



Republic of Kenya
Ministry of Health

NUTRITION AND HIV/AIDS: A TOOL KIT FOR SERVICE PROVIDERS IN COMPREHENSIVE CARE CENTRES

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Preface

The links between nutrition and infection are well known. Good nutrition is essential for achieving and preserving health while helping the body to protect itself from infections. Good nutrition also helps to promote a sense of well-being and to strengthen the resolve of the sick to get better. Consumption of an adequate well-balanced diet is the best means to meet the increased energy needs of people infected by HIV, although in cases of specific deficiencies, supplements may be needed. This Tool Kit includes the materials and tools that are needed by a nutritionist to provide support to PLHIV attending the Comprehensive Care Centres (CCC) in Kenya.

After conducting an assessment of what service providers need to provide quality nutritional services in the CCC in Kenya, we in MOH/NASCOP decided to provide a Tool Kit for service providers and an accompanying manual for trainers. These materials and tools are intended to be practical and useful for service providers. The tools will help them carry out nutritional assessments of the client, prepare a nutritional care plan with the patient, carry out counselling and education, prepare a meal-drug plan, choose and collect data in routine work, and analyse and present the data.

The Tool Kit was developed following an extensive review of existing guides from both within and outside the country. We sought technical assistance from a number of institutions and individuals and conducted three sets of trainings for CCC service providers to pre-test these products. We hope we have responded to the needs of service providers with up-to-date, technically sound information and materials. Users are encouraged to further improve these tools by adapting them to their local circumstances as needed. Any comments on how to improve these materials can be sent to **“The Nutrition Manager, NASCOP Office, Nairobi”**.

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Position Statement

It is the position of the National AIDS and STD Control Program (NAS COP) that efforts to optimize nutritional status, including medical nutrition therapy, assurance of food and nutrition security, and nutrition education, are essential components of the total health care available to people with human immunodeficiency virus infection throughout the continuum of care.

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Introduction

Purpose of the Tool Kit

The Tool Kit contains materials that service providers can refer to or use to implement the national nutritional guidelines for people with HIV/AIDS (PLHIV) attending the comprehensive care centres (CCC) in Kenya. These tools can also be used as part of training programs. Some of the materials included are:

- Summary of the Kenya Nutritional Guidelines for PLHIV, including the eight critical nutrition practices for PLHIV.
- Parameters of practice for nutrition in HIV/AIDS care and treatment in Kenya.
- Guidelines on conducting nutritional and dietary assessments of clients, including recommended indicators and growth references.
- Guidelines on conducting nutritional education and counselling on specific topics, e.g. increasing energy intake, the food and nutritional implications of ARVs.
- Examples of indicators to collect in a CCC; data collection guides; and data management guides.
- Steps for preparing drug-meal plans.
- Guidance on how to provide “special food supplements by prescription”.
- Guidance on how to manage severely malnourished HIV+ adult in-patients.
- Nutritional management of diabetes in PLHIV.

Uses of the Tool Kit

The materials can be used as reference materials on nutrition in the treatment and care of PLHIV and can be used by trainees during training programs. Specifically, they complement the trainer’s manual for the five-day HIV and nutrition training for CCC service providers. Some of the materials (e.g. the drug-food meal plan card, the patient evaluation form, and the patient monitoring chart) can be photocopied and used to support day-to-day care of clients.

Content of the Five-day Training on Nutritional Care and Support for PLHIV at CCCs

It is recommended that all persons providing nutritional care and support for PLHIV in Kenya receive a MOH approved training on nutrition and HIV/AIDS: at a minimum the five-day course on nutrition and HIV/AIDS.

Purpose of the Course

The purpose of the course is to train participants in nutrition interventions they can use to support clients discharged through or referred to comprehensive care centres.

Learning Objectives

By the end of this course the participants are able to:

1. Identify the role of nutrition in comprehensive care of PLHIV
2. Be familiar with the Kenya National Guidelines on Nutrition and HIV/AIDS
3. Carry out nutrition assessments
4. Formulate a nutritional care plan based on nutrition assessment results
5. Conduct nutrition counselling
6. Prepare a drug-meal plan
7. Identify when the patient should be referred for specialized nutritional care
8. Develop and implement a follow-up plan
9. Be familiar with the “food-by-prescription” and how to monitor its impact
10. Collect data from patient records and write reports

Course Outline

1. Definition of comprehensive services provided in the CCC

- Definition of terms
- Services provided in a comprehensive care centre
- Set-up and client flow in a comprehensive care centre
- The roles of nutrition in care and treatment of PLHIV

2. Overview of the Kenya National Guidelines on Nutrition and HIV AIDS

Important Content of the Kenyan Guidelines on Nutrition and HIV/AIDS

- Relation between Nutrition and HIV/AIDS
- Nutritional requirements/needs of PLHIVs
- Critical nutrition practices for PLHIV
- Nutritional care of persons taking medication, supplements and herbal remedies

3. Steps in Caring for Patients in a CCC

a) Nutrition assessment

- Nutrition assessments, e.g. anthropometry (including effects of ART), biochemical and clinical assessments and dietary intake assessments done in a CCC

- References for growth and nutritional status of adults and children
- Clinical, psychosocial and economic factors in nutritional status

b) Preparation of a nutritional care plan

- Nutritional assessment interpretation
- Underlying problem identification
- Identification of plausible intervention options

c) Nutrition and HIV/AIDS counselling/education

- Principles, techniques and application of counselling
- Nutrition messages for behavioural change for PLHIV
- Dietary strategies for symptom management
- Preparation of demonstration models for CCC counselling and education

c) Drug-Meal plan preparation

- Characteristics and purpose of drug-meal plans,
- How to prepare a drug-meal plan and support its use

d) Follow-up plan

- Setting nutritional goals and review plans based on Risk level
- Nutritional care plan adherence (development and review)
- Referral and linkages to community/group support

4. Referral for specialized nutritional care

- Nutritional assessment of critically ill patients on ART
- Management of patients with severe malnutrition
- Management of feeding (mode of feeding and appropriate diets)
- Body cell mass enhancement approaches

5. Food-by-prescription or another food intervention program

- What qualifies for food-by-prescription
- Admission and discharge criteria
- Data collection, monitoring and reporting

6. Data management and reporting

- Ethical considerations and observations (including data storage)
- Data collection/assessment forms used in a CCC
- Data analysis, interpretation and presentation
- Data storage and reporting
- Supervision of nutrition activities at a CCC

7. Visit to a CCC

- Activities to do in a field visit
- Reporting field visit to a CCC

Definition of Terms

AIDS	A combination of illnesses caused by the human immunodeficiency virus (HIV) that weaken the immune system.
Advocacy	Activities in support of a particular issue or cause.
Anaemia	Low haemoglobin levels in the blood.
Antenatal	Period during pregnancy before delivery.
Anthropometry	Measurement of changes in body dimensions.
Antioxidant	Compounds that scavenge free radicals in the body.
Anti-retro Viral therapy	Treatment of HIV-infected persons using drugs that specifically slow replication of the HIV virus.
Asymptomatic	Characterized by the absence of symptoms of illness.
Bacteria	Disease-causing micro-organisms that are larger than viruses and that are treatable with antibiotics.
Balanced diet	Meals and snacks containing all nutrients in adequate proportions to ensure nourishment of the body.
Bioavailability	The degree and rate at which a substance is absorbed into the body at the site of physiological activity (e.g. gut).
Body Composition	Proportion of different components of the body (Blood, muscle, fat, bone, and others).
CD4 cells	A subset of specialized lymphocytes that fight infections; the cells are used as a marker of HIV progression.
Cholesterol	A fat-like substance that is produced in the liver, and also found in animal-source foods. It circulates in blood as low-density lipoproteins (LDL) and high-density lipoproteins (HDL).
Diet	Amount and kind of food and drink a person consumes.
Disease	An illness.
Food	Any solid or liquid that is edible and contains nutrients.
Entomophagy	The traditional practice of consuming edible insects such as termites and locusts.
Geophagy	The practice of craving and chewing non-food material (such as soil and soft rock).
HAART	Stands for highly active anti-retroviral therapy. Consists of a combination of multiple anti-retroviral drugs that inhibit HIV multiplication in the body, and improve health status, and delay development of AIDS.
Haematopoiesis	Process of blood formation.
Health	A state of physical and mental well-being.
Helminths	Intestinal worms.
Home-based care	Care given in the home by non-health personnel to people who are sick or recuperating from sickness.
HIV	The human immunodeficiency virus that causes AIDS.
Hypogonadism	Delayed sexual maturity.
Hypothyroidism	Reduced functional activity of the thyroid gland.
Immuno-suppression	A weakened immune (body defense system), creating vulnerability to infections and other disorders.

Definitions

Indigenous foods	Local/native foods grown in a community.
Infant	A child from birth to 12 months of age.
Infection	The presence of disease caused by micro-organisms.
Kcal	A measure of energy consumed through food and used through daily life and physical activities.
Lactation	Breastfeeding.
Lactose intolerance	A body's inability to digest lactose, the sugar that is primarily found in milk and milk products.
Lean body mass	Weight of the body without fat, i.e. mass of muscle, bones and other tissues.
Lipodystrophy Syndrome	Abnormal body shape and body fat distribution, often a side effect of ART. Sometimes also includes abnormally low serum testosterone concentration, high serum cholesterol and triglycerides, or insulin and other hormonal resistance.
Mal-absorption	Failure by the digestive tract to absorb nutrients.
Malnutrition	A condition in the body brought about by inadequate or excess intake of required nutrients, or mal-absorption.
Meal	Food eaten at a particular time, particularly breakfast, lunch and supper.
Metabolism	Process by which drug/nutrients are chemically changed by the action of enzymes (usually in the liver) to allow use by the body.
Monounsaturated and polyunsaturated fats/oils	These are also referred to as 'good' fats because their consumption causes less risk of heart disease than consumption of other fats.
Morbidity	Sickness or illness, often used to express rates of illness.
Mortality	Death, usually expressed as a rate of mortality, e.g. rate of death over a period of time or among a population of a certain size.
Nutrient	A substance or component in food, including carbohydrates, proteins, fats, vitamins, minerals and water.
Nutrition	Process of food ingested, digested, and absorbed to provide the body with required nutrients and to utilize them in the body.
Nutritional Status	A measurement of the extent to which an individual's physiological needs for nutrients are being met.
Oedema	Swelling due to accumulation of fluids.
Opportunistic infections	Illnesses caused by various micro-organisms, which one is more vulnerable to due to a poorly functioning immune system.
Over-nutrition	Excessive nutrients and nutritional stores in the body.
Pharmacokinetics	The way drugs are absorbed, distributed and metabolised in the body, and excreted from the body.
Prebiotics	Nutrients that support the growth of healthy bacteria such as lactobacilli in the gut.
Probiotics	Live micro organisms that, when administered in adequate amounts, confer health benefits on the host.
Quality of Life	Individuals' valuation of their ability to perform daily functions and sense of well-being.

RDA	Average requirement of various nutrients to maintain nutritional status of a healthy person according to international standards.
Red blood cells	Cells that help transport oxygen to parts of the body.
Saturated fats	Also referred to as 'bad' fats, their consumption increases levels of unhealthy cholesterol in body, therefore increasing the risk of heart disease.
Snack	Food or drinks not requiring much preparation, and usually taken between main meals.
Symptomatic	Characterized by symptoms of illness.
Synbiotics	Combination of Prebiotics and Probiotics.
Trans fats	Solidified and partially-hydrogenated vegetable oils that raise blood LDL ("bad" cholesterol) levels and reduce the HDL ("good" cholesterol) levels.
Under-nutrition	State of having inadequate nutrients in the body.
Viral load	Amount of a virus, e.g. HIV, in blood used as a marker for progression of HIV.
Virus	A disease-causing micro-organisms (smaller than bacteria).
Vitamins	Nutrients that among other functions help protect the body against infection.
White blood cells	Combination of cells that help protect the body against infections.

What is Comprehensive Care for PLHIV?

Comprehensive care for HIV/AIDS is a “complete” package of care for HIV infected people, which includes clinical, psychosocial, social, legal and nursing care.

Services provided in Comprehensive Care Centres in Kenya

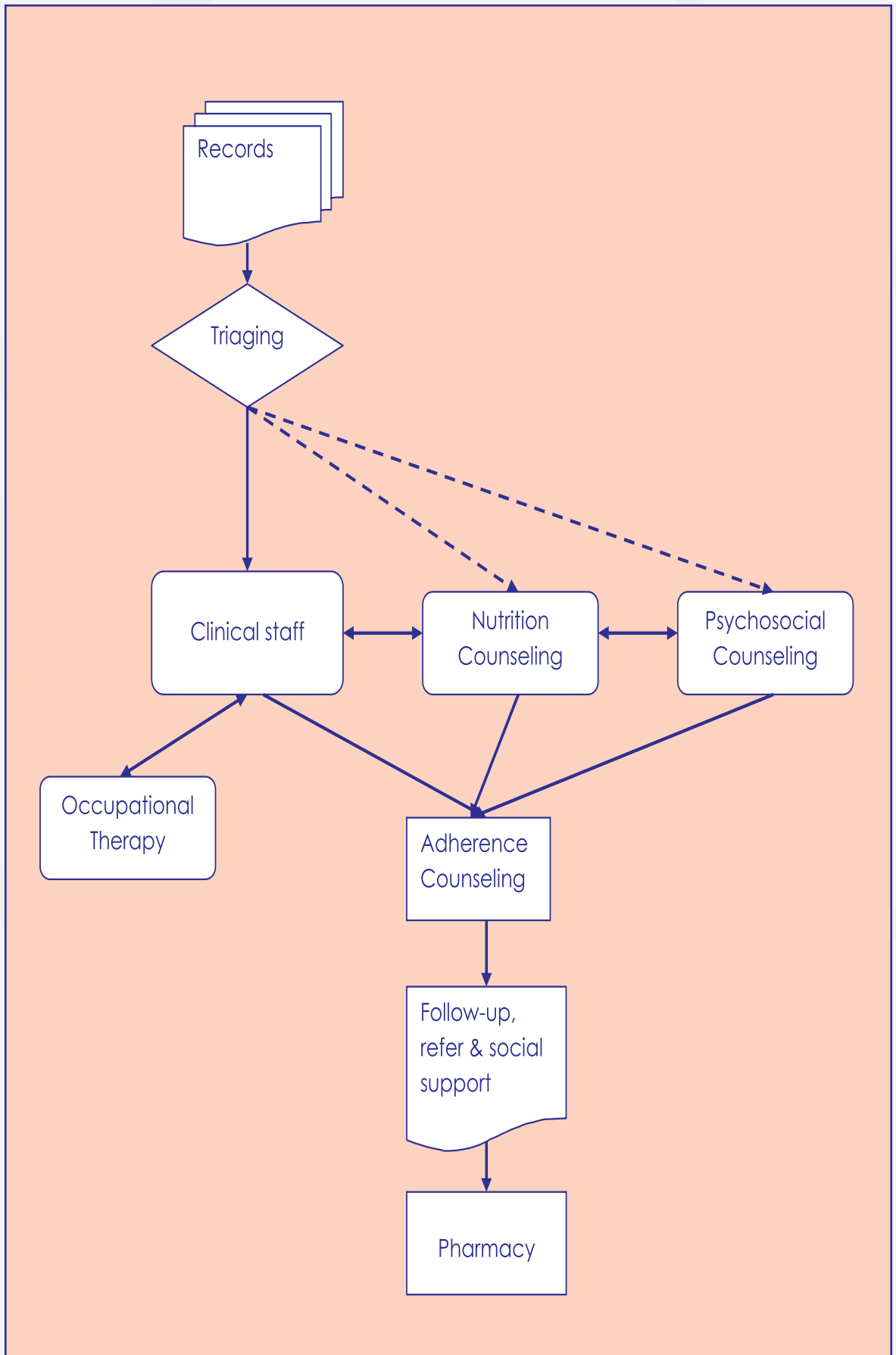
1. Diagnostic counselling and testing for HIV/AIDS
2. Information about and access to Antiretroviral medication (ARV)
3. Treatment for opportunistic infections associated with HIV/AIDS
4. Management of nutrition issues, symptoms and conditions associated with HIV/AIDS
5. Counselling on reproductive health and child bearing
6. Care of children born to mothers who are HIV-positive
7. Care of children who are HIV-positive
8. Drug/alcohol and substance abuse counselling
9. Connections to support groups
10. Advice on problems of orphaned children
11. Advice about legal rights
12. Spiritual support
13. Other kinds of support

Roles of Nutritionist/Dietician in the CCC

1. Perform an anthropometric assessment (Age, Weight, Height, BMI)
2. Take diet history and socio- economic assessment
3. Recommend or/do clinical assessment of nutrition deficiencies and related factors
4. Hold Nutrition/Health talks and carry out dietary counselling
5. Demonstrations (e.g. food preparation/sanitation)
6. Distribution of food/micronutrient supplements
7. Distribution of nutrition related information and handouts to clients
8. Food security assessment and education
9. Collection and management of nutrition data
10. Reporting on the nutritional indicators

Common Patient Flow in Comprehensive Care Centres

What is Comprehensive Care ?



Parameters of Practice for Nutrition in CCCs in Kenya

SITE-LEVEL Parameters of Practice

1. Sites providing care and treatment shall provide nutrition counselling services.
2. Sites providing HIV/AIDS care and treatment shall have at least one service provider (nutritionist, nurse, counsellor) trained in a MoH approved course on nutrition and HIV/AIDS.
3. Sites providing ART services shall, on the days they are operational, have at least one health staff (meeting condition 2) on duty providing nutritional care and support.
4. HIV/AIDS care and treatment sites shall have a separate area/room allocated for individual nutrition counselling of patients. These designated areas shall provide for audio and visual privacy.

Equipment and Materials

1. HIV/AIDS care and treatment sites shall have:
 - A copy of the most recent national guidelines on nutrition and HIV/AIDS in Kenya.
 - At least one functional adult scale.
 - HIV-nutrition counselling materials and/or HIV nutrition job aids.
 - Demonstration equipment available (including demonstration for ORS preparation, hand washing, water purification, safe food storage).

Quality of Care

1. Health staff providing nutrition counselling should score higher than 75% on a Nutrition Counselling Quality Checklist.

Nutritional care and support

1. All patients visiting the care and treatment site for the first time should have their weight and height taken, and BMI computed and recorded in the patient file.
2. PLHIV should have their weights measured at least once every three months.
3. All PLHIV should be counselled on their target weight.
4. Counsellors should schedule a follow-up visit with clients to ensure they are counselled on nutrition at least once every three months.
5. PLHIV visiting the care and treatment site should be educated on dietary approaches to managing symptoms commonly seen in HIV/AIDS.
6. All PLHIV on drugs/ART should be counselled on how to manage food-drug complications.
7. PLHIV should be counselled on a) how to treat drinking water appropriately, b) the critical times to wash hands, c) how to achieve food hygiene, and d) when and where to seek deworming services.
8. All PLHIV should be educated on the need to consume a variety of foods every day, including fruits, vegetables, animal products, nuts/legumes, and fats.
9. PLHIV should be educated/counselled on the need to perform physical activity every day.



Summary of Kenyan National Guidelines on Nutrition and HIV/AIDS

All service providers caring for PLHIV should have access to a copy of the guidelines as well as the accompanying nutrition and HIV/AIDS counselling cards and wall charts.

The Purpose of the Guidelines On Nutrition and HIV/AIDS is to:

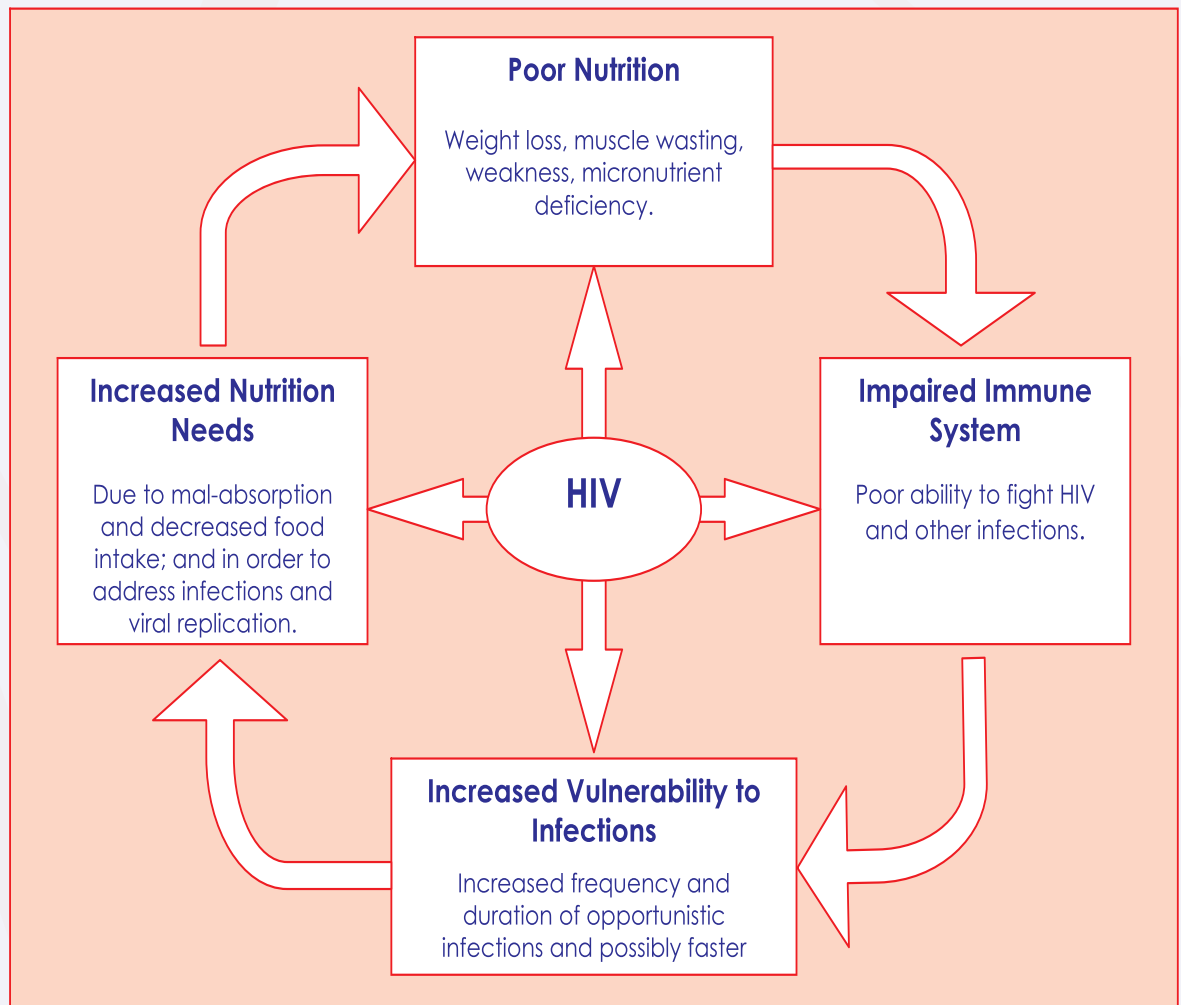
1. Guide nutritional care and support for PLHIV in order to improve their nutrition, health, quality of life and duration of survival;
2. Provide simple and practical ways to assess nutritional status of HIV-infected clients and assess the risk of malnutrition;
3. Assist service providers to identify locally appropriate, sustainable ways of increasing dietary intake by those who are infected with HIV;
4. Mainstreaming nutrition interventions into the national HIV/AIDS response;
5. Enable consistent professional services based on sound technical advice; and
6. Promote advocacy at all levels to mobilize support for prevention of malnutrition among the general population with particular focus on PLHIV, and for integration of nutrition and HIV/AIDS services.

Use of the National Guidelines

1. Service providers may use the guidelines to provide quality services for PLHIV and therefore improve their nutritional status, manage symptoms, and promote response to medical treatment.
2. The guidelines offer service providers and policy makers actions and services they need to undertake in order to provide quality of care and support to PLHIV at various contact points, and provide the basis for developing communication messages and designing nutrition interventions.
3. Where possible service providers providing nutritional care and support for PLHIV should be trained in a MoH/NASCOP approved course on nutrition and HIV/AIDS.

Maintenance of good nutrition among PLHIV improves quality of life and survival.

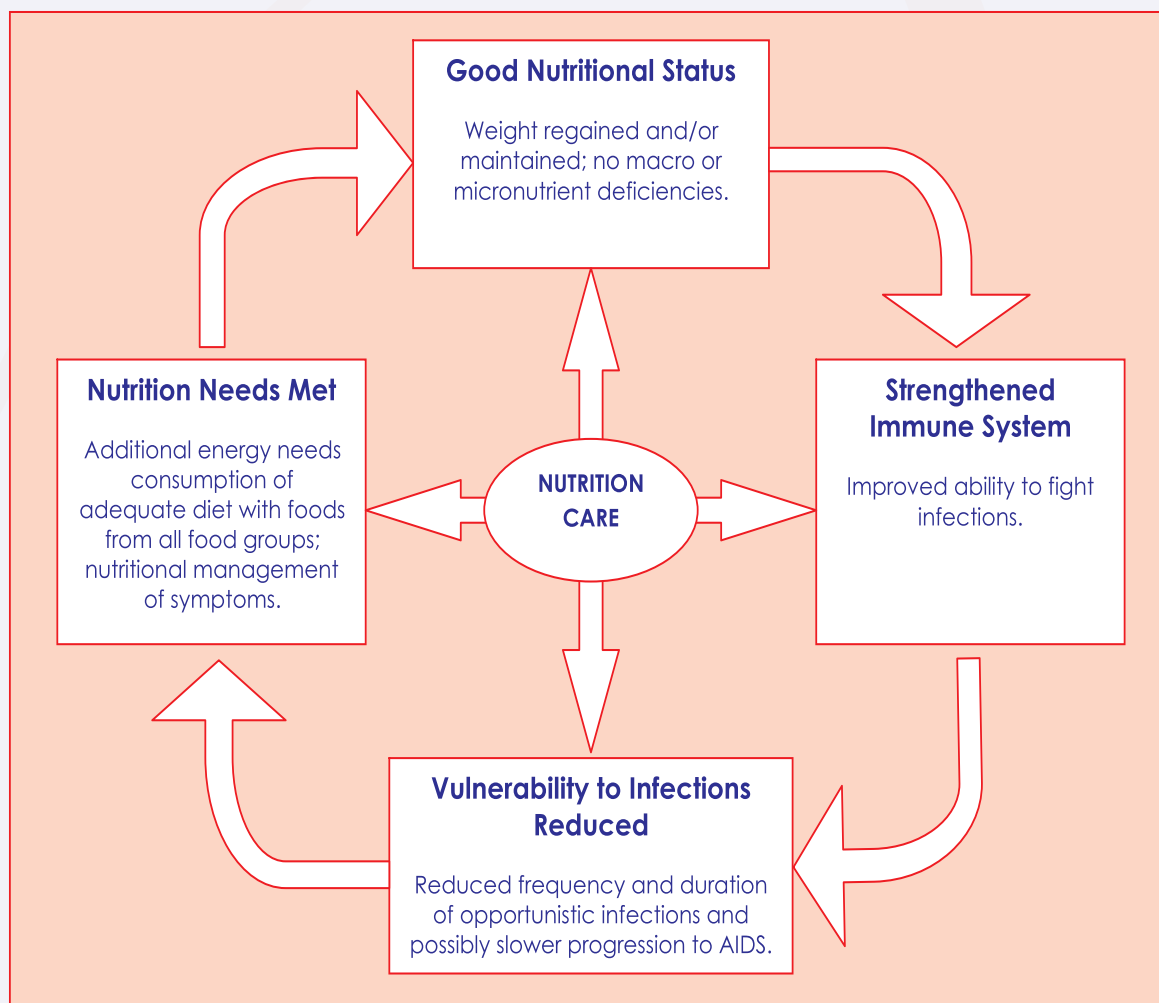
Relation between Nutrition and HIV/AIDS



Source: Adapted from RCQHC and FANTA, 2003

Nutritional care and support helps to break this cycle by helping individuals maintain and improve nutritional status, boost immune response, manage the frequency and severity of symptoms, and improve response to ART and other medical treatment. The figure below illustrates how effective nutrition interventions can help transform the vicious cycle of HIV/AIDS and malnutrition into a positive relation between improved nutritional status and stronger immune response.

Benefits of Nutrition Interventions



Source: Adapted from RCQHC and FANTA, 2003

Responding to this multifaceted relationship between HIV/AIDS and nutrition, a range of food and nutrition interventions are used to address the disease and its impacts among infected and affected populations. Interventions include nutritional assessment, nutrition education and counselling, food assistance comprising both supplementary and therapeutic feeding, micronutrient supplementation, and activities to strengthen livelihoods and increase household food access.

Nutritional Status and the Stages of HIV Infection in Adults

Early Stage (Asymptomatic)	Intermediate Stage (Early symptomatic)	Late Stage (Full blown AIDS)
<ul style="list-style-type: none"> • No weight loss or weight loss of less than 5%. • Increased energy requirements (10% more). • Largely no related symptoms (except in the first few weeks). • Generalized lymph glands enlarged. • Immune system weakening and recurrent upper respiratory tract infections. • Normal activity. 	<ul style="list-style-type: none"> • Increased energy requirements (20% - 30%). • Weight loss greater than 5%/failure to thrive. • Persistent fever and diarrhoea. • Early opportunistic infections: <ul style="list-style-type: none"> ○ Mucous membrane and skin infections (e.g. Candidiasis) ○ <i>Recurring respiratory tract infections.</i> • Normal or partial activity (bed ridden for less than 50% of the time). 	<ul style="list-style-type: none"> • Increased energy requirement (30% more). • Weight loss greater than 10% and wasting. • Multiple signs and symptoms. • AIDS defining OIs: <ul style="list-style-type: none"> ○ Chronic diarrhoea ○ Pneumonia ○ Candidiasis ○ Tuberculosis (TB) ○ Kaposi sarcoma • Weak and low activity (bed ridden for more than 50% of the time).

Characteristics of HIV/AIDS-Related Malnutrition

The following malnutrition characteristics are commonly observed in PLHIV:

- Weight loss, clothes look oversized.
- Muscle loss, which in late stages has been described as ‘slim disease,’ and eventual severe wasting.
- Progressive muscle wasting and loss of fat under the skin giving rise to the person looking more aged than he really is.
- Hair changes especially thinning and loss.
- Diarrhoea and poor absorption of nutrients.

Energy and Nutrient Requirements of PLHIV

Energy Requirements	
Healthy HIV-Uninfected Adults	Require between 1,990 and 2,580 kilocalories per day depending on sex, age, level of physical activity and physiological state. <i>This requirement can be achieved through consumption of adequate amounts of three meals (breakfast, lunch and dinner) in a day. The daily food should be balanced and varied.</i>
Adult, HIV-Infected not showing AIDS symptoms (WHO Stage I)	Need <u>10% more energy</u> or about 200-250 additional kilocalories compared to uninfected person of the same age, sex, physical activity and physiological state. This translates into a food equivalent of about one additional snack (e.g. one mug of porridge) taken during the course of the day.
Adults, HIV-Infected showing AIDS related symptoms (WHO Stage II and above)	Need 20% to 30% additional energy depending on the severity of symptoms, which is about 400 to 750 additional kilocalories depending on severity of symptoms. This translates into a food equivalent of between two to three snacks taken during the course of the day. <i>Note that unintentional weight loss of >5% of usual weight within the last 3 months is an AIDS related symptom.</i>
Children Infected with HIV	Need 10% more energy to maintain growth if the child is asymptomatic. For children who are symptomatic but not experiencing weight loss, the energy needs increase by about 20-30% more per day. Children who are symptomatic and experiencing weight loss need between 50% and 100% more energy per day.
Fat Requirements	
The recommended fat intake for an HIV-infected person is the same as for a non-HIV-infected person, i.e. not more than 30-35 percent of total energy needs. However, PLHIV on certain ARVs or with certain infection symptoms, such as diarrhoea, may require changes in the timing or quantity of fat intake.	
Protein Requirements	
<ul style="list-style-type: none"> • Protein requirement for PLHIV are the same as that of non-infected persons. • As in the case of healthy non-HIV-infected individuals, protein intake is recommended at 12 to 15% of the total energy needs. • Combining various sources of protein (i.e. meat, dairy and legumes) helps to ensure the adequacy of essential amino acids which maintain body cell functions. • For HIV-infected people with pre-existing protein-energy malnutrition (PEM), increased consumption of a balanced diet should be encouraged to meet recommended intakes. 	

Continued:

Micronutrient Requirements

- Current recommended micronutrient requirements for PLHIV are the same as the requirements for non-infected persons.
- WHO recommends consumption of one Recommended Daily Allowance of all micronutrients (vitamins and minerals) both for people infected with HIV and those not infected.
- Therapeutic intervention should be considered, preferably with a multiple micronutrient supplement, for those with a vitamin or mineral deficiency, or those who are vulnerable to a micronutrient deficiency.

Dietary Fibre intake

- Dietary fibre or “roughage” is a food component that cannot be fully broke down by digestive enzymes. Whole grains cereals, unrefined flour, vegetables and some fruits are good sources of soluble and insoluble fibre.
- Important for bowel movement and overall health of the digestive system.
- For individuals with diarrhoea , insoluble fibres from whole grains, cereals and legumes may make the diarrhoea worse

Water and Fluid requirement

- Water is an essential nutrient. Water is important because it transports nutrients, removes waste, assists metabolic activities, provides lubrication to moving parts, and helps regulate body temperature.
- PLHIV must drink a lot of safe, clean water. The recommended water intake for good health is at least 2 litres (or 8 glasses of 250ml per day).

The Nine Critical Nutrition Practices for PLHIV in Kenya

1. Have **periodic nutritional status assessments**, especially weight, at least every 2nd month for symptomatic clients and every 3rd month for asymptomatic clients.
2. **Increase energy needs** according to the disease stage. *PLHIV with no AIDS symptoms require 10% more energy (equivalent to one snack) per day than the recommended daily allowance for HIV-negative healthy individuals of the same age, sex, physical activity level and physiological state. PLHIV with AIDS symptoms require 20-30% more energy (equivalent to 2-3 snacks) per day than the recommended daily allowance for HIV-negative individuals. Symptomatic, HIV-infected children with declining or faltering weight need 50-100% more energy than HIV-negative children of the same age and sex. The additional energy can be achieved by consuming sufficient amounts of balanced food, including one or more snacks in the course of the day.*

Malnourished PLHIV (BMI<18.5) should be supported with supplementary food, where it is available. Severely malnourished (BMI<16) PLHIV should be treated with appropriate therapeutic food.
3. **Maintain high levels of sanitation**, food hygiene, and food/water safety at all times. *If living in hookworm endemic areas one should be de-wormed semi-annually with an appropriate broad-spectrum anti-helminthic drug, like Albendazole™ or Mebendazole™.*
4. **Practice positive living behaviours**, including practicing safer sex, avoiding or moderating use of alcohol and cigarettes, moderating consumption of junk foods, and managing depression and stress.
5. Carry out **physical activity or exercises** to strengthen or build muscles, and increase appetite and health.
6. Drink **plenty of clean safe water** (8 glasses in a day). *All water used to swallow medicines and to prepare juices should be clean and safe (e.g. filtered and boiled, or treated with WaterGuard™).*
7. Seek **prompt treatment for all opportunistic infections** and other diseases, and **manage symptoms with dietary practices**, especially illnesses that may interfere with food intake, absorption and utilization.
8. Those on medicine, including ARVs, should manage the **drug-food interactions and diet related side-effects** by preparing and following a drug-food schedule, and should use dietary approaches to manage side-effect symptoms. *If taking traditional remedies (herbs, medicines) or other nutritional supplements, the clinician should be informed.*
9. Children (below 6 months) born to HIV+ mothers whose mothers/caregivers have opted for exclusive replacement feeding, should be supplemented with **50,000 I.U of Vitamin A**, and if not on commercial infant formula, put on **multivitamins** every day.

Guidelines on Nutritional Status Assessments

Weigh and record the weight of PLHIV at each visit. Body weight assessment is required to:

- Identify those whose growth patterns are outside the normal parameters, indicating either over-nutrition or under-nutrition.
- Identify individuals at risk of malnutrition with repeated measurement (screening) over time.
- Monitor effects of nutrition interventions on various anthropometric measurements.

Clients who have lost 10% or more of weight within 2 to 3 months should be referred for assessment for ART.

HIV-infected individuals with a BMI of less than 18.5 kg/m² and children with weight-for-height (wt/ht) of less than -2 Z scores should be supported with food supplements for the purpose of improving their nutritional status to BMI above 18.5 kg/m² or wt/ht of > -2 Z score.

PLHIV on Zidovudine should be referred for an assessment of haemoglobin as need arises. If they are anaemic, initiate supplementation with low levels of iron and folic acid.

A PLHIV whose weight has unintentionally declined in two or more consecutively months (or has lost more than 5% of their usual weight in two to three months) should have a dietary assessment conducted by a qualified dietician/nutritionist, with an assessment of the causes of any reduced food intake.

Guidelines to Address Reduced Food Intake

If the cause of reduced intake is:	Then take this action:
Diseases and/or inability to eat.	<ul style="list-style-type: none"> • If OIs, refer the patient for appropriate treatment of the infections. • Counsel patients on home dietary management of diet related symptoms. • For psychological disorders including depression, refer to counselling; provide reassurance and hope. • For medical toxicity in patients on HAART, counsel the patient and refer for clinical care. • Counsel if taking non-prescribed substances or too much alcohol. • Refer persistent cases for medical care.
Poor attitude on food intake or taboos that affect food intake in sickness.	<ul style="list-style-type: none"> • Provide nutrition counselling to both the patient and care-givers to change attitude and any detrimental eating taboos and attitude.
Complex medical regimens (for treatment of OI or ARVs, renal disease, pancreatitis).	<ul style="list-style-type: none"> • Assist clients in making a plan for daily intake of foods that are locally available and meet nutritional needs. • Advise caregivers of PLHIV to regularly supervise their meals to ensure adequate food consumption.
Unavailability of food in the household, or not able to prepare food due to illness	<ul style="list-style-type: none"> • Refer "food insecure" client for supplementary food support or programs.
Oral intake is not possible due to disease.	<ul style="list-style-type: none"> • Enteral or parenteral feeding routes can be used by qualified health staff to stabilize and improve nutrition status of the subject.
All PLHIV	<ul style="list-style-type: none"> • Advise PLHIV to drink at least eight glasses of clean and safe water every day. • If available, provide them with user-friendly, up-to-date pamphlets and literature on nutritional care. • Refer them to providers who address the comprehensive 'holistic' needs of PLHIV.

Messages on Food and Water Hygiene

Purpose	Interventions
<p>Personal hygiene, sanitation, housing environment, and food handling practices that affect susceptibility to infection.</p>	<ul style="list-style-type: none"> • Always wash hands with soap before eating and after visiting the toilet, and handling food. • Always wash and rinse fresh fruits and vegetables in clean water or clean with mild disinfectants, and thoroughly rinse with clean water.¹ • Wash hands with soap and thoroughly rinse before preparing and consuming meals. • Store food/water appropriately to prevent contamination of food by bacteria and moulds. • Avoid eating any food that seems spoilt, e.g. mouldy foods or stale left-overs, even if they are re-heated. • Keep the home free from human and animal faeces. • Maintain personal hygiene (clean mouth and brush teeth at least in the morning and in the evening; bathe every day). • Maintain good hygiene in the kitchen and especially in areas where cutting or handling of foods take place. • Avoid spending long hours in crowded rooms, poorly ventilated rooms, or interacting with TB infected persons. • Wear shoes whenever walking on damp soil or when walking in latrines.

¹ Effective cleaning of fruits and vegetables is achieved by soaking them in bleach preparation such as Water Guard™ (2 parts per million chlorine) for 15 minutes. Rinse them thoroughly in clean and safe water.

Guidelines to Support Positive Living among PLHIV

Support to deal with:	Interventions
Self-esteem, social support, stigma and isolation that affect appetite and access to food.	<ul style="list-style-type: none"> • Provide nutrition counselling to the client and care-givers and educate the general public to change attitudes towards PLHIV.
Access to health care amenities that stabilize health and address concerns of PLHIV.	<ul style="list-style-type: none"> • Refer to community based support groups and/or home-based care initiatives.
Poor habits such as smoking, alcohol consumption and drug abuse that may affect food and nutrient intake, increase oxidative stress, and decrease the efficacy of some medications and immunity.	<ul style="list-style-type: none"> • Counsel PLHIV to stop consuming alcohol, smoking or chewing tobacco and using illicit drugs and substances. Smoking increases the risk of cancer, heart disease and high blood pressure. • Recommend moderation in the consumption of tea, coffee, sodas or other related drinks that may interfere with food intake, absorption and utilization.
Risky sexual behaviour of the client and partners, as this can cause re-infection with different HIV strains.	<ul style="list-style-type: none"> • Recommend they practice safer sex (use condoms) in order to avoid infecting others and to avoid infection with new strains of HIV.

Guidelines on Nutritional Supplements

Food provides the best source of micronutrients. Micronutrient supplementation should only be given if it is not possible to consume sufficient quantities and quality of food, or in case of micronutrient deficiency. In such a case, a daily multiple-micronutrient supplement is recommended. It is advisable to adhere to one Recommended Daily Allowance.

Clients should be informed that excessive doses of some micronutrients (like vitamin A and D) can be toxic. Some people who take high doses of vitamin C have reported intestinal upset or kidney complications.

It is important to remember the following:

- Supplements are not an alternative to a balanced meal. If taken, they should “supplement” the food eaten.
- Supplements do not treat HIV/AIDS. In some cases they improve the immunity of the body to fight against infections.
- Get advice from a health professional whether supplements are necessary and if so, the required dosage.
- It is rare for toxicity or overdose of a nutrient to result from food intake alone, but taking supplements may lead to overdose.
- Other means of supplementation may be recommended by a doctor if the PLHIV is severely deficient and has had infections (e.g. mal-absorption, diarrhoea, specific intolerances, severely malnourished).
- The diet supplements industry is not well regulated in many countries. What is sold may not contain what is written on the label.

Guidelines on Herbal Remedies

Caution PLHIV about herbs that may be sold under the pretext of being a cure for HIV infection or OIs. Many herbs have not been subjected to formal clinical research. Their toxicity is unknown and in some cases may interfere with the effectiveness of the drugs and/or restrict food intake.

PLHIV may use herbal remedies as long as:

- They do not replace standard therapy,
- They are not toxic or overburden the body's ability to metabolize them and do not negatively interact with medications (some medications have their effectiveness reduced by herbal remedies),
- They have potential to prevent, alleviate, and/or cure symptoms (e.g. depression, severity of diarrhoea, poor appetite and digestion),
- The health worker is continuously informed of what the patient is taking,
- The patient is advised of any harmful effects of herbal preparations and is advised to avoid self prescription of herbal preparations.

The patient should be advised at every contact of the need to adhere to their medications, including completion of the full course.

Guidelines on Food Assistance

Not all PLHIV come from food insecure households or need food assistance.

Targeting food assistance should always be done with care, as non-HIV- affected households, who are equally vulnerable and/or poor, can be marginalized or denied assistance.

Food used in food assistance for PLHIV should be culturally acceptable, easily digestible and tolerated by PLHIV. The food should be high energy, protein dense, and fortified with multiple micronutrients.

Educate the food beneficiaries about the intended purpose of the food. Have the entry and exit criteria discussed early with the beneficiaries, through a transparent process. If targeting patients on treatment, body weight (or its change) should be one of the criteria for entry and exit to the food assistance program.

Food assistance should be given in conjunction with addressing any reversible (and clinical) causes of weight loss.

Patients should be put on food assistance until there is evidence of nutritional stabilization above the pre-determined cut-offs. Normally, the duration of feeding should be about 3 to six months.

More details are found on the *Chapter on "Food by Prescription"*.

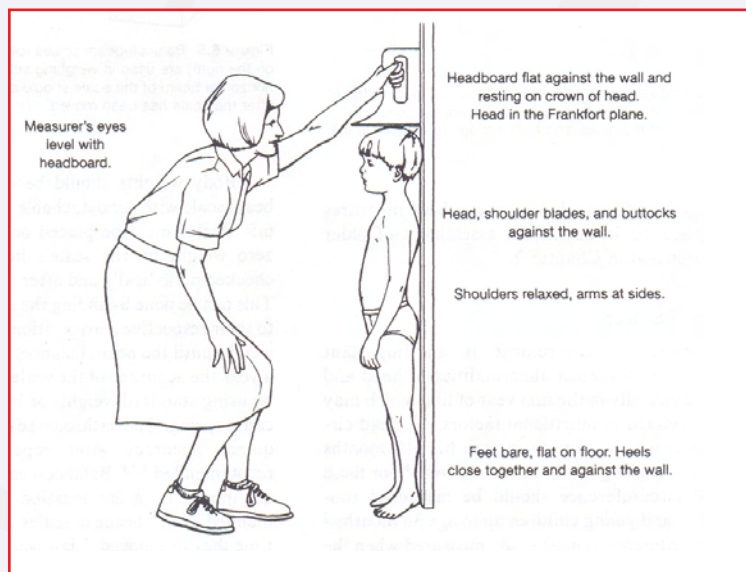
How to Take Anthropometric Measurements

Measuring Height

- The patient must be able to stand without assistance.

- The simplest equipment to measure height is to fasten a measuring stick or non-stretchable tape measure to a flat, vertical surface (for example, a wall) and use a right-angle headboard for reading the measurement.**
- If a wall is used, it should not have a baseboard, and subject should not stand on carpet. Using the moveable rod on platform scale is not recommended because it often lacks rigidity, the headboard is not always correctly aligned, and there is no rigid surface against which to position the body.**

- The patient should be bare footed.
- The subject should stand with heels together, arms to the side, legs straight, shoulders relaxed.
- Position the head in the **Frankfort horizontal plane** ("look straight ahead") (see below).
- Heels, buttocks, scapulae (shoulder blades), and back of the head should be against the vertical board of the stadiometer.
- Just before the measurement is taken, the subject should inhale deeply, hold the breath, and maintain an erect posture ("stand up tall"), while the headboard is lowered upon the highest point of the head with enough pressure to compress the hair.
- The measurement should be read to the nearest 0.1 cm. and the eye level with the headboard to avoid errors due to **parallax**.

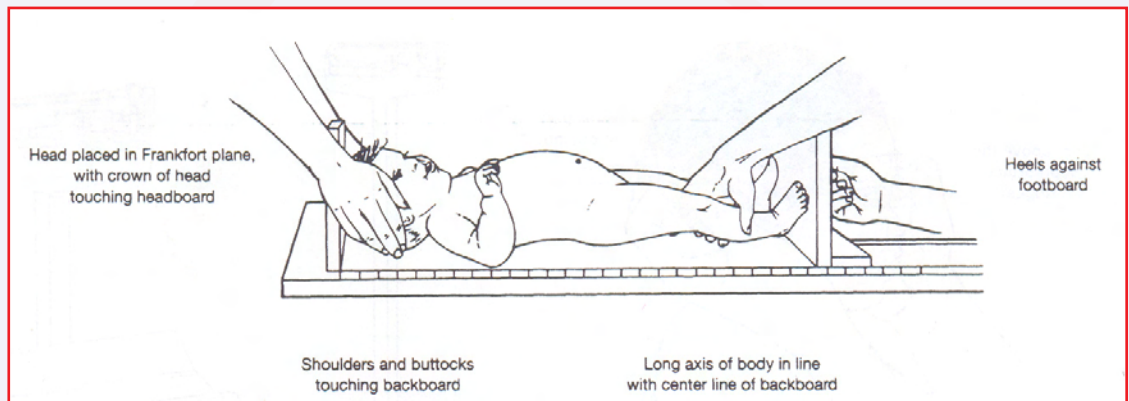


Measuring Length (recumbent length)

This is mainly for subjects who are below 24 months and those who cannot stand erect without assistance.

Measuring board should have a stationary headboard and moveable footboard that are perpendicular to the backboard.

- The zero ends of the board should be at the edge of the headboard and allow the subject's length to be read from the footboard.
- For this measurement two persons are required to make the measurement.
- The subject should be in the supine position (lying on his or her back).
- One person holds the child's head against the backboard with the crown securely against the headboard and with Frankfort plane perpendicular to the backboard.



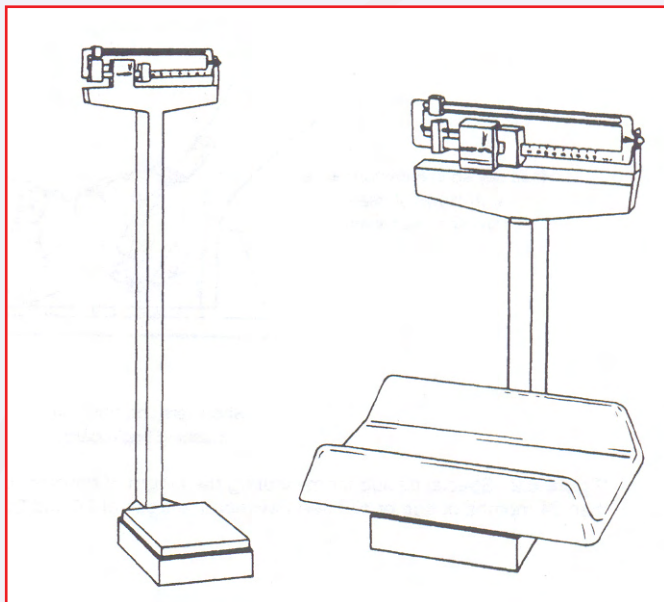
- This person also keeps the long axis of the child's body aligned with the centre line of the backboard, the child's shoulders and buttocks securely touching the backboard, and the shoulders and hips at right angles to the long axis of the body.
- The other person keeps the child's legs straight and against the backboard, slides the footboard against the bottom of the feet (without shoes or socks) with the toes pointing upward, and reads the measurement.
- The footboard should be pressed firmly enough to compress the soft tissues of the soles but without diminishing the vertebral column length. Length should be recorded to the nearest 0.1 cm.

Taking Weights of subjects that can stand without assistance

- Body weights should be obtained using a balance beam scale with non-detachable weights, as shown in Figure below. The zero weight on the scale's horizontal beam should be checked periodically and after the scale has been moved. This can be done by sliding the main and fractional weights to their respective zero positions and adjusting the zeroing weight until the beam balances at zero.
- Two or three times a year the accuracy of the scales should be further assured by using standard weights or by a professional dealer.
- Spring type bathroom scales may not provide the required accuracy after repeated use.
- Scales must be placed on a flat, hard surface.
- The subject should stand still in the middle of the scale's platform without touching anything and with the body weight equally distributed on both feet.
- The weight should be read to the nearest 100 g (0.1 kg) and recorded immediately (two measurements taken in immediate succession should agree to within 100 g (0.1 kg)).
- Diurnal variations (cyclical changes occurring throughout the day) in weight of about 1 kg in children and 2 kg in adults may occur. For this reason, it is a good practice to also record the time weight was measured.
- Ideally, subjects should be weighed with minimal underclothing or an examination gown can be worn, and scales should be placed where adequate privacy is provided.

Taking Weights of Infants

- Infants should be weighed on a paediatric balance-beam scale that is accurate to within 10 g (0.01 kg).



- Any cushion (for example, a towel or diaper) used in the pan either should be in place when the zero adjustments are made on the scale or (but not recommended) its weight should be subtracted from the infant's weight.
 - Infants are weighed nude or with minimum clothing.
 - The average of two or three weighing is recorded numerically in the infant's file to the nearest 10 g (0.01 kg).
- Excessive infant movement can make it difficult to obtain an accurate weight, in which case the weighing can be deferred until later in the examination.

Measuring Mid Upper Arm Circumference (MUAC)

MUAC measurements are especially for screening for protein energy malnutrition especially when weight and stature cannot be measured among people > 12 months old. When taking the measurements, the following steps should be followed:

1. Except for the infants and the handicapped, the subject should be with the arm hanging loosely and comfortably at the side.
2. MUAC is measured in the midline of the posterior aspect of the arm(over the shoulder top), over the triceps muscle, at a level midway between the lateral projection of the acromion process at shoulder and the olecranon process of the ulna (at the point of the elbow).
3. With the elbow flexed to 90°, the midpoint is determined by measuring the distance between the two landmarks using a tape measure calibrated in centimetres. Mark the lateral side with a visible marker (chalk, pen) then take the measurements. The person taking measurement should make sure the tape is not twisted and is parallel to where the marking was placed.
4. Measurements are recorded to the nearest 0.5 mm.

Definition of Anthropometric Indicators

Anthropometric indicators for children

Indicator	Definition	Implication & use
<i>Birth-weight</i>	The weight at which a baby is born.	It is actually an indicator of maternal nutrition and health status, but has implications for the baby's health.
<i>Weight</i>	Measured as weight in Kg (to the nearest 100g)	Mainly affected by acute infection and/or acute food shortage. If after the infection the child is on an adequate diet weight demonstrates a period of rapid growth (Catch-up growth).
<i>Head Circumference</i>	Measured around the head	Useful in the first 2 years mainly as a measure of brain development.
<i>Mid-upper-arm-circumference (MUAC)</i>	Measured on the left arm. Is not dependent on age.	MUAC is a measure of adequacy in nutrition. A useful measure for screening acute malnutrition in the community. Also used for patients whose weight/height cannot be taken, e.g. are bed ridden.
<i>Weight-for-age</i>	Is a measure of weight compared to the weight of children of the same age and sex from a reference population	It is an indicator of both acute and chronic malnutrition.
<i>Height-for-age</i>	Is a measure of height compared to the height of children of the same age and sex from a reference population	It is an indicator of chronic malnutrition and is used to identify stunted children.
<i>Weight-for-height</i>	Is a measure of weight compared to the weight of children of the same height from a reference population	It is an indicator of acute malnutrition.

Anthropometric Indicators

Underweight	Weight is below minus 2 standard deviations of expected weight of children of same age from a reference population.	
Stunting	Height is below minus 2 standard deviations of expected height of children of the same age from a reference population	
Wasting	Weight is below minus 2 standard deviations of expected weight of children of the same height from a reference population	
Failure to Thrive	The failure of the child to gain weight for more than 2 months (56 days).	This is important in detecting children who are at risk of malnutrition due to disease or inadequate food intake.
Body Mass Index (BMI)	Weight (in Kilograms) divided by height (in metres) squared $= \text{wt (kg)} / (\text{ht (m)} * \text{ht (m)})$	An indicator of nutritional status
Body Surface Area (BSA)	$\sqrt{\frac{(\text{height-cm}) \times (\text{weight-kg})}{3600}}$	Used mainly for drug prescription for children.

Anthropometric Indicators For Adults

Indicator	Definition	Explanation/Use
Weight and change in weight	Measured as weight in Kg (to the nearest 100g). A change in weight is measured as % of initial weight. Several measurements have to be recorded for tracking changes in nutritional status.	Mainly affected by acute infection and/or acute food shortage. If after the infection the adult is on an adequate diet, normal weight demonstrates stable health. Excessive weight loss may indicate wasting and presence of chronic illnesses. A 5-10% unintentional decrease in weight is an indication of a health problem.
Weight measurement in pregnant women	Measured as weight in Kg (to the nearest 100g).	In this population weight gain of about 1.5kg per month in the last trimester are consistent with positive pregnancy outcomes in developing countries.
Mid-upper-arm-circumference (MAUC)	Measured on the left arm. Is not dependent on age.	MUAC is a measure of inadequacy in nutrition status. The indicator is useful for assessing acute adult under nutrition to determine prevalence of malnutrition at the population level.
Body Mass Index (BMI)	Weight (in Kilograms) divided by height (in metres) squared $= \text{wt (kg)} / (\text{ht (m)} * \text{ht (m)})$	An indicator of nutritional status for non-pregnant individuals.

BMI References for Adults

CLASSIFICATION	BMI (KG/M ²)	RISK OF CO-MORBIDITIES
Severe malnutrition (GRADE III)	<16.0	Very high
Moderate malnutrition (GRADE II)	16.0-16.9	High
Mild malnutrition (GRADE I)	17.0- 18.4	Moderate
Underweight	<18.5	Risk of clinical complications increased
Normal range	18.5 – 24.9	
Overweight	25. 0 – 29.9	Mildly increased risk of co-morbidities
Obese	> 30	Risk of co-morbidities associated with weight

(Source: [Http://:www.who.org](http://www.who.org))

Body Mass Index (BMI) Reference Tables

Height (in meters)	BMI (the cells have the weight for the BMI)							
	20	19	18.5	17.5	16.5	16	15.5	15
1.40	39.2	37.2	36.3	34.3	32.3	31.4	30.4	29.4
1.42	40.3	38.3	37.3	35.3	33.3	32.3	31.3	30.2
1.44	41.5	39.4	38.4	36.3	34.2	33.2	32.1	31.1
1.46	42.6	40.5	39.4	37.3	35.2	34.1	33.0	32.0
1.48	43.8	41.6	40.5	38.3	36.1	35.0	34.0	32.9
1.50	45.0	42.8	41.6	39.4	37.1	36.0	34.9	33.8
1.51	45.6	43.3	42.2	39.9	37.6	36.5	35.3	34.2
1.52	46.2	43.9	42.7	40.4	38.1	37.0	35.8	34.7
1.53	46.8	44.5	43.3	41.0	38.6	37.5	36.3	35.1
1.54	47.4	45.1	43.9	41.5	39.1	37.9	36.8	35.6
1.55	48.1	45.6	44.4	42.0	39.6	38.4	37.2	36.0
1.56	48.7	46.2	45.0	42.6	40.2	38.9	37.7	36.5
1.57	49.3	46.8	45.6	43.1	40.7	39.4	38.2	37.0
1.58	49.9	47.4	46.2	43.7	41.2	39.9	38.7	37.4
1.59	50.6	48.0	46.8	44.2	41.7	40.4	39.2	37.9
1.60	51.2	48.6	47.4	44.8	42.2	41.0	39.7	38.4
1.61	51.8	49.2	48.0	45.4	42.8	41.5	40.2	38.9
1.62	52.5	49.9	48.6	45.9	43.3	42.0	40.7	39.4
1.63	53.1	50.5	49.2	46.5	43.8	42.5	41.2	39.9
1.64	53.8	51.1	49.8	47.1	44.4	43.0	41.7	40.3
1.65	54.5	51.7	50.4	47.6	44.9	43.6	42.2	40.8
1.66	55.1	52.4	51.0	48.2	45.5	44.1	42.7	41.3
1.67	55.8	53.0	51.6	48.8	46.0	44.6	43.2	41.8
1.68	56.4	53.6	52.2	49.4	46.6	45.2	43.7	42.3
1.69	57.1	54.3	52.8	50.0	47.1	45.7	44.3	42.8
1.70	57.8	54.9	53.5	50.6	47.7	46.2	44.8	43.4
1.71	58.5	55.6	54.1	51.2	48.2	46.8	45.3	43.9
1.72	59.2	56.2	54.7	51.8	48.8	47.3	45.9	44.4
1.73	59.9	56.9	55.4	52.4	49.4	47.9	46.4	44.9
1.74	60.6	57.5	56.0	53.0	50.0	48.4	46.9	45.4
1.75	61.3	58.2	56.7	53.6	50.5	49.0	47.5	45.9
1.76	62.0	58.9	57.3	54.2	51.1	49.6	48.0	46.5
1.77	62.7	59.5	58.0	54.8	51.7	50.1	48.6	47.0
1.78	63.4	60.2	58.6	55.4	52.3	50.7	49.1	47.5
1.79	64.1	60.9	59.3	56.1	52.9	51.3	49.7	48.1
1.80	64.8	61.6	59.9	56.7	53.5	51.8	50.2	48.6
1.81	65.5	62.2	60.6	57.3	54.1	52.4	50.8	49.1
1.82	66.2	62.9	61.3	58.0	54.7	53.0	51.3	49.7
1.84	67.7	64.3	62.6	59.2	55.9	54.2	52.5	50.8
1.86	69.2	65.7	64.0	60.5	57.1	55.4	53.6	51.9
1.88	70.7	67.2	65.4	61.9	58.3	56.6	54.8	53.0
1.90	72.2	68.6	66.8	63.2	59.6	57.8	56.0	54.2
1.92	73.7	70.0	68.2	64.5	60.8	59.0	57.1	55.3
1.94	75.3	71.5	69.6	65.9	62.1	60.2	58.3	56.5
1.96	76.8	73.0	71.1	67.2	63.4	61.5	59.5	57.6

Body Mass Index (BMI) reference table

Y axis
Height

BMI

references:

<18.5 = Underweight
18.5-24.9 = Normal weight
25-29.9 = Overweight
30 and above = Obese
(Source: WHO, 1995)

If the meeting point falls in the:

- Dark green area indicates underweight
- Light green area is normal but tending towards underweight
- White area indicates the patient has adequate weight for the height
- Light red area indicates overweight
- Dark red area indicates obesity

X axis
Weight kg

9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
14	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
15	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
16	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
17	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
18	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
19	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
20	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
21	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
22	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
23	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
24	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
25	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
26	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46
27	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
28	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
29	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
30	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
31	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
32	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52

(Adopted from Semper Stockholm)

Body Mass Index (BMI) = Weight (Kg.) / (Height)² (m)



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The opinions expressed here are those of the author and do not necessarily reflect the view of USAID



MUAC References

There is not one set of universal cut-off points for interpreting MUAC. The following are agreed categories in Kenya.

MUAC references for children

Type of Malnutrition	Children (1-5 yrs)	Intervention
Mild acute malnutrition	12.5 – 13.5 cm	Identify plausible causes of malnutrition and counsel/ educate care givers on CNP (if HIV+) and treat any infections.
Moderate acute malnutrition	11.0 -12.5 cm	Refer for supplementary feeding or for RUTF: if with oedema, infections (like diarrhoea, ARI, loss of appetite, severe anaemia).
Severe acute malnutrition	<11.0 cm	(refer) Admission for therapeutic rehabilitative care (or inpatient care).

MUAC references for Adults

Type of malnutrition	Average levels (male and female)	Intervention
Normal	≥23 cm	Education and counselling on CNP (if HIV+).
Mild malnutrition	18.5-23 cm	Nutritional education/ counselling on CNP (if HIV+); treatment and prevention of infections.
Moderate malnutrition	16-18.5 cm	Refer for food supplementation. If also bilateral pitting oedema, inability to stand, or apparent dehydration, then refer for therapeutic feeding and/or admission for therapeutic care.
Severe malnutrition	<16 cm	Irrespective of clinical signs, admit for stabilization and/or therapeutic rehabilitation.

RuTF=Ready-to-use therapeutic foods

Laboratory grading of some nutrition parameters

Laboratory grading of some nutrition parameters

Adults and Adolescents

LABORATORY TEST	GRADE 1 TOXICITY	GRADE 2 TOXICITY	GRADE 3 TOXICITY	GRADE 4 TOXICITY
Haemoglobin	8.0-9.4g/dL	7.0-7.9 g/dl	6.5—6.9g/dL	<6.5g/dL
Triglycerides (fasting levels)	3.4-5.6mmol/L	5.6-8.5 mmol/l.	8.5-13.5mmol/L	>13.5mmol/L
Cholesterol (total)	1.3 x upper normal limit(of 6.2 mmol/ dL)	1.3-1.6 x upper normal limit	1.6-2.0 x upper normal limit	>2.0 x upper normal limit
Creatinine			1.7-2.0 mg/dL	>2.0 mg/dL
Amylase/lipase			2-3 x upper normal limit	>3 x upper normal limit
	Continue ARV Repeat test 2 weeks initial test and reassess		Refer to a clinician	Refer to a clinician immediately
Lipid imbalances could be managed with diet, exercise, fish oil and/or pharmacologically with use of niacin, statins or fibrates.				

For young children

LABORATORY TEST	GRADE 1 TOXICITY	GRADE 2 TOXICITY	GRADE 3 TOXICITY	GRADE 4 TOXICITY
Haemoglobin (3 month-2 years)	9.0-9.9g/dL	7.0-8.9 g/dL	<7.0g/dL	Cardiac failure secondary to anaemia
> 2 years to 12 years	10-10.9g/dL	7.0-9 9g/dL	<7.0g/dL	
Triglycerides		1.54-8.46mmol/L	8.47-13.56mmol/L	>13.56mmol/L
Cholesterol		4.43-12.92mmol/L	12.92-19.4mmol/L	>19.4mmol/L
Creatinine (<2 yr olds) <i>others as adults</i>			1.2-1.5	>1.5

Dietary Assessment

How to do a 24-Hour Dietary Recall

Dietary assessment is important to assess whether the quantity and diversity of food consumed is adequate to provide enough energy and the essential nutrients. The assessment can be done using the form below. Use the following questions to guide you.

1. Ask the client/caregiver what they ate and/or drank the previous day. Start by asking the foods eaten during a) breakfast b) lunch c) dinner d) Food and/or beverage eaten between the break snack e) other (specify).
2. Include everything that they ate and drank, including foods and drinks that were not prepared or consumed at home – include even juices, soda, milk, snacks, fruits, or other foods. WHEN RESPONDENT STOPS, ASK: Anything else?
3. Ask for the description of food and drinks:
 - Was the food prepared at home or bought? What were the ingredients of each of the foods?
 - Ask how the food was cooked (boiled, fried, stewed, roasted),
 - Ask for other ingredients added to the food, either during preparation or after (e.g. salt, sugar, spices, etc).
4. For each food item ask how much they actually ate/drank?

Volume: How much? (Tsp, Tbsp, cup) or

Weight: What was the weight of the portion eaten? (Only if applicable)

Number: How many did they eat?

Size: What size were they? [Big, large, medium, small] Use plate size to estimate quantities or use food atlas if available

Shape: What shape were they? [Cubed, rounded, oval...]
5. REVIEW: to make sure all food items eaten the previous day are recorded.

The table below can be used to record the foods eaten at different times.

Dietary recall can then be used to compute the client's food diversity. The patient should have eaten foods in each of the different food groups: (1) cereals, tubers and breads (2) oils, butter, ghee and fats (3) meats, fish, dairy, and beans/nuts, (4) fruits and vegetables and (5) water.

The health worker can estimate whether the client ate enough food given his/her age, body size, activity level, and sex.

One can also find out whether the reported frequency, kind of foods, amounts, etc. reflect the usual feeding patterns or not. If not, is it more or less?

24-Hour Recall Assessment Form

Name _____ Age _____ Sex _____ Ref; NO _____

MEALTIME	ITEM EATEN (FOOD AND DRINKS)	QUANTITY
BREAKFAST		
SNACKS BETWEEN BF AND LUNCH		
LUNCH		
SNACKS BETWEEN LUNCH AND DINNER		
DINNER		
SNACKS BEFORE/AFTER BEDTIME		
NOTES		

Nutritionist _____ Signature _____ Date _____

Data Collection Guide

As the person collecting nutritional data in the Comprehensive Care Centre, you need to know the following:

- **What** data needs to be collected?
- **How** should the data be collected?
- **Who** is responsible for collecting the data?

Once familiar with the registers and forms used for data collection, the following tips help to ensure good data collection practices:

Understand the data to be collected: Before you record information, make sure that you understand the data requested.

Record the data every visit: Record on the appropriate forms each time you see the client in the centre/clinic.

Record all the data: Make sure you provide all information requested on the forms. Doing so may require noting when you did not provide a service.

Record the data in the same way every time: Use the same definitions, the same recording rules for reporting the same information every time. When it is not possible to record the same piece of information the same way, make a note that describes the changes. The data must be consistent and reliable.

Confidentiality of the information: The information collected for PLHIV should be kept secure to protect the confidentiality (under lock and key) of the patient information, especially if the names are recorded. Unless for health care purposes, the information should not be shared with other people without permission of the client.

Registers are used to report data on a daily basis. At the end of each month, the data are retrieved and summarized into the indicators (sometimes calculated using provided set of formulas). The report is prepared and submitted to the appropriate persons at the agreed frequency.

NASCOP Nutrition Proposed Indicators

INDICATORS	Children 0-14yrs		Adults 14yrs+	
	Male	Female	Male	Female
Total number of clients seen/ coming to the program in the last month				
Total number (or proportion) of clients receiving individual nutrition counselling over the last month				
Number of clients weighed in the last month				
Number of clients with BMI<18.5 (or with weight for height of less than -2 SD for children<14yrs)				
Number receiving food supplements from the facility/ program				

Possible Indicators and their Interpretation

INDICATORS	INFORMATION AND INTERPRETATION
<p>Total number (or proportion) of clients receiving individual nutrition counselling over the past three months</p> <p>(All indicators in this table need to be measured for a specific group of clients, e.g. clients who have attended the CCC in the past 3 months.)</p>	<p>Since nutrition counselling is a critical component of nutritional care and support, this indicator provides information on the extent to which nutrition services are being provided to CCC clients. It may also indicate demand and need for services.</p> <p>If calculated as a proportion of total CCC clients, this indicator gives an indication of coverage.</p> <p>Gives indication of workload for planning allocation of staff and time.</p> <p>If the number or proportion of clients counselled changes significantly over time (increases or decreases), one should consider why this is the case.</p>

<p>The total number, or proportion, of non-pregnant clients with BMI<18.5 (can also disaggregate to <16 and 16-18.5)</p>	<p>BMI of 18.5 is the cut-off for chronic energy deficiency, and this indicator provides information about the number and proportion of clients who are malnourished and require special nutritional services, including food supplementation, if available.</p> <p>It can also give an indication of the expected workload for food and nutrition services.</p> <p>If food supplements are provided at the CCC, then it indicates eligibility and demand for supplementation.</p> <p>Changes in the indicator over time is a reflection of malnutrition among the clients, including effects of the CCC's health and nutrition services, BUT also the effects of external factors, such as household food access, disease progression, and seasonal factors. Changes in the indicator can also be affected by changes in the population of clients, e.g. earlier deaths of malnourished clients.</p>
<p>Proportion of clients weighed at least once in the past 3 months</p>	<p>Identifies if facilities are achieving sufficient coverage of regular weight-monitoring of PLHIV, a critical component of nutritional assessment and care.</p> <p>Since all clients should have their weight monitored at least every 3 months, CCCs should ideally aim to achieve a 100% target for this indicator.</p> <p>Low values or significant decreases in this indicator may call for service providers and managers to identify and address service delivery gaps, such as availability of scales, prioritization of weighing among service providers, or frequency of client visits.</p> <p>Note that this indicator only measures weighing, not whether appropriate follow-up (further assessment, counselling, supplementation) occurred.</p>
<p>Proportion of PLHIV consuming breakfast, lunch, and dinner and at least one snack on the day prior to the client's visit to the site.</p>	<p>Consumption of the three main meals and an additional snack is related to the quantity of food a person consumes and consuming three meals and a snack increases the chances of meeting energy intake for maintenance of body weight.</p> <p>Information from this indicator can help service providers determine topics to emphasize in counselling and education.</p> <p>Changes in this indicator can reflect behaviour changes resulting from program efforts, as well as external factors such as changes in food access.</p>
<p>Proportion of PLHIV who consumed a) fruit AND b) vegetable AND c) foods prepared with oils, fats; AND EITHER d1) meat/fish/eggs /milk OR d2) nuts/ legumes on the day prior to the client's visit to the site</p>	<p>Consumption of foods from each of the main "food groups" is essential to a balanced diet with the essential nutrients and energy needed for maintenance of body weight and health. This indicator provides information about the diversity of clients' diets.</p> <p>Information from this indicator can help service providers determine topics to emphasize in counselling and education.</p> <p>Changes in this indicator can reflect behaviour changes resulting from program efforts, as well as external factors such as changes in food access.</p>

Proportion of clients experiencing symptoms who know the correct dietary management of the symptoms

Adjustments to dietary patterns can help reduce the severity of certain symptoms, thereby improving the client's functioning and quality of life. This indicator measures clients' knowledge of such symptom management.

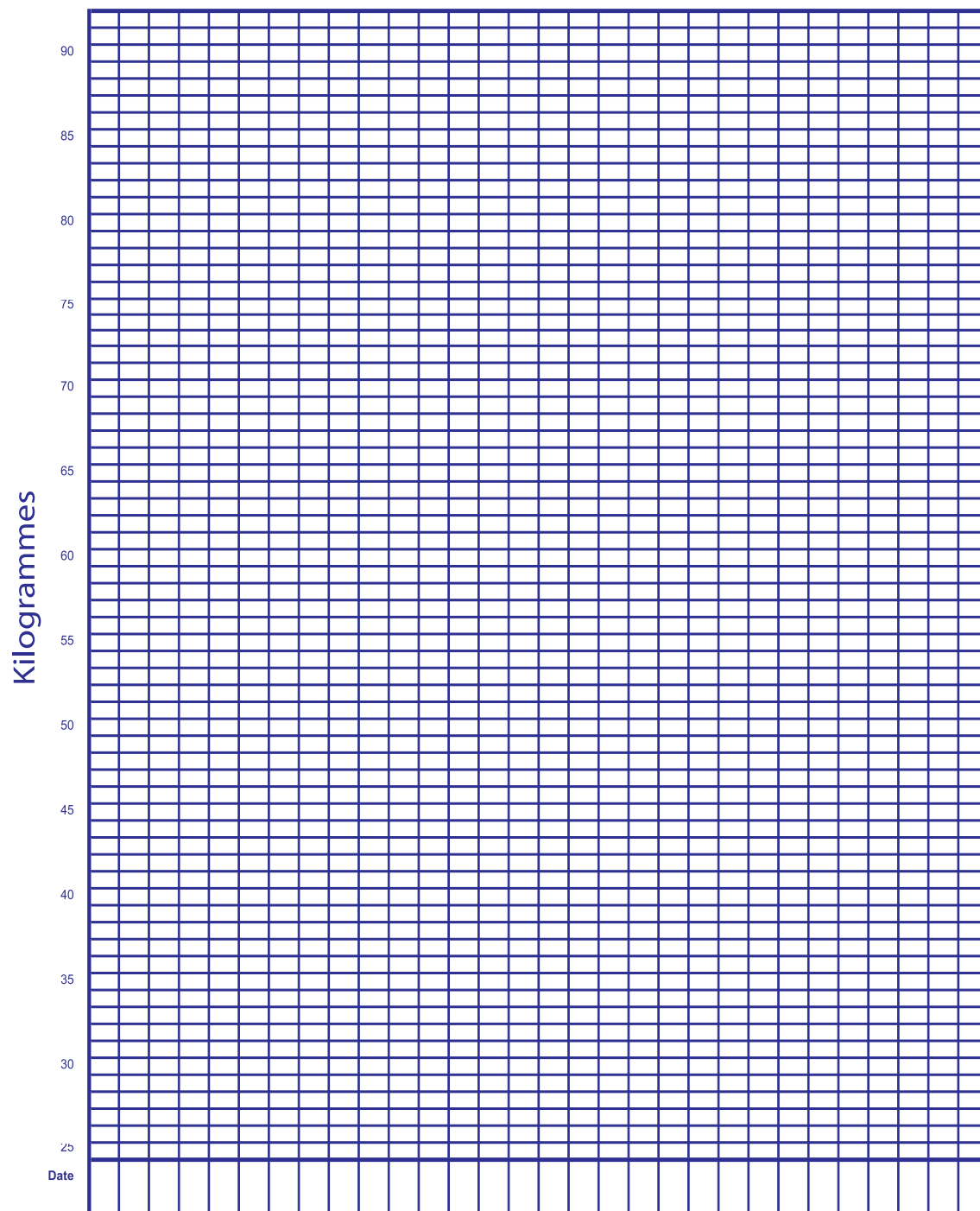
Information from this indicator can inform counseling and education and indicate the effectiveness of CCC efforts to help clients learn how to manage symptoms.

Adapted from FANTA 2006 "DRAFT Guide to Monitoring and Evaluating Nutrition Education and Counseling for People Living with HIV/AIDS"; Food and Nutrition Technical Assistance Project, Academy for Education Development, Washington, DC. Refer to final document for more information on identifying and measuring indicators.

Patient Evaluation Forms

Weight Monitoring Chart

Patient name: _____ Sex: _____ Age: _____



Patient Evaluation Forms

Patient Nutrition Management Form (Adult)

Reference No.: Date..... **Visit number** [] []
 Name.....Age.....(yrs) .Sex:

Risk Factors (In Last Month?)

	<i>Excellent/No problem</i>	<i>Good/not serious</i>	<i>Poor/severe</i>	<i>Adequate Dietary practice put in place to manage it if poor? Y or N (or Not quite?)</i>
Appetite				
Nausea and vomiting				
Sore mouth or when eating is painful				
Changed taste of foods				
Constipation and bloating				
Colds, coughs				
Anaemia				
Diarrhoea				
Others.....				

++Judge whether dietary approach used is appropriate.

Do you take Alcohol..... Yes No

Do you smoke.....Yes No Quantity

Physical Activity: [] Low..... [] Medium..... [] High.....

Ability to perform basic work since last session: [] Much Better [] Better [] Worse

Medical History

What medicines are you taking?

<i>ARVs being taken</i>	<i>Any Dietary Implications</i>	<i>Observed the dietary implications? (Y, N, Not always)</i>
1)		
2)		
3)		
<i>Other Medicines</i>		
1)		
2)		

Anthropometric, Biochemical and Dietary Assessments

Has client been weighed at least twice in the last 6 months? [Y] [N]

Patient knows target weight? [Y] [N]
 Last weight (LW):(kg)
 Current Weight (CW)..... (kg)
 Height(m) MUA

Current BMI=.....

Wt Change (CW-LW):(kg).

Blood Pressure.....

Glucose..... Hours
 Postprandial.....

Cholesterol.....Triglycerides.....

Body fat%.....Fat Mass.....

Dietary action	Yes/No	If not why?
Consumed at least three meals in the last 3 days AND at least a snack in last 24 hours		
Consumed 1) fruit AND 2) vegetable AND 3) foods prepared with oils, fats; AND EITHER 4a) meat/fish/eggs/milk? OR 4b) nuts/legumes on the day prior to the client's visit to the site in last 24 hrs		
Drunk at least 8 glasses of boiled/clean safe water in last 24 hrs.		

Nutritional Management Plan

Weight targets?over how long?.....(months)

Recommendation on Dietary symptom management?

Recommendation on drug-food interaction?

Recommendation on food intake (energy increase, food diversity, food accessibility)

Any micronutrients given?
 Yes.....No.....Type

Any food supplements distributed? _____

Why? _____

Which? _____

How much? _____

Any Demonstration made?.....

Referral made: to.....

Screened By:..... Sign

Counselled by: Sign.....

Data Management and analysis

Data Extraction sheet

Tallying for BMI (Adults)

Health Facility: _____

Period: _____ (should be done for every three months)

	BMI<16	BMI 16-18.5	BMI 18.5-20	BMI>20	
FIRST VISIT	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
Total: _____	Total: _____	Total: _____	Total: _____	G-Total= _____	
%	%	%	%		
First VISIT	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
Total: _____	Total: _____	Total: _____	Total: _____	G-Total= _____	
%	%	%	%		
>1 Month/visit	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
Total: _____	Total: _____	Total: _____	Total: _____	G-Total= _____	
%	%	%	%		
>1 VISITS	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	
Total: _____	Total: _____	Total: _____	Total: _____	G-Total= _____	
%	%	%	%		

Data Management and Analysis

Analyzing BMI data

BMI is an indicator of nutritional status among adults. A low BMI is an indication of poor nutritional status. Reporting the % of (non-pregnant) adults with BMI less than 18.5 identifies the % of malnourished adult PLHIV attending your clinic. Compared to the previous %, this identifies increase or decrease in the level of malnutrition in the site. (Note that changes in the proportion malnourished can be affected by entry and exit of clients, including death of those most malnourished).

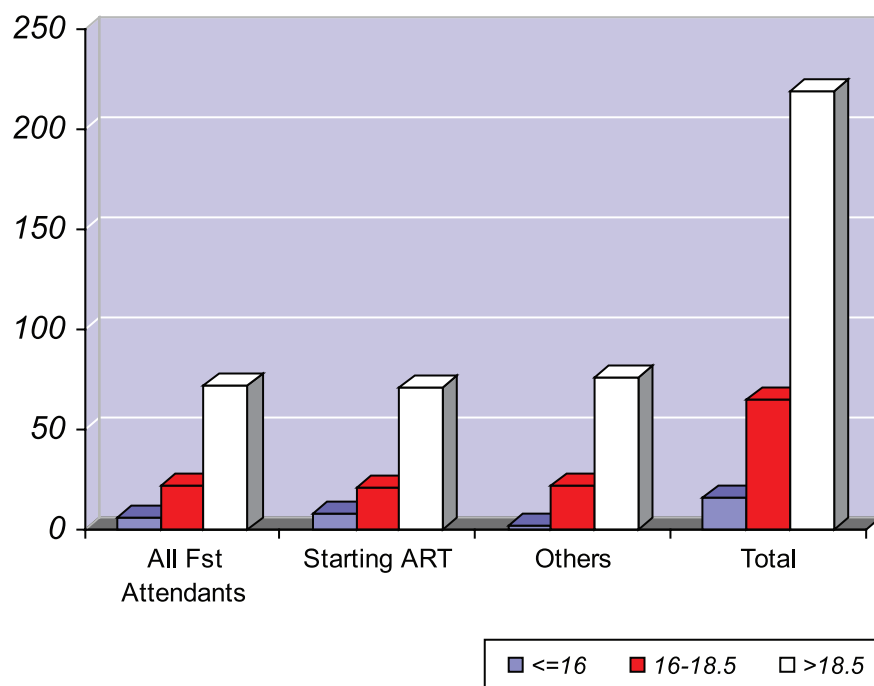
Process:

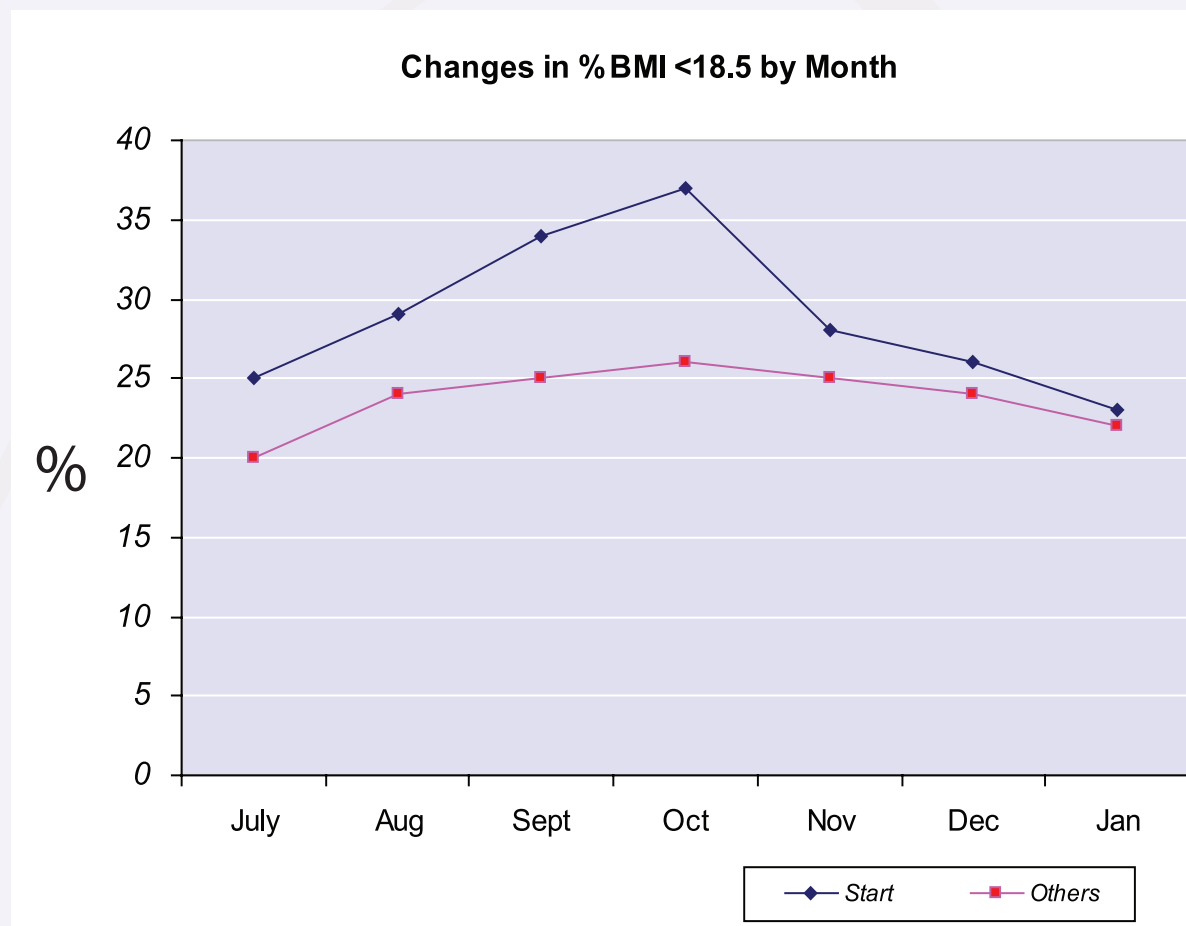
From the service records, e.g. registers or patient files, at the facility/site:

- Count the total number of adult PLHIV attending the nutrition clinic over the period.
- Note the number of first-time clients, and/or those starting ART. It may also be useful to disaggregate into those on ART and those not on ART.
- Review the records of each patient in each category to compute the number that fall in each category of BMI (<16, 16-18.5, and >18.5). See definition of BMI and how to compute BMI above.
- Plot (as below)

$$\% \text{ BMI} < 16 = \frac{\text{Number of patients seen/weighed in the period who have BMI} < 16}{\text{Total number of clients seen/weighed over the period}}$$

Example: BMI status of clients seen August 2005





Analyzing data on weight monitoring

PLHIV should be weighed at least once every three months (see Critical Nutrition Practice 1 above). By collecting and analyzing this indicator we may have an idea of the proportion of clients who are being weighed at regular intervals.

From the service records at the facility/site:

- Determine (count) the total number of PLHIV attending the nutrition clinic over the period in question (e.g. over the past six months).
- Note the number of attendants who were recorded as having been weighed at least once in the last three (3) months.
- You can further disaggregate this to those on ART and those not.

$\% \text{ weighed } \geq \text{once in last 3 month} = \frac{\# \text{ of clients Weighed } \geq \text{once in last 3 months}}{\text{Total number of clients seen (e.g. over past six months)}}$

Total number of clients seen (e.g. over past six months)

How to Conduct a Counselling Session

Planning the Counselling Session

Before the counselling starts, the counsellor should:

1. Ensure both the client and the counsellor have enough time available for the session.
2. Ensure that the session is in a place where the client is comfortable to discuss issues and that there are no intrusions.
3. Have the following tools in place;
 - i) Counselling cards,
 - ii) Demonstration models,
 - iii) Functioning and accurate weighing scale,
 - iv) Meal serving plan/food and drug plan,
 - v) Guide to calorie intake showing different types of carbohydrates/ starches, fruits vegetables and proteins in the locality,
 - vi) Handouts and references that can be given to clients,
 - vii) Enough data/information collection forms, tally sheets, and referral forms,
 - viii) Place to record the next appointment for follow-up sessions with clients
 - ix) The counsellor's notes on previous action(s) taken with the client, if this is a follow-up visit.

Checklist of Key Counselling Techniques

Skills and Techniques	Did you as a Counsellor	Tick/cross
Establishes a relationship	• Greet the client? (shake hands if appropriate)	
	• Offer them a seat?	
	• Introduce yourself to the client?	
	• Lean forward when talking?	
	• Make eye contact when talking to the client?	
	• Show interest in the client?	
	• Maintain professional conduct during the counselling session?	
Questioning	• Ask questions that are relevant to the topic of discussion?	
	• Ask open-ended questions?	
	• Use closed-ended questions to get basic information such as demographic data?	
	• Avoid over-use of closed-ended questions?	
	• Use a style of questioning that reflects interest, concern, and care rather than interrogation?	
Listens well	• Look at the client?	

Conducting a Counselling Session

Skills and Techniques	Did you as a Counsellor	Tick/cross
	<ul style="list-style-type: none"> Listen carefully and actively? 	
	<ul style="list-style-type: none"> Use body language to indicate attentiveness to the speaker? 	
	<ul style="list-style-type: none"> Make eye contact (facial expression) to indicate interest and care? 	
	<ul style="list-style-type: none"> Treat the client with respect and acceptance? 	
	<ul style="list-style-type: none"> Use minimal encouragers such as yes, okay, etc.? 	
	<ul style="list-style-type: none"> Occasionally sum up client's statements? 	
	<ul style="list-style-type: none"> Take note of the verbal and non-verbal cues from the client? 	
	<ul style="list-style-type: none"> Wait after posing questions to the client (to allow client to formulate questions or responses)? 	
Empathy	<ul style="list-style-type: none"> Comment on client's challenges while also indicating client's strengths? 	
	<ul style="list-style-type: none"> Reflect statements back to the client to let the client know they were understood? 	
	<ul style="list-style-type: none"> Show empathy to the client's needs and concerns? 	
Information	<ul style="list-style-type: none"> Clearly communicate the important nutritional information based on the client's level of knowledge and cultural values and beliefs? 	
Clarifying	<ul style="list-style-type: none"> Check understanding of what the client is saying 	
	<ul style="list-style-type: none"> Use phrases like "are you saying that.....?"; "Did I get you right when you said.....?" "Correct me if I am wrong" 	
Finding solutions	<ul style="list-style-type: none"> Suggest options/interventions that are acceptable, affordable and feasible to the client? 	
	<ul style="list-style-type: none"> Help the client to enact a solution to their problem that is practical and realistic? 	
	<ul style="list-style-type: none"> Get client to practice potential solutions? 	
	<ul style="list-style-type: none"> Help the client to verbalize their thoughts about what others may say about their issue/solutions? 	
Summarizing	<ul style="list-style-type: none"> Take time to summarize information the client shares 	
	<ul style="list-style-type: none"> Check with the client to make sure they understand the important concerns or information? 	
	<ul style="list-style-type: none"> Praise and reaffirm the things the client is doing right? 	
Follow-up	<ul style="list-style-type: none"> Discuss appropriate follow up with the client? 	
	<ul style="list-style-type: none"> Encourage the client to adhere to the follow-up plan? 	

Recommended Components of a Nutrition Counselling Session

In a nutrition counselling intervention, the service provider and client work together to assess nutritional status and dietary intake, create nutrition care plans, and develop strategies that address symptoms and overcome constraints to consuming a healthy diet. The three main activities of a nutrition counselling session are: assessment; goal setting; and planning.

- a. **Assessment:** The purpose of assessment in a nutrition counselling session is to gain an understanding of the nutritional, medical, and physical status of the PLHIV. As part of the assessment, physical status is assessed through anthropometric measurements, functional capabilities (e.g. activity level) and, if possible, the results of biochemical tests. On every contact the service provider should take the weight of the patient or the MUAC.

If the weight is below the recommended weight for the height, or if the patient has unintentionally lost weight (more than 5% within the last 3 months) the patient should be provided more care. This involves a dietary assessment in which the service provider asks about dietary intake, dietary problems (e.g. poor appetite, difficulty chewing and swallowing), and hygiene and food preparation practices. The service provider also asks about the client's medical history, which includes current medications and symptoms. The main factor to any declined nutritional status is determined (if possible).

The assessment is also a time for the service provider to learn about the client's nutritional and health concerns.

- b. **Goal setting:** The service provider and client then agree on goals, or expected outcomes, based on the assessment. The number of goals should be limited to a maximum of three so that the client is not overwhelmed with too many changes at one time; goals should be added incrementally as they are achieved. Goals should also be specific and achievable.
- c. **Planning:** After establishing goals, the service provider and client plan together how to achieve those goals. Selecting actions to improve nutritional status happens in two steps. First, the service provider educates the client on those topics relevant to their goals. Service providers should be prepared to provide information on eating well, preventing infections, maintaining physical activity, and managing diet related HIV/AIDS symptoms. Second, the service provider and client decide together which recommendations are acceptable and feasible. If there are challenges to making the recommended dietary changes, these also need to be addressed.

Finally, the date and time of the next, follow-up appointment should be set.

Clients should receive routine counselling sessions (usually scheduled at most three months apart), so that the client's progress toward his or her nutritional goals can be tracked and plans revised as needed.

Adapted from FANTA 2006 "DRAFT Guide to Monitoring and Evaluating Nutrition Education and Counselling for People Living with HIV/AIDS"; Food and Nutrition Technical Assistance Project, Academy for Education Development, Washington, DC.

Conducting a Counselling Session Using the GATHER Approach

The Ministry of Health recommends the use of the **GATHER** process in nutrition counselling.

Greet the client (and develop rapport). Provide them a seat. Introduce each other; know their wellbeing since the last visit.

Ask their feeling about their nutritional status and food intake. Is it good or bad?

- Ask about any symptoms, nutritional problems, and concerns.
- Carry out the nutritional assessment, if you have not done so already. If nutritional status has been done, record and share the results, e.g. dietary, current weight (and BMI) and weight change, biochemical, dietary, clinical. For example, are they eating enough to provide the additional energy needs, a balanced diet? Taking enough clean, safe water? Managing symptoms using dietary approaches? Adhering to drug-food plans?
- Together with the client identify their nutritional needs and specific nutritional problems, if any, e.g. *not increasing weight adequately; not adhering to drug-food plan; need to use dietary approaches to manage symptoms.*
- Find out what the client has done in the past to address these problems? What was successful?

Tell client about alternative choices they have to address their nutritional problem(s). The counselling cards can be used for this. The choices should address the problems identified above. Make sure the key message(s) on the issue is/are communicated.

- Help the client set nutritional goal(s) to address the nutritional gap/problem.
- The Nutritional Goal/Objective should be specific, measurable, achievable, and realistic and time bound (SMART). An example of a SMART goal is, "*I will make an effort to increase my weight by 4 kilograms by the end of March.*"

Help the client to make informed choices. With the client (and family members/care givers), develop approaches/actions to attain the nutrition goal/objective the client has set. As much as possible let the client come up with the choices that are practical and relevant to their context. Some may include:

- *Monitor my weight every month to assess whether I am meeting my goal.*
- *Use the handout to manage any symptoms that may affect my nutrition/dietary intake.*
- *Increase my energy intake by a) having one extra snack every day b) adding groundnut paste or a spoon of ghee into my evening meals, c) changing my breakfast from a cup of tea and scones to a mug of porridge made from fermented millet/sorghum or UNIMIX.*
- *Ensure that all my drinking water (including the water I use to mix juice) is boiled (for at least 8-10 minutes), and that I wash my hands before preparing my food and before I eat any food. I will also ensure all my fruits are well washed with clean water before I eat them.*

Explain fully the choice(s) the client has made.

- Discuss any barriers the client may have in implementing the choices they have made.
- Ensure the client can explain the actions they will take. Make demonstrations if necessary.
- Summarize what has been agreed to be done and how it will be done (the client can do this).

Reassure and give Return date on the next visit.

Counselling the Client to Improve Weight

1. Weigh the client
 - Compare current weight to previous weight.
 - For clients who are underweight, experiencing unintended weight loss, or who want to increase their weight, refer to nos. 2 - 8 below.
 - For clients who are overweight and clients who are experiencing unintended and undesired weight gain, refer to the issues below.
2. If the client is severely malnourished (e.g. BMI<16), urgently refer to an institution where they can get appropriate nutritional rehabilitation. The national guidelines on *Management of Severe Malnutrition*, should be followed to manage the malnutrition.
3. Inform the client of **the nine (9) critical nutrition practices for PLHIV in Kenya**. Inform them that each of the actions is critical for maintenance of healthy nutrition among PLHIV.
4. Assess the possibility of opportunistic infections or other illness that may be affecting nutrient absorption or utilization. If OIs or other illnesses are:
 - Present, then counsel on dietary management of related symptoms and refer to a medical doctor.
 - Are NOT present, go to (5) below.

Assess whether energy intake is adequate. Try to get a sense of the adequacy of the client's intake. Consider whether the client is eating a sufficient quantity of energy giving foods. General indicators that a client may be getting sufficient amounts of food include:

- Eating at least 3 meals a day (breakfast, lunch, and dinner) and the quantity of meals are "reasonably adequate" for their age, sex, activity and physiological state.
 - Eating meals that contain a variety of foods. These include energy giving foods, body building foods, protective foods (fruits and vegetables) and lots of safe/clean water and juices.
 - Eating (one or 2) snacks in between meals, especially those that are high in energy like porridge or mashed bananas, baked bananas or sweet potatoes.
 - Increasing intake of a balanced set of energy giving foods. Enriching local staples/foods with fats/oils, sugar, honey.
5. If intake of energy giving foods is estimated to be inadequate, assess the reason(s):
 - If due to drug-related side-effects (such as nausea and loss of appetite) discuss with the client whether dietary management can help. If needed, modify the food-drug timetable to enable increased intake.
 - If dietary management of side effects has been used but is not effective and side effects continue, refer client to a medical doctor. The doctor may prescribe appetite stimulants for appetite loss; antiemetics (to prevent vomiting) for nausea or vomiting; or anti-diarrhoea medications.
 - If drug-related side effects are not the issue and food is available in the household, but dietary intake is inadequate, then counsel the client on

increased food intake, through:

- Increase the amount of food consumed.
 - Increase the frequency of meals and snacks.
 - Increase intake of energy giving foods.
 - This may require helping the client identify appealing, available and affordable foods.
 - If needed, modify the food-drug timetable to enable increased intake.
- If the client lacks access to sufficient food, help him/her identify options to increase access to food, including budgeting of food expenditures or accessing services that improve livelihoods or provide assistance. It may be necessary to link the client to programs providing supplements, food or other goods and services if available.
6. If dietary intake is estimated to be adequate and OIs and side effects that affect nutrient absorption are not present, it is possible the weight loss is the result of metabolic changes or other problems. In this case, refer the client to a medical doctor. Remember to provide the client with information about maintaining adequate food intake.
 7. Counsel clients to do moderate physical exercise (three to four times a week) when possible. This is useful for building muscles. If the client experiences difficulties exercising, refer him/her to a physiotherapist if available.
 8. If improved diet as a result of counselling fails to increase weight, refer the client to a medical doctor for further assessments.
 9. For **overweight clients** and those experiencing unintended weight gain:
 - Ask the client about his/her daily food intake. If intake of fat/energy is higher than recommended, help the client to identify ways to reduce consumption of high-fat and high energy foods, especially those not rich in other nutrients.
 - Encourage the client to eat a variety of foods.
 - Encourage the client to continue with physical activity such as house work or other work, and to exercise regularly through recreational activities or walking.
 - If weight increase is likely due to metabolic changes fully or partly, (e.g. if weight has increased rapidly despite little change in dietary intake), refer the client to a medical doctor for further assessment and treatment.
 10. Allow time to discuss any questions, concerns or issues the client may raise.

Counselling Clients about Food and Nutrition Implications on ARVs

1. Explain the benefits of good nutrition for PLHIV who are on ARVs. Good nutrition:
 - Strengthens the body's ability to fight diseases, reduces opportunistic infections, and may slow progression of HIV to AIDS.
 - Complements ARVs actions.
 - Helps improve the effectiveness of medication and manage side effects.
2. Explain how HIV affects the nutrition of PLHIV.
 - HIV/AIDS increases the body's nutrition requirements.
 - HIV/AIDS leads to opportunistic infections which are often associated with increased nutrition requirements and decreased food intake.
 - Drugs taken by PLHIV may result to side effects that reduce food intake or nutrient absorption. Increased body nutrient requirements coupled with poor food intake and absorption may lead to a poor nutritional status.
3. Explain that there may be interactions between food and ARVs.
 - ARVs may have side effects that can reduce food intake, absorption of nutrients and adherence to the drugs.
 - Some ARVs affect the availability, absorption and utilization of nutrients in the body.
 - Some ARVs cause metabolic side-effects that have nutritional implications, like weight and non-communicable diseases.
 - Some foods when taken with ARVs may reduce drug effectiveness and worsen the side effects of ARVs.
 - Careful selection of food and well-planned meals can help minimize drug side effects and also improve adherence to and effectiveness of ARVs.
4. Ask the client if s/he knows the drugs s/he is taking. Explain that knowing the drugs helps:
 - To ensure the client complies with the recommended timing and dosage. Drugs need to be taken as prescribed.
 - To identify possible food and drug interactions associated with each drug.
 - In making a daily routine for taking drugs and meals to maximize effectiveness of the drugs, ensure good nutrition and minimize side-effects.
5. Explain the dietary recommendations for each of the drugs the client is taking. All drugs require the client to:
 - Avoid taking alcohol.
 - Drink a lot of clean/safe (boiled) water. Everyone should drink at least 8 glasses or 4 big cups each day.

Specific food recommendations for common first-line ARVs in Kenya are:

- o **Zidovudine** is best taken on an empty stomach. For example, early in the morning, 30-60 minutes before breakfast, and in the evening, 30-60 minutes before the evening meal. If the client experiences stomach irritation, the drug can be taken with food. But it should NOT be taken with a high fat meal. If taken with food, the client should limit the amount of fat/oil in the meal.
- o **Nevirapine** does not have dietary restrictions. It can be taken with or without food. Clients taking it should avoid St. John's Wort, a yellow-flowered plant (Latin name of *Hypericum perforatum*) sometimes used as a remedy for depression.
- o **Lamivudine** can be taken with or without food.
- o **Efavirenz** can be taken with or without food. But it should NOT be taken with a high fat meal. If taken with food, the client should limit the amount of fat/oil in the meal.
- o **Stavudine** can be taken with or without food.

Note: For drugs other than those above, refer to Wall Chart 2

6. Emphasize the importance of using clean and safe water when taking medicines.
 - HIV makes an individual more vulnerable to infections. Using clean and safe water is important to avoid water-borne infections.
 - Some ARVs call for drinking plenty of water to avoid side effects. For example, when taking indinavir, one should drink at least 1500 ml. of water (6 glasses of water or 3 big cups of water) to avoid complications that may affect important body organs like the kidney.
7. Explain to clients that taking some drugs may lead to side effects that may affect food intake or nutrition. But not all the symptoms they see are associated to the drugs and should consult their health care provider whenever they have any symptoms.

How to Prepare Food-Drug Plan/Timetable

1. Under the **date column** write date and month and year.
2. In the **medication column** write out all the drugs the patient is taking and the times of the day they are to be taken.
3. In the **special instruction column** write reminders on diet related instructions for taking medicine: for instance, the foods to be avoided or taken in small quantities when taking ARVs.

Food to be avoided or taken in small quantities when taking ARVs	Why?
<ul style="list-style-type: none"> • Alcohol 	Reduces effectiveness of drugs and can cause dangerous side effects.
<ul style="list-style-type: none"> • Too much coffee/tea 	Increases fluid loss and interferes with absorption of some nutrients
<ul style="list-style-type: none"> • Undercooked meats and raw eggs 	Can cause food borne illnesses.
<ul style="list-style-type: none"> • Expired tinned products • St Johns wort 	Can cause food borne illnesses. Reduce effectiveness of some drugs.
<ul style="list-style-type: none"> • If taking saquinavir, avoid garlic supplements or eating too much garlic 	Reduce the effectiveness of saquinavir

4. In the **symptoms column**, write any disease signs and symptoms the patient may be suffering from on that day.
5. In each of the periods (Morning, Mid-morning, Lunch, Mid-afternoon, and evening/night) together with the patient, list or draw foods the client is able to access/eat and the list of drugs to be taken. Take into consideration the client's likes and dislikes (or food preferences). Ensure the mix of foods provides a "balanced diet"; the quantities are enough to provide the energy and nutrients needed for the stage of the infection, and the timing of the meals is appropriate for the drugs the client is on. Identify and discuss with the client the need to change eating patterns to promote effectiveness of ARVs.
 - a. Increased frequency (like having snacks in between meals).
 - b. Timing of the meals in relation to taking of the drugs (including when to take beverages like tea and coffee).
 - c. Food preparation (like limiting the amount of fat/oils) if needed.

Preparing an Oral Re-Hydration Drink



Preparing an oral re-hydration drink



From packets

Follow the instructions and dissolve the contents of the packet in the amount of clean water that is stated on the packet.



With powdered cereals

To one litre of clean water, add half a teaspoon of salt and eight teaspoons of powdered cereals. Rice is best, but fine ground wheat flour, maize, sorghum or cooked mashed potatoes can also be used. Boil for 5-7 minutes to make a liquid soup or watery porridge. Cool the drink quickly.

Age	Measurement Technique	Qualification Criteria (All must apply unless otherwise specified)	Food Prescribed Period?	Amount / day or / Month	Monitoring and Evaluation	Re - evaluation	Exit Criteria
6 to 24 months	Ask questions to ascertain whether the child can be classified as 'vulnerable'. The child should have one or more criteria shown to the right to qualify for food.	(one or more) <ul style="list-style-type: none"> HIV+ Mother is HIV+ Orphan (one or both parents) Underweight Other reason for 'vulnerability' 	First Food® For 3 mths	100g /day 12 sachets per month	Monitor the child's weight and length. Monitor child survival. Monitor the child's vulnerability status.	Every 3 months	Reaches 24 months of age. If only underweight, reaches mid-range of desired weight/age
2 to 4 years	Take accurate height (cms) and weight (kgs) measurements	<ul style="list-style-type: none"> Z-score below <-1.5 for either height or weight. 	First Food® For 3 mths	200g /day 24 sachets per month	Monitor the child's height and weight	After 3 months	Z-score above -1.0 for both height and weight
5 to 10 years	Take accurate height (cms) and weight (kgs) measurements.	<ul style="list-style-type: none"> HIV+ Z value < -1.5 (Refer to the minus 1.5 Z score chart) 	First Food® For 3 mths	200g /day 24 sachets per month	Monitor the child height and weight.	After 3 months	Z-score above -1.0 for both height and weight
11 to 17 years	Take accurate height (cms) and weight (kgs) measurements	<ul style="list-style-type: none"> HIV+ Z value < -1.5 (Refer to the minus 1.5 Z score chart) 	Foundation Plus+® For 3 mths	300g /day 2 bags per month	Monitor the adolescent's height and weight.	After 3 months	Z-score above -1.0 for both height and weight
18 years + (not pregnant or post-partum)	Take accurate height (cms) once and weight (kgs) measurements	<ul style="list-style-type: none"> HIV+ BMI < 18.5 (Refer to the BMI chart) 	Foundation Plus+® For 3 mths	300g /day 2 bags per month	Monitor the adult's height and weight.	After 3 months	BMI at or above 20
Pregnant or Post partum	Monitor pregnancy and post partum periods	<ul style="list-style-type: none"> HIV+ Pregnant or Post Partum (up to 6 months from child birth) And any one of the following: <ul style="list-style-type: none"> MUAC <22 at any stage of the pregnancy or postpartum Slower than average weight gain during pregnancy Any other sign or symptom of macro- or micronutrient malnutrition 	Advantage® From point of eligibility throughout pregnancy and for the first six months post-partum	300g /day 2 bags per month	Monitor the mother's weight gain and well being throughout pregnancy. Monitor her MUAC.	Every trimester and every 3 months after childbirth. (monitor infant as well)	At 6 months post partum, pregnant Mother has MUAC of 24cms or above. If not, evaluate under appropriate age category above to see if she still qualifies.

Food by Prescription

Criteria for the “Food by Prescription” (FBP) Intervention

Introduction

The aim of the food provided in the CCC is to improve nutritional status of the individual and minimize (further) loss of muscle mass. Thus the food should be nutrient dense (in terms of energy, protein, and micronutrient), safe, palatable/acceptable, easy to deliver within the health system, not easily sharable, and easy to use.

Special kinds of Corn Soy Blend, with higher energy (450kcal/100g of food) and fortified with approximately one RDA of multiple micronutrients are being used at some sites in Kenya. The blends are pre-cooked and processed in very high hygienic environment, and approved by the Kenya Bureau of Standards (KBS). Other foods being used include Plumpynut and locally prepared recipes. The food should provide at least 50% of energy needs.

The food should also be provided in such a way to minimize dependency. Therefore food should only be provided based on clearly defined admission and discharge criteria, which should be clearly communicated with clients. Where possible the communiqué on the admission and discharge criteria should be posted on walls where clients can see them.

Health personnel tasked to manage the FBP activity in the CCC should attend the FBP orientation one-day course, in addition to the 4-day Nutrition and HIV/AIDS course recommended by NASCOP. The FBP orientation covers:

- Review of anthropometric assessment (taking weights and heights)
- Identification of eligible clients –use of the admission and discharge criteria
- Key messages to provide during distribution of the food
- How to use the food (preparation, recipes, etc)
- Recording, use of the prescription forms and collection of data related to FBP
- Analysis and use of the data.

Admission criteria

Adults (>18 years)

- After discharge from rehabilitation with severe malnutrition
- BMI <18.5
- OR MUAC < 22 cm (to be used ONLY if BMI can not be taken)

Pregnant and postpartum

- Severe and moderate malnutrition, e.g. MUAC <22cm
- Slower than average weight gain during pregnancy
- Has symptoms of AIDS

- Any other sign of micro- or macro- nutrient deficiency

Older Children (5-11 years) and Adolescents (12-18 years)

All HIV positive children and adolescents with malnutrition defined as:

- W/H of Zscores of less than -2
- OR Presence of bilateral oedema (oedema should be assessed by a clinician for medical causes).

Children (1-5 years)

All children with W/H Zscores of less than -3 should be treated according to the national (or WHO) guidelines for the management of severe malnutrition. They should be provided with “food by prescription” interventions after discharge or if they have malnutrition defined as:

- W/H or W/A of Zscores of less than -1.5
- OR Presence of bilateral oedema (oedema should be assessed by a clinician for medical causes). Sometimes because of medical reasons like, lack of appetite, have oral thrush/sores, etc.
- Born to a HIV+ parent who is malnourished (as defined above)
- (Is orphaned?) – Decide to include this or not.

Discharge criteria

Adults

Been in the program for 3 months and:

- BMI > 18.5/20
- AND Bilateral oedema has gone for 10 consecutive days
- OR MUAC >23cm (to be used only if BMI can not be taken)

Pregnant and lactating women up to 6 months after delivery

Provide food up to 6 months after delivery and if MUAC > 23cm

Older Children and Adolescents 12-18 years

- W/H is > -1.5 Z Scores (Or > 85%)
- AND Bilateral oedema has gone for 10 consecutive days

Young Children (1-5 years)

If W/H (or W/A) is > -1.5 Z scores and no faltering for 2 consecutive weighing.

Managing Severely Malnourished HIV+ Adults

(See Also MOH Booklet on Management of Severely Malnourished)

Identifying Severely Malnourished Adults

Adults exhibiting signs of malnutrition such as wasting (thinness) or oedema should be assessed for severe acute malnutrition. If their BMI is less than 16.0 or if they have bilateral oedema (which has been determined is not due to heart failure, pre-eclampsia, kidney failure, or beriberi) then they need to be treated.

Severely malnourished patients should be nutritionally and clinically managed in two phases with a “transition stage” in between. In Phase 1, the patient is stabilised as life-threatening illnesses are treated, while in Phase 2 the patient regains lost weight. Patients **without** life-threatening illnesses may not require Phase 1 treatment; however, all patients will need Phase 2 rehabilitation of lost weight. During both phases, patients are fed special diets and are weighed daily.

Phase 1: Management to Stabilise the Patient

Severely malnourished patients who have no appetite (cannot eat) and who are suffering serious illnesses (such as low body temperature, low blood sugar, or dehydration) require inpatient stabilisation at a nutrition rehabilitation unit or a therapeutic feeding centre.

Clinical Management: Upon admission, severely malnourished patients should be clinically assessed and treated in the following systematic manner.

1. Patients should first be tested for hypoglycaemia (blood glucose less than 3 mmol/litre). Hypoglycaemia must be treated immediately with glucose solution (follow your protocols).
2. Temperatures should also be taken to assess for hypothermia (low temperature) or fever. Patients with low temperature (less than 35.5 degrees Celcius rectally or 35.0 axillary) should be covered with blankets, especially around the head, neck, groin, and armpits. Any wet clothing should be removed. Low body temperature is dangerous and can be deadly.
3. Patients in shock will show signs of lethargy, unconsciousness, cold hands, weak and rapid pulses, and low blood pressure, among others. These patients may need oxygen and IV fluids. Since severely malnourished patients are at risk of fluid overload (and heart failure), IV fluids should only be administered under the supervision of a physician and follow national (or WHO) guidelines on treatment of severe malnutrition. Solutions with lower sodium content (e.g. half-Darrows or half normal saline) are often administered. Patients must be closely monitored every ten minutes to ensure pulse and respirations do not increase with the fluid administration.
4. If the patient is dehydrated, but not in shock, he/she usually has vomiting or diarrhoea and may be lethargic, thirsty, have a dry mouth or tongue, or show poor skin turgor (skin is slow to pull back when pinched). Dehydrated patients will need a modified oral rehydration solution called ReSoMal, which has a lower sodium content. Again, dehydrated patients need to be monitored for fluid overload (increasing respirations or pulse).
5. Severe anaemia should also be assessed (haemoglobin < 40 g/l), as this serious condition can cause heart failure. If the patient is severely anaemic,

he/she needs to be treated by a blood transfusion, under the supervision of the physician. Iron supplements should **NEVER** be given during Phase 1 treatment of severe malnutrition, as iron can make infections worse.

6. Severely malnourished patients often suffer from infections, but because the body lacks energy they do not always present with fever or signs of inflammation. One should therefore presumptively treat infections using broad spectrum antibiotics according to your protocols (e.g. amoxicillin [500 mg three times daily] or cotrimoxazole [960 mg twice daily] for 7 days). Malaria and helminth (worm) infection should also be assessed and treated.

Nutritional Management: During Phase 1 stabilisation, the patient needs a diet that will prevent further weight loss, while infections are treated in preparation for the weight recovery of Phase 2. *F75 therapeutic milk is the only food used during Phase 1. This milk has less energy (kilocalories) and protein than the milk used during Phase 2. F75 comes as a powder, to which 2 litres of cooled boiled water may be added.*

Local production of F75 milk

- F75 may be produced using local ingredients, but must be prepared according to WHO (or MOH) recipes.
- Quantities of ingredients should be carefully measured to ensure the proper quantity of energy and protein is obtained (see table below).
- When preparing F75 milk, it is very important that hands be washed prior, and that all cooking utensils and equipment be clean. Only clean safe water (boiled or treated water) should be used. Patients are very susceptible to infection, so good hygiene is important.
- Once prepared, the F75 must be discarded after 6 hours, as it will go bad.

1. The amount of milk patients are fed is based strictly on their weight. Weight must be measured daily and feeding quantities adjusted accordingly to ensure they get the recommended intake (no more and no less), following WHO or MOH guidelines. F75 should be given at the recommended amounts at each feeding, avoiding giving the patient a large quantity to consume throughout the day
2. Feeding frequency: Feeding is started in small, frequent amounts, so as not to overwhelm the body. Initially, patients are fed every 2 hours, including throughout the night. After the first day, patients are gradually fed greater quantities less frequently: every 3 hours, followed by every 4 hours.
3. Patients must be closely monitored to ensure they are drinking the milk. Patients who are not able to drink 80% of the milk over 2 consecutive feedings (including losses from vomiting), may need to have a nasogastric tube inserted until they are able to drink it all by themselves.

Transition Phase

The criteria for transitioning from Phase 1 to Phase 2 are return of appetite, control of serious illnesses, resolving oedema, and ability to easily finish all feeds.

During the three days of transition, F75 milk is replaced with F100 milk. During the

first 2 days of transition, the patient is given the same amount (in ml, not in kcals) of F100 as the last amount of F75 given. This is given every 4 hours. On the third day, the F100 is gradually increased at each feed as long as the patient is tolerating it (i.e. finishing the food and showing no signs of fluid overload). This gradual increase continues until some food is left after each meal. At this point, transition is finished and the patient is ready for Phase 2 rehabilitation.

An appropriate ready to use therapeutic food (RUTF) may also be introduced in small quantities at this stage in addition to F100 to allow patients to be familiar with it when they reach Phase 2.

Table: How to make F75 and F100 using local ingredients

Alternative sources of local milk	Ingredients	Amount for F75	Amount for F100
If Fresh Cow's Milk (or whole cream animal milk) or UHT milk	Fresh animal (cow's) milk	300ml	880ml
	Sugar	100g	75g
	Vegetable oil	20g	20g
	Mineral Mix (CMV)	20ml	20ml
	Clean safe water	Make to 1000ml	Make to 1000ml
Have whole dried milk	Dried whole milk	35g	110g
	Sugar	100g	75g
	Vegetable oil	20g	20g
	Mineral Mix (CMV)	20ml	20ml
	Clean safe water	Make to 1000ml	Make to 1000ml
Have skimmed dry milk	Skimmed dry milk	25g	80g
	Sugar	100g	75g
	Vegetable oil	20g	20g
	Mineral Mix (CMV)	20ml	20ml
	Clean safe water	Make to 1000ml	Make to 1000ml

Note: The mix can be made according to the table and diluted at meal time with clean safe water. The premix can also be added at the time of reconstitution.

Phase 2: Nutritional Management for Weight Catch-up

Recovery of lost weight occurs during Phase 2 treatment of severe malnutrition. Patients who have completed Phase 1 treatment and transition are admitted to Phase 2. Additionally, severely malnourished adults who do not require Phase 1 treatment (i.e. those adults who lack serious illness and who have appetite) may be directly admitted to Phase 2 treatment.

Phase 2 treatment may be conducted in an inpatient setting (often at the same Phase 1 facility) or it may be conducted in an outpatient or community setting. The nutritional management is generally the same in either setting, though the specific foods may vary.

Nutritional Management

The aim of Phase 2 is to achieve rapid weight gain and rebuild lost tissues. This requires more energy and protein than needed during Phase 1.

Kind of Food: For inpatient management, F100 therapeutic milk is given at this time. Like F75, it may be prepared using local ingredients (strictly following the recipe) or by adding cooled, boiled water to F100 powder. It must also be prepared hygienically and discarded after 6 hours.

A ready to use therapeutic food (RUTF) such as Plumpy'nut® may also be used in place of F100 for inpatients. For outpatients, an RUTF **must** be used, as F100 cannot be distributed to outpatients. RUTF is nutritionally equivalent to F100. They have the same energy, protein, fat, and vitamin and mineral levels. Closely monitor acceptance and any allergies/intolerances/side-effects.

It is important to confirm with a senior nutrition provider or UNICEF that one has access to an RUTF, since most ready to eat foods or foods with therapeutic claims are *not* RUTF!

Amount: The amount of F100 patients are fed is based on their weight. Weight is measured daily weekly, with feeding quantities adjusted accordingly to ensure they get **about 70-80 mls/kg body weight/day**. Where available, RuTF can be introduced as the patient tolerates it. Start the small quantities of the RuTF and increase it to a maximum of:

- 6 sachets of RUTF (92g, 3000 kcal) per day (or 2 pots of locally prepared RUTF (260g, 2700 kcal) per day).

Closely monitor acceptance and any allergies/intolerances/side-effects.

Towards discharge, the patient should be encouraged to begin eating normal foods from the home diet. Over the last few days of treatment, the F100 or RUTF should be gradually replaced with family foods.

Outpatients are given a week's worth of RUTF (or two weeks worth for biweekly programs) to take home. Initially the RuTF should provide approximately the daily energy needs of the person (*6 sachets Plumpynut or 2 pots of locally prepared RUTF per day*). Noting the HIV status, WHO recommends that HIV+ adults who are symptomatic (WHO Stage 2 or greater), need to increase their daily energy intake by an additional 20 to 30 percent. This should be considered when calculating the necessary amount of food to give them. As the client gets better and increases weight, the amount of RuTF can be reduced to provide about 40-50% of energy needs (*3 sachets Plumpynut or 1 pots of locally prepared RUTF per day*).

Clinical Management

- Where clinically indicated, one tablet of iron/folic acid (e.g. fefol (200mg) or ferrous sulphate (200mg) per day) can be given during this phase.
- If not on HIV/AIDS treatment, the client should be started on cotrimoxazole prophylaxis.
- All HIV+ patients who are admitted for severe malnutrition (BMI<16) should be referred for eligibility for ART. Many emaciated HIV+ patients are very likely to have advanced HIV immune suppression (WHO stage III and IV),

- Most HIV+ patients with very low BMI also have HIV associated diseases including diarrhoea, oral thrush/wounds, TB, etc. and should be referred for appropriate treatment.
- Inpatients maybe closely monitored, while outpatients should be assessed clinically and nutritionally during each weekly visit.

Failure to respond

Many times HIV patients are slow to respond to nutritional treatment. Other than for HIV, failure to respond to treatment in adults and adolescents is usually due to an untreated underlying illness, a nutrient deficiency, or refusal or inability to follow the treatment regimen.

Before making other recommendations make sure:

- The weighing equipment is accurate and being used correctly,
- The food is prepared hygienically and correctly (F75 and F100) and has been given according to recommendations (daily frequency, and amounts).
- Related illnesses have been addressed.

Other issues that may affect weight gain and to consider for referral/specialized care are:

- The patient is micronutrient deficient.
- There is mal-absorption (or intolerance to certain foods).
- There is a hormonal imbalance like testosterone associated with HIV.
- Other serious conditions and underlying diseases that may delay weight gain, especially, diarrhoea, dysentery, pneumonia, tuberculosis, urinary tract infection, otitis media, malaria, and hepatitis/cirrhosis, particularly where these have not been recognised, or successfully treated.
- Cancer patients, burns victims, HIV and TB infected patients in general have higher energy requirements and therefore recovery may be slower.

Preparing patients for discharge

Once the BMI reaches 17 or greater, the patient is ready for discharge. Patients should also:

- Have appetite and be able to eat normal family foods.
- Have some level of mobility (Severely malnourished adults may have some muscle atrophy because they have been unable to walk whilst severely ill. **Physical therapy** may therefore be beneficial to facilitate full mobility).
- Be stronger than they were when they came to hospital.
- Have received nutrition and dietary education.

In preparation for discharge, the patient and his/her family members or caregivers should be provided with nutrition education and counselling. The key component of the education and counselling should include:

- The importance of eating a diet of diverse foods during at least three meals per day with two snacks in between. The increased energy needs of HIV+ adults.
- Home and cooking hygiene practices.
- Common illnesses associated with HIV/AIDS and dietary approaches to

addressing them: diarrhoea, vomiting, thrush.

- Importance of regular medical check-ups.

Linkages should be made with:

- Supplementary feeding programs that provide food assistance (such as High Energy Corn Soy Blend) for continued weight gain to a BMI greater than 18.5.
- Institutions and organisations providing other services (like social welfare, prevention of parent to child transmission, home based care, opportunistic infection and antiretroviral treatment).
- Networks of PLHIV in their neighbourhood or other AIDS support organizations that may provide nutritional care and support.

Sources:

* *"The Management of Nutrition in Major Emergencies"*, WHO, 2000, Geneva

* *"Community-based Therapeutic Care (CTC) A Field Manual"*, Valid International, 2006, Oxford.

Management of Diabetes in PLHIV

Type 2 diabetes is an occasional complication of ARVs (especially Protease Inhibitors) due to insulin resistance.

Guidelines

The following assessments are recommended before initiation of potent Protease Inhibitors (PIs) or before switching to a therapy that has PIs.

- Fasting glucose (if therapy includes a PI).
- Fasting lipid panel (total cholesterol, HDL, and LDL cholesterol [calculated or direct], and triglyceride levels).
- A blood glucose level after oral administration of 75 g of glucose may be used to identify impaired glucose tolerance in patients with risk factors for type 2 diabetes mellitus or those with severe body fat changes.

Oral glucose tolerance tests may lead to one of the following diagnoses. (*Blood glucose is measured in either mmol/l or mg/dl. To change Mmol/l to gm/dl. Multiply the number of mmol/l by 18 or divide the number of mmol/l by 0.0555.*) Average healthy persons have a glucose level of 4.5 to 7.0 mmol/dL (80-125 mg/dL).

- **Normal response:** A person is said to have a normal response when the 2-hour glucose level is less than 140 mg/dl (7.8 mmol/dL), and all values between 0 and 2 hours are less than 200 mg/dl (11 mmol/dL).
- **Impaired glucose tolerance:** A person is said to have impaired glucose tolerance when the fasting plasma glucose is less than 126 mg/dl and the 2-hour glucose level is between 140 and 199 mg/dl (7.8-11.0mmol/dL).
- **Diabetes:** A person has diabetes when two diagnostic tests done on different days show that the blood glucose level is high (>200 mg/dL (11mmol/dL)).
- **Gestational diabetes:** A woman has gestational diabetes when she has any two of the following: a 100g OGTT, a fasting plasma glucose of more than 95 mg/dl, a 1-hour glucose level of more than 180 mg/dl, a 2-hour glucose level of more than 155 mg/dl, or a 3-hour glucose level of more than 140 mg/dl.

If the patient is glucose intolerance and/or diabetes mellitus

- Avoid use of a PI as initial therapy in patients with pre-existing glucose intolerance or diabetes mellitus.
- If the patient is under diabetic control, follow established guidelines for treating diabetes in the general population.
- Educate/Counsel the patient on need to control diabetes.
 - **Diabetes** may be treated with insulin, oral medications, exercise, and a diabetic diet.

The goals of treating diabetes are controlling elevated blood sugars (glucose), prevention of deranged lipid profile, moderate healthy intake to prevent weight gain and improve immune health and sufficient intake of food in pregnant mothers and children so as to promote proper growth and development.

- **Type 2 diabetes** is first treated with weight reduction (if over weight), a diabetic diet, and exercise. If these measures fail to control the elevated blood sugars, oral medications are used. If oral medications are still insufficient, insulin medications are considered. (Some diabetes medicines are known to cause liver toxicity and should be avoided, e.g. *rezulin*. *Recommended medicines for diabetes in HIV-infected individuals are metformin and rosiglitazone, which both increase insulin*).

Energy and nutrient needs should be derived from a balanced, nutritious diet that is **low** in fat, cholesterol, and simple sugars. Adherence to a balanced diet is an important aspect of controlling elevated blood sugar in patients with diabetes.

- Together with the patient, estimate the energy, protein, and fat requirements, taking into consideration the age, sex, physical activity, physiological status and the target weight for the client.
- Considering any symptoms the patient may be having, food preferences and availability, help them design a variety of diets that they can prepare in their homes, grouping meals into breakfast, lunch, dinner, and snacks. Ensure moderation of (saturated) fats/oils, and simple sugars.

If the patient is overweight (BMI>25), recommend weight loss

- Ask the client about his/her daily food intake. If intake of fat/energy is higher than recommended, help the client to identify ways to reduce consumption of high-fat and high energy foods, especially those not rich in other nutrients.
- Encourage the client to eat a variety of foods.
- Encourage the client to continue with physical activity such as house work or other work, and to exercise regularly through recreational activities or walking.
- If weight increase is likely due to metabolic changes fully or partly, (e.g. if weight has increased rapidly despite little change in dietary intake), refer the client to a medical doctor for further assessment and treatment.

If the patient is underweight or losing weight

- Ensure the client is controlling blood sugar well. *Weight loss is sometimes due to the diabetes (i.e. the loss of sugar in the urine: if the diabetes (blood sugar) is brought under control, the client should stop losing weight and should improve strength.*
- Ensure the client is consuming between 20-30% additional energy over and above the requirements of an HIV-negative person of the same age, sex and physical activity. This implies taking 2-3 nutrient dense snacks during the course of the day, in addition to well-balanced meals.
- May want to increase the frequency of consumption of their food (without changing the time for taking medication during the course of the day).
- Discuss potential ways to increase consumption of whole meal/grains in place of processed products and refined sugars.
- In order to increase energy and still control blood sugar level, medication may be needed.

Parameters for Good Control of Blood Sugar

Clients who can afford to monitor their blood sugars frequently should be taught how to do it. Use the following blood sugars for indications of good control or poor control.

Fasting Blood sugar	-	3.5 – 5 mmol/l	63 – 90 mg/dl
1 hour after meal	-	6 – 9 mmol/l	108 – 162 mg/dl
2 hours after meal	-	7 – 10 mmol/l	126 – 180 mg/dl

If the units are higher than the upper limit by:

- 2 units, that is considered “high”;
- 4 units, that is considered “very high”
- 6 units, that is considered “dangerously high”;
- Any blood-sugar that is 8 units or more above the upper limit needs immediate medical attention.

Points for the Patient to Remember

- What, when, and how much one eats affect the blood glucose level.
- Blood glucose can be kept at a healthy level if the client:
 - Eats about the same amount of food (especially the carbohydrates) each day.
 - Eats at about the same times each day.
 - Takes their medicines at the same times each day.
 - Exercises at about the same times each day.
- Clients should eat balanced diets (i.e. choice of foods from: starches, vegetables, fruit, *legumes*/meat and meat substitutes/milk products. How much of each depends on the client’s daily energy and nutrient needs.
- Limit the amounts of fats and sweets you eat each day.

Messages for a sick client

It’s important to educate clients about diabetes and HIV/AIDS to take care of their diabetes even when ill. Here are some tips on what to do:

- Continue with diabetes medications even if they can’t eat or you can’t keep food down.
- Drink at least one cup (8 ounces) of water or other calorie-free, caffeine-free liquid every hour while awake.
- If the client can’t eat the usual food, they should try juice, soup, crackers, popsicles, or other foods that are soothing and easy to eat.
- If they can’t eat at all, they should drink plenty of liquids with calories. Lack of enough calories, may increase the risk of hypoglycaemia (low blood sugar).
- Make sure to check blood glucose. Blood glucose level may be high even if one’s not eating.
- If vomiting or diarrhoea are severe, seek clinical care immediately.

*****All the information listed above applies to patients who are not pregnant or breastfeeding. Refer diabetic pregnant and lactating patients to the doctor.



Follow up and Referral

Follow up sessions

These sessions enable the counsellor to evaluate the client's progress, adjust actions as needed, encourage adherence to beneficial practices, and measure the effect of interventions. During follow-up sessions, counsellors will:

1. Check the general progress of the clients.
2. Identify what problems have arisen in following the plan prepared last session.
3. Assess whether new complications have come up and address them.
4. Assess whether actions agreed to earlier have been taken and if not, what the barriers were.
5. Further educate the client about issues and problems to be addressed. If necessary, discuss the problems in greater depth.
6. Help the client plan specific diets.
7. Support the client to adhere to their plans.
8. Give the client additional handouts and materials if needed and available.
9. Update the counsellor's notes and data on the client.

Risk Assessment Form

(Adopted from Kenyatta National Hospital)

- a) Patients classified as high risk should be seen by the nutritionist at least once every two weeks.
- b) Moderate risk patients should be seen by the nutritionist within one month
- c) The nutritionist should see low risk patients as needed.

High Risk	Moderate Risk	Low Risk
<ul style="list-style-type: none"> • BMI less than 16 or weight decrease of more than 10% in 3 months. • Poor growth, lack of weight gain, or failure to thrive in paediatric patients. • Complicated food – drug – nutrient interactions • Poorly controlled Diabetes Mellitus • Pregnancy (mother's nutrition; infant: artificial infant formula) • >10% unintentional weight loss over 3 months • > 5% unintentional weight loss within 4 weeks or in conjunction with:- <ol style="list-style-type: none"> a. Chronic oral (or oesophageal) thrush b. Dental problems c. Dysphagia d. Chronic nausea, vomiting and Chronic diarrhoea e. CNS disease f. Intercurrent illness or active opportunistic infection. g. Severe dysphagia • Patients who have been discharged from enteral or parenteral feedings • Patients with: <ol style="list-style-type: none"> a. Two or more medical co-morbidities, or dialysis b. Severely dysfunctional psychosocial situation (especially in children) 	<ul style="list-style-type: none"> • Weight Change (>5% decrease) or BMI<18.5 • Eating disorder • Oral thrush • Obesity • Diabetes mellitus, controlled or new diagnosis • Evidence of body fat redistribution (lipodystrophy) • Elevated cholesterol (> 200 mg/dl) or triglycerides (>250 mg/dl). • Osteoporosis • Hypertension • Evidence of hypervitaminoses or excessive micronutrient supplement intake • Inappropriate use of diet pills, laxatives, or other over-the-counter medications. • Substance abuse in the recovery phase • Possible food-drug-nutrient interactions • Food allergies and intolerance • Single medical co-morbidity • Dental problems • CNS disease resulting in a decrease in functional capacity • Chronic pain other than oral /gastrointestinal tract sores • Evidence of sedentary lifestyle or excessive exercise regimen • Unstable psychosocial situation (especially in children) 	<ul style="list-style-type: none"> • Stable weight and normal BMI • Appropriate weight gain, growth, and weight – for – height in paediatric patients. • Adequate and balanced diet • Normal levels of cholesterol, triglycerides, albumin and glucose • Stable HIV disease (with no active inter-current infections) • Regular exercise regimen • Normal hepatic and renal function • Stable psychosocial issues (especially in children). • <i>All patients of all levels of risk should be educated about healthy balanced diets for their lifestyle and physiologic requirements</i> • <i>Nutrition care plans should be individualized depending on stage of HIV progression from symptomatic to advanced stages with active secondary infections.</i> • <i>Medical nutrition therapy should take into account patients age, sex, physiological state with special attention for paediatric growth and development, pregnancy, obesity, quality of dentition and exercise practices.</i>

Example of a Referral Card

Name of Health Facility: _____
Name of Patient: _____ Date: _____
Age: _____ Gender: _____
Hospital Number: _____
Date last seen:
Clinical Notes:
Nutrition Notes:
Laboratory Notes
Required Management:
Name:
Signature of Service Provider:

**This referral form can be used to refer patients to a) community support group b) food ration / distribution points c) hospital / CCC. It can be changed according to the need for referral.*

Follow up and Referral



Annex 1: Caring for Symptoms Associated with HIV

ILLNESS	DIET	CARE AND NUTRITION PRACTICES
Anorexia (appetite loss)	<ul style="list-style-type: none"> ◆ Try to stimulate appetite by eating favourite foods ◆ Eat small amounts of food more often ◆ Select foods that are more energy dense ◆ Avoid strong smelling foods 	<ul style="list-style-type: none"> ◆ If appetite loss is as a result of illness, seek medical attention for treatment
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 strong citrus fruits (orange, lemon) because they irritate the stomach ◆ Consume foods rich in soluble fibre (millet, banana, peas and lentils) to help retain fluids ◆ Consume fermented foods such as porridges and yogurt ◆ Consume easily digestible foods such as rice, bread, millet, maize porridge, potato, sweet potato and crackers ◆ Eat small amounts of food frequently continue to eat after illness to recover weight and nutrient loss ◆ Eat soft fruits and vegetables such as bananas, squash, cooked and mashed green bananas, mashed sweet potato and mashed carrots ◆ Drink non- fat milk if there is no problem with lactose ◆ Boil or steam foods if diarrhoea associated with fat malabsorption ◆ Avoid or reduce intake of these foods: <ul style="list-style-type: none"> ○ Some dairy products such as milk ○ Caffeine (coffee and teas) and alcohol ○ Fatty foods ○ Fried foods and extra oil, lard or butter ○ Gas forming food such as cabbage, onions, carbonated soft drinks 	<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 foods ◆ 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 packets or a homemade solution from cereals. Go to a health centre if symptoms such as severe dehydration (low or no urine output), fainting, dizziness, shortness of breath, bloody stools, high fever, vomiting, severe abdominal pain or diarrhoea persist for more than 3 days

<p>Fever</p>	<ul style="list-style-type: none"> ◆ Eat soups rich in foods that give energy and nutrients, such as maize, 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 panadol, if available, with a meal three times daily (morning, afternoon and evening) ◆ Go to the health centre in case of: ◆ Fever that lasts several days and is not relieved with aspirin, loss of consciousness, severe body pain, Yellow eyes, sever diarrhoea, convulsion and seizure.
<p>Nausea and Vomiting</p>	<ul style="list-style-type: none"> ◆ Eat small and frequent meals ◆ Eat foods such as soups, unsweetened porridge and fruits such as bananas ◆ Eat lightly 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 ◆ 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
<p>Thrush</p>	<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; these may irritate mouth sores ◆ Avoid sugary foods; these 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 attention for treatment ◆ If a spoon or cup is available, use it to eat small amounts of foods ◆ Tilt head back when eating to help with swallowing ◆ Rinse mouth with boiled warm salty water after eating to reduce irritation and keep infected areas clean so yeast cannot grow
<p>Constipation</p>	<ul style="list-style-type: none"> ◆ Eat more foods that are high in fibre, 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"> ◆ After using cleansing practices such as enemas and medications ◆ Drink plenty of fluids, including boiled water

<p>Anaemia</p>	<ul style="list-style-type: none"> ◆ Eat more iron rich foods such as animal products (eggs, fish, meat, liver), green leafy vegetables (collard greens, spinach), legumes (beans, lentils, groundnuts), nuts, oil seeds and fortified cereals ◆ Take iron supplements 	<ul style="list-style-type: none"> ◆ If available, take one iron tablet once a day with some food. Take with a source of Vitamin C such as tomatoes or orange juice to help with absorption ◆ Drink fluids to avoid constipation ◆ Treat malaria and hookworm
<p>Muscle Wasting</p>	<ul style="list-style-type: none"> ◆ Increase food intake by increasing quantity of food and frequency of consumption ◆ Improve quality and quantity of foods by providing a variety of foods ◆ Increase protein in diet ◆ Increase intake of starchy foods in cereals and other staples ◆ Eat small, frequent meals 	<ul style="list-style-type: none"> ◆ Do regular weight bearing exercise to build muscles
<p>Bloating or heartburn</p>	<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 food can digest

<p>Tuberculosis</p>	<ul style="list-style-type: none"> ◆ Consume 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
<p>Loss of taste abnormal taste</p>	<ul style="list-style-type: none"> ◆ Use flavour enhancers such as salt, spices, herbs ◆ and lemon ◆ Chew food well and move it around in mouth to Stimulate receptors 	

Annex 2: Food Recommendations and Possible Side effects for Common Medications used by PLHIV

DRUG NAME	FOOD RECOMMENDATION	AVOID	POSSIBLE SIDE EFFECTS
Efavirenz (EFZ)	<ul style="list-style-type: none"> ◆ Can be taken without regard to meals ◆ Moderate on amount of fat in meal (it increases absorption to potentially harmful levels) 	<ul style="list-style-type: none"> ◆ Alcohol ◆ St. John's Wort* 	<ul style="list-style-type: none"> ◆ Anorexia, nausea, vomiting, diarrhoea, mouth sores, fatigue, dizziness, rash, drowsiness, sleep disturbances ◆ Elevated blood cholesterol and triglyceride levels ◆ Dyspepsia, abdominal pain, flatulence
Nevirapine (NVP)	<ul style="list-style-type: none"> ◆ Can be taken without regard to food 	<ul style="list-style-type: none"> ◆ St. John's Wort* 	<ul style="list-style-type: none"> ◆ Nausea, vomiting, fatigue, rash, drowsiness, abdominal pain, stomatitis ◆ High hepatotoxicity
Lamivudine(3TC)	<ul style="list-style-type: none"> ◆ Can be taken without regard to food 	<ul style="list-style-type: none"> ◆ Alcohol 	<ul style="list-style-type: none"> ◆ Well tolerated drug
Stavudine (d4T)	<ul style="list-style-type: none"> ◆ Can be taken without regard to food 	<ul style="list-style-type: none"> ◆ Limit the Consumption of alcohol 	<ul style="list-style-type: none"> ◆ Nausea, headache, dizziness, diarrhea, insomnia, anorexia, anaemia, stomatitis, fever ◆ Pancreatitis, chills and fever, peripheral neuropathy, bone marrow suppression ◆ Increase the risk of lipodystrophy
Zidovudine (ZDV/ AZT)	<ul style="list-style-type: none"> ◆ Take without food but if it causes nausea or stomach problems, take with a low fat meal ◆ May require zinc and copper supplementation 	<ul style="list-style-type: none"> ◆ Alcohol ◆ Avoid giving to a patient with an Hb of < 8 g/dl (Children) < 9.5 gm/dl (adults) 	<ul style="list-style-type: none"> ◆ Anorexia, anemia, nausea, vomiting, fatigue, constipation, mouth sores, dizziness, fever ◆ Bone marrow suppression, headache, dyspepsia, dyspnoea, insomnia, muscle pain and rash
Didanosine (ddl)	<ul style="list-style-type: none"> ◆ Take on empty stomach (30 minutes before or 2 hours after eating) ◆ Take with water only (food reduces its absorption) 	<ul style="list-style-type: none"> ◆ Alcohol ◆ Grape fruit juice ◆ Antacids containing aluminum or magnesium 	<ul style="list-style-type: none"> ◆ Nausea, dizziness, diarrhea, anorexia, vomiting, dry mouth, loss of taste, constipation, anemia ◆ Headache, insomnia, stomatitis, fever, pancreatitis
Tenofovir (TDF)	<ul style="list-style-type: none"> ◆ Take with a meal 	<ul style="list-style-type: none"> ◆ Alcohol 	<ul style="list-style-type: none"> ◆ Abdominal pain, headache, fatigue, dizziness

Indinavir (IDV)	<ul style="list-style-type: none"> ◆ Take on empty stomach (1 hour before or 2 hours after a meal or with a light non fat meal) ◆ Take with plenty of water to avoid kidney problems- at least 1.5litres of fluids daily to prevent kidney stones 	<ul style="list-style-type: none"> ◆ Grape fruits ◆ St.John Wort* 	<ul style="list-style-type: none"> ◆ Nausea, dizziness, diarrhea, insomnia, vomiting, abdominal pain, regurgitation, fever ◆ Pancreatitis, muscle pain, nasal symptoms, headache, ascites, stomatitis ◆ May increase the risk of lipodystrophy (increased blood fats)
Lopinavir (LPV)	<ul style="list-style-type: none"> ◆ Can be taken without regard to food ◆ May be taken with a high fat meal for better absorption 	<ul style="list-style-type: none"> ◆ St.Johns Wort* 	<ul style="list-style-type: none"> ◆ Abdominal pain, diarrhea, headache, weakness, nausea, change in taste, anorexia, high blood sugar, rash ◆ May increase the risk of lipodystrophy (increased blood fats)
Nelfinavir (NFV)	<ul style="list-style-type: none"> ◆ Take with a light meal or light snack (the suspension for children can be mixed with milk, water, porridge). ◆ To increase absorption, take with meal containing <15g fat 	<ul style="list-style-type: none"> ◆ St.Johns Wort* 	<ul style="list-style-type: none"> ◆ Diarrhea, flatulence, nausea, abdominal pain, rash ◆ May increase the risk of lipodystrophy
Ritonavir (RTV)	<ul style="list-style-type: none"> ◆ Take with a meal or within 2 hours after a full meal for better absorption ◆ Palatability can be improved by mixing with milk, honey, or yogurt 	<ul style="list-style-type: none"> ◆ St.John Wort* 	<ul style="list-style-type: none"> ◆ Nausea, anorexia, dizziness, diarrhea, diabetes, fever, numbness around the mouth, vomiting, weakness ◆ Insomnia, headache ◆ Increases the risk of lipodystrophy, pancreatitis and hepatitis
Saquinavir (SQV)	<ul style="list-style-type: none"> ◆ Take with a meal or light snack ◆ Take within 2 hours of a high fat and calcium meal 	<ul style="list-style-type: none"> ◆ St John Wort* 	<ul style="list-style-type: none"> ◆ Mouth ulceration, taste changes, nausea, vomiting, abdominal pain, diarrhea, constipation, flatulence ◆ Rash, weakness, headache, insomnia, hepatic impairment ◆ Increases risk of Lipodystrophy and high blood sugars
Sulfonamides: Sulfamethoxazole, Cotrimoxazole	<ul style="list-style-type: none"> ◆ Take with food 		<ul style="list-style-type: none"> ◆ Nausea, vomiting, abdominal pain
Rifampin (treatment of TB)	<ul style="list-style-type: none"> ◆ On an empty stomach one hour before or two hours after meals 	<ul style="list-style-type: none"> ◆ Alcohol 	<ul style="list-style-type: none"> ◆ Nausea, vomiting, diarrhea, loss of appetite

Isoniazid (treatment of TB)	<ul style="list-style-type: none">◆ Take one hour before or two hours after meals◆ Supplement with 10mg vitamin B6 daily (to prevent peripheral neuropathy and anemia)	<ul style="list-style-type: none">◆ Alcohol	<ul style="list-style-type: none">◆ Anorexia, diarrhea, may cause reactions with foods such as bananas, beer, avocados, liver, smoked fish, yeast, yoghurt◆ May interfere with Vitamin B6 metabolism
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Annex 3: Guide to Calorie Intake

This is to help the patient with knowledge of types of foods available and to help with choosing variety.

Note: 1 cup = 250 mls, ½ cup = 125 mls, 1 tbs = 15 ml, 1 tsp = 5 ml,

Starches:

All starches listed below are equivalent to 1 serving (80 kcal)

1/3 Cup Arrow Roots	½ Cup Corn (Maize)	½ Cup Porridge
1 Slice WM Bread	½ Cup Cooked Bananas	½ Cup Rice
½ Chapatti	½ Cup Dried Beans	½ Cup Sweet Potatoes
1/3 Cup Cassava	½ Cup Irish Potatoes	1/3 Cup Ugali
½ Cup Cereals	½ Cup Pastas	

Vegetable:

1 serving (25 kcal) = 1 cup raw leafy green vegetables or ½ cup cooked vegetables or ¾ cup vegetable juice

Amaranths	Beetroot	Celery	Green
Pepper	Broccoli	Chives	Leeks
Brussels sprouts	Courgette	Lettuce	Cabbages
Cucumber	Mushrooms	Capsicum	French Beans
Spinach	Carrots	Green Peas	Sukuma Wiki (Kales)
Tomatoes	Turnips	Indigenous vegetables	

Fruits

1 serving (60 kcal) = ½ cup juice or 1 cup cut fruit

Apples	Grapes	Passion fruit	Water melon	Sultanas
Apricots	Grapefruit	Paw paw	Sweet melon	All dried fruits
Bananas	Guavas	Pears	Berries	
Loquats	Plums	Cherries	Mangoes	
Pineapple	Dates	Oranges	Small fruits	

Dairy

1 serving = 80 kcals

30g Cheese (1% fat)	1 cup fresh milk (0.5 % fat)
Ice cream (¼ cup, 75 ml or 1 scoop)	1 cup yoghurt
1 cup fermented milk (0.5 % fat)	

Proteins

All the proteins listed below are equivalent to 1 serving (75 kcal)

- A palm size of fish (other seafood 30g), 6 small cubes of beef or pork or any kind of meat
- 1 small piece of chicken without skin (a leg, thigh or breast)
- 2 table spoons peanut butter and nuts or seeds
- ½ cup fresh beans
- ½ cup Herrings (Omena)

½ Cup Chitterlings (Matumbo)

1 egg (adults should not eat more than three eggs per week, they should be preferably boiled)

½ Cup Roasted Nuts

Processed meats are not recommended because of the high sodium and fat content (e.g. Sausages, Bacon, and Salami etc)

Fats, Oils and Sugars (use sparingly)

Avocado, Butter, Cakes, cookies, Candy's, Chocolates, Nuts, Margarine, Fats, Oils, Sweets, Sour cream

Free foods (foods you can eat as much as you want)

Black tea/coffee/cocoa

Garlic

Natural unprocessed spices

Chilli

Ginger

Okra

Coriander

Lemon

Onions

Note: the calorie allowance depends on your age, gender and physical activity, patients should not count calories unless they understand.

Annex 4: Herbs and Spices Commonly used in Kenya

Herbs and spices can improve digestion, stimulate appetite and preserve foods. A list of herbs and the beneficial effects claimed by people living with HIV/AIDS are given in the table opposite. **There is no scientific evidence that these actually work. You must warn the patient about this.**

HERB	BENEFITS FOUND BY SOME PEOPLE LIVING WITH HIV/AIDS	HOW TO USE
Aloe	Helps to relieve constipation	Use as extract; boil and drink the concentrated water. To be used in limited amounts; stop immediately if it causes cramps or diarrhoea
Basil	Helps to relieve nausea and aid digestion; has an antiseptic function for mouth sores	Add to food to treat nausea and digestive problems. Use as gargle for mouth sores
Calendula	Flower heads have antiseptic, anti-inflammatory and healing function. Helps with infections of the upper digestive tract	Use as a compress to treat infected wounds. Prepare as tea to help digestion
Cardamom	Helps with digestive problems, pain, diarrhoea, nausea, vomiting and loss of appetite	Add to food during cooking or prepare as tea
Cayenne	Stimulates appetite, helps fight infection, heals ulcers and intestinal inflammation	Add a pinch to cooked or raw foods. For an energizing drink add to fruit juice or water
Camomile	Helps digestion and provides relief for nausea	Prepare tea from the leaves and flowers and drink several cups throughout the day
Cinnamon	Good for colds and for weakness after colds or flu. Also used when feeling cold, for diarrhoea and nausea. Stimulates appetite. Gently stimulates digestive juices, encouraging bowel movements	Either add to meals or in tea, particularly ginger cinnamon tea for chesty colds or tuberculosis
Cloves	Stimulate appetite, help weak digestion, diarrhoea, nausea and vomiting	Use in soups, stews, warmed fruit juice and tea
Coriander	Helps to increase appetite and reduce flatulence. Controls bacteria and fungi	Add herb to meals
Eucalyptus	Has an antibacterial function, particularly for lungs and during bronchitis. Eucalyptus oil from leaves increases the blood flow and reduces the symptoms of inflammation	Prepare tea from the leaves or extract
Fennel	Helps to increase appetite, combat flatulence and expel gas	Add as spice to foods or prepare tea from the seeds. Use in limited amounts

HERB	BENEFITS FOUND BY SOME PEOPLE LIVING WITH HIV/AIDS	HOW TO USE
Garlic	Has antibacterial, antiviral and antifungal function, particularly in the gut, intestines, lungs and vagina. Helps digestion and feeling of weakness. Also good for thrush, throat infections, herpes and diarrhoea	Prepare tea or energy drink or use in food
Ginger	Improves digestion, energizes, relieves diarrhoea and stimulates appetite. Used for treating common colds, flu and nausea	Use either as a spice in meals or prepare a ginger tea
Lemon	Is antibacterial and helps digestion	Add lemon juice to food or drinks
Lemon grass	Has a calming effect as well as soothing digestion and alleviating stress	Use as tea
Mint	Has an anti-inflammatory effect and helps digestion	Use as tea or gargle for mouth sores. Chew mint leaves to aid digestion
Neem	Brings down fever	Cut a fresh twig, remove the leaves and boil the bark in water; drink as tea. The bark can also be chewed
Parsley	Reduces intestinal colic. Stimulates stomach secretions and activities and produces a feeling of hunger. The seed is used to remove excess water from the body	Add raw or cooked to food
Peppermint	May help nausea. Reduces colic (abdominal pain and cramps), helps to control diarrhoea and stop vomiting. Used for relieving tension and sleeplessness	Prepare as tea, by boiling the leaves for about ten minutes. Add to food. (Peppermint can easily be grown in the garden and or in a pot near the house)
Thyme	Has antiseptic and antifungal function. Relaxes nervous coughing and increases mucosal secretions. (particularly effective in the gut) Stimulates digestion and the growth of the good intestinal flora in the gut	Use as gargle or mouthwash, as a vaginal douche or as tea
Turmeric/ yellow root	Digestive aid, antiseptic and antioxidant	Use powdered in rice, cereals, etc.

Annex 5: Micronutrients, their Roles and Sources

MICRONUTRIENT	ROLE	SOURCE
Vitamin A	Makes white blood cells - essential for vision, healthy skin and mucosa, teeth and bone development. Protects against infection associated with accelerated HIV progression, increased adult mortality, increased mother to child transmission, higher infant mortality and child growth failure	All yellow and orange fruit and vegetables, dark green leafy vegetables, alfalfa, liver, oily fish, dairy products and egg yolks
Thiamine Vitamin B₁	Important for energy metabolism, supports appetite and nervous, system functions	Whole-grain cereals, beans, meat and poultry and fish
Riboflavin Vitamin B₂	Important for energy metabolism, supports normal vision, health and integrity of skin	Milk, yoghurt, meat, green leaves and whole-grain cereals
Niacin Vitamin B₃	Essential for energy metabolism, supports health and integrity of skin, nervous and digestive systems	Milk, fish, eggs, meat, poultry, peanuts, whole-grain cereals
Vitamin B₆	Facilitates metabolism and absorption of fats and proteins, helps to make red blood cells	Sweet potatoes, white beans, maize, avocados, cabbage, whole-grain cereals, seeds, Brazil nuts, walnuts, eggs, leafy green vegetables, alfalfa, bananas, legumes, meat and fish
Folate	Required for building new cells, especially red blood cells and gastrointestinal cells	Liver, red meat, green leafy vegetables, fish, oysters, legumes, groundnuts, oilseeds, whole-grain cereals, egg yolks and avocados
Vitamin B₁₂	Important for new cell development and maintenance of the nerve cells	Red meat, fish, poultry, seafood, sardines, cheese, eggs, milk, whole-grain cereals and seaweed
Vitamin C	Helps the body to use calcium and other nutrients to build bones and blood vessel walls. Increases non-heat iron absorption. Increases resistance to infection and acts as an antioxidant. Important for protein metabolism	Citrus fruits (such as baobab, guava, oranges and lemons), cabbage, green leaves, tomatoes, sweet peppers, potatoes, yams and cooking plantains. Vitamin C is lost when food is cut up, reheated or left standing after cooking

MICRONUTRIENT	ROLE	SOURCE
Vitamin E	Protects cell structures and facilitates resistance to disease	Leafy vegetables, vegetable oils, peanuts, egg yolks, dark green vegetables, nuts and seeds, whole-grain cereals
Calcium	Builds strong teeth and bones Aids heart and muscle functions, blood clotting and pressure and immune defences.	Milk, green leaves, shrimps, dried fish (with bones), nuts, beans and peas
Iodine	Ensures the development and proper functioning of the brain and the nervous system	Fish, seafood, milk and salt with iodine
Iron	Transports oxygen to the blood, eliminates old red blood cells and builds new cells	Red meat, poultry, liver, fish, seafood, eggs, peanuts, beans, some cereals, green leafy vegetables, seeds, whole-grain cereals, dried fruit and alfalfa
Magnesium	Strengthens the muscles and is important for proper functioning of the nervous system. Involved in bone development and teeth maintenance	Cereals, dark green vegetables, seafood, nuts and legumes
Selenium	Prevents impairment of the heart muscle	Seafood, liver, meat, carrots, onions, milk, garlic, alfalfa, mushrooms and whole-grain cereals
Zinc	Reinforces the immune system, facilitates digestion and transports vitamin A	Meat, chicken, fish, cereals, leafy green vegetables, seafood, oysters, nuts, pumpkin seeds, milk, liver, whole-grain cereals, egg yolks, garlic and legumes

Annex 6: Micronutrient Requirements for Adults A

MICRONUTRIENT	NON PREGNANT, NON LACTATING WOMEN	PREGNANT WOMEN	LACTATING MOTHERS	MEN
Vitamin A (µg RE)	500	800	850	600
Vitamin B ₁ (mg)	1.1	1.4	1.5	1.2
Vitamin B ₂ (mg)	1.1	1.4	1.6	1.3
Vitamin B ₃ (mg)	14	18	17	16
Vitamin B ₆ (mg)	1.3	1.9	2.0	1.3
Vitamin B ₁₂ (µg)	2.4	2.6	2.8	2.4
Vitamin C (mg)	45	50	70	45
Vitamin D (µg)	5	5	5	5
Vitamin E (mg)	5	7.5	7.5	10
Vitamin K (µg)	55	55	55	65
Calcium (mg)	1000	1200	1000	1000
Iodine (µg)	110	200	200	130
Iron ^b (mg)	20	^c	32	9
Zinc ^d (mg)	6.4	1 st trimester 3.4 2 nd trimester 4.2 3 rd trimester 6.0	0–3 months 5.8 4–6 months 5.3 7–12 months 4.3	9.4
Magnesium (mg)	220	220	270	260
Folic acid (µg)	400	600	500	400
Selenium (µg)	26	42	30	34

Source: Food and Agricultural Organization of the United Nations and World Health Organization: Human vitamin and mineral requirements. Report of a joint FAO/WHO consultation. Bangkok, Thailand 1998.

NB: Bioavailability is the degree to which a nutrient is absorbed or becomes available at the site of physiological activity after intake.

^a Based on a 65 kg man and 55 kg woman.

^b Based on 15% bioavailability

^c It is recommended that iron supplements in tablet form be given to all pregnant women because of the difficulties in correctly evaluating iron status in pregnancy. In the non-anaemic pregnant woman, daily supplements of 60 mg of iron (e.g. as ferrous sulphate) given during the second half of pregnancy are adequate.

^d Based on high dietary bioavailability.

Annex 7: Micronutrient Requirements for Children

Target micronutrient	0-3 months	4-6 months	7-9 months	10-12 months	1-3 yrs	4-6 yrs
Vitamin A (µg RE)	375	375	400	400	400	450
Vitamin B ₁ (mg)	0.2	0.2	0.3	0.3	0.5	0.6
Vitamin B ₂ (mg)	0.3	0.3	0.4	0.4	0.5	0.6
Vitamin B ₃ (mg)	2	2	4	4	6	8
Vitamin B ₆ (mg)	0.1	0.1	0.3	0.3	0.5	0.6
Vitamin B ₁₂ (µg)	0.4	0.4	0.5	0.5	0.9	1.2
Vitamin C (mg)	25	25	30	30	30	30
Vitamin D (µg)	5	5	5	5	5	5
Vitamin E (mg)	2.7	2.7	2.7	2.7	5	5
Folic acid (mg)	80	80	80	80	160	200
Vitamin K (µg)	5	5	10	10	15	20
Calcium (mg)	300	300	400	400	500	600
Iodine (µg)	15	15	135	135	75	110
Iron (mg)	^a	^a	^a	10	6	6
Zinc ^b (mg)	2.8	2.8	4.1	4.1	4.1	5.1
Magnesium (mg)	26	26	53	53	60	7.3
Selenium (µg)	6	6	10	10	17	21

Source: Food and Agricultural Organization of the United Nations and World Health Organization: Human vitamin and mineral requirements. Report of a joint FAO/WHO consultation. Bangkok, Thailand 1998.

NB: Bioavailability is the degree to which a nutrient is absorbed or becomes available at the site of physiological activity after intake.

^a Neonatal iron stores are sufficient to meet the iron requirement for the first six months in full term infants. Premature infants and low birth weight infants require additional iron. Based on 15% bioavailability.

^b Based on high dietary bioavailability