Nutrition Care for People Living with HIV (PLHIV) and/or Tuberculosis (TB) Clients in Ghana

Introductory Session

Nutrition Assessment, Counselling, and Support

Training Course Objectives

1. Advocate for and discuss the role of nutrition in care and treatment
2. Assess and classify the nutritional status for PLHIV and/or TB clients
3. Select appropriate care plans based on 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

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)

Definitions of Basic Nutrition Terms

- **Food** is anything that provides the body with nutrients.
- **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** = carbohydrates, protein, and fat (needed in large amounts)
- **Micronutrients** = vitamins and minerals (needed only in small amounts)

Definition of Malnutrition

- **Malnutrition** is an imbalance in nutritional status. A malnourished person can have either undernutrition or overnutrition.
  - **Undernutrition** is the result of taking in an inadequate amount or combination of nutrients to carry out needed body functions.
  - **Overnutrition** is the result of taking in more nutrients than the body needs over time.

Types of Undernutrition

- **Acute malnutrition** is caused by a decrease in food consumption and/or illness, resulting in bilateral pitting oedema or **wasting** (low Mid-Upper Arm Circumference [MUAC])
  - Severe Acute Malnutrition (SAM)
  - Moderate Acute Malnutrition (MAM)
- **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.

Food Groups

People should eat a variety of foods from all the food groups to get all the nutrients the body needs.

1. **Energy-giving foods:** Foods rich in carbohydrates and fat, e.g., **cereals, plantains, bananas, roots, tubers, honey, sugar, fats, and oils.** Important for giving the body energy**.**
2. **Body-building foods:** Foods rich in protein, e.g., **pulses and nuts**. Important for growth and repair.
3. **Protective foods:** Foods rich in vitamins and minerals, e.g., **fruits and vegetables.** Important for the body's protection.

Nutritional Requirements

Estimated Daily Energy Requirements

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)	20% more energy (420 more kcal)[2]	
Pregnant/lactating women	2,460–2,570			

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

Estimated Daily Protein Requirements

Group	Grams (g) per day
< 6 months old	9
6–11 months old	10
12–23 months old	25
4–6 years old	17 (boys), 16 (girls)
7–10 years old	26
11–14 years old	41
15–18 years old	58 (boys), 47 (girls)
≥ 18 years old	57 (men), 48 (women)
Pregnant/lactating	55–68
HIV-positive	No additional requirement

Source: WHO, FAO, and United Nations University (UNU). 2001. *Human Energy Requirements: Report of a Joint WHO/FAO/UNU Expert Consultation, 17–24 October, 2001.* Geneva: WHO.

Nutritional Requirements of PLHIV and TB Clients

The nutritional requirements of PLHIV and TB clients are influenced by:

- Age
- Physiological changes (pregnancy and lactation)
- Physical activity
- Clinical stage of HIV and/or TB
- Metabolism

Stage of Infection and Nutrient Requirement

ENERGY

- **HIV-infected adult** (early/asymptomatic stage): 10% more energy
- **HIV-infected adult** (late/symptomatic stage): 20%–30% more energy
- **HIV-infected child**
  - 10% more energy if asymptomatic
  - 20%–30% more energy if symptomatic
  - 50%–100% more energy if losing weight or acutely malnourished

- **Protein:** Same as for non-HIV infected (12%–15% of energy intake, 50–80 g/day, or 1 g/kg of ideal body weight).

- **Micronutrients:** 1 RDA, ideally through diet, but if diet is insufficient, children and pregnant/post-partum women may need micronutrient supplements as per the national protocol.

- **Fat:** Same as for non-HIV infected people (no more than 35% of total energy needs).

- **TB clients follow the same nutrient requirements.**

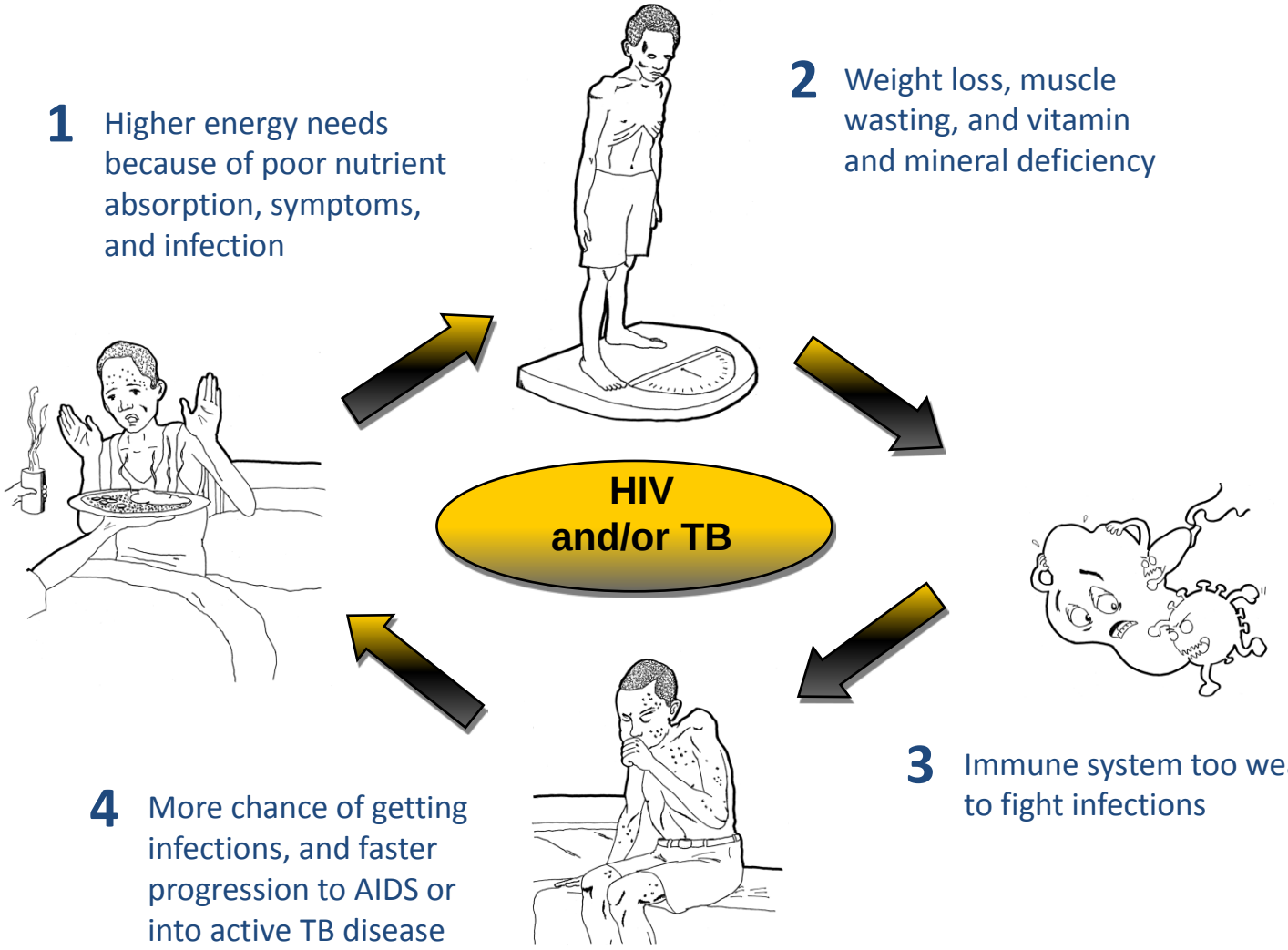
Nutrition and TB

- TB reduces appetite and increases energy expenditure, increasing the risk for wasting.
- Underweight people are at increased risk of developing active TB.
- Poor nutritional status may speed up progression from TB infection to TB disease.
- Protein loss in TB patients can cause nutrient mal-absorption.
- Increased energy expenditure and tissue breakdown increase micronutrient needs in people with TB.
- Poor appetite makes people with TB unable to eat enough to meet their increased micronutrient needs.

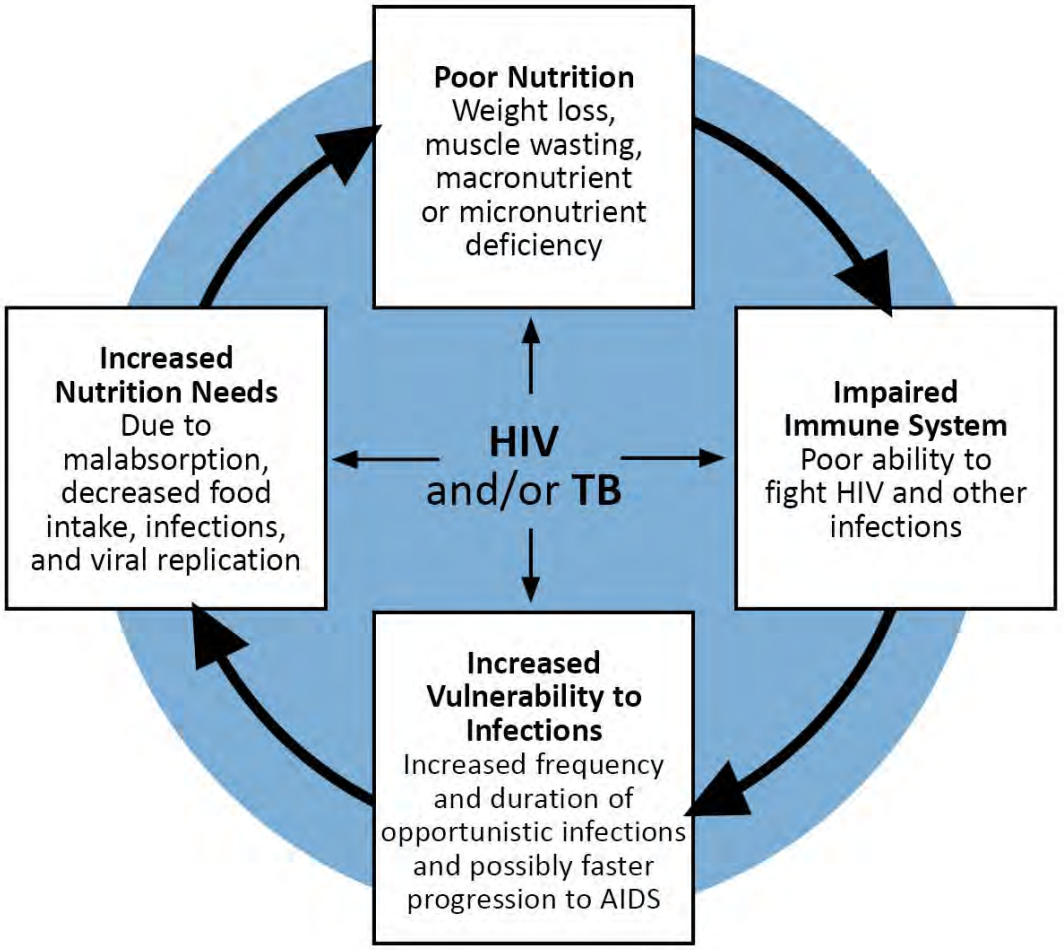
HIV-TB Co-Infection

- PLHIV are more vulnerable to TB, and it is more difficult to treat TB in PLHIV.
- HIV increases the risks of TB infection, latent TB becoming active, and relapse after treatment.
- PLHIV are up to 50 times more likely to develop active TB than people without HIV.
- 30% of PLHIV with TB die within 1 year of diagnosis and initial treatment.
- TB speeds HIV progression and increases mortality.

Poor Nutrition Speeds up Progression from HIV to AIDS and TB to Active TB



A Vicious Cycle: Nutrition and HIV and 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.

Exercise 1

Causes of Malnutrition in PLHIV and/or TB Clients

(Page 9 of Participant Manual)

Immediate Causes of Malnutrition in PLHIV and TB Clients

1. **Disease/illness: HIV/AIDS, TB, opportunistic infections, and related complications**
2. **Inadequate food intake** because of:
   - **Appetite loss** caused by high viral load, illness, drugs, depression, anxiety, fatigue, and taste changes
   - **Nausea or vomiting** caused by illness or drugs
   - **Oral problems** such as dental problems, mouth sores, thrush, and pain or difficulty swallowing
   - **Abdominal pains/cramps**
   - **Lack of encouragement to eat** such as lack of active feeding of children by caretakers

Immediate Causes of Malnutrition in PLHIV and TB Clients *(continued)*

Inadequate food intake *(continued)*

- **Drug-food interactions** including drugs that need to be taken while fasting or with food
- **Inappropriate food preparation** such as overcooking, and inappropriate textures for those with oral problems
- **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)

Immediate Causes of Malnutrition in PLHIV and TB Clients *(continued)*

3. **Inability to use, digest, or absorb some nutrients** because of:
   - **Food intolerances and malabsorption of nutrients** such as lactose, fat, or carbohydrates
   - **Constipation or bloating**
   - **Diarrhoea** related to food contamination, HIV, or drug side effects
   - **Poor functioning of the gastrointestinal tract**
   - **Increased susceptibility to food-borne infections**
   - **High viral load**
   - **Other infections**
   - **Metabolic disorders** a possible side effect of some medication
   - **Digestive malfunction** such as insulin resistance

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 and/or ability to practice optimal feeding behaviours
- Social/cultural beliefs

Underlying causes of malnutrition listed above are also factors that affect people who do not have HIV or TB.

Food insecurity because of:

- Reduced ability to work, earn income, and afford a nutritious diet
- 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

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
- Pre-term delivery

Signs of Severe Acute Malnutrition

Pitting oedema in both legs

Wasting (marasmus)

Photo from: WHO 2013.
http://www.who.int/nutrition/topics/malnutrition/en/

Oedema and flaking skin (kwashiorkor)

Consequences of Malnutrition in PLHIV and TB Clients

- Poor food absorption
- Poor growth
- Increased morbidity
- Metabolic complications
- Increased risk of opportunistic infections
- 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

Importance of Nutrition in the Comprehensive Care of PLHIV and TB Clients

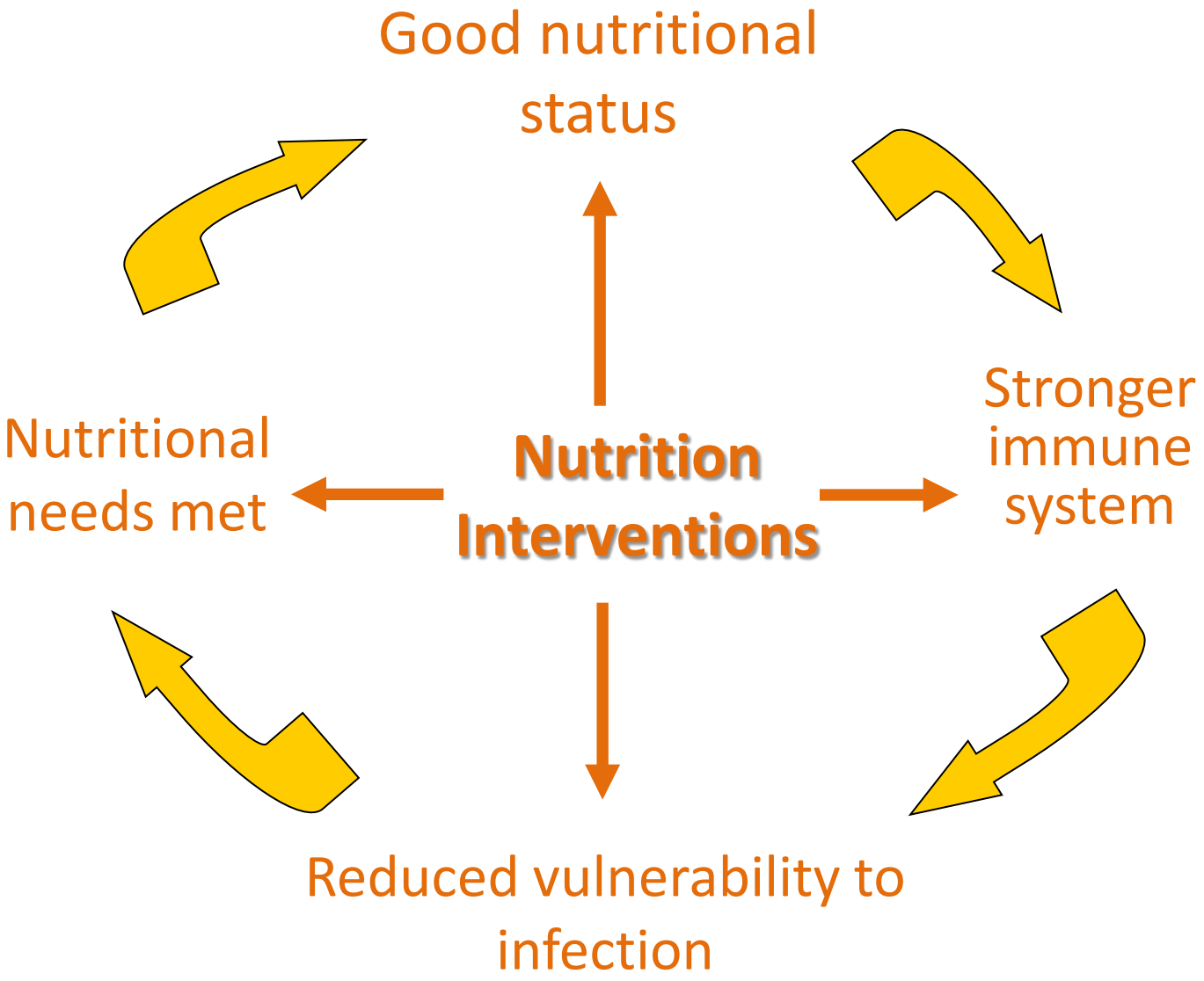
Poor nutrition can worsen the effects of HIV and/or TB by:

- Weakening the immune system
- Increasing vulnerability to infections
- Reducing the body's ability to recover from infection

Good nutrition is important for PLHIV and TB clients because:

- It helps people feel strong and look healthy.
- It helps strengthen the immune system to fight infection.
- It helps slow the progression of HIV to AIDS and latent TB to active TB.
- It helps people continue to be productive, strong, and able to do physical activities.
- It can help people maintain a healthy weight.
- It improves the effectiveness of Antiretrovirals (ARVs) and TB drugs.

Breaking the Vicious Cycle



Preventing and Managing Malnutrition

Food

- Promotion of a balanced diet using a variety of locally available foods
- Promotion of optimal feeding of vulnerable groups
- Mashing, fermenting, germinating, dehulling, or roasting foods to improve nutrient availability
- Home fortification of foods with micronutrient mixes
- Promotion of kitchen gardens and backyard gardens
- Fortification of food staples (salt, cooking oil, and wheat flour)
- Improved household food production, post-harvest handling, preservation, and processing
- Economic strengthening and livelihood initiatives to improve food security
- Food support/aid
- Improved institutional feeding in schools and prisons

Preventing and Managing Malnutrition

(continued)

Health services

- Integration of NACS into routine health services
- Micronutrient supplements (vitamin A, iron-folate, and zinc)
- Specialised food products to treat acute malnutrition (SAM and MAM)
- Deworming to prevent iron deficiency anaemia

Behaviour change

- Growth monitoring and promotion
- Nutrition counselling and education
- Social marketing
- Awareness campaigns

Critical Nutrition Actions for PLHIV

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.

Critical Nutrition Actions for PLHIV

(continued)

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.

Components of NACS

1. Nutrition assessment
2. Nutrition counselling and education
3. Nutrition care plan
4. Prescription of specialised food products for acutely malnourished clients
5. Sometimes provision of point-of-use water treatment methods
6. Sometimes micronutrient supplementation
7. Referral to other clinical and community services

Module 2

Nutrition Assessment, Classification, and Care Plans

Learning Objectives

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

Importance of Nutrition Assessment

- Identifies people at risk for 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

Clinical

- Signs and symptoms
- Appetite test

Physical

- Anthropometry

Biochemical

- Laboratory investigations

Dietary

- 24-hour recall
- Food frequency questionnaire

Clinical Assessment

1. **Check for medical conditions**
   - Bilateral pitting oedema
   - Wasting
   - Anorexia, poor appetite
   - Persistent diarrhoea
   - Nausea or vomiting
   - Severe dehydration
   - High fever (> 38.5^{o} C)
   - Rapid breathing
   - Convulsions
   - Severe anaemia
   - Eye signs of vitamin A deficiency

2. **Check what medication the client is taking**

Physical Assessment: Anthropometry

- Anthropometry is the measurement of the size, weight, and proportions of the human body.
- Anthropometric measurements can be used to assess the nutritional status of individuals and population groups.

Types of Anthropometric Measurements

- Mid-Upper Arm Circumference (MUAC)
- Weight
- Height

Some measurements are presented as indices

- Body Mass Index (BMI)

How Often Should You Weigh Clients

- Generally, at each visit
- Children under 5: follow routine reproductive and child health weighing schedule
- Outpatient adults:
  - With SAM: every week or every 2 weeks
  - With MAM: every month
  - With normal nutritional status: every 3 months

Body Mass Index (BMI)

- BMI is a reliable indicator of body fat composition and an inexpensive and simple way to measure adult malnutrition.
- BMI below established World Health Organization (WHO) cut-offs indicates a need for nutrition interventions.
- BMI cut-offs are not accurate in pregnant women or adults with oedema, whose weight gain is not linked to nutritional status. For these groups, MUAC should be used.

BMI Cut-Off

BMI	Nutritional Status
< 16.0 kg/m^2	Severe (SAM)
≥ 16.0 to < 18.5 kg/m^2	Moderate (MAM)
≥ 18.5 to < 25.0 kg/m^2	Normal
≥ 25.0 to < 30.0 kg/m^2	Overweight
≥ 30.0 kg/m^2	Obese

Exercise 2

Computing BMI for Adults

(Page 26 of Participant Manual)

BMI Cut-Off

BMI	Nutritional Status
< 16.0 kg/m^2	Severe (SAM)
≥ 16.0 to < 18.5 kg/m^2	Moderate (MAM)
≥ 18.5 to < 25.0 kg/m^2	Normal
≥ 25.0 to < 30.0 kg/m^2	Overweight
≥ 30.0 kg/m^2	Obese

Practice

How to Measure MUAC

Classifications of Nutritional Status

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

Exercise 3

Classifying Nutritional Status (Client Register from Aduaba Clinic)

(Page 33 of Participant Manual)

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

Dietary Assessment

- Take a dietary history
- Use the dietary recall form to take a 24-hour dietary recall
- Use open-ended questions to elicit responses
- Do not respond judgementally to answers provided
- You may also use a food frequency questionnaire

Exercise 4

Case Study

(Page 39-40 of Participant Manual)

Nutrition Care Plans
Criteria for 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

Severe Acute Malnutrition (SAM)

Criteria for Inpatient Treatment of SAM (< 6 Months)

- Bilateral pitting oedema

Or

- Visible signs of wasting

Note: Infants > 6 months weighing < 4 kg should be admitted for inpatient care

Criteria for Inpatient Management of SAM (6–59 Months & 5–17 Years)

- Bilateral pitting oedema +++
- Wasting AND any grade of oedema (+,++, +++)
- Wasting OR bilateral pitting oedema + and ++ with any of the following medical complications:
  - Anorexia, no appetite
  - Intractable vomiting
  - Convulsions
  - Lethargy, not alert
  - Unconsciousness
  - Hypoglycaemia
  - High fever
  - Hypothermia
  - Severe dehydration
  - Lower respiratory tract infection (LRTI)
  - Severe anaemia
  - Skin lesion (dermatosis)
  - Eye signs of vitamin A deficiency

OR failure to respond to treatment in outpatient care based on the ACTION PROTOCOL

Criteria for Inpatient Management of SAM (Adults)

- SAM measured by BMI (< 16 for adults) or oedema +++/kwashiorkor
- Pregnant/lactating women – MUAC < 21.0 cm
- Adult who cannot stand – MUAC < 19.0 cm

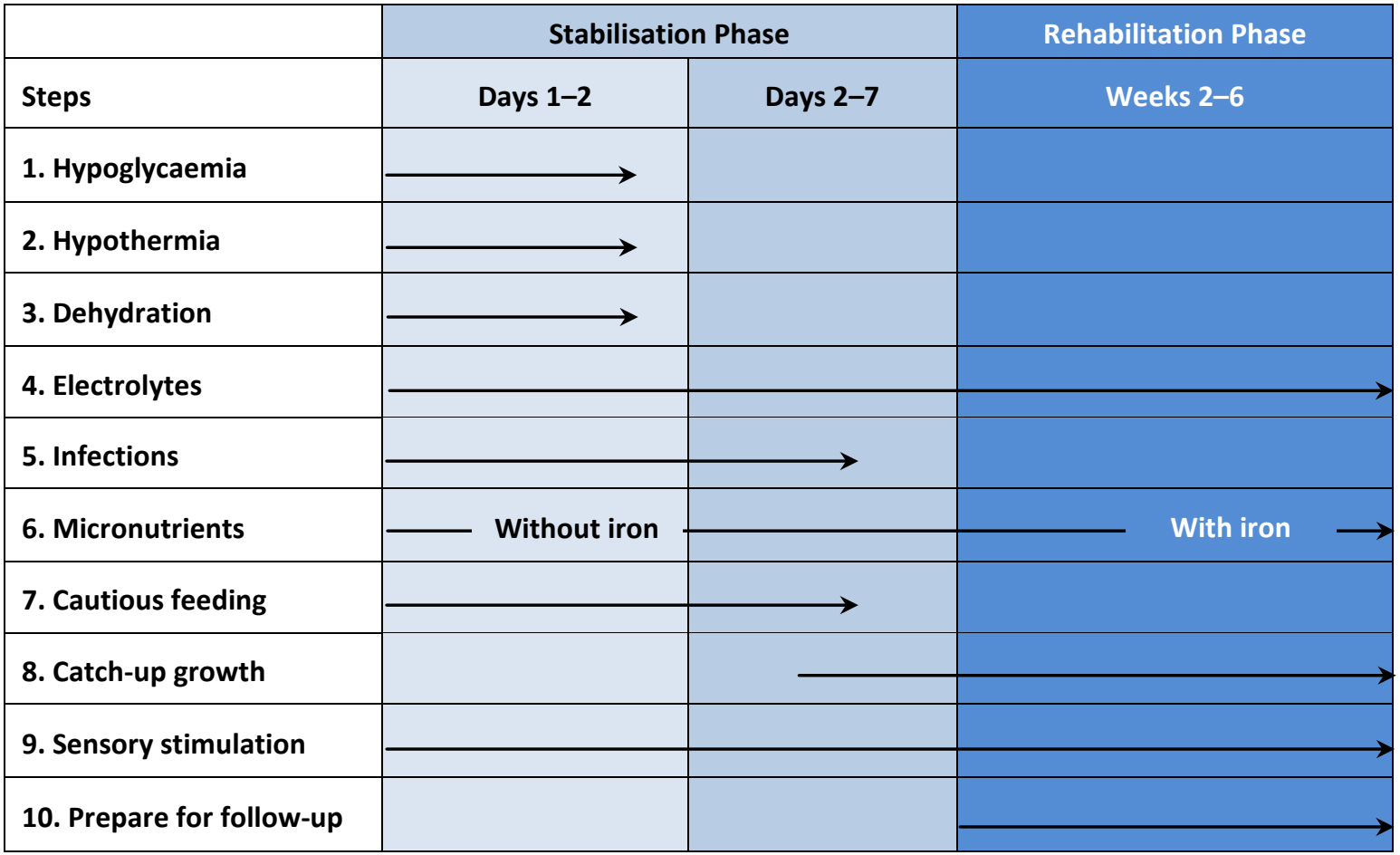
AND ANY OF THE FOLLOWING

- Poor appetite (failed an appetite test)
- Complications
- In outpatient care for 2 months and no weight gain or weight loss or worsening oedema
- Caregiver unable to provide home care or return in 1 week for follow-up

3 Phases of Managing a Child with SAM

- **Stabilisation**: Life-threatening problems are identified and treated, 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. Ready-to-use therapeutic food (RUTF) is gradually introduced in this phase.
- **Rehabilitation**: Intensive feeding to recover lost weight, emotional and physical stimulation. In most cases, rehabilitation will take place in outpatient care using RUTF.

10 Steps in Managing SAM with Complications (WHO 1990)



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

Criteria for Outpatient Management of SAM (Children 6–59 Months)

- SAM measured by MUAC < 11.5 cm

OR

- Bilateral pitting oedema + or ++

AND

- Passed an appetite test
- No medical complications (clinically well and alert)
- Caregiver willing and able to provide home care and return in 1 week for follow-up

Criteria for Outpatient Management of SAM (Adults)

- SAM measured by BMI (< 16 for adults) or oedema + or ++
- Pregnant/lactating women – MUAC < 21.0 cm
- Adult who cannot stand – MUAC < 19.0 cm

AND

- Passed an appetite test
- No medical complications
- Caregiver willing and able to provide home care and return in 1 week for follow-up

Management of SAM without Complications (Outpatient Care)

- Conduct nutrition assessment: MUAC, weight, height (only adults), oedema, diet assessment, and biochemical if needed
- Conduct medical history and physical examination
- Conduct RUTF appetite test
- Provide weekly/biweekly ration of RUTF
  - For children, **ONLY RUTF** is used to manage SAM
  - For adults, RUTF and fortified-blended foods (FBF), or RUTF and nutritious home foods are used to nutritionally manage SAM

Management of SAM without Complications (Outpatient Care)

(continued)

- Provide routine SAM medicines
- HIV testing and Septrin prophylaxis if applicable
- Counselling on the CNAs
- Conduct weekly or bi-weekly monitoring
- On follow-on visits, conduct appetite test, nutrition assessment, medical history, and physical examination
- Referral to programmes for psychosocial counselling, home-based care, food security, and livelihood support

Exercise 5

Nutrition Care Plan for SAM

(Page 51-52 of Participant Manual)

Criteria for Moderate Acute Malnutrition (MAM)

Adults

BMI ≥ 16.0 to < 18.5 kg/m^2 **OR**

MUAC ≥ 19.0 to < 21.0 cm

Pregnant/post-partum

MUAC ≥ 21 to < 23 cm

Children

6–59 months: MUAC ≥ 11.5 to < 12.5 cm

5–9 years: MUAC ≥ 13.5 to < 14.5 cm

10–14 years: MUAC ≥ 16.0 to < 18.5 cm

15–17 years: MUAC ≥ 17.5 to < 19.5 cm

Nutrition Care for Clients with MAM

- Treatment of concurrent illnesses
- FBF to provide 40%–60% of energy needs (slightly more for children coming from SAM treatment)
- HIV testing and Septrin prophylaxis where applicable
- Anaemia assessment (supplementation if necessary)
- De-worming
- Counselling on the CNAs
- Monthly follow-up and monitoring
- Referral to programmes for psychosocial counselling, home-based care, food security, or livelihood support

Exercise 6

Nutrition Care Plan for MAM

(Page 58 of Participant Manual)

Criteria for Normal Nutritional Status

Adults

MUAC > 21.0 cm **AND**

BMI ≥ 18.5 to 24.9 kg/m^2

Pregnant/post-partum

MUAC ≥ 23 cm

Children

6–59 months: MUAC ≥ 12.5 cm

5–9 years: MUAC ≥ 14.5 cm

10–14 years: MUAC > 18.5 cm

15–17 years: MUAC > 19.5 cm

Nutrition Care for those with Normal Nutritional Status

- Counselling to prevent infection and malnutrition on:
  - CNAs
  - Child spacing and reproductive health
  - Optimal infant and young child feeding
- Micronutrient supplementation
- Growth monitoring and promotion
- De-worming
- Malaria prevention

Exercise 7

Nutrition Care Plan for Normal Nutrition Status

(Page 62 of Participant Manual followed by Bingo on page 63)

Module 3

Nutrition Education, Counselling, and Referral

Learning Objectives for Module 3

1. Define *counselling* and list the skills needed for effective counselling
2. List key considerations for planning a counselling session
3. Counsel on the CNAs for PLHIV and/or TB clients 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 the facility and community

Difference between Advising, Educating, and Counselling

- **Giving advice** is directive.
- **Educating** is conveying information from an expert to a receiver.
- **Counselling** is non-directive, non-judgemental, dynamic, empathetic, interpersonal communication to help someone learn how to use information to make a choice or solve a problem.

Conducting Nutrition Counselling

- Nutrition counselling is an interactive process between a client and a trained counsellor where the counsellor offers the client the attention, time, information, and respect to enable the client make informed decisions about his/her nutritional status.

Skills That Facilitate Counselling

- Using helpful non-verbal communication
- Showing interest
- Showing empathy
- Asking open-ended questions
- Reflecting back what the client says
- Avoiding being judgemental
- Praising what a client does correctly
- Giving a little relevant information at a time
- Using simple language
- Giving practical suggestions, not commands

(Pages 64-70 of Participant Manual)

Challenges in Counselling PLHIV and/or TB Clients 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 Counselling Challenges

- 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 they can receive specialized 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.
- Focus on two or three issues rather than trying to address everything and achieving nothing.

The GATHER Approach to Counselling

Gather Approach to Counselling

G – Greet

A – Ask

T – Tell

H – Help

E – Explain

R – Reassure/Return date

(Pages 70-71 of Participant Manual)

Critical Nutrition Actions

1. Get weighed regularly and have weight recorded.
2. Eat a variety of foods three times a day with at least two snacks between meals.
3. Drink plenty of boiled or treated water.
4. Avoid stress, alcohol, tobacco and sweetened drinks.
5. Maintain good hygiene and sanitation.
6. Get exercise as often as possible.
7. Prevent and seek early treatment of infections and advice on how to manage symptoms through diet.
8. Take medicines as advised by your health care worker.

(Pages 71-73 of Participant Manual)

Food and Water Safety and Hygiene

Why is food and water safety/hygiene important ?

Food and Water Safety and Hygiene (continued…)

- PLHIV are at high risk of infection, may have a hard time recovering from illness, and have more severe symptoms of water- and food-borne illness such as diarrhoea.
- Diarrhoea can affect food intake and absorption and increase nutrient needs to fight infection.
- Water- and food-borne illness can cause weight loss and lower resistance to infections.
- Diarrhoea is the main cause of weight loss in PLHIV and is difficult to treat.

Food and Water Safety and Hygiene: A Few Simple Rules

- Wash hands properly.
- Keep food preparation areas clean.
- Separate raw and cooked food.
- Cook food thoroughly.
- Keep food at safe temperatures.
- Use safe water and food.

(Pages 74-75 of Participant Manual)

Dietary Management of HIV and TB-Related Symptoms

Some Symptoms

- Anaemia
- Anorexia
- Diarrhoea
- Fever
- Nausea
- Thrush
- Vomiting
- Constipation
- Muscle wasting
- Bloating or heart burn
- Loss of taste or abnormal taste

(Pages 75-77 of Participant Manual)

Food and Nutrition Implications of ART

- PLHIV on ART need appropriate and adequate nutrition to achieve the full benefits of ART.
- Drug side effects can reduce appetite, nutrient absorption, and drug adherence.
- ART can lead to some changes in the body (high cholesterol levels, low Hb, lipodystrophy/fat redistribution).
- ART can result in other conditions (diabetes, hypertension, osteoporosis, dental problems).

Food and Nutrition Implications of ART *(continued)*

- PLHIV need support to adhere to medications and to food-drug plans.
- Due to drug-drug interactions, do not take herbal medications with ARVs.
- Seek medical advice before taking any supplements with ARVs because they can reduce drug effectiveness.
- Most of the drugs can be taken with or without food.

(Pages 78-80 of Participant Manual)

Herbal and Other Nutrition Supplements

What message should we give clients about herbal and other nutrition supplements?

Photo: napwa.org.au

False claims:

- Supplements advertised as effective against HIV
- The orange flesh of the African potato yields the supposedly HIV-fighting Rooperol

Photo: wb3.indo-work.com

Photo: positivenation.co.uk

Herbal and Other Nutrition Supplements *(continued)*

- 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.

Nutrition Education Topics for PLHIV and TB

- Causes and consequences of malnutrition
- Increased energy needs caused by HIV and TB
- CNAs
- Dietary management of symptoms associated with HIV
- ARV-food interactions
- Food and water safety and hygiene
- Healthy and nutritious foods
- Backyard gardens and raising small animals

(Pages 81-82 of Participant Manual)

Community Linkages

AIM

1. Increase community understanding of NACS services.
2. Strengthen case finding and referral for care.
3. Allow early detection and follow-up to improve clinical outcomes and relieve inpatient services.
4. Link 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

This 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

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 specialised 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 caregivers of how to prepare and feed specialised food products
- School feeding programmes
- School gardens

Module 4

Specialised Food Products to Treat Acute Malnutrition

Learning Objectives for Module 4

1. Describe the importance of nutrition therapy 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. Manage specialised food products for health care facilities

NACS Services

1. Nutrition assessment
2. Nutrition counselling and education
3. Nutrition care plan
4. Prescription of specialised food products for acutely malnourished clients
5. Access to safe drinking water (e.g. provision of point-of-use water treatment methods)
6. Micronutrient supplementation
7. Referral to other clinical and community services

NACS Target Groups

- All ART, prevention of mother-to-child transmission of HIV (PMTCT), palliative care, home-based care, and TB clients, including:
  - TB and/or HIV-positive adults in care and treatment
  - Pregnant women and women up to 6 months post-partum in PMTCT and/or TB care programmes
- Children from birth to 17 years

Services for NACS Target Groups

Nutrition assessment	1. HIV-positive adult ART clients and/or TB clients 2. Pregnant/post-partum women in PMTCT clinics 3. Children 6 months–17 years old
Nutrition education/ counselling	1. HIV-positive adult ART and/or TB clients 2. Pregnant/post-partum women in PMTCT clinics 3. Parents or caregivers of children 6 months–17 years old
Prescription of RUTF or FBF	1. Moderately and severely malnourished adults 2. HIV-positive pregnant/post-partum women 3. TB and/or HIV-positive moderately and severely malnourished children 6 months–17 years old

Exercise 8

Client Flow, Staff Roles, and Integration of Services

(Page 87 of Participant Manual)

Purpose of Specialised Food Products

- Prevent and manage SAM and MAM in PLHIV and/or TB clients
- Improve adherence to ART or TB treatment
- Improve efficacy of ART or TB treatment and help manage side effects
- Improve birth outcomes for HIV-positive women and promote HIV-free infant and child survival
- Provide continuity of care for TB clients, PLHIV in PMTCT, ART, and child health programmes
- Improve functioning and quality of life for PLHIV

Specialised Food Products

1. Therapeutic Food
    - F-75
    - F-100
    - RUTF
2. Supplementary Foods
    - Fortified-blended flour
    - Nutritionally adequate home foods

How NACS Differs from Other Food Supplementation

- Food assistance (e.g., from WFP) aims to increase food security by giving families household food rations, largely staple foods.
- NACS prescribes food to supplement the diets of PLHIV and/or TB clients with clinical malnutrition identified through routine anthropometric assessment, or health status.

Photo: UN

Photo: Julie Pudlowski

Specialised Food Products used in Ghana

Therapeutic food

- F-75 and F-100 therapeutic milks for inpatient treatment of SAM
- RUTF in 92 g packets that provide 500 kcals each for outpatient treatment of SAM

Supplementary food

- Fortified-blended food to treat MAM

Exercise 9

Specialised Food Products for NACS

(Page 90 of Participant Manual)

Admission and Discharge Criteria for NACS in Ghana

Review Criteria on pages 91-92 of the Participant Manual

Prescribing and Monitoring Specialised Food Products

1. Classify the client's nutritional status
2. Conduct a medical assessment
3. Decide whether to treat the client as an outpatient or refer to inpatient care
4. Counsel on how to use specialised food products
5. Record all specialised food products given to the client
6. Discharge the client when the target weight, MUAC, or BMI is reached

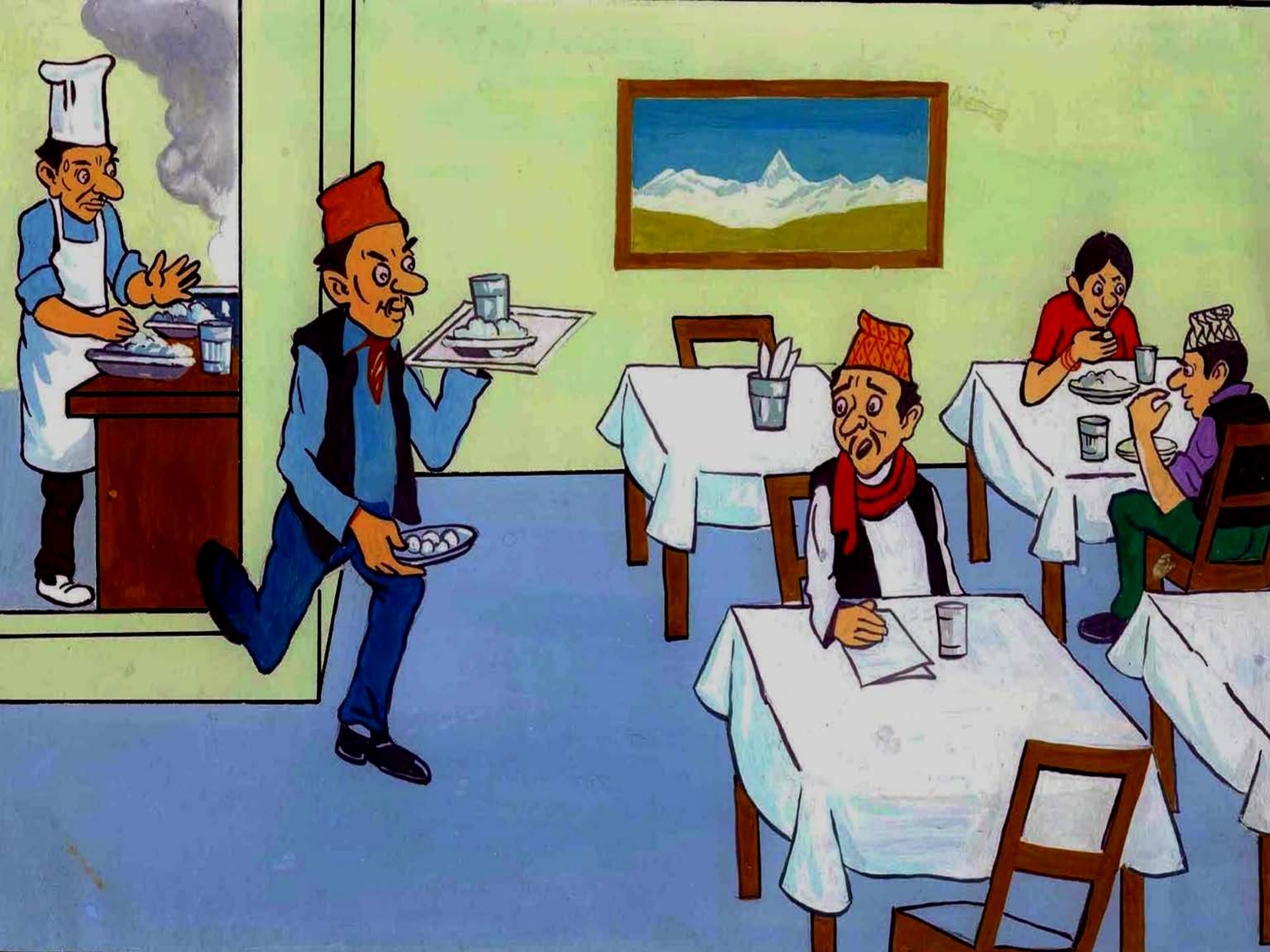
NACS Environmental Issues

- 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 and use FIFO to avoid expired commodities.

NACS Commodity Management

Objectives of the Session

- To explain the purpose of a NACS logistic system
- To learn about essential logistics data items
- To learn about basics in inventory control
- To understand and apply protocols for NACS logistic management



The Purpose of a Logistics System

The **PURPOSE** of a logistics system is to get the

RIGHT QUANTITIES of the

RIGHT GOODS to the

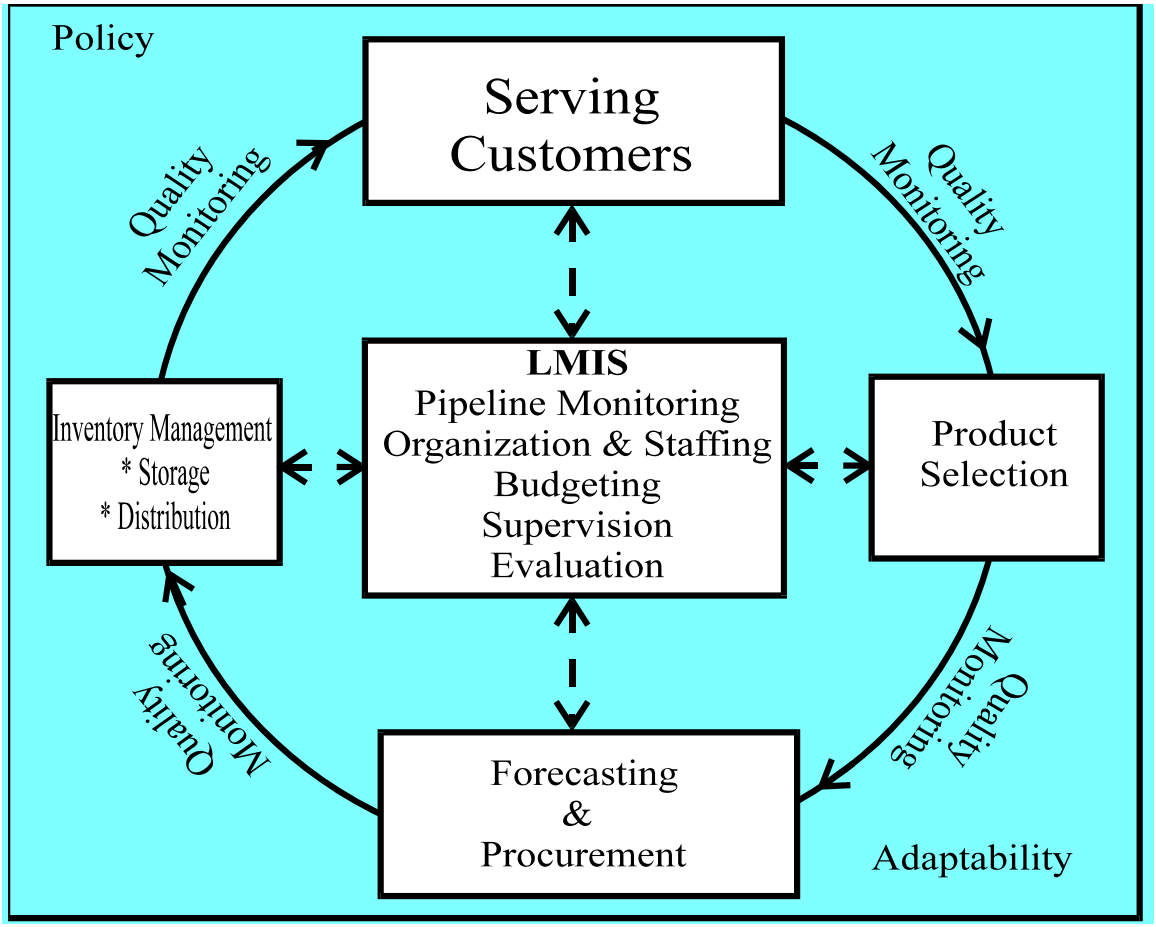
RIGHT PLACES at the

RIGHT TIME in the

RIGHT CONDITION at the

RIGHT COST.

The Logistics Cycle



Key Terms

- **Logistics Management Information System (LMIS):** a system designed to collect, organise, and report logistics information from one level in the service delivery system to another level in order to make decisions and ensure a smooth service delivery.
- **Stock on Hand:** This is the stock available at the facility for use.
- **Consumption/Usage Data:** This is the quantity of commodities that are given to clients.

Key Terms (*continued*)

- **Losses/Adjustments:** Loss is any product that is removed from the facility's stock and cannot be used because of damage, expiration, or theft. Losses are usually recorded as negative (−). Adjustments refer to stock that has been added to the facility's stock from a source other than the Regional Medical Store (RMS) or subtracted from stock because it has been returned to RMS or transferred to another facility.

Key Terms (*continued*)

- **Months of Stock:** The period of time that stock on hand will last, based on average consumption or usage.
- **Maximum Months of Stock:** The largest amount of a commodity that any facility should have available at any time. If a facility has more than the maximum level, then it is overstocked and risks having expiries. At the end of the reporting period, each facility should order enough stock to bring it to its maximum level.

Key Terms (*continued*)

- **Minimum Months of Stock:** The approximate level of stock on hand that a facility should have at the end of the reporting period.
- **Reorder Level:** The quantity that is used to determine if an order needs to be placed or not.
- **Emergency Order Point:** The level of stock on hand where the risk of stocking out is high and the point at which an emergency order should be placed immediately.

Worksheet for Setting Maximum Stock and Reorder Quantities

(to be completed every six months)

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

Facility Name: _____ District: _____ Region: _____

	A	B	C	D	E
Specialised Food Commodities	**Total Dispensed Past 6 Months**	**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				

Completed by: _____ Title: _____ Date: _____

Verified by: _____ Title: _____ Date: _____

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

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)	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 kg/g. Quantity for RUTF is sachets. 500g or less of any FBF (First Food, Foundation Plus, or Advantage) is allowed for demonstrations.

COMMENTS

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

Name: _____ Signature: _____ Date: _____

Exercise 10a and 10b

Filling out the Monthly Consumption Report

(Pages 101-102 of Participant Manual)

Module 5

NACS Monitoring and Reporting

Learning Objectives for Module 5

1. Explain the purpose of NACS data collection and integrating NACS into the HIV and TB monitoring and evaluation (M&E) system
2. Complete NACS data collection forms 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

Purpose of Collecting and Recording NACS Data

- 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 and Integration into the HIV and TB M&E System

Definition of Indicator

A qualitative or quantitative factor or variable that provides a simple and reliable means to measure achievement, to help assess performance.

NACS Indicators

1. Nutrition Care and HIV
2. PMTCT and Infant Feeding

1. Nutrition Care and HIV Indicators

- 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.

2. PMTCT and Infant Feeding Indicators

- 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 TB M&E System

- MUAC, BMI, bilateral pitting oedema, and anaemia are included in the HIV client folder and TB client card.
- Information should be completed during the client initial assessment and for follow-up visits.
- If the client has SAM or MAM, then the client management form which is also included in the HIV client folder should be used for weekly/bi-weekly follow-up visits.
- NACS indicators mentioned in the previous slides are now included in the monthly HIV and TB reports. This information should be entered in the report.

Practical Session on Use of NACS Tools and Forms

- HIV Paediatrics and Adult Client Folders
- TB Paediatrics and Adult Cards
- Case Management Form
- NACS Register
- Monthly report form
- ART Data Form
- Logistics forms
- NACS Site Quality Improvement Checklist
- Reviewing HIV and TB Client Folders/Cards

(Pages 105-117 of Participant Manual)

Challenges of Data Collection

- 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 Data Collection Challenges

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

Exercise 11

NACS Data Collection, Monitoring, and Reporting

(Page 119 of Participant Manual)

NACS Site Practice Visit

- Planning and preparation
- Logistics and transport arrangement
- Objectives of visit
- Feedback from visit and discussions

(Page 122 of Participant Manual)

Thank You