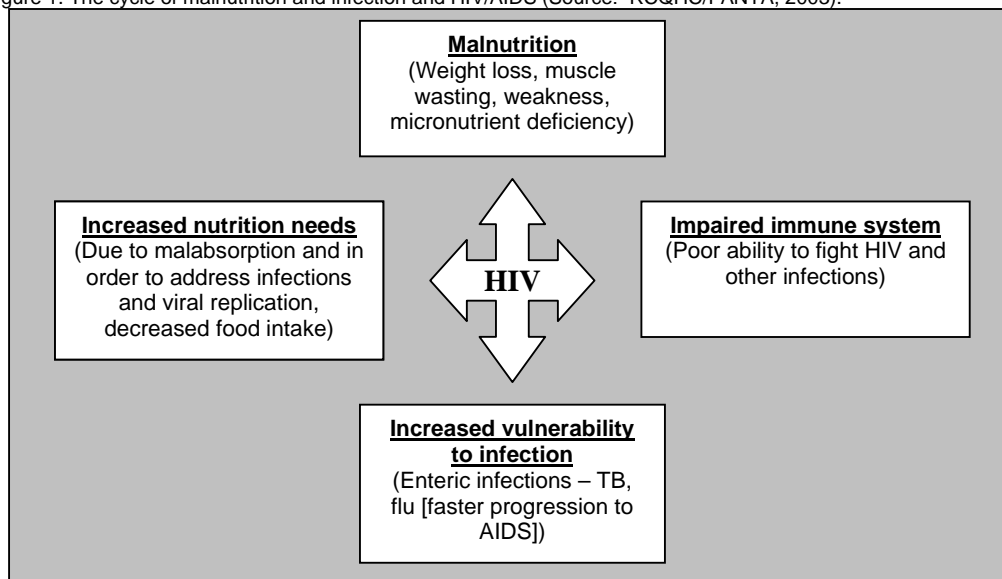
### **2.3 – Link between HIV/AIDS and nutrition**

Malnutrition and HIV/AIDS compound one another. PLWHA are more likely to become malnourished due to:

- Reduced food intake resulting from appetite loss and difficulty eating, possibly as a result of infections, side effects of medication, or depression.
- Poor absorption of nutrients that may be the result recurrent/chronic diarrhoea and HIV-caused intestinal cell damage.
- Changes in the way the body uses nutrients it receives or has stored.

Malnutrition contributes to immune impairment, making the body vulnerable to frequent illnesses and increasing demand for energy and nutrients, thereby accelerating disease progression. The Figure below highlights the link between malnutrition and HIV/AIDS:

Figure 1. The cycle of malnutrition and infection and HIV/AIDS (Source: RCQHC/FANTA, 2003).



Malnutrition can also increase an individual's risk of contracting the HIV by forcing her/him into high-risk activities to acquire food.

### **Characteristics of HIV/AIDS related malnutrition:**

The following malnutrition characteristics are commonly observed in PLWHA in the later stages of the disease:

- Weight loss, often described as 'slim disease', and eventually, severe wasting.
- Progressive muscle wasting and fat loss under skin, causing accelerated aging.
- Reduced immune competence leading to increased susceptibility to infections.
- Hair changes, especially thinning and loss.
- Diarrhoea and poor absorption of nutrients.
- Poor response to treatment.

### **Goals of nutritional care and support for PLWHA:**

- Improve nutritional status by maintaining weight, body composition, and preventing muscle loss.

- Ensure adequate energy and nutrient intake by influencing eating habits and building body stores of essential nutrients.
- Prevent illnesses by promoting hygiene and food and water safety.
- Enhance quality of life by promptly treating infections and managing symptoms that affect intake to minimize nutritional impact.
- Provide care from initial HIV testing through advanced stages of the disease.

The table below shows the mix of possible nutrition interventions according to local circumstances and the individual's disease progression.

Table 1 - Mix of interventions according to local circumstances and disease progression (Source: Piwoz, 2004)

	<b>HIV+ asymptomatic</b>	<b>HIV+ symptomatic</b>	<b>AIDS</b>	<b>Death</b>
<b>Counseling/care</b>	Nutrition for positive living	Nutrition management of HIV-related opportunistic infections (OI), symptoms, and medications	Nutrition management of ARV therapy (where available) Nutrition management in home-based, palliative care	Counseling on special food and nutritional needs of orphans and vulnerable infants and young children
<b>Targeted supplementation</b>	For high risk groups only – e.g., pregnant and lactating women, non-breastfed children	For high risk groups For persons who are losing weight, do not respond to medications  Supplementary and therapeutic feeding for moderately and severely malnourished adults/ children, respectively	Therapeutic feeding or supplementation for moderately and severely malnourished adults and children	For high risk OVC groups – e.g., non-breastfed children < 2 yrs, and those with growth faltering
<b>Other uses of food support</b>	Food rations to prevent deterioration in highly food insecure communities/populations	Food rations to improve adherence/participation in OI treatment programs	Food rations to improve adherence/participation in ARV and OI treatment programs  Food rations in home-based care programs	Food rations for families where livelihoods are compromised. Food rations to protect the health of orphans and vulnerable children (e.g., school feeding)

## **2.4 – Requirements for PLWHA:**

(The energy needs for HIV-negative and positive people of different ages and sex are shown in **Annex 1 – Daily energy and protein requirements.**)

### **Energy:**

All PLWHA, whether adult male, pregnant, lactating, adolescent, or child, require more energy to meet elevated nutritional needs resulting from infection and changes to metabolism caused by HIV.

The World Health Organization (WHO) recommends that PLWHA increase energy incrementally depending on the stage of the disease (WHO 2005). Energy increments are the same whether or not the PLWHA is taking ARVs.

***All PLWHA require 10% more energy when asymptomatic and 20-30% if symptomatic. Children who are symptomatic and experiencing weight loss need between 50-100% more energy every day.***

When counselling, providers should consider that **average** Ethiopian meals of injera and sauces contain 700 - 800 kilocalories.

### **Protein and micronutrients:**

Although research unanimously shows a loss of body mass for PLWHA, the severity of which increases with progression of the disease, it has not concluded whether PLWHA require additional protein and/or micronutrients to address this loss. WHO **does not** recommend increasing protein, fat, or micronutrient intake over recommended dietary allowances (RDA) (protein at 12-15% of total energy).

***PLWHA do not require additional protein. All micronutrients should be supplemented at no more than one RDA unless the client is deficient.***

### **Water:**

Water helps in cleaning the body of wastes of metabolism, disease, and toxins left from ARVs and other drugs. PLWHA may lose water due to illnesses (fever may cause loss of water through sweating, vomiting, and diarrhoea). PLWHA need to drink clean safe water to avoid water borne diseases, particularly those with low CD4 counts. Not all bottled water is safe for drinking.

### **Physical activity:**

Exercise preserves muscles essential to metabolising ARVs, strengthens the body, and stimulates appetite. PLWHA are advised to carry out physical activity/exercises like walking, jogging, gardening, and weight-bearing movements, consistent with their level of health and ability.

## **2.5 – The Essential Nutrition Actions (ENA) approach:**

The FMOH has adopted the Essential Nutrition Actions (ENA) approach to address malnutrition. The ENAs promote key “do-able” nutrition behaviors scientifically proven to improve the nutrition of women and children and also apply to PLWHA. The approach focuses on seven actions, which include:

- Promotion of:
  - Optimal infant feeding during the first six months.
  - Adequate complementary feeding beginning at six months.
  - Nutritional care of the child during and after illness.
  - Iodized salt consumption by all families.
  - Improved women’s nutrition (increased food intake during pregnancy and lactation), iron/folic supplementation, treatment/prevention of malaria, deworming during pregnancy, postpartum vitamin A supplementation).
  
- Prevention of:
  - Vitamin A deficiency (consumption of fortified and vitamin A-rich foods, maternal and child supplementation 6-59 months).
  - Anaemia (maternal and child iron supplementation, deworming, malaria control, consumption of fortified and iron-rich foods).

These seven actions are promoted/implemented through six health contact points in the life cycle i.e.: during pregnancy, delivery, and immediate postpartum, postnatal and family planning visits, immunization, growth monitoring/well child, and sick child consultations. Outside the health sector, these seven actions are also implemented through community, school, emergency, agriculture, credit, and other programs.

**Annexes 2a and 2b** summarize the ENA currently recommended for HIV-negative and unknown status and HIV-positive individuals.

### **Actions for provider:**

For HCT, MCH, ART, HBC and OVC contacts, counsel that adequate nutrition:

- Strengthens immune function, reducing secondary infections.
- Prevents diseases caused by micronutrient deficiency.
- Controls wasting and loss of muscle needed for effective treatment.

## 3. HIV Counselling and Testing

HIV counselling and testing (HCT) provides an important opportunity to deliver nutrition messages to HIV-positive clients immediately after testing as well as to encourage adequate nutrition practices among HIV-negative clients. HCT counsellors need periodic updates about nutrition issues related to HIV/AIDS.

**Materials needed:** Weighing scales, height meters, BMI chart; deworming medicine and iron/folic acid supplements; and HIV/AIDS and nutrition counselling cards, posters, and leaflets

### **3.1 – HIV-negative clients**

#### **3.1.1 – HIV-negative adults and adolescents:**

- Counsel to:
  - Eat three meals a day of different kinds of foods like fruits and vegetables, grains like injera, bread, and porridge, and meat, chicken, fish, lentils, beans, and nuts.
  - Seek care whenever health problems arise that may affect food intake (e.g. diarrhoea, vomiting, sores/thrush in the mouth, loss of appetite, change of taste in the mouth) and seek testing again.

#### **3.1.2 – HIV-negative or unknown status pregnant and lactating women:**

- Refer HIV-negative or unknown status pregnant and lactating women for ANC/PNC where they can receive counselling, iron/folic supplementation, and deworming medication.
- Counsel to:
  - Eat one additional meal per day if pregnant and two if lactating.
  - Practice safer sex.
  - Practice exclusive breastfeeding until the baby is six months old, with continued breastfeeding up to two years and beyond.
  - Start complementary feed at six months of age.
- (See **Annex 2a – Essential Nutrition Actions (ENA) for HIV-negative or unknown status pregnant/lactating women and their children.**)

### 3.1.3 – HIV-negative or unknown status children:

- Refer parent/caregiver to MCH where child can receive support to implement the Essential Nutrition Actions. (See **Annex 2a – Essential Nutrition Actions (ENA) for HIV-negative or unknown status pregnant/lactating women and their children.**)

## **3.2 – HIV-positive adults and adolescents**

### 3.2.1 – Assess nutritional status at every contact:

- Measure weight (in kilograms to the nearest 100 grams) and height (in metres to the nearest 1 cm) at every visit and calculate body mass index (BMI). (See BMI chart in **Annex 3.**)
- Advise clients to be weighed periodically:
  - If asymptomatic, every 3-4 months.
  - If symptomatic, every 2 months.
  - If BMI < 20, every month.
- Assess anaemia by looking at the pallor of palms.
- Question on any illness, symptoms, or medication being taken at the time of the visit and refer to clinician, if necessary.

***Refer all HIV-positive clients with BMI<16 or losing ≥10% of weight within 3 months for ART assessment & feeding program***

#### **Actions for provider:**

- Accurately record BMI and anaemia status in the client's book and encourage her/him to share with other service providers.
- If BMI < 18.5, refer client to a clinician for evaluation of advanced diseases and feeding program.

If client shows signs of anaemia:

- Refer to have haemoglobin level determined, and to be tested for malaria
- Give deworming medicine and iron/folic acid supplements.
- Counsel on eating foods rich in iron like red meat, liver, fish, poultry, eggs, legumes, nuts and foods rich in vitamins A and B12 like carrots, eggs, liver, mangoes, green leafy vegetables, sweet potatoes, and butter.
- See **Annex 4 – Treatment of anaemia.**

### 3.2.2 – Counsel on the five ways PLWHA can maintain strength:

(For more detailed information on the energy value of meals and snacks commonly eaten in Ethiopia, refer to **Annex 5 - Energy values of locally available meals, snacks, and foods.**)

- Counsel to:
  - Eat 3 meals every day with regular snacks in between. Adequate meals include injera and 2 sauces and pasta with tomato sauce and bread. Also, eat different kinds of foods every day like fruits and vegetables, grains like injera, bread, and porridge, and meat, chicken, fish, lentils, beans, and nuts. Lastly, drink at least 8 glasses of cool, clean water every day. If you not hungry, eat 5-6 times throughout the day and add spices like garlic, ginger, curry, onions, or tomatoes for flavour (unless you have oral thrush).
  - Eat with family and friends – this will help you eat more, adhere to a regular schedule, and enjoy food. Also, plant a backyard garden or raise small livestock with family, friends, neighbours, or members of a PLWHA association. If eating less due to stress or depression, spend time with family or friends or talk to a spiritual leader.
  - Dirty hands and improper storage and preparation of food can lead to diarrhoea and vomiting, which reduce energy, vitamin, and mineral intake. Always:
    - Wash hands with soap and water every time before eating or preparing food.
    - Keep food and water covered and stored away from insects, flies, and rodents.
    - Wash fruits and vegetables with clean water before cooking or eating.
    - Clean food preparation area and utensils with soap and water after every meal and/or cooking session.
    - Avoid raw meat and eggs, spoiled or mouldy foods, and juice made from non-clean water.
  - Walk, jog, garden, and conduct weight-bearing movements regularly. Abstain completely or significantly reduce consumption of alcohol, cigarettes, and chat. Also avoid coffee and tea. When out with friends, drink fruit juices and eat snacks.
  - If you have mouth sores, clean them at least twice daily with cotton and lightly salted, warm water. Also, eat soft and/or fermented foods and avoid acidic ones like lemons and oranges. Seek medical advice immediately if mouth

sores do not improve, you lose weight or your appetite decreases, or you have persistent diarrhoea.

- Also counsel to
  - Receive deworming medicines twice annually, either Mebendazole 500 mg in one dose or Albendazole 400 mg in one dose.
  - Seek medical advice immediately for common infections and OIs. (See **Annex 6 - Nutritional management for symptoms associated with HIV/AIDS.**)

### **3.2.3 – Support to take nutrient supplements and traditional therapies:**

#### Nutrient supplements:

- Counsel that:
  - Eating a variety of foods, including fruits and vegetables, grains, and animal or plant products, is the best source of nutrition.
  - Supplements are for those unable to consume sufficient quantities of high quality food or in the case of deficiency, including if severely malnourished from malabsorption, diarrhoea, or intolerances.
  - Multiple micronutrient supplements are preferred to individual micronutrients (Multiple RDA supplements)
- Caution that:
  - Excessive doses of some micronutrients (like vitamin A and D) can be toxic and supplementation **SHOULD NOT** exceed one RDA.
  - Supplements do not treat HIV/AIDS and do not substitute for ARVs
  - Supplement packaging may be misleading; many supplements claim to improve immune function, but there is no evidence to support this.

### Traditional therapies:

Most traditional herb therapies have not been proven effective by clinical research. Reliable information on toxicity or interactions with other medicines is also unavailable.

- Counsel that some herbs may:
  - Limit food intake.
  - Interfere with the effectiveness of drugs.
  
- Counsel to:
  - Supplement rather than replace food or standard therapy.
  - Ensure supplements are not poisonous or cause negative interactions with medicines.
  - Ensure supplements have the potential to prevent, alleviate and/or cure symptoms (e.g. lower blood pressure, increase energy, improve digestion, reduce severity of diarrhoea, etc).
  - Acquire therapies from a registered and/or certified traditional medicine practitioner.
  - Continuously inform clinician what is being taken.

**For pregnant and lactating HIV-positive women, see Chapter 4.**

**For HIV-positive children, see Chapter 6.**

## 4. Maternal and Child Health

Adequate nutrition is important for the health and reproductive health of women as well as the survival and development of their children. HIV-positive pregnant and lactating mothers are at increased risk of malnutrition and mortality due to the extra demands imposed by pregnancy, lactation, and HIV-caused infections. The table below shows the energy requirements for pregnant and lactating women and the additional requirements resulting from HIV/AIDS. For reference, a meal of injera and two sauces provides 700-800 kcal, a banana approximately 100 kcal, and a large handful of kolo 200 kcal (**see Annex 5 - Energy values of locally available meals, snacks, and foods**).

**Table 2: Daily energy requirements of HIV-infected pregnant and lactating women in different physiological states**  
(Source: AED-FANTA, 2004)

	Average energy intake (kcal)	Additional energy required for pregnancy/ Lactation (kcal)	Additional energy requirements of HIV (kcal)	Total energy intake (kcal)
<b>Pregnant</b>				
Uninfected	2140	280	0	2420
Asymptomatic	2140	280	210	2630
Early symptomatic	2140	280	430	2850
Symptomatic	2140	280	640	3060
<b>Lactating</b>				
Uninfected	2140	500	0	2640
Asymptomatic	2140	500	210	2850
Early symptomatic	2140	500	430	3070
Symptomatic	2140	500	640	3280
<b>Not breastfeeding</b>				
Uninfected	2140	0	0	2140
Asymptomatic	2140	0	210	2350
Early symptomatic	2140	0	430	2570
Symptomatic	2140	0	640	2780

A woman's nutritional status prior to, during, and after pregnancy influences the risk of maternal to child transmission (MTCT) of HIV and pregnancy outcomes. Most HIV-infected women do not transmit HIV to their infants. A mother can transmit HIV to her infant during pregnancy and delivery or breastfeeding, but most babies of HIV-positive mothers do not become infected. With no intervention to reduce transmission, 5–10% of infants will be infected during pregnancy, 10–20% during labour and delivery, and 5–20% during breastfeeding, if breastfed (AED/LINKAGES April 2004).

PMTCT should be part of ANC, PNC, and MCH services to support mothers and families in choosing feeding options for their newborns. MCH services need counselling materials, which have been provided in PMTCT sites, and include two mini-posters to help providers counsel women (HIV-negative and unknown status and HIV-positive) and infant feeding (IF) tools to assess whether replacement

feeding is Acceptable, Feasible, Accessible, Sustainable, Safe (AFASS) and counsel on infant feeding options.

**Materials needed:** Weighing scales for adults and children, height meters, BMI chart, counselling steps posters, infant feeding tools; deworming medicine and iron/folic acid supplements; and HIV/AIDS and nutrition counselling cards, posters, and leaflets

## **4.1 – HIV-negative or unknown status pregnant and lactating women**

- Advise about the importance of knowing HIV status in order to take actions to reduce the risk of MTCT as well as for her health and quality of life. If the woman doesn't know her HIV status, refer to HCT.
- Promote safer sex.
- Counsel to maintain adequate nutrition by eating one additional meal daily during pregnancy and two during lactation, to maintain breast health, and on optimal feeding practices.
- (See **Annex 2a – Essential Nutrition Actions (ENA)** for HIV-negative or unknown status pregnant/lactating women and their children.)

## **4.2 – HIV-positive pregnant and/or lactating women**

### **4.2.1 – Assess nutritional status at every contact:**

- Measure weight (in kilograms to the nearest 100 grams) and height (in metres to the nearest 1 cm) at every visit and record on patient card.
- If lactating, calculate and record BMI (see the BMI chart in **Annex 3**).
- If pregnant, measure MUAC (for women, normal MUAC is > 21 cm) (see **Annex 7 – How to measure mid-upper arm circumference [MUAC]**)
- If pregnant and not gaining weight appropriately, investigate for possible causes.
- Assess anaemia by looking at the pallor of palms.

***All pregnant women gaining less than one kilogram per month in the second and third trimester need to be referred immediately for additional care.***

***If a pregnant, HIV-positive woman has a weight gain falling below recommended ranges, it may indicate a medical problem (e.g. an opportunistic infection) or inadequate energy intake.***

- Question on any illness, symptoms, or medication being taken at the time of the visit and refer to clinician.

**Actions for provider:**

- Accurately record BMI or MUAC and anaemia status in the client's book and encourage her to share with other service providers.
- If BMI < 18.5, refer client to a clinician for evaluation of advanced diseases and feeding program.

If client shows signs of anaemia:

- Refer to have haemoglobin level determined, and to be tested for malaria
- Give deworming medicine and iron/folic acid supplements.
- Counsel on eating foods rich in iron like red meat, liver, fish, poultry, eggs, legumes, nuts and foods rich in vitamins A and B12 like carrots, eggs, liver, mangoes, green leafy vegetables, sweet potatoes, and butter.
- See **Annex 4 – Treatment of anaemia.**

#### **4.2.2 – Support to maintain strength:**

- Counsel women according to Chapter 3.2.2 on the five ways PLWHA can maintain their strength.
- Also counsel to:
  - Eat one additional meal daily during pregnancy and two during lactation.
  - Address factors that may limit intake like food avoidance, nausea/anorexia attributed with pregnancy, traditional beliefs, and stigma.
  - Address side-effects of iron/folic supplements by taking them with meals and drinking lots of water.

***Some of the side-effects of iron supplementation like constipation and loss of appetite may be similar to those seen in advanced disease or from ARVs.***

- Inform that periodic illnesses increase the risk of having a pre-term or underweight (low birth weight) baby and the risk of MTCT.

- Counsel to:
  - If pregnant, seek early treatment for infections such as fever, malaria, prolonged cough, and diarrhoea, to minimize the impact on nutritional status.
  - Use insecticide treated nets.
- Provide presumptive treatment of malaria in the second and third trimester.
- Refer:
  - To reproductive health services for family planning support and STI prevention and counseling.
  - If on ART, refer to ART clinic or advise as indicated in Chapter 6.

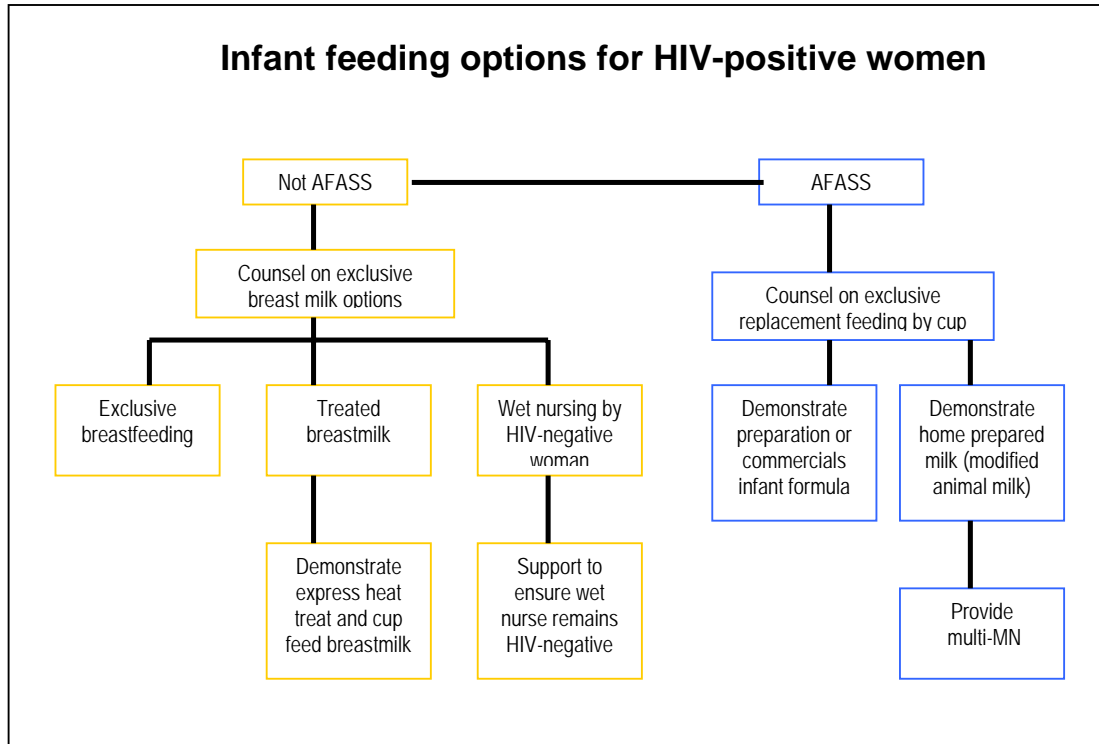
#### **4.2.3 – Support infant feeding options to reduce risk of MTCT:**

- Inform of the risks of MTCT, emphasizing PMTCT as a comprehensive package that includes pregnancy, safe delivery, and post natal care, and the need to select an infant feeding option before delivery in order to plan for implementation immediately upon birth. Emphasize that:
  - Not all HIV-positive women transmit the virus to their children.
  - If transmission occurs, it may be during pregnancy, labor and delivery, or after birth, through breastfeeding.
  - Most women who breastfeed do not transmit the virus to their babies.
- Counsel on the importance of attending ANC services, delivering in a health facility, and on follow-up in MCH, PMTCT sites, and/or ART clinic to reduce MTCT. Inform that support from health workers, support groups, family, and friends is needed to sustain the chosen feeding option.
- Inform about different options for infant feeding and assess feeding option according to the tables on the following page.

***Exclusive breastfeeding means feeding the baby on breast milk alone without giving anything else, not even water, except prescribed medication.***

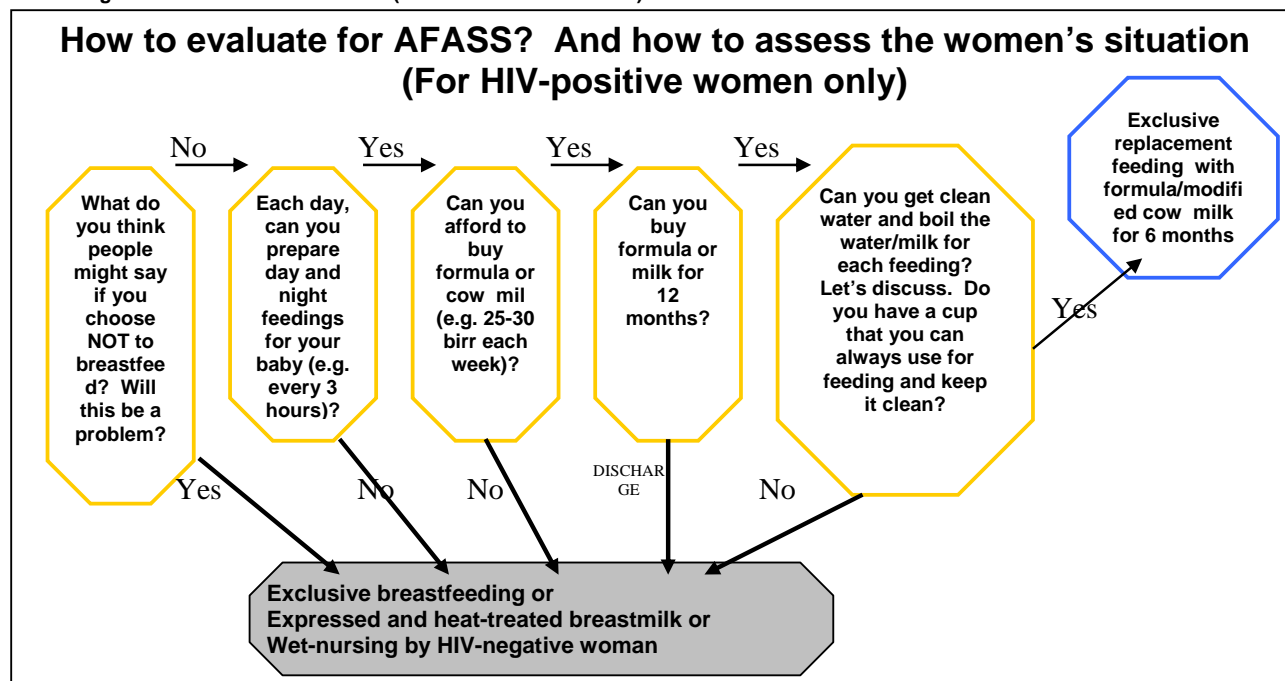
***Exclusive replacement feeding means giving the baby alternative feeds alone e.g. modified animal/cow milk or infant formula. No breast milk is given.***

Figure 2. Infant feeding options for HIV-positive women. (Source: AED/LINKAGES)



- Evaluate for AFASS (Acceptable, Feasible, Accessible, Sustainable, and Safe) using the following chart. AFASS helps providers evaluate whether a women is capable of implementing exclusive replacement feeding:

Figure 3. Evaluation of AFASS. (Source: AED/LINKAGES)



For women NOT meeting AFASS criteria:

- Counsel to:
  - Practice EBF until the child is 6 months old or when AFASS if feasible.
  - Put the baby on the breast within one hour of birth. Instruct mother to inform birth attendant of her choice to practice EBF from birth.
  - Maintain breast health and see a health worker immediately and stop feeding from the affected breast if breast problems arise (see **Annex 8 - Support mothers to optimally breastfeed**).
  - Advise mother to avoid giving infant any fluids/feeds traditionally given at birth.
- Demonstrate good positioning and attachment.
- Discuss the possibility of expressing and heat treating breast milk.

***MIXED FEEDING increases the risk of transmission of HIV to the baby and should never be practiced.***

For women meeting AFASS criteria:

- Advise to select modified cow milk or infant formula.
- Counsel as follows according to chosen feeding regimen:

**Modified cow milk:**

- Prepare fresh for each feeding.
- Wash hands and clean all utensils, containers, and cups with soap and water.
- Measure the amount of water and milk needed (see **Annex 9 - Instructions for modifying animal milk and preparing formula**).
- Measure the exact amount of sugar and mix it with the liquid.
- Boil for about 10 minutes on low heat.

- Feed baby by cup (the baby will have to learn to drink from a cup).
- Give baby multivitamin syrup with spoon once a day.

#### **Infant formula:**

- Prepare fresh for each feeding.
- Clean hands and all utensils, containers, and cups with soap and water.
- Read or have someone read instructions on the formula tin.
- Boil or treat water for 10 minutes and allow to cool. Measure amount of milk powder needed for one feed and mix with correct amount of cool, boiled water.
- Feed baby by cup.

### **4.2.5 – Support during pregnancy, delivery, and postnatal:**

#### Pregnancy:

- Describe infant feeding options.
- Assess AFASS and counsel on chosen infant feeding option and advise on danger of mixed feeding.

#### Delivery:

- If breastfeeding is chosen option, put baby immediately on the breast.
- If replacement feeding is chosen option, allow skin-to-skin contact but **DO NOT** put baby on breast.

#### Postnatal:

Re-evaluate AFASS and change option, if necessary.

- If breastfeeding, counsel on optimal breastfeeding.
- If replacement feeding, counsel on correct preparation of chosen feeding option and feeding with a cup.
- Encourage mothers to bring their infant to well baby visit/ GMP

**For women on ART, see Chapter 5.**

## 5. Anti-retroviral Therapy

PLWHA taking ARVs and associated treatments require special nutritional care and support because HIV-related medications can reduce the absorption and utilization of certain nutrients. Medications may cause nausea, vomiting, change or loss of taste or appetite, and diarrhoea, which can lead to reduced absorption of food and weight loss. Lastly, ARVs can cause metabolic side effects that lead to nutrition-related conditions like heart and bone problems.

The absorption, distribution, metabolism, and excretion of HIV-medications can also be negatively affected by food. It is essential to understand food-drug interactions and to counsel ART patients on how to use drugs in relation to food.

Every ART clinic needs a focal person trained on nutrition and HIV/AIDS.

**Materials needed:** Scale, height meter, BMI chart; deworming medicine and iron/folic acid supplements; and HIV/AIDS and nutrition counselling cards, posters, and leaflets

### 5.1 – HIV positive patients not on ART

#### 5.1.1 – Assess nutritional status at every contact

- Measure weight (in kilograms to the nearest 100 grams) and height (in metres to the nearest 1 cm) and calculate body mass index (BMI). (See BMI chart in **Annex 3**).
- Adult patients with BMI < 18.5 need specialized nutrition counselling to assess:
  - Adequacy of energy intake, as well as food diversification.
  - Underlying causes like illnesses, loss of appetite, nausea, sores in the mouth, fever, diarrhoea and mal-absorption, as well as food availability
- Assess anaemia by looking at the pallor of palms.

#### Actions for provider:

- Accurately record BMI and anaemia status in the patient's book and encourage her/him to share with other service providers.
- If **BMI < 16**, rehabilitate or nutritionally stabilize before starting ARVs (see **Annex 10 - National guidelines for the management of severe acute malnutrition**). At a minimum, provide deworming medicine, prescribe high energy (such as RUTF) and multiple micronutrient supplements, and treat for underlying illnesses.

If patient shows signs of anaemia:

- Refer to have haemoglobin level determined, and to be tested for malaria
- Give deworming medicine and iron/folic acid supplements.
- Counsel on eating foods rich in iron like red meat, liver, fish, poultry, eggs, legumes, nuts and foods rich in vitamins A and B12 like carrots, eggs, liver, mangoes, green leafy vegetables, sweet potatoes, and butter.
- See **Annex 4 – Treatment of anaemia.**

## **5.2 – Patients on ART**

### **5.2.1 – Support to maintain strength:**

- Counsel patients according to Chapter 3.2.2 on the five ways PLWHA can maintain their strength.
- Re-evaluate current ARV for patients that continue to lose weight despite adequate intake as this may indicate treatment failure.

### **5.2.2 – Assess nutritional status at every contact:**

- Measure weight (in kilograms to the nearest 100 grams) and height (in metres to the nearest 1 cm) and calculate body mass index (BMI). (See BMI chart in **Annex 3**).
- Assess:
  - Anaemia by looking at the pallor of palms.
  - Changes to body shape (clinical examination and history), including loss of fat in any body part other than the stomach, increased breast size, and “buffalo humps” (distribution of fat between the shoulders).
  - Drug side effects, like vomiting and nausea, and symptoms of opportunistic infections (OIs). Dietary management of drug side effects is presented in **Annex 11 - Food-ARV interactions and common side-effects.**
  - Alcohol abuse in patients with poor drug adherence.

**Actions for provider:**

- Accurately record BMI and anaemia status in the patient's book and encourage her/him to share with other service providers.
- If **BMI < 17**, refer to a supplementary food program and counsel on the five ways for PLWHA to maintain their strength. Prescribe high energy and multiple vitamin supplements.
- If **BMI < 20**, counsel on the five ways for PLWHA to maintain their strength. Do not refer to a supplementary food program.
- If **BMI > 24**, counsel on the risk of being overweight and identify reasons for weight gain. Recommend reducing food portions and intake of high fat/energy foods and eating more fruits and vegetables and increasing physical activity, preferably as part of an exercise program.

For patients on:

- **Zidovudine or lamivudine**, order a haemoglobin test every three months.
- **Efavirenz** or other **protease inhibitor**, order a fasting blood lipid profile (to monitor hyperlipidemia, i.e. cholesterol and triglycerides) every six months. Also monitor serum glucose (hyperglycaemia).
- **Stavudine** or **zidovudine**, order a test for bone density once annually.

For all patients, monitor renal function (serum creatinine or blood urea) at baseline and every six months.

**5.2.3 – Support to minimize food-drug interactions:**

- Inform that:
  - ARVs may have side effects that can reduce food intake, affect the availability, absorption, and utilization of nutrients, and drug adherence; or increase appetite.
  - Some foods, when taken with ARVs, may reduce drug effectiveness and worsen side effects.
  - Careful selection of food and well-planned meals can minimize side effects and also improve adherence to and effectiveness of ARVs (see **Annex 12 - Developing a drug-food plan**).

- Counsel to:
  - Adhere to recommended timing and dosage for all drugs. Make a daily meal and drug plan with a family member or friend who can also assist in following the plan at home.
  - Identify side-effects or problems that could be associated with ARVs. See **Annex 11 - Food-ARV interactions and common side-effects** and inform patients of potential side-effects associated with specific ARVs. Emphasize that side-effects may not occur and that not all symptoms are due to ARVs or other drugs.
  - Take drugs with cool, boiled or treated water.

***If taking Indinavir, drink at least 6 glasses of water (1500 ml) to avoid complications that may affect important body organs like the kidney.***

- Counsel on the following ARV-specific recommendations:
  - **Zidovudine**: Take on an empty stomach, e.g. 60 minutes before the breakfast or dinner. If patient experiences stomach irritation, take with food, but NOT with a high fat meal. Limit or eliminate fat from the meal.
  - **Nevirapine**: Take with or without food. Avoid St. John's Wort, a yellow-flowered plant sometimes used as a remedy for depression.
  - **Efavirenz**: Take with or without food, but NOT with a high fat meal. Limit or eliminate fat from the meal.
  - **Lamivudine**: Take with or without food.
  - **Stavudine**: Take with or without food.
  - **Ritonavir**: Take with food to improve palatability.

***Kitfo, genfo, and chechebsa are examples of high-fat meals to be avoided with Zidovudine and Efavirenz.***

- See Chapter 3.2.3 and provide counselling on herbal remedies.

### **5.2.5 – Support to manage changes to body composition:**

#### **If patient has high blood fat:**

- Assess if energy intake is adequate and how much energy comes from fat:

- If patient can access sufficient energy from non-fat sources, counsel to limit consumption of saturated fats, like butter and egg yolks.
  - Advise to consume foods rich in statins and/or fibrates that are effective in lowering cholesterol and triglycerides like kolo.
  - Encourage exercise according to fitness level.
  - Consider anti-diabetic agents to address insulin resistance.
- If diet modifications and physical exercise do not reduce blood fat levels, re-evaluate the ARV regimen.

If patient is experiencing changes in body shape (fat accumulation or loss):

- Counsel that there may not be an effective cure for the condition.
- Encourage exercise according to fitness level.
- Consider switching from protease inhibitor.

If patient has significant lean mass (muscle) loss:

- If appetite problems, prescribe an appetite stimulant (e.g. megestrol acetate).
- Refer males for testosterone assessment. If low, consider replacement.
- Consider using anabolic steroids to increase positive nitrogen balance, while monitoring side-effects.

### **5.3 – Recommendations specific to women on ART**

- Most pregnant women on highly active anti-retroviral therapy (HAART) take short-course zidovudine and single-dose nevirapine, for which the same diet and food/drug interactions apply (see **Annex 11 - Food-ARV interactions and common side-effects**).
  - Consider stopping treatment for women who develop severe pregnancy related nausea and vomiting.
  - Do not prescribe zidovudine to pregnant women with moderate to severe anaemia (Hb < 7.0).

Continue ARV regimen for breastfeeding women.

## **5.4 – Recommendations specific to children on ART**

The main first-line ARVs for children are similar to those of adults i.e. zidovudine, lamivudine, and nevirapine. Nevirapine is replaced by efavirenz for children > 3yrs or > 10 kg. Side-effects are similar to those experienced by adults.

### **5.4.1 – Assess nutritional status at every contact:**

- Measure weight-for-age and plot on growth monitoring chart.
- Measure acute malnutrition using MUAC, check aedema refer to a therapeutic feeding program (TFP) (see **Annex 7 – How to measure mid-upper arm circumference [MUAC]**)
- Calculate body surface area at baseline and every six months. Most dosages for children are prescribed according to body surface area.
- Monitor for lipodystrophy:
  - Ask the parent/caregiver about fat accumulation around the abdomen, breast, or buffalo hump or loss around the hands, legs, buttocks, or face.
  - For children on protease inhibitors, test fasting lipid profiles (triglycerides, and cholesterol) at baseline and annually. Blood sugar may be used to monitor manifestations of insulin resistance.

***One objective of ART is to promote optimal growth and development. Lack of growth or growth faltering over 4-6 months after initially showing positive treatment response indicates the need to review ARV drugs and consider changing to next-line therapy.***

### **5.4.2 – Support parents to ensure child on ART consumes adequate energy:**

- See **Annex 2a – Essential Nutrition Actions (ENA) for HIV-negative or unknown status pregnant/lactating women and their children** and **Annex 2b – Essential Nutrition Actions (ENA) – Additional ENA for HIV-positive pregnant/lactating women, adults, and their children.**
- Encourage parents of children in schools (especially boarding schools) to address their children's nutritional needs, including packing nutritious lunches and snacks every day.

**For the management of severe malnutrition in children, see Chapter 6.**

## 6. Orphans and Vulnerable Children

Orphans and vulnerable children (OVC) can be found in homes, orphanages, or on the street and include HIV-positive and unknown status children orphaned or living with an HIV-positive parent or parents. For the purposes of nutrition counselling, OVC are divided into children under 5 years and those 6 - 14 years of age.

**Materials needed:** MUAC tape and scale; deworming medicine and iron/folic acid supplements; and HIV/AIDS and nutrition counselling cards, and leaflets

### 6.1 – OVC < 5 years

#### 6.1.1 – Support to maintain strength:

- Counsel parent/caregiver according to Chapter 3.2.2 on the five ways PLWHA can maintain their strength.
- Provide comprehensive AIDS care package, including HIV counselling and testing growth and development monitoring, immunization, prophylaxis for opportunistic infections (PCP and TB), counselling mother/caregiver, and providing ART. An adaptation of the WHO recommendation for follow-up of < 5 OVC is shown below:

Table 3 - Nutrition activities during <5 follow-up

Nutrition activities to undertake during follow-up	At birth	1-2 wks	6, 10, 14 wks	14 wks – 6 mos	6 – 12 mos (mont hly)	12 – 24 mos (every 3 mos)	> 24 mos (6 mos if asymp or HIV-)
Provide Child Health Card (CHC)	X						
Weigh and plot	X						
Assess AFASS	X	X	X	X			
Demonstrate chosen infant feeding option	X	X	X	X			
Provide Vitamin A (200,000 IU to mother)	X						
Counsel on maternal nutrition and breast health	X	X	X	X			
Counsel on infant feeding		X	X	X	X	X	X
Distribute multi-nutrients to infants not breastfeeding		X	X	X	X	X	X
Prepare for early cessation, if necessary		X	X	X			
Examine/counsel on breast health		X	X	X			
Monitor growth and development			X	X	X	X	X
Assess palm pallor for signs of anaemia				X	X	X	X
Prepare for cessation, if AFASS			X	X	X	X	
Counsel, follow-up and support complementary feeding and replacement feeding if applicable				X	X	X	X
Supplement Vitamin A (100,000 IU) at 6 – 12 months					X	X	X

Nutrition activities to undertake during follow-up	At birth	1-2 wks	6, 10, 14 wks	14 wks – 6 mos	6 – 12 mos (monthly)	12 – 24 mos (every 3 mos)	> 24 mos (6 mos if asymp or HIV-)
Supplement Vitamin A (200,000 IU) every 6 months						X	X
Deworm every 6 months						X	X
Manage diet-related symptoms						X	X
Confirm HIV laboratory test (if no PCR)							
Feeding follow-up and support							X
Provide/refer for oral and dental care							X

- Where HIV tests such as PCR are available, determine child's status as early as possible (< 18 months), specially if growth faltering. Because a negative test for breastfeeding children does not exclude a positive test later, retest child being breastfed. After 18 months, rapid antibody tests can be used to assess HIV status if weaned.
- Attend monthly growth monitoring sessions to assess adequate growth of the child and assess possible problems.
- (For additional information on nutritional care, see **Annex 2a – Essential Nutrition Actions (ENA) for HIV-negative or unknown status pregnant/lactating women and their children** and **Annex 2b – Essential Nutrition Actions (ENA) – Additional ENA for HIV-positive pregnant/lactating women, adults, and their children.**)

### 6.1.2 – Assess nutritional status at every contact:

- Measure MUAC (see **Annex 7 – How to measure mid-upper arm circumference [MUAC]**).
- Assess anaemia by looking at the pallor of palms.
- Question on any illness, symptoms, or medication being taken at the time of the visit and refer to clinician.

***Refer children who have lost  $\geq 10\%$  of weight within 2-3 months or have a MUAC of < 110 mm for ARV assessment and start ART as appropriate.***

**Actions for provider:**

- Accurately record MUAC measurement and anaemia status on CHC and encourage the parent/caregiver to share with other service providers.
- If MUAC < 110 mm, refer child to a clinician for evaluation of advanced diseases and/or therapeutic feeding program (TFP).

If child shows signs of anaemia:

- Refer to have haemoglobin level determined, and to be tested for malaria
- Give deworming medicine and iron/folic acid supplements.
- Counsel on eating foods rich in iron like red meat, liver, fish, poultry, eggs, legumes, nuts and foods rich in vitamins A and B12 like carrots, eggs, liver, mangoes, green leafy vegetables, sweet potatoes, and butter.
- See **Annex 4 – Treatment of anaemia.**

## **6.2 – OVC 6 – 14 years**

### **6.2.1 – Support to maintain strength:**

- Counsel child and parent/caregiver according to Chapter 3.2.2 on the five ways PLWHA can maintain their strength.

### **6.2.2 – Assess nutritional status at every contact:**

- Measure weight (in kilograms to the nearest 100 grams) and height (in metres to the nearest 10 cm) monthly and calculate body mass index (BMI). (See BMI chart in **Annex 3**).
- Assess anaemia by looking at the pallor of palms.
- Question on any illness, symptoms, or medication being taken at the time of the visit and refer to clinician.

**Actions for provider:**

- Accurately record BMI and anaemia status on CHC and encourage her/him and the parent/caregiver to share with other service providers.
- If BMI < 18.5, refer OVC to a clinician for evaluation of advanced diseases and feeding program.

If child shows signs of anaemia:

- Refer to have haemoglobin level determined, to be tested for malaria
- Give deworming medicine and iron/folic acid supplements.
- Counsel on eating foods rich in iron like red meat, liver, fish, poultry, eggs, legumes, nuts and foods rich in vitamins A and B12 like carrots, eggs, liver, mangoes, green leafy vegetables, sweet potatoes, and butter.
- See **Annex 4 – Treating anaemia.**

## **6.3 – Provide psychosocial support:**

### **6.3.1 – To the parent/caregiver:**

Parents/caregivers need help adopting positive attitudes for themselves and OVC under their care.

- Encourage parent/caregiver to have child tested for HIV if status is unknown. If child is  $\geq 10$  years, s/he must give consent and receive pre-testing counselling according to the National Guideline on Voluntary Counselling and Testing.
- Provide emotional support and ensure parent/caregiver continues giving nutritional support to siblings during illnesses, including when parent/caregiver is hospitalized with child.
- Assist in succession planning and ensure selected caregiver is ready to continue medical follow-up.
- Link parent/caregiver to peer support, HBC, and/or food supplement programs.
- Encourage family planning and birth spacing to ensure nutritional recovery of the mother between births and optimal child care.
- Encourage parent/caregiver to create a garden to supplement food needs and income.

### **6.3.2 – To the child:**

Psychosocial care for OVC requires addressing issues likely to affect nutrition.

- Facilitate links with social welfare services and community-based groups for continuous support of OVCs.
- Advise parent/caregiver to observe signs of depression, like loss of appetite and moodiness, and seek social welfare services if they arise.

### **6.3.3 – To the household/community:**

- Work with households and communities to address:
  - **Inequality in intra-household food and care distribution.** Often, OVC are not given the same quality of food and care as other household members. Encourage households to make special considerations for HIV-positive OVC's increased needs, which can be as much as 50-100% more than an HIV-negative child of the same age.
  - **Discrimination and stigma** by family and/or community members, including in schools and other social places.
  - **Beliefs on feeding and caring for sick children.** Some beliefs deprive sick children of adequate or certain foods while others favour sick children. Identify and address detrimental taboos and encourage good health/nutrition for sick children. (See Annex **2a and 2b** for Essential Nutrition Actions in the care of sick children.)
- Work with communities to initiate/strengthen community level programs, e.g.:
  - Programs that support parents/caregivers to maintain livelihoods when the child's sickness takes time away from work or school.
  - Community feeding centres, school feeding, and food distribution for vulnerable children.
- During home-based care, watch for and help relieve anxiety and depression that may interfere with child care of the infected child and uninfected siblings.
- Link older OVC to life-skills programs that can help in creating long-term food security.

## **6.4 – Provide specialized care to children with severe malnutrition**

- Use the table on the following page to determine whether a severely malnourished child requires therapeutic or supplementary feeding. (See **Annex 7 – How to measure mid-upper arm circumference [MUAC]**).

Age	Admission criteria	
	TFP	SFP
6 months – 18 years	<ul style="list-style-type: none"> <li>- W/H or W/L &lt; 70%</li> <li>- Presence of bilateral oedema</li> <li>- MUACH &lt; 110 mm when height &gt; 65 cm</li> </ul>	<ul style="list-style-type: none"> <li>- <math>70\% \leq W/H &lt; 80\%</math></li> <li>- <math>110 \text{ mm} \leq \text{MUAC} &lt; 120 \text{ mm}</math> when height &gt; 65 cm</li> </ul>
$\geq 18$ years	<ul style="list-style-type: none"> <li>- MUAC &lt; 180 cm</li> <li>- Presence of bilateral oedema (unless clear other cause present)</li> </ul>	<ul style="list-style-type: none"> <li>- <math>180 \text{ mm} \leq \text{MUAC} &lt; 210 \text{ mm}</math></li> </ul>

- After discharge, counsel on adequate nutrition (See **Annex 2a – Essential Nutrition Actions (ENA) for HIV-negative or unknown status pregnant/lactating women and their children** and **Annex 2b – Essential Nutrition Actions (ENA) – Additional ENA for HIV-positive pregnant/lactating women, adults, and their children** for food composition).

Return of appetite and reduction of oedema

***RUTF is used to treat severe malnutrition without complications in communities with limited access to appropriate local diets.***

***When providing RUTF, refer to the national guideline for the management of severe acute malnutrition.***

***Do not give children < 6 months RUTF or treat at home. These children need milk-based diets and/or breastfeeding.***

***(Source: WHO, UNICEF, and SCN)***

**For children on ART, see Chapter 5.**

**For terminally ill children, apply the recommendations included in Chapter 7 for all HBC patients.**

## 7. Home-based Care

During home-based care (HBC), severely ill AIDS patients are identified and followed-up by family members or volunteers under the supervision of a nurse. Caregivers make food, bathe, clean the clothes and houses of, and provide psychological support to patients. Nurse supervisors assess clinical conditions, treat basic infections, and refer patients for more comprehensive treatment. They also assist with food provision and psychological counselling. Nutrition for HBC patients need to be directed to caregivers and nurse providers.

**Materials need:** MUAC tape; deworming medicine and iron/folic acid and multimicronutrient supplements, supplementary food; and HIV/AIDS and nutrition counselling cards, and leaflets

### 7.1 – HBC caregivers and nurse providers:

#### 7.1.1 – Assess nutritional status at every contact:

- Measure MUAC. Refer to therapeutic feeding program (TFP) of outpatient therapeutic program (OTC) if MUAC is:
  - **Adult men:** < 250 mm.
  - **Adult women:** < 220 mm.
  - **Children 6 – 59 months:** < 110 mm
- Assess dietary intake in past 24 hours. Consider:
  - Frequency and volume and energy/nutrient density of meals and snack and intake of water.
  - Factors preventing adequate consumption, like time for food preparation, poor appetite, illness and pain, depression, food availability, and food beliefs and attitudes.
  - Food intolerances causing pain, skin rash, diarrhoea, etc.
  - Dietary restrictions of ARVs and other medications, as well as signs of drug side-effects, including rash, dizziness, drowsiness, anorexia, nausea, vomiting, diarrhoea, mouth sores, fatigue, fever, and sleep disturbances.
  - Consumption of alcohol, cigarettes, chat, and other drugs.
- Assess hygiene, sanitation, and living conditions, including:

- Availability and use of latrine and waste disposal; cleaning and storage of utensils
- Use and storage of boiled or treated water.
- Personal hygiene (washing hands after bowel movements, before/after handling food, bathing, clothing, toothbrush, and nails).
- Evaluate:
  - Any exacerbation or deterioration in patient's condition that is not manageable at home, including vomiting, severe and/or prolonged loss of appetite or inability to swallow, diarrhoea, dehydration, severe anaemia, and changes to the patient's level of alertness.
  - Food security of household members, including inequalities affecting the patient or other household members.
  - Who selects what is cooked and prepares for the patient and whether s/he understands the nutritional needs of the patient
  - Food availability and coping strategies employed by the household.

**Actions for provider:**

- If vomiting, loss of appetite, diarrhoea, or changes to the patient's level of alertness are no longer manageable at home, take her/him to a hospital.
  - If condition is mild, manage illness to ensure continuous adequate intake of food.
  - Document patient's condition, actions taken, and report to health supervisor.
- Also find additional information in the Guidelines for the Management of Severe Acute Malnutrition.

**7.1.3– Support to maintain strength:**

- Counsel patients according to Chapter 3.2.2 on the five ways PLWHA can maintain their strength.
- Assist the caregiver to help the patient eat better. Discuss:


- Using locally available and affordable and supplementary food, to improve food variety and diversity. Take into consideration food the patient likes.
  - Developing a kitchen/backyard garden to supplement the family's food.
  - Using fermentation, germination, blending, and adding oil, butter, cheese, or sugar to improve energy and nutrient content.
  - Defining when it's favourable to feed to the patient and amounts required at each feeding (see **Annex 11 - Developing a drug-food plan**).
  - How critical it is to actively feed the patient, be flexible, and always keep food and drink in reach of the patient.
  - Sitting with the patient to encourage eating and give hope.
  - Taking small sips and use cool, boiled or treated water to avoid dehydration.
- Demonstrate how to:
    - Improve food consistency for patients who have problems chewing and swallowing, using locally available resources i.e. how to mash foods, make puree, and prepare high energy/nutrient dense soups.
    - Provide sip feeding to weak patients who have appetite and are able to feed orally. Foods may include special medical feeds such as high-energy formulations.
    - Prepare ORS - one glass of clean, boiled or treated water, pinch of salt, and half teaspoon sugar.
  - In addition, show the caregiver how to:
    - Improve the cleanliness of the environment, including food/water storage and handling.
    - Implement simple body stretching exercises to prevent bed sores and improve blood circulation and strength as well as providing massage for bed ridden patients to prevent muscle atrophy.
  - If necessary, refer family to food assistance programs.

***Therapeutic parenteral feeding (TPF) is a type of nutritional support using liquid commercial preparations or sip feeds or blended mixtures prepared from regular foods. Show caregivers how feed enterally patients who cannot take food or liquid orally.***

**For HBC patients on ART, see Chapter 5.**

## 8. Behavior change communication (BCC) tools

Four BCC tools have been developed to support the National Guidelines for HIV/AIDS and Nutrition, including:

	<p><b>Counseling cards</b> detailing the five ways PLWHA can maintain their strength, as well as additional information for ART and HBC patients. The counselling cards can be used in individual or group counselling sessions for HCT, MCH, ART, OVC, or HBC patients.</p> <p><b>Brochure</b> containing the same information as the counselling cards to be distributed following counselling sessions or at the discretion of providers.</p> <p><b>Posters</b> containing BCC messages focusing on the importance of increasing the amount and variety of food consumed. Posters are intended for HCT clinics and other medical facilities.</p> <p><b>BMI wall-chart</b> providing a simple reference for providers to use in calculating BMI.</p>
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Copies of these materials can be obtained by contacting:

Family Health International (FHI)  
 # 175 South Africa Road  
 Bole Kifle Ketema, Kebele 5  
 P.O. Box 121789  
 Addis Ababa  
 Ethiopia  
 011 6 63 98 80

## 9. Food Security

Food security at the household level means all people in the household, including young children, have access to adequate foods throughout the year. Generally, food security is affected by:

- **Availability** (production/purchase, donations, amount, and diversity).
- **Accessibility** (whether every member of the household gets adequate food in terms of quantity and variety).
- **Utilization** (preparation, processing, storage, and marketing).

To achieve food security, households need to produce/purchase, store, and properly prepare food. Illness and death reduces a household's productive labor and income and food stores, undermining food security. During illness, earnings are may be diverted to meet health and funeral costs. To cope, PLWHA households often:

- Reduce quantity or quality of food at each meal or skip meals.
- Adopt risky behaviors, like sex for food and money, child labor, crime, and drug abuse, all of which increase the spread of HIV/AIDS.
- Withdraw children from school, which advances child labor and escalates crime and migration.
- Consume wild game or fruits and vegetables.
- Sell key assets, increasing poverty and long-term food insecurity.

### **9.1 – Support PLWHA households to maintain/improve food quality and quantity**

#### **9.1.1 – Support PLWHA to maximize existing resources:**

- Use available resources, including production and purchases, to procure food adequate for the PLWHA.
- Use nutrient adding techniques, such as pre-cooking, sprouting, fermentation, and food fortification. Demonstrate food processing approaches that increase energy and nutrient density, nutrient bioavailability, and food taste.
- Use appropriate simple preservations techniques like solar drying of vegetables and fruits and tubers and smoking for use during lean times.
- Ensure equitable intra-household food distribution that provides adequate foods for PLWHA.

### **9.1.2 – Support increased food production**

- Identify organizations in the community that can assist PLWHA in food production, including productive and short-maturing crops, labour saving and production maximizing (small-scale drip irrigation, composting, natural crop protection) technologies
- Encourage PLWHA to develop backyard/community gardens. Find models in the community to assist PLWHA.
- Provide seeds (or link families to programs that provide such services) for labour saving, highly productive crops.
- Advise households to diversify income and food sources through IGA that do not require significant time and effort and are socially acceptable and legally guarantee rights of succession. Link households with institutions that assist in marketing of value added products and services.

## **9.2 – PLWHA food assistance**

### **9.2.1 – Advocate for food assistance for PLWHA:**

- Saves household income, helping members to avoid high-risk situations, and acts as a safety net, assisting income transfer and asset protection.
- Supplements daily nutritional needs and fulfill special dietary needs, such as increased energy requirements, which would otherwise not be met.
- Improves treatment adherence, especially for TB drugs, but also for ARVs, improves treatment efficacy, and helps manage drug side effects.
- Can be used as incentive for:
  - HIV counseling and testing
  - PMTCT
  - ART
  - Participation in life skills, life planning, and alternative livelihood training
  - Education, particularly to encourage school attendance by OVC
  - Guardians and volunteer care providers to support and care for PLWHA

***Correctly targeting households with food security interventions is a challenge because NOT all PLWHA households are food insecure, nor are households without PLWHA necessarily food secure.***

### 9.2.2 – Link needy PLWHA with food assistance programs:

- Identify food assistance services available, including groups that assist households affected by HIV/AIDS, as well as criteria used to select recipients and services offered.
- Provide handouts regarding services, if available.
- Collaborate with health, water safety, growth monitoring, and related programs to refine criteria and formalize links for referrals.

### Criteria for joining food assistance:

Not all PLWHA or affected households need food assistance. Appropriate beneficiaries can be determined by considering the specific objective of food assistance and each PLWHA's context. The table on the next page can assist in determining eligibility for food assistance.

Table 4 - Food assistance matrix

Purpose of food assistance	Suggested inclusion criteria	Suggested exit criteria
1. Therapy	<ul style="list-style-type: none"> <li>• Weight loss: <b>Adults:</b> BMI &lt; 16 or lost more than 10% weight in last 3 months or a MUAC of &lt; 25 cm for men and &lt; 22 cm for women. (Or, a cut-off point of &lt; 23.2 cm for both men and women.)  <b>Children:</b> Weight-for-height is &lt; -2 Z score or; MUAC of infants: 6 – 12 months &lt; 12.9 cm; 13 – 24 months &lt; 13.5 cm; 25 – 30 months &lt; 13.7 cm; 37 – 48 months &lt; 14 cm; 49 – 60 months &lt; 14.2 cm.</li> <li>• Supplement during treatment of underlying illnesses.</li> </ul>	Continue until evidence of reverse in trend and stabilization of values above cut-off points. On average, 3-6 months supplementation is sufficient.
2. Improve household food security and prevention of malnutrition	<ul style="list-style-type: none"> <li>• Food insecure households or those vulnerable to food insecurity.</li> </ul>	
3. Incentive	<ul style="list-style-type: none"> <li>• Individuals/households most in need of services and education offered, and those who require supplemental food i.e. households headed by elderly, children or OVC.</li> </ul>	

- Food supplements for PLWHA should meet the following criteria:
  - Easily digestible and tolerated by adult and child PLWHA.
  - Energy dense, adequate protein, and fortified with multiple micronutrients.
  - Culturally acceptable.
  - Safe and not easily contaminated.
  - Able to be processed, stored, and prepared with available water, fuel, and time. Food that requires less cooking and preparation time, such as pre-cooked or blended foods, are advisable.

### **Define the quantities and kinds of food and method of delivery:**

- To calculate ration size, consider:
  - Objective of food assistance.
  - Average household requirement in catchment area, accounting for increased energy needs of PLWHA.
  - Aiming the average energy deficit in the area, or 30 - 40% of the energy needs for targeted beneficiaries.
  - Wastage, spoilage, and leakage of food through selling and sharing.

***The common food ration package used by World Food Programme (WFP) and other agencies is composed of corn-soy blend fortified with micronutrients, cereal and a pulse, and vegetable oil, which may be fortified with vitamin A and other micronutrient supplements.***

- Types of rations include:

- **Take-home rations:** Food is provided to take home for storage, preparation, and consumption. A drawback to take-home rations is the risk the food will not reach targeted beneficiaries, as it may be sold, shared with others, or spoil.
- **On-site feeding:** Food is prepared in a central place and beneficiaries consume on site. In on-site feeding, food targeted beneficiaries, but logistics may be costly.
- **Food-by-prescription:** Food is prescribed in small quantities as a medicine to take home and consume. Health facilities are the best places for food-by-prescription.

***Food assistance rations are normally supplied in quantities to last 15 days or a month.***

## 10. Monitoring and Evaluation

Systematic assessment, analysis, and documentation of the implementation and outcomes of activities, including impact of nutrition on HIV/AIDS, is essential to determining the effectiveness of and improving these guidelines. Monitoring and evaluation also allows for experience sharing.

Service providers need to assess and report on the extent to which recommendations are incorporated into local programs, as well as the extent to which recommendations in the guidelines lead to improved dietary patterns and nutritional status of PLWHA.

### Monitoring the guidelines:

Consider three key questions:

- Are the guidelines accessible to health providers, counselors, health educators, extension workers, teachers, social workers, and other users?
- Do the guidelines aid in delivering nutritional care and support to PLWHA? Which elements are helpful? Not helpful? What gaps, if any, are there?
- Are the guidelines improving the nutritional status and quality of life, including measurable dietary behaviour changes, of PLWHA?

### What to do:

- Keep accurate records of all patients, including weight, food consumption patterns, symptoms, and treatment.
- In conjunction with key stakeholders, agree the purpose of M&E and the indicators to be used (see **Annex 12 - Monitoring and evaluation indicators**).
- Monitor and report on the availability and usefulness of the guidelines to yourself and other providers. For instance:
  - Monitor the dissemination and implementation of guidelines.
  - Audit the effectiveness of implemented activities.
  - Monitor stocks of key equipment, supplements, and recording materials like patient cards, registers, referral cards, etc.
  - Report symptoms and drug side-effects that may be related to nutrition.
  - Assess constraints in implementing the guidelines.

# Annexes

## Annex 1 - Daily energy and protein requirements

Table A1 - Daily energy and protein requirements (Source: WHO 1993)

Group of people	HIV-negative Energy (kcal/day)	HIV-positive		Protein (g/day)
		Asymptomatic (not displaying symptoms) (kcal/day)	Symptomatic (displaying symptoms) (kcal/day)	
<b>Adults</b>				
Average active male	2430	2670	2910-3160	57
<b>Women</b>				
Average active	2170	2400	2600-2820	48
Pregnant	2460	2710	2950-3200	55
Lactating	2570	2830	3080-3340	68
<b>Children</b>				
6-11 months	730	800	880-950	10
1-3 years	1250	1380	1500-1630	25
2-5 years	1500	1650	1800-1950	26
5-10 years	1800	1980	2160-2340	35
<b>Boys</b>				
10-14 years	2360	2600	2830-3070	64
15-18 years	2800	3080	3360-3640	84
<b>Girls</b>				
10-14 years	2040	2240	2450-2650	62
15-18 years	2100	2310	2520-2730	65

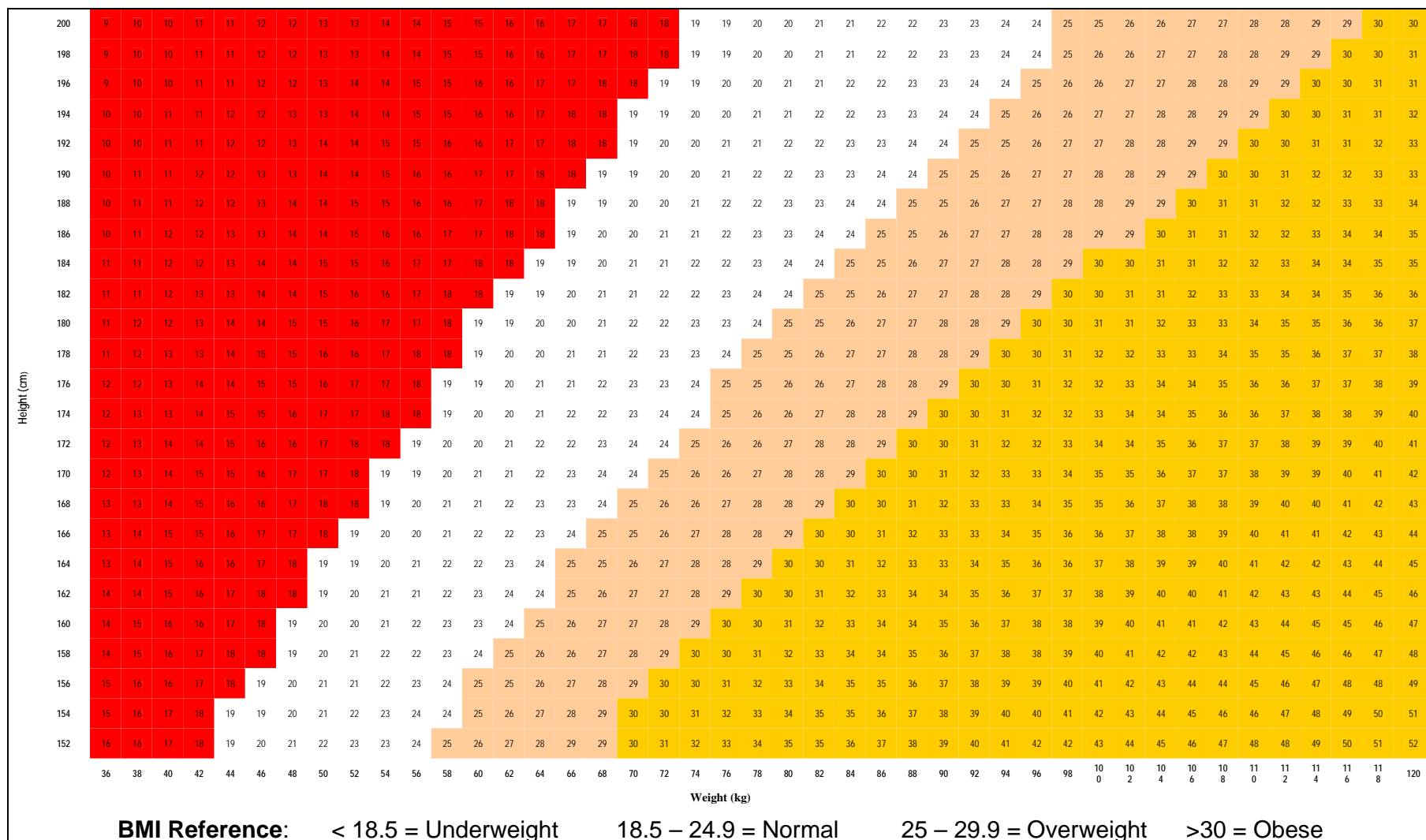
## Annex 2a – Essential nutrition actions (ENA) for HIV-negative or unknown status pregnant/lactating women and their children

Optimal Breastfeeding (< 6months)	Adequate complementary feeding to breastfeeding (6-23 months)	Nutritional care of sick & malnourished child	Control of Vitamin A deficiency	Control of Anemia	Control of Iodine Deficiency Disorders	Women's nutrition during pregnancy & lactation
<b>ESSENTIAL NUTRITION ACTIONS FOR HIV NEGATIVE OR UNKNOWN STATUS PREGNANT/LACTATING WOMEN AND THEIR CHILDREN</b>						
<ul style="list-style-type: none"> <li>√ Early initiation of breastfeeding within one hour of birth</li> <li>√ Keep newborn warm and dry (skin to skin)</li> <li>√ Exclusive breastfeeding during first 6 months</li> </ul>	<ul style="list-style-type: none"> <li>√ Complementary feeding starting at 6 months with mashed foods</li> <li>√ Continued breastfeeding until 24 months or beyond</li> <li>√ Increased amount of food with age</li> <li>√ Increased feeding frequency with age</li> <li>√ Enriched diet with variety of foods and fortified foods</li> <li>√ Responsive feeding</li> <li>√ Hand washing before feeding</li> <li>√ Food hygiene</li> </ul>	<ul style="list-style-type: none"> <li>√ Increased frequency of breastfeeding during and after illness</li> <li>√ Increased frequency of complementary feeding during and after illness (6-24 months)</li> <li>√ Zinc supplementation for child with diarrhea.</li> <li>√ Vitamin A supplementation as recommended .</li> <li>√ Special care for malnourished child depending on severity</li> <li>√ Kangaroo care for low birthweight newborns</li> </ul>	<ul style="list-style-type: none"> <li>√ Diversified diet with Vit A rich foods (ripe orange/yellow vegetables &amp; fruits, liver) and fortified foods</li> <li>√ Vitamin A supplementation for woman after delivery</li> <li>√ Vitamin A supplementation twice a year for children 6-59 months</li> </ul>	<ul style="list-style-type: none"> <li>√ Diversified diet with iron rich foods (animal products, dark green leafy vegetables) and fortified foods</li> <li>√ Iron/folic acid supplementation daily during 6 months for pregnant woman (continuing after delivery, if needed)</li> <li>√ De-worming for pregnant women after the first trimester</li> <li>√ De-worming for children 12-59 months twice a year</li> <li>√ In malaria endemic areas: sleep under Insecticide Treated Net ,and for pregnant women Intermittent Presumptive Treatment</li> </ul>	<ul style="list-style-type: none"> <li>√ Iodized salt when available</li> </ul>	<ul style="list-style-type: none"> <li>√ One additional meal daily during pregnancy</li> <li>√ Two additional meals daily during lactation</li> <li>√ Breast health during lactation</li> <li>√ Less workload and more rest in pregnancy</li> </ul>
Child spacing and immunization						
Clean water, hygiene and sanitation						

## Annex 2b - Essential Nutrition Actions (ENA) – Additional ENA for HIV-positive pregnant/lactating women, adults, and their children

Optimal Infant Feeding (< 6months)	Adequate complementary feeding (6-23 months)	Nutritional care of sick & malnourished child	Control of Vit A & other micronutrient deficiencies	Control of Anemia	Control of Iodine Deficiency Disorders	Women's nutrition during pregnancy & lactation	Adult's nutrition
<b>ADDITIONAL ESSENTIAL NUTRITION ACTIONS FOR HIV POSITIVE PREGNANT/LACTATING WOMEN, ADULTS AND THEIR CHILDREN</b>							
<ul style="list-style-type: none"> <li>✓ AFASS assessment for safest infant feeding option</li> <li>✓ Support infant feeding option</li> <li>✓ Micronutrients supplements for baby if mother not breastfeeding or not using commercial breast milk substitutes</li> </ul>	<ul style="list-style-type: none"> <li>✓ Early cessation of breastfeeding when AFASS, with adequate exclusive replacement feeding</li> <li>✓ Energy intake increased by 10% if suspected HIV positive and <u>not losing weight</u> (1 extra feeding each day)</li> <li>✓ Use fortified, blended foods, when available</li> <li>✓ Assess health and growth of child</li> </ul>	<ul style="list-style-type: none"> <li>✓ Counsel on testing child (depends on test availability)</li> <li>✓ Immediate treatment of sickness</li> <li>✓ Diet management of nausea, vomiting and oral sores, etc.</li> <li>✓ Energy intake increased by 50-100% if <u>losing weight</u> (<u>double</u> the daily feedings)</li> <li>Supplementary or therapeutic feeding for moderate or severely malnourished child as guidelines</li> </ul>	<ul style="list-style-type: none"> <li>✓ Supplementation at Recommended Daily Allowance with multiple micronutrients if diet not adequately diverse</li> </ul>	<ul style="list-style-type: none"> <li>✓ See ENA for HIV negative individuals</li> </ul>	<ul style="list-style-type: none"> <li>✓ See ENA for HIV negative individuals</li> </ul>	<ul style="list-style-type: none"> <li>✓ Energy intake increased by 10% if non-symptomatic (1 extra feeding each day)</li> <li>✓ Energy intake increased by 20-30% if symptomatic or <u>losing weight</u> (2 extra feedings daily)</li> <li>✓ BMI for nutritional monitoring (or MUAC for pregnant woman)</li> <li>✓ Breastfeeding stopped if breast problems</li> <li>✓ Dietary management of nutrition related symptoms.</li> <li>✓ Importance of malaria prevention &amp; de-worming</li> <li>✓ Counsel &amp; refer for PMTCT and/or ARVs</li> </ul>	<ul style="list-style-type: none"> <li>✓ Diversified diet</li> <li>✓ Energy intake increased by 10% if non-symptomatic (1 extra feeding each day)</li> <li>✓ Energy intake increased by 20-30% if symptomatic or <u>losing weight</u> (2 extra feedings each day)</li> <li>✓ Evaluation of interaction nutrition and ARVs</li> <li>✓ Monitor weight //BMI</li> <li>✓ Diet management of nausea, vomiting and other nutrition related symptoms</li> <li>✓ Physical exercise to build muscle mass</li> </ul>
Assessment of household food security situation							
Immediate treatment of all illnesses							

### Annex 3 – Body mass index (BMI)



## **Body mass index (BMI) (cont'd)**

### **To calculate BMI:**

#### **Step 1. Measure weight**

- Make sure the scale pointer is at zero before starting.
- Ask the patient to remove any heavy clothes.
- Ask the patient to stand straight and unassisted in the middle of the scale.
- Record weight to the nearest .1 kg.

#### **Step 2. Measure height**

- Ask the patient to remove her/his shoes and stand erect (knees straight and feet together), with heels, buttocks, shoulder blades, and back of head against the wall, eyes facing straight forward.
- Record height to the nearest .5 cm.

#### **Step 3. Convert weight and height to body mass index (BMI)**

- Convert centimeters to meters (1 meter = 100 cm)
- Calculate BMI using the other side of this card by identifying where weight and height intersect. For example, if the patient weighs 60 kilos and is 158 cm tall, her BMI is 24.

#### **Refer the patient for evaluation if:**

- BMI is below 18.5 or above 30.
- Patient experiences unintended weight loss for 2 consecutive months or lose more than 6 kg within a month

**DO NOT USE BMI FOR PREGNANT WOMEN; USE MUAC**

## Annex 4 – Treatment of anaemia (Adapted from the National Guideline for Control and Prevention of Micronutrient Deficiencies)

If anemia is diagnosed by:

- Clinical examination (extreme pallor of the palms of the hands); or
- Laboratory (hemoglobin/ hematocrit tests) as below:

**Table 1 - Hemoglobin values defining anemia by population group** (Source: WHO/UNICEF, UNU (2001) values as used in DHS)

Age or sex group	Hemoglobin Value Defining Anemia (g/dL)
Children 6-59 months	< 11.0
Children 5-11 yrs	<11.5
Children 12-14 yrs	<12.0
Non-pregnant women > 15	<12.0
Pregnant women	<11.0
Men > 15	<13.0

Initiate treatment as follows:

**Table 2 - Iron and folic acid doses for severe anemia by vulnerable group** (Source: Stoltzfus and Dreyfuss [1998])

Group	Iron-Folic Acid Dose	Duration
Children < 2 years old**	Iron: <b>25 mg/day</b> Folic acid: <b>100-400 mcg/day</b>	<b>3 months</b>
Children 2-12 years old	Iron: <b>60 mg/day</b> Folic acid: <b>400 mcg/day</b>	<b>3 months</b>
Adolescents and adults (including pregnant women)	Iron: <b>120 mg/day</b> Folic acid: <b>400 mcg/day</b>	<b>3 months</b>

\*\* Children with kwashiorkor or marasmus should be assumed to be severely anemic. Oral iron supplementation should be delayed until the child starts eating again and gains weight, usually after 14 days.

Follow storage precautions as per the national guideline for drug storage. Also ensure proper labeling with expiry dates on vitamin supplement containers.

### Dietary diversification

Food diversification is important to preventing iron deficiency. Individuals and groups should be encouraged to produce and consume iron rich foods at all times. This requires guidance from the Ministries of Health, Agriculture, Education, Information and Communication, regional states, donors, and NGOs. Extension agents play a key role in promoting and improving storage and consumption of iron-rich foods. The best source of iron for infants is breastmilk.

### Animal sources of iron

Animal products (meat, organs, and blood) provide the best food sources of dietary iron. Children 6 to 24 months and pregnant women should be given priority to include small amounts of animal products, if available. Animal products not only provide iron that is well absorbed (20 to 30 percent absorbed compared to the less

than 5 percent for plant sources), but also counters the effects of iron inhibitors found in plant products. Animal products are also the only source of vitamin B-12, an important micronutrient for preventing anemia. (7)

### Plant sources of iron

Dark, green, leafy vegetables and legumes are the best plant sources of iron. Legumes are also excellent sources of folic acid. Consumption of foods rich in vitamin A can also help prevent anemia. Food processing techniques such as cooking, germinating, fermenting, and soaking grains can reduce factors that inhibit iron absorption. (7)

### Food Fortification

Fortifying staple foods with iron is a key way to increase dietary intake of iron in countries where iron-rich foods are too expensive for the poor.

This strategy can be beneficial to the entire population if numerous food types are processed and fortified at the factory-level. Unfortunately, fortifying foods in Ethiopia is difficult because no single staple food is consumed throughout the country and common foods are not processed in factories. Some efforts are underway to fortify sugar and oils produced in some of the larger factories.

### Control of Direct Causes of Anemia

To control non-iron deficiency anemia, it is critical to coordinate actions with malaria and helminthiasis control programs

Table 3 - Malaria control

Target Groups	Prophylaxis	Treatment
<b>Pregnant and lactating women and children</b>	Sleep under an impregnated mosquito net	<b>Immediate access to treatment:</b> Refer to national guidelines

Table 4 - Helminthiasis treatment and control

Target Groups	Prophylaxis	Treatment
<b>Pregnant and Lactating Women</b>	Mebendazole 500 mg in 1 dose Albendazole 400 mg in 1 dose	During the third trimester of pregnancy
<b>Children older than 1 year</b>	Mebendazole 500 mg in 1 dose Albendazole 400 mg in 1 dose	Every 6 months

In addition, it is important to encourage hygiene and environmental sanitation to prevent women, children, or people living with HIV & AIDS from getting parasites (worms). Control of schistosomiasis is also critical in endemic areas. Refer to the national guidelines.

## Annex 5 - Energy values of locally available meals, snacks, and foods

### Meals:

Below are common Ethiopian meals, each providing 700 – 850 kilocalories.

	One injera 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, 1small ladle vegetable alicha, and 1small ladle tomato salad
Miser	3 big ladles miser	2 big ladles miser sauce and 1 big ladle gommen	1 big ladle miser sauce , 1small 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 1small 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 1small ladle tomato salad
Gommen	3 big ladles gommen	2 big ladles gommen with 2 small ladles shiro	1 big ladle gommen, 1 small ladle shiro, and 1small 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 gm

Medium ladle = 70 gm

Large ladle =100gm

**Snacks:**

Below are the energy values of common Ethiopian snacks (mekses).

<b>Snack (ingredients)</b>	<b>Amount in grams/ ml</b>	<b>Calories</b>	<b>Protein</b>
<b>Kolo</b> (roasted barley, wheat)	50 grams (1 small ladle)	195	5.1
<b>Nifrm</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>Sweet 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 injera with meat sauce</b> (injera, meat sauce)	300 grams	466	22.3
<b>Chopped injera with out 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  
Large coffee cup= 70 ml

Medium ladle =70 gm

Teaspoon = 5 ml

Tablespoon = 25 ml

**Bulk foods:**

Below are the energy values of common foods. Values are for portions of 100 grams.

Food	Local name	Energy (kilo-calories)	Protein (Grams)
<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	Sindyne, nech, duqyet	363	10.9
<b>Starchy roots and tubers:</b>			
False banana, flour	Inset, karta	196	.9
Potato Irish, raw	Yabesha dinnich, yalteqqequele	104	1.3
Sweet potato, raw	Sikkwar dinnich, yalteqqequele	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, yalteqqequele	42	1.7
Cabbage, raw	T'iqill gommen, yalteqqequele	21	.9
Ethiopian kale, raw	Gommen, yalteqqequele	46	2.8
Onion (shallot), raw	Qeyy shinkurt, yalteqqequele	71	1.06
Tomato, raw	Tyimatyim, yalteqqequele	31	1.3
<b>Fruits:</b>			
Avocado, fresh	Avokado	110	1.6
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, yaltelefella	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

**Commonly used serving/measuring instruments and their sizes**



## Annex 6 - Nutritional management for symptoms associated with HIV/AIDS

Illness	Food	Care and Nutrition Practices
<b>Anorexia (appetite loss)</b>	<ul style="list-style-type: none"> <li>• Stimulate appetite by eating favourite foods.</li> <li>• Eat small amounts of food more frequently.</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 loss of appetite is due to illness, seek medical attention.</li> </ul>
<b>Diarrhea</b>	<ul style="list-style-type: none"> <li>• Drink lots of fluids to avoid dehydration (soups, diluted fruit juices, boiled water).</li> <li>• Drink juices such as passion fruit; avoid strong citrus (orange, lemon) because it may irritate the stomach.</li> <li>• Consume foods rich in fiber to help you retain fluids (millet, banana, peas, lentils).</li> <li>• Eat starchy foods like rice, maize, sorghum, potato, cassava, and blended foods like corn-soy blend.</li> <li>• For protein, eat eggs, chicken, or fish.</li> <li>• Drink light teas (herbal), boiled or treated water.</li> <li>• Boil or steam foods, avoid fried foods</li> <li>• Consume fermented foods like porridges and yogurt.</li> <li>• Consume easily digestible foods high in carbohydrates like rice, bread, millet, maize, porridge, potato, sweet potato, and crackers.</li> <li>• Eat small amounts of food frequently and continue to eat following illness to recuperate weight and nutrient loss.</li> <li>• Eat soft fruits and vegetables like bananas, squash, and mashed sweet potato and carrots.</li> <li>• Drink nonfat milk if there is no problem with lactose.</li> </ul> <p><i>Foods to avoid or reduce intake of:</i></p> <ul style="list-style-type: none"> <li>• Some dairy products, such as milk.</li> <li>• Caffeine (coffee and teas) and alcohol.</li> <li>• Fatty or excessively fried foods.</li> <li>• Extra oil, lard, or butter.</li> <li>• Gas-forming foods such as cabbage, onions, and carbonated beverages (soft drinks).</li> </ul>	<p><b>Prevention:</b></p> <ul style="list-style-type: none"> <li>• Drink plenty of clean, boiled or treated 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 who has defecated.</li> </ul> <p><b>Treatment:</b></p> <ul style="list-style-type: none"> <li>• Drink more fluids to prevent dehydration. Prepare rehydration solutions using ORS packets or a homemade solution of one litre of boiled water, four teaspoons of sugar, and a half 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 stool, high fever, vomiting, sever abdominal pain, or diarrhea) persist for more than 3 days.</li> </ul>
<b>Fever</b>	<ul style="list-style-type: none"> <li>• Eat soups rich in foods that give energy and nutrients like 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> </ul>	<ul style="list-style-type: none"> <li>• Drink fluids to prevent dehydration, particularly clean, boiled or treated water.</li> <li>• Bathe in cool water.</li> <li>• Rest.</li> <li>• Take 2 aspirin or panadol with a meal three times a day (morning, afternoon, and evening), if available.</li> <li>• Continue to eat small, frequent meals, as tolerated.</li> <li>• Go to the health centre in case fever lasts several days and is not relieved by aspirin, loss of consciousness, sever body pain, yellow eyes, severe diarrhea, or fits.</li> </ul>

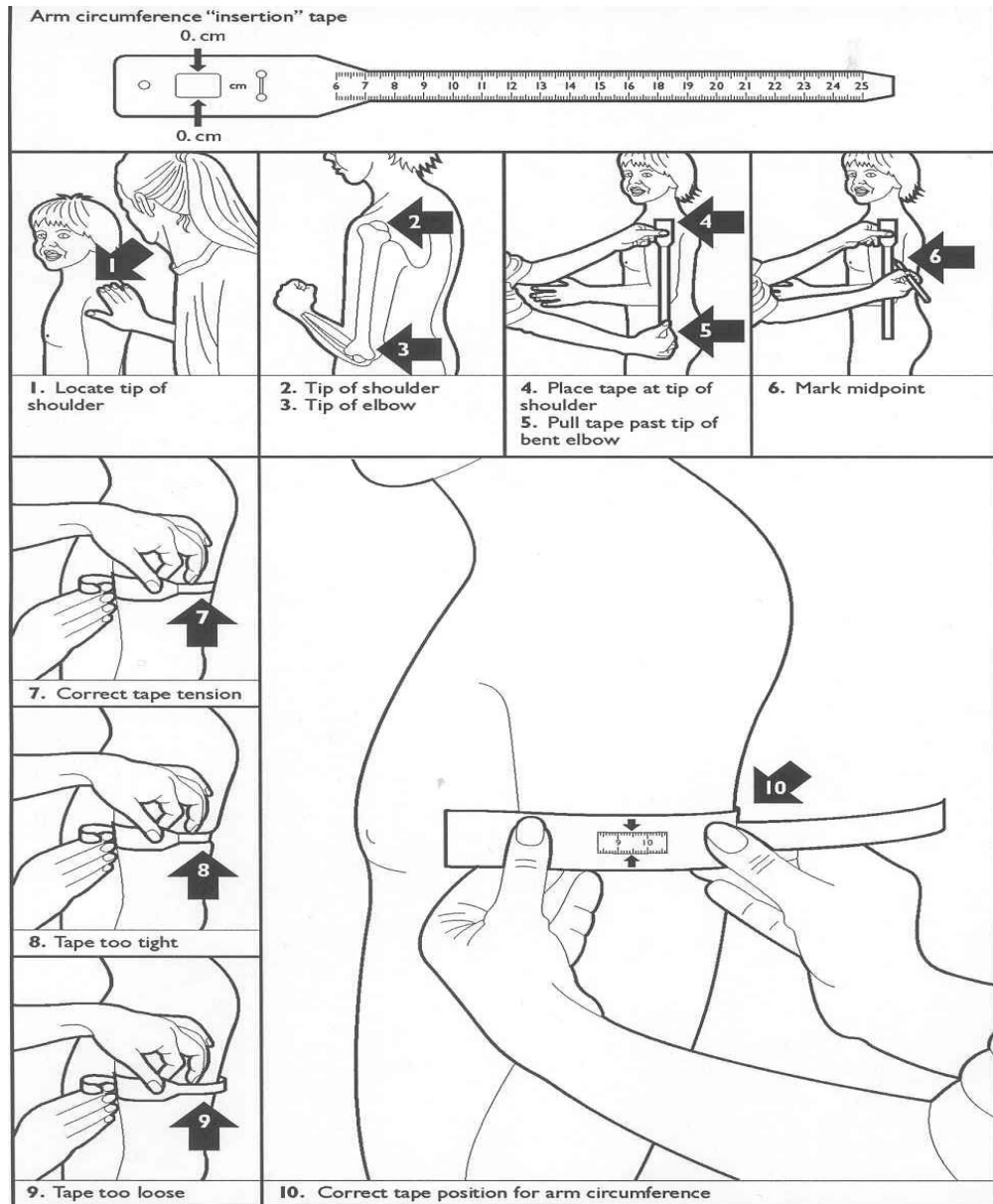
<b>Nausea and vomiting</b>	<ul style="list-style-type: none"> <li>• Eat small and frequent meals.</li> <li>• Eat foods like soups, unsweetened porridge, and fruits like bananas.</li> <li>• Eat lightly salted and dry foods like crackers to calm the stomach.</li> <li>• Drink herbal teas and lemon juice in hot water.</li> <li>• If available, drink ginger root: crush ginger in cold water, boil in water for 10 minutes, place in a covered container, strain ginger and drink liquid.</li> <li>• Avoid spicy and fatty foods.</li> <li>• Avoid caffeine (coffee and tea) and alcohol.</li> <li>• Drink liquids, such as clean, boiled water.</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid having 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>
<b>Thrush</b>	<ul style="list-style-type: none"> <li>• Eat soft, mashed foods, such as carrots, scrambled eggs, mashed potatoes, bananas, soups, and 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 which may irritate mouth sores.</li> <li>• Avoid alcohol.</li> <li>• Drink liquids.</li> </ul>	<ul style="list-style-type: none"> <li>• Seek medical attention.</li> <li>• If available, use a spoon or cup 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 infected areas clean so yeast cannot grow.</li> </ul>
<b>Anaemia</b>	<ul style="list-style-type: none"> <li>• Eat more iron-rich foods such as animal products (eggs, fish, meat, and liver), green leafy vegetables (collard greens, spinach), fruits and vegetables (beans, lentils, groundnuts), nuts, oil seeds, and fortified cereals.</li> <li>• Take iron supplements.</li> <li>• Sleep under an insecticide treated net (ITN)</li> </ul>	<ul style="list-style-type: none"> <li>• If available, adults should take one iron tablet once a day with food, preferably with a source of vitamin C such as tomatoes or orange juice to help with absorption. Drink fluids to avoid constipation.</li> </ul>
<b>Muscle wasting</b>	<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> </ul>	<ul style="list-style-type: none"> <li>• Eat small, frequent meals.</li> <li>• Eat soft liquid food if mouth sores present.</li> <li>• Increase protein in diet.</li> <li>• Slowly introduce fat in diet.</li> <li>• Increase intake of starchy foods in cereals and other staples.</li> <li>• Use fortified foods.</li> </ul>
<b>Constipation</b>	<ul style="list-style-type: none"> <li>• Eat more foods that are high in fiber, such as maize, whole-wheat bread, green vegetables, and washed fruits with the peel remaining.</li> <li>• Drink plenty of liquids.</li> <li>• Avoid processed or refined foods.</li> </ul>	<ul style="list-style-type: none"> <li>• Avoid using cleansing practices, such as enemas and medications.</li> <li>• Drink plenty of fluids, including boiled water.</li> </ul>
<b>Bloatedness / heartburn</b>	<ul style="list-style-type: none"> <li>• Eat small, frequent meals.</li> <li>• Avoid gas-forming foods (cabbage, soda).</li> <li>• Drink fluids.</li> </ul>	<ul style="list-style-type: none"> <li>• Eat long enough before sleeping so food can digest.</li> </ul>
<b>Tuberculosis</b>	<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, take a vitamin B6 supplement to avoid deficiency.</li> </ul>
<b>Loss of taste and/or abnormal taste</b>	<ul style="list-style-type: none"> <li>• Use flavour enhancers e.g. salt, spices, herbs, and lemon.</li> <li>• Chew food well and move around mouth.</li> </ul>	

## **Annex 7 – How to measure mid-upper arm circumference (MUAC)**

MUAC stands for mid-upper arm circumference. This means of measurement is used to see if the child is malnourished or not.

### **How to measure 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 to remove clothing that may cover the child's left arm.
2. Calculate the midpoint of the child's left upper arm by first locating the tip of the child's shoulder (arrows 1 and 2) with your finger tips. Bend the child's elbow to make the 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, bend the tape up to the middle length to estimate the midpoint. A piece of string can also be used for this purpose. Mark the midpoint with a pen on the arm (arrow 6).
3. Straighten the child's 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 child's 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.

## Annex 8 – Support mothers to optimally breastfeed



Breastfeed within one hour of delivery

### How to exclusively breastfeed safely (1)



If you decide to exclusively breastfeed, stay with that method. Giving other foods, water or liquids to your baby when you are breastfeeding is dangerous if you are HIV positive.

Exclusively breastfeed for the first 6 months. The infant takes only breastmilk and no other liquids or solids, not even water, to protect her/him from illnesses like diarrhea and pneumonia.

Breastfeed the baby on demand, day and night, for as long as the baby wants; it helps to produce enough milk



Sit comfortably to breastfeed  
Ensure correct positioning and attachment to avoid breast problems





## How to exclusively breastfeed safely (2)

If you decide to exclusively breastfeed, stay with that method. Giving other foods, water or liquids to your baby when you are breastfeeding is dangerous for your baby if you are HIV positive.

Give the baby enough time to empty one breast before switching to the other breast  
Allow the baby to come off the breast on its own



### Be careful!

Make sure that there are no open sores in your baby's mouth.  
Do not make incisions such as avulectomy or make any cuts in the baby's mouth  
In this case, seek immediate help from your health center.



If you are HIV positive and if you have a sore breast, immediately stop feeding your baby from that breast and seek advice from the health center.



## Annex 9 - Instructions for modifying animal milk and preparing formula

Age (months)	Number of feedings and daily milk requirements	Amount per feeding				Commercial formula per month
		Cow (fresh or UHT), goat, or camel milk	Sheep and buffalo milk	Evaporated milk	Powdered full cream milk	
0 – < 1	8 feeds/day x 60 ml/feed  Total: 480 ml/day	40 ml milk +20 ml water + 4 g sugar (slightly less than 1 teaspoon)	30 ml milk + 30 ml water + 3 g sugar (slightly less than ½ teaspoon)	16 ml milk + 44 ml water + 4 g (level teaspoon) sugar	5 g milk + 60 ml water + 4 g (level teaspoon) sugar	4 x 500 g tins
1 – < 2	7 feeds/day x 90 ml/feed  Total: 630 ml/day	60 ml milk +30 ml water + 6 g sugar (1¼ teaspoons)	45 ml milk + 45 ml water + 5 g sugar (1 teaspoon)	24 ml milk + 66 ml water + 6 g (1 ¼ teaspoons) sugar	7.5 g milk + 90 ml water + 6 g (1 ¼ teaspoons) sugar	6 x 500 g tins
2 – < 3	6 feeds/day x 120 ml/feed  Total: 720 ml/day	80 ml milk + 40 ml water + 8 g sugar (slightly more than 1½ teaspoons)	60 ml milk + 60 ml water + 6 g (1¼ teaspoons)	32 ml milk + 88 ml water + 8 g (2 teaspoons) sugar	10 g milk + 120 ml water + 8 g (two level tea-spoons) sugar	7 x 500 g tins
3 – < 4	6 feeds/day x 120 ml/feed  Total: 720ml/day	80 ml milk + 40 ml water + 8 g sugar (slightly more than 1½ teaspoons)	60 ml milk + 60 ml water + 6 g (1¼ teaspoons)	32 ml milk + 88 ml water + 8 g (2 level teaspoons) sugar	10 g milk + 120 ml water + 8 g (two level tea-spoons) sugar	7 x 500 g tins
4 – < 5	6 feeds/day x 150 ml/feed  Total: 900ml/day	100 ml milk + 50 ml water + 10 g sugar	75 ml milk + 75 ml water + 8 g sugar (slightly more than 1½ teaspoons)	40 ml milk + 110 ml water + 10 g (2 full teaspoons) sugar	12.5 g milk + 150 ml water + 10 g (two full tea-spoons) sugar	8 x 500 g tins
5 – < 6	6 feeds/day x 150 ml/feed  Total: 900ml/day	100 ml milk + 50 ml water + 10 g sugar	75 ml milk + 75 ml water + 8 g sugar (slightly more than 1½ teaspoons)	40 ml milk + 110 ml water + 10 g (2 full teaspoons) sugar	12.5 g milk + 150 ml water + 10 g (two full tea-spoons) sugar	8 x 500 g tins

## Annex 10 – National protocol for the management of severe acute malnutrition, patients > 6 months<sup>1</sup>

<b>ADMISSION CRITERIA</b>	Age 6 months – 18 years <ul style="list-style-type: none"> <li>Weight/height &lt; 70% or</li> <li>Presence of bilateral oedema or MUAC &lt; 110 cm when height &gt; 65 cm</li> </ul>	> 18 years <ul style="list-style-type: none"> <li>MUAC &lt; 180 mm</li> <li>Presence of bilateral oedema unless clear cut other cause</li> </ul>					
<b>PROTOCOL</b>	<b>PHASE 1</b>	<b>TRANSITION PHASE</b>				<b>PHASE 2</b>	
<b>THERAPEUTIC DIET</b>	F75	F100 or RUTF				F100 or FUTF	
<b>QUANTITY</b>	Refer to national protocol	Refer to national protocol				Refer to national protocol	
<b>SURVEILLANCE</b>	Refer to national protocol	Refer to national protocol				Refer to national protocol	
<b>CRITERIA FOR PROGRESSING TO NEXT PHASE</b>	From Phase 1 to Transition: <ul style="list-style-type: none"> <li>Return of appetite and</li> <li>Beginning to lose oedema</li> </ul> <b>Children with gross oedema (+++) should wait in Phase 1 at least until their oedema reduces to moderate (++) or mild (+).</b>	From Transition to Phase 2: <ul style="list-style-type: none"> <li>Good appetite</li> <li>Marasmic patients spend at least 2 days in Transition</li> <li>Oedematous patients have completely lost oedema</li> </ul>	Discharge criteria: <ul style="list-style-type: none"> <li><b>Age 6 months to 18 years (option 1)</b> <ul style="list-style-type: none"> <li>Weight/height ≥ on at least one occasion (one weighing) and no oedema for 14 days</li> </ul> </li> <li><b>6 months – 18 years (option 2)</b> <ul style="list-style-type: none"> <li>15% weight gain and no oedema in last 14 days</li> </ul> </li> <li><b>&gt; 18 years</b> <ul style="list-style-type: none"> <li>15% weight gain and no oedema in last 14 days</li> </ul> </li> </ul>				
<b>CRITERIA FOR MOVING BACK TO PHASE 1</b>	<ul style="list-style-type: none"> <li>If patient gains weight more rapidly than 10g/kg/day in Transition</li> <li>If there is increasing oedema</li> <li>If child without oedema develops oedemas</li> <li>If rapid increase in size of liver</li> <li>If any signs of fluid overload develop</li> <li>If tense abdominal distension develops</li> <li>If patient gets significant refeeding diarrhoea so that weight loss occurs</li> <li>If complication arises that necessitates intravenous infusion</li> <li>If Naso-Gastric tube is needed</li> </ul>		<b>Systematic Treatment</b>	<b>Direct admission in Phase 1 (in-patient)</b>	<b>Direct admission in Phase 2 (out-patient)</b>		
			Vitamin A	1 does at admission (conditional – see protocol) and 1 dose on discharge	1 does on 4 <sup>th</sup> week (4 <sup>th</sup> visit)		
			Folic acid	1 dose at admission if sign of anemia	1 dose at admission if sign of anemia		
			Amoxicillin	Every day in Phase 1 + 4 days in Transition According to national protocol	1 dose at admission + 7 days treatment at home		
			Malaria	According to national protocol	According to national protocol		
			Measles (>9 months)	1 vaccine at admission if no card and 1 vaccine at discharge	1 vaccine on 4 <sup>th</sup> week (4 <sup>th</sup> visit)		
			Iron	Add to F100 in Phase 2	No		
			Albendazole	1 dose on first day of Phase 2	1 dose on 2 <sup>nd</sup> week (2 <sup>nd</sup> visit)		

<sup>1</sup> For infants < 6 months or 3 kilos, refer to national protocol for management of sever acute malnutrition, FMOH, June 2006

## Annex 11 - Food-ARV interactions and common side-effects

### Reverse transcriptase inhibitors:

Drug name	Food recommendation	Avoid	Possible side-effects
<b>Efavirenz (EFZ)</b>	Can be taken without regard to meals. Do not take a high fat meal (it increases absorption to potentially harmful levels).	Alcohol St John's wort	Elevated blood cholesterol and triglyceride levels. Rash, dizziness, drowsiness, anorexia, nausea, vomiting, diarrhoea, mouth sores, fatigue, sleep disturbances, vivid dreams. Dyspepsia, abdominal pain, flatulence.
<b>Nevirapine (NVP)</b>	Can be taken without regard to food.	St John's wort	Nausea, vomiting, rash, fever, headache, fatigue, stomatitis, abdominal pain, drowsiness. High hepatotoxicity, skin rash.
<b>Abacavir (ABC)</b>	Can be taken without regard to food. Take with or without food.	Alcohol	Nausea, vomiting, fever, allergic reactions, anorexia, diarrhoea, anaemia, rash, cough, headache, dizziness. Hypotension, pancreatitis.
<b>Didanosine (ddl)</b>	Take on empty stomach (30 minutes before or 2 hours after eating). Take with water only (food reduces its absorption).	Alcohol Grape fruit juice Antacids containing aluminium or magnesium	Nausea, headache, dizziness, diarrhoea, insomnia, anorexia, vomiting, dry mouth, loss of taste, constipation, anaemia, stomatitis, fever, pancreatitis.
<b>Lamivudine (3TC)</b>	Can be taken without regard to food.	Alcohol	Nausea, headache, dizziness, diarrhoea, insomnia, anaemia, stomatitis, fever, pancreatitis, muscle pain, nasal symptoms, abdominal pain, peripheral neuropathy.
<b>Stavudine (d4T)</b>	Can be taken without regard to food.	Limit the consumption of alcohol	Nausea, headache, dizziness, diarrhoea, insomnia, anorexia, anaemia, stomatitis, fever, pancreatitis, chills and fever, peripheral neuropathy, bone marrow suppression May increase the risk of lipodystrophy.
<b>Tenofovir (TDF)</b>	Take with a meal.	Alcohol	Abdominal pain, headache, fatigue, dizziness.
<b>Zidovudine (ZDV/AZT)</b>	Take without food but if it causes nausea or stomach problems, take with a low fat meal. May require zinc and copper supplementation.	Alcohol	Anorexia, anaemia, nausea, vomiting, bone marrow suppression, headache, fatigue, constipation, mouth sores, dyspepsia, fever, dizziness, dyspnoea, insomnia, muscle pain, rash.

**Protease Inhibitors:**

ARV name	Food recommendation	Avoid	Possible side-effects
<b>Indinavir (IDV)</b>	Take on empty stomach (1 hour before or 2 hours after a meal or with a light non fat meal. Take with plenty of water to avoid kidney problems - at least 1.5 litres of fluids daily to prevent kidney stones.	Grape fruits St John's wort	Nausea, headache, dizziness, diarrhoea, insomnia, vomiting, ascites, stomatitis, fever, pancreatitis, muscle pain, nasal symptoms, abdominal pain, regurgitation. May increase the risk of lipodystrophy (increased blood fats).
<b>Lopinavir (LPV)</b>	Can be taken without regard to food. May be taken with a high fat meal for better absorption.	St John's wort	Abdominal pain, diarrhoea, headache, weakness, nausea, rash, change in taste, anorexia, high blood sugar. May increase the risk of lipodystrophy (increased blood fats).
<b>Nelfinavir (NFV)</b>	Take with a meal or light snack. To increase absorption, take with meal containing <15 g fat.	St John's wort	Diarrhoea, flatulence, nausea, abdominal pain, rash. May increase the risk of lipodystrophy.
<b>Ritonavir (RTV)</b>	Take within 2 hours after a full meal with high calories and fat for better absorption	St John's wort	Nausea, headache, dizziness, diarrhoea, insomnia, anorexia, vomiting, weakness, insomnia, diabetes, fever, numbness around the mouth. May increase risk of lipodystrophy, Pancreatitis and hepatitis.
<b>Saquinavir (SQV)</b>	Take with a meal or light snack. Take within 2 hours of a high fat and calcium meal.	St John's wort Garlic supplements	Mouth ulceration, taste changes, nausea, vomiting, abdominal pain, diarrhoea, constipation, flatulence, rash, weakness, headache, insomnia, hepatic impairment. May increase the risk of lipodystrophy, high blood sugars.

## Annex 12 – Developing a drug-food plan

Date	Medication being taken	Special instructions	Diet-related symptoms	Exact time and food to be consumed				
				Morning	Mid morning	Midday	Mid afternoon / evening	Night

### **How to use the meal planner**

1. Under the date column, write date, month and year.
2. In the medication column, write any drugs you are taking for this period and day.
3. In the special instructions column, write reminders on diet related instructions for taking medicine.
4. In symptoms column, write any symptoms you may be suffering from on that day.
5. The next section is broken into six parts: morning, midmorning, midday, mid-afternoon, evening, and night. Write the exact time you expect to eat. Insert times that match your lifestyle. Then, list or draw foods you will eat throughout the day. .
6. Repeat this procedure for every day of the week. This can be done early in the morning for the same day or late in the evening the next day.

## Annex 13 - Monitoring and evaluation indicators

<p>Incorporation and application of guideline information and recommendations into programmes, services, and other delivery points</p>	<p>Most of the following indicators can be disaggregated by type of program, intervention, or service, if that information is useful:</p> <ul style="list-style-type: none"> <li>• Accurate inclusion of key information and recommendations from guidelines in programmes, services, or other activities. One way to define this indicator is, “the percentage (or number) or programmes/services that include key recommendations from the guidelines”.<sup>2</sup></li> <li>• Percentage/number of counselors, service providers, etc., trained in information and recommendations from the guidelines.</li> <li>• Percentage/number of VCT programmes that include nutritional care and support.</li> <li>• Percentage/number of programmes private sector companies with nutritional care and support activities</li> <li>• Percentage/number of home-based care programmes. that include nutritional care and support.</li> <li>• Percentage/number of hospitals offering nutritional care and support.</li> <li>• Knowledge levels of key implementers (counselors, etc.) in guideline information. The indicator could be defined as, “the percentage of key implementers with knowledge of three key recommendations from the guidelines”.<sup>3</sup></li> <li>• Coverage: Approximate number of beneficiaries receiving inputs from programmes, services, etc., that incorporate guideline recommendations.</li> <li>• Knowledge levels of target audience (PLWHA, service providers). This could be defined as, “the percentage of beneficiaries from programmes/services receiving the guidelines who know three key recommendations from the guidelines”.<sup>4</sup></li> <li>• Effectiveness of communication of guidelines’ recommendations. This can be defined as, “percentage of counselors scoring higher than 75 percent on a nutrition counselling checklist”.<sup>5</sup></li> </ul>
<p>Behavior change by PLWHA</p>	<ul style="list-style-type: none"> <li>• Frequency of eating.</li> <li>• Dietary diversity: number of different types of foods consumed.</li> <li>• Protein intake.</li> <li>• Energy intake.</li> <li>• Practice of recommended dietary responses to symptoms (nausea, diarrhoea, thrush, etc.).</li> <li>• Timing of meals to manage food-drug interactions.</li> </ul>
<p>Impact on health, nutrition, and well-being of PLWHA<sup>6</sup></p>	<ul style="list-style-type: none"> <li>• Weight or weight-for-age</li> <li>• Body-mass index (BMI)</li> <li>• Physical activity</li> <li>• Ability to perform basic work activities</li> <li>• Frequency and severity of opportunistic infections</li> <li>• Frequency and severity of symptoms</li> <li>• Ability to eat</li> </ul>

<sup>2</sup> This can be measured by identifying a few specific, key recommendations from the guidelines and then looking at how many programs/services include them. (To avoid having to measure all programs, a random sample of those institutions receiving the guidelines could be used.)

<sup>3</sup> One way to measure this is to identify three key recommendations or points of information and then check the knowledge of a sample of implementers.

<sup>4</sup> Again, this could be measured by identifying key recommendations and checking the knowledge of a sample of beneficiaries.

<sup>5</sup> This can be used for counseling situations and may involve using a counselor checklist to assess communication of nutritional care and information.

<sup>6</sup> While these are all indicators that nutritional care and support is expected to improve, using them to evaluate the impact of nutritional interventions can be problematic because a) there are many confounding factors that can affect these indicators more strongly than nutrition does and b) over the long run, the health and nutritional status of PLWHA is often declining, and nutritional interventions may just reduce the severity of the decline. Therefore, additional tools may be needed to measure this level of impact.

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