



Ghana Nutrition Assessment, Counselling, and Support (NACS): Training Materials for Facility-Based Service Providers

Participant Manual

September 2013





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Foreword

HIV prevalence among antenatal care clients in Ghana continues to decline, a trend that started in 2000. The 2012 adult national HIV prevalence of 1.37% establishes Ghana's epidemic as generalised, despite a relatively high level of infection among men who have sex with men and female sex workers. In 2012, 235,982 people (27,734 children) were estimated to be living with HIV in Ghana, with 127,027 People Living with HIV (PLHIV) in need of Antiretroviral Therapy (ART) (according to the Ghana Health Service 2012 National HIV Prevalence and AIDS Estimates Report).

Within the context of the National Strategic Plan 2011–2015, the health sector has the primary mandate of providing health care among PLHIV, in collaboration with other development and implementing partners.

Comprehensive management of PLHIV and/or Tuberculosis (TB) clients has been shown to reduce mortality in addition to improving the quality of life for those receiving treatment. The continuum of care includes medication for prevention and treatment of opportunistic infections including TB; the use of ART; and appropriate nutrition care.

HIV combined with pre-existing under-nutrition makes it difficult for PLHIV and TB clients to remain healthy and economically productive. Symptoms associated with HIV can reduce food consumption, interfere with nutrient digestion and absorption, and change metabolism. These symptoms lead to weight loss, loss of muscle tissue and body fat, vitamin deficiencies, reduced immune function and competence, and increased susceptibility to secondary infections.

Nutrition care and support for PLHIV and TB clients can improve nutritional status, ensure adequate food intake, and enhance quality of life. Nutrition care and support includes assessment, counselling, interventions, and follow-up. These interventions enable care providers to counsel clients on how to improve diet, manage symptoms, and avoid infections. They are also used to target malnourished clients for therapeutic and supplementary feeding.

Recognising the critical role of food and nutrition in effective responses to HIV, in 2006, the Ghana Ministry of Health launched the national *Guidelines on Nutritional Care and Support for People Living with HIV and AIDS* as the first step in integrating nutrition into HIV services. These guidelines recommended the Nutrition Assessment, Counselling, and Support (NACS) approach to address the specific nutrition issues faced by PLHIV. Unlike food assistance programmes that target households with food rations to increase the food security of HIV-affected populations, the NACS approach provides specialised therapeutic and supplementary food products specifically to improve the health, nutrition, drug adherence, and survival outcomes of clinically malnourished PLHIV. Through NACS, food and nutrition services are provided as part of care and treatment, and take-home rations of specialised food products are prescribed for a limited duration based on clear entry and exit criteria.

This training manual will be used to build the capacity of physicians, nurses, dietitians, medical assistants, counsellors, volunteers, and other cadres that work with PLHIV and/or TB clients, particularly in ART and DOTS clinics, in NACS.

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Honourable Minister of Health
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Contents

Acknowledgements	i
Foreword	ii
Contents	iii
Abbreviations and Acronyms	vi
Introduction	1
Objectives of the Training Course	1
Module 1. Overview of Nutrition	2
Learning Objectives	2
Session 1.1 Definition of Basic Nutrition Terms	2
Session 1.2 Nutritional Requirements	3
Session 1.3 Causes of Malnutrition	9
Exercise 1. Causes of Malnutrition in PLHIV and/or TB Clients	9
Session 1.4 Clinical Symptoms and Signs of Malnutrition	11
Session 1.5 Consequences of Malnutrition in PLHIV and TB Clients	11
Session 1.6 Preventing and Managing Malnutrition	12
Module 1 Key Points	13
Module 2. Nutrition Assessment, Classification, and Care Plans	14
Learning Objectives	14
Session 2.1 Nutrition Assessment	14
Session 2.2 Clinical Assessment	15
How to Assess for Bilateral Pitting Oedema	19
How to Conduct an RUTF Appetite Test	20
Session 2.3 Physical Assessment (Anthropometric Measurements)	21
Weight	21
Height	24
Computing BMI for Adults	25
Exercise 2. Computing BMI for Adults	26
How to Measure Mid-Upper Arm Circumference	27
Classifying Nutritional Status	29
Criteria for Severe Acute Malnutrition (SAM)	29
Criteria for Moderate Acute Malnutrition (MAM)	29
Criteria for Normal Nutritional Status	30
Exercise 3. Client Register from the Aduaba Clinic	33
Session 2.4 Biochemical Assessment	34
Session 2.5 Dietary Assessment	35
Taking a Dietary History	35
Exercise 4. Case Study: Nortey, Narku, and Kande	39
Session 2.6 Nutrition Care Plans for PLHIV and/or TB Clients	41
1. Nutrition Care Plan for Children with SAM	41
2. Nutrition Care Plan for Adults with SAM	49
Exercise 5. Nutrition Care Plan for SAM	51
3. Nutrition Care Plan for Children with MAM	53
4. Nutrition Care Plan for Adults with MAM	56

Exercise 6. Nutrition Care Plan for MAM.....	58
5. Nutrition Care Plan for Children with Normal Nutritional Status.....	59
6. Nutrition Care Plan for Adults with Normal Nutritional Status.....	61
Exercise 7. Nutrition Care Plan for Normal Nutritional Status	62
Module 2 Key Points.....	62
Bingo Sheet for Review of Module 2	63
Module 3. Nutrition Education, Counselling, and Referral	64
Learning Objectives	64
Session 3.1 Conducting a Nutrition Counselling Session	64
Session 3.2 Nutrition Counselling using The GATHER Approach	70
Session 3.3 Nutrition Counselling Messages.....	71
Table 3.2: Critical Nutrition Actions for PLHIV and/or TB.....	71
Table 3.3: Food and Water Safety and Hygiene	74
Table 3.4: Dietary Management of HIV-Related Symptoms	75
Food and Nutrition Implications of ART and TB Treatment	78
Table 3.7: Nutrition Education Topics for PLHIV	81
Session 3.4 Linking NACS with Community Services.....	83
Module 3 Key Points.....	85
Module 4. Specialised Food Products to Treat Acute Malnutrition.....	86
Learning Objectives	86
Session 4.1 NACS Services	86
Session 4.2 NACS Client Flow and Staff Roles	87
Exercise 8. Client Flow, Staff Roles, and Integration of Services.....	87
Session 4.3 Purpose and Types of Specialised Food Products to Manage Acute Malnutrition	88
Specialised Food Products in Ghana.....	88
Exercise 9. Specialised Food Products for NACS.....	90
Session 4.4 Admission and Discharge Criteria for NACS in Ghana.....	91
Session 4.5 Managing Clients on Specialised Food Products.....	93
Session 4.6 NACS Commodity Management.....	94
Worksheet for Setting Maximum Stock, Reorder, and Emergency Point Levels	95
Worksheet for Setting Maximum Stock and Reorder Quantities (<i>to be completed every 6 months</i>)	97
Exercise 10 a: Specialised Food Products Monthly Consumption Report (MCR) ...	101
Exercise 10 b: Filling Out the MCR.....	102
Module 5. NACS Monitoring and Reporting.....	103
Learning Objectives	103
Session 5.1 Purpose of NACS Data Collection, Indicators, and Integrating the Indicators into the HIV and/or TB Monitoring and Evaluation System	103
Purpose of NACS Data Collection.....	103
NACS Indicators.....	103
Session 5.2 NACS Data Collection Tools and Forms	105
NACS Client Management Form	105
NACS Client Register	106
NACS Monthly Report	107
NACP ART Data Form	108
Food Security Analysis Form Questionnaire	109

Food Commodity Distribution Report	112
Monthly Distribution Report.....	116
Exercise 11. NACS Data Collection, Monitoring, and Reporting.....	119
NACS Site Quality Assurance Checklist	120
Session 5.3 Site Practice Visit	122
Site Practice Visit Report.....	122
Resources.....	124
Annex 1. Answers to Exercise 1.....	126
Annex 2. RUTF Look-Up Tables and Key Messages for Outpatient Care.....	128
Annex 3. Nutrition Guide for Food Security Programme for PLHIV and/or TB	129
Annex 4. Glossary of Key Terms	130
Notes	135

Abbreviations and Acronyms

AFASS	Acceptable, Feasible, Affordable, Safe, and Sustainable
AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral Drug
BMI	Body Mass Index
cm	Centimetre(s)
CMAM	Community-Based Management of Acute Malnutrition
CMV	Combined Mineral and Vitamin mix
CNAs	Critical Nutrition Actions
CSB	Corn-Soya Blend
dl	Decilitre(s)
DOTS	Directly Observed Treatment, Short Course
FANTA	Food and Nutrition Technical Assistance III Project
FBF	Fortified-Blended Flour
FEFO	First-to-Expire, First-Out
FIFO	First In, First Out
g	Gram(s)
GAC	Ghana AIDS Commission
GHS	Ghana Health Service
HIV	Human Immunodeficiency Virus
IM	Intramuscular
IV	Intravenous
IU	International Unit(s)
kcal	Kilocalorie(s)
kg	Kilogram(s)
LMIS	Logistics Management Information System
M&E	Monitoring and Evaluation
MAM	Moderate Acute Malnutrition
MCR	Monthly Consumption Report
µg	Microgram(s)
mg	Milligram(s)
ml	Millilitre(s)
MUAC	Mid-Upper Arm Circumference
NACP	National AIDS/STI Control Programme
NACS	Nutrition Assessment, Counselling, and Support
NTP	National Tuberculosis Control Programme
OI	Opportunistic Infection
PLHIV	People Living with HIV
PMTCT	Prevention of Mother-to-Child Transmission of HIV

RDA	Recommended Dietary Allowance
ReSoMal	Rehydration Solution for Malnutrition
RMS	Regional Medical Store(s)
RRIRV	Report, Requisition, Issue, and Receipt Voucher
RUTF	Ready-to-Use Therapeutic Food
SAM	Severe Acute Malnutrition
SMART	Specific, Measurable, Achievable, Realistic, and Time-bound
TB	Tuberculosis
USAID	U.S. Agency for International Development
WHO	World Health Organisation

Introduction

In Ghana, malnutrition among People Living with HIV (PLHIV) and/or Tuberculosis (TB) clients is on the increase, but most interventions to address this lack a strong nutrition component. This training manual is developed to build capacity of health care providers in Nutrition Assessment, Counselling, and Support (NACS) for PLHIV and/or TB clients.

The training material places emphasis on nutritional assessment, special dietary needs of PLHIV and/or TB clients, nutritional care for TB- and HIV-infected and -exposed children, dietary management of common conditions, and household food security.

This training manual will build the capacity of physicians, nurses, dietitians, medical assistants, counsellors, and other volunteers and cadres that work with PLHIV and/or TB, particularly in Antiretroviral Therapy (ART) and Directly Observed Treatment, Short Course (DOTS) clinics, in NACS.

A variety of methods of instruction, including reading, written exercises, discussions, role-plays, demonstrations, and field practice sessions, will be used during training sessions.

Objectives of the Training Course

By the end of this training, participants should be able to:

1. Advocate for and discuss the role of nutrition in care and treatment
2. Assess and classify the nutritional status of PLHIV and/or TB clients
3. Select appropriate care plans based on the nutritional status of clients
4. Provide appropriate nutrition counselling to PLHIV and/or TB clients
5. Prescribe and monitor specialised food products for acutely malnourished clients
6. Manage NACS services at the facility and community levels
7. Monitor and report NACS services

Module 1. Overview of Nutrition

Learning Objectives

By the end of this module participants should be able to:

1. Define basic nutrition terms
2. Explain the importance of nutrition for good health
3. Explain energy and protein requirements for people in different age groups
4. Explain the additional nutrition requirements for TB clients and PLHIV
5. Describe the interaction between HIV and TB
6. Describe the clinical symptoms, signs, and consequences of malnutrition
7. Describe the Critical Nutrition Actions (CNAs)

Session 1.1 Definition of Basic Nutrition Terms

Food is anything that provides the body with nutrients. The role of food in the body is as follows:

- Developing, growing, maintaining, replacing, and repairing cells and tissues
- Resisting and fighting infections
- Producing energy (warmth), movement, and work.

The three main **food groups** include:

- **Energy-giving foods:** e.g., cereals, plantains, roots, tubers, honey, sugar, fats, and oils
- **Body-building foods:** e.g., pulses, nuts, and other sources of proteins; important for growth and repair of worn-out tissues
- **Protective foods:** e.g., fruits and vegetables; important source of vitamins and minerals for protection.

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

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

Macronutrients are carbohydrates, protein, and fat (needed in large amounts).

Micronutrients are vitamins and minerals (needed only in small amounts).

Malnutrition occurs when food intake does not match dietary needs. Malnutrition includes both undernutrition and overnutrition.

Undernutrition is the result of a lack of nutrients caused by an inadequate diet and/or disease. Undernutrition includes a range of conditions.

- **Acute malnutrition** is caused by a decrease in food consumption and/or illness, resulting in bilateral pitting oedema or wasting. **Wasting** is defined by low Mid-Upper Arm Circumference (MUAC) or low weight-for-height z-score.
- **Chronic malnutrition** is caused by prolonged or repeated episodes of undernutrition starting before birth, resulting in stunting. **Stunting** is defined by low height-for-age.
- **Underweight** is a composite form of undernutrition which includes elements of stunting and wasting. Underweight is defined by low weight-for-age.
- **Micronutrient deficiencies** are a result of reduced micronutrient intake and/or absorption. The most common forms of micronutrient deficiencies are related to iron, vitamin A, and iodine.

Overnutrition is a result of excessive intake of nutrients, leading to overweight or obesity.

Nutrition is important for **good health**.

Good nutrition can:

- Help people feel strong physically and mentally and look healthy
- Strengthen the immune system to fight infection
- Help people stay productive and able to do physical activities
- Help prevent wasting
- Improve drug adherence and effectiveness
- Help manage common symptoms of illness and drug side effects

Poor nutrition can:

- Weaken the immune system
- Increase vulnerability to infections
- Reduce the body's ability to recover from infections

Session 1.2 Nutritional Requirements

Nutrient needs depend on age; physical changes, such as pregnancy and breastfeeding; and level of activity. For PLHIV and TB patients, as with all other infections, energy requirements are influenced by the body's response to the disease. The nutrient requirements of people in different groups are shown in the following four tables (1.1–1.4).

It is important to be aware that the food intake of many PLHIV and TB patients, particularly those experiencing symptoms, is likely to be below what is needed to maintain weight in the long term. When calculating an individual's energy requirements, it is often necessary to add more than 10% to support weight maintenance.

Table 1.1 Energy Requirements (kcal/day)¹

Age group	Healthy	HIV/TB-infected		
		Asymptomatic (10% more energy)	Symptomatic (20% more energy)	Severely malnourished (50%–100% more energy)
Children				
6–11 months old	680	760	830	150–200 kcal/kg of body weight/day
12–23 months old	900	990	1,080	150–200 kcal/kg of body weight/day
2–5 years old	1,260	1,390	1,510	150–200 kcal/kg of body weight/day
6–9 years old	1,650	1,815	1,980	75–100 kcal/kg of body weight/day
10–14 years old	2,020	2,220	2,420	60–90 kcal/kg of body weight/day
15–17 years old	2,800	3,080	3,360	
> 18 years	2,150	2,365	2,580	
Adults				
Non-pregnant/lactating	2,000–2,580	10% more energy (210–258 more kcal) ²	20% more energy (420 more kcal) ²	
Pregnant/lactating women	2,460–2,570			

Source: Adapted from the World Health Organisation (WHO). 2009. *Nutritional Care and Support for People Living with HIV/AIDS: A Training Course. Participant's Manual*. Geneva: WHO.

Table 1.2 Food Equivalents to Meet Energy Needs

Age group	Kcal/day	Sample food equivalents
0–6 months	518–639 (boys) 464–599 (girls)	<ul style="list-style-type: none"> • Breast milk on demand
6–11 months	680	<ul style="list-style-type: none"> • Breast milk on demand • 2 cups (250 ml each) cereal porridge with sugar and oil • 1 small size banana • 1 large serving spoon of mashed boiled carrots • 1 boiled egg

¹ A calorie is the amount of energy needed to increase the temperature of 1 g of water by 1 °C. These units of energy are so small that they are frequently expressed in 1,000 calorie units known as kilocalories (kcal).

² The requirements for adults also apply to pregnant and lactating women, in addition to the usual extra requirements for pregnancy and lactation.

Age group	Kcal/day	Sample food equivalents
12–23 months	900	<ul style="list-style-type: none"> • Breast milk on demand • 1 fist size of soft banku or Tuo Zaafi with 1 stew ladle of green leafy/okro stew • 1 cup (250 ml) of porridge with sugar, milk, and groundnut paste • 1 boiled egg • 1 medium size banana • 1 small size boiled sweet potato • 1 cup of orange juice
2–5 years	1,260	<ul style="list-style-type: none"> • Fist size soft banku or Tuo Zaafi + 2 stew ladles of green leafy/okro stew • 2 cups of cereal porridge with margarine and sugar • 1 large size banana • 1 medium size boiled sweet potato • 2 small serving spoons of boiled pumpkin or carrots • 2 cups of milk • 1 slice of bread with margarine and jam
6–9 years	1,650	<p>3 meals of 500 kcal each (examples below)</p> <ul style="list-style-type: none"> • 1 fistful (sorghum, rice, maize, millet, banku, kenkey) + 2 stew ladles (nkontomire stew, okro stew, boiled kidney beans) • 1 fistful of fufu plus 2 ladles of soup (e.g., palm nut with meat or fish plus orange) <p>AND 2 snacks (examples below)</p> <ul style="list-style-type: none"> • 1 large size banana • 1 egg • 2 pieces of koose with oil
10–14 years	2,020	<p>3 meals of 600 kcal each (examples below)</p> <ul style="list-style-type: none"> • 3 stew ladles of Mpotompoto with dried fish and spinach • 4 stew ladles of thick Porridge with fish powder or groundnuts • 1 fistful (sorghum, rice, maize, millet, banku, kenkey) + 3 stew ladles (nkontomire stew, okro stew, boiled kidney beans). <p>AND 2 snacks (examples below)</p> <ul style="list-style-type: none"> • 1 slice bread with margarine and jam • 2 pieces of koose • 1 medium size avocado • 1 handful of groundnuts
15–17 years	2,800	<p>3 meals of 800 kcal each (examples below)</p> <ul style="list-style-type: none"> • 1 fistful of fufu with 2 ladles of soup (e.g., palm nut with meat or fish) plus fruits (e.g., orange) • 2 fistfuls (sorghum, rice, maize, millet, banku, kenkey) + 3 stew ladles (nkontomire stew, okro stew, boiled kidney beans). <p>AND 2 snacks (examples below)</p> <ul style="list-style-type: none"> • 1 slice of bread with margarine and jam • 2 pieces of koose, groundnut cake, doughnut, atshomo, maasa, etc. • Fula • 1 avocado • 1 cup (250 ml) of orange juice

Age group	Kcal/day	Sample food equivalents
≥ 18 years	2,170	<p>3 meals of 650 kcal each (example below)</p> <ul style="list-style-type: none"> • 4 stew ladles of rice cooked with oil, boiled chicken, fish, anchovies, and cassava leaf relish with groundnuts or 1 egg or 1 serving spoon of cooked lentils • 1½ Fufu + 2 soup ladles of palm nut with fish or meat + a fruit (e.g., orange, mango, papaya). <p>AND 2 snacks (examples below)</p> <ul style="list-style-type: none"> • 1 slice of bread with margarine and jam • 2 pieces of maasa • Akyeke • Abolo • Akpiti • 1 avocado • 1 handful of groundnuts
Pregnant/ lactating women	2,455	<p>3 meals of 700 kcal each, for example:</p> <ul style="list-style-type: none"> • 2 fist size fufu + 2 soup ladles of (groundnut/palm nut with meat or fish) + a fruit (e.g., orange, mango, papaya). • 1½ fistfuls (sorghum, rice, maize, millet, banku, kenkey) + 3 stew ladles (nkontomire stew, okro stew, boiled kidney beans) <p>AND 3 snacks (examples below)</p> <ul style="list-style-type: none"> • 1 slice of bread with margarine and jam • Fula with maasa • 3 or 4 pieces of koose • 1 avocado • 1 handful of groundnuts

Table 1.3 Food Equivalents to Meet Extra Energy Needs of PLHIV and/or TB

Group	Extra energy needs	Sample food equivalents
Child: HIV- positive and/or TB client	10% extra (asymptomatic)	<ul style="list-style-type: none"> • Energy-dense, well-mashed or pureed foods twice a day (e.g., 6 months old: 2–3 tablespoons; 7–8 months old: 3–4 tablespoons) • Margarine, butter, oil, cooked eggs, or groundnut paste added to foods if no diarrhoea • 1–2 cups (250–500 ml) of milk (OR 1 cup (250 ml) of porridge) AND 1 energy-dense snack (e.g., 1 small banana, 1 small egg, or bread with groundnut paste)
	20%–30% extra (symptomatic, with no weight loss)	<ul style="list-style-type: none"> • 2 teaspoons of margarine or oil and 1–2 teaspoons of sugar added to porridge 3 times a day • 1 extra cup (250 ml) of porridge • 1 slice of bread with groundnut paste • 1 medium banana or 1 medium avocado, or 1 medium egg
	50%–100% extra (symptomatic with weight loss)	<ul style="list-style-type: none"> • 2 teaspoons of margarine or oil and 1–2 teaspoons of sugar added to porridge 4 times a day • 2–3 extra cups (500–750 ml) of porridge • 3 slices of bread with groundnut paste • 2 medium bananas or 2 medium avocados or 2 medium eggs

Adult: HIV- positive and/or TB client	10% extra (asymptomatic)	<ul style="list-style-type: none"> • 1 cup (250 ml) of porridge • 2 medium sweet potatoes • 2 medium bananas • 1 stew of boiled pumpkin/mpotompotom • 1 stew of meat sauce • 1 stew of vegetable sauce • 2 eggs
	20% extra (symptomatic)	<ul style="list-style-type: none"> • 2 cups (500 ml) of porridge • 4 medium sweet potatoes • 5 medium bananas • 2 stew ladles of boiled pumpkin/mpotompotom • 1 stew of meat sauce • 2 stew ladles of vegetable sauce

Protein

The normal protein requirement is 12%–15% of dietary intake (50–80 g/day or 1 g/kg of ideal body weight). According to the World Health Organisation (WHO), evidence is insufficient to support increasing protein intake for PLHIV over this requirement.

Fat

There is no evidence that PLHIV and TB patients need more fat than the normal requirements for health (no more than 35% of total energy needs). However, people on Antiretroviral Therapy (ART) or with persistent diarrhoea may need special advice regarding fat intake, for example, to decrease fat intake when they have diarrhoea or are taking certain drugs.

Vitamins and Minerals

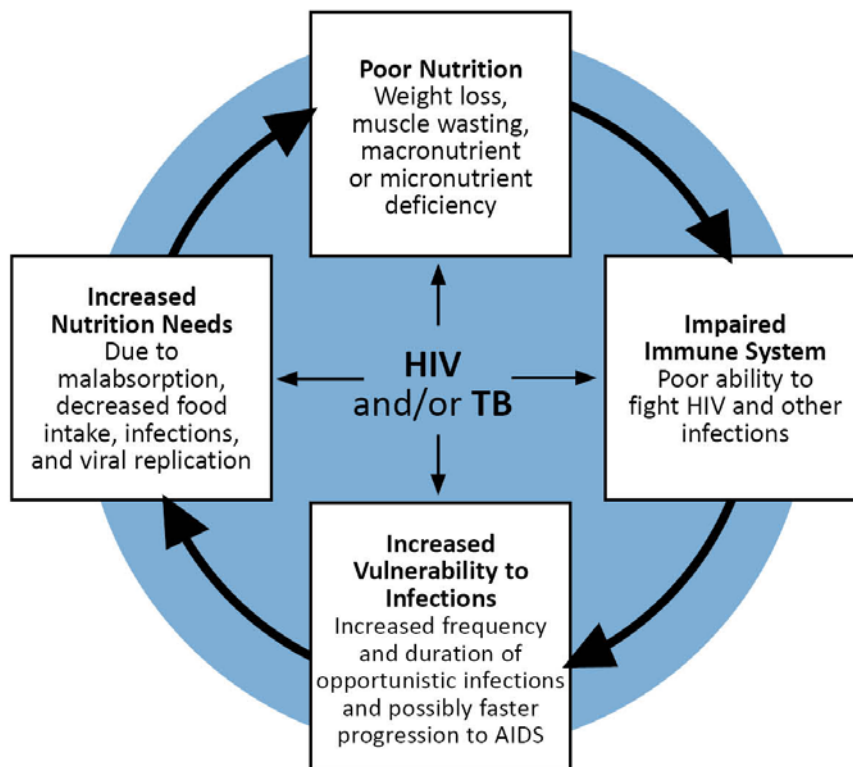
Eating a healthy diet is the best way to ensure adequate intake of vitamins and minerals. TB- and HIV-infected adults and children should eat healthy diets that ensure micronutrient intakes at recommended levels. However, where dietary intake of vitamins and minerals is insufficient to correct nutritional deficiencies in PLHIV and TB patients, high-risk groups, such as children and pregnant and lactating women, may need multiple micronutrient supplements.

WHO does not recommend that PLHIV consume more than 1 Recommended Dietary Allowance (RDA) of micronutrients. The recommended dosages for some micronutrients are listed below.

Table 1.4 Recommended Dosages for Some Micronutrients

<p>All children < 5 years of age in resource-limited settings, regardless of HIV or TB status: 100,000 international units (IU) vitamin A supplements every 6 months for infants 6–11 months and 200,000 IU vitamin A supplements for children 12 months and over. There are no data on the efficacy of other micronutrient supplements for HIV- or TB-infected children. Zinc supplementation is recommended for children with diarrhoea. The 2009 WHO/UNICEF recommended dosage is 20 mg/day for 10–14 days (10 mg/day for infants under 6 months).</p>
<p>Children with Severe Acute Malnutrition (SAM):</p> <ul style="list-style-type: none"> • Provide a single dose of vitamin A on the fourth week of treatment if the child has no oedema and has not received vitamin A in the last month: <ul style="list-style-type: none"> ○ Children 6–11 months, give 100,000 IU. ○ Children 12 months and over, give 200,000 IU. • If the child has bilateral pitting oedema, vitamin A should be provided when the bilateral pitting oedema has completely subsided. • If the child has signs of vitamin A deficiency, refer the child for treatment in inpatient care, as the condition can rapidly deteriorate.
<p>Pregnant and post-partum women (regardless of HIV or TB status): 60 mg of elemental iron and 400 µg of folic acid daily for 6 months after the first trimester of pregnancy to prevent anaemia and twice daily to treat severe anaemia. A single high-dose of vitamin A (200,000 IU) is given to women immediately after delivery, plus 200 mg of ferrous sulphate and 5 mg of folic acid.</p>

Figure 1.1 The Vicious Cycle between Nutrition and HIV and/or TB



Adapted from: Regional Centre for Quality of Health Care and FANTA. 2003. *Handbook: Developing and Applying National Guidelines on Nutrition and HIV/AIDS*; and Semba, RD, and Tang, AM. 1999. "Micronutrients and the pathogenesis of human immunodeficiency virus infection." *British Journal of Nutrition*, Vol. 81.

Session 1.3 Causes of Malnutrition

Exercise 1. Causes of Malnutrition in PLHIV and/or TB Clients

Make a list of the causes of malnutrition in PLHIV and TB clients as they relate to the following headings:

A. Immediate Causes

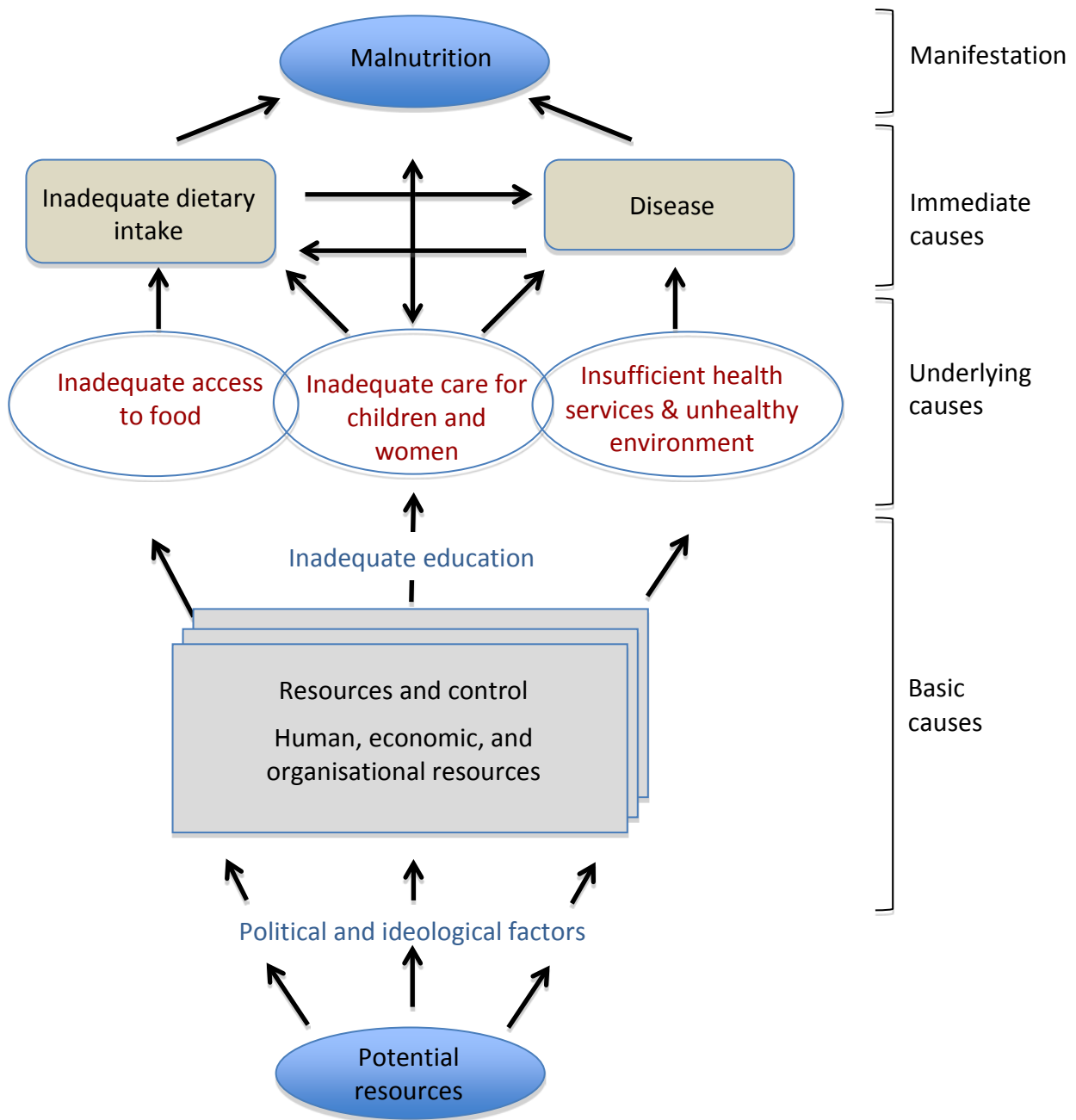
Disease/illness

Inadequate food intake

Inability to use, digest, or absorb some nutrients

B. Underlying Causes

Figure 1.2 Conceptual Framework of Malnutrition



Source: UNICEF. 1998. *State of the World's Children*. Oxford, U.K.: Oxford University Press.

Session 1.4 Clinical Symptoms and Signs of Malnutrition

General

- Reduced lean body mass
- Loss of body fat
- Metabolic disorders

In children

- Growth faltering
- Slower rate of growth
- Weight loss
- Stunting
- Hair colour change
- Bilateral pitting oedema

In adults

- Weight loss
- Severe wasting

In pregnant women

- Lower weight
- Anaemia
- Low birth weight of child
- Pre-term delivery

Session 1.5 Consequences of Malnutrition in PLHIV and TB Clients

- Poor food absorption
- Poor growth
- Increased morbidity
- Metabolic complications
- Increased risk of opportunistic infections (OIs)
- Reduced survival
- Increased cost of treating malnutrition-related illness
- Increased risk of mother-to-child transmission of HIV
- Socioeconomic problems, e.g., food insecurity at the household level and poverty

Session 1.6 Preventing and Managing Malnutrition

Through food

1. Promotion of a balanced diet using a variety of locally available foods
2. Promotion of optimal feeding of vulnerable groups (adolescent girls, pregnant and lactating women, infants and young children, and people with illness)
3. Mashing, fermenting, germinating, dehulling, or roasting foods to improve nutrient availability
4. Home fortification of foods with micronutrient mixes
5. Promotion of kitchen gardens and backyard gardens to grow vitamin- and mineral-rich vegetables and fruits
6. Fortification of food staples (salt, cooking oil, and wheat flour)
7. Improved household food production, post-harvest handling, preservation, and processing
8. Economic strengthening and livelihood initiatives to improve food security
9. Food support/aid
10. Improved institutional feeding in schools and prisons

Through health care services

1. Integration of Nutrition Assessments, Counselling, and Support (NACS) into routine health services
 - Provision of guidelines, standards, protocols, job aids, and essential equipment for NACS
 - Improved district and regional management of NACS
2. Micronutrient supplements (vitamin A, iron-folate, and zinc) according to the national protocol
3. Specialised food products to treat acute malnutrition (Severe Acute Malnutrition [SAM] and Moderate Acute Malnutrition [MAM]) according to the national protocol
4. Deworming to prevent iron deficiency anaemia

Through behaviour change

1. Growth monitoring and promotion
2. Nutrition counselling and education, including food demonstrations
3. Social marketing
4. Awareness campaigns

Critical Nutrition Actions for PLHIV and TB Clients

1. Get weighed regularly and have weight recorded.
2. Eat more and varied foods (especially foods rich in energy) 3 times a day with at least 2 snacks between meals.
3. Drink plenty of clean and safe water.
4. Live positively—avoid stressful situations, alcohol, tobacco, recreational drugs, and coloured and sweetened drinks.
5. Maintain good hygiene and sanitation.
6. Engage in physical activity (exercise) as often as possible.
7. Prevent and seek early treatment for infections. Seek dietary advice on managing symptoms.
8. Take medicines and food as advised by your health care provider.

Module 1 Key Points

- Good nutrition is a critical element for maintaining good health.
- There are different types of malnutrition, and all forms of malnutrition increase risk of mortality (death) and morbidity (illness).
- Food groups are made up of ‘energy-giving foods’, ‘body-building foods’, and ‘protective foods’. All of these groups are critical in maintaining a good nutritional intake.
- Adults with HIV or TB without symptoms require an additional 10% more energy compared with someone without either diseases
- Adults with HIV or TB with symptoms require up to an additional 20% more energy compared with someone without either diseases
- Children with HIV or TB who are malnourished or losing weight require up to an additional 100% more energy to restore nutritional status.
- There is insufficient evidence to suggest people with either HIV or TB require additional protein.
- Malnutrition in HIV and TB has both direct (disease related) and indirect (non-disease related) causes.
- Nutritional interventions such as NACS, which include strategies such as nutrition assessment, Critical Nutrition Actions (CNAs), and food support, economic strengthening, and livelihood interventions, are important to prevent and treat malnutrition.

Module 2. Nutrition Assessment, Classification, and Care Plans

Learning Objectives

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

1. Explain the importance of nutrition assessment
2. Take and interpret anthropometric measurements accurately
3. Conduct clinical, biochemical, and dietary assessments
4. Classify nutritional status correctly based on nutrition assessment
5. Select appropriate Nutrition Care Plans based on nutritional status
6. Use the Outpatient Care Action Protocol
7. Explain the importance of collecting and recording nutrition information

Session 2.1 Nutrition Assessment

Importance of nutrition assessment:

- Identifies people at risk of malnutrition for early intervention or referral before SAM occurs
- Detects diet habits that increase the risk of disease
- Identifies needs for nutrition education and counselling
- Identifies local food resources
- Tracks growth and weight trends
- Establishes a framework for a Nutrition Care Plan

Types of nutrition assessment include:

- Clinical assessment
- Physical assessment
- Biochemical assessment
- Dietary assessment

Session 2.2 Clinical Assessment

Table 2.1 How to Assess the Nutritional Status of a Child

ASK/LOOK		
ASK the caregiver or child	If YES	Implication
Have you noticed any weight change lately or since your last visit to the clinic?	<p><u>Look for visible signs of severe wasting:</u> A child with severe wasting has lost fat and muscle and appears like 'skin and bones'. A clinical term used for this condition is marasmus. To look for severe wasting, remove the child's clothes. Look at the front view of the child.</p> <ul style="list-style-type: none"> • Is the outline of the child's ribs easily seen? • Does the skin of the upper arms look loose? • Does the skin of the thighs look loose? <p>Look at the back view of the child.</p> <ul style="list-style-type: none"> • Are the ribs and shoulder bones easily seen? • Is flesh missing from the buttocks? <p>When wasting is extreme, there are folds of skin on the buttocks and thighs. It looks as if the child is wearing 'baggy pants'.</p>	<p>Clinical signs of acute malnutrition are an indication of Severe Acute Malnutrition (SAM) or Moderate Acute Malnutrition (MAM).</p> <p>Because a wasted child has lost fat and muscle, he or she will weigh less than healthy children of the same height and have a lower MUAC reading.</p>
Is the child taking any medication?	<ul style="list-style-type: none"> • Find out what medications the child is taking. • Find out whether the child is taking any nutrition supplements, herbal, or other remedies. 	Drug side effects may affect ability to eat, change body composition, and cause anaemia.
Has the child experienced any illnesses?	<p>Ask whether the child has had:</p> <ul style="list-style-type: none"> • A persistent cough • Active TB (first 3 months of treatment) • Chronic diarrhoea for more than 14 days • Vomiting • Oesophageal infections/tumours • Mouth sores, thrush, or difficulty swallowing • Dental problems 	Illness may be the cause of secondary malnutrition and may need to be treated first.
Has the child had a poor appetite lately?	Conduct a Ready-to-Use Therapeutic Food (RUTF) appetite test. Have the caregiver wash hands with soap, wash the child's face and hands, and feed (not force feed) the child RUTF in a quiet, isolated place while the health care provider observes. To pass the appetite test, the child should eat at least 1/3 of the 92 g packet of RUTF. Safe drinking water should be available during the appetite test.	A child who does not pass the appetite test should be referred for admission in inpatient care.
Is the child breastfeeding?	Count the number of times the child breastfeeds per day and observe if the child is able to suckle effectively per feed.	A child who is too weak to suckle effectively or does not gain weight satisfactorily on breast milk (20 g per day) should be referred to inpatient care.

ASK/LOOK		
ASK the caregiver or child	If YES	Implication
Has the child been eating less than usual?	Conduct a dietary assessment. Count the number of meals eaten/breastfeeds per day and list the content of the meals.	Assess whether food intake may be a cause of any malnutrition.
Have you noticed any changes in body composition or fat distribution?	Ask whether the changes include thinning limbs and face or enlargement of the face, stomach, breasts, or back.	If so, these are side effects of antiretroviral drugs (ARVs) that may need to be referred to a clinician.
EXAMINE AND MEASURE (A nurse or clinician should conduct the medical assessment. All medical examination parameters should be recorded in the child health record book.)		
Assess for bilateral pitting oedema	<p>To check for oedema, grasp both feet of the child so that they rest in your hands with your thumbs on top. Press your thumbs gently for about 3 seconds. The child has bilateral pitting oedema if a pit (dent) remains in both feet when you lift your thumbs. To be considered as SAM, oedema must appear on both feet.</p> <p>The extent of oedema is graded as:</p> <ul style="list-style-type: none"> • No oedema = 0 • Bilateral oedema in both feet below the ankles = + (mild) • Bilateral pitting oedema in both feet and legs below the knees = ++ (moderate) • Bilateral pitting oedema in both feet, legs, arms, and face = +++ (severe) 	
Measure MUAC in centimetres	<p>Severe Acute Malnutrition (SAM)</p> <p>6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm 15–17 years: < 17.5 cm</p> <p>Normal</p> <p>6–59 months: ≥ 12.5 cm 5–9 years: ≥ 14.5 cm 10–14 years: ≥ 18.5 cm 15–17 years: ≥ 19.5 cm</p>	<p>Moderate Acute Malnutrition (MAM)</p> <p>6–59 months: ≥ 11.5 to < 12.5 cm 5–9 years: ≥ 13.5 to < 14.5 cm 10–14 years: ≥ 16.0 to < 18.5 cm 15–17 years: ≥ 17.5 to < 19.5 cm</p>
Measure weight to the nearest 100 g	Check weight change since last weighing.	

Check for danger signs of SAM:

- | | |
|---|--|
| <ul style="list-style-type: none"> • Bilateral pitting oedema (+++) • Loss of appetite/anorexia • Intractable vomiting • Weakness, lethargy, unconsciousness, convulsions • High fever (axillary temperature ≥ 38.5° C) • Hypothermia (axillary temperature < 35° C) | <ul style="list-style-type: none"> • Rapid or difficulty breathing • Severe anaemia (palm pallor compared with health care provider's palm) • Superficial infection requiring intravenous (IV) or intramuscular (IM) treatment • Extensive skin lesions • Persistent diarrhoea and dehydration • Persistent weight loss or static weight |
|---|--|

Table 2.2 How to Assess the Nutritional Status of an Adult

ASK/LOOK		
ASK the client	If YES	Implication
Have you noticed any weight change lately or since your last visit to the clinic?	<p><u>Look for signs of severe wasting:</u> An adult with severe wasting has lost fat and muscle and appears like ‘skin and bones’. A clinical term used for this condition is marasmus. To assess for severe wasting, look at the front view of the adult:</p> <ul style="list-style-type: none"> • Is the outline of the ribs easily seen? • Does the skin of the upper arms look loose? • Does the skin of the thighs look loose? <p>Look at the back view of the adult.</p> <ul style="list-style-type: none"> • Are the ribs and shoulder bones easily seen? 	Clinical signs of acute malnutrition are an indication of SAM or MAM .
Are you taking medications?	Find out what medications the client is taking, including for active TB. Find out whether the client is taking any nutrition supplements, herbal, or other remedies.	Drug side effects may affect ability to eat, change body composition, and cause anaemia.
Have you experienced any illnesses?	<p>Ask if the client has had:</p> <ul style="list-style-type: none"> • A persistent cough • Active TB (first 3 months of treatment) • Chronic diarrhoea for more than 14 days • Oesophageal infections/tumours • Dental problems • Other chronic opportunistic infections 	Illness may be the cause of secondary malnutrition and may need to be treated first.
Have you been suffering any symptoms lately?	<ul style="list-style-type: none"> • Nausea or vomiting • Persistent fatigue • Poor appetite • Mouth sores, thrush, or difficulty swallowing 	Many symptoms can be managed through diet.
Have you been eating less than usual?	Conduct a dietary assessment. Count the number of meals eaten per day and list the content of the meals.	Assess whether food intake may be a cause of any malnutrition.
Have you noticed changes in body composition or fat distribution?	Ask if the changes include thinning limbs and face or enlargement of the face, stomach, breasts, or back.	If so, these are side effects of ARVs that may need to be referred immediately to a clinician.
EXAMINE AND MEASURE (A nurse or clinician should conduct medical assessments. All medical examination parameters should be recorded in the client’s record.)		
Assess for bilateral pitting oedema. Rule out other causes of oedema, such as pre-eclampsia, severe protein urea, nephritic syndrome, nephritis, acute filariasis, heart failure, and wet beriberi.	<p>To check for oedema, grasp both feet so that they rest in your hand with your thumbs on top. Press your thumbs gently for about 3 seconds. The client has bilateral pitting oedema if a pit (dent) remains in both feet when you lift your thumbs. To be considered as SAM, oedema must appear on both feet.</p> <p>The extent of oedema is graded as:</p> <ul style="list-style-type: none"> • No oedema = 0 • Bilateral oedema in both feet below the ankles = + (mild) • Bilateral pitting oedema in both feet and legs below the knees = ++ (moderate) • Bilateral pitting oedema in both feet, legs, arms, and face = +++ (severe) 	

Measure weight to the nearest 100 g	Check weight change since last weighing.
Measure height to the nearest cm	
Measure MUAC if client is pregnant or lactating or cannot be weighed or measured	<u>Pregnant/Post-Partum</u> SAM: MUAC < 21 cm MAM: ≥ 21 to < 23 cm Normal: ≥ 23 cm

Check for danger signs of SAM:




- | | |
|---|--|
| <ul style="list-style-type: none"> • Bilateral pitting oedema • Loss of appetite/anorexia • Intractable vomiting • Weakness, lethargy, unconsciousness, convulsions • High fever (axillary temperature ≥ 38.5° C) • Hypothermia (axillary temperature < 35° C) | <ul style="list-style-type: none"> • Rapid or difficulty breathing • Severe anaemia (palm pallor compared with health care provider's palm) • Other opportunistic infections • Extensive skin lesions • Persistent diarrhoea and dehydration • Persistent weight loss or static weight |
|---|--|

How to Assess for Bilateral Pitting Oedema

Bilateral pitting oedema is swelling on both feet and legs. This is a clinical sign of severe acute malnutrition. It is caused by abnormal infiltration and excess accumulation of serous fluid in connective tissue or in a serous cavity.

To check for oedema, grasp feet so that they rest in your hands with your thumbs on top. Press your thumbs gently for about 3 seconds (at the same time, count 101, 102, 103). There is bilateral pitting oedema if a pit (dent) remains in both feet when you lift your thumbs. To be considered as SAM, oedema must appear on both feet.

There are three grades of bilateral pitting oedema, shown below.

		
<p>Grade + (mild) There is bilateral pitting oedema in both feet. This is grade + oedema. But the child might have grade ++ or +++, so legs and face also need to be checked.</p>	<p>Grade ++ (moderate) Both feet plus the lower legs, hands, and lower arms are swollen. This is grade ++ bilateral pitting oedema.</p>	<p>Grade +++ (severe) This child has +++ bilateral pitting oedema. It is generalised, including both feet, legs, arms, hands, and face.</p>

A second person should repeat the test to confirm the presence of bilateral pitting oedema.

If the pitting is not bilateral (in both feet), the oedema is not caused by malnutrition.

How to Conduct an RUTF Appetite Test

All adults and children with HIV and/or TB that are classified as having SAM should go through a Ready-to-Use Therapeutic Food (RUTF) appetite test to determine the next step for treatment. If an adult or child with SAM has no appetite and is not able to eat sufficient quantities of the RUTF, he or she should be referred for treatment in inpatient care.

Points to consider when conducting an appetite test:

- Conduct the appetite test in a quiet, separate area.
- Provide an explanation to the caregiver regarding the purpose of the appetite test and outline the procedures involved.
- Observe the child/adult eating the RUTF and determine if he/she passes or fails the appetite test within 30 minutes.
- Wash hands before giving/eating the RUTF.
- Offer plenty of clean water to drink from a cup while eating the RUTF.
- For children, counsel caregivers to:
 - Sit with the child in his/her lap and gently offer the RUTF
 - Encourage the child to eat the RUTF without force feeding.

Table 2.3 RUTF Requirement for Appetite Test

Minimum amount of RUTF that a child must eat to pass the appetite test	
Weight (kg)	Quantity (packet of 92 g) of RUTF
≤ 12.0	1/3
12.0–14.9	1/2
15.0–29.0	3/4
≥ 29.0	1

Adult clients should finish at least one packet of RUTF to pass the appetite test

Session 2.3 Physical Assessment (Anthropometric Measurements)

Weight

Weigh the child as soon as possible after he or she arrives at the facility. If the child is admitted, weigh the child once daily, preferably at about the same time each day. The weighing time should be about 1 hour before or after a feeding.

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

- Solidly built and durable
- Electronic (digital reading)
- Measures up to 150 kg
- Measures to a precision of 0.1 kg (100 g)
- Allows tared weighing

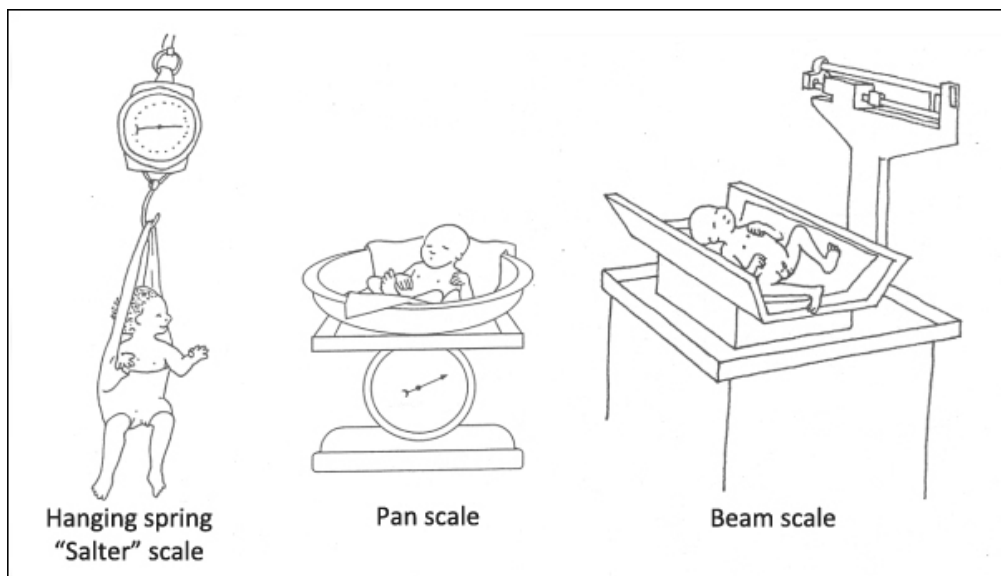
‘Tared weighing’ means that the scale can be reset to zero (‘tared’) with the person just weighed still on it. Thus, a mother can stand on the scale, be weighed, and the scale tared. While remaining on the scale, if she is given her child to hold, the child’s weight alone appears on the scale.

Tared weighing has two clear advantages:

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

Types of Scales

There are many types of scales currently in use. UNICEF’s UNISCALE has the recommended features listed above. It is recommended to use a UNISCALE where it is available.



Standardising Scales

Standardise scales daily or whenever they are moved.

1. Set the scale to zero.
2. Weigh three objects of known weight (e.g., 5, 10, and 15 kg) and record the measured weights. (A container filled with stones and sealed may be used if its weight is accurately known.)
3. Repeat the weighing of these objects and record the weights again.
4. If there is a difference of 0.01 kg or more between duplicate weighings or if a measured weight differs by 0.01 kg or more from the known standard, check the scales and adjust or replace them if necessary.

How to Weigh a Child under 2 Years of Age using the UNISCALE

If the child is under 2 years of age or is unable to stand, you will do tared weighing.

Explain the tared weighing procedure to the mother as follows. Stress that the mother must stay on the scale until her child has been weighed in her arms.

Be sure that the scale is placed on a flat, hard, even surface. It should not be placed on a loose carpet or rug, but a firm carpet that is glued down is acceptable. Since the scale is solar powered, there must be enough light to operate the scale.



1. To turn on the scale, cover the solar panel for a second. When the number 0.0 appears, the scale is ready **[1]**.
2. Check to see that the mother has removed her shoes. You or someone else should hold the naked baby wrapped in a blanket.
3. Ask the mother to stand in the middle of the scale, feet slightly apart (on the footprints, if marked), and remain still **[2]**. The mother's clothing must not cover the display or solar panel.
4. Remind her to stay on the scale even after her weight appears, until the baby has been weighed in her arms.
5. With the mother still on the scale and her weight displayed, tare the scale by covering the solar panel for a second. The scale is tared when it displays a figure of a mother and baby and the number 0.0 **[3]**.
6. Gently hand the naked baby to the mother and ask her to remain still **[4]**.
7. The baby's weight will appear on the display. Record this weight **[5]**.
8. Be careful to read the numbers in the correct order (as though you were viewing while standing on the scale rather than upside-down).

If the UNISCALE is not available, a pan scale or hanging scale can be used to weigh a child.

1. Remove the child's clothes, but keep the child warm with a blanket or cloth while carrying him or her to the scale.
2. Put a cloth in the scale pan to prevent chilling the child.
3. Adjust the scale to zero with the cloth in the pan. (If using a scale with a sling or pants, adjust the scale to zero with that in place.)
4. Place the naked child gently in the pan (or in the sling or pants).
5. Wait for the child to settle and the weight to stabilise.
6. Measure weight to the nearest 0.01 kg (10 g) or as precisely as possible. Record immediately.
7. Wrap the child immediately to re-warm.

How to Weigh a Child over 2 Years and Adults using the UNISCALE

If the child is 2 years or older, you will weigh the child alone if the child will stand still.

- Explain that the child will need to step on the scale alone and stand very still.
- Explain that the child should remove his or her clothing; adults need to remove outer clothing in order to obtain an accurate weight.
- A wet diaper, shoes, or jeans can weigh more than 0.5 kg. Children and adults should remove all but minimal clothing.

Height

Height measurement is only taken for adults. Height is only taken the first time a person presents at a clinic, which is then used to compute Body Mass Index (BMI) on subsequent visits.

How to Use a Height Board to Measure Height

Use a height board to measure the height of an adult.

1. Ask the person to remove his or her shoes and stand on the height board, standing upright in the middle of the board with arms at his or her sides.
Make sure that the feet are close together with heels and soles touching the bottom of the board (that is, not standing tiptoe).
2. The back of the ankles and knees should be firmly pressed toward the board.
3. The person should stand straight, with heels, back of legs, buttocks, shoulder blades, and head touching the back of the board.
4. Hold the person's head straight. The line of vision should be parallel to the floor.
5. Have an assistant hold the legs and feet. Read the measurement out loud to nearest 0.1 cm. Have the assistant repeat the measurement for verification.
6. Record the height to the last completed 0.1 cm immediately on the client form/folder.

Computing BMI for Adults

Body Mass Index (BMI) is a reliable indicator of people's body fat. BMI is calculated based on a person's weight and height. BMI does not measure body fat directly, but can be considered as an alternative for direct measures of body fat. BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems.

BMI is also used as measurement of adult malnutrition in HIV care and treatment programmes, although measurement of weight loss is the most commonly used measurement. If BMI is below WHO's established cut-offs, nutritional intervention (improved diet, management of symptoms, or feeding assistance) is needed to slow or reverse the loss.

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

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

BMI Cut-Offs for SAM, MAM, Normal, Overweight, and Obese Clients

BMI	Nutritional status
< 16.0	Severe malnutrition (SAM)
≥ 16.0 to < 18.5	Moderate malnutrition (MAM)
≥ 18.5 to < 25.0	Normal nutritional status
≥ 25.0 to < 30.0	Overweight
≥ 30.0	Obese

Source: WHO. 1995. *Physical Status: The Use and Interpretation of Anthropometry: Report of a WHO Expert Committee*. WHO Technical Report Series 854. Geneva: WHO.

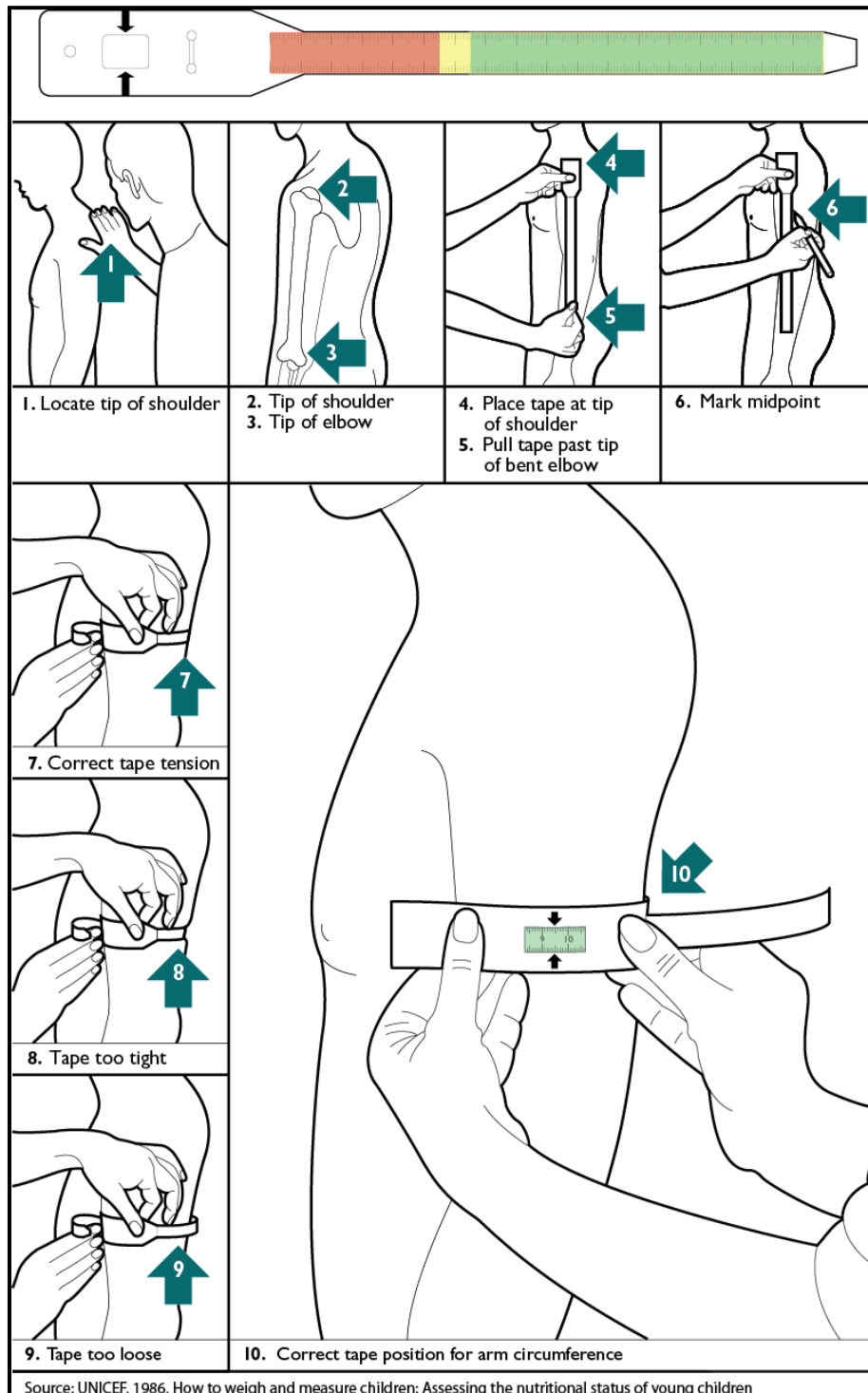
Exercise 2. Computing BMI for Adults

With the given indicators, compute the BMI for the following people.

ID	Sex	Height (cm)	Weight (kg)	BMI
1	F	184	52	
2	F	148	40	
3	F	178	50	
4	M	190	68	
5	M	176	48	
6	F	156	102	
7	M	160	38	
8	M	174	84	
9	F	180	74	
10	M	164	66	

How to Measure Mid-Upper Arm Circumference

MUAC is a very useful body measurement used for children. MUAC correlates well with muscle mass and, hence, with body nutritional reserves. Moreover, evidence supports the fact that MUAC correlates better with risk of death than weight-for-height.



1. Always measure MUAC on the left arm.
2. Measure the length of the child's upper arm, between the bone at the top of the shoulder [2] and the tip of the elbow [3] (the child's arm should be bent to easily locate the tip).
3. Find the midpoint of the upper arm and mark it with a pen [6]. It is easier to use a string instead of the MUAC tape to find the midpoint.
4. The child's arm should then be relaxed, falling alongside his or her body.
5. Wrap the MUAC tape around the child's arm, such that all of it is in contact with the child's skin [7]. It should be neither too tight [8] nor too loose [9].
6. Feed the end of the tape through the thin opening (slit) under the large opening (window). The measurement is read from the window where the arrows point inward [10].
7. Record the MUAC reading with a precision of 0.1 cm.

Note: The same procedure should be followed when taking the MUAC of an adult.

Table 2.4 MUAC Cut-offs for SAM, MAM, and Normal Clients

Group	Severe acute malnutrition (SAM)	Moderate acute malnutrition (MAM)	Normal
Children (6–59 months old)	< 11.5 cm	≥ 11.5 to < 12.5 cm	≥ 12.5 cm
Children (5–9 years old)	< 13.5 cm	≥ 13.5 to < 14.5 cm	≥ 14.5 cm
Children (10–14 years old)	< 16.0 cm	≥ 16.0 to < 18.5 cm	≥ 18.5 cm
Adolescents (15–17 years old)	< 17.5 cm	≥ 17.5 to < 19.5 cm	≥ 19.5 cm
Pregnant/post-partum women	< 21.0 cm	≥ 21.0 to < 23.0 cm	≥ 23.0 cm
Adults who are too sick to stand	< 19.0 cm	≥ 19.0 to < 21.0 cm	≥ 21.0 cm

Classifying Nutritional Status

The Nutritional status of PLHIV and or TB clients can be classified as:

- SAM with medical complications
- SAM without medical complications
- Moderate or mild acute malnutrition
- Normal
- Overweight
- Obese

Criteria for Severe Acute Malnutrition (SAM)

Adults

- MUAC < 19 cm
or
- BMI < 16
or
- Bilateral pitting oedema

Pregnant/Post-Partum

- MUAC < 21 cm

Children

- Severe visible wasting for children < 6 months
or
- Bilateral pitting oedema
or
- MUAC:
 - 6–59 months: < 11.5 cm
 - 5–9 years: < 13.5 cm
 - 10–14 years: < 16.0 cm
 - 15–17 years: < 17.5 cm

Criteria for Moderate Acute Malnutrition (MAM)

Adults

- MUAC ≥ 19.0 to < 21.0 cm
or
- BMI ≥ 16 to < 18.5

Pregnant/post-partum

- MUAC ≥ 21 to < 23 cm

Children

- MUAC:
 - 6–59 months: ≥ 11.5 to < 12.5 cm
 - 5–9 years: ≥ 13.5 to < 14.5 cm
 - 10–14 years: ≥ 16.0 to < 18.5 cm
 - 15 – 17 years: ≥ 17.5 to < 19.5 cm

Criteria for Normal Nutritional Status

Adults

- MUAC > 21.0 cm
and
- BMI ≥ 18.5 to 24.9

Pregnant/post-partum

- MUAC ≥ 23 cm

Children

- MUAC:
 - 6–59 months: ≥ 12.5 cm
 - 5–9 years: ≥ 14.5 cm
 - 10–14 years: ≥ 18.5 cm
 - 15–17 years: ≥ 19.5 cm

Table 2.5 Algorithm for Assessing Malnutrition in Children 6 Months to 17 Years

ASSESS		CRITERIA	CLASSIFICATION	TREATMENT/CARE
ASK	LOOK AND FEEL			
<p>Ask mother or caregiver or refer to records:</p> <p>1. Has the child lost weight in the past month/since the last visit?</p> <p>2. Has the child had:</p> <p>a. A cough for more than 21 days? (This may be a result of HIV-related chronic lung disease, such as lymphocytic interstitial pneumonia or bronchiectasis)</p> <p>b. Active TB (on treatment)?</p> <p>c. Diarrhoea (three or more stools per days)?</p> <p>d. Another chronic OI or malignancy?</p>	<p>1. Look for severe visible wasting:</p> <ul style="list-style-type: none"> – Loss of muscle bulk on arms, shoulders, buttocks, and thighs, with visible rib outlines – Sagging skin on buttocks <p>2. Check for oedema (swelling) in both feet</p> <p>3. Weigh the child</p> <p>4. Measure MUAC</p> <p>5. If MUAC measurement is not possible, then measure weight-for-age and look at the shape of the curve on the growth chart</p> <ul style="list-style-type: none"> – Has the child lost weight since the last visit? (Measure again to confirm current weight) – Is the growth curve flattening? – Is the child gaining weight? 	<p>Bilateral pitting oedema (both feet and/or legs are swollen, and the skin remains indented when pressed with the thumb)</p> <p>OR</p> <p>MUAC: 6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm 15–17 years: < 17.5 cm</p> <p>AND</p> <p>Appetite test (pass or fail)</p>	<p>SAM</p> <p>Bilateral oedema +++, marasmic kwashiorkor</p> <p>With no appetite or with medical complication (anorexia, intractable vomiting, convulsions, no alertness, lethargy, lower respiratory tract infection, high fever, severe anaemia or dehydration, hypoglycaemia, hypothermia)</p>	<p>Inpatient treatment</p> <p>Follow Nutrition Care Plan for SAM in Inpatient Care</p>
		<p>MUAC: 6–59 months: ≥ 11.5 to < 12.5 cm 5–9 years: ≥ 13.5 to < 14.5 cm 10–14 years: ≥ 16.0 to < 18.5 cm 15–17 years: ≥ 17.5 to < 19.5 cm</p>	<p>MAM</p> <p>Poor weight gain</p>	<p>Follow Nutrition Care Plan for MAM</p>
		<p>Weight gain parallel to or higher than median growth curve</p> <p>MUAC: 6–59 months: ≥ 12.5 cm 5–9 years: ≥ 14.5 cm 10–14 years: ≥ 18.5 cm 15–17 years: ≥ 19.5 cm</p>	<p>Normal</p> <p>Growing appropriately</p>	<p>Follow Nutrition Care Plan for Normal Nutritional Status</p>

Table 2.6 Algorithm for Assessing Malnutrition in Adults

ASSESS		CRITERIA	CLASSIFICATION	TREATMENT/CARE
HISTORY	LOOK AND FEEL			
<p>Ask client or refer to records:</p> <ol style="list-style-type: none"> Has the client lost weight in the past month/since the last visit? Has the client had: <ul style="list-style-type: none"> Active TB (on treatment)? Another chronic OI or malignancy (e.g., oesophageal infections)? Mouth sores/oral thrush? Has the client's body composition/fat distribution changed noticeably? <ul style="list-style-type: none"> Thinning of limbs and face? Fat distribution on limbs, breasts, stomach, back? Has the client had: <ul style="list-style-type: none"> Nausea and vomiting? Persistent fatigue? Poor appetite? 	<ol style="list-style-type: none"> If client has oedema on both legs or base of the spine, rule out pre-eclampsia, kidney problems, elephantiasis, heart failure, and wet beriberi (vitamin B1 deficiency with oedema) Measure client's weight (kg) and height (cm) Compute BMI $\frac{\text{Weight (kg)}}{\text{Height (m}^2\text{)}}$ Measure MUAC for pregnant women, women up to 6 months post-partum, and adults who cannot stand straight Examine for conditions that cause secondary malnutrition Look for complications and danger signs (anaemia, severe dehydration, active TB, severe bilateral oedema) 	<p>Adults (non-pregnant and non-post-partum) BMI: < 16 If can't measure BMI, MUAC: < 19 cm</p> <p>OR Bilateral pitting oedema (both feet or legs are swollen, and the skin remains indented when pressed with a finger)</p> <p>Pregnant women and women up to 6 months post-partum MUAC: < 21 cm or < 23 cm with weight loss</p>	<p>SAM with complications (fever, hypothermia, severe anaemia or dehydration, vomiting, bilateral oedema +++) or no appetite</p>	<p>Inpatient treatment Follow Nutrition Care Plan for SAM in Inpatient care</p>
		<p>SAM with appetite and no complications BMI: < 16 or MUAC: < 19 cm and no danger signs</p>	<p>Outpatient treatment Follow Nutrition Care Plan for SAM in Outpatient Care</p>	
		<p>Adults (non-pregnant and non-post-partum) BMI: ≥ 16.0 to < 18.5 MUAC: ≥ 19.0 to < 21.0 cm</p> <p>Pregnant women and women up to 6 months post-partum Poor weight gain MUAC: ≥ 21 to < 23 cm</p>	<p>Moderate/mild malnutrition</p>	<p>Follow Nutrition Care Plan for MAM</p>
		<p>Significant weight loss</p>		
		<p>Adults (non-pregnant and non-post-partum) BMI: ≥ 18.5 to 24.9 MUAC: ≥ 21.0 cm</p> <p>Pregnant and post-partum women (up to 6 months) MUAC: ≥ 23 cm</p>	<p>Normal</p>	<p>Follow Nutrition Care Plan for Normal Nutritional Status</p>

Exercise 3. Client Register from the Aduaba Clinic

The table below shows the client register from Aduaba Clinic. The register contains information about nine children and seven adults that were seen on a clinic day. Classify the nutritional status of each client by writing the classification in the column furthest to the right.

ID	Sex	Age	HIV status	Complications?	Bilateral pitting oedema?	MUAC (cm or colour)	Height (cm)	Weight (kg)	Nutritional status
1	F	35 mo.	Not known (NK)	No	No	Green		12.5	
3	M	62 mo.	-	Yes	++	Yellow		13.5	
5	M	9 mo.	NK	No	No	12.5		6.7	
7	F	8 mo.	NK	No	+	10.5		5.0	
9	M	21 mo.	+	Yes	No	10.9		11.0	
10	M	17 mo.	+	No	+	Green		12.9	
16	M	17 yr.	+	No	No	22		62	
17	M	16 yr.	+	No	No	20		64	
18	M	14 yr.	+	No	No	15		54	
19	F	27 yr.	+	Yes	Yes		166	72	
20	M	46 yr.	+	No	No		160	80	
21	F	19 yr.	+	Yes	No		164	50	
22	F	31 yr.	+	No	No		162	40	
23	F	37 yr.	+	No	No		156	42	
24	M	26 yr.	+	Yes	No		178	84	

Session 2.4 Biochemical Assessment

Biochemical tests used in nutrition assessment:

- Measurement of nutrient concentration in the blood
- Measurement of urinary excretion and metabolites of nutrients
- Detection of abnormal metabolites in blood from a nutrient deficiency
- Measurement of changes in blood constituents or enzyme activities that depend on nutrient intake
- Measurement of 'tissue specific' chemical markers

There are different laboratory tests that provide information on nutritional status. Not every health facility may do all of these tests, but health care workers can use any available laboratory results to assess the nutrition-related problems of their clients. The various laboratory tests are as follows:

- Blood count, glucose, electrolyte levels, and lipid levels produce useful nutrition information.
- Haematology (dried blood spots, haematocrit, haemoglobin, red and white blood cell counts) can assess mineral and vitamin status.
- Serum cholesterol and serum triglyceride levels can assess lipid status, which can be used to estimate biochemical deficiencies.
- Urinary measurements of body metabolism (e.g., creatinine, a product of muscle metabolism excreted into the urine) can estimate muscle mass utilisation.
- Serum albumin concentration is a lab measure of nutritional status. A reduction in serum albumin can be caused by poor nutritional status (not eating enough protein or losing protein during illness); kidney dysfunction; liver disease; heart conditions; stomach problems, such as inflammatory bowel disease; cancer; infections, such as TB; or TB drug side effects. Malnutrition in the hospital setting is defined as serum albumin levels of less than 3.2 g per dl.
- Stool samples can show helminth (hookworm and ascaris) infection.

Session 2.5 Dietary Assessment

Taking a Dietary History

Two common ways to find out what and how much a client is eating are **24-hour dietary recall** and a **food frequency questionnaire**. These can be used to assess eating habits, food allergies and intolerances, and reasons for inadequate food intake during illness. The use of both of these tools is outlined below.

24-Hour Dietary Recall

Explain to the client the purpose of the 24-hour dietary recall. Inform the client that you will use the information to evaluate his or her diet and then counsel on how to improve it, if necessary. Reassure him or her that the information will be kept confidential and used only to assess his or her nutritional needs. Stress that there are no 'good' or 'bad' foods.

Do not show in words or facial expressions that you approve or disapprove of any food or drink the client mentions.

Do not ask questions that would lead the client to think he or she should mention any particular food or drink.

Photocopy the form on the next page for use with clients. List everything the client reports eating or drinking, including snacks, beverages, condiments, and all foods eaten at home or away from home *during the past 24 hours*.

Table 2.7 24-Hour Dietary Recall Form

Time	Food or drink*	Amount eaten or drunk

* Include both foods eaten alone and foods combined in a dish (e.g., soup or stew).

Ask questions such as the following to probe for information:

- What was the first thing you ate or drank when you got up in the morning?
- Do you remember anything else you ate or drank?
- Did you eat the food plain or put something else on it?
- While you were working, did you take a break to eat or drink something?
- What foods do you especially like or dislike?
- If you were sick during the 24 hours, how did that affect your eating?

Now go back and ask the client to estimate the size of the portions of each item. Do not label the meals 'breakfast', 'lunch', or 'dinner'. After the client has mentioned all the foods and amounts for the past 24 hours, read the list back to the client and ask whether there is anything he or she may have forgotten. Thank the client for his or her cooperation.

Remember that it can be difficult for clients to remember everything they ate and drank over the previous 24 hours. Also, this one day may not represent the client's usual food intake.

Assess whether the client's reported food intake included foods from all the food groups. If not, counsel the client to add foods from the missing food groups to meals if possible.

Food Frequency Questionnaire

Explain to the client the purpose of the food frequency questionnaire. Inform the client that you will use the information to evaluate his or her diet and then counsel on how to improve it, if necessary.

Ask the client to try to remember what he or she ate or drank *during the past day and the past week*, including snacks, meals, beverages, and any foods eaten outside the home.

Photocopy the form on the next page. Use the client's answers to fill in the questionnaire.

Exercise 4. Case Study: Nortey, Narku, and Kande

Part 1

Nortey is a 42-year-old man who is HIV-positive. He looks thin because he has been losing weight for the past 3 months. Nortey is coughing a lot and has oral thrush, diarrhoea, and skin problems. He looks pale. He decides to go to a health facility for care and treatment. At the facility he has several tests done and gets his diarrhoea and skin problems treated. His weight and height are also measured. He weighs 49 kg and is 168 cm tall. He is referred to a nearby ART clinic.

Part 2

Nortey goes to the ART clinic with his son Narku, who is now 4 years old. Nortey says Narku's mother had to stay at home because she is pregnant and tired. He tells the health care provider that his son is not eating well, has lost more weight in the past 2 months, and has had diarrhoea and a cough. Narku's MUAC is 10.8 cm. He looks thin (his ribs can be seen) and pale. He has oedema of both feet. No blood has been seen in his stool, but he has had fever for almost a week. He is not on any medications. His eyes are sunken, and there is a prolonged skin pinch. He is thirsty. He has generalised lymphadenopathy, finger clubbing, and parotid enlargement. His respiratory rate is 48/min (rapid). He has chest in-drawing, bronchial breath sounds, and coarse crepitations in both lung fields. Narku's child health records show he had all of his immunisations. His father says Narku was diagnosed with HIV during a hospital admission last year. The health care provider makes an appointment for him to come back in 2 weeks. Meanwhile, Nortey was also diagnosed with TB, so he is put on TB drugs. He is asked to come to the facility every morning for his drugs under the supervision of the health care provider. Nortey is asked to bring his household and close friends to be tested.

Part 3

Nortey is feeling a bit better, but has lost more weight. He weighs 47 kg. His cough and diarrhoea have disappeared, but he still has skin problems. At the ART clinic, Nortey is put on ART while taking his TB drugs. He is given an appointment to return to the ART clinic in 2 weeks, but before going home he is referred to the counsellor in the same clinic. His worry is that some friends told him that once he is on ART he will have to eat very well, but he does not know how he will buy enough good food. Drinking alcohol has always been part of his life.

Part 4

Narku is now 50 months old and has been brought to the clinic by his mother, Kande. She tells the health care provider that his weight has improved. His MUAC is now 11.2 cm. Narku still looks thin (his ribs can be seen), but he has no oedema on either foot. No blood has been seen in his stool, and he has not had a fever. He is on no medications. He looks pale, and there is a prolonged skin pinch, although his eyes are not sunken any more. He is not thirsty. His respiratory rate is 38/min (slightly fast). He has generalised lymphadenopathy, finger clubbing, and parotid enlargement. There is no in-drawing or bronchial breath

sounds, but coarse crepitations can be heard in both lung fields. Narku has had all of his immunisations.

Part 5

Kande is HIV-positive and 3 months pregnant. She tells the health care provider at the ART clinic that she has lost some weight in the past month. Her MUAC is 19.2 cm. She has had diarrhoea for 2 weeks.

Part 6

Kande brings Narku back to the ART clinic on the agreed date (1 month after his second visit). The child looks better, and his mother is happier. It has been 3 months since he was discharged from inpatient treatment for SAM. His MUAC is now 12.0 cm. Kande reports no diarrhoea or other illnesses and says Narku's weight did not change the last two times he was weighed. Five months ago Narku started on first-line ARVs, which his mother has been collecting every month. The ART site team counselled his mother on treatment and adherence. The results of the sputum test were negative for TB.

Part 7

It is now 7 months since Narku first arrived at the ART clinic. He is now doing very well. Kande has been coming for 2 months to collect Narku's Fortified-Blended Flour (FBF). Today she is collecting the last ration. Narku also looks well. He has gained 1.5 kg and his MUAC is 12.9 cm. He had diarrhoea last week, which was treated at home. He has few complaints except for side effects of the ARVs, which sometimes make him lose his appetite. He seems to be adhering to the medication. Kande is now 8 months pregnant and doing very well. Her MUAC today is 21.5 cm. She says her appetite is good and she does not have any complications.

Session 2.6 Nutrition Care Plans for PLHIV and/or TB Clients

1. Nutrition Care Plan for Children with SAM

Table 2.9 Admission Criteria for Infants and Children up to 17 Years with SAM

Management Approach	INPATIENT CARE SAM with medical complications	OUTPATIENT CARE SAM without medical complications
Admission Criteria		
Anthropometric and Clinical Measures	<p><u>Children 6 months to 17 years:</u> Bilateral pitting oedema (+++) or Any grade of bilateral pitting oedema with severe wasting indicated by MUAC: 6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm 15–17 years: < 17.5 cm</p> <p>or SAM with medical complications</p> <p><u>Infants < 6 months or children weighing < 4 kg:</u> Bilateral pitting oedema or Visible wasting</p>	<p><u>Children 6 months to 17 years:</u> Bilateral pitting oedema (++) or (+) or Severe wasting indicated by MUAC: 6–59 months: < 11.5 cm 5–9 years: < 13.5 cm 10–14 years: < 16.0 cm 15–17 years: < 17.5 cm</p>
Appetite Test	Failed	Passed
Clinical Status	<p>SAM with any of the following medical complications: Anorexia, poor appetite Intractable vomiting Convulsions Lethargy, not alert Unconsciousness Hypoglycaemia High fever (> 38.5° C axillary) Hypothermia (< 35° C axillary) Severe dehydration Lower respiratory tract infection Severe anaemia Eye signs of vitamin A deficiency Skin lesion (dermatosis)</p>	Clinically well and alert
Caregiver Choice	Caregiver willing	Caregiver willing

1.1 Inpatient Care Management of Children with SAM

For admission criteria for SAM in infants and children up to 17 years, refer to **Table 2.9 Admission Criteria for Infants and Children up to 17 Years with SAM** in Inpatient Care.

Important considerations:

- If the child is **on ART and losing weight**, refer as needed for: non-adherence, drug-related side effects (e.g., vomiting, abdominal pain, diarrhoea, poor appetite, taste changes), OIs (e.g., diarrhoea, TB), immune reconstitution syndrome, late ART-related side effects (lactic acidosis signs, such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART > 6 months (check CD4), and lipodystrophy.
- Encourage the mother to continue breastfeeding a child still on the breast, between and before every meal and on demand in accordance with national breastfeeding guidelines.

The medical treatment and nutritional rehabilitation for inpatient care follows the Ghana Health Service Training Course on Inpatient Care Management of Severe Acute Malnutrition. A separate 6-day training course is organised for clinicians, nurses, nutritionists, and dieticians managing SAM with complications in inpatient care. Also see the Ghana Health Service Interim National Guidelines for Community Management of Acute Malnutrition in Ghana.

Management of a child with SAM is divided into three phases.

- **Initial treatment (stabilisation).** Life-threatening problems are identified and treated in a hospital or residential care facility, specific deficiencies are corrected, metabolic abnormalities are reversed, and feeding is begun.
- **Transition.** This prepares the child for outpatient care and can last up to 3 days. RUTF is gradually introduced in this phase.
- **Rehabilitation and follow-up.** Intensive feeding is given to recover most of the lost weight, emotional and physical stimulation are increased, and, in most cases, rehabilitation will take place in outpatient care using RUTF. During rehabilitation in outpatient care, the mother and child are followed up to prevent relapse and to ensure the continued physical, mental, and emotional development of the child.

The following steps are essential for successful management of a child with SAM. Details on management are covered in the *Training Course on Inpatient Care Management of SAM*.

- 1–2. Treat/prevent hypothermia and hypoglycaemia (which are often related) by feeding, keeping warm, and treating infection.
3. Treat/prevent dehydration using Rehydration Solution for Malnutrition (ReSoMal).
4. Correct electrolyte imbalance (by giving food and ReSoMal prepared with Combined Mineral and Vitamin Mix [CMV]).
5. Presume and treat infection with antibiotics.
6. Correct micronutrient deficiencies (by giving food prepared with CMV; if CMV is not available, by giving mineral mix, and by giving extra vitamins and folic acid as needed).
7. Start cautious feeding with F-75 to stabilise the child (usually for 2–7 days).
8. Rebuild wasted tissues through higher protein and calorie foods (RUTF or F-100).

9. Provide stimulation, play, and loving care.
10. Prepare mothers for referral and follow-up in outpatient care to continue treatment (or proper feeding and stimulation after discharge if full recovery is attained in inpatient care).

Table 2.10 Overview of Management of Children with SAM (10 steps according to the WHO's 1999 Protocol for the Management of SAM)

Steps	Stabilisation Phase		Rehabilitation Phase
	Days 1–2	Days 2–7	Weeks 2–6
1. Hypoglycaemia	→		
2. Hypothermia	→		
3. Dehydration	→		
4. Electrolytes			→
5. Infections		→	
6. Micronutrients	Without iron		With iron →
7. Cautious feeding		→	
8. Catch-up growth			→
9. Sensory stimulation			→
10. Prepare for follow-up			→

Source: WHO. 1999. *Management of severe malnutrition: A manual for physicians and other senior health workers.*

Discharge from Inpatient Care to Outpatient Care Management of SAM without Complications WHEN:

- Appetite has returned (child has passed appetite test)
- Medical complications are resolving
- Severe bilateral pitting oedema is decreasing (from +++ to ++ or + or none)
- Clinically well and alert
- If admitted due to bilateral pitting oedema and severe wasting (marasmic kwashiorkor), additional criteria for referral if bilateral pitting oedema is resolved
- The child can access outpatient care services and the caretaker is willing and able to come back for weekly or biweekly follow-up visits and RUTF is available

1.2 Outpatient Care for Management of SAM without Complications

Refer to **Table 2.9 Admission Criteria for Infants and Children up to 17 Years with SAM** in Outpatient Care.

Manage a child in outpatient care if he/she has SAM and:

- Passed the appetite test
- Has no medical complications
- Is clinically well and alert

First Visit (upon admission) in Outpatient Care

Welcome the child and caregiver and provide initial care:

- Triage and check critically ill children first.
- Provide sugar-water to all children awaiting screening or examination to avoid hypoglycaemia. Sugar-water solution should contain approximately 10% sugar solution, or 10 g of sugar per 100 ml of water.

Assess nutritional status:

- Check for bilateral pitting oedema and take MUAC. Use admission criteria (see **Table 2.9 Admission Criteria for Infants and Children up to 17 Years with SAM**) to guide decision making for management in inpatient care or outpatient care.
- Indicate the target weight for discharge at 15% weight gain.
- Register the child and record measurements on a treatment card.

Conduct medical assessment:

- Take the child's medical history, conduct a physical examination, determine if the child has a minor health problem or a medical complication, and record findings on the treatment card.
- Fast-track children with SAM and medical complications in need of inpatient care and start treatment (no need for appetite test; administer first dose of antibiotic).
- Test the appetite (see **Session 2.2 on How to Conduct an RUTF Appetite Test**). The appetite test is a critical criterion for deciding whether a child with SAM and without medical complications is treated in outpatient care or inpatient care.
- Decide whether to treat the child with SAM in outpatient care, as outlined in the following steps, or refer him/her to inpatient care (following the inpatient management care described previously).

Provide medical and nutritional care:

- Provide treatment for underlying infections and decide if treatment for additional health conditions is needed. All children with SAM should receive routine medication as indicated in the next set of bullets.
- Provide a weekly or biweekly amount of RUTF, based on a daily ration of 200 kcal of RUTF per kg of body weight. See **Annex 2. RUTF Look-Up Tables and Key Messages for Outpatient Care**.

- Counsel the caregiver on key messages for treatment, the intake of antibiotics and RUTF, and care practices, and ask her/him to return to the health facility for monitoring sessions or whenever a problem arises.
- Link the caregiver with the community health worker and/or volunteer.
- Counsel the caregiver on HIV testing and refer the caregiver for HIV testing (if HIV status of the child is unknown) and ART assessment.

Routine medicines in outpatient care:

- Routine medicines are given to all children admitted to outpatient care whether or not they show symptoms, because ill children with SAM might have suppressed immune systems and not show symptoms until they begin to recover from SAM.
- Treatment is based on the Interim National Guidelines for Community-Based Management of Acute Malnutrition (CMAM) in Ghana.
- The recommended first-line antibiotic is **amoxicillin for TB clients** and **co-trimoxazole for HIV-infected and -exposed children with SAM**. The child's mother/caregiver gives the first dose of amoxicillin or co-trimoxazole at admission to outpatient care, under the guidance of the health care provider. The health care provider should clearly explain how to continue treatment of antibiotics at home and should ask the mother/caregiver to repeat the instructions to make sure they were understood.
- **Deworming.** Mebendazole (or albendazole) is provided as a single dose at the second visit to children 24 months and older. This ensures that the child does not take too many medications on the first day and increases the effectiveness of the medications by reducing the likelihood of vomiting. By the second session, the antibiotics will have taken effect and absorption of the deworming medication will be higher.
- **Iron and folic acid are not given routinely.** RUTF contains iron and folic acid. If anaemia is identified, it should be treated according to Integrated Management of Neonatal and Child Illness guidelines, and treatment should begin after 14 days of management of SAM. Cases of severe anaemia should be referred to inpatient care. Malaria testing and treatment should be done before the iron and folic acid treatment is given.
- In areas where malaria is endemic, malaria testing and/or treatment should be given to all children on admission. Rapid malaria tests (e.g., Paracheck) are conducted systematically in malaria-endemic areas to verify the presence of malaria. In the absence of malaria tests, routine anti-malaria treatment is given. **Note:** Artemisinin-based combination therapy is provided only to confirmed cases.
- The child's vaccination status is checked upon admission. If the child has not been vaccinated for measles, the vaccination is given to the child on the fourth session. If the child's vaccinations are incomplete, arrangements should be made to complete them, and the vaccination status is recorded on the outpatient care treatment card and the child health record.

Follow-On Management

Individual monitoring of children with SAM should be carried out by the health care provider upon weekly (or biweekly) return visits to the health facility or outreach point. The following parameters are monitored and recorded on the treatment card during the follow-up visit.

Anthropometry:

- MUAC repeated
- Weight repeated (children that lose weight on two consecutive visits or are treated in outpatient care for 3 weeks with no weight gain or with weight fluctuating between small weight gains and losses should receive special attention during the medical examination)

History and physical examination:

- Degree of bilateral pitting oedema (0, +, ++, +++)
- Body temperature
- Standard clinical signs: stool, vomiting, dehydration, cough, respiration rate
- Appetite test
- Any illness suffered by the child since the last visit
- Any action taken or medication given in response to a health condition

Follow-up action:

- Follow-up action for home visit or referral for medical investigation
- Tracing of absentees and defaulters

At each follow-up visit, the caregiver should be informed of the child's progress, and individual and/or group counselling is provided on health and education messages on hygiene and sanitation, breastfeeding, and appropriate complementary foods following the Essential Nutrition Actions.

If the child is on ART and losing weight, refer as needed for non-ART adherence, drug-related side effects (e.g., vomiting, abdominal pain, diarrhoea, poor appetite, taste changes), OIs (e.g., diarrhoea, TB), immune reconstitution syndrome, late ART-related side effects (late acidosis signs, such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART for less than 6 months (check CD4), and lipodystrophy.

Refer the child for further assessment if medical and nutrition condition deteriorates, including:

- No appetite (appetite test failed)
- Danger signs develop (see **Table 2.11 Outpatient Care Action Protocol for Children < 60 Months with SAM**)
- Increased or newly developed bilateral pitting oedema
- Weight loss for 3 consecutive weeks
- Static weight (no weight gain) for 5 consecutive weeks
- Signs of failure to respond to treatment

Recommended criteria for discharge from outpatient care:

- The child has attained 15% weight gain or more for 2 consecutive weeks
- No bilateral pitting oedema for 2 consecutive weeks
- Clinically well and alert

Additional recommendations:

- Nutrition and health education scheme completed
- Appropriate weaning of RUTF
- Immunisation schedule updated
- Adequate arrangements for linking caregiver and child with appropriate community initiatives (e.g., supplementary feeding programme, community welfare centres, community-based growth promotion) and for follow-up

Table 2.11 Outpatient Care Action Protocol for Children < 60 Months with SAM

Sign	Referral to Inpatient Care	Follow-Up Home Visit
Bilateral pitting oedema	Grade +++	Bilateral pitting oedema not reducing by week 3
	Marasmic kwashiorkor	
	Increase in, or development of, bilateral pitting oedema	
Appetite/ anorexia	No appetite or unable to eat; failed appetite test	Eats < 75% of the RUTF a week by third visit
Vomiting	Intractable vomiting	General medical deterioration
Convulsions	Ask mother if the child had convulsions during/since the previous week	
Lethargy, not alert	Child has difficulty staying awake	
Unconsciousness	Child does not respond to painful stimuli	
Temperature	Axillary temperature $\geq 38.5^{\circ}\text{C}$ Rectal temperature $\geq 39^{\circ}\text{C}$	
Respiration rate	Axillary temperature $< 35^{\circ}\text{C}$ Rectal temperature $< 35.5^{\circ}\text{C}$	
	≥ 60 respirations/minute for under 2 months	
	≥ 50 respirations/minute from 2 to 12 months	
	≥ 40 respirations/minute from 1 year to 5 years	
	≥ 30 respirations/minute for over 5 years	
	Any chest in-drawing	
Anaemia	Very pale (severe palm pallor), difficulty breathing	
Skin lesion	Broken skin, fissures, flaking of skin	
Superficial infection	Extensive infection requiring intramuscular treatment	
Alertness	Very weak, apathetic, unconscious	
	Fitting/convulsions	

Sign	Referral to Inpatient Care	Follow-Up Home Visit
Dehydration	Severe dehydration based primarily on recent history of diarrhoea, vomiting, fever, or sweating and on recent appearance of clinical signs of dehydration as reported by the mother/caregiver	
Weight changes	Below admission weight on week 3	
	Weight loss for 3 consecutive weighings	Weight loss for 2 consecutive weeks
	Static weight for 5 consecutive weighings	Static weight for 3 consecutive weeks
General	Mother/caregiver requests inpatient care	Returned from inpatient care (first 2 weeks after return)
		Refused referral to inpatient care
Not responding	Child that is not responding to treatment is referred to inpatient care or hospital for further medical investigation.	

2. Nutrition Care Plan for Adults with SAM

INPATIENT Management of Adults with SAM and Complications OR No Appetite

- If a SAM client has medical complications (including bilateral pitting oedema +++), refer to inpatient care.
- Treat client for infections or medical complications (e.g., hypoglycaemia, severe dehydration, severe anaemia, oedema, pneumonia, active TB, chronic diarrhoea, fever, nausea, vomiting) as per national and WHO guidelines.
- Provide routine SAM medication (wide-spectrum antibiotics such as co-trimoxazole, folic acid if client shows signs of iron deficiency anaemia, and anti-malarial drugs).
- Control hypothermia and severe dehydration (using ReSoMal), pneumonia, active TB, chronic diarrhoea, fever, nausea, and vomiting as per national guidelines.
- If adult has no appetite use F-75 and/or F-100 therapeutic milks.
- Gradually introduce RUTF (in small amounts until client can eat 3–4 sachets/day) and enough FBF to provide 2,850 kcal/day as tolerated, plus hospital diet.
- Ensure client is on **co-trimoxazole** prophylaxis following the national protocol for HIV-positive clients OR is taking **ARVs** as prescribed.
- Upon discharge, provide 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (42 sachets of RUTF and 4,500 g of FBF). If FBF is not available, encourage the client to add on nutritious home diets. For pregnant and post-partum women, give 42 sachets (3 per day) of RUTF and enough FBF to provide 2,850 kcal/day (check how many kcal/100 g the FBF provides) for 2 weeks.
- Review after 2 weeks.

OUTPATIENT Management of Adults with SAM and HIV and/or TB

- Treat all medical complications following national and WHO guidelines.
- Conduct an appetite test by offering 1 sachet of RUTF. The client should eat at least half of the sachet. If the client has no appetite, try giving smaller amounts of food more frequently or sip feeding. If this is not successful, admit the client for INPATIENT management of SAM.
- If the client has an appetite, is willing to manage malnutrition at home, and has someone at home to support food preparation, provide 3 sachets of RUTF (to provide 1,500 kcal/day) and 300 g/day of FBF to last 2 weeks.
- Explain that the foods are meant only to treat the client's poor nutritional condition and will be provided for a limited time until the client's nutritional status improves.
- Explain how to prepare and use the specialised foods. Encourage the client to eat home foods after finishing the daily ration of RUTF.
- Counsel the client on 1) periodic weight monitoring, 2) increasing energy density of the home diet, 3) managing HIV-related symptoms through diet, 4) possible medicine-food interactions, 5) maintaining good sanitation and hygiene, especially safe drinking water, and 6) exercise to strengthen muscles and improve appetite.
- Make an appointment for review after 2 weeks.
- If client is not on ART or DOTS, refer for ART assessment/to DOTS corner.

- Provide 42 sachets (3 per day) of RUTF and 4,500 g of FBF to last for 2 weeks. Monitor adherence to RUTF and FBF and any side effects associated with the foods (e.g., rash, diarrhoea, vomiting). Review acceptability of the specialised foods on each visit.
- Give ferrous sulphate tablets, usually after one month, **only** if the client has clinical signs of anaemia (pallor, fatigue, lower blood haemoglobin) and the anaemia continues after treatment on RUTF. **Note that RUTF contains ferrous sulphate; therefore, it may not be necessary to provide additional supplements.**
- Give **co-trimoxazole prophylaxis** following the national protocol.
- If the client is managed at home, weigh every 2 weeks to monitor weight gain.
- Transition the client to the Nutrition Care Plan for MAM when BMI ≥ 16 OR MUAC > 21 cm AND appetite returns AND the client has some mobility AND the client can eat home foods.
- Refer the client to a medical or clinical officer immediately if the client is not gaining weight OR has lost weight for more than 2 months OR has worsening oedema.

Exercise 5. Nutrition Care Plan for SAM

1. What nutrition and health criteria should be used to recruit clients into the Nutrition Care Plan for SAM?

2. What are the eligibility criteria for specialised foods under the Nutrition Care Plan for SAM?

3. What specialised foods are given to clients in the Nutrition Care Plan for SAM?

4. What quantities of specialised foods should be given to the following?

Child 3 years of age with SAM who weighs 7.1 kg and has no medical complications

Child 6 years of age with SAM

Woman 7 months pregnant

Non-pregnant/post-partum woman 38 years of age with fever and TB

5. What key messages should be given to each group?

Caregiver of child 3 years of age with SAM and medical complications

Caregiver of child 6 years of age with SAM without medical complications

Woman 7 months pregnant

Non-pregnant/post-partum woman 38 years of age with fever and TB

6. What other interventions/services are given to clients with SAM?

7. How often should clients with SAM be followed up?

3. Nutrition Care Plan for Children with MAM

Clinical Care of a Child with MAM

- Take a medical history and do a physical examination. Check for treatable conditions and/or refer the child for treatment or inpatient care when indicated.
- Counsel caregiver on HIV testing and refer for testing (if the child's status is unknown) and ART assessment.
- If the child is on ART and losing weight, refer as needed for non-ART adherence, drug-related side effects (e.g., vomiting, abdominal pain, diarrhoea, poor appetite, taste changes), OIs (e.g., diarrhoea), immune reconstitution syndrome, late ART-related side effects (late acidosis signs such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART for less than 6 months (check CD4), and lipodystrophy.
- If the child is on TB treatment and losing weight, refer as needed for anti-TB adherence, possible side effects, or drug-resistant TB if smear is still positive after 2 months of treatment.
- De-worm the child with Albendazole (400 mg for children under 24 months of age) if not done in the past 6 months, and repeat every 6 months.
- If the child has not had vitamin A in the past 6 months, give 50,000 IU if the child is under 6 months of age, 100,000 IU if the child is 6–11 months of age, or 200,000 IU if the child is over 12 months of age.
- Assess for anaemia (palm pallor) and refer cases of severe anaemia for treatment as per Integrated Management of Neonatal and Child Illness (IMNCI) guidelines.
- If the child is HIV-positive or TB-HIV co-infected and not on ART/anti-TB therapy, give co-trimoxazole prophylaxis following the national protocol.
- If the child has only TB, refer to DOTS Corner for treatment.
- Complete immunisations if necessary (especially for measles).

Nutrition Care for a Child with MAM

- Assess adequacy and quantity of the child's food intake (i.e., is the child eating enough food given his/her age, is the diet varied/diverse, and is the diet enriched to increase energy, for example, with sugar, oil, or germination?) and food access, and counsel caregiver appropriately.
- Counsel caregiver on how to improve the child's diet from household food and to give the child 20%–30% more energy to his/her daily requirements or intake for a healthy child of the same age (see Table 2.12).

Table 2.12 Household Food to Improve the Child’s Diet

Age	ADDITIONAL energy needed	Examples of foods to give IN ADDITION to meals appropriate for the child’s age
6–11 months	120–150 kcal/day	2 tsp. margarine or oil and 1–2 tsp. sugar added to porridge 3 times a day
12–23 months	160–190 kcal/day	250 ml milk OR 1 coffee cup of maize porridge (e.g., <i>koko</i>) OR 1 slice of bread with peanut paste
2–5 years	200–280 kcal/day	250 ml milk OR 1½ coffee cups of maize porridge (<i>koko</i>) OR 1 slice of bread with peanut paste
6–9 years	260–380 kcal/day	500 ml milk OR 2 coffee cups of maize porridge (<i>koko</i>) OR ½ child’s handful of groundnuts or other nuts OR 1 slice of bread with peanut paste
10–17 years	380–600 kcal/day	1-2 stew ladles of mpotompoto with dried fish and spinach OR 2-3 stew ladles of porridge with fish powder or groundnuts OR 1 fist size sorghum, rice, maize, and millet + 1-2 stew ladles of nkontomire stew, okro stew, boiled kidney beans, etc.).

- Explain to the caregiver that the child needs food supplements to correct his/her poor nutrition condition and will receive the food for 3 months only.
- Provide FBF rations of 100–200 g/day to last for 2 weeks, according to Table 2.13. Demonstrate to the caregiver how to use the FBF at home.

Table 2.13 FBF Ration Table

Age	g of FBF/day	g of FBF/month
6–59 months	150	4,500
6–9 years	150	4,500
10–17 years	300	9,000

- Explain to the caregiver how to prepare/use the food supplements at home; manage HIV-related symptoms through diet; manage medicine-food interactions; maintain good sanitation and hygiene, especially safe drinking water; modify the home diet to make it easy to eat and more nutritious; and how to continue feeding a sick child.
- If the child is NOT given FBF, give a daily multiple micronutrient supplement that provides about 1 RDA of a wide range of vitamins and minerals.
- Counsel the caregiver not to share the food with other household members; to finish all the food provided for a day within that day; to continue to give the child medicines as advised by the health care provider; to continue to breastfeed if the child is breastfeeding, even when on FBF; to continue to feed the child the household diet in three meals a day plus snacks and to give the FBF as a snack; to cover the food and keep it away from animals; to get the child weighed every month; to improve the diversity and energy density of the home diet; to give favourite foods; and to feed small meals more than five times a day.
- Make an appointment for review after 1 month to monitor changes in appetite, eating patterns, and weight.

- Refer the child for assessment if there is no weight gain for 3 or more months OR if there is continued weight loss for 2 or more months.

Transition to the Nutrition Care Plan for Children with Normal Nutritional Status when the child:

- Has been in the programme for 3 months
and
- Has reached the following MUAC for two consecutive measurements:
Children 6–59 months ≥ 12.5 cm
Children 5–9 years ≥ 14.5 cm
Children 10–14 years ≥ 18.5 cm
Adolescent 15–17 years ≥ 19.5 cm
and
- Has gained 10% of weight
and
- Has no clinical signs of symptomatic disease
and
- Is clinically well and alert

4. Nutrition Care Plan for Adults with MAM

Clinical Care for Adults with MAM

- Assess the client for medical conditions and refer for treatment or inpatient care when indicated.
- If the client is NOT on ART, start co-trimoxazole prophylaxis following national protocol and refer for ART assessment.
- If the client is on ART and losing weight, refer for assessment (or assess) for ART adherence, drug-related side effects, OIs, immune reconstitution syndrome, late ART-related side effects (lactic acidosis signs, such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART less than 6 months (check CD4), and lipodystrophy.
- If the client is on TB treatment and losing weight, refer for assessment for anti-TB adherence, possible side effects, or drug-resistant TB if smear still positive after 2 months of treatment.
- Assess the client for anaemia. If anaemic, make sure he/she receives iron supplementation according to national guidelines on anaemia.

Nutrition Care for Adults with MAM

- Assess food intake and food access and provide nutrition counselling and referral to social services if appropriate.
- Counsel the client to consume 20%–30% more energy from home foods, based on current weight (see Table 2.14).

Table 2.14 Ways to Meet Additional 20%–30% Energy Needs of Symptomatic PLHIV

	Food equivalent to meet 20%–30% extra energy (snacks in addition to meals)
Adults	<ul style="list-style-type: none"> • 2 cups (500 ml) of porridge
Pregnant and post-partum women	<ul style="list-style-type: none"> • 4 medium sweet potatoes • 5 medium bananas • 2 stew ladles of boiled pumpkin/mpotopotom • 1 stew ladle of meat sauce • 2 stew ladles of vegetable sauce

- Counsel the client to improve the household diet by eating more food more often, including snacks between meals; adding groundnut paste, sugar, eggs, or milk to enrich food; and adding spices or lemon juice to improve the flavour of food.
- Provide 300 g of FBF per day for 1 month (or until the next visit to collect medication). If the client is pregnant, provide 300 of FBF per day for the duration of the pregnancy and until 6 months post-partum.
- Give the client a daily micronutrient supplement that provides 1 RDA of a wide range of vitamins and minerals, unless FBF provides sufficient micronutrients.
- Counsel on 1) the need for periodic weighing; 2) ways to increase energy density of the diet at home; 3) ways to manage HIV-related symptoms through diet; 4) possible

medicine-food interactions; 5) ways to maintain good sanitation and hygiene, especially safe drinking water; and 6) the need for exercise to strengthen muscles and improve appetite.

- Counsel the client to eat the food as an additional snack, not to replace normal meals; to eat the food her/himself and not share it with other household members; to keep the food safe by covering it and keeping it away from animals; to finish all the food provided for a day within the day; to eat three meals and two snacks every day; to increase the energy density of the home diet by adding groundnut paste, sugar, eggs, or milk; to continue taking medicines as advised by the health care provider; and to get weighed monthly.
- Make an appointment for review after 1 month (or until the next visit to collect medication). Follow up with the client every month and monitor changes in eating patterns and weight on each visit.
- Refer the client for medical examination or nutrition assessment if the client has not gained weight for 4 months.

Transition to the Nutrition Care Plan for Adults with Normal Nutritional Status when the client:

- Has BMI of ≥ 18.5 and < 24.9 on 2 consecutive weighings (or MUAC ≥ 23 cm if pregnant/post-partum)
and
- Has steady weight gain.

Exercise 6. Nutrition Care Plan for MAM

1. What eligibility criteria qualify children and adults for the Nutrition Care Plan for MAM?

2. What specialised foods are given to clients in the Nutrition Care Plan for MAM?

3. What quantities of specialised foods do you give to the following under the Nutrition Care Plan for MAM?

Childe 3 years of age

Childe 6 years of age

Woman 7 months pregnant

Non-pregnant/post-partum woman 38 years

4. What key messages should be given to moderately malnourished adults living with HIV and/or TB?

5. How often should clients with MAM be followed up on?

5. Nutrition Care Plan for Children with Normal Nutritional Status

- If the child was born to an HIV-positive mother, refer for testing if status is not known.
- If the child is HIV-positive, ask whether the child is on any treatment, including ART or TB medication. If the child is on ART, determine whether she or he is adhering to treatment and managing diet-related symptoms well. If not, counsel the caregiver as needed.
- Check the mother's health (and need for ART) and care of other children.
- If the child is HIV-positive but not on ART, ensure she or he receives co-trimoxazole prophylaxis following the HIV paediatric treatment protocol.
- Counsel the caregiver to feed the child enough food to meet the 10% increase in energy and micronutrient needs caused by HIV, in small meals throughout the day (see Table 2.15).

Table 2.15 Increase an Asymptomatic HIV-Positive Child's Energy Intake by 10%

Age	Regular meals and snacks		Additional food to provide 10% more energy
6–11 months	Continue to breastfeed (or replacement feed if acceptable, feasible, affordable, safe, and sustainable [AFASS] criteria are met)	<p>6 months: Breast milk (or other milk if AFASS) plus soft porridge or well-mashed food 2 times per day</p> <p>7–8 months: Breast milk (or other milk if AFASS) plus at least 2/3 cup (250 ml) of mashed food 3 times per day</p> <p>9–11 months: Breast milk (or other milk if AFASS) plus finely chopped or mashed food 3 times per day plus 1 snack</p>	<ul style="list-style-type: none"> • 250 ml porridge or snack per day • 2 tsp. margarine or oil/1–2 tsp. sugar added to porridge to increase energy density
12–23 months	Continue to breastfeed (or replacement feed if AFASS criteria are met)	3 meals (at least 1 full cup) of chopped or mashed family foods plus 2 snacks per day	<ul style="list-style-type: none"> • 250 ml porridge or snack per day • 2 tsp. margarine or oil/1–2 tsp. sugar added to porridge to increase energy density
2–5 years	3 meals plus 2 snacks per day		<ul style="list-style-type: none"> • 250 ml porridge or snack a day • 250 ml full cream milk
6–9 years	3 meals plus 2 snacks per day		<ul style="list-style-type: none"> • 500 ml of porridge or snack a day • 500 ml of full cream milk • 1 mashed average-size sweet potato
10–17 years	3 meals plus 2 snacks per day		<ul style="list-style-type: none"> • 500 ml of porridge or snack a day • 500 ml of full cream milk

- Counsel the caregiver to feed the child a variety of foods from all the food groups and take the child for monthly weighing. Continue normal maternal and child health

follow-up (including immunisations, deworming, and micronutrient supplementation); increase the energy density of the home diet; manage HIV-related symptoms and medicine-related side effects through diet; maintain good sanitation and hygiene, especially safe drinking water; manage child's diarrhoea at home following the national protocol; and seek prompt treatment of illnesses.

- Counsel the caregiver on continued breastfeeding or replacement feeding and on complementary feeding according to the national guidelines and age of the child.
- Advise the caregiver that children with HIV need approximately 10% additional food (energy) in addition to meals and snacks appropriate for the child's age. An additional mug of porridge (or a snack) a day will provide 10% additional energy.
- If the child is symptomatic and losing weight, counsel the caregiver to feed the child enough to provide 50%–100% additional energy (60–200 kcal/day), depending on the child's age (e.g., 1 cup of milk, 1 mug of porridge with groundnut paste or eggs **in addition to** regular meals and snacks), and most essential micronutrients in small meals rich in fruits and vegetables distributed throughout the day.
- If the child has not received vitamin A within the past 6 months, give supplements every 6 months (50,000 IU for children under 6 months of age, 100,000 IU for children 6 to 11 months of age, and 200,000 IU for children 1 to 5 years of age).
- De-worm the child with Albendazole (oral; 200 mg for children 12–23 months and 400 mg for children over 24 months) or Mebendazole (oral; 500 mg for children over 24 months) if not done in the past 6 months, and repeat every 6 months thereafter.
- Make sure the child has received all immunisations following national protocols.
- Review the child's progress every month. Tell the caregiver to return earlier if problems arise.

6. Nutrition Care Plan for Adults with Normal Nutritional Status

- If the client is on ART or TB, determine whether she or he is adhering to treatment and managing diet-related symptoms well. If not, counsel the client as needed.
- If the client is HIV-positive but not on ART, give co-trimoxazole prophylaxis following the national protocol for HIV-positive clients with CD4 < 350 or at WHO stage 3 or 4 regardless of CD4 level. If the client has TB and is not on TB treatment, refer the client to DOTS Corner for treatment.
- Counsel the client to eat enough food to meet the 10% increase in energy needs caused by HIV. This energy intake should be in addition to adequate intake of a balanced diet (see Table 2.16).

Table 2.16 Increase an Asymptomatic HIV-Positive Adult’s Energy Intake by 10%

	Regular meals and snacks	Snacks that provide 10% <u>extra</u> energy
Adults	3 meals a day plus 2 snacks (enough food to ensure adequate intake of energy and nutrients)	Snacks: <ul style="list-style-type: none"> • 1 cup (250 ml) of porridge • 2 medium sweet potatoes
Pregnant and post-partum women	3 meals a day plus 3 snacks (enough food to ensure adequate intake of energy and nutrients)	<ul style="list-style-type: none"> • 2 medium bananas • 1 stew ladle of boiled pumpkin/mpotopotom • 1 stew of meat sauce • 1 stew ladle of vegetable sauce • 2 eggs

- Counsel the client to eat a variety of foods, including more fruits and vegetables. If this is not possible, give the client a daily multiple micronutrient supplement that provides not more than 1 RDA of a wide range of vitamins and minerals.
- Advise the client and caregiver of the need for periodic weighing.
- Counsel on the Critical Nutrition Actions.
- Link the client to programmes that provide food security or livelihood support.
- Review the client’s progress in 3 months (or earlier if problems arise).

Exercise 7. Nutrition Care Plan for Normal Nutritional Status

1. How much food does a healthy adult need in a day?

2. How much food gives 10% extra energy

3. What snack can provide 10% additional energy for an asymptomatic HIV-positive or TB-infected adult?

4. How many snacks a day should an HIV-positive or TB-infected pregnant or post-partum woman eat?

5. What can a caregiver add to porridge to increase a child's energy intake by 10%?

Module 2 Key Points

- Nutritional assessment is a crucial step in the nutritional management of an individual.
- Nutritional assessment comprises a number of components often summarized as 'ABCD' including Anthropometry (Physical), Biochemical, Clinical, and Dietary intake.
- The outcome of the nutritional assessment determines the most appropriate nutrition care plan for the individual infant, child, or adult.
- Severe Acute Malnutrition (SAM) is managed in a clinic setting if the patient has other complications and in the community if there are no other complications.
- There are three phases in the management of inpatient SAM. The phases include initiation or stabilisation, transition, and rehabilitation or follow-up. Management of this form of malnutrition requires a 10 step process to prevent life threatening complications.
- On-going follow-up for people with both SAM and MAM is critical to promote optimal treatment outcomes.

Bingo Sheet for Review of Module 2

Fortified-Blended Food (FBF)	Mid-Upper Arm Circumference (MUAC)	Normal
Severe Acute Malnutrition (SAM)	Bilateral pitting oedema and wasting	SAM with medical complications and no appetite
Strong appetite and loss of fat on the buttocks and thighs	Stabilisation	< 11.5 cm

Module 3. Nutrition Education, Counselling, and Referral

Learning Objectives

By the end of this module, participants should be able to:

1. Define *counselling* and list the skills needed for effective counselling
2. List key considerations for planning a counselling session
3. Counsel on the Critical Nutrition Actions for PLHIV using the GATHER approach
4. Discuss nutrition education and counselling messages for PLHIV and TB clients
5. Arrange proactive linkage of clients to related services within facilities and communities

Session 3.1 Conducting a Nutrition Counselling Session

Before you can conduct a nutrition counselling session, it is important to understand what nutrition counselling is and what it is not. **Nutrition counselling** is not, as is commonly assumed, just advice, guidance, or education. It is an interaction in which a counsellor offers another person the time, attention, information, and respect that is necessary to help him/her use the information to make a choice or solve a problem in nutrition.

- **Counselling is not giving advice.** Advice is mainly a one-way exchange, giving an opinion.
- **Counsellors do not make judgements or recommendations or promote their own opinions** to potentially create a persuasive quality to the exchange. Clients come from different religious and socio-cultural backgrounds and counsellors should not impose their values on clients. A counsellor does not use counselling as a forum for his or her own purposes.
- **Counselling is not guidance.** Guidance is also mainly a one-way exchange that attempts to show the way, educate, influence, or instruct with an encouraging quality to the exchange. In the counselling process, the counsellor avoids taking on the client's problem or telling the client how to solve the problem or what decision or action to take. However, guidance may be a feature of the counselling interaction at any given time.
- **Counselling is also not education.** Health education is mainly a one-way communication that is not usually personalised or confidential; it is designed in accordance with public health needs and provides basic information. Although education can be an important part of counselling, the information provided is appropriate and tailored to the individual client's need.
- **Counselling is not conversation.** It is not just people exchanging information and opinions. The information shared informs decision making.
- **Counselling is not interrogating.** A client is not being questioned to find out the truth.

- **Counselling is not ‘information giving’.** A client does not come to a counsellor solely for information, although information may sometimes be given.

Skills that make counselling more effective:

- Establishing a rapport or building a relationship
- Using helpful non-verbal communication
- Showing empathy and respect
- Asking open-ended questions
- Making sure a client is engaged
- Listening actively
- Avoiding words that sound judgemental

Establishing a rapport or building a relationship. Rapport with clients is crucial in all counselling and is also a key element for facilitating the development of a trusting relationship. This is the skill that is used to welcome people, make them comfortable, or put them at ease. It enables a person to express needs freely because of the trust developed in the counsellor as someone who is willing to help.

- Provide an outline of the aim and process of the counselling session.
- One can put a person at ease with the use of verbal and non-verbal communication.

Using helpful non-verbal communication. Non-verbal communication includes using facial expressions, hands, posture, eyes, etc. to communicate a message. If a person is saying one thing but is sending a different message non-verbally, it is often a sign that what the person is saying is not entirely true. Non-verbal communication includes:

- Facial expression – smile and look friendly
- Eye contact – look the client in the face without staring
- Posture – be relaxed, lean toward the person to show acceptance and attentiveness
- Nodding – nod when you listen to the person to show you have heard what he or she is saying
- Tone of voice – avoid a monotone and a low voice that is difficult to hear or a shrill aggressive tone
- Touch – be willing to touch the client to examine him or her or to reassure and show concern when appropriate

Showing empathy and respect. It is helpful for a counsellor to respond in a way that shows that he or she understands a client’s expressed feelings. Empathy is different from sympathy, which has an ingredient of feeling sorry for the client. Empathise with a client’s good feelings as well as his or her bad feelings. Sometimes reflecting back what a client says may help show empathy. But if this is done too often during a session, it may sound like just mimicking what the client is saying.

Asking open-ended questions. Open-ended questions give clients an opportunity to express themselves freely and make it easier for you to identify their needs and priorities. Open-ended questions are useful in starting a dialogue, finding a direction, and/or exploring a

client's concerns. 'What do you usually eat in a day'? and 'What quantity of food do you usually have at a meal time'? are examples of open-ended questions.

Making sure a client is engaged. Reflect back what the client says. Ask the client what she or he has understood from the counselling session.

Active listening. Active listening is the key to motivating others to give feedback. Listening and feedback are both essential ingredients of good communication. The counsellor has to be a good listener to understand and communicate effectively. The following techniques are required for one to be an effective listener:

- **Pay attention.** Whether or not a counsellor is paying attention comes out clearly in his or her body language. The person counselling needs to keep eye contact and sit near the client. The following formula could help you remember what is required in the technique of paying attention.
 - Sitting posture:**
 - R** - Be relaxed
 - O** - Be open
 - L** - Lean forward towards the person
 - E** - Keep eye contact with the client
 - S** - Sit near the client
- **Remove distractions.** If something is distracting you, get rid of it. Turn off the TV, radio, or cell phone, and don't fiddle around with objects while counselling.
- **Concentrate.** Listening takes concentration; don't let your mind wonder off onto other things. Listen to what the person is saying and respond later after the person has stopped talking.
- **Look interested.** Maintain good eye contact without staring.
- **Hear more than the words.** Watch for non-verbal signs in the face, eyes, hands, and tone of voice. Look for feelings behind the words; often what we say at first is not what we feel.
- **Check that you are hearing right.** Often the message we hear is not the same as the message the other person thinks she or he is telling us. Do not say 'I see' or 'I understand' unless you are sure that you do. From time to time, repeat and summarise what you hear.
- **Use probing questions.** This shows you are listening and encourages the other person to keep talking and to consider useful goals toward solving his or her problem
- **Be patient.** Listening takes time and you need to be prepared to give it. If you don't have time at the moment, explain this to the person and offer to make time later. It often takes time for a person to get to what he or she really wants to talk about. You need to be prepared to go through the chit chat so that the person can ease into what is really on her or his mind.

Avoiding words that sound judgemental. Try not to judge people. Your role as a listener is to create an atmosphere that is open and safe, that will help the other person freely and honestly share his or her feelings.

Skills that build confidence and support the client

- Accepting what a client thinks and feels (without agreeing or disagreeing)
- Recognising and praising what a client is doing correctly
- Giving practical help
- Giving relevant information a little at a time
- Using simple language
- Making one or two suggestions and not giving commands
- Asking the client to provide feedback on suggestions and negotiate change based on the client's situation

Considerations for planning a counselling session

Before the counselling starts:

1. Make sure you have at least 15 minutes to spend with the client.
2. Choose a place where the client will be comfortable and there will be no intrusions.
3. Understand the content of the materials you will use with your client.
4. Have the following tools and materials handy:
 - Nutrition counselling materials
 - Functioning and accurate weighing scale
 - Accurate height (stadiometer)/length board
 - MUAC tape
 - BMI calculation charts for adults
 - Meal planning tools and job aids
 - Drug-food planning job aid
 - Guide to meal planning showing foods in different groups (local carbohydrates/starches [staples], fruits, vegetables, and protein foods)
 - Data collection forms
 - Tally sheet
 - Referral forms
 - Register or calendar to record the next appointment
5. Have notes on previous actions if this is a follow-up visit

During the session:

- **Set goals.** Agree with the client on goals or expected outcomes. The goals are based on the nutritional assessment, but must also account for any goals or objectives that the client him or herself may have. Do not give the client more than three goals, because too many changes at one time will be overwhelming. Other goals should be added incrementally as the first ones are achieved. Goals should be specific, realistic, and achievable.
- **Develop a plan.** Plan with the client how to achieve the identified goals. Select actions to improve nutritional status.

- The counsellor and client decide together which strategies are acceptable and feasible and address challenges to making the recommended dietary changes.
- The counsellor educates the client on relevant topics: eating well, preventing infections, maintaining physical activity, and managing diet-related HIV symptoms.
- **Summarise and review.** Review the plan with the client and then set the date and time of the next appointment. Counselling sessions are usually scheduled at most 3 months apart so that progress can be tracked and plans revised as needed.

After the counselling is completed:

- Document key points of the assessment and counselling session, as well as any points that should be followed up at the next visit.

Challenges in counselling PLHIV and/or TB on nutrition

- Acknowledge that clients may have priorities that differ from those of the counsellor.
- Stigma can make clients reluctant to talk about their status.
- Clients themselves may be too ill at the time of counselling to engage in the counselling process.
- Clients may not have money to buy recommended foods.
- Clients may not be able to bargain for special treatment in the family if they have not disclosed their status or do not know that they need special foods or care.
- Families and caregivers may get tired of providing special care for long-lasting HIV and/or TB-related nutrition problems.
- Caretakers may not know children's HIV status.
- Caretakers may be too ill to provide quality care.
- Counsellors may lack information or experience counselling PLHIV on nutrition.
- Clients may have issues that need more urgent attention than nutrition.

Addressing challenges in counselling PLHIV and/or TB on nutrition

- Include caregivers and family members in the counselling.
- Link client goals with health goals (e.g., link low energy levels with poor nutritional intake).
- Explain the importance of knowing children's HIV status so that they can receive specialised care and support.
- Attend training on nutrition counselling of PLHIV.
- Where appropriate, help the client with his or her more immediate needs, such as referral to treatment or medical care.
- For clients presenting with multiple issues it is sometimes more efficient and realistic to focus on two or three issues rather than trying to address everything and achieving nothing.

Table 3.1 Checklist for Recommended Counselling Techniques

Skills and techniques	Did the counsellor . . .	If yes, place a ✓
Establish a relationship	Greet the client (shake hands if appropriate)?	
	Offer the client a seat?	
	Introduce herself/himself to the client?	
	Lean forward when talking?	
	Make eye contact when talking to the client?	
	Show interest in the client?	
	Maintain professional conduct?	
Question	Ask questions relevant to the topic of discussion?	
	Ask open-ended questions?	
	Use closed-ended questions to get basic information, such as demographic data?	
	Avoid overuse of closed-ended questions?	
	Use a questioning style that reflects interest, concern, and care, rather than interrogation?	
Listen well	Look at the client?	
	Listen carefully and actively?	
	Use body language to indicate attention to the speaker?	
	Make eye contact to indicate interest and care?	
	Treat the client with respect and acceptance?	
	Use encouraging words such as 'Yes' and 'Okay'?	
	Occasionally sum up the client's statements?	
	Notice the client's verbal and non-verbal cues?	
	Wait after asking questions to allow the client to formulate responses or questions?	
Empathise	Recognise and praise what the client is doing correctly?	
	Reflect the client's statements to show she/he was understood?	
	Accept what the client thinks and feels?	
Provide information	Clearly communicate important nutrition information based on the client's knowledge, cultural values, and beliefs?	
	Use simple language?	
	Give relevant information a little at a time?	
	Make one or two suggestions without giving commands?	
Clarify	Check what the client said to ensure correct understanding?	
	Use phrases like 'Are you saying that...?', 'Did I understand you correctly when you said ...?', and 'Correct me if I'm wrong ...'?	
	Avoid words that sound judgemental?	
Find solutions	Suggest acceptable, affordable, and feasible options?	
	Help the client find practical and realistic solutions?	
	Convince the client to implement solutions?	

Skills and techniques	Did the counsellor . . .	If yes, place a ✓
	Help the client verbalise what other people may say about the suggested solutions?	
Summarise	Summarise the information the client has shared?	
	Check whether the client understood the important concerns or information?	
	Praise and reaffirm things the client is doing right?	
Follow up	Discuss appropriate follow-up with the client?	
	Encourage the client to adhere to the follow-up plan?	

Session 3.2 Nutrition Counselling using The GATHER Approach

G	Greet
A	Ask
T	Tell
H	Help
E	Explain
R	Return

Greet the client. Ask her or him to sit down and exchange introductions. Discuss her or his status and well-being since the last visit.

Ask how the client feels about her or his nutritional status and food intake.

- Ask about symptoms and nutrition problems and concerns.
- Do a nutrition assessment (BMI; weight changes; and biochemical, dietary, and/or clinical assessments) or share the results if you have already done this assessment. Ask whether the client is eating enough to meet additional energy needs; eating a balanced diet; drinking enough clean, safe water; managing symptoms through diet; and adhering to a drug-food plan.
- Identify nutritional needs (e.g., gaining weight, adhering to a drug-food plan, using dietary approaches to manage symptoms) with the client.
- Find out what the client has done to address problems.

Tell the client about alternative ways to address her or his nutrition problems.

- Use counselling cards related to the client's problems.
- Help the client set specific, measurable, achievable, realistic, and time-bound (SMART) nutrition goals (e.g., 'I will increase my weight by 4 kg by the end of March') to address the problems.

Help the client make informed choices.

- With the client (and family or caregiver), find approaches and actions to reach the nutrition goal(s) the client has set.

- As much as possible, let the clients come up with choices that are practical and relevant to her or his context. Examples may include the following:
 - Get weighed every month to see whether I am meeting my goal.
 - Manage symptoms that may affect my diet.
 - Increase my energy intake with one extra snack every day; groundnut paste or a spoon of margarine or palm oil added to my evening meal; or eating a mug of porridge made from fermented millet, sorghum, maize, or any other preferred whole cereal for breakfast.
 - Boil all the water I use to drink and mix with juice for at least 8–10 minutes and wash my hands before preparing or eating food.

Explain fully the choices the client has made.

- Discuss barriers to implementing the choices.
- Ask the client to explain the actions, doing demonstrations if necessary.
- Summarise (or ask the client to summarise) what has been agreed to and how it will be done.

Reassure the client and give a Return date for the next visit. Ask the client to repeat the date.

Session 3.3 Nutrition Counselling Messages

Table 3.2 Critical Nutrition Actions for PLHIV and/or TB

Critical Nutrition Actions for PLHIV	Key message	Explanation
1. Get weighed regularly by a health care provider.	<ul style="list-style-type: none"> • If you have HIV-related symptoms, get weighed every month. 	<ul style="list-style-type: none"> • Periodic weighing helps you track any weight change and take action early.
	<ul style="list-style-type: none"> • If you are not showing symptoms associated with HIV, get weighed at least every 3 months. 	
	<ul style="list-style-type: none"> • Keep the record of your weight in a folder or on your weight chart. 	
	<ul style="list-style-type: none"> • Seek clinical care if you unintentionally lose more than 6 kg of weight in 2–3 months. 	<ul style="list-style-type: none"> • Unintentional loss of more than 6 kg in 2–3 months indicates poor health or eating habits to maintain your weight or that HIV is fast progressing to AIDS.
	<ul style="list-style-type: none"> • If you are overweight, reduce your intake of fatty and sugary foods and increase physical exercise. 	<ul style="list-style-type: none"> • Unintentional weight loss or gain may imply poor health and lead to hospitalisation.
2. Increase energy intake by eating a variety of foods, especially energy-rich foods, more often, especially if you are sick.	<ul style="list-style-type: none"> • Eat locally available and affordable foods from each food group to vary your diet and increase energy intake. 	<ul style="list-style-type: none"> • PLHIV need more energy every day than uninfected people of the same age, gender, and physical activity. • Eating a varied diet is the best way to ensure that your body gets all the nutrients required. • Fruits and vegetables strengthen immunity.

Critical Nutrition Actions for PLHIV	Key message	Explanation
	<ul style="list-style-type: none"> • Eat five times a day (three meals and two snacks). • Eat at least 1 cup of food at each meal. 	<ul style="list-style-type: none"> • The extra energy needed is based on the stage of HIV. • Increasing energy intake helps you get the energy and other nutrients (proteins and micronutrients) that your body needs.
	<ul style="list-style-type: none"> • Improve the digestibility of some foods by cooking, mashing, or fermenting them (this requires demonstration). 	<ul style="list-style-type: none"> • HIV infection affects digestion and absorption.
3. Drink plenty of clean and safe (boiled or treated) water.	<ul style="list-style-type: none"> • Drink about eight glasses of water a day. • Boil or treat drinking water. • Have enough clean safe drinking water in the home at all times for drinking, making juice, and taking medicine. 	<ul style="list-style-type: none"> • The body needs water to remove toxins, including those caused by HIV/TB or antiretroviral drugs. • Drink only clean, treated water to prevent infections such as diarrhoea.
4. Maintain a healthy lifestyle by avoiding unprotected sex, alcohol, recreational drugs, tobacco, and sodas and other coloured and sweetened drinks.	<ul style="list-style-type: none"> • Practice safer sex, using condoms. 	<ul style="list-style-type: none"> • Safer sex avoids infection and transmission of HIV and other sexually transmitted infections.
	<ul style="list-style-type: none"> • Avoid alcohol, including local beer/brew, especially if you are taking medicines. 	<ul style="list-style-type: none"> • Alcohol interferes with digestion, absorption, storage, and utilisation of nutrients.
	<ul style="list-style-type: none"> • Avoid smoking cigarettes and taking drugs without a prescription. 	<ul style="list-style-type: none"> • Smoking interferes with appetite and increases your risk of cancer and respiratory infections, particularly TB.
	<ul style="list-style-type: none"> • Limit your intake of junk food, such as chips, sodas, and sugary foods like cakes and candies. 	<ul style="list-style-type: none"> • Most sweetened, coloured drinks sold in shops contain water, sugar, food colour, and artificial flavour. They are not fruit juice. Junk foods have little nutritional value and can even harm your health.
	<ul style="list-style-type: none"> • Seek help at the nearest health facility to manage depression and stress. 	<ul style="list-style-type: none"> • Stress and depression may interfere with your appetite and therefore reduce food intake.
	<ul style="list-style-type: none"> • Get enough rest. 	<ul style="list-style-type: none"> • Too little sleep may make you more fatigued and give you a feeling of ill health that affects appetite and strength.
5. Maintain high levels of hygiene and sanitation.	<ul style="list-style-type: none"> • Wash your hands under flowing water with soap after using the toilet and before handling and preparing food to avoid infection. 	<ul style="list-style-type: none"> • PLHIV can easily get infections. These make you feel weak, vomit, have diarrhoea, and lose your appetite.
	<ul style="list-style-type: none"> • Be careful when buying ready-to-eat foods because they may be contaminated by preparation or handling in unhygienic environments. 	<ul style="list-style-type: none"> • Diarrhoea affects digestion and absorption of food and removes fluids and other essential nutrients from your body.

Critical Nutrition Actions for PLHIV	Key message	Explanation
6. Engage in physical activity (exercise) as often as possible.	<ul style="list-style-type: none"> Exercise regularly, at least 30 minutes each day, by doing household chores, walking, jogging, or running. 	<ul style="list-style-type: none"> Regular exercise is necessary to strengthen and build muscle, improve appetite, manage stress, and improve overall health and alertness.
7. Prevent infections and seek early treatment of infections and advice on managing symptoms through diet.	<ul style="list-style-type: none"> Seek immediate clinical help for management of illness. 	<ul style="list-style-type: none"> Illness affects the body's intake, digestion, absorption, and utilisation of food. Late treatment of illnesses affects your nutritional status.
	<ul style="list-style-type: none"> Always seek advice from a health care provider on any traditional remedies or nutrition supplements you are taking. 	<ul style="list-style-type: none"> Nutrition supplements should not replace food. Some nutrition supplements may falsely claim that they treat HIV. Some traditional herbs may affect the way other drugs act in the body and can make the drugs ineffective or produce side effects.
	<ul style="list-style-type: none"> Manage symptoms with dietary practices at home where possible. 	<ul style="list-style-type: none"> Dietary management can help manage certain symptoms, reduce their severity, and enable you to continue eating and recover from symptoms faster.
8. Manage food and drug interactions and side effects through diet.	<ul style="list-style-type: none"> Take all medicines as advised by the health worker. 	<ul style="list-style-type: none"> Not adhering to prescribed drug regimens may make HIV resistant to the drugs, making them less effective and possibly requiring you to change to stronger drugs.
	<ul style="list-style-type: none"> Work with a health care provider or counsellor to make and maintain a drug-food schedule to help you plan times to take your medicines in relation to meals. Ask someone to help you keep the schedule. 	<ul style="list-style-type: none"> ART needs to be taken lifelong, and as such, it is important to establish a time that is not only convenient to you but also maximises the effectiveness of the medication.
	<ul style="list-style-type: none"> Ask about the side effects that are likely to result from drugs. Ask how you can manage drug side effects at home. 	<ul style="list-style-type: none"> Many side effects can be managed through changing your diet or lifestyle.

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

Table 3.3 Food and Water Safety and Hygiene

No food is 100% safe at all times for all people, but the risk of food-borne illness can be reduced by following a few simple rules.	
1. Take care when purchasing foods	<ul style="list-style-type: none"> • Buy foods from reputable sources that look clean and appear to be clean and free of pests. • Ensure that foods are stored correctly and are free from spoilage. • Avoid purchasing pre-prepared, cooked foods that have been kept at room temperature for extended periods of time.
2. Store foods correctly	<ul style="list-style-type: none"> • Store grains (such as rice) in dry, airtight containers that prevent contamination with pest, mould, and bacteria. • Ensure storage areas are free of insects, rodents, and other pests. • Ensure that all pets are kept away from food storage areas. • Check refrigerator and freezer seals and temperatures to ensure that they are keeping foods at correct temperatures. • Ensure that storage containers are well sealed and prevent access to pests and other contaminants.
3. Wash hands properly	<ul style="list-style-type: none"> • Hand washing with soap is the best way to prevent the spread of infection from person to person. • Just rinsing hands is not enough—you have to use soap every time you wash your hands. • Washing hands under poured or flowing water is better than using washbasins where many people wash their hands in the same water. • Wash your hands before handling food and often during food preparation. • Wash your hands after going to the toilet, cleaning a child who has defecated, blowing your nose, coughing, sneezing, or handling an animal or animal waste; before preparing or eating food; and both before and after tending to someone who is sick.
4. Keep food preparation areas clean	<ul style="list-style-type: none"> • Wash all surfaces and equipment used to prepare or serve food. • Protect kitchen areas and food from insects, pests, and other animals.
5. Separate raw and cooked food	<ul style="list-style-type: none"> • Raw eggs, meat, poultry, fish, and seafood can easily contaminate other foods with illness-causing bacteria. Keep them away from other foods. • Use separate equipment and utensils, such as knives and cutting boards, for handling raw foods. • Store foods in covered containers to avoid contact between raw and cooked foods.
6. Cook food thoroughly	<ul style="list-style-type: none"> • Cook food thoroughly, especially meat, poultry, eggs, fish, and seafood. For meat and poultry, make sure juices are clear, not pink. • Bring soups and stews to the boiling point and boil for 5 minutes. • Reheat cooked food thoroughly, bringing it to a boil or heating it until too hot to touch. Stir while reheating.
7. Keep foods at safe temperatures	<ul style="list-style-type: none"> • Do not leave cooked food at room temperature for more than 6 hours. • Do not store food too long, even in a refrigerator. • Do not thaw frozen food at room temperature. • Prepare food for infants and young children and other people with low immune systems freshly and do not store it after cooking.

8. Use safe water and food	<ul style="list-style-type: none"> • Use boiled water or treat it to make it safe. • Cover stored water and use a clean receptacle to take water out of the container. • Choose fresh and wholesome foods. • Do not use food beyond its expiry date. • Use pasteurised milk or boil milk before use.
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Table 3.4 Dietary Management of HIV-Related Symptoms

Illness	Diet	Care and nutrition practices
Anorexia (appetite loss)	<ul style="list-style-type: none"> • Stimulate appetite by eating favourite foods. • Eat small amounts of food more often. • Eat more energy-dense foods. • Choose foods with pleasant aromas and that the client likes. • Eat meals and snacks in pleasant settings. 	<ul style="list-style-type: none"> • If appetite loss is a result of illness, seek medical treatment.
Mild diarrhoea	<ul style="list-style-type: none"> • Drink a lot of fluids (soups, diluted fruit juices, boiled water, and light herbal teas) to avoid dehydration. • Avoid citrus fruits (orange, lemon) because they irritate the stomach. • Eat foods rich in soluble fibre (millet, banana, peas, and lentils) to help retain fluids. • Eat fermented foods such as porridges and yogurt. • Eat easily digestible foods such as rice, bread, millet, cereal porridge, potatoes, sweet potatoes, and crackers. • Eat small amounts of food frequently. • Continue to eat frequently after illness to recover weight and nutrient loss. • Drink non-fat milk if there is no problem with lactose. 	<p>Prevention</p> <ul style="list-style-type: none"> • Drink clean boiled water. • Wash hands with water and soap before handling, preparing, serving, or storing food. • Wash hands with water and soap after using a toilet or latrine or cleaning a child after defecation. <p>Treatment</p> <ul style="list-style-type: none"> • Drink more fluids to prevent dehydration. Prepare rehydration solutions using oral rehydration salt sachets or a homemade solution from cereals. • Go to a health facility if symptoms, such as severe dehydration (low or no urine output), fainting, dizziness, shortness of breath, bloody stools, high fever, vomiting, severe abdominal pain, or diarrhoea, persist for more than 2 days.
Severe diarrhoea	<ul style="list-style-type: none"> • Drink a lot of fluids (soups, diluted fruit juices, boiled water, and light herbal teas) to avoid dehydration. • Eat fermented foods such as porridges and yogurt. • Eat easily digestible foods such as rice, bread, millet, cereal porridge, potatoes, sweet potatoes, and crackers. • Eat small amounts of food frequently. • Continue to eat frequently after illness to recover weight and nutrient loss. • Eat soft fruits and vegetables such as bananas, mashed sweet potatoes, and mashed carrots. • Drink non-fat milk if there is no problem with lactose. 	<p>Prevention</p> <ul style="list-style-type: none"> • Drink clean boiled water. • Wash hands with water and soap before handling, preparing, serving, or storing food. • Wash hands with water and soap after using a toilet or latrine or cleaning a child after defecation. <p>Treatment</p> <ul style="list-style-type: none"> • Drink more fluids to prevent dehydration. Prepare rehydration solutions using oral rehydration salt sachets or a homemade solution from cereals. • Go to a health facility if symptoms, such as severe dehydration (low or no urine output), fainting, dizziness, shortness of breath, bloody

Illness	Diet	Care and nutrition practices
	<ul style="list-style-type: none"> Boil or steam foods if diarrhoea is associated with fat malabsorption. Avoid or reduce intake of dairy products (milk); caffeine (coffee and teas) and alcohol; fatty foods; fried foods and extra oil, lard, or butter; and gas-forming foods such as cabbage, onions, and carbonated soft drinks. 	<p>stools, high fever, vomiting, severe abdominal pain, or diarrhoea, persist for more than 2 days.</p>
Fever	<ul style="list-style-type: none"> Eat soups rich in foods that give energy and nutrients, such as cereal, potatoes, and carrots. Drink plenty of fluids. Drink teas from lemon, guava, and gum tree. Continue to eat small, frequent meals as tolerated. 	<ul style="list-style-type: none"> Drink fluids to prevent dehydration, particularly clean boiled water. Bathe in cool water. Rest more. Take two Paracetamol tablets, if available, with a meal three times a day (morning, afternoon, and evening). Go to the health facility if you have a fever that lasts 2 days and is not relieved with Paracetamol or brief loss of consciousness, severe body pain, yellow eyes, severe diarrhoea, or convulsions and seizures.
Nausea and vomiting	<ul style="list-style-type: none"> Eat small frequent meals. Eat soups, unsweetened porridge, and fruits such as bananas. Eat slightly salty and dry foods, such as crackers, to calm the stomach. Drink herbal teas and lemon juice in hot water. Avoid spicy and fatty foods. Avoid caffeine (coffee and tea) and alcohol. Avoid strong-smelling foods. Drink liquids such as clean boiled water. 	<ul style="list-style-type: none"> Avoid an empty stomach; nausea is worse if nothing is in the stomach. Avoid lying down immediately after eating—wait at least 20 minutes. Avoid vomiting. Rest between meals.
Thrush	<ul style="list-style-type: none"> Eat soft, mashed foods such as carrots, scrambled eggs, mashed potatoes, bananas, soups, and porridge. Eat cold or room-temperature foods. Avoid spicy, salty, or sticky foods that may irritate mouth sores. Avoid sugary foods that cause yeast to grow. Avoid strong citrus fruits and juices that may irritate mouth sores. Avoid alcohol and drink plenty of fluids. 	<ul style="list-style-type: none"> Seek medical treatment. Use a spoon or cup to eat small amounts of foods. Tilt your head back when eating to help with swallowing. Rinse your mouth with boiled warm, salty water after eating to reduce irritation and keep yeast from growing.
Constipation	<ul style="list-style-type: none"> Eat more high-fibre foods such as maize, whole wheat bread, green vegetables, and washed fruits with the peel. Drink plenty of liquids. Avoid processed or refined foods. 	<ul style="list-style-type: none"> Avoid cleansing practices such as enemas and medications. Drink plenty of fluids, including clean, boiled water.
Anaemia	<ul style="list-style-type: none"> Eat more iron-rich foods such as animal products (eggs, fish, meat, liver), green leafy vegetables (kontomire, spinach), legumes (beans, groundnuts), nuts, oil 	<ul style="list-style-type: none"> If available, take one iron tablet once a day with some food. Take your meals with a source of vitamin C, such as fresh tomatoes, oranges, or guavas, to

Illness	Diet	Care and nutrition practices
	seeds, and fortified cereals. <ul style="list-style-type: none"> • Take iron supplements (if no SAM). • Avoid drinking tea or coffee within 2 hours before or after meals. 	help with absorption of iron from plant-based foods. <ul style="list-style-type: none"> • Treat malaria and hookworm if you have symptoms.
Muscle wasting	<ul style="list-style-type: none"> • Eat more and eat more often. • Improve the quality and quantity of foods by eating a variety of foods. • Eat more foods high in protein. • Eat more starchy foods (cereals and other staples). • Eat small frequent meals. 	<ul style="list-style-type: none"> • Perform light exercises (such as walking, climbing stairs), since exercises help build muscles.
Bloating or heartburn	<ul style="list-style-type: none"> • Eat small, frequent meals. • Avoid gas forming foods (cabbage, soda). • Drink plenty of fluids. 	<ul style="list-style-type: none"> • Eat long enough before sleeping so that food can digest.
TB	<ul style="list-style-type: none"> • Eat foods high in protein, energy, iron, and vitamins. 	<ul style="list-style-type: none"> • Seek medical attention immediately. • Consult medical personnel about taking food with medications. • If taking Isoniazid for treatment, take a vitamin B6 supplement to avoid deficiency of this micronutrient.
Loss of taste or abnormal taste	<ul style="list-style-type: none"> • Use flavour enhancers such as salt, herbs, spices, and lemon. • Eat dry foods such as crackers. 	<ul style="list-style-type: none"> • Eat small frequent meals. • Chew food well and move it around the mouth to stimulate receptors.

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

Food and Nutrition Implications of ART and TB Treatment

PLHIV that are on ART need appropriate and adequate nutrition to achieve the full benefits of ART. Likewise, TB patients also need adequate nutrition to achieve full benefits of anti-TB drugs.

Food and ARVs may interact:

- Some ARVs affect nutrient availability, absorption, and utilisation in the body. ART can change the way the body uses fats, proteins, and energy.
- Some drugs interact with food in ways that can affect nutritional status and the effectiveness of the drugs.
- ARV side effects can reduce food intake, absorption of nutrients, and adherence to the drugs. Side effects may be a sign of an OI or other problems requiring medical treatment.
- It is important to keep taking the drugs.
- PLHIV can usually manage metabolic changes and other side effects without stopping treatment by making changes in their diets.
- Some foods when taken with ARVs may reduce drug effectiveness and worsen side effects of ARVs (for example, eating fatty meals with Efavirenz will worsen side effects). Alcohol and ARVs/anti-TB drugs do not mix well.
- Some people on ARVs/anti-TB drugs experience increased appetite, which can lead to weight gain.
- TB drugs such as Isoniazid are often advised to increase intake of vitamin B6 foods to prevent neurological damage.
- ART response can be assessed through clinical (weight and growth), immunological, and virological methods. Children's growth on ART is a good indicator of response to treatment and on-going adherence.

Table 3.5 Some Common Side Effects of ARVs

Zidovudine (AZT, ZDV)	Loss of appetite, anaemia, nausea, vomiting, fatigue, constipation, fever, headaches, changed taste, weight gain, darkening palms and nails
Nevirapine (NVP)	Nausea, vomiting, fever, rash, Steven-Johnson syndrome
Efavirenz (EFZ)	Loss of appetite, nightmares, rash, nausea, vomiting, diarrhoea, flatulence, dizziness
Lamivudine (3TC)	Nausea, vomiting, diarrhoea, loss of appetite
Tenofovir (TDF)	Bone weakness, muscle fatigue, renal insufficiency
Abacavir (ABC)	Rash (hypersensitivity reaction), nausea, anaemia
Lopinavir/ritonavir (LPV/r)	Diarrhoea, stomach upset, headache, weakness

Table 3.6 Some Common Side Effects of Anti-TB Drugs

Isoniazid	Various skin rashes, hepatitis, numbness, limb pains (burning of feet)
Rifampicin	Nausea, anorexia, abdominal pain, vomiting; Rifampicin may reduce the effectiveness of oral contraceptive pills in women
Streptomycin	Local reaction at injection site, numbness around mouth, tingling sensation soon after injection
Pyrazinamide	Arthralgia (joint pains), hepatitis
Ethambutol	Numbness

Messages

1. Carefully select food and plan meals to minimise drug side effects to improve adherence to and effectiveness of ART.
2. Tell a health worker if you experience side effects. Not everyone experiences side effects. They usually stop after 6 weeks when the body gets used to the drugs.
3. Take drugs as prescribed (following the recommended timing and dosage). Otherwise, they will not be effective and may be dangerous.
4. Some ARVs call for drinking plenty of water to avoid side effects or complications that may affect important body organs, such as the kidneys. Drink at least 8 glasses or 4 big cups of water a day. Make sure the water is clean and safe, because HIV makes people more vulnerable to water-borne infections.
5. Avoid drinking alcohol, which can interfere with the effectiveness of ARVs and anti-TB drugs.
6. With your health worker, plan a daily routine for taking drugs and meals to maximise the effectiveness of the drugs, ensure good nutrition, and minimise side effects.

Food recommendations for common first-line ARVs and anti-TB drugs:

- **Zidovudine (AZT)** can be taken with or without food. If you have stomach irritation, you can take the drug with a meal, but do NOT take it with a high-fat meal. If you take the drug with food, limit the amount of fat/oil in the meal.
- **Nevirapine (NVP)** can be taken with or without food.
- **Efavirenz (EFZ)** can be taken with or without food, but NOT with a high-fat meal. If taken with food, limit the amount of fat/oil in the meal.
- **Lamivudine (3TC)** can be taken with or without food.
- **Tenofovir (TDF)** must be taken with food, preferably with some fat and right after a meal.
- **Abacavir (ABC)** can be taken with or without food.
- **Lopinavir/ritonavir (LPV/r)** can be taken with or without food.
- For anti-TB drugs, food may affect absorption, so it is advisable to take medication 1 hour before food or on an empty stomach.

Herbal and other nutrition supplements:

- At present there is no evidence of herbal remedies that can cure or treat HIV and TB.
- Few supplements are known to improve the immune system.
- Some traditional remedies interact with ARVs (St John's Wort).
- Communicating with PLHIV and TB clients about nutritional supplements and herbal remedies is essential for their health.

Metabolic disorders:

- Metabolic derangements are associated with HIV and TB disease.
- These are associated with overnutrition and undernutrition.
- ARVs may impair glucose tolerance and other lipid abnormalities.
- Lipid abnormalities can lead to elevated triglycerides and may result in hypertension and associated complications.
- Living a healthy lifestyle may help reduce the effect of these disorders.
- Organ (liver, kidney etc.) toxicity may occur as a result of the drug intake for PLHIV and TB clients.

Table 3.7 Nutrition Education Topics for PLHIV

Topic	Content	Messages
Causes and consequences of malnutrition among PLHIV	<ul style="list-style-type: none"> • Causes of malnutrition in the context of HIV 	<ol style="list-style-type: none"> 1. Malnutrition is caused by poor access to food, inadequate intake, digestion and absorption problems, and poor food utilisation and excretion of waste. 2. Malnutrition affects self-esteem, health, and the body's ability to use medicine. Malnutrition increases the severity of illness and can shorten your life.
Increased energy needs caused by HIV	<ul style="list-style-type: none"> • Energy needs depend on the disease stage, age, physical conditions (e.g., pregnancy, lactation) • Required food quantities should be given in local measures • Recommendations should be made based on the client's weight history and current dietary intake • Address challenges clients face in meeting additional food needs • Explain how to eat nutritionally adequate diets using local foods 	<ol style="list-style-type: none"> 1. If you have OI-related symptoms, eat 2 snacks every day in addition to meals. 2. Eat at least 1 cup (250 ml) of food at each meal. 3. If you are sick or lack appetite, eat small, frequent meals with friends and family members. 4. If you are sick, make your food tastier, enrich it, or mash it to make it easier to swallow. 5. Eat a variety of foods, including fruits and vegetables.
Critical Nutrition Actions for PLHIV	Refer to related table in this session.	
Dietary management of symptoms associated with HIV	<ul style="list-style-type: none"> • Explain how to modify foods to manage different symptoms • Dietary management is used to complement clinical treatment 	<ol style="list-style-type: none"> 1. Cover 2–3 symptoms per session. 2. Refer to related table in this session.
ARV-food interactions (see related section in this session)	<ul style="list-style-type: none"> • Importance of ART • Importance of appropriate and adequate nutrition to achieve the full benefits of ART • Possible nutrition-related side effects of common ARVs • Effect of traditional herbs on ARVs • Selecting foods and planning meals to minimise side effects and improving drug adherence and effectiveness 	<ol style="list-style-type: none"> 1. Continue to take medicines even when sick or having side effects. 2. Most side effects end after the first 3 months. 3. Avoid alcohol. 4. Drink plenty of water and use only clean, safe water to take medicine. 5. Take medicines as instructed by the health care provider. 6. Tell your health care provider if you are taking traditional herbs or other supplements.
Food and water safety and hygiene	<ul style="list-style-type: none"> • Water safety • Hand washing (demonstrate washing hands under running water using soap) • Food handling • Preventing diarrhoea and other food-borne disease • Preventing malaria 	Refer to the related section in this session.

Topic	Content	Messages
Healthy and nutritious foods	<ul style="list-style-type: none"> • Selecting nutritious local foods (e.g., wild fruits and vegetables) • Improving nutrient and energy content of local diets through enrichment, steaming, germination, home fortification, and fermentation • Improving flavour by roasting, fermenting, and adding spices • Demonstration of mashing, pureeing, or sip feeding foods to help swallowing • Improving digestibility by dehulling, sifting, fermenting, and germinating 	<ol style="list-style-type: none"> 1. Eat a variety of foods. 2. Eat 3 meals and 2 snacks every day. 3. Eat foods that are in season. 4. Eat small, frequent meals when you are sick. 5. Steam vegetables to preserve nutrients. 6. Enrich foods by germinating, fermenting, and fortifying at home. 7. Improve the flavour of foods by adding spices, such as garlic and ginger or lemon juice.
Backyard gardens and raising small animals	<ul style="list-style-type: none"> • How to establish a backyard garden • Where to get seedlings • Where to get water • Nutritious crops • How to maintain a garden • High-producing methods requiring little labour and input (e.g., sack gardens) • How to raise poultry and other small animals 	<ol style="list-style-type: none"> 1. Grow fruits, vegetables, herbs, and spices to eat at home. 2. Eat animal protein to improve immunity.

- Keep nutrition education sessions short (no longer than 15 minutes).
- Use simple language.
- Allow time for questions. If a client asks a question you cannot answer, it's better to say that you will find out the information and let them know next time instead of giving an answer that you're not sure about.
- If available, give clients brochures and booklets on nutrition- and HIV-related topics approved by the GHS and use these to prepare the lessons.

Session 3.4 Linking NACS with Community Services

The aim of community linkages includes:

1. Increasing community understanding of NACS services
2. Strengthening case finding and referral for care
3. Allowing early detection and follow-up to improve clinical outcomes and relieve inpatient services
4. Linking prevention and treatment of malnutrition

Obstacles to using NACS services:

- Lack of awareness of services
- Lack of awareness of signs of malnutrition
- Lack of knowledge of consequences of malnutrition
- Distance to health care facilities
- Lack of NACS knowledge among health care workers
- Poor integration of NACS into reproductive and child health, DOTS, ART, and outpatient departments
- Stigma associated with HIV and TB

Addressing the obstacles can be done through:

- Health education
- Home visits and counseling/good demonstration by community health workers, e.g., home-based care
- Health and nutrition education materials about signs and risk of malnutrition
- Improved integration of NACS into routine health care services at key contact points
- Improved coordination with other primary health care programs

Community linkages entails:

- Establishing channels of community outreach
- Nutrition services during home-base care
- Nutrition services for orphans and vulnerable children

Channels of community outreach:

- Home-base care service providers
- Local leaders mobilise community members to seek NACS
- PLHIV and/or TB networks and support groups
- Local media

Nutrition services during home-based care:

- MUAC measurements
- Dietary assessment
- Assessment of food availability and use
- Counselling on the CNAs
- Demonstration of how to make nutritious meals with locally available food
- Demonstration of how to prepare and feed specialized food products

Nutrition services for orphans and vulnerable children:

- MUAC measurement
- Dietary assessment
- Assessment of food availability and use
- Demonstration to caregivers of how to prepare locally available food to make nutritious meals
- Demonstration to caregiver of how to prepare and feed specialised food products
- School feeding programmes
- School gardens

Module 3 Key Points

- Nutrition education, advice, and counselling are each different and are used in combination in providing management of PLHIV or TB clients.
- Being mindful of factors such as environment, client experience and expectations, as well as addressing other challenges, is important in providing good nutritional counselling.
- The GATHER approach is one form of counselling commonly used in the nutrition management of PLHIV or TB clients.
- The eight Critical Nutrition Actions (CNAs) are:
 1. Get weighed regularly and have weight recorded.
 2. Eat more and varied foods (especially foods rich in energy) 3 times a day with at least 2 snacks between meals.
 3. Drink plenty of clean and safe water.
 4. Live positively: avoid stressful situations, alcohol, tobacco, recreational drugs, and coloured and sweetened drinks.
 5. Maintain good hygiene and sanitation.
 6. Engage in physical activity (exercise) as often as possible.
 7. Prevent and seek early treatment for infections. Seek dietary advice on managing symptoms.
 8. Manage food and drug interactions and side effects through diet.
- Establishing linkages between clinical and community-based services is important in establishing continuum of care in the on-going management of PLHIV or TB.

Module 4. Specialised Food Products to Treat Acute Malnutrition

Learning Objectives

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

1. Describe the importance of nutrition management for acutely malnourished clients
2. Describe the purpose and types of specialised food products
3. Discuss NACS client flow and integration of services
4. State entry and exit criteria for specialised food products
5. Correctly complete specialised food product forms and registers
6. Understand management of specialised food products for health care facilities

Session 4.1 NACS Services

The Importance of Nutrition Management for Acutely Malnourished Clients

People living with HIV and/or TB infections are at high risk of disease-induced weight loss and wasting. Once infected with HIV and TB, the body mounts an immune response that requires energy above and beyond the usual needs, beginning with 10% at the asymptomatic stage and increasing to 30% for adults at later stages of the disease. Symptomatic HIV-positive children have a 50%–100% increase of calorie needs compared to HIV-negative children. Young children often struggle to consume twice the amount of calories their body requires.

If these increased demands are not met, people living with HIV and/or TB begin to lose both fat and muscle tissue. Low BMI is one strong risk factor for HIV disease progression and mortality, independent of immune system performance. While energy needs go up, certain symptoms of HIV reduce the client's food intake and/or can interfere with the body's ability to absorb and utilise nutrients. HIV can create a paradoxical situation where people reduce their nutrient intake, just as their bodies require an increase.

This makes nutritional therapy a critical component of HIV and TB treatment.

NACS includes the following set of activities:

- Nutrition assessment and classification of nutritional status
- Nutrition counselling and education
- Micronutrient supplementation
- Safe water treatment
- Distribution of specialised nutrient-dense foods to treat or manage acute malnutrition
- Links to community-based care and support services, including food security and livelihood assistance

Table 4.1 Target Groups for NACS Services

Nutrition assessment	<ol style="list-style-type: none"> 1. All PLHIV and TB clients 2. Pregnant/post-partum women in PMTCT clinics 3. Children 6 months–17 years old
Nutrition education/ counselling	<ol style="list-style-type: none"> 1. All PLHI and TB clients 2. Pregnant/post-partum women in PMTCT clinics 3. Parents and caregivers of children
Prescription of RUTF or FBF	<ol style="list-style-type: none"> 1. Adults with SAM or MAM 2. HIV-positive pregnant/post-partum women 3. Children 6–23 months old born to HIV-positive women 4. TB- and HIV-positive moderately and severely acutely malnourished children 24 months–17 years old

Session 4.2 NACS Client Flow and Staff Roles

Exercise 8. Client Flow, Staff Roles, and Integration of Services

Draw the client flow and staff roles in your Prevention of Mother-to-Child Transmission of HIV (PMTCT), ART clinic where PLHIV or DOTS clinic where TB clients are seen.

Session 4.3 Purpose and Types of Specialised Food Products to Manage Acute Malnutrition

The purpose of specialised food products are to:

- Prevent and treat SAM and MAM.
- Improve adherence to medications.
- Improve efficacy of ART or TB treatment, and help manage side effects.
- Improve birth outcomes, and promote infant and child survival.
- Provide continuity of care.
- Improve functioning and quality of life.

Specialised Food Products in Ghana

Therapeutic food

Therapeutic foods are high-density, nutritious food formulations designed to manage severe malnutrition in inpatient and outpatient care. Conventional therapeutic foods in Ghana include: 1) nutritious powdered milk formulas known as F-75 and F-100 and 2) RUTF.

Ready-to-Use Therapeutic Food (RUTF)

RUTF is an energy-dense, vitamin- and mineral-enriched food especially designed to treat SAM. RUTF has a similar nutrient composition as F-100. It is soft, crushable food that can be eaten easily by children from the age of 6 months without mixing with water. Unlike F-100, RUTF is not water based, so bacteria cannot grow in it, and it can be used safely without refrigeration. It does not need preparation. Plumpy'Nut® is a commonly known lipid-based RUTF. RUTF does not need to be mixed with water, but clients may require clean, safe water to drink while eating RUTF.

Supplementary food e.g., Fortified-Blended Food/Flour (FBF)

FBF is supplementary food given to MAM clients to eat in addition to normal foods eaten at home to compensate for deficiencies in energy, protein, and micronutrients. An example is the corn-soya blend (CSB), which is a mixture of cereal and soy with additions of oil, minerals, and vitamins, with or without sugar. Blended food should have a nutritional value per 100 g of food of at least 380 kcal, 15 g protein, and 6 g fat. For example, CSB has the following per 100 g: 450 kcal, 18 g protein, and 7 g fat.

Specialised food products used in NACS services in Ghana

- F-75 and F-100 therapeutic milks and modified formulas for inpatient clients to treat SAM for children under 5 years of age
- Plumpy'Nut® packaged in 92 g sachets that provide 500 kcal each
- CSB, an energy-dense (450 kcal/100 g per product) FBF that is double-fortified with micronutrient premix

Note: Therapeutic and supplementary foods are not appropriate or nutritionally adequate for infants under 6 months, who should not receive any food or liquids other than breast milk or safe replacement milk.

An **Enablers Package** comprises food items given to TB clients any time they attend the DOTS clinic. These food items are given to motivate TB clients to minimise default. The Enablers Package is provided to all TB clients.

Exercise 9. Specialised Food Products for NACS

	RUTF	FBF
1. Name of specialised food		
2. No. of grams per sachet		
3. Total calories per sachet		
4. Micronutrients		
5. Level of RDA of most of the micronutrients		
6. Is water needed for preparation?		
7. Is water needed for consumption?		
8. Taste, consistency, and texture		
9. Expiry date		

1. If water is needed to prepare or eat the foods, what problems might PLHIV and TB clients face (e.g., lack of access to safe drinking water)?
2. What challenges might PLHIV and TB clients face in preparing and eating these foods?
3. What other supplementary foods do PLHIV and TB clients receive in your health facilities or communities? Do you think they provide the same amount of energy and micronutrients as the specialised foods for NACS?

Session 4.4 Admission and Discharge Criteria for NACS in Ghana

Client	Classification/admission criteria	Food prescribed	Transition/discharge criteria																
Pregnant women and women up to 6 months post-partum	<p><u>SAM and HIV</u> Bilateral pitting oedema + or ++ OR MUAC < 21 cm or < 23 with weight loss (in pregnant women)</p>	2 sachets of RUTF and 300 g of FBF per day	Review after 6 months post-partum and transition if MUAC is > 23.0 cm																
	<p><u>MAM and HIV</u> Poor weight gain (faltering weight for pregnant women) MUAC ≥ 21 to < 23 cm</p>	<p>300 g of FBF per day OR food supplementation food basket of: CSB+: 250 g/day Maize: 300 g/day Pulses: 20 g/day Oil: 35 g/day Salt: 5 g/day</p>	<p>MUAC ≥ 23 cm or > 6 months post-partum Discharge 6 months after delivery, and provide linkage to a livelihood programme in the community</p>																
Children 6 months–17 years	<p><u>SAM</u> Bilateral pitting oedema OR MUAC: 6–59 months: ≤ 11.5 cm 5–9 years: ≤ 13.5 cm 10–14 years: ≤ 16.0 cm 15–17 years: ≤ 17.5 cm</p>	<p>Give RUTF based on weight (see table below for # of sachets to provide for 7 days).</p> <p>1. <u>Children 6–59 months:</u></p> <table border="1" data-bbox="936 976 1337 1114"> <thead> <tr> <th>Kg</th> <th>#</th> <th>kg</th> <th>#</th> </tr> </thead> <tbody> <tr> <td>4.0–5.4</td> <td>14</td> <td>9.5–10.4</td> <td>28</td> </tr> <tr> <td>5.5–6.9</td> <td>18</td> <td>10.5–11.9</td> <td>32</td> </tr> <tr> <td>7.0–8.4</td> <td>21</td> <td>12+</td> <td>35</td> </tr> </tbody> </table> <p>2. <u>Children 5–17 years:</u> 2 sachets of RUTF and 300 g of FBF per day</p>	Kg	#	kg	#	4.0–5.4	14	9.5–10.4	28	5.5–6.9	18	10.5–11.9	32	7.0–8.4	21	12+	35	<p>6–59 months: No bilateral pitting oedema for 2 consecutive visits AND MUAC is for 2 consecutive visits: 6–59 months: > 12.5 cm 6–9 years: > 14.5 cm 10–14 years: > 18.5 cm 15–17 years: > 19.5 cm AND appetite AND medical problems have been resolved</p>
Kg	#	kg	#																
4.0–5.4	14	9.5–10.4	28																
5.5–6.9	18	10.5–11.9	32																
7.0–8.4	21	12+	35																

Client	Classification/admission criteria	Food prescribed	Transition/discharge criteria
	<p><u>MAM</u> MUAC: 6–59 months: > 11.5 cm to < 12.5 cm 5–9 years: ≥ 13.5 cm to < 14.5 cm 10–14 years: ≥ 16.0 cm to < 17.0 cm 15–17 years: ≥ 17.5 to < 19.5 cm</p> <p>Appetite and no clinical complications</p>	<p><u>FBF ration for MAM</u> 6–59 months: 150 g/day 5–9 years: 150 g/day 10–17 years: 300 g/day</p> <p>OR food supplementation food basket of: CSB+ : 250 g/day Maize: 300 g/day Pulses: 20 g/day Oil: 35 g/day Salt: 5 g/day</p>	<p>MUAC for 2 consecutive visits is: 6–59 months: > 12.5 cm 6–9 years: > 14.5 cm 10–14 years: > 18.5 cm 15–17 years: > 19.5 cm</p> <p>Discharge 6 months after admitted in the programme Assess for feedback</p>
Adults	<p><u>SAM and HIV</u> Bilateral pitting oedema OR MUAC < 19 cm (where patient can't stand) OR BMI < 16</p>	<p>3 sachets of RUTF and 300 g of FBF per day</p>	<p>Discharge: BMI ≥ 18.5 to < 25.0 for 2 consecutive weighings OR MUAC ≥ 21 cm</p>
	<p><u>MAM and HIV</u> MUAC ≥ 19 to < 21 cm OR BMI ≥ 16.0 to < 18.5</p>	<p>300 g of FBF per day OR food supplementation food basket of: CSB+ : 250 g/day Maize: 300 g/day Pulses: 20 g/day Oil: 35 g/day Salt: 5 g/day</p>	<p>BMI ≥ 18.5 to < 25.0 for 2 consecutive weighings OR MUAC > 21 cm</p> <p>Discharge 6 months after admitted in the programme Assess for feedback</p>

Session 4.5 Managing Clients on Specialised Food Products

Prescribing and Monitoring Specialised Food Products

- Classify the client's nutritional status
- Conduct a medical assessment
- Decide whether to treat the client in outpatient care or refer to inpatient care
- Counsel on how to use specialised food products
- Record all specialised food products given to the client
- Discharge the client when the target weight, MUAC, or BMI is reached

NACS Environmental Issues

- Plastic packaging of specialised food products is not biodegradable and will pollute the environment if not disposed of appropriately or recycled.
- Clients should return empty plastic containers to the facility for disposal in the incinerator or recycling.
- Clients should not burn the waste.
- Clients should follow instructions to cook the pre-cooked FBF, which requires little cooking time.
- Stores should be monitored for stocks; use 'first in, first out' (FIFO) to avoid expired commodities.

See **Annex 2** for **RUTF Look-Up Tables and Key Messages for Outpatient Care**.

Session 4.6 NACS Commodity Management

The ultimate purpose of any supply chain system can be summed up by the ‘Six Rights’.

Ensuring the:
RIGHT QUANTITIES of the
RIGHT GOODS to the
RIGHT PLACES at the
RIGHT TIME in the
RIGHT CONDITION at the
RIGHT COST

Attaining these six rights requires a systematic effort to collect, analyse, and disseminate relevant logistics data on a regular and timely manner. Facilities must therefore have in place a Logistics Management Information System (LMIS), whether paper-based or electronic, to generate appropriate information to improve management decisions that govern the logistics system. Three essential logistics data items to be collected are the following.

- **Stock on Hand:** Quantities of usable commodities during a point in time.
- **Rate of Consumption:** The average quantity of commodities dispensed to users during a particular time period.
- **Losses/Adjustments:** Losses are the quantity of commodities removed from the distribution system for any reason other than consumption by clients (e.g., losses, expiry, damage). Adjustments may include receipt or issue of supplies to/from one facility to another at the same level (e.g., a transfer) or a correction for an error in counting. Losses/adjustments may therefore be a negative or positive number.

It is important for facilities to ensure that these essential logistics data are collected and analysed daily to assess stock status, analysed and used monthly or quarterly to determine resupply or order quantities, and used annually to conduct quantification exercises.

The ultimate purpose of any supply chain system is to ensure that commodities are available for use by clients at the time when they need them, not compromising quality and affordability.

Inventory Control/Management System

Use of an inventory control system to manage commodities is crucial to ensuring that commodities are available at the facilities most of the time. The system informs the facility manager when to order, how much to order, and, most importantly, how to maintain an appropriate level of stock of all commodities to avoid shortages (stock-outs) and over supply.

To achieve this, the country practises the ‘maximum-minimum’ inventory control system. To stay within the acceptable levels of stock requires the generation of accurate and timely logistics data from an LMIS, whether paper-based or automated.

To ensure that service delivery points have enough commodities on hand to meet their clients’ needs, facilities must complete a variety of ‘resupply activities’ on a regular basis. One important task is to set and maintain maximum, reorder, and emergency order point levels.

- **The maximum stock level** is the maximum quantity of a product that a facility should have (facility should not stock beyond this level).
- **The reorder level** is the quantity that is used to determine if an order needs to be placed or not.
- **The emergency order point** is the point that triggers the need for an emergency order should any product reach this quantity any time during the month.

The maximum and reorder levels are based on recent consumption. A worksheet is provided to calculate the maximum stock and reorder levels.

Worksheet for Setting Maximum Stock, Reorder, and Emergency Point Levels

The Worksheet for Setting Maximum Stock and Reorder Quantities is used to determine the quantities of stock a facility wants to have on hand (the maximum stock level) and the point when a commodity needs to be ordered (the reorder level). Maximum stock and reorder levels are calculated for each product the facility keeps and is expressed in units (sachets of RUTF, FBF, etc.). The worksheet shows all of the information that is needed to calculate these quantities.

The worksheet provides commodity managers with important information to help ensure that they always have the right quantities of commodities on hand.

The following table describes steps needed to be able to complete the worksheet. This activity can be performed at both the health facility level and at the Regional Medical Store (RMS) levels.

Table 4.2 Job Aid for Completing the Worksheet

Step	Action	Explanation
1.	Fill in the top portion of the worksheet.	<ul style="list-style-type: none"> Write the facility name, district, and region at the top of the worksheet.
2.	Collect dispensed-to-user data and enter on the worksheet.	<ul style="list-style-type: none"> Collect data from the past 6 months for all products dispensed at your facility. If you do not have data for the past 6 months, use as many months' data as you have available.
3.	Calculate Average Monthly Consumption for each product.	<ul style="list-style-type: none"> Write the total dispensed to user for each product in Column A ('Total Dispensed Past 6 Months'). Divide the total in Column A by the number of months' data you wrote in the month columns. If you have 6 months' data, divide by 6. If you have 5 months' data, divide by 5, and so on.
4.	Determine Maximum Stock Quantity for each product.	<ul style="list-style-type: none"> Multiply the Average Monthly Consumption in Column B by 3. Write the answer in Column C.
5.	Determine Reorder Quantity for each product.	<ul style="list-style-type: none"> Divide the Maximum Stock Quantity in Column C by 2. Write the answer in Column D.
6.	Determine the Emergency Order Point for each product.	<ul style="list-style-type: none"> Divide the Reorder Quantity in Column D by 3.
7.	Transfer the quantities to the respective Bin Cards.	<ul style="list-style-type: none"> Copy the Maximum Stock Quantity to each product's Bin Card. Copy the Reorder Quantity to each product's Bin Card. Copy the Emergency Order Point to each product's Bin Card.
8.	Sign and date the worksheet.	<ul style="list-style-type: none"> Make sure the worksheet is dated and signed.
9.	Review the worksheet with the District Health Administration.	<ul style="list-style-type: none"> On your next scheduled visit to the district, or when your supervisor visits your facility. Review the calculations on the worksheet. Ensure that the totals (Column A), Average Monthly Consumption (Column B), Maximum Stock Quantity (Column C), and Reorder Quantity (Column D) are all calculated correctly.
10.	Make any corrections to the worksheet.	<ul style="list-style-type: none"> If corrections are made, be sure to update the Bin Cards at the facility.
11.	Distribute the worksheet.	<ul style="list-style-type: none"> Have your supervisor sign and date the worksheet. Keep the original of the worksheet for the health facility. Give the copy of the worksheet to the district manager or supervisor. The district manager or supervisor keeps the copy and uses it to review health facility requisitions.

Important Notes

- Repeat this process and calculate your Maximum Stock and Reorder Quantities and Emergency Order Point every 6 months**, so that your stock levels reflect current trends in consumption. You should also recalculate your stock levels if there are frequent emergency orders. Recalculate your Maximum Stock and Reorder Quantities and Emergency Order Point for any products that require emergency orders 2 months in a row.
- Also note that Maximum Stock and Reorder Quantities should be calculated two times per year: the first time when you begin implementing these standard operating procedures, and then every six months.
- Complete the two copies of the worksheet: the original copy will be held at the health facility and the copy will be held at the District Health Directorate.

Worksheet for Setting Maximum Stock and Reorder Quantities *(to be completed every 6 months)*

Facility Name: **Fortuna Health Centre**

District: **Manya Krobo**

Region: **Eastern**

Product	A	B	C	D	E
	Total Dispensed Past 6 Months (smallest unit of package)	Average Monthly Consumption (A / 6)	Maximum Stock Quantity (B x 3)	Reorder Quantity (C / 2)	Emergency Order Point (D / 3)
Ready-to-Use Therapeutic Food (RUTF)	8050				
Fortified-Blended Flour (FBF)	7200				
Combined Mineral and Vitamin Mix (CMV)	5600				
Therapeutic Milk for Treatment of SAM (F-75)	1450				
Therapeutic Milk for Treatment of SAM (F-100)	8460				
Rehydration Solution for Malnutrition (ReSoMal)	5800				

Copy the Maximum Stock Quantity; Reorder Quantity, and Emergency Order Point in the appropriate box on the Bin Card for each product.

Completed by: _____ Title: _____ Date: _____

Verified by: _____ Title: _____ Date: _____

NB: The worksheet must be reviewed by the District Supervisor.

Protocol for Ordering Specialised Food Products

1. The first step is to determine the current usable stock on hand for each product. This information will be found on the bin/tally card for respective commodities. It is advisable to conduct a physical inventory as a definitive way of determining usable stock on hand.
2. Determine if current stock on hand is at or below the reorder quantity. The reorder quantity comes from the worksheet and is written on the bin/tally card for each commodity.
3. If the current usable stock on hand balance is **equal to or less than** the reorder quantity, then you need to order more of the commodity to reach your maximum quantity.
4. On the other hand, if the current usable stock on hand balance is **more than** the reorder quantity, then you do not need to order more of the commodity.
5. If you need to place an order, calculate the quantity of the product you need to reach the Maximum Stock Quantity. To do this, subtract your usable stock on hand from the Maximum Stock Quantity (from the bin card or worksheet). The difference is what you need to order.
6. For the NACS programme, the commodities to be ordered should be added to the general requisitions for ARVs and sent to the RMS.

Whether or not to order

1. Stock on Hand \leq Reorder Quantity \rightarrow Place an order
2. Stock on Hand $>$ Reorder Quantity \rightarrow Do not place an order

Protocol for Receiving Food at the NACS Site

1. Each site should designate one staff person to receive and handle the NACS food. This can be a nurse, nutritionist, public health officer, or store/supplies officer.
2. Each site should designate **at least two** people to help offload the food products.
3. The staff person responsible for receiving and handling the food should inspect the delivery to ensure that:
 - The packages are intact (not broken or opened).
 - The manufacture and expiry dates are clearly marked on each package.
 - The products are not damaged or spoiled and there is at least 4 months' time remaining in the shelf life. If the products are close to expiry but you believe that your facility will use them before they expire, then no action is needed. If you do not believe that your facility will use the products before they expire, arrange to return the products to RMS immediately with an explanation written on the delivery note for replacement.
 - Any discrepancies should be noted under 'Notes/comments' at the bottom of the Requisition Book.
4. If any of the commodities are defective or do not meet these requirements, return them.

5. The staff person responsible for receiving and handling the food should confirm receipt of the commodities by signing the delivery note, marking the time of arrival, and stamping the note with the official stamp of the site. Keep one copy of the signed delivery note and file it at the site. Give the other copy to the person who transported the commodities.
6. The person responsible for receiving and handling food items should enter quantities of received supplies into stock-keeping records.

Protocol for Storing and Handling Food at the NACS Site

1. Clean and disinfect the storeroom regularly, and take precautions to discourage harmful insects and rodents from entering the storage area. To this end, the store should be fumigated regularly to control pests. Ideally, the store should be cleaned every day or at least every other day.
2. Store health commodities in a dry, well-lit, and well-ventilated storeroom—out of direct sunlight.
3. Protect storeroom from water penetration. There should be adequate drainage, no stagnant water, and no leaks in the walls or roof.
4. Keep fire safety equipment available, accessible, and functional, and train employees to use it.
5. Limit storage area access to authorised personnel and lock up controlled substances.
6. When possible, stack cartons at least 10 cm (4 in) off the floor, 30 cm (1 ft) away from the walls and other stacks, and no more than 2.5 m (8 ft) high.
7. Arrange cartons with arrows pointing up (↑), and with identification labels, expiry dates, and manufacturing dates clearly visible.
8. Store health commodities to facilitate ‘first-to-expire, first-out’ (FEFO) procedures and stock management when the commodities have different expiry dates. If the commodities have the same expiry date, use the ‘first in, first out’ (FIFO) approach.
9. Store health commodities away from insecticides, chemicals, flammable products, hazardous materials, old files, office supplies, and equipment; always take appropriate safety precautions.
10. Separate damaged and expired health commodities from usable commodities, remove them from inventory immediately, and dispose of them using established procedures.
11. Staff designated to store and handle food commodities should be trained in the required specifications for the foods and in food storage, handling, and hygiene and sanitation.
12. Staff designated to store and handle food commodities should fill out the Daily Consumption Card for each day.
13. The RUTF and supplementary foods are packed in plastic bags. These bags and the food packages are not biodegradable and can pollute the soil and water if they are burned or thrown in the garbage. Clients should return the empty bags and sachets to the health facility, and staff should dispose of them appropriately in a landfill.

Protocol for Reporting on Commodity Use at the NACS Site

1. Facilities should use the National AIDS/STI Control Programme (NACP) e-LMIS to report logistics data (stock status and consumption) every month.
2. Alternatively, facilities should use the Report, Requisition, Issue, and Receipt Voucher (RRIRV), which is a combined form that a health facility uses to report stock status and consumption and to order products from the RMS. Because the RRIRV is used for both reporting and ordering, every facility should complete and submit the RRIRV every month, even if no products are actually being ordered. The RMS will need the reported data to inform its resupply decisions and to ensure that it has enough commodities on hand to meet the needs of the health facilities.
3. In addition, sites should complete the NACS Health Facility Monthly Reporting Form every month and send it to the District Health Directorate by the fifth of the following month for onward transmission to the Regional Health Directorate, and then to the Nutrition Department of the GHS, Headquarters.

Exercise 10a: Specialised Food Products Monthly Consumption Report (MCR)

Site: _____ Month: _____ Year 20[][]

	# of patients on specialised foods	Quantity brought forward (A)	Quantity received this month (B)	Total A+B (C)	Quantity consumed (D)	Quantity damaged (E)	Quantity expired (F)**	Total of D+E+F (G)	Balance C-G (H)	Orders***
FBF										
RUTF										

INSTRUCTIONS

** Expiry: Report amount of products where expiry date is in the next 2 months and likely to go to waste.

*** Orders should be submitted as need arises; give a 2-week lead time.

Quantity: For all food apart from RUTF, quantity is in kilograms/grams. Quantity for RUTF is sachets. 500g or less of any of the FBF (First Food, Foundation Plus, or Advantage) is allowed for demonstrations.

COMMENTS

PREPARED BY: dispensing officer (nutritionist/nurse/pharmacist)

Name: _____

Signature: _____

Date: _____

Exercise 10b: Filling Out the MCR

The following data are from a NACS site:

1. The site had 4 cartons (each containing 150 sachets) and 10 sachets of RUTF and 9 bags of FBF (each bag containing 9 kg) remaining at the end of February.
2. On March 5, the site received 300 bags of FBF and 30 cartons of RUTF. None of the food was damaged or expired.
3. In March, the site provided specialised food to the adult clients as per the table below.

Date	Clients with MAM receiving food	Clients with SAM receiving food
2/3	5	1
4/3	9	0
6/3	8	0
9/3	12	0
11/3	7	1
13/3	10	0
16/3	9	2
18/3	4	1
20/3	11	2
23/3	7	4
25/3	5	1
27/3	9	0
30/3	10	0
Total	106	12

4. Fill out the MCR for the month of March using the session 4.3 as a guide.

Module 5. NACS Monitoring and Reporting

Learning Objectives

By the end of this module participants will be able to:

1. Explain the purpose of NACS data collection and integrating NACS into the routine HIV and TB monitoring and evaluation (M&E) system
2. Complete NACS data collection tools accurately
3. Identify and address challenges of data collection
4. Assess the quality of NACS services
5. Practice data collection in a nearby health facility

Session 5.1 Purpose of NACS Data Collection, Indicators, and Integrating the Indicators into the HIV and/or TB Monitoring and Evaluation System

Purpose of NACS Data Collection

Collecting and recording NACS data is necessary for:

- Client management and follow-up
- Accountability
- Advocacy for increased support for nutrition services
- Decision making
- Resource allocation
- Stock monitoring
- Research
- Evaluation of policy and impact of services
- Continuous Quality Improvement

NACS Indicators

Nutrition Care and HIV:

- The number and proportion of PLHIV in care and treatment that received nutrition assessment during the reporting period.

- The number and proportion of PLHIV in care and treatment that received nutrition counselling during the reporting period.
- The number and proportion of undernourished PLHIV that received therapeutic or supplementary food at any point during the reporting period.

PMTCT and Infant Feeding:

- The number and percentage of HIV-positive women that have a MUAC < 220 mm at the first postnatal visit.
- The number and percentage of HIV-exposed infants with acute malnutrition at the 12-month follow-up visit.
- The percentage of HIV-exposed infants that are exclusively breastfed at 3 months of age, the percentage of HIV-exposed infants that are on replacement feeding at 3 months of age, and the percentage of HIV-exposed infants that are on mixed feeding at 3 months of age (these are already being captured as part of the M&E system).

Integrating NACS Indicators into the HIV and/or TB M&E Systems

- Nutrition indicators, specifically MUAC, BMI, assessment of bilateral pitting oedema, and anaemia, have been included in the HIV client folder and TB client card. This information should be completed during the client initial assessment and for follow-up visits. Please refer to the HIV client folder and card.
- If the client is diagnosed as having SAM or MAM then the client management which is also included in the HIV client folder should be used for detailed weekly/biweekly follow-up visits.
- NACS indicators listed below are now included in the monthly HIV and TB reports. This information should be entered in the report:

of clients who received nutrition assessment
of clients who received nutrition counselling
of clients who have SAM
of clients who have MAM
of clients who have healthy body weight (normal)
of clients who are obese or overweight

- Beneficiary and logistics data should also be captured in the national HIV and TB databases.

NACS Client Register

Site name _____ (Facility/Department)

Month:20.....

ID	NAME OF Client	New or Old Case	M/F	Age (Months or Years)	Date Assessed	MUAC (cm)	Oedema status (+, ++, +++)	Weight (kg)	Height (cm)*	BMI (adult)	Classification (SAM, MAM, Normal, Overweight/Obese)	Counselled (Yes or No)	Food Support**	Date & Exit from Specialised Food Support***
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

* Measure adults' height only on the first visit. Do not take height or length of children, only MUAC and weight.

** N/A if no food support is provided, RUTF if on therapeutic foods, FBF if on supplementary foods and RUTF/FBF if on both.

*** Graduated/Recovered (**G**), Defaulted (**D**), Died (**X**), Referred (**R**), or Non-recovered (**NR**).

NACS Monthly Report

Region/District:...../..... Facility/Site Name: Month:20.....

INDICATOR		Age Category						
Number (of)	Gender	0-<6 months	6-59 months	5-9 years	10-14 years	15-17 years	18 years & above	Total
SAM at the start of the month								
MAM at the start of the month								
Old cases assessed & counselled	M							
	F							
New cases—SAM	M							
	F							
New cases—MAM	M							
	F							
New cases—Normal	M							
	F							
New cases—Overweight/Obese	M							
	F							
TOTAL NEW CASES								
Recovered—SAM (A1)								
Recovered—MAM (A2)								
Default (Lost to follow-up)—SAM (B1)								
Default (Lost to follow-up)—MAM (B2)								
Death—SAM (C1)								
Death—MAM (C2)								
Non-recovered—SAM (D1)								
Non-recovered—MAM (D2)								
Referred—SAM (E1)								
Referred—MAM (E2)								
TOTAL EXITS SAM = (A1+B1+C1+D1+E1)								
TOTAL EXITS MAM = (A2+B2+C2+D2+E2)								
TOTAL AT THE END OF THE MONTH (SAM)								
TOTAL AT THE END OF THE MONTH (MAM)								

Name and signature of health care worker:/.....

Contact for health care worker (telephone and email)/.....

NACP ART Data Form

Name of site..... Name of District..... Region.....

Month/ Year.....

Indicators	Adult		Paediatric		Total
	Male	Female	Male	Female	
# of new clients receiving HIV clinical care					
# of new clients on co-trimoxazole prophylaxis					
# of new clients started on ARVs					
# of ART clients screened for TB					
# of positive clients with TB on ART					
# of clients who stopped treatment due to death					
# of clients who stopped treatment due to adverse clinical status/event					
# of clients who stopped treatment due to loss to follow-up					
# of clients on second line					
# of clients who received nutrition assessment					
# of clients who received nutrition counselling					
# of clients who have SAM					
# of clients who have MAM					
# of clients who have healthy body weight (normal)					
# of clients who are obese or overweight					

Form Completed by: Name..... Designation.....

Signature..... Phone Number.....

Remarks:.....

Food Security Analysis Form Questionnaire

PART A: Economic Criteria

A1. What work or economic activities is client engaged in:

Tailoring /dressmaker	Beautician	Small scale miner	Driver	Farmer	Artisan	Paid worker*	Fish monger /trader	Other (specify)
MN/MJ**	MN/MJ	MN/MJ	MN/MJ	MN/MJ	MN/MJ	MN/MJ	MN/MJ	MN/MJ

* For paid worker, tick appropriate income category:

Income less than GHC 100.....

Income above GHC 100.....

**Probe for both major and minor occupations.

(For farmers) A2. Acreage of cultivable land:

Alternative categories (ha)	None	< 0.5	0.5 to < 1	1 to 2	> 2

Crops grown (confirmation questions), please tick:

Food crops	Cereals (rice, maize, millet, etc.)	Legumes (beans, groundnuts, agushie, neri, bungen)		Roots, plantains, and tubers (cassava, yams, sweet potatoes)
	Fruits (mango, orange, etc.)	Vegetables (ayoyo, alefu, kontomire, cabbage, garden eggs, etc.)		Other (specify)
Cash crops	Cotton	Cocoa	Oil palm	Cashew
Other

Livestock/ Poultry: Which animals do you rear? (Underline livestock type and indicate number. For sheep and goat, minimum should be five, and for poultry, minimum of 10.)

Cattle	Sheep/goats	Pigs	Poultry (chicken, guinea fowl, ducks, etc.)	Fish

A1 and A2 criteria met? Yes / No

(Yes if cultivable acreage is less than 2 ha, no livestock or poultry reared, and does not engage in any other economic activities and earns less than GHC 100 as a paid worker.)

A3. Household asset ownership

Which of the following assets are owned by your household?

Asset group 1	Motorbike	Fridge/freezer	Television	Livestock > 5 goats/poultry (> 10)	Tractor	Cultivable land 2 ha and above
Asset group 2	Sewing machine	Cooker	Artisanal equipment	Bicycle	Hair dryer	Small-scale mining tools
Asset group 3	Plough	Tractor	Trailer	Harvester		
Asset group 4	No assets					

Is A3 criteria met? Yes / No

(Household asset is inadequate if client owns only group 3 assets or falls in group 4 under household assets.)

A4. Housing/roof type

House type	Landcrete	Concrete	Swiss	Other
Roof type	Corrugated iron sheet	Asbestos	Thatch	Other

A4 criteria met? Yes / No

(Yes if client has swiss/landcrete house and thatch roof)

Economic criteria met? Yes / No

(Yes if A2, and A3, A4, and A5 are inadequate)

PART B: Access to Adequate Food

B1: Food frequency

1. Did you miss a meal in the last 3 days because there was not enough food at home? Yes / No
(probe by starting with meal history in the last 24 hours)
2. Did anyone in your family miss a meal in the last 24 hours because there was not enough food? Yes / No
3. Did any family member go to bed hungry in the last 24 hours because there was not enough food? Yes / No

B1 criteria met? Yes / No

(Note: food frequency is inadequate if patient answered yes to any food frequency questions)

B2: Food quality

In the last 3 days, did the client eat any of the following foods as part of his/her meal?

Protein	Yes / No		
	Day 1	Day 2	Day 3
Meat, poultry, big fish			
Eggs (any type)			
Beans, cashew nuts, groundnuts, agushie, neri, bungu			
Other			

Vegetables	Yes / No			Fruits	Yes / No		
	Day 1	Day 2	Day 3		Day 1	Day 2	Day 3
Kontomire, ayoyo, alefu okro, garden eggs, carrots, cabbage, etc.				pawpaw, banana, mango, pineapple, melon, orange, etc.			

Other.....				Other.....			
------------	--	--	--	------------	--	--	--

(Note: Eating less than 3 protein rich foods and less than 3 vegetables/fruit servings in 72 hours = inadequate quality).

Is the inadequate food quality due to food access rather than food preference? Yes / No

B2 criteria met? Yes / No

(Yes, if client's food access is inadequate in quality and inadequacy is not due to food preference.)

B3 Food quantity

In the last 3 days, did the client have access to any of the following foods?

Carbohydrates	Yes / No		
	Day 1	Day 2	Day 3
Cereals (rice, millet, sorghum, maize, etc.)			
Roots and tubers (yam, cassava, cocoyam, potatoes, plantain)			
Other			

(Note: Eating less than 4 carbohydrate rich foods in 72 hours = inadequate quantity.)

B3 criteria met? Yes / No

(Yes if client had inadequate quantity)

Food access criteria met? Yes / No

(Yes if food frequency, quantity, and quality are inadequate or if food quality and either food frequency or food quantity are inadequate.)

B4 Coping mechanism

Have you sold or eaten your seed for farming or your female livestock because there was no food in the household? Yes / No

Negative coping strategy adopted? Yes / No

PART C –Assessment of Food Eligibility

Access (inadequate frequency, quality, and quantity)	Household asset ownership (inadequate)	Economic activities (inadequate if less than 2 ha of cultivable land, and no livestock, and no economic activities or income < GHC 100/month)	Negative coping mechanism adopted	Assessment outcome
Yes	Yes	Yes	Yes	Food
Yes	Yes	Yes	No	Food
Yes	Yes	No	No	Food
Yes	No	No	No	No food (counselling)

Food Commodity Distribution Report

1. Basic Data

Region:		Distribution Month:	
District:		Name of ART Centre:	
Distribution Site:		Implementing Partner:	

2. Beneficiaries

	Actual Beneficiaries							
	Girl 0–5	Girl 6–18	Women	Boy 0–5	Boy 6–18	Men	TOTAL	
Total no. of beneficiaries last month								
Total no. of new beneficiaries this month								
Total no. of beneficiaries discharged								
Total no. of defaulters								
Total no. of beneficiaries this month								
Total no. of pregnant/lactating mothers								
Reasons for beneficiaries being discharged								
Reasons for defaulters								
Was there any difference between the number of planned/registered beneficiaries and the actual number of beneficiaries fed in the distribution (Circle yes or no)							Yes	No
What were the main reasons for differences? (Circle max. 2 codes)	Code	List of reasons						
	A	Not applicable/no difference						
	B	Absenteeism						
	C	Mortality						
	D	Ghost beneficiaries						
	E	Double registration						
	F	Family members gone to live elsewhere						
	G	Family members come to live with family because of food aid						
I	Addition of a new beneficiary due to birth							

3. Food Commodities

Food details	Maize (kg)	Oil (kg)	Salt (kg)		
A. Ration per person					
B. Opening stock					
C. Received					
D. Distributed					
E. Losses					
F. Closing balance (B + C - D - E)					

4. Food Aid Received

Did all registered beneficiaries receive the planned ration? (Circle yes or no)			Yes	No
What was main reason for changes in rations? (Circle max. 2 codes)	Code	List of reasons		
	A	Not applicable/all beneficiaries got the planned ration		
	B	Not enough food delivered to the distribution site		
	C	Distribution of overweight pre-packed units		
	D	Distribution of underweight pre-packed units		
	E	Stealing of food		
	F	Unfair distribution (distribution to non-registered beneficiaries, favouritism, etc.)		
G	Other reason. Specify...			

5. Food Distribution

How was the collaboration with leaders? (circle good, fair or poor)		Good	Fair	Poor
Additional comments on collaboration with local leaders?				
Additional comments on collaboration with Community Health Workers?				

Did beneficiaries have problems collecting and carrying the food home? (Circle yes or no)			Yes	No
Which problems did the beneficiaries have? (Circle code)	Code	List of reasons		
	A	Unfavourable weather		
	B	Distance		
	C	Terrain		
	D	Illness/sickness		
	E	Age of collector		
F	Fatigue			

Who collected the food? (Write numbers)	Adult female	Adult male	Girl child	Boy child	Total

Were all members of the beneficiary household registered as dependents? (Circle yes or no)		Yes	No
What was the main reason for lack of registration of all dependents? (Circle max. 2 codes)	Code	List of reasons	
	A	Not applicable/all members were registered	
	B	Family members returned to live with their family	
	C	Family members adopted into household because of food	
	D	Uniform registration	
E	Other reason. Specify		

Remarks and recommendations regarding the distribution

6. Impact on ART clients

Weight Change	Female	Male	Total	% of Total Beneficiaries
(A) No. of ART clients showing weight gain				
(B) No. of ART clients showing static weight				
(C) No. of ART clients showing weight loss				
(D) Total number of beneficiaries				

% average weight change among adult beneficiaries over the past 3 months (average weight change/average of original weight x 100)

Drug Adherence	Female	Male	Total	% of Total Beneficiaries
(A) No. of HIV-positive clients eligible for ART in the month				
(B) No. of HIV-positive clients that collected their drugs in the month				

7. Non-Food Items

How were the empty sacks/containers used? (circle as appropriate and indicate number)	Code	List of activities	Number of bags used
	A	Community projects (tarpaulin/tents, women/self-help groups)	
	B	Income-generating activities	
	C	Public project: dyking, sand bagging, infrastructure, footbridges	
	D	Education needs, such as, visual aids, etc.	
	E	Food security activities	
	F	Not used/in storage	

Remarks and recommendations regarding the distribution

Monthly Distribution Report



Report Number: _____

Report Date: _____

Cooperating Partner Details							
Cooperating Partner:		Districts:		Distribution Sites:			Reporting Period From: To:
Actual Number of Beneficiaries							
Girls 0–5	Girls 6–18	Women	Boys 0–5	Boys 6–18	Men	Total	
Stock movement/stock details							
Commodities	SI Number	Opening stock	Receipts	Distributed	Losses	Closing balance	Loss reasons
MAIZE GRAIN							
RICE							
PULSES							
VEG. OIL							
CSB							
TOTAL	XXXXXXXXXX						XXXXXXXXXXXXXXXXXXXXXX
Comments:							
Certification							
Issued by:				Received by:			
Name/Title				Name/Title			
Signature/Date				Signature/Date			

NARRATIVE REPORT FOR ALL FOOD DISTRIBUTIONS

Provide a comprehensive account of the issues and events that marked this month's distribution cycle. Please observe the headings below and add space as necessary:

Distribution planning (comments on the preparation of the distribution plan, coordination between partners, changes in beneficiary numbers, etc.):

Actual distribution (comments on the delivery of food, timeliness of distributions, beneficiary rations, closure of distribution, etc.):

Other issues (e.g., food needs, indications of food impact, prospects for self-reliance, surveys/assessments undertaken, etc.):

Instructions for completion and submission of this report:

- The report should be completed within 5 days following the completion of the monthly distribution cycle.
- Copies of all the Distribution Reports must be attached to this report.

Challenges in Collecting and Recording Data

- Clients may find questions intrusive.
- Collecting data takes time and increases workload.
- Weak data collection generates inaccurate information, which is useless for decision making.
- Facilities may not receive feedback on data they submit to higher levels.
- Clients may be double counted if they are registered in different areas.
- Donors have different data requirements.

Addressing NACS Data Collection Challenges

- Become familiar with filling out forms by doing it regularly.
- Collect and record as accurate data as possible.
- Ask the site in-charge to coordinate with the nutrition department of GHS for feedback on reports.
- Record client identification numbers on all forms.
- Ask community health nurses to make home visits to defaulting clients to collect missing information.
- Stress the importance of regular follow-up visits in counselling.

Exercise 11. NACS Data Collection, Monitoring, and Reporting

For each NACS indicator, write how the data will be collected, who will collect the data, and who will report the data.

Indicator	How will the data be collected?	Who will collect which data?	Who will report the data?
1. # of clients who receive nutrition assessment (<i>non-pregnant/post-partum, pregnant/post-partum, under 18, over 18, male or female</i>)			
2. # of clients who receive nutrition counselling (<i>non-pregnant/post-partum, pregnant/post-partum, children by age group</i>)			
3. # of clients diagnosed with SAM			
4. # of clients diagnosed with MAM			
5. # of clients diagnosed as normal			
6. # of clients diagnosed as overweight/obese			
7. # of HIV-positive or TB clients who are undernourished (SAM/MAM) that received therapeutic or supplementary food products (<i>non-pregnant/post-partum, pregnant/post-partum, under 18, over 18, male or female</i>)			
8. # of sachets/boxes of specialised food products in stock			
9. # of health care workers trained in NACS			

NACS Site Quality Assurance Checklist

Review the following statements and tick the 'Yes' or 'No' column based on what is currently happening in your facility. Do this assessment every quarter.

	Yes	No
Equipment and materials		
1. The site has at least one functioning scale for adults that measures weight in kg to the nearest 0.1 kg.		
2. The site has at least one functioning scale for children that measures weight in kg to the nearest 0.1 kg.		
3. The site has at least one height/length board that measures in cm to the nearest cm.		
4. The site has MUAC tapes that measure to the nearest cm for pregnant and post-partum women and other adults whose height cannot be measured.		
5. The site has MUAC tapes for children 6–59 months of age.		
6. The site has copies of algorithms/guidelines for managing malnutrition in HIV- and/or TB-affected adults.		
7. The site has copies of algorithms/guidelines for managing malnutrition in HIV- and/or TB-infected children.		
8. The site has at least one set of nutrition and HIV counselling cards.		
9. The site has data entry forms and a compilation system that includes nutrition data.		
10. The site has a chart with BMI cut-offs for adults and BMI-for-age in adolescents.		
Nutrition assessment and classification		
11. At least two health care providers on staff are trained in nutrition care and support for PLHIV and TB clients.		
12. Every adult and adolescent with HIV and/or TB coming to the site for the first time is weighed to the nearest 0.1 kg and measured to the nearest cm, with BMI calculated for adults and BMI-for-age for adolescents.		
13. MUAC is measured correctly for pregnant or lactating women (up to 6 months post-partum) or clients whose weight or height cannot be measured.		
14. For all HIV- and/or TB-affected children coming to the site for the first time, weight is measured to the nearest 0.1 kg and MUAC is measured to the nearest cm.		
15. MUAC is recorded on client record sheets for children under 5 years of age and BMI is recorded on client record sheets for adults.		
16. Every client is assessed on each clinical visit for critical symptoms (e.g., severe dehydration, severe anaemia, diarrhoea, vomiting, oral sores or thrush, anorexia, TB, or other OIs) that may affect nutritional status.		
Nutrition care plan		
17. Every client with HIV and/or TB receives nutrition care based on a nutrition care plan developed for his/her nutritional status and health condition.		
18. Every client with HIV and/or TB is counselled on the need to:		
a. Be weighed periodically.		
b. If losing weight, eat more energy/nutrient-rich foods.		
c. Maintain good sanitation and hygiene.		
d. Drink plenty of clean and safe water.		
e. Maintain a healthy lifestyle to prevent stress and depression.		

	Yes	No
f. Get regular physical activity.		
g. Manage diet-related symptoms.		
h. Manage drug-food interactions.		
19. Every client with HIV and/or TB who qualifies for food support or food products is given an explanation of the entry and exit criteria, the purpose of the food, and how to prepare and eat the food.		
20. Entry and exit criteria for access to food support or food products are posted where service providers and clients can see them clearly.		
21. Every client with HIV and/or TB who qualifies for food support or food products is weighed on each visit, and the weight is recorded on the client record form.		
22. Every severely malnourished client with HIV and/or TB is given an appetite test before being put on management of SAM.		
23. Health care providers inform clients that specialised food products are not suitable as food for infants under 6 months of age.		
24. Mothers who choose to breastfeed are counselled to:		
a. Take ARVs.		
b. Breastfeed their HIV-infected and -exposed infants exclusively for the first 6 months of life.		
c. Introduce appropriate complementary foods at 6 months, continue breastfeeding for the first 12 months of life.		
d. Stop breastfeeding only when they can feed their infants a nutritionally adequate and safe diet without breast milk.		
25. The site has enough specialised food products to last for 3 months.		
26. The site has access to adequate and appropriate space to store specialised food products, nutrition supplements, and related commodities.		
27. Site staff regularly demonstrate to clients the preparation and use of specialised food products for PLHIV and/or TB clients.		
Stock management and record keeping		
28. The site in-charge or nutrition focal person submits a summary of clients receiving food support or food products every month.		
29. The site in-charge or nutrition focal person compiles estimated food products and other supply needs every month.		
30. The site store in-charge maintains stock records of food products.		
31. The health care provider providing nutrition care services fills in the nutrition/food product register for each client counselled.		
32. The site data clerk compiles nutrition data every month.		
33. FEFO procedures and stock management are used for food and other commodities.		
34. Specialised food products are ordered in advance to avoid stock-outs.		

Now go back and look at any areas where you have ticked 'No'. Discuss with your colleagues whether this activity could improve nutritional care for PLHIV at your facility. Discuss why this activity is not done and how it could be included in the future. You will have the opportunity to review your progress when you conduct your next self-assessment.

Session 5.3 Site Practice Visit

Site Practice Visit Report

Record your observations on the following:

1. What nutrition care and support services are provided at the site?
2. How is nutrition integrated with other services?
3. What key messages are communicated to clients?
4. What data are collected? When and by whom?
5. How are the data analysed? When and by whom?
6. What indicators are reported and to whom?
7. What links does the site have with other services or programmes? What are the challenges of providing nutrition services? How does the site address the challenges?

8. What changes could improve the quality of the nutrition care and support?
9. What were the results of anthropometric assessments during the site visit? (Record in the table below. Include children if available).

Results of Anthropometric Assessment

Age	Height	Weight	BMI	MUAC

Resources

- Generic Guidelines and Job Aids for Community-Based Management of Acute Malnutrition (CMAM)** (Food and Nutrition Technical Assistance II Project [FANTA-2] 2010)
- A Guide to Monitoring and Evaluation of Nutrition Assessment, Education and Counseling of People Living with HIV** (Castleman, Deitchler, and Tumilowicz 2008)
- Guide to Screening for Food and Nutrition Services among Adolescents and Adults Living with HIV** (Tumilowicz 2010)
- Guidelines for Antiretroviral Therapy in Ghana** (Ghana Ministry of Health and Ghana Health Service 2010)
- Guidelines for the Clinical Management of TB and HIV Co-Infection in Ghana** (Ghana Ministry of Health and Ghana Health Service 2007)
- Guidelines for HIV Testing and Counselling in Clinical Settings** (Ghana Health Service, National AIDS/STI Control Programme 2008)
- Guidelines on Nutritional Care and Support for People Living with HIV and AIDS** (Ghana Health Service 2006)
- HIV/AIDS: A Guide for Nutritional Care and Support** (Food and Nutrition Technical Assistance [FANTA] Project 2004)
- HIV Sentinel Survey 2011 Report** (Ghana Health Service, National AIDS/STI Control Programme 2012)
- Integrated Management of Neonatal and Childhood Illness (IMNCI) Chart Booklet** (Ghana Ministry of Health 2011)
- Interim National Guidelines for Community-Based Management of Severe Acute Malnutrition in Ghana** (Ghana Health Service 2010)
- Logistics Management of Public Health Commodities in Ghana, Standard Operating Procedures, Trainers' Manual** (Ghana Health Service March 2008). A manual prepared with funding from the U.S. Agency for International Development as part of the USAID | DELIVER PROJECT Technical Assistance support to the Ghana Health Service to strengthen logistics management for essential public health commodities.
- Logistics Management of Public Health Commodities in Ghana, Standard Operating Procedures Manual, Regional Medical Stores to Service Delivery Points** (Ghana Health Service, revised June 2010). A manual prepared with funding from the U.S. Agency for International Development as part of the USAID | DELIVER PROJECT Technical Assistance support to the Ghana Health Service to strengthen logistics management for essential public health commodities.
- Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers** (World Health Organisation 1999)
- National HIV Prevalence and AIDS Estimates Report 2011** (Ghana Health Service, National AIDS/STI Control Programme 2011)
- National Strategic Plan 2011–2015** (Ghana AIDS Commission 2011)

Nutrient Requirements for People Living with HIV/AIDS: Report of a Technical Consultation, 13–15 May, 2003 (World Health Organisation 2004)

Nutritional Care and Support for People Living with HIV/AIDS: A Training Course (World Health Organisation 2009)

Protein and Amino Acid Requirements in Human Nutrition; Report of a Joint WHO/FAO/UNU Expert Consultation (WHO, FAO, and United Nations University 2007)

Standard Treatment Guidelines, Sixth Edition. (Ghana Ministry of Health 2010)

Training Course on Inpatient Management of Severe Acute Malnutrition (Ghana Ministry of Health and Ghana Health Service 2012)

Training Manual on Anaemia Control during Pregnancy (Ghana Health Service 2004)

Training Manual on Logistics Management (Ghana Ministry of Health 2012)

WHO Child Growth Standards and the Identification of Severe Acute Malnutrition in Infants and Children: A Joint Statement by WHO and UNICEF (WHO and UNICEF 2009)

Annex 1. Answers to Exercise 1

A. IMMEDIATE CAUSES OF MALNUTRITION IN PEOPLE LIVING WITH HIV AND TB CLIENTS

Disease/illness

- HIV/AIDS
- Tuberculosis
- Opportunistic infections
- Related complications

Inadequate food intake because of:

- **Appetite loss** caused by high viral load, illness, drugs, depression, anxiety, fatigue, and taste changes associated with medicines
- **Nausea or vomiting** caused by illness or drugs
- **Oral problems** (decayed or missing teeth, mouth sores, thrush, and problems swallowing caused by throat tumours)
- **Abdominal pains/cramps**
- **Lack of encouragement to eat** (lack of active feeding of children by caretakers)
- **Drug-food interactions** (drugs that cannot be taken with foods such as fats or milk, or have to be taken with certain foods)
- **Inappropriate food preparation** (destruction of nutrients, not mashing or grating food for people with oral problems or illness)
- **Increased nutrient needs** as a result of illness
- **Sub-optimal breastfeeding of infants**
- **Food taboos** associated with illness (not breastfeeding a child with a fever, not eating eggs when pregnant)
- **Gender inequalities in food distribution** (men eating first)

Inability to use, digest, or absorb some nutrients because of:

- Food intolerance (lactose, fat, or carbohydrates; malabsorption of fat leading to poor absorption of fat-soluble vitamins such as vitamins A and E)
- Constipation or bloating
- Diarrhoea (related to contaminated foods, HIV, or drug side effects)
- Poor gut integrity
- High viral load
- Infections
- Metabolic disorders (sometimes a side effect of drugs)
- Digestive malfunction such as insulin resistance

B. UNDERLYING CAUSES OF MALNUTRITION

- Lack of access to markets or food sources
- Lack of money to buy food or medicines
- Poor hygiene and sanitation
- Lack of knowledge
- Social/cultural beliefs

Food insecurity because of:

- Reduced ability to work and earn income and afford preferred foods
- Declining mobility to access health care and food markets as a result of illness
- Reduced access to food because of stigma, discrimination, or mental health issues such as depression
- Reduced access to food for vulnerable groups such as orphans and vulnerable children

Annex 2. RUTF Look-Up Tables and Key Messages for Outpatient Care

Look-up table for amounts of RUTF to give to a child per day or week based on 92 g packets containing 500 kcal

Weight of Child (kg)	Packets per Week	Packets per Day
3.5–3.9	11	1.5
4.0–4.9	14	2
5.0–6.9	18	2.5
7.0–8.4	21	3
8.5–9.4	25	3.5
9.5–10.4	28	4
10.5–11.9	32	4.5
≥ 12	35	5

RUTF Key Messages

Key messages at first visit:

- RUTF is a food and medicine for very thin children only. It should not be shared.
- Sick children often do not like to eat. Give small regular meals of RUTF and encourage the child to eat often (if possible, 8 meals a day). Your child should have ___ packets a day.
- RUTF is the only food sick/thin children need to recover during their time in outpatient care (however, breastfeeding should continue).
- For young children, continue to breastfeed regularly.
- Always offer the child plenty of clean water to drink or breast milk while he or she is eating RUTF.
- Wash children’s hands and face with soap before feeding if possible.
- Keep food clean and covered.
- Sick children get cold quickly. Always keep the child covered and warm.
- When a child has diarrhoea, never stop feeding. Continue to feed RUTF and (if applicable) breast milk.

Annex 3. Nutrition Guide for Food Security Programmes for PLHIV and/or TB

Protein

Item	Pre-School	Other Children and Adults
Meat, poultry, big fish	1 match box size	1 match box size
Eggs	1 small size	1 large size
Small fish	2 fingers	4 fingers
Bambara, beans, agushie sauce	½ stew ladle	1 stew ladle
Groundnut, agushie, neri, bungu	½ soup ladle	1 soup ladle

Carbohydrate

Item	Pre-School	Other Children and Adults
Tuozaafi, fufu, banku, kenkey	2 table tennis balls	2 fist fulls
Cocoyam, yam, sweet potatoes	1 sardine tin size	2–3 sardine tin size
Rice	1 stew ladle	4 stew ladles
Porridge	1 soup ladle	3 soup ladles
Plantain	1 finger (apem) ¼ finger (apentu)	3 fingers (apem) 1 fingers (apentu)

Vegetable

Item	Pre-School	Other Children and Adults
Vegetable sauce	1 stew ladle	1 soup ladle

Fruit

Item	Pre-School	Other Children and Adults
Pawpaw	1 match box size	3 match box size
Banana	½ finger	1 finger
Pineapple	1 sardine tin size	2 sardine tin size
Orange	½ small size	1 small size
Mango	match box size	1 match box size
Watermelon	½ sardine size	1 sardine size
Shea fruit	N/A	N/A
Dawadawa	N/A	N/A

Annex 4. Glossary of Key Terms

Acceptable, Feasible, Affordable, Sustainable, and Safe (AFASS) refers to criteria that should be met if replacement feeds are to be given safely to infants.

Acquired Immunodeficiency Syndrome (AIDS) is an advanced stage of HIV, clinically defined by the presence of HIV infection and a low level of white blood cells or T-cells.

Acute malnutrition is a form of undernutrition. It is caused by a decrease in food consumption and/or illness, resulting in bilateral pitting oedema or sudden weight loss. It is defined by the presence of bilateral pitting oedema or wasting (low mid-upper arm circumference or low weight-for-height). Acute malnutrition is classified as either severe (SAM) or moderate (MAM).

Anaemia is a condition in which the haemoglobin (Hb) concentration in the blood is below a defined level (non-pregnant women of reproductive age: < 12 g/dl; pregnant women: < 11 g/dl; children 0–59 months: < 11 g/dl). This results in a reduced oxygen-carrying capacity of red blood cells. Pregnant women, infants, and young children are particularly vulnerable to anaemia. Anaemia of all severities increases risk of maternal and perinatal mortality, preterm birth, and low birth weight, impaired cognitive development in children, and reduced adult work productivity.

Anorexia is the loss of appetite or the inability to eat.

Antenatal care is care provided to a mother and child immediately following birth through 6 months of age.

Anthropometry is the measurement of the human body. It is used to assess the nutritional status of individuals to screen for medical conditions and as entry criteria for nutrition support programmes. Common nutrition-related anthropometric measures are height, weight, and mid-upper arm circumference.

Appetite test is the decisive criteria for participation in the outpatient care service of Community-Based Management of Acute Malnutrition. The test is done at admission and during all follow-up sessions to ensure that the patient can eat ready-to-use therapeutic food. If the patient has no appetite, he/she must be treated in inpatient care.

Bilateral pitting oedema—also known as nutritional oedema, kwashiorkor, or oedematous malnutrition—is a sign of severe acute malnutrition. It is caused by an abnormal infiltration and excess accumulation of serous fluid in connective tissue or in serous cavities. Bilateral pitting oedema is verified when thumb pressure applied on top of both feet for 3 seconds leaves a pit (indentation) in the foot after the thumb is lifted.

Body Mass Index (BMI) is a calculation made to assess adult nutritional status and identifies body thinness as a result of weight loss or failure to gain weight. BMI is not accurate in pregnant women and women up to 6 months post-partum. BMI is calculated by dividing weight in kilograms by height in metres squared ($BMI = \text{kg}/\text{m}^2$).

Caregiver is someone, male or female, who cares for a child and makes decisions on the child's treatment if he or she is ill. This person could be a mother, father, or grandparent, or could be external to the family, depending on the situation.

Chronic malnutrition is caused by prolonged or repeated episodes of undernutrition starting before birth, resulting in stunting. Stunting is defined by low height-for-age.

Clients refer to individuals who receive health-related commodities or services.

Community-Based Management of Acute Malnutrition (CMAM) is an approach that involves (1) inpatient care for the management of severe acute malnutrition (SAM) with medical complications and for all infants under six months with acute malnutrition, (2) outpatient care for the management of SAM without medical complications, and (3) community outreach for active case-finding and referral and follow-up of problem cases.

Corn-Soya Blend (CSB) is a naturally wholesome blended food containing 69.5% cornmeal, 21.8% soy flour, a premix of 3.0% minerals and vitamin antioxidant, and 5.5% soy oil. It is highly nutritious and precooked for ease in use and handling.

Critical Nutrition Actions (CNAs) are a set of eight interventions that promote nutrition and child survival.

Exclusive breastfeeding is the feeding of an infant only with breast milk and *no other* liquids or solids except vitamins, mineral supplements, or medicines in drop or syrup form. Exclusive breastfeeding is recommended until the infant reaches 6 months of age.

Food is anything that provides the body with nutrients.

Food access means having adequate resources to obtain appropriate foods for a nutritious diet, which depends on available income, distribution of income in the household, and food prices.

Food availability is having sufficient quantities of food from household production, other domestic output, commercial imports, or food assistance.

Food by Prescription (FBP) is a component of nutrition assessment, counselling, and support. Specifically, FBP refers to the provision of specialized food product based on the established eligibility and exit criteria.

Food groups refer to categories of food based on the type of nourishment they supply. The three categories are (1) energy giving foods: supply the body with carbohydrate for energy, (2) body building foods: important for growth and repair of the body, and (3) protective foods: important sources of vitamins and minerals.

Food security, as defined by the U.S. Agency for International Development, exists when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Food security is attained when the following three components are fully realized: food availability, food access, and food utilisation/consumption.

Food utilisation/consumption is the proper biological use of food, requiring a diet with sufficient energy and essential nutrients, potable water, and adequate sanitation, as well as knowledge of food storage, processing, basic nutrition, and child care and illness management.

Formula 75 (F-75) (75 kcal/100 ml) is the milk-based diet recommended by the World Health Organisation for the stabilisation of children with severe acute malnutrition (with medical complications) in inpatient care.

Formula 100 (F-100) (100 kcal/100 ml) was the milk-based diet recommended by the World Health Organisation for the nutritional rehabilitation of children with severe acute malnutrition (SAM) after stabilisation, before ready-to-use therapeutic food (RUTF) was available. Its main use currently is for children with SAM and severe mouth lesions who cannot swallow (RUTF) and who are in inpatient care. F-100 Diluted is used for the stabilisation and rehabilitation of infants in inpatient care.

Global Acute Malnutrition (GAM) is a population-level indicator referring to overall acute malnutrition defined by the presence of bilateral pitting oedema or wasting defined by weight-for-height < -2 z-score (WHO growth standards). GAM is the combination of moderate and severe acute malnutrition (GAM = MAM + SAM).

Growth faltering occurs when a child fails to gain adequate weight, compared to the amount of weight he or she would be expected to gain during a specified time period, based on international references. Growth faltering is measured by weighing children at regular intervals and comparing their weight gain to adequate weight gain tables, or growth curves.

Health care is the prevention, treatment, and management of illness and the preservation of mental and physical well-being through the services offered by health care providers. Health care embraces all the goods and services designed to promote health, including preventive, curative, and palliative interventions, whether directed to individuals or to populations.

Height-for-Age (HFA) is an index used to assess stunting. It reveals how a child's height compares to the height of a child of the same age and sex in the National Center for Health Statistics references or World Health Organisation standards. It reflects a child's past nutrition history rather than his or her current nutritional status.

Human Immunodeficiency Virus (HIV) attacks the immune system. It is spread through sexual contact, direct inoculation with contaminated needles, or blood transfusion. It can also be spread from mother to child during pregnancy, birth, or breastfeeding. Left untreated, HIV compromises immune system function, leaving the infected person susceptible to a variety of opportunistic infections, including AIDS.

Low birth weight is when an infant weighs less than 2,500 g (5.5 pounds) at birth. Low birth weight is an outcome of intrauterine growth retardation and/or premature birth.

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

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

Nutritional status is the balance between the intake of nutrients by an organism and the expenditure of these in the processes of growth, reproduction, and health maintenance.

Macronutrient includes substances that are required by the body in large amounts for the proper growth, maintenance, and repair of body processes and tissues. They include carbohydrates, protein, water, and fat.

Malnutrition occurs when food intake does not match dietary needs. Malnutrition includes both undernutrition and overnutrition.

Micronutrient includes substances that are required by the body in small amounts, including vitamins and minerals. Absence of these substances in the diet will lead to deficiency diseases.

Micronutrient deficiencies are a result of reduced micronutrient intake and/or absorption. The most common forms of micronutrient deficiencies are related to iron, vitamin A, and iodine deficiency.

Mid-Upper Arm Circumference (MUAC) is measured using a MUAC tape on a straight left arm (in right handed people), midway between the tip of the shoulder and the tip of the elbow. Low MUAC is an indicator for wasting, used for a child 6 months to 17 years.

Moderate Acute Malnutrition (MAM) is identified in Ghana as follows:

Children 6–59 months: MUAC \geq 11.5 to $<$ 12.5 cm

Children 5–9 years: MUAC \geq 13.5 to $<$ 14.5 cm

Children 10–14 years: MUAC \geq 16.0 to $<$ 18.5 cm

Children 15 – 17 years: MUAC \geq 17.5 to $<$ 19.5 cm

Adults: MUAC \geq 19.0 to $<$ 21.0 cm, or BMI \geq 16.0 to $<$ 18.5

Pregnant/post-partum women: MUAC \geq 21 to $<$ 23 cm

Opportunistic Infection (OI) is an illness caused by various organisms, some of which usually do not cause disease in people with normal immune systems. People living with advanced HIV infection suffer OIs of the lungs, brain, eyes, and other organs. OIs common in people diagnosed with AIDS include *Pneumocystis carinii* pneumonia; Kaposi's Sarcoma; cryptosporidiosis; histoplasmosis; other parasitic, viral, and fungal infections; and some types of cancers.

Overnutrition is a result of excessive intake of nutrients, leading to overweight or obesity.

Ready-to-Use Therapeutic Food (RUTF) is an energy-dense, mineral- and vitamin-enriched food specifically designed to treat severe acute malnutrition. RUTF has a similar nutrient composition to F-100. RUTF is a soft crushable food that can be consumed easily by children from the age of 6 months without adding water. Unlike F-100, RUTF is not water-based, meaning that bacteria cannot grow in it and that it can be used safely at home without

refrigeration and in areas where hygiene conditions are not optimal. It does not require preparation before consumption.

Recommended Daily Intake (RDI) is the minimum amount of macronutrients and micronutrients required by an individual to prevent the development of micronutrient deficiencies or undernutrition.

Severe Acute Malnutrition (SAM) is identified in Ghana as follows (a child with SAM is highly vulnerable to illness and has a high mortality risk):

Infants < 6 months: severe visible wasting, and/or bilateral pitting oedema

Children 6–59 months: MUAC < 11.5 cm, and/or bilateral pitting oedema

Children 5–9 years: MUAC < 13.5 cm, and/or bilateral pitting oedema

Children 10–14 years: MUAC < 16.0 cm, and/or bilateral pitting oedema

Children 15–17 years: MUAC < 17.5 cm, and/or bilateral pitting oedema

Adults: MUAC < 19 cm, or BMI < 16, and/or bilateral pitting oedema

Pregnant/post-partum women: MUAC < 21 cm

Training of Trainers (TOT) is a process in which an experienced trainer expands the knowledge and skills of health care providers already experienced in the subject matter and trains them in adult training. The trained health providers then, in turn, pass on that expanded knowledge and skills to practitioners with less experience and expertise in the subject matter, perhaps in multiple trainings.

Tuberculosis (TB) is a bacterial infection caused by *Mycobacterium tuberculosis*. TB bacteria are spread by airborne droplets expelled from the lungs when a person with active TB coughs, sneezes, or speaks. Exposure to these droplets can lead to infection in the air sacs of the lungs. TB is seen with increasing frequency among HIV-infected people. Most cases of TB occur in the lungs (pulmonary TB), however, the disease may also occur in the larynx, lymph nodes, brain, kidneys, or bones (extrapulmonary TB).

Undernutrition is a lack of nutrients caused by inadequate dietary intake and/or disease. It encompasses a range of conditions, including acute malnutrition, chronic malnutrition, and micronutrient deficiency.

Wasting is defined by low mid-upper arm circumference or low weight-for-height z-score.

Weight-for-age is used to assess underweight. It shows how a child's weight compares to the weight of a child of the same age and sex according to World Health Organisation standards. The index reflects a child's long-term growth pattern and current nutritional status.

Weight-for-height is used to assess wasting. It shows how a child's weight compares to the weight of a child of the same length/height and sex according to World Health Organisation standards. The index reflects a child's current nutritional status.

Notes