

## FACILITATOR'S GUIDE

Getting Started with

# Nutrition & HIV

A CRS Training of Trainers (TOT) Manual



Catholic Relief Services (CRS), June 2008



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FROM THE AMERICAN PEOPLE



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## **FOREWORD & ACKNOWLEDGEMENTS**

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These materials were developed as a result of regional workshops in Southern Africa, Eastern Africa, and Western Africa. Funded by the US Government via CRS' Institutional Capacity Building grant, the workshops focused on the overlap of food security and nutrition with HIV and AIDS. As a result of the trainings, it became clear that additional training materials were needed in this area.

The following materials were developed to train CRS staff and partners on key components of nutrition and HIV programming. It is not expected that this one-week course will train professional nutritionists. Instead, this is an intensive training on main points that programmers should look for and be aware of within on-going HIV programs that have a nutrition component. By the end of the training, staff should understand what the key components are, how they are incorporated in programming, and how they are monitored over time.

Kristin Weinbauer and Shannon Senefeld began the process of developing the materials in 2006. In 2007, Nzinga International was consulted to verify the technical accuracy of the existing materials and advance the development of the materials by developing additional modules, providing additional facilitator notes, and numerous other tasks. Kate Greenaway, Kara Greenblott, and Alison Gardner of Nzinga International performed a tremendous amount of work on this manual and the accompanying PowerPoint slides. This work would not have been possible without their intense commitment and dedication. The modules and materials were then finalized by Shannon Senefeld, Carrie Miller, Kristin Weinbauer, Kathryn Lockwood, Mary Hennigan and Naomi Van Dinter.

Technical reviews of the modules were completed by numerous staff including Ana Maria Ferraz, Mayling Simpson, Jamie Mignano, Ruth Kornfield, Linda Lovick, Susan Strasser, Natalie Kruse-Levy, Paul Perrin, Daphyne Williams, Milika Zimba, Shubhra Phillips, Caroline Bishop, Steeve Laguerre, Jennifer Overton, Carl Stecker, Geoff Heinrich, and John Donahue. Other staff and partners provided input on their current programs, rations, successes, and challenges that contributed to this document including Porag Shome of CRS India; Hugh Aprile, Luis Alonzo, and Flor Muñoz of CRS/Guatemala; Fidelis Chasukwa Mgowa of CRS/Malawi; Elizabeth Jere of CRS/Kenya; CRS/Rwanda; CRS/Democratic Republic of Congo; Emily Burrows of CRS/HQ; and Sasha Angelevski of CRS/Zambia. In addition, draft translations to Spanish and French were provided by Sandra Contreras Aprile and Odile Adjavon respectively.

The materials were then piloted in a workshop in Baltimore in April 2008. Thirty-five participants from around the globe attended the pilot and provided excellent comments on how to improve and adapt the existing materials. Special thanks is extended to these participants including: Linda Lovick, Fodé Konaté, Dr. Shubhra Phillips, Dr. John Tharakan, Sr. Elizabeth Michael, Dr. Ruth Stark, Malik Ndome, Suzanne Van Hulle, Antonia Powell, Dr. Adugna Kebede, Milika Zimba, Attracta Tembo, Dr. Megh Raj, Nomthandazo Jones, Marc Eric Rajaonarison, Ana Maria Ferraz, Mayling Simpson, Sheila Nyakwezi, Hann Dagnachew, Angeline Wambanda, Dave Roth, Carlos Sanchez, Marilyn Chottah, Dr. Flor Munoz, Dina Roche, Yveline Auguste, David Chipanta, Phocas Ntahorugiye, Sebastien Niyungeko, Dr. Raphael Bajay, Dr. Leslie Chingang, Dr. Dehab Belay, Lorraine Currie, Anna McCreary, and Pamela Mittelholzer.

A special thank you is extended to Naomi Van Dinter who made the revisions in the original training materials based on the pilot participants' excellent feedback and guided the final product through to completion.

In many cases, pictures have been used to illustrate nutrition in diverse locations. These pictures should in no way be construed as representing the HIV status of any of the individuals depicted. These pictures are used to illustrate nutrition in general rather than HIV. Pictures were provided from the CRS Photo library, as well as through the INFO project's Photoshare. Pictures in the infant feeding module graciously were provided by Jean Humphrey of the ZVitambo project in Zimbabwe.

Any comments or questions concerning these materials should be directed to Shannon Senefeld, Senior Technical Advisor for HIV, [ssenefel@crs.org](mailto:ssenefel@crs.org) Carrie Miller, Technical Advisor for HIV, [cmiller@crs.org](mailto:cmiller@crs.org)

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# Acronyms

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AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral
BMI	Body Mass Index
CI	Chronically Ill
CRS	Catholic Relief Services
CSB	Corn Soy Blend
CSI	Coping Strategy Index
DAP	Development Assistance Program
ECCD	Early Childhood Care and Development
FAO	Food and Agriculture Organization
FEWS NET	Famine Early Warning System Network
FCS	Food Consumption Score
FFA	Food-for-Assets
FFW	Food-for-Work
GMP	Growth Monitoring Promotion
HBC	Home Based Care
HEPS	High Energy Protein Supplement
HH	Household
HIV	Human Immunodeficiency Virus
IMCI	Integrated Management of Childhood Illnesses
LBM	Lean Body Mass
LBW	Low Birth Weight
MCHN	Maternal and Child Health and Nutrition
MUAC	Mid-Upper Arm Circumference
OI	Opportunistic Infection
OVC	Orphans and Vulnerable Children
PLHIV	People Living with HIV
PLW	Pregnant and Lactating Women
PMTCT	Prevention of Mother-to-Child Transmission
RDA	Recommended Daily Allowance
STI	Sexually Transmitted Infection
TB-DOTS	Tuberculosis-Directly Observed Treatment Short- Course
USAID	United States Agency for International Development



WFP  
WHO  
WSB

United Nations World Food Program  
World Health Organization  
Wheat Soy Blend

# Introduction to the Manual

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## **Purpose of the Manual**

This manual is intended to provide basic technical knowledge for programming integrated HIV and Nutrition activities. The modules are presented in a graduated manner, building upon one another in terms of both thematic content and technical complexity. Ideally, all nine Modules will be presented in a 5 day workshop, but they may also be presented individually where the audience already has a strong understanding of the topics covered in the earlier modules.

## **What does the Manual Cover?**

The manual covers the following nine topic areas and their goals:

- Module 1     Basic Nutrition and Healthy Eating**  
To learn basic nutrition information that relates to planning healthy diets
  
- Module 2     Nutrition through the Lifespan**  
To understand nutritional needs at various life stages
  
- Module 3     HIV and AIDS – the Basics**  
To understand the fundamentals of HIV and AIDS – including definitions, modes of transmissions, disease progression and treatment
  
- Module 4     Links between HIV, Nutrition and Food Security**  
To understand how HIV, nutrition and food security interact with one another
  
- Module 5     Nutritional Health for PLHIV**  
To provide nutrition guidance that will help to counteract the destructive effects of HIV infection
  
- Module 6     Nutrition for PLHIV with Illness**  
To provide basic knowledge for the nutritional management of adult and child HIV-related illness
  
- Module 7     Nutrition for HIV+ PLW and their Infants (up to 2 years old)**  
To provide guidance that will contribute to positive outcomes for HIV+ mothers and HIV-exposed infants (under 2 years)
  
- Module 8     Introduction to Clinical Nutrition Assessment for PLHIV**  
To understand the components of a nutritional assessment and how they are implemented in the context of HIV
  
- Module 9     HIV and Food Aid**  
To gain a basic understanding of the unique issues related to programming food aid in an HIV context

**Who the manual is written for:**

The target audience is programming staff. This manual is intended to be used in a Training of Trainers (TOT) format. The recipients of the training are subsequently intended to conduct similar training for staff in their locale. Depending upon their level of expertise in the areas of Nutrition and HIV, the trainer and the recipient of the training (who will eventually train others) may require considerable preparation before s/he conducts the TOT. For this reason, at the end of each module is a list of recommended reading that the trainer should review in order to enhance his/her understanding of each of the relevant themes.

CRS Regional Technical Advisors and Senior Program Managers with significant background and experience in HIV and Nutrition programming are likely to be best suited for conducting the initial training of this TOT. The recipients for the training might include CRS Program Managers; Project Managers; all staff associated with food aid and nutrition programming in high HIV prevalence countries; all staff associated with HIV programming; and partner staff associated with food aid, nutrition and/or HIV programming.

**How to Use the Manual:**

Each module consists of the following:

**The Module Overview — Notes to Facilitator:** This page is intended to provide preparatory information to the facilitator of the training.

**Facilitator Notes:** A reprint of each PowerPoint slide, along with the comments relating to that slide, appears in the manual. The facilitator may choose to print all of the slides and hand them out to participants at the beginning of the module presentation. It is recommended that the 'comments' for the slides are not handed out to participants until the end of the presentation, so that participants are not distracted with reading the comments during the presentation.

**Exercises:** Exercises appear at different points in each module and are prompted by a slide in the PowerPoint presentation. Questions for the participants are also interspersed throughout the presentations to help the facilitator keep the participants engaged, as well as to gauge their progressive understanding of the material.

**References:** Each module includes **Resources Consulted** and **Recommended Reading**. The resources consulted list references all documents, including other PowerPoint presentations that were used to construct the module. Recommended reading is a short list of background reading that will help the facilitator to prepare for conducting the training. Electronic versions, if available, of these resources are available on the accompanying CD-Rom.

**PowerPoints:** Each module has a complete PowerPoint presentation prepared. These presentations should be adapted to local context however. In cases where the facilitator should pay extra attention to ensure that the slides are presenting

the correct contextual information, the slides have been marked with a graphic:



This graphic is intended to alert the facilitator to verify whether the slide needs to be adapted to local context. After such verification has occurred, the facilitator can remove this graphic from the slide.

**Sample 5-day Training Schedule:** This is a sample training schedule for an audience with a general background in nutrition and HIV. This can be adapted to fit your needs. Audiences with more advanced knowledge of the subject matter will need less time and some sessions may not be applicable in your particular setting.

<b>Time</b>	<b>Day 1</b>	<b>Day 2</b>	<b>Day 3</b>	<b>Day 4</b>	<b>Day 5</b>
8:00	Introduction to Workshop and Pre-test	Feedback from Day 1	Feedback from Day 2	Feedback from Day 3	Feedback from Day 4
8:30	Tips on adult learning and start Module 1	Module 3	Module 5	Module 7	Module 9
10:00	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>
10:30	Module 1	Module 3	Module 5	Module 7	Module 9
12:00	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>	<i>Lunch</i>
13:00	Module 2	Module 4	Module 6	Module 8	Closure and Post-test
14:30	<i>Break</i>	<i>Break</i>	<i>Break</i>	<i>Break</i>	
15:00	Module 2	Module 4	Module 6	Module 8	
16:30	Closure and evaluation	Closure and evaluation	Closure and evaluation	Closure and evaluation	

# Module 1: Basic Nutrition & Healthy Eating

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## Overview of Module 1

### Title of the Module

Basic Nutrition and Healthy Eating

### Purpose of the Module

The purpose of this module is to understand basic nutrition information that relates to planning healthy diets

### Learning Objectives

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

- use basic nutrition terms and concepts appropriately
- understand the 6 food groups and how they support planning a balanced diet
- plan a balanced diet

### Estimated Time

PowerPoint Presentation: 60 minutes

Exercise 1: 30 minutes

Exercise 2: 60 minutes

Exercise 3: 30 minutes

Exercise 4: 30 minutes

*Total estimated time: 3 hours and 30 minutes*

### Materials Required

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments, handouts of exercises, and materials for exercises (listed in each exercise). The photo of the '6 Food Groups' (from Malawi) will be used for exercise 1.

### Recommended Preparation

The facilitator should assess the level of knowledge of the participant audience to determine the length of time to be allocated to activities in this module.

Review each of the exercises carefully and prepare necessary materials for each.

Review reference materials and other recommended readings.

**Prepare a list of the popular foods for your country to be used as a resource and to provide at the end of the 6 Food Group exercise.**

## **Facilitator Notes for Module 1**

### **Slide 1**

The facilitator should introduce the module including the purpose of the module and the learning objectives:

### **Purpose of the Module**

The purpose of this module is to understand basic nutrition information that relates to planning healthy diets

### **Learning Objectives**

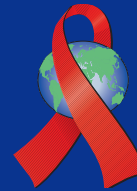
By the end of this module, participants will be able to:

- use basic nutrition terms and concepts appropriately
- understand the 6 food groups and how they support planning a balanced diet
- plan a balanced diet



# Nutrition Basics & Healthy Eating

## Module 1



**Facilitator Notes:**

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## Slide 2

The facilitator should briefly discuss the goal of this module: to understand basic nutrition information that relates to planning healthy diets. The facilitator should also go over the objectives of this module: to gain familiarity with basic nutrition terms and concepts; to understand the six food groups and how they can support planning a balanced diet and; to learn how to plan a balanced diet.

**ADAPTATION REQUIREMENT:** This module is based on 6 Food Groups but each country will have its own Nutrition framework, with three, four or five food groups. Significant adaptation will be required to bring this module in line with your country's framework.



### Goal

To understand basic nutrition information that relates to planning healthy diets

### Objectives

- To gain familiarity with basic nutrition terms and concepts
- To understand the 6 food groups & how they can support planning a balanced diet
- To learn how to plan a balanced diet

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**Facilitator Notes:**

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### Slide 3

The facilitator should briefly discuss what nutrition is. There is often confusion among participants about what nutrition is. The facilitator may need to spend some time discussing with the participants what they believe nutrition is.



## What is Nutrition?

- Nutrition is the study of foods, the nutrients and the substances within, along with their action, interaction and balance in relation to health and disease.
- It includes how food is produced, processed, handled, sold, prepared, shared and eaten...
- And what happens to food in the body—how it is digested, absorbed and used.

### Facilitator Notes:

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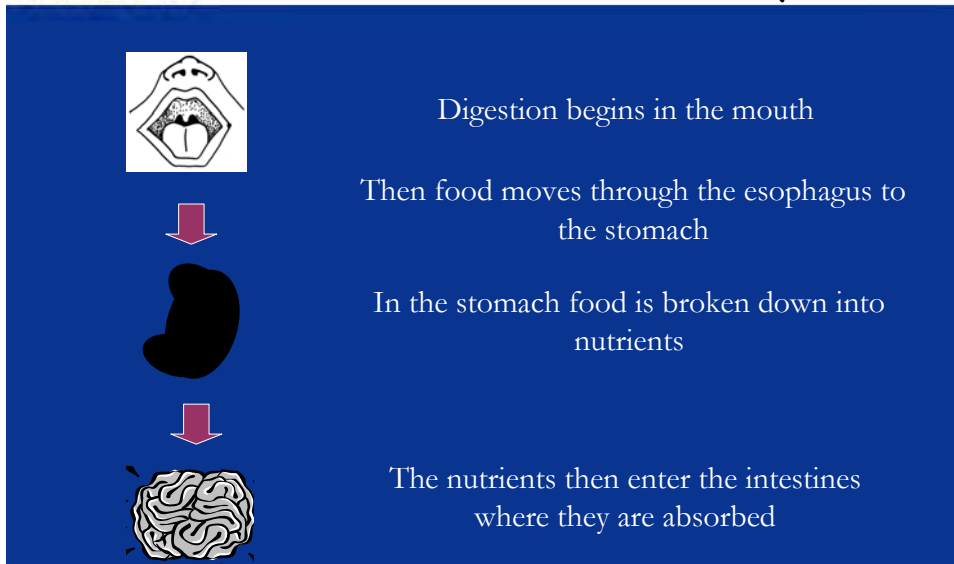
#### Slide 4

Digestion is how our body breaks food down into smaller parts so that it can be absorbed. Digestion begins right in our mouth with chewing and saliva. If we chew our food well, it makes the rest of the digestion process much easier for our body. Next, the food enters the esophagus, a muscle that pushes and pulls the food down to our stomach (I bet you always thought it was just a tube, but in fact it is a muscle shaped like a tube!). In our stomach the food mixes with liquids and chemicals called enzymes that break down the food into its nutrients. Some of these enzymes are found in raw plant foods, and some of them are made by the body. By eating foods that have enzymes in them (such as raw fruits and vegetables), we can help the digestion process.

After leaving the stomach the nutrients enter the intestines and are ready to be absorbed into the body so that they can be used for health, energy and building our bodies. Some substances can NOT be absorbed into the body, such as fiber, but instead continue and are eliminated at the end of the intestines.



## Digestion: Changing Food to Nutrients in Our Body



#### Facilitator Notes:

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## Slide 5

Healthy eating involves paying attention to eating foods that contain specific nutrients that actually help the body to stay healthy.

In the previous slide food digestion and mechanisms to absorb the nutrients was discussed, in this slide the purpose of the nutrients are presented. There are about 45 different nutrients that the body needs to get from food and drink. The nutrients can be grouped together into macronutrients or micronutrients. Macronutrients are nutrients that the body needs in large amounts, such as, proteins, carbohydrates, fats, and water. Proteins, carbohydrates and fats provide us with energy.

A carbohydrate is a compound containing carbon, hydrogen and oxygen atoms. They provide the major source of calories for the body and are known as sugars, starches and fibers. Carbohydrates provide energy and fiber; they also help the body to use fats. The fiber contained in carbohydrate foods helps the bowels work properly, provides bulk and helps up feel full.

A protein is also composed of carbon, oxygen and hydrogen, but unlike carbohydrate and fats, they contain nitrogen. They are the main structural material for the body. For example, protein forms a major part of the bone and muscle and is an important component in the blood. Thus, protein helps to keep us strong. Protein also helps to build and repair tissue. As protein takes longer to digest than carbohydrate, it keeps us going and feeling full for longer, while carbohydrate provides a quicker and shorter source of energy. An adult woman (non-pregnant) needs 49 grams of protein a day and a man needs 55 grams.

A fat is composed of carbon and hydrogen, but contain fewer oxygen atoms than do carbohydrates. This structural difference makes them more energy dense than carbohydrates or proteins and slower to digest, so our stomachs feel fuller for longer. They are the main form of energy storage in the body. Fats can be solid at room temperature or when liquid at room temperature they are called oils. The quantity of fat in a diet is provided as a range. For adults a diet with 15-30 percent fat is recommended.

Carbohydrates, protein and fats all provide energy to fuel the body. A kilocalorie (or calorie) is the unit that measures the energy content of a food. One gram of carbohydrate provides 4 calories; 1 gram of protein provides 4 calories; 1 gram of fat provides 9 calories. Knowing the caloric content of foods and their composition (quantity of carbohydrate, protein and fat) is important for nutritionists who plan specialized diets for their clients. However, for most people a simpler form of meal planning can be used. (Note: 1000 grams = 1 kilogram)

Regarding total calorie consumption, the average adult woman (non-pregnant) needs 2210 calories per day and the average man needs 2895 calories per day. Source: Latham, Michael, Human Nutrition in the Developing World, FAO, 1997.

Water is also considered a nutrient, although it doesn't provide any energy, it acts as a solvent and lubricant helping to clean the intestines and remove dangerous waste from our bodies. It also transports nutrients.

## Macronutrients

Macronutrients are the nutrients needed in large amounts:

- **Carbohydrates**- compounds known as sugars, starches and fibers.
- **Proteins**- food and body components made of amino acids.
- **Fats**- include fats, oils and cholesterol.
- **Water**- the universal solvent; the body is composed of about 60% water

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### Facilitator Notes:

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## **Slide 6**

The second category of nutrients is micronutrients. They are composed of vitamins and minerals. Vitamins enable chemical reactions, some help release the energy trapped in carbohydrates, fats and proteins. However, vitamins themselves provide no usable calories or energy for the body. There are 13 vitamins; 4 are fat soluble and 9 are water soluble. Water soluble vitamins (vitamin C and the B vitamins) dissolve in water and thus can easily be destroyed during cooking. This is one of reasons we need to avoid overcooking vegetables.

Minerals typically function independently in the body (sodium- $\text{Na}^+$ , potassium- $\text{K}^+$ ) or as parts of simple mineral combinations, such as bone mineral. Minerals are not destroyed in cooking, but can still be lost if they leech into cooking water that is discarded. Minerals do not provide energy though they play critical roles in nervous system functioning, water balance, etc.

The vitamins and minerals help keep the body functioning properly, which includes keeping the body's immune system strong. Vitamins and minerals work together with carbohydrates, protein, lipids and water to provide the body with energy, to build the body, to protect it from diseases and heal infections.

No one food supplies all various nutrients found in foods. No one nutrient is most important. The nutrients work together to keep us healthy. This is why it is important to eat a diverse diet, which includes locally available staples, legumes, dark leafy greens or yellow vegetables, food from animals, fruits along with fats.

A handout has been developed with important vitamins and minerals their functions and food sources. This can be discussed briefly with this section, but is designed to refer to through several of the modules. Caution: trying to discuss the handout may lead to many questions and digression. Thus it is recommended to refer to the handout and use it later as part of a brief exercise.

## Micronutrients

Micronutrients are the nutrients needed in small amounts by the body

- **Vitamins**- compounds needed in very small amounts in the diet to help regulate and support chemical reactions in the body.
- **Minerals**- elements used in the body to promote chemical reactions and to form body structures.

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### **Facilitator Notes:**

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## Slide 7

Putting food in food groups is simply a method of helping a client organize what they eat, to ensure they don't miss anything or over-eat from one group. Food groups are different depending on the country, because they have been adapted to suit the local context. For example, in Zambia there are 3 big food groups, in Canada there are 4, in the UK there are 5 food groups and in Malawi there are 6!

ADAPTATION: In (local country) there are (number) food groups: \_\_\_\_\_.



## Using Food Groups as a Guide

- Good health starts with eating properly, which means eating enough of the right kind of foods
- A Food Group Guide helps us choose the right mix of foods to plan healthy meals & diets
- The foods are divided into the following 6 groups:

**Facilitator Notes:**

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**Slide 8:**

**The Staple Group**

Staple foods include foods that are high in energy (carbohydrate). There are also many other nutrients that can be derived from the staple foods group depending upon how the foods are processed before they are eaten. They are also good sources of fiber, again if they are not highly processed. Staple foods include cereal grains, starchy roots, and starchy fruits.

Additional examples of foods from the Staples Food Group include:

- Cereals: Maize, Maizemeal, Rice, Sorghum, Millet
- Wheat: Mostly processed into flour and made into bread, chapattis, biscuits, etc.
- Roots and Starchy Fruits: Cassava, Irish Potatoes, Sweet potatoes, Yams, Breadfruit, Cocoyam, Plantains

ADAPTATION: The facilitator may want to contextualize this list to the locally available foods in your country or program areas



**Food Group #1: Staples**

- Provide energy (high in carbohydrates)
- Essential nutrients (vitamins and minerals), especially when they are not processed

Examples:

- Cereal grains
- Starchy roots and tubers
- Starchy fruits
- Processed staple foods (bread, rolls, biscuits)



**Facilitator Notes:**

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## Slide 9

**ADAPTATION:** There are several slides in the ToT manual with pictures. Depending on the audience of trainees, the trainer can use these as an opportunity for discussion. If the trainer has more appropriate local pictures, those can be substituted in place of these sample pictures.

This photo is a picture of a young woman in Prey Veng Province, Cambodia, threshing rice from her family's farm. During the threshing process, each bundle of rice is beaten against the carved stem of a sugar palm, causing the grains to fly off onto sheets that have been placed on the ground. Rice is the most important crop in Cambodia and provides the majority of the calories in rural people's diet. Credit: © 2002 Luke Simmons, Courtesy of Photoshare.



**Facilitator Notes:**

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## Slide 10

There are several slides in the ToT manual with pictures. Depending on the audience of trainees, the trainer can use these as an opportunity for discussion. If the trainer has more appropriate local pictures, those can be substituted in place of these sample pictures.

In this photo, Nkunde presents a sample of the year's sweet potato harvest in Zambia. Sweet potatoes are a staple for Zambians that often supplements their reliance on maize. Nkunde's entire family spends several days harvesting and cleaning the season's sweet potato crop before going to market. Credit: © 2004 Andrew Haugen, Courtesy of Photoshare.



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**Facilitator Notes:**

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## Slide 11

### The Legume (beans) and Nut Food Group

Legume and nuts are mostly made up of energy and body building nutrients (protein and carbohydrate), but soybeans and nuts also contain a lot of fat. Legumes are seeds that are enclosed in a pod and may be contained in fruit crops. Legumes are also useful as they contain essential micronutrients called vitamins and minerals.

Additional Examples of Foods from the Legume and Nuts Food Group

ADAPTATION: The facilitator may want to contextualize this list to the locally available foods in their country or program areas

Beans (soy, kidney, black, pinto), Beans (fresh green), peas (cow, pigeon), lentils

Groundnuts

Most beans and peas contain anti-nutrients which make them difficult to digest. Soaking, or thorough boiling, or letting them start to grow (sprout) removes these anti-nutrients. (Note: Anti-nutrients are substances in food which interfere with the digestion, absorption or use of nutrients in the body.)



## Food Group #2: Legumes & Nuts

- Provide energy
- Body building nutrients (rich in protein)
- Provide fats and essential nutrients (vitamins and minerals) - especially soya
- Examples:
  - Beans (dried and fresh)
  - Groundnuts
  - Soya (soybeans)

### Facilitator Notes:

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## Slide 12

### The Vegetable Food Group

The foods in the vegetable group are primarily made up of vitamins, minerals (essential nutrients) and water. Vegetables have very little of the energy nutrients, which is one thing that sets them apart from the fruits food group. Vegetables also contain fiber and many medicinal properties, especially in the herbs used for flavor. Vegetables can include leaf crops, some root crops and some fruits. For example, tomatoes are fruits, but they are considered a vegetable for diet purposes.

Mineral content in vegetables is very dependent on the soil they are grown in. Water content varies in different vegetables. Dark green leafy and most yellow/red/orange vegetables contain a substance that can be changed in the body to an essential nutrient, vitamin A. Each member of the family, even the youngest (if over 6 months old), should eat dark green or yellow vegetables each day. Most fresh vegetables are good sources of an essential nutrient, vitamin C, although when vegetables are dried vitamin C is lost.

Additional examples of vegetables: tomatoes, sweet potato leaves, amaranthus, spinach, kale, onions, cucumbers and eggplants...

ADAPTATION: The facilitator may want to contextualize this list to the locally available foods in your country or program areas



### Food Group # 3:Vegetables

- Rich in essential nutrients (vitamins and minerals)
- Are made mostly of water
- Examples:
  - Greens
  - Pumpkin and squash
  - Carrot
  - Cabbage



#### Facilitator Notes:

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## Slide 13

### The Fruit Food Group

The foods in the fruit group contain mostly carbohydrates, vitamins and water. All fruits grow as fruit crops, but all fruit crops are not part of the fruit food group-some are put into vegetables, legumes, or fats groups. Fruits have an added benefit of fibre and other medicinal properties.

Additional examples of fruits: Citrus fruits- tangerines, lemon, limes, grapefruit, orange (high in vitamin C, an essential nutrient); Baobab fruits, pineapples, bananas...

ADAPTATION: The facilitator may want to contextualize this list to the locally available foods in their country or program areas



### Food Group # 4: Fruits

- Rich in carbohydrates, providing energy
- Rich in essential nutrients
- Also contain water and fiber
- Examples:
  - Mango, Pawpaw, Guava, Apple, Orange



### Facilitator Notes:

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## Slide 14

There are several slides in the ToT manual with pictures. Depending on the audience of trainees, the trainer can use these as an opportunity for discussion.

In this photo, Manuelito, an indigenous leader in Carizalón, Copán, Honduras, holds up a native melocotón (peach). Credit: © 1998 Sean Hawkey, Courtesy of Photoshare.



### Facilitator Notes:

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## Slide 15

### The Animal Food Group

The foods in this group contain protein and fat. Many of the foods in this group are also good sources of vitamins and minerals. All of the foods in this group are of animal origin including eggs, milk products, fish, insects. Although this is a food group, it is not absolutely necessary to include this group as part of a healthy diet. You can have a good, well-balanced diet with only small amounts of animal foods, although it takes more planning. Although many vegetarians omit all or part of this group, they are able to consume healthy diets. Food Group # 2- the legume and nut group contains foods rich in protein, such as, beans, groundnuts (and other nuts). Dairy products are also good sources of protein and most vegetarians eat them.



### Food Group # 5: Food from Animals

- Rich in protein
- Vitamins & minerals (especially in animal organs)
- Iron and fat-soluble vitamins
- Examples:
  - Meat, Fish, Poultry
  - Insects
  - Eggs, Milk



### Facilitator Notes:

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## Slide 16

There are several slides in the ToT manual with pictures. Depending on the audience of trainees, the trainer can use these as an opportunity for discussion.

In this photo, a young boy is pictured with an armadillo on the side of the San Salvador volcano. Armadillos complement an often low protein diet in rural areas of El Salvador.

Credit: © 2006 Sean Hawkey, Courtesy of Photoshare



### Facilitator Notes:

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## Slide 17

### The Fat Food Group

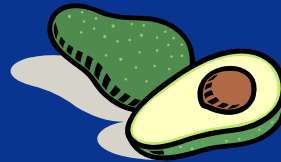
The main nutrient is fat in the fats food group. Fats are easily identified by the way the food feels in the mouth when eaten. They often feel smooth and creamy, like butter. They make food taste good, but only a small amount should be eaten. Vegetable oils are healthier than animal fats, which when consumed in large amounts can cause disease.

Fats can come from oilseed crops, from animals such as lard or butter, and even some fruit crops such as avocado. Oils can also be pressed out of a variety of different seeds from the other food groups.



## Food Group # 6: Fats

- Foods rich in fat are high in energy
- Tastes good
- Examples:
  - Cooking oils (made from oilseed crops)
  - Animal products (butter, lard)
  - Meat fat
  - Margarine, shortening
  - Fruits: Avocado, dried coconut



### Facilitator Notes:

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**Slide 18**

Refer to the instructions on the Handout for Exercise #1: Learning the 6 food groups.

Refer to the instructions on the Handout for Exercise #2: Do we eat enough good food sources of vitamins and minerals? The handout, Important Vitamins and Minerals: Their Role and Food Sources should be provided with the exercise if it hasn't been provided it already.



**Exercise # 1**

Learning the 6 Food Groups

**Exercise # 2**

Do we eat enough good food sources of  
vitamins and minerals?

**Facilitator Notes:**

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## Slide 19

A balanced diet includes eating foods from the different food groups at each meal.

For example, a balanced meal starts with a staple, with additions of foods from the other 3 chief food groups like rice, dried peas, maize + pumpkin + chicken. The beverage can also be from another group if a fruit or vegetable juice is served. Usually fat will be used to prepare the meal. If a fruit is eaten with the meal all six groups are included.

Facilitator should ask participants for examples of meals with at least 4 food groups.



### Planning Healthy Meals

- Using the 6 food groups as a guide can make planning a balanced diet easier and faster
- The most nourishing meals will include foods from all six food groups or from the 4 chief groups (staple, legume, animal & vegetable)

#### **Facilitator Notes:**

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## Slide 20

Many adults eat more than 6 servings of staple foods; a minimum of 6 servings is recommended. Eating less processed whole grains due to their higher content of vitamin, minerals and fiber is recommended. If 1 or less servings of animal foods are consumed then more servings of legumes or nuts are needed. It is important to eat dark leafy greens if dairy products are not consumed.



## How Much Should You Eat Each Day?

- For the average adult:
  - **Staples:** 6+ servings (1 serving = ½ cup grains or cereal or 1 slice bread)
  - **Legumes and Nuts:** 2-3 servings (1 serving = 1 cup legumes or 1/3 cup nuts)
  - **Animal Foods:** 1-2 servings (1 serving = 1/3 cup meat, 1 egg, 1 cup milk/yogurt)

### Facilitator Notes:

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## Slide 21

Another way of thinking of this of meal and diet planning is as follows:

Food Group	Amount to Serve
1. Staple	4 parts (e.g. 4 tablespoons for a young child)
2. Legume and Nuts	2 parts
3. Animal Foods	1 part
4. Dark green leafy and/or yellow vegetables	1 part
5. Fruits	1 part
6. Fats and substitutes	Small amount



### How Much Should You Eat? (cont.)

- **Vegetables:** 5 servings (1 serving = 1/2 cup of veggies – at least 1 serving of green, orange or yellow vegetables)
- **Fruit:** 2 servings (1 serving = 1 whole fruit or 1/2 cup)
- **Fats:** in moderation
- **Sweets and sugars:** in moderation

#### Facilitator Notes:

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**Slide 22**

Refer to the instructions on the Handout the following Exercises:

Exercise #3: What did you eat yesterday?

Exercise #4: Planning a better diet



Exercise # 3: What did you eat yesterday?

Exercise # 4: Planning a better diet

**Facilitator Notes:**

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## **Exercises for Module 1**

## **Exercise 1: Learning the 6 Food Groups**

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When preparing for this exercise, the facilitator will need to purchase several examples of locally available foods from each of the 6 food groups. It is also recommended that the facilitator complete the blank handout provided on locally available foods from the 6 food groups. The number of foods needed depends upon the size of the group, although more examples of different foods are preferred to demonstrate the breadth of diet diversity possible.

It is necessary to plan on at least one food per person attending, but it is possible to have more than one food per person if the group is small. The facilitator can use the information on the slides and notes to help decide which foods to purchase. It is important to select examples of foods from each group that are locally available, such as fresh fruits and vegetables. *Representing a diversity of foods is also important as diversity is critical to planning a healthy diet.*

The division of teams and number of members are decided based on the size of the group. It is best to limit the number of participants on a team to 4; smaller teams of 2 or 3 would also work. If the group is large, purchasing 2 of each food is a possibility to keep teams smaller and to provide direct experience for all members. Each team will be provided with foods to place with their appropriate food groups. After this is completed; there will be review and discussion.

Prior to starting the exercise, all the foods purchased should be placed together on one table. On another table, there should be signs with the names of the 6 food groups. The facilitator should give each team 4 or more foods to place with the appropriate food group sign.

After the teams are finished, the facilitator should check each food group and make sure all the foods are placed in their correct food group. The facilitator should then make any necessary corrections and discuss. Sometimes there is confusion with the legumes as they may be mistakenly placed with the staples. And some fruits and vegetables may be confusing, such as tomatoes. Often the avocado is placed with the fruit or vegetable group rather than in the fat group where it belongs.

**Note:** For this exercise, once the groups have finished and the participants start to discuss the results, the Malawi 6 food group photo (Handout 1) should be provided as it provides most of the possible answers. Handout 2 that was developed of locally available foods (noted under Preparation in the Facilitator's Overview) should be provided at this time as well.



## **Exercise 2: Do we eat enough good foods sources of some important Vitamins and Minerals?**

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Exercise 2 is completed individually and then discussed in the same groups that were formed for exercise 1, or to save time, it can be discussed with the entire group in plenary. The groups should report what were the one or two critical things learned as part of the exercise. Flip charts can be used to record the information.

Handouts 3 and 4 on vitamins and minerals are needed. It will take the participants about 20 minutes to complete the form on Handout 3. Groups can discuss for 20 minutes followed by 20 minutes of groups sharing.

Directions for completing the tables in Handout 2:

Using the vitamin/mineral handout (Handout 4), start by completing the 3<sup>rd</sup> column in the table with the foods according to their respective food groups that are good sources of vitamin A. When this is completed, list any foods (or check the line next to food sources listed) that may have been eaten yesterday or the day before.

Follow this same process for B vitamins, Iron, Iodine and Calcium.

Then complete Table 2 using the information provided in Table 1 to count up the number of servings of vitamin/mineral rich foods consumed.

Lastly, complete the 2 questions.

Pointers for discussion:

This exercise is to help participants become familiar with food sources that are high in vitamins and minerals. As well as, to learn which micronutrient rich foods are lacking in their diets.

This exercise can not actually evaluate if an individual's diet is inadequate in particular micronutrients. To do this, all the foods an individual consumes in a day, or better yet, 3 days need to be looked up in a food composition table or a computerized data analysis program can be used.

### **Exercise 3: What did you eat yesterday?**

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Handouts 5 and 6 will assist in moving through the instructions listed below. If possible, it would also be helpful to purchase a few sets of inexpensive measuring cups (1,  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$  cups and spoons (1 tsp., 1tbsp.). Participants can have them on hand to assess the sizes of the food portions they consumed. In addition, the size of an average adult's clenched fist can be used as an estimate of 1 cup.

Give participants 15-20 minutes to list what foods they ate yesterday on Handout 6 and to determine the number of servings from the 6 food groups they consumed.

Use handout 4 after listing the foods participants ate yesterday, the quantity and food group. Participants will have to estimate serving sizes and use Handout 5 which lists serving sizes to determine the number of servings of food eaten.

After completing the first table, participants can determine the number of servings eaten from the 6 food groups. They can then use this to compare with what is recommended in Handout 5.

It may be beneficial to have participants discuss what they learned about their diets and in particular, talk about which food groups they eat too little or too much of. Depending on the group, this may take up to 30 minutes.

### **Exercise 4: Plan a better diet**

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Plan a one-day diet that includes the approximate number of servings from the 6 food groups.

Using Handout 7, have the participants plan a one-day diet based on what they have recorded, but which is more balanced, i.e. it includes the correct number of servings of the 6 food groups (referring to Handouts 1, 2 and 5).

It is also helpful if participants try to make this realistic—to plan changes that would be possible for them to adopt. Provide participants with 15-20 minutes to plan their diet. If some participants are finishing more quickly, they can do a 2-day diet. This should be followed by a discussion of what changes they have proposed and how this will improve their consumption of the number of foods in the 6 food groups eaten.

## **Handouts for Module 1**

## Handout 1: Malawi Food Groups



## Handout 2: List of Locally Available Foods Categorized by the 6 Food Groups

Name of Country: \_\_\_\_\_

Food Group	Food
1. STAPLES	
2. LEGUMES & NUTS	
3. VEGETABLES	
4. FRUITS	
5. FOOD from ANIMALS	
6. FATS	

### Handout 3: Vitamins and Minerals

MICRONUTRIENT (VITAMIN/MINERAL)	FOOD GROUPS	GOOD FOOD SOURCES OF MICRONUTRIENT	FOODS EATEN YESTERDAY THAT ARE GOOD SOURCES OF MICRONUTRIENTS	FOODS EATEN THE DAY BEFORE YESTERDAY THAT ARE GOOD SOURCES OF MICRONUTRIENTS
<b>Vitamin A</b>				
	Legumes & nuts			
	Animal Foods			
	Fruit			
	Vegetable			
	Fats			
<b>B Vitamin Group</b>				
	Staple			
	Legume & Nuts			
	Animal Foods			
	Fruit			
	Vegetable			
<b>Iron</b>				
	Staple			

	LEGUME & NUTS			
	Animal Foods			
	Fruit			
<b>Iodine</b>				
	Animal Foods			
	Fortified Foods			
<b>Calcium</b>				
	Legume & Nuts			
	Animal Foods			
	Vegetables			

**Table 2: Tally Your Servings of Micronutrient Rich Foods**

	# OF FOODS EATEN YESTERDAY	# OF FOODS EATEN THE DAY BEFORE YESTERDAY
Vitamin A		
B Vitamin Group		
Iron		
Iodine		
Calcium		

Which foods rich in micronutrients are sufficiently included in my diet?

Which foods rich in micronutrients are not present sufficiently in my diet?



## **Handout 4: Important Vitamins and Minerals: Their Role and Food Sources**

(Used for Exercise 2 and as reference for several of the other modules.)

<b>Micronutrient</b>	<b>Role</b>	<b>Source</b>
<b>Vitamin A</b>	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, vitamin A fortified oil
<b>Vitamin B Group</b>	Important for energy metabolism; helps the nervous system function properly; supports appetite and nervous system functions; important for building new cells; supports healthy skin and normal vision; maintains nerve cells	Whole-grain cereals, seeds, maize, beans, legumes, meat, fish, seafood, poultry, liver, milk, yoghurt, cheese, eggs, peanuts, walnuts, Brazil nuts, green leaves, sweet potatoes, avocados, cabbage, bananas, seaweed
<b>Vitamin C</b>	Helps the body to use calcium and other nutrients to build bones and blood vessel walls. Increases non-hem 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
<b>Vitamin E</b>	Protects cell structures and facilitates resistance to disease	Leafy vegetables, vegetable oils, peanuts, egg yolks, dark green vegetables, nuts and seeds, whole-grain cereals

<b>Calcium</b>	Builds strong teeth and bones Aids heart and muscle functions, blood clotting and pressure and immune defenses.	Milk, green leaves, shrimps, dried fish (with bones), nuts, beans and peas
<b>Iodine</b>	Ensures the development and proper functioning of the brain and the nervous system	Fish, seafood, milk and salt with iodine
<b>Iron</b>	Transports oxygen to the blood, eliminates old red blood cells and builds new cells	Red meat, poultry, liver, fish, seafood, eggs, peanuts, legumes, beans, green leafy vegetables, seeds, whole-grain cereals, dried fruit and alfalfa
<b>Magnesium</b>	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
<b>Selenium</b>	Prevents impairment of the heart muscle	Seafood, liver, meat, carrots, onions, milk, garlic, alfalfa, mushrooms and whole-grain cereals
<b>Zinc</b>	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

*Adapted from: Living Well with HIV/AIDS: A Manual on Nutritional Care and Support for People Living with HIV, WHO, FAO, Rome, 2002.*

## **Handout 5: The Daily Recommended Number of Food Groups and Servings Sizes**

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### **For the average adult:**

**Staples:** A minimum of 6 servings is recommended

1 serving =  $\frac{1}{2}$  cup grains/cereal or 1 slice of bread

**Legumes and Nuts:** 2-3 servings are recommended

1 serving = 1 cup legumes or  $\frac{1}{3}$  cup nuts

**Animal foods:** 1-2 servings

1 serving =  $\frac{1}{3}$ - $\frac{1}{2}$  cup meat, 1 egg, 1 cup milk/yogurt)

If 1 or less servings of animal foods are consumed than more servings of legumes or nuts are needed. If dairy products are not consumed than it is important to eat dark leafy greens.

**Vegetables:** 5 servings

1 serving =  $\frac{1}{2}$  cup of vegetables. At least 1 serving of green, orange or yellow vegetables is required daily for vitamin A.

**Fruit:** 2 servings

1 serving = 1 small/medium fruit or  $\frac{1}{2}$  cup. 1 serving daily of vitamin C rich fruits is needed, such as, orange, lemon, grapefruit, guavas or berries. Tomatoes or peppers are also good sources of vitamin C.

**Fats:** in moderation (1 tsp. butter, 1 tbsp. oil)

### **Handout 6: What did you eat yesterday?**

List the foods and approximate the amounts for all the foods you ate yesterday. Remember to list all foods eaten at meals and any snacks consumed as well. It is not necessary to put foods next to each meal or snack time; they are provided to help you recall the foods you ate.

Meal or Snack	Food	Quantity	Food Group
Snack			
Breakfast			
Snack			
Lunch			
Snack			
Dinner			
Snack			

Next Determine the Number of Servings from the 6 Food Groups You Ate

Food Group	Number of Servings Eaten
Staple	
Legumes and Nuts	
Animal	
Vegetables	
Fruits	

Fats	
------	--

### **Handout 7: Plan a Better Diet**

Use the table below and what you ate yesterday to plan a diet for 1 day that is more balanced. Be sure to incorporate what you learned regarding micronutrient rich foods.

Meal or Snack	Food	Quantity	Food Group
Snack			
Breakfast			
Snack			
Lunch			
Snack			
Dinner			
Snack			

Next Determine the Number of Servings from the 6 Food Groups in the planned diet

Food Group	Number of Servings Eaten
Staple	

Legumes and Nuts	
Animal	
Vegetables	
Fruits	
Fats	

## References for Module 1

### Resources Consulted

Savage King, Felicity and Ann Burgess. Second Edition, 1993. *Nutrition for Developing Countries*. Oxford Medical Publications. (Available from: Teaching Aids at Low Cost (TALC), [www.talcuk.org](http://www.talcuk.org))

Caribbean Food and Nutrition Institute. Second Edition, 1993. *Nutrition Handbook for Community Workers in the Tropics*. London, England: Macmillan Education.

Burgess, Ann and Peter Glasauer. 2004. *Family Nutrition Guide*. Rome: Food and Agriculture Organization (FAO).

Wardlaw, Gordon M. and Anne M. Smith. Sixth Edition, 2007. *Contemporary Nutrition*. McGraw-Hill.

### Recommended Reading

Burgess, Ann and Peter Glasauer. 2004. *Family Nutrition Guide*. Rome: Food and Agriculture Organization (FAO). (Available from: Teaching Aids at Low Cost (TALC), [www.talcuk.org](http://www.talcuk.org))

Savage King, Felicity and Ann Burgess. Second Edition, 1993. *Nutrition for Developing Countries*. Oxford Medical Publications.

Carter, Isabel. 2003. *Healthy Eating: A Pillars Guide*. Tearfund.

# **Module 2: Nutrition through the Lifespan**

## **Overview of Module 2**

### **Title of the Module**

Nutrition throughout the Lifespan

### **Purpose of the Module**

The purpose of this module is to understand the changing nutritional needs at different lifecycle stages.

### **Learning Objectives**

To learn about the nutritional requirements and understand the food and nutrition concerns for:

- pregnant & lactating women
- infants & young children
- preschool and school-age children
- adolescents
- adults & the elderly

### **Estimated Time**

PowerPoint Presentation: 1 hour and 15 minutes

Exercise 1: 45 minutes

*Total estimated time: 2 hours*

### **Prerequisite Modules**

It is recommended that the facilitator cover all preceding modules *prior to* tackling the current one.

### **Materials Required**

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments and handouts of exercises

### **Recommended Preparation**

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.



Assess the level of knowledge of the participant audience to determine the length of time to be allocated to activities in this module.

Review the exercise carefully and prepare necessary materials.

Review reference materials and other recommended readings.

## Facilitator Notes for Module 2

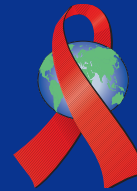
### Slide 1

The facilitator should introduce this module after making sure that there are no remaining questions from earlier modules.



# Nutrition Throughout the Lifespan

## Module 2



**Facilitator Notes:**

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## Slide 2

The facilitator should cover the goal and objectives of the module. See if there are any questions from the participants on what will be covered. Tell participants that Module 8 will cover the special considerations for feeding infants whose mothers are HIV-positive.



**Goal** To understand the nutritional needs at various life stages

### Objectives

To learn about the nutritional requirements and understand the food and nutrition concerns for:

- pregnant and lactating women
- infants and young children
- preschool and school-age children
- adolescents
- adults and the elderly

### **Facilitator Notes:**

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### **Slide 3**

Malnutrition, or the risk of becoming malnourished, may be passed on from one generation to another. Malnourished women give birth to small babies who, in turn, are more likely to become small children, small adolescents and, eventually, small adults. While smallness may be genetically inherited, the vast majority of small individuals in most poor countries are small because they have suffered, or are currently suffering, from malnutrition.

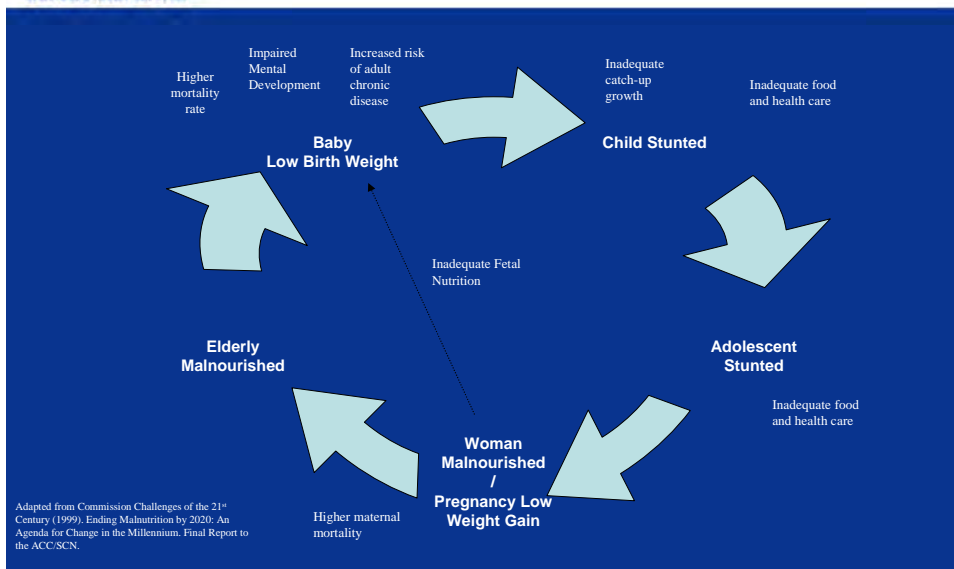
The weight of an infant at birth is influenced by his or her mother's nutritional status. If women are malnourished pre-pregnant and/or during pregnancy their infants are more likely to be born with low birth weights (LBW). A LBW baby is actually born malnourished and is at higher risk of dying in early life. By an early age, s/he is more likely to be stunted, (i.e. low height when compared to their age, also known as chronic malnutrition). Stunting which starts at a young age, reduces mental capacity and will probably continue through adolescence and adulthood. It also affects the next generation, as a stunted pregnant woman is more likely to give birth to a LBW baby. As so the cycle continues in this way.

At each lifecycle stage, nutritional status can be improved (and malnutrition prevented) through improving access to more nutrient dense foods (foods rich in protein, i.e. legumes, animal foods and food rich in micronutrients, i.e. vegetables and fruits); providing nutrition and health education; improving sanitation and hygiene; and expanding access to health care. However, efforts to improve the nutrition and health status of pre-pregnant and pregnant women are especially important, as they can help ensure a better beginning for infants and support the health of women.

In this module there will be a review of the nutritional needs of individuals at the various stages of the life cycle, which includes: pregnancy, lactation, infancy, children (young, preschool and school-age), adolescents, adults and the elderly.

A handout (Handout 1, Module 2) which includes the diagram in the slide has been provided for participants.

## Inter-generational Cycle of Malnutrition



### Facilitator Notes:

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**Slide 4**



*Why is Good Nutrition Important for  
Pre-Pregnant and Pregnant Women?*

- Being well-nourished before and during pregnancy improves the mother's health and birth outcomes.
- Maternal malnutrition affects birth outcomes:
  - It increases the risk for premature births and low birth weight infants
  - It increases the risk of infant deaths and illness
  - It decreases infant nutrient stores

**Facilitator Notes:**

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## Slide 5

Although more calories are needed during pregnancy (nearly 300 calories / day), increasing the nutrition density of the diet is even more important. More or larger servings of protein-rich foods (and foods high in micronutrients) are needed. The additional calories can be met through eating larger servings of foods at meals or adding nutrient dense snacks. Counseling pregnant women and their families on the increased need for protein through consuming protein-rich locally available foods is recommended.

In many developing countries the percent of women with anemia is high (50 to 75%). ADAPTATION: give local statistic. Anemia contributes to an increased number of maternal deaths, as well as, pre-term births and infants with low birth weights through reducing a women's ability to survive bleeding during and after childbirth. Practical dietary advice including the consumption of iron-rich foods from animal sources and foods rich in vitamin A is needed. If iron fortified foods are available they should be encouraged as well. The consumption of calcium-rich foods also should be promoted, such as, milk products and leafy green vegetables. Dispel any local myths (i.e. eggs shouldn't be eaten during pregnancy or iron supplements must be red in order to contain iron).

The Facilitator may want to ask participants: which foods are high in vitamin A as a review of the Basic Nutrition and Healthy Eating Module. (Answer: dark leafy greens, pumpkins, squash, mangoes, papaya and other deep orange, yellow fruits and vegetables. Also ask participants which foods are protein rich. (Answer: legumes, nuts, animal foods, such as, meat, fish, milk, etc.)

Health ministries in most countries have protocols for iron/folate supplementation during pregnancy. ADAPTATION: provide local information. Even with improved diets, iron/folate supplementation is needed as it is difficult to eat enough iron-rich foods to meet the increased demands of pregnancy.



## Nutrition for Pregnancy

- Increased calories, protein and micronutrients are needed due to the expanding blood volume, growth of maternal tissues and the developing fetus
- Nutrient Requirements for Pregnancy
  - ↑ **Energy**: almost 300 calories per day (10-15%)
    - i.e. One cup of nonfat fruit yogurt and a medium apple
    - i.e. One cup of whole grain cereal with ½ cup of nonfat milk and a small banana
  - ↑ **Protein**: 25 grams/day (60%)
    - i.e. ~3-4 oz. of animal protein (chicken, beef)
    - i.e. ~10 oz. of tofu
    - i.e. ~3.5 oz. of groundnuts
  - ↑ **Micronutrients**: i.e. iron, calcium, vitamin A & C and folate



Source: Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids The National Academies, Washington DC, 2002

### **Facilitator Notes:**

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## Slide 6

Although anemia related to low consumption of iron-rich foods is the most common type of anemia, it may also be caused by infections, such as malaria and hookworm. Thus, linking with the health service to ensure malaria prevention and treatment services are available for pregnant women is also important to prevent anemia. Promoting de-worming for pregnant women during their 2nd trimester can also improve pregnancy outcomes. Health ministries in many developing countries have developed protocols for de-worming and malaria prevention for pregnant women. Supporting their implementation along with protocols for micronutrient supplements can help improve pregnancy outcomes. ADAPTATION: Provide local information.

Weight gain should be 1 kg. per month for the 2nd and 3rd trimesters of pregnancy. Women who are underweight pre-pregnant should gain even more weight. Some food aid programs provide food supplements to pregnant (and lactating) women, such as CSB and oil, to support their increased nutrient and caloric needs.

Pregnant women reducing their workloads and resting during pregnancy can conserve energy. This is particularly important for underweight women and those with poor weights during pregnancy. Limiting heavy work particularly in the last half of pregnancy can also help prevent preterm delivery.

Another important factor in improving nutrition and birth outcomes is birth spacing. Allowing 2 years between pregnancies helps women recover and replenish their nutrient stores.



### How can we improve the nutritional status of pregnant women?

- Malaria and hookworm prevention and/or treatment - i.e. ITNs
- Monitoring weight gain monthly during pregnancy
- Reduced workloads and increased rest
- Birth spacing of at least 2 years

#### **Facilitator Notes:**

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## Slide 7

If foods fortified with iron and vitamin A are locally available and affordable they should be promoted through counseling and social marketing campaigns as they can contribute to improved micronutrient status for those at risk. Many developing countries are in the process of fortifying foods such as, oil, flour or other commonly consumed commodities.

The consumption of iodized salt is also necessary. Iodine deficiency in pregnant women causes miscarriages, stillbirths, LBW infants and cretinism- a disorder which damages the brain and nervous system. In places where iodine deficiency is common and iodized salt is not consistently available, iodine supplementation may be needed. Again the health ministry should have a protocol on iodine supplementation to address this, if it is needed.

ADAPTATION: know your local situation re: fortification of foods and supplementation protocols.



### Improving the Nutritional Status of Pregnant Women (cont.)

- Iron and vitamin A promotion through food fortification
- Iodized salt promotion
- Iron/folate supplement provision according to MoH protocols

**Facilitator Notes:**

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## Slide 8

A healthy diet during breastfeeding can help to replenish nutrient stores, as well as provide the additional nutrient and caloric needs of breastfeeding.

A breastfeeding mother does not have a fixed “supply” of breastmilk. She can make sufficient milk even if she is moderately malnourished. However, when mother’s diet is inadequate in thiamine and vitamins A and C, her breastmilk will also have less of these nutrients. (Source: Latham, Michael, Human Nutrition in the Developing World, pg. 50, FAO, 1997.)

A severely malnourished breastfeeding woman will produce 20-30 percent less breastmilk than a well nourished woman. (Source: Savage King, F. and Burgess, A., Nutrition for Developing Countries, pg. 250, 2nd Edition, Oxford Medical Publications, 1993.) If a woman is severely malnourished then she needs immediate feeding/extra food. She also needs support to continue to offer her baby the breast so to maintain her milk supply while she recovers. (Source: *Infant Feeding in Emergencies, Module 2, for health and nutrition workers in emergency situations*, Core Manual, pg. 14, ENN, December 2004.) Infants of severely malnourished mothers may have slow growth by 3-4 months of age and may become deficient in vitamin A and other nutrients. (Source: Savage King, F. and Burgess, A., Nutrition for Developing Countries, pg. 250, 2nd Edition, Oxford Medical Publications, 1993.)



## Nutrition and Breastfeeding

- Stored nutrients are often depleted as a result of pregnancy and childbirth.
- If a breastfeeding woman is not eating the additional calories and nutrients she needs, they must come from her own body
- A moderately malnourished woman often produces enough breastmilk for her baby. However, a severely malnourished women will produce less breastmilk.

### Facilitator Notes:

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## Slide 9

If energy requirements were not met during pregnancy, which is often the case for women who were undernourished prior to pregnancy, a lactating woman may need up to 700 additional calories per day to produce the necessary quantity of milk and to protect her nutritional status.

Lactating women should eat a variety of fruits and vegetables along with foods from animals daily to meet their micronutrient requirements. In areas of endemic vitamin A deficiency, lactating women should be provided with a high dose vitamin supplement within the first eight weeks postpartum to increase the vitamin A of their breastmilk. Health ministries often have protocols for this that should be supported to promote maternal and infant health.

A handout on increased nutrition needs during pregnancy and lactation was provided. This can be introduced and discussed after the information is presented in slide 9. Or it can be discussed in 2 parts: one after the pregnancy and nutrition/intervention slides are presented after slide 7 and after slide 10.



## Nutrition for Lactation

- Breastfeeding women need extra energy to produce milk.
- An additional 500 calories a day is needed throughout breastfeeding assuming their nutritional requirements were met during pregnancy. **This translates into 1 extra meal a day.**
- Protein requirements are the same for breast-feeding as for pregnancy (71 grams per day).
- Micronutrient requirements are increased..

Source: [Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids](#). The National Academies, Washington DC, 2002

## Facilitator Notes:

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## Slide 10

The best and safest way to feed a baby from birth to 6 months is *exclusive breastfeeding*. *Exclusive breastfeeding* means that the baby has no other food or drink but breastmilk—no water, tea, honey, porridge, etc. All babies' nutritional needs are met through breastmilk alone, even in their first few days of life. They do not need water even in hot climates. If they are given other drinks or foods, even in small amounts, some of the advantages of breastfeeding are lost. In particular, introducing foods and drink other than breastmilk increases the risk of illness as the immunological effects of breastfeeding are decreased. The introduction of other foods also increases the risk for diarrhea. In developing countries, babies exclusively breastfed for the first 6 months of life, for the most part, gain more weight and grow better than infants given mixed diets (breastfed and provided other foods and infants non breastfed). Infants fed mixed diets and those not breastfed have a much higher risk of dying than infants exclusively breastfed for the first 6 months of life.

ADAPTATION: Here the facilitator should ask: Are most children exclusively breastfed for the first 6 months in this country? Why or why not? What are the cultural practices that influence exclusive breastfeeding? What are the foods or liquids that infants under 6 months are given? What are other examples of nutritional, health and psychosocial benefits? Brainstorm strategies for EBF in informal sectors (i.e. expressed milk, wet nurses, etc.)

**Note: Further information on PMTCT and lactating HIV+ women can be found in Module 8.**



## Nutrition for Infants & Young Children (0-6 Months)



Exclusive breastfeeding provides nutritional (vitamins and vital antibodies), health (decreased diarrheal incidence), and psychosocial benefits (bonding with mother) to the infant and is recommended for the first 6 months of life.

### Facilitator Notes:

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**Slide 11**

*Throughout the training materials, there are pictures that can be used as discussion points by the facilitator.*

*A four-month old infant in Thailand is pictured here. The infant has received only breastmilk. Credit: © 1988 Andrea Fisch, Courtesy of Photoshare.*



**Facilitator Notes:**

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## Slide 12

A billboard in Dakar, Senegal promotes child nutrition with the message "Cet enfant est bien portant. Il a une alimentation variée et suffisante" ("This child looks healthy. He has sufficient and varied food"). Credit: © 2000 Peggy D'Adamo/CCP, Courtesy of Photoshare.



### Facilitator Notes:

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### Slide 13

Discussion: The facilitator should probe the participants to reflect on whether there are similar situations in the communities where they work. What strategies have they employed to counteract this phenomenon?



## Competition for Food within the Household

- Oftentimes, the households in the target population are food insecure.
- This may result in competition for food within the household.
- In some cases, women and children may be receiving less of the food, as food may be prioritized for working adults.

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### Facilitator Notes:

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## Slide 14

In many low resource countries, children are likely to be infected from the time they stop breast-feeding, and to be continually infected and re-infected for the rest of their lives.

Additional Information:

**Schistosomiasis, or bilharzia**, is a parasitic disease caused by trematode flatworms of the genus *Schistosoma*. Larval forms of the parasites, which are released by freshwater snails, penetrate the skin of people in the water.

In the body, the larvae develop into adult schistosomes, which live in the blood vessels. The females release eggs, some of which are passed out of the body in the urine or faeces. Others are trapped in body tissues, causing an immune reaction.

In urinary schistosomiasis, there is progressive damage to the bladder, ureters and kidneys. In intestinal schistosomiasis, there is progressive enlargement of the liver and spleen, intestinal damage, and hypertension of the abdominal blood vessels.

Control of schistosomiasis is based on drug treatment, snail control, improved sanitation and health education.



## De-Worming Children

- More than 1/3 of world's population affected by worms, with children most severely affected.
- Untreated parasitic infections often interfere with good nutrition for children.
- Children can be treated effectively with two single dose pills: one for all the common intestinal worms (hookworms, roundworms, and whipworms) and the other for schistosomiasis (bilharzia). The treatment is safe, even when given to uninfected children.

Information adapted from [www.worldbank.org/hnp](http://www.worldbank.org/hnp)

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### Facilitator Notes:

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## Slide 15

By 6 months, many babies cannot get enough energy and nutrients from breastmilk alone. They have grown 2 or 3 times the size that they were at birth and are still growing rapidly and becoming more active. Also by the age of 6 months a baby's gut can more easily digest food. Finally, by the age of 6 months most infants are developmentally ready to start eating solid foods, i.e. can sit-up, reach for foods, etc. They are interested in starting to eat semi-solid foods at this time as well.

When food is introduced from 6-9 months of age, food must be semi-liquid, pureed or mashed, so that it is soft enough for the baby to eat, such as mashed banana or porridge (fortified with ground nuts). Start with small amounts of food and increase the quantity as the child gets older, while maintaining frequent breastfeeding. The food consistency and variety can also increase as the infant gets older. As the child grows from 6 months onward his energy needs increase. To increase energy more food can be served at meals or the frequency of feedings can be increased.

From about 9-12 months, a child can chew well enough to eat food which is cut into small pieces or "finger foods". And by the time a child is 1 year old, he will have some teeth and can chew (at least by gumming) well enough to eat most family foods; they should be fed nutrient dense food. Most children do not have all their teeth until age 2, thus foods should be cut into small pieces. Foods that could cause choking should be avoided, such as whole nuts, raw carrots or coarsely cut meats.

The "Weaning" time of infancy and young childhood (from 6 months to 2 years) is a dangerous time nutritionally for the child. Continued breastfeeding while feeding other foods is needed to provide adequate nutrition; it also provides some protection from infection. In this age group, the consequences of malnutrition are serious as the brain is still developing. Due to the high rate of growth, it is also the time when most growth faltering occurs. This is critical and should be prevented as correcting inadequate growth later is difficult. Also with the introduction of weaning or complementary foods, the young child is more exposed to disease and infection through contaminated food and water. In addition, the young child is dependent on the mother/caregiver for frequent feedings and continued breastfeeding. A child may not get enough energy and nutrients if he does not get enough solid (weaning) foods or if his mother stops breastfeeding him before the age of 2 years.

For a young child to receive adequate nutrition, weaning foods need to be rich in protein and micronutrients, i.e. fortified porridge and other nutrients. Feeding a variety of nutritious, locally available foods from all food groups, including animal foods, is recommended. Foods high in vitamin A and iron are necessary.

(As a review of the Basic Nutrition and Eating Healthy Module, the Facilitator can ask participants what could the porridge be fortified with to improve its' protein content? *Answer: groundnuts or any animal products.* What are good food sources of vitamin A and iron? *Answer: vitamin A - mashed papaya or mango, mashed squash.* Iron sources - *ground or mashed meats, dried beans, lentils*)

Weaning foods need to be prepared and stored hygienically to prevent diarrhea. Caregivers should wash their hands prior to preparing foods and clean utensils should be used. Children should be served food in clean dishes and cups and have clean hands.

As young children are often at risk of Vitamin A deficiency, most countries provide supplements every 6 months for children under 5 years old. Check with the Ministry of Health. Iron supplements are provided in some countries.

If they are to grow and remain healthy, children need special care during weaning to make sure that they eat enough and to prevent and treat infections. Finally, the child should be taken to the clinic regularly for immunizations and weight checks to detect growth failure early.

Teething will begin anywhere from 4-7 months. During this time, it is important to provide culturally appropriate objects on which the baby can chew that are large enough not to become an obstruction. If feasible in a sanitary manner, relief can also be given by allowing baby to chew on semi-frozen object or to have their gums gently rubbed by finger.



## Nutrition for Infants & Young Children (6-24 Months)

- Introduce complementary foods at 6 months while continuing frequent breastfeeding.
  - 6-8 months infants should eat 2-3 times/day
  - 9-11 months infants should eat 3-4 times/day + 1-2 nutritious snacks
  - 12-24 months children should eat family foods 3-4 times/day + 1-2 nutritious snacks
- Frequent breastfeeding should continue until the child is 2 years old.

### Facilitator Notes:

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**Slide 16**

Refer to the instructions on the Handout for Exercise #1: Making Programs for Infants & Young Children more Nutrition Focused



**Exercise # 1**

Making Programs for Infants & Young Children  
More Nutrition Focused

**Facilitator Notes:**

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## Slide 17

They should eat a similar number of servings from the 6 food groups as learned in the Basic Nutrition and Healthy Eating Module, however, the portion size varies with age. The table below, which was included in the Basic Nutrition and Healthy Eating Module provides the proportion of different foods.

Discuss how certain foods (i.e. tea) can interfere with iron absorption.

ADAPTATION: Use your local nutrition framework (with the right number of food groups) to outline the serving sizes.

Food Group	Amount to Serve
1. Staple	4 parts (e.g. 4 tablespoons for a young child)
2. Legume and nuts	2 parts
3. Animal foods	1 part
4. Dark green leafy and/or yellow vegetables	1 part
5. Fruits	1 part
6. Fats and substitutes	Small amount



### Nutrition for Young Children (age 2-3)

- By age 2 most children are breastfed infrequently.
- Children between 2 and 3 years old should eat 4-5 times daily including meals and snacks.
- Their energy need is higher than younger children, so larger servings at meals are recommended.
- By age 2 most children can hold a cup well and feed themselves with utensils, although they may still prefer to use their hands.

#### Facilitator Notes:

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## Slide 18

Children by age 3 have increased appetites; and they eat more quickly so they can eat more at each meal. Their food needs for their size are less than a younger child so they can eat less often. However, until the child is 5 years old, parents should make certain that the child is eating adequately and getting their fair share of the most nutritious foods, which may be in short supply. Children in this age group may not be able to eat a large serving of a staple food, but they need plenty of the other foods which are rich in protein and micronutrients. For example, they need protein-rich and vitamin A and vitamin C-rich foods daily.

Special attention needs to be given when children have poor appetites or when they are ill and their appetite is reduced. Hygiene and safe food preparation continue to be important for preschool children as it is for the entire family.

Complementary health interventions for children in this age group include: de-worming, vitamin A and immunization. They, along with good nutrition, are critical to support good health and nutrition status.



### Nutrition for Preschool Children (3-5 Years)

- From age 3 to 5, the recommended number of feeding times is similar to younger children: 3 meals and 1-2 nutritious snacks.
- As children grow they increase in weight, and as a result, require more food. Increasing portions of foods served can accommodate this.
- Children at this age need to eat plenty of energy-rich and nutrient-rich foods from all food groups during family meals.

#### Facilitator Notes:

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**Slide 19**



**Nutrition for School-Age Children**  
(ages 5-11 years)

- School-age children need diets that allow them to grow, work, play and learn.
- They need 3 meals and 2 snacks each day including foods from all food groups.
- They are at less nutritional risk than younger children because:
  - They grow more slowly than younger children
  - They have become resistant to common infections
  - Their stomachs are bigger so they can eat more at one meal

**Facilitator Notes:**

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## Slide 20

School-age children may be short for their age (or stunted) from having been malnourished when younger. Children living in food insecure HHs may not have nutritionally adequate diets and may regularly suffer from hunger if they are not able to eat much in the morning or at midday. They often walk long distances to school with little or no breakfast. Further, short term hunger has been linked with poor concentration and poorer capacity to learn. This is one of the reasons why school feeding programs exist.

(Facilitator should ask participants: What should be considered in relation to which meals and when they should be served for school feeding programs? *Answer: What the children generally eat in the morning prior to coming to school? The hours school is in session and when the lessons are scheduled? Serving breakfast is usually more important than serving lunch, given the length of the school day. Depending on the food availability in the area, 1 or 2 meals should be served.*)

School age children may be anemic or vitamin A deficient due to iron and vitamin A deficient diets or from infections. In countries where iodine deficiency is endemic, school age children are at high risk for iodine deficiency.



### Nutrition for School-Age Children (ages 5-11 years) cont.

However, school-age children can be malnourished:

- Children living in food insecure HHs may not have nutritionally adequate diets
- Some are short for their age (stunted)
- Some have micronutrient deficiencies

#### **Facilitator Notes:**

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## Slide 21

Adolescence is the 2nd largest growth spurt after the time of birth to five years of age. More calories, protein and iron are needed during adolescence. Girls need an estimated 10 percent more calories and boys need 20 percent more. Boys need more calories compared to girls as they are growing more and laying down more muscle. It is hard to pinpoint the exact timing of the adolescent growth spurt. It can be delayed due to malnutrition and can also add to stunting if insufficient macro and micronutrients are not available. On the other hand, in some cases when an adequate diet is provided, catch up growth occurs at this time.

Girls grow and develop until they are about 15-17 years old. If they become pregnant before they finish growing, they have the additional nutrient needs of pregnancy added to the increased nutrient needs of a growing adolescent. Thus, they need to eat a higher calorie diet based on the increased nutrient demands of pregnancy, in addition to the nutrient needs of adolescence. Pregnant adolescents have a higher risk of complications and of delivering prematurely or having LBW infants. They especially need to eat iron-rich foods otherwise they may become anemic. Micronutrient supplements, particularly for iron are critical for pregnant adolescents. However, getting sufficient calcium and other nutrients is also important.

(The facilitator should ask participants about the risks an anemic women faces in pregnancy as mentioned in earlier slides in the module.)



### Nutrition for Adolescents (11-18 years)

- Adolescence is a time of rapid growth and sexual maturation. From age 11 to 16, adolescents experience an 'adolescent growth spurt'.
- Extra food and nutrients are needed to support this growth -- this is particularly true for boys.
- Adolescent girls need iron-rich foods after they start to menstruate.
- Adolescent girls who become pregnant have particularly high nutrient needs.

#### Facilitator Notes:

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## Slide 22

The Basic Nutrition and Healthy Eating Module provided information on how to plan a healthy diet for adults.

The facilitator should ask the participants: why might it be difficult for women to obtain the iron they need? Probe: socio-cultural norms re: men eating first, etc.



### Nutrition for Adults (Age 19-59)

- Adults need nutritionally balanced diets including foods from each of all food groups of sufficient quantity.
- Foods should be prepared and stored hygienically to prevent illness
- Men need more calories than women, but women need more iron.
- Men have a lower risk of becoming malnourished than women.

#### Facilitator Notes:

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### Slide 23

Elderly people need diets with 15-20% less calories. Their diets should include less staple foods, fat and sugars than younger people. They need to eat enough fiber to prevent constipation and less animal sources of iron. They may prefer foods which are soft and easy to eat and swallow, especially if they lack teeth. Foods such as, milk, eggs, thin porridge, mashed beans and groundnuts, thick soup, boiled vegetables and mashed or soft fruits are recommended. Most older people cannot eat large meals, and prefer to eat smaller meals or snacks several times a day.

Elderly people often have decreased appetites due to biological changes and are often less physically active (except for HH headed by the grandparents). They may take medications that affect the absorption of food as well as appetite. They may also experience side effects from the medication that affect food intake.

Many older people are well fed because they live with families who care for them. However, some older people are undernourished. Elderly persons may be at risk of malnutrition if they live in food insecure HHs; if they are caring for or supporting grandchildren; if they live alone and have no relatives to help them; or if they have lost their teeth and find it difficult to eat food which needs to be chewed. Women also face the risk of osteoporosis if calcium needs are not met.



## Nutrition for the Elderly (60 years +)

- A healthy balanced diet helps older people stay healthy and active, and resist infections.
- As people age they usually become less active and need less energy, but they still have the same protein and micronutrient requirements.
- This means they need to select more nutrient rich diets.
- Elderly women need less iron as they no longer menstruate.

### Facilitator Notes:

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## **Exercises for Module 2**

## **Exercise 1: Making Programs for Infants and Young Children more Nutrition Focused**

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The facilitator should ask the participants to divide into groups of four. Each group should apply the directions below to an actual nutrition program targeted to pregnant and lactating women, and their infants and young children. Group members should briefly describe the nutrition program that they have selected. If participants are not currently involved in nutrition programming to this target group, the following example may be utilized:

### Example—A Maternal and Child Health and Nutrition (MCHN) Component for a Title II Program

A Title II program MCHN component includes the provision of a supplemental food package to children between 6 months and 5 years who are identified as underweight (low weight compared to children of the same age) through growth monitoring at health centers in areas identified to be food insecure. Given staffing constraints, although the weights are plotted on growth charts, health center staff is not well trained or supervised. Thus weights may be plotted incorrectly and children incorrectly selected for the program.

There is little time to assess why the child may be underweight, counsel the mothers on how this could be improved or to develop recommendations jointly (mother and health staff) to address the problem. All children receive food for 3 months regardless of improvement. Children failing to improve are not regularly referred for clinical investigation. While mothers are waiting for their children to be weighed, food demonstrations utilizing the commodities (CSB and oil) are provided.

- Review the PowerPoint presentation, particularly the information on the inter-generational cycle of malnutrition. With this in mind, how might you change this program to increase impact? Explain the rationale for the recommended changes.
- How would you address some of the problems identified in the program, i.e. the poor quality of growth monitoring and lack of time to individually counsel mothers with underweight children?
- What nutritional and health information might be helpful to provide to the mothers of underweight children?
- Would you suggest any changes to the provision of food assistance? If so, what would be the changes?
- Can you suggest linkages with the health facility that could improve the nutritional status of the underweight children?
- How might your program better support the health center? Do you currently have the most appropriate staffing mix?

The groups should be provided 20-25 minutes to discuss the questions and develop their responses. Depending on the number of groups, each team can then present 3 key learnings from the exercise—5 minutes maximum. For example, “I never realized....”

Below are some of the possible answers to the questions in this exercise. This page may be handed out at the end of the exercise when groups are ready to discuss (Handout 3).

For greater potential program impact, children between 6 months and 2 years old should be targeted. (See the slide on the intergenerational impact of malnutrition.) The rationale: the brain develops during the first 2 years of life, thus adequate nutrition is critical during this period. Children are also nutritionally vulnerable at this time and when stunting occurs it is difficult to reverse.

Another possible suggestion includes improving the training of health workers in weighing children along with their supervisors. Working with the supervisors to develop a plan of supervision is also called for. Individual counseling supports improved feeding and health behaviors, however, the health workers need to be trained in how to do this and provided with supervision. Referrals of children failing to gain weight for follow-up with a health professional may need to be facilitated or supported.

See slides that discuss the nutrition needs and problems of young children between 6 and 24 months.

This point is mostly for discussion as there are reasons to support changing the provision of food assistance and reasons not to. This would depend on the objectives of the food assistance. Is it provided to encourage attendance particularly for the children who are underweight? Is it to improve nutritional status, decrease underweight? If so, this may be difficult to improve if the child enrolled is underweight due to stunting, although the supplement will provide the child more protein and micronutrients.

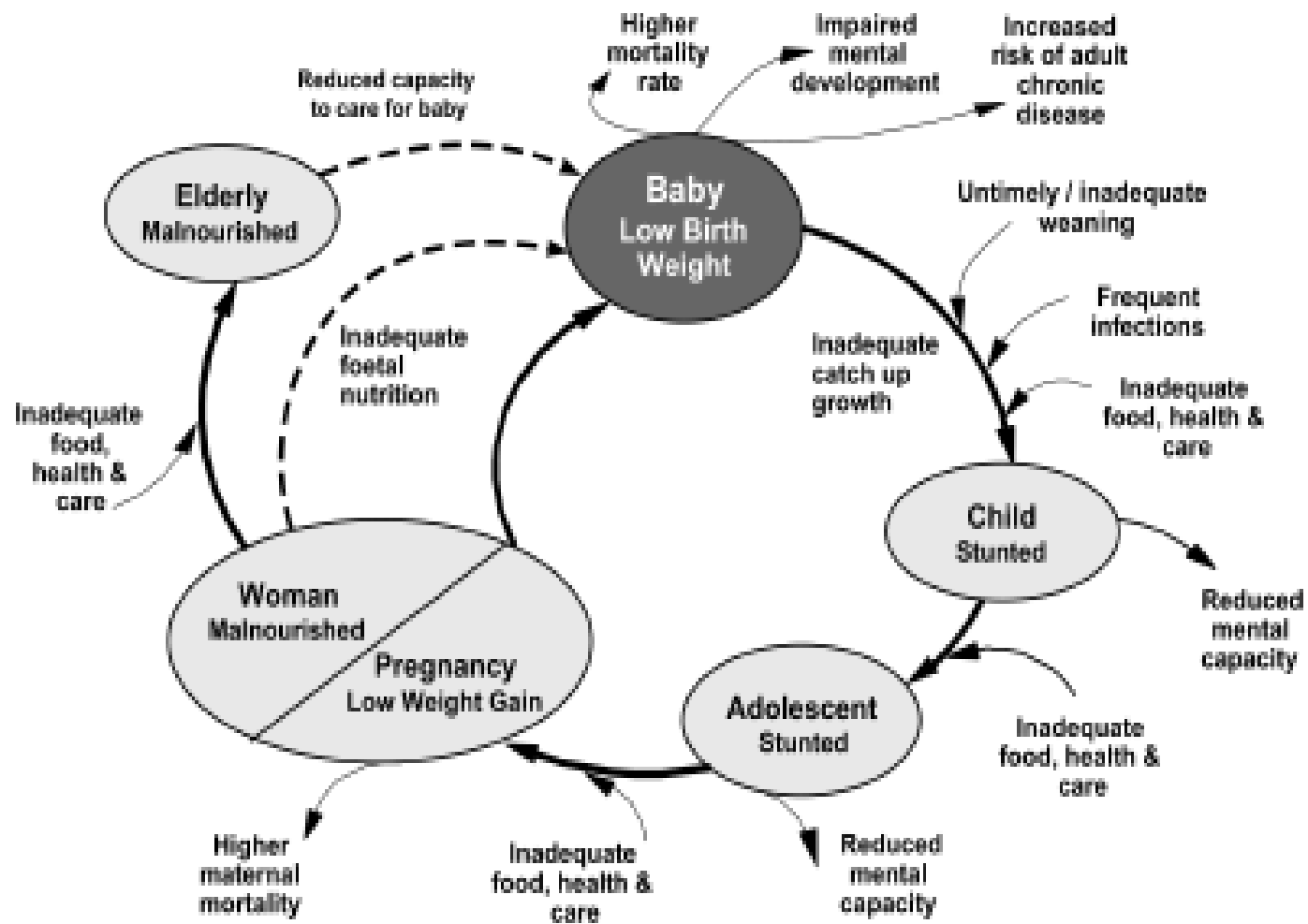
It is important to ensure that the children receive adequate health care, which includes immunizations being up-to-date, periodic de-worming, receipt of vitamin A and iron according to national protocols. They should also be treated for any infections.

Training in identified weak areas could help improve and support program activities. With regards to staffing, it is important to ensure both leadership and technical capacity for nutrition programming.

## **Handouts for Module 2**



## Handout 1: Nutrition throughout the life cycle



### ***Nutrition throughout the life cycle***

Source: Commission on the Nutrition Challenges of the 21st Century (1999). *Ending Malnutrition by 2020: An agenda for Change in the Millennium*. Final Report to the ACC/SCN.

## Handout 2: Nutritional Needs during Pregnancy and Lactation

Table 3. Summary of Increased Nutritional Needs<sup>a</sup> during Pregnancy and Lactation<sup>6-7</sup>

Nutrient	Increase in pregnancy			Increase in lactation		Food sources (with nutrient value of cooked portions) <sup>c</sup>	Health actions	
	Non-pregnant, non-lactating woman	1 <sup>st</sup> trimester	2 <sup>nd</sup> trimester	3 <sup>rd</sup> trimester	0-6 months			7-12 months
Energy	2200 kcal	+0 kcal	+240 kcal	+452 kcal	+500 <sup>b</sup> kcal	+400 kcal	<p>All oily, starchy, and protein foods contribute significant calories</p> <ul style="list-style-type: none"> <li>1 cup rice =267 kcal</li> <li>1 corn tortilla =66 kcal</li> <li>1 cup cassava =204 kcal</li> <li>1 white bun (bread) (35g) =90 kcal</li> <li>1 cup potatoes =135 kcal</li> <li>1 Tbsp oil or fat =90 kcal</li> </ul>	<p>Advise families that pregnant women need extra food each day (one or more servings of the staple food) and that lactating women need an extra meal.</p> <p>Counsel families that reducing the woman's workload and ensuring opportunity for rest will help her conserve energy.</p> <p>Monitor weight gain during pregnancy.</p>
Protein	46 grams			+25 grams			<p>Animal source foods, fish, pulses/legumes</p> <ul style="list-style-type: none"> <li>70 g chicken, stewed =19 g</li> <li>1 egg (raw or cooked) =6 g</li> <li>1 cup cow's milk =9.6 g</li> <li>1 cup dried beans, peas, lentils =16-18 g</li> <li>100 g tempeh or tofu =18 g</li> </ul>	<p>Promote favorable intra-family food distribution by educating men and older women.</p> <p>Improve food and economic security and, in rural areas, promote small livestock production.</p> <p>Counsel pregnant women and their families on the need for protein and identify local foods rich in protein.</p>
Vitamin A	700 RAE <sup>d</sup>		+70 RAE		+600 RAE		<p>Liver, eggs, dark orange and yellow fruits and vegetables, dark green vegetables, red palm oil, fortified oils or other fortified products</p> <ul style="list-style-type: none"> <li>1 chicken liver (20g) =983 RAE</li> <li>1 whole egg =229 RAE</li> <li>1 whole carrot =1010 RAE</li> <li>1 cup cooked greens =150 RAE</li> <li>1 cup cooked pumpkin =1325 RAE</li> <li>1 medium mango =321 RAE</li> </ul>	<p>Promote increased consumption and production of fresh or dried fruits and vegetables.</p> <p>Initiate or strengthen systems for prenatal and postpartum supplementation.</p>
Iron	18 mg		+9 mg		+0 mg		<p>Animal source foods such as red meats, red organ meats, poultry, fish; fortified foods; beans and some green leafy vegetables</p> <ul style="list-style-type: none"> <li>3.5 oz/100g red meat =2.5 mg</li> <li>3.5 oz/100g liver =4.3 mg</li> <li>1 cup black beans =3.6 mg*</li> <li>1 cup lentils =6.6 mg*</li> <li>1 cup spinach =2.7 mg*</li> </ul> <p>* (when eaten with foods high in vitamin C)</p>	<p>Promote supplements during pregnancy and consumption of iron-fortified foods where available.</p> <p>Counsel on coping with side effects of supplements.</p> <p>Promote consumption of iron-rich foods and foods that enhance absorption (meat, fish, poultry, and vitamin C-rich foods).<sup>8</sup></p> <p>Suggest alternatives to tea or coffee with meals.</p> <p>Prevent and treat malaria in endemic areas per WHO protocols for pregnant women.</p> <p>Implement deworming programs.</p>

Folate	400 µg	+200 µg	+100 µg	Dark green leafy vegetables, legumes, nuts, liver 3.5 oz/100g liver =217 µg 1/2 cup peanuts =106 µg	Counsel women to increase consumption of folate-rich foods. Provide supplements (combination of iron-folic acid), particularly during first weeks of pregnancy.
Iodine	150 µg	+70 µg	+140 µg	Sea food, iodized salt 3.5 oz/100g marine fish or shellfish =80 µg	Promote consumption of iodized salt. Where iodine deficiency is endemic and iodized salt is not available, supplementation may be needed.
Calcium	1000 mg	+0 mg		Milk and milk products, whole fish (including bones), dark green leafy vegetables, legumes 1 cup whole milk or yoghurt =306 mg 1 cup dark leafy green vegetables =150-300 mg 1 cup white beans or chickpeas =95 mg	Promote consumption of calcium-rich foods throughout the life cycle.
Zinc	8 mg	+3 mg	+11 mg	Organ meats, red meat, poultry, whole fish 3.5 oz/100g liver, kidney =4.2-6.1 mg 3.5 oz/100g beef, pork =2.9-4.7 mg 3.5oz/100g seafood (fish, etc) =0.5-5.2 mg	Promote small livestock production and aquaculture for targeted feeding of children and pregnant and lactating women. Promote germination and fermentation to reduce phytate in cereal-based diets.

6-7. Food and Nutrition Board, Institute of Medicine, Dietary Reference Intakes, forthcoming and 2002.

#### Notes:

- a "Needs" are the estimated average requirement for energy and the recommended dietary allowances for all other nutrients.
- b Caloric requirements during lactation assumes that the mother has no energy stores to contribute, so all the energy in breastmilk is derived from the mother's diet.
- c All examples are for cooked foods unless otherwise stated. Protein, iron, iodine, and energy are unaffected by cooking, but significant folate is lost. Iodine decreases with storage and high humidity. Vitamin A (beta-carotene) is lost with high heat and with chopping leafy vegetables.
- d RAE = retinol activity equivalent, equal to the activity of 1 µg of retinol (This is different from the older "retinol equivalent" which used different conversion factors for provitamin A carotenoids in foods.)
- e Iron from animal sources is more readily absorbed and utilized than iron from plant sources. Animal foods also enhance the absorption of iron from other sources.



Source: <http://www.aed.org/upload/MaternalNutritionDietaryGuide.pdf>

### Handout 3: Possible Answers to Exercise 1

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- For greater potential program impact, children between 6 months and 2 years old should be targeted. (See the slide on the intergenerational impact of malnutrition.) The rationale: the brain develops during the first 2 years of life, thus adequate nutrition is critical during this period. Children are also nutritionally vulnerable at this time and when stunting occurs it is difficult to reverse.
- Improving the training of health workers in weighing children along with their supervisors. Working with the supervisors to develop a plan of supervision is also called for. Individual counseling supports improved feeding and health behaviors, however, the health workers need to be trained in how to do this and provided with supervision. Referrals of children failing to gain weight for follow-up with a health professional may need to be facilitated or supported.
- See slides that discuss the nutrition needs and problems of young children between 6 and 24 months.
- This point is mostly for discussion as there are reasons to support changing the provision of food assistance and reasons not to. This would depend on the objectives of the food assistance. Is it provided to encourage attendance particularly for the children who are underweight? Is it to improve nutritional status, decrease underweight? If so, this may be difficult to improve if the child enrolled is underweight due to stunting, although the supplement will provide the child more protein and micronutrients.
- It is important to ensure that the children receive adequate health care, which includes immunizations being up-to-date, periodic de-worming, receipt of vitamin A and iron according to national protocols. They should also be treated for any infections.
- Training in identified weak areas could help improve and support program activities. With regards to staffing, it is important to ensure both leadership and technical capacity for nutrition programming.

## References for Module 2

### Resources Consulted

Pan-American Health Organization (PAHO) and World Health Organization (WHO). 2003. "Guiding Principles for Complementary Feeding of the Breastfed."

World Food Program (WFP). 2000. *Food and Nutrition Handbook*. Rome: WFP.  
<http://foodquality.wfp.org/FoodNutritionalQuality/WFPNutritionPolicy/tabid/362/Default.aspx>

Latham, Michael. 1997. *Human Nutrition in the Developing World*. FAO.  
<http://www.fao.org/DOCREP/W0073e/w0073e00.htm>

<http://www.fao.org/docrep/W0073E/W0073E00.htm>

Savage King, Felicity and Ann Burgess. Second Edition, 1993. *Nutrition for Developing Countries*. Oxford Medical Publications.

LINKAGES and Child Survival Collaborations and Resources (CORE). 2004. "Maternal Nutrition During Pregnancy and Lactation." Washington, DC: LINKAGES Project, AED.

United States Agency for International Development (USAID). 2006. "PVO Child Survival and Health Grants Program, Technical Reference Materials Nutrition."

A2Z Micronutrient and Child Blindness Project, ACCESS Program, and Food and Nutrition Technical Assistance (FANTA) Project. August, 2006. "Maternal Anemia: A Preventable Killer." Academy for Educational Development (AED) and JHPEIGO.

Emergency Nutrition Network (ENN). December 2004. "Infant Feeding in Emergencies, Module 2, Version 1.0". ENN.

WHO. 2005. "Report of a WHO Technical Consultation on Birth Spacing". Geneva: World Health Organization.

### Recommended Reading

Burgess, Ann and Peter Glasauer. 2004. *Family Nutrition Guide*. Rome: Food and Agriculture Organization (FAO).

Pan-American Health Organization (PAHO) and World Health Organization (WHO). 2003. "Guiding Principles for Complementary Feeding of the Breastfed."

LINKAGES and Child Survival Collaborations and Resources (CORE). 2004. "Maternal Nutrition During Pregnancy and Lactation." Washington, DC: LINKAGES Project, AED.

LINKAGES. April, 2004. "Facts for Feeding: Guidelines for Appropriate Complementary Feeding of Breastfed Children 6-24 months of Age". Washington, DC: LINKAGES Project, AED.

# **Module 3: Introduction to HIV and AIDS**

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## **Overview of Module 3**

### **Title of the Module**

Introduction to HIV and AIDS

### **Purpose of the Module**

The purpose of this module is ensure that participants understand basic information about HIV and AIDS

### **Learning Objectives**

- Learn what HIV and AIDS are
- Be aware of modes of transmission of HIV
- Distinguish the difference between HIV and AIDS

### **Estimated Time**

PowerPoint Presentation: 60 minutes

Exercise 1: 45 minutes

*Total estimated time: 1 hour and 45 minutes*

### **Prerequisite Modules**

It is recommended that the facilitator cover all preceding modules *prior to* tackling the current one.

### **Materials Required**

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments and handouts of exercises

### **Recommended Preparation**

The facilitator should have covered all preceding modules and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.

Assess the level of knowledge of the participant audience to determine the length of time to be allocated to activities in this module.

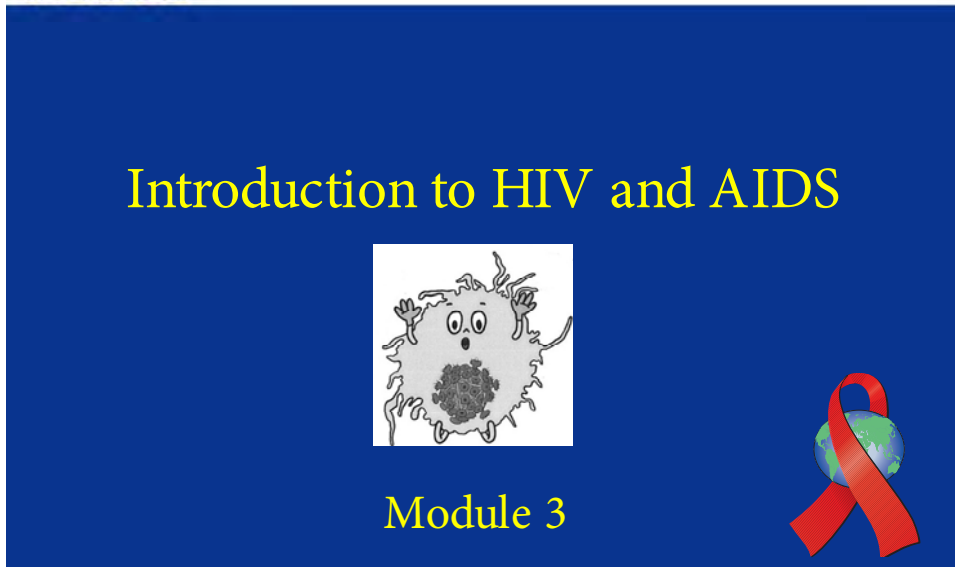
Review the exercise carefully and prepare necessary materials.

***Review reference materials and other recommended readings.***

## Facilitator Notes for Module 3

### Slide 1

The facilitator should use this slide to introduce the session. The facilitator may start the session by asking participants to share aloud what they think HIV and AIDS are. This is a nice way of engaging participants in a participatory manner at the beginning of the session.



**Facilitator Notes:**

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## Slide 2

This module will look at what the Human Immunodeficiency Virus (HIV) and Acquire Immune Deficiency Syndrome (AIDS) is. The purpose of this module is to give an introduction of HIV to include: What is it? How can you get it (transmission)? How can you protect yourself from getting HIV? How is HIV diagnosed? After a person gets HIV, what happens to the body? What is the difference between HIV and AIDS? How does someone stay healthy while HIV positive?



**Goal :** To understand basic information about HIV and AIDS

### Objectives

- Learn what HIV is
- Understand the modes of HIV transmission
- Know the difference between HIV and AIDS

### Facilitator Notes:

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### Slide 3

Definition of HIV: HIV is a virus that attacks the immune system by killing white blood cells. HIV travels or is transmitted in bodily fluids from one person's body to another.



## What is HIV?

Human  
Immunodeficiency  
Virus

**Immunodeficiency:** the immune system is damaged and not functioning as well as normal

### **Facilitator Notes:**

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#### Slide 4

When a person wants to know if they have gotten HIV, they go to get a blood test. This test does not test directly for HIV. It tests for the antibodies that their body/ immune system produces in order to fight the virus. It can take up to 3 to 6 months after infection for the body to make enough antibodies that it is detected by the HIV test.

People are most often diagnosed through a service called VCT or Voluntary, Counseling and Testing. Voluntary implies that the person going for testing is choosing to be tested.

Counseling is available for someone getting tested so that they:

- Understand what it means to be tested for HIV (the implications of a positive test)
- To have support if they find out they are HIV positive (emotional and psychological support, referral and linkages to needed services)
- To understand the modes of transmission of the virus so that they can lower or remove their risk in the future of getting or transmitting the virus

Testing is the blood test. This test can be rapid and produce immediate results or the person may have to come back in a week or more after the blood has been taken. It depends on the policy of the health facility they are visiting and/or the type of test they are taking.



### How do people find out their HIV status?

- **Voluntary Counseling and Testing (VCT):**
  - Testing for HIV is sought out by the patient at a clinic created for this purpose
- **Provider Initiated Testing and Counseling (PITC):**
  - Testing for HIV is part of a routine set of tests initiated by the doctor during a visit

#### **Facilitator Notes:**

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## Slide 5

Discuss the six month 'window' in which a person may have been exposed to the virus, but has not yet developed the antibodies. During this time, a person is 'seroconverting.'



## Diagnosis

- **ELISA:** most common test to detect HIV antibodies in the blood
- **Western Blot Assay:** this test is used to confirm positive results obtained by the ELISA
- **Indirect fluorescent antibody (IFA):** Also used to confirm positive results obtained by the ELISA, however, it is more expensive than a Western blot test and not commonly used.

### **Facilitator Notes:**

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**Slide 6**



## Infant Diagnosis

- **PCR test** (Polymerase Chain Reaction test): referred to as Nucleic Acid-amplification Testing or 'NAT'. PCR tests detect the genetic material of HIV itself, and can identify HIV in the blood within two or three weeks of infection.
- PCR tests come in two forms: **DNA PCR and RNA PCR**. Babies born to HIV positive mothers are usually tested using a DNA PCR because they retain their mother's antibodies for several months, making an antibody test inaccurate.

[www.avert.org](http://www.avert.org)

**Facilitator Notes:**

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**Slide 7**

HIV=Human Immunodeficiency Virus; means the immune system is compromised and may not function as well as normal.

AIDS=Acquired Immune Deficiency Syndrome; means the immune system is functioning at an extremely low level. This is when people fall ill.



## What is the difference between HIV and AIDS?

**Diagnosis of HIV infection:**

HIV blood test – positive result

AIDS=Acquired Immune Deficiency Syndrome

**Diagnosis of AIDS:**

HIV blood test positive

CD4 count below 200

Clinical Stage 4 criteria

**Facilitator Notes:**

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## Slide 8

CD4 cells are also called "T-cells" or "helper cells"; they are a type of immune cell. AIDS is also defined by numerous opportunistic infections and cancers that occur in the presence of HIV infection (WHO stage IV).



## What is AIDS?

- AIDS is the final and most serious stage of HIV disease, which causes severe damage to the immune system.
- AIDS begins when a person with HIV infection has a CD4 cell count below 200.

New York Times Health Guide

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### Facilitator Notes:

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## Slide 9

CD4 cells are counted per cubic milliliter of blood. Normal CD4 counts in adults range from 500 to 1,500 cells per cubic milliliter (cml) of blood. In people with HIV, their CD4 count generally goes down as their viral load goes up.

These numbers for CD4 count threshold are changing. Many countries are starting treatment at CD4 250 and at 350 for pregnant/lactating women.

ADAPTATION: find out what the CD4 threshold for access to treatment is in your country.



### CD4 (Helper T-Cells) help define AIDS

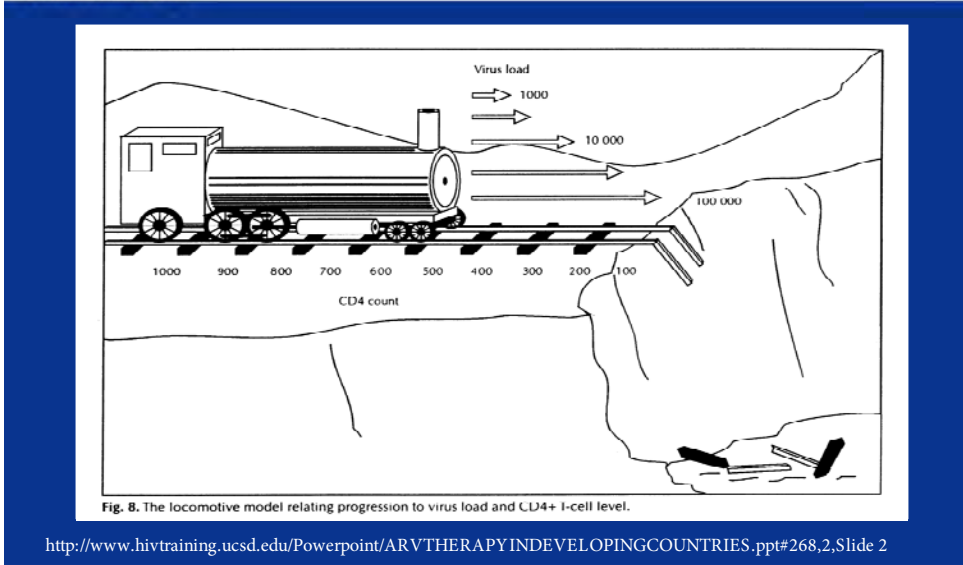
- CD4 are white blood cells. They are one kind of Helper T-Cell and are the favored target of HIV
- $CD4 < 200$  cells/mm<sup>3</sup> and HIV positive = AIDS
- $CD4 > 200$  and HIV positive, = HIV
- A healthy HIV- individual's CD4 count ranges from 500 to 1500 cells/mm<sup>3</sup>

#### **Facilitator Notes:**

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**Slide 10**

This is a diagram depicting the relationship between the viral load and CD4 count. As the CD4 count lowers, the viral load increases.



**Facilitator Notes:**

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## Slide 11

WHO has changed the number of major and minor signs used in their criteria in the past. Please verify that this is still correct according to WHO criteria at the time of the training.

Note: The standards for Pregnant/Lactating Women, Infants and Children are different.



### WHO Clinical Stage 4 Criteria

for non-pregnant & non-lactating adults

2 major signs & 2  
minor signs

(in absence of other  
explanation)

#### Major signs:

1. Weight loss > 10%  
body weight
2. Diarrhea > 1  
month
3. Fever > 1 month

#### Example Minor signs:

- Widespread enlarged lymph glands
- Persistent cough for more than 1 month
- Thrush (candida) of mouth & throat
- Recurring shingles (herpes zoster)
- Chronic, severe, spreading cold sores (HSV1)
- Loss of memory
- Loss of intellectual capacity

#### **Facilitator Notes:**

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## Slide 12

There are many ways that someone can get HIV. An individual can get HIV through sexual intercourse with someone who is HIV positive, through a transfusion of HIV positive blood, through sharing a needle when injecting drugs with someone who is HIV positive... and a mother who is HIV positive may pass the virus on to her baby when she is pregnant, giving birth or breastfeeding.



Note to the Facilitator: The most common mode of transmission may vary depending on where this presentation is being given. If it is in a country where the HIV prevalence is high (> 5%), then the 'sexual' mode of transmission would be the highest. If this presentation is given in a country with a low HIV prevalence, transmission could be most common in either both blood to blood transmission (sharing of needles among drug users) or through sexual transmission. In some low HIV prevalence countries, blood to blood transmission may be more common than sexual transmission.



## How does someone get HIV?

What are the modes of transmission?



1. Sexual 
2. Blood 
3. Mother-to-Child Transmission

Which mode is most common in your country? Most efficient?

**Facilitator Notes:**

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### Slide 13

It's important to mention that HIV is passed from one person to another in body fluids. If HIV is outside of body fluids, it dies quickly. This is why people who are HIV positive cannot give it to someone else through ordinary day to day contact including hugging and kissing. It cannot be given by touching someone with HIV, eating food prepared by those with HIV or drinking from the same glass. It can be transmitted through the following ways... go to next slide.



## How long does HIV live outside the body?

HIV does not survive for long outside of the human body.

If the HIV is 'naked' – i.e. not inside a human cell (such as blood) – then it dies within 10 to 30 seconds when exposed to air and light.

However, when it is 'protected' by being inside blood cells, it can survive for much longer.

### Facilitator Notes:

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## **Slide 14**

### Risk Factors

It has been shown that people are at higher risk of getting HIV if they are sexually active with someone who has HIV and they have STIs at the same time (STIs are sexually transmitted infections). STIs can cause irritation and break down the skin or other physical barriers that would normally block some of the HIV virus from entering the body. By having one or more STIs, it increases an individual's chance of getting HIV from someone else.

Similar to STIs, anal sex increases an individual's chance of getting HIV because the act of anal sex causes more than usual irritation or break down of the skin or other physical barriers. There are also more blood vessels in the anus giving HIV direct access into the body.

Viral load simply refers to the amount of virus or HIV present in a person's body. If a person has a high viral load (or a lot of virus) and has sex with someone, there is a higher chance that the virus will find its way past the body's physical barriers and into that partner. HIV medication, otherwise called Antiretroviral Therapy (ART), helps with lowering an individual's viral load.

Gender becomes a factor when a woman does not have the power to advocate for herself and protect herself.

Recent studies have shown that male circumcision has a significant protective effect on HIV transmission during vaginal sex.

People can protect themselves from getting HIV through sexual transmission by doing one of three things:

- Abstinence – don't have sex and the person won't get HIV through sexual contact.
- Be Faithful – only have sex with one person who is not having sex with anyone else (monogamous relationship). Both people need to come into the relationship HIV negative.
- Condoms – condoms if worn correctly and every time that you have sex can greatly reduce the chance of getting HIV. Condoms are a physical barrier between the fluids that carry the virus and the people having sex. CRS provides full and accurate information on condoms, but does not promote, distribute or purchase them.
- Some countries are using 'D' for Delay (of first sexual experience, or 'sexual debut').



## Sexual Transmission of HIV

### Risk Factors:

STIs, anal sex, high viral load,  
multiple concurrent sexual  
partners, SES factors, gender,  
uncircumcised male partner

### Protection: ABC

Abstinence

Be Faithful

Condoms

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### **Facilitator Notes:**

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## Slide 15

The most efficient or quickest way to get HIV is to find a way to put the HIV virus directly into your blood stream. This is accomplished by people who use needles to take drugs and then share these needles with other people. HIV lives only a short time outside of the human body, but can live a long time when it is in serum or liquid of the blood. HIV can live a long time in a used needle. Since HIV is microscopic or not visible to the human eye, a small amount of liquid may still be in a used needle, but not be visible to the person using it. Scarification, piercing, ritual/unhygienic circumcision (male or female) and tattooing can spread HIV from an infected person to others.

WHO estimates that 5-10% of worldwide HIV infections are due to unsafe health care practices (WHO, 2002); UNAIDS estimates only 2.5% of infections occur from sharing needles to inject drugs.



### **Blood Transmission:**

Contaminated blood transfusion and other needle related health care practices



Sharing of needles among drug users and scarification

**Most efficient!**

### **Facilitator Notes:**

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**Slide 16:**

More will be discussed on this topic in another module.

The facilitator should be sure to emphasize that transmission is reduced when mothers are on antiretroviral treatment or receiving other interventions as part of a PMTCT program. Treatment (ART) can dramatically reduce a mother's chance of transmitting HIV to her baby. In the US for example, the risk of transmission is less than 1% if the mother knows early in her pregnancy that she is HIV positive and follows the doctor's guidance/instructions.

In some countries, this is called Parent-to-Child-Transmission, to remind us that BOTH parents are responsible and to reduce tendencies to blame mothers.



## Mother to Child Transmission



Approximately 30% of children born to HIV positive mothers will become positive **if no action is taken to prevent transmission.**

Transmission can take place in the womb (during pregnancy), birth (during labor) or through breastfeeding (additional 10-15%).



**Facilitator Notes**

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## Slide 17

It is widely believed that HIV is the result of an animal to human transfer of a simian immunodeficiency virus.

HIV-1, the retrovirus that is responsible for the AIDS pandemic, is closely related to a simian immunodeficiency virus (SIV), which infects chimpanzees.

HIV-2, which is prevalent in West Africa and has spread to Europe and India, is almost indistinguishable from an SIV that infects sooty mangabey monkeys.

An animal source for a new infection is not unique to HIV. The bubonic plague in Europe came from rodents. Influenza reached humans via pigs.

Once HIV became established in humans, it soon followed human habits and movements.



### Where did HIV come from?

It is widely believed that HIV is the result of an animal to human transfer of a simian immunodeficiency virus. There are 2 types of HIV:

Species	Virulence	Ease of Acquisition	Prevalence	Purported origin
HIV-1	High	High	Global	Common Chimpanzee
HIV-2	Lower	Low	West Africa	Sooty Mangabey

### Facilitator Notes:

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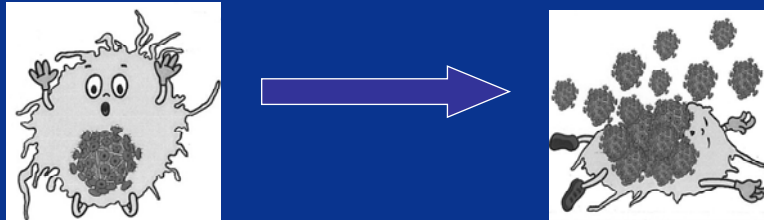
**Slide 18**

Once transmission has occurred and the virus is in the body... it does the following.



**What does HIV actually do  
in the body?**

HIV enters the 'supervisor' Helper T-cells (CD4 cells), replicates until the Helper T-cell explodes and dies, releasing even more HIV viruses into the blood.

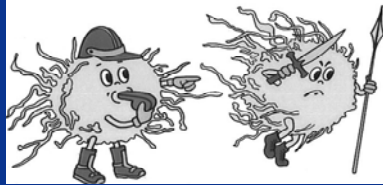


**Facilitator Notes:**

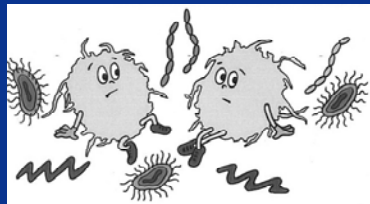
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## Slide 19

Helper T-Cells, also called CD4 cells, are immune system cells which help your body to fight infections. Helper T-Cells are an especially important type of cell because they control the actions of other immune cells to fight infection. Without Helper T-Cells, your body can't fight infections – they go from being armed and ready (top of slide) to confused and helpless (bottom of slide).



The army of fighting cells doesn't know what to do without a supervisor and stops fighting illnesses



### Facilitator Notes:

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**Slide 20**

No, not since the drugs (antiretrovirals) are reaching more people. Now people can get stabilized on their ARVs and have normal, productive lives for several years. Many live long enough to die of other causes such as heart attack or stroke.



Does everyone who becomes infected  
with HIV eventually die of AIDS?

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**Facilitator Notes:**

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**Slide 21**

Refer to Exercise 1 in Module 3.



**Exercise**



**Facilitator Notes:**

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## Slide 22

AIDS is a collection of diseases that would never pounce on an HIV-negative person with the same amount of force.

For the purposes of understanding the impact of AIDS, it's helpful to have death certificates read: TB secondary to HIV infection (for instance).



## How AIDS Contributes to Death

- AIDS doesn't kill, but it leads to opportunistic infections that can result in death.
- People living with AIDS may die faster than someone else, because their bodies cannot fight these illnesses.
  - e.g. Tuberculosis
  - Malaria
  - Cancers

### **Facilitator Notes:**

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### Slide 23

While the average period for progression is 5-8 years in adults, the real time can vary dramatically from one person to the next depending on a number of factors. Some people have been living with HIV for 20 years without progression to AIDS. Others have become infected with HIV and progressed in just a couple of years. Variables that affect the timeline include the type of virus (there is current research ongoing on the super virus that is thought to have a very fast progression time), nutritional status of the person living with HIV, and other health conditions.

### PROGRESSION OF HIV DISEASE IN CHILDREN

According to AIDSInfo, researchers have observed two general patterns of illness in HIV-infected children. About 20 percent of children develop serious disease in the first year of life and most of these children then die by age 4. The remaining 80 percent of infected children seem to have a slower rate of disease progression. Many of these children may not develop the most serious symptoms of AIDS until school entry or even adolescence. A report from a large European registry of HIV-infected children indicated that half of the children with perinatally acquired HIV disease were alive at age nine. Another study of 42 perinatally HIV-infected children, who survived beyond 9 years of age, found about one-quarter of the children to be asymptomatic with relatively intact immune systems. The factors responsible for the wide variation observed in the rate of disease progression in HIV-infected children are a major focus of the NIAID pediatric AIDS research effort. Research has found that maternal factors, including Vitamin A level and CD4+ T-cell counts during pregnancy, as well as infant viral load and CD4+ T-cell counts in the first several months of life, can help identify those infants at risk for rapid disease progression who may benefit from early aggressive therapy. (<http://aidsinfo.nih.gov>)



### If someone is positive and not receiving treatment....

On average, how many years does someone infected with HIV live before progressing to AIDS?

- For adults, the average period with no major illness is 5-8 years
- For HIV-positive children infected at birth, 70% are alive at 6 years and 50% at 9 years old when there is not access to ARVs

**Facilitator Notes:**

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## **Slide 24**

There is no set limit on how long that person will live.

There are currently PLHIV who have been infected since the early 1980s who are alive and well.

HIV is thought to be almost a “chronic illness”, much like diabetes, when the medical care and treatment required is available, and the PLHIV adheres to this care and treatment.



### **If someone is positive and receiving treatment...**

There is no set limit on how long that person will live.

There are currently PLHIV who have been infected since the early 1980s who are alive and well.

#### **Facilitator Notes:**

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## Slide 25

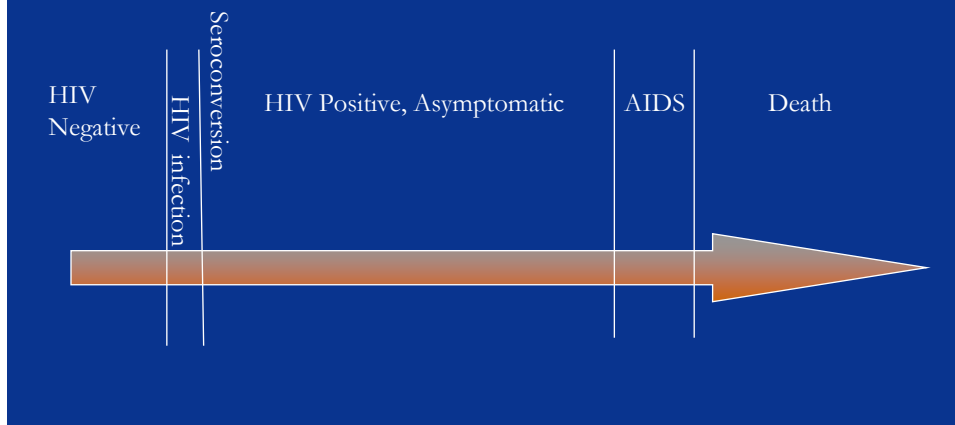
After an individual gets HIV, it takes time for their body to see the virus and form antibodies to fight against it. It can take up until 6 months (at the longest) before enough antibodies are formed to allow a test to show you are HIV positive. This is because tests do not look for the virus, but they look for the antibodies that one's body produces when it recognizes HIV as foreign.

During this initial time that someone is infected with HIV, the virus is going into specific cells (T-helper cells) to replicate itself and kill off the cell. This period of time is known as seroconversion. Often times, people will have symptoms similar to that of a flu. After a few months, these symptoms go away and unless that person is tested, that person will not know they have HIV. People with HIV go through an 'asymptomatic' period where they show no symptoms of being sick. Without antiretroviral treatment, most people will start to get sick between 5-8 years of getting HIV. The virus will have replicated and killed off most of the immune cells. This leaves their body open to getting infections since they don't have the T-helper cells to instruct their immune systems to work properly anymore. The person will then progress to AIDS, which often leads to death due to opportunistic infections.

NOTE: As with any individual throughout their life, they have a life line from birth until death. The presenter should be careful to not give the people being trained the impression that all people who get HIV die prematurely when compared to people who don't get HIV. Treatment (ART) has radically changed the lifespan of a person with HIV.



### HIV and AIDS Progression, without treatment

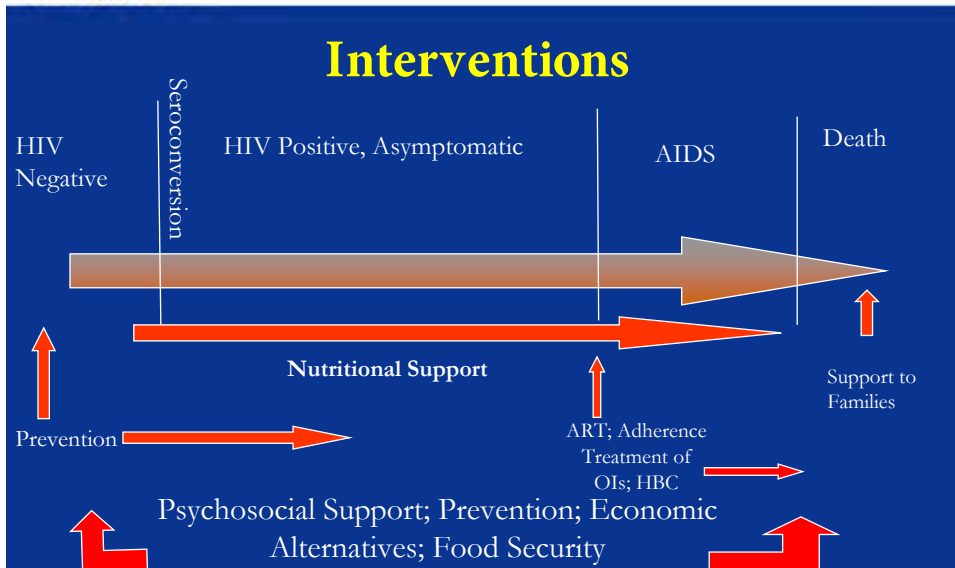


#### Facilitator Notes:

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**Slide 26**

The purpose of this slide is to show the participants that there are many ways of intervening to improve the quality of life as well as extend the amount of time a person lives with HIV.



## **Exercises for Module 3**

## Exercise 1: Elephants and Lions

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**Time: 30 minutes**

**Materials: none**

**Note to facilitator: You can change the animals used based on where you conduct the training.**

Ask for one volunteer. Have the volunteer stand in the front of the room. This person is the baby elephant. Ask for six more volunteers. These volunteers are the adult elephants. Their job is to protect the baby elephant. They should form a circle and join hands around the baby elephant. To show them the importance of their job, the facilitator should try to hit the baby elephant. The adult elephants should stand very close to the baby elephant.

Now, ask for four or five more volunteers. These people are the lions. Their job will be to attack the baby elephant. They should try to (playfully) jab, hit, kick, punch, or whatever they else can do to hurt the baby elephant. When the facilitator says “go”, the lions should try to attack the baby elephant. Let this go on for a few seconds until the baby elephant has at least one contact from the lions, but the baby elephant should not be hurt. Now ask the following questions (the volunteers should stay where they are):

*What is the baby elephant? What does the baby elephant represent?*

Answer: The baby elephant is the human body.

*What are the adult elephants?*

Answer: The adult elephants are the immune system. Its job is to protect the body from invading diseases.

*So, what are the lions?*

There may be a few people who say that the lions are HIV. That is incorrect. Ask another person to try to tell you the meaning of the lions.

Answer: The lions represent the diseases, illnesses and infections that attack a person’s body.

The facilitator now very dramatically goes to each of the lion volunteers one at a time.

Say: “These diseases, such as tuberculosis (touch the first volunteer), malaria (touch the next person), diarrhea, and cholera (touch another person) may attack the human body but are they able to kill the human body?” The answer should be “no.” The human body gets attacked by diseases or germs every day, but the immune system (point to the adult elephants) manages to fight them off and protect the body. The human body might get sick (such as the hit or kick that the baby elephant suffered), but it does not die, because the immune system is strong.

The facilitator continues: “But suppose I am HIV. I come to this body (the baby elephant), and I attack and kill the immune system.” At this point, the facilitator should touch all but two of the adult elephant volunteers and ask them to sit down. Touch each person as you remove them, acting as if HIV is killing the immune system. The facilitator continues: “Now, will the baby elephant be protected? Will the human body be safe with the immune system gone?” Next, the facilitator should again tell the lions to attack (touch only) on the word “Go!” The lions are able to easily get to the baby elephant this time.

Summarize the idea that HIV has killed the immune system. This lack of an immune system makes it possible for diseases like tuberculosis, diarrhea, and so forth, to actually *kill* the person, rather than just make the person sick. To be sure people have understood, you can ask: “Does HIV kill the elephant?” They should say: “No. The diseases killed the person.” Also, ask someone to tell you the difference between HIV and AIDS.

*This exercise is from the Malawi Peace Corps’ Life Skills Education Manual.*

## **Handouts for Module 3**

## Handout 1: HIV and AIDS: The Basics

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### HIV and AIDS: The Basics

#### What is HIV?

H- Human: This virus can only infect human beings.

I- Immunodeficiency: The effect of the virus is to create a deficiency—a failure to work properly—in the body's immune system.

V- This organism is a virus, which means that it cannot reproduce by itself. It reproduces by taking over the machinery of the body's cells.

HIV (Human Immunodeficiency Virus) is the virus that causes AIDS. HIV attacks and breaks down the body's immune system, which is our body's defense against infections and disease. When the immune system is weakened, we lose our protection against illness and can develop serious, life-threatening diseases.

#### How does HIV cause disease?

HIV infects a certain type of white blood cell called the CD4 lymphocyte (also known as the T4 cell or "T-cell"). The CD4 cell is a major component of the immune system that helps keep our bodies free from many kinds of infections and cancers. After a person becomes infected with HIV, the virus determines a "set point," which is its rate of reproduction. As HIV reproduces, it destroys CD4 cells. The body tries to replace these lost CD4 cells, but eventually it is unable to make enough new ones to replace the ones that are lost. This leaves people who have HIV with an inadequate immune system that they cannot ever fix completely.

#### How is HIV transmitted?

People who have HIV/AIDS can give it to others when certain body fluids--blood, semen, vaginal fluids, or breast milk (for infants only)--pass into another person's body. There are three ways that our body fluids can go into another person's body:

- ◆ By having unprotected sex (sex without a condom). This includes vaginal, anal, and oral penetration. Male and female condoms provide the best possible protection against HIV (and other STIs), but they are not 100% effective either.
- ◆ By sharing needles (shooting drugs) with someone who is infected, or otherwise passing blood, like when hospital syringes are used.
- ◆ From a mother to her baby before or during birth, or through breast milk.

#### HIV is NOT transmitted by:

- ◆ Tears, saliva, or sweat. There is no scientific evidence that HIV can be passed through these fluids.
- ◆ Kissing.
- ◆ Casual contact with people who are HIV positive. HIV cannot live outside of the human body, so you cannot be infected from toilet seats, phones, water fountains, or anything else a person with HIV may have touched
- ◆ Mosquitoes or other insect or animal bites.
- ◆ Air. HIV is not transmitted through sneezing or coughing. The virus dies as soon as it leaves the human body.

- ◆ Blood transfusions. Today in developed countries, tests are in place to make sure the blood supply is safe. However, in resource-poor countries, the safety of the blood supply remains an issue.

#### What are the symptoms of HIV?

The earliest symptoms of HIV infection are known as primary HIV syndrome. These symptoms occur soon after a person has been infected and include fever, rash, muscle aches, and swollen lymph glands. However, these symptoms are often misinterpreted as a cold or the flu. Even though a person will not test HIV-positive at this time, they can still pass the disease on to others.

Primary HIV syndrome resolves by itself, and the HIV-infected person usually stays symptom-free for a long time, sometimes years. This is called the clinical latency period. However, during this period, the infected individual can still infect others. During this time, if combination antiretroviral therapy is not started, HIV continues to reproduce, and the CD4 count declines from its normal level of 500-1200. When it drops below 500, the HIV infected person is at serious risk for opportunistic infection.

#### What's an opportunistic infection?

An opportunistic infection is an infection that would not normally make a healthy person sick, but will often make a person with a weakened immune system sick. The infection takes advantage of the opportunity offered by a compromised immune system.

Some common opportunistic infections:

- ◆ Tuberculosis (see TB/AIDS co-infection factsheet for more info)
- ◆ Kaposi's sarcoma: an AIDS-related cancer in which red or purple lesions form on a person's skin and/or internal organs
- ◆ Cytomegalovirus (CMV): a herpes virus that most commonly damages the eyes but can also affect the brain, nerves, colon, stomach or throat
- ◆ Toxoplasmosis: a disease caused by the organism *toxoplasma gondii* which causes encephalitis in the brain
- ◆ Pneumocystis carinii pneumonia (PCP): caused by a fungus, this pneumonia is the most common opportunistic infection in people with HIV.

#### The difference between HIV and AIDS

HIV is the virus that causes AIDS. An HIV-positive person is diagnosed with AIDS when his or her immune system is significantly compromised and manifestations of HIV infection are severe. In an adult or adolescent, AIDS is defined as the presence of one of 26 conditions demonstrating severe immunosuppression associated with HIV infection. Most AIDS-defining conditions are opportunistic infections such as Kaposi's sarcoma or pneumocystis carinii pneumonia. An AIDS diagnosis is also given to HIV-positive individuals whose CD4+ T-cell count is less than 200 cells per cubic milliliter of blood.

#### What is AIDS?

- A- Acquired: it's a condition one must acquire or get infected with, not something transmitted through genes.
- I- Immune: because it affects the body's immune system, which is the body system responsible for fighting disease.
- D- Deficiency: AIDS makes the immune system deficient; that is, it doesn't work properly.
- S- Syndrome: a person with AIDS may experience a variety of different diseases and opportunistic infections.



People who die from HIV/AIDS die not from the virus itself, but from opportunistic infections that their bodies' immune systems are no longer strong enough to fight.

#### Testing for HIV

There are many different kinds of blood tests which test for HIV. Standard HIV tests look for HIV antibodies, which are cells the body makes after HIV enters the blood. It can take up to three months to produce enough antibodies so that they will show up on the test. If an infected person tests too soon during this "window period", the HIV test may not find infection, but the person can still infect others. Another type of HIV test is known as the viral load test which measure what is called HIV RNA. RNA is a part of HIV that knows how to make more virus. Viral load tests are used to diagnose HIV as well as to check the health of HIV-positive individuals and measure the effectiveness of anti-HIV drugs.

#### Treatment for HIV

There are several groups of drugs used to treat HIV infection. Some drugs function by interrupting the virus from replicating itself. Others work by interfering with HIV's ability to enter healthy cells.

Since HIV can become resistant to any of these drugs, it is best to use a combination treatment to suppress the virus. When three or more drugs are used in combination, it is called highly active antiretroviral therapy, or HAART. HAART has been credited with greatly reducing the number of AIDS deaths in the United States but for a variety of reasons, including the high cost of medications, it is available to only 20% of the people who need it in developing countries.

There is currently no cure for AIDS. However, with access to the right drugs, HIV/AIDS becomes a manageable chronic illness rather than the death sentence it was once assumed to be.

#### How to protect yourself

Since there is currently no vaccine available to prevent AIDS, the only way to avoid getting HIV/AIDS is to avoid behaviors that put you at risk.

The easiest way to do this is to use male or female condoms correctly every time you have vaginal, anal, or oral sex. Using condoms will greatly reduce your risk of getting HIV and other sexually transmitted infections.

Reducing the number of sexual partners helps lower the risk. And, for some people, abstaining from sex is an option.

To protect themselves from blood contamination, injected drug users should use new, clean needles every time they use drugs and should avoid mixing drugs in containers used by other drug users.

*To learn more about HIV and AIDS and how the disease affects us, and to get involved in generating the political will to end the HIV/AIDS pandemic, join the Global AIDS Alliance Grassroots Network. Sign up at <http://www.globalaidsalliance.org/getinvolved.cfm> or email [grassroots@globalaidsalliance.org](mailto:grassroots@globalaidsalliance.org).*

#### References

<http://www.thebody.com/nmai/whatisaids.html>  
<http://www.gmhc.org/health/basics.html#treatment>  
<http://www.niaid.nih.gov/factsheets/hivinf.htm>  
<http://www.aegis.com/factsheets/network/simple/viral.html>  
<http://www.aegis.com/factsheets/network/simple/viral.html>  
<http://www.aidsmeds.com/lessons/StartHere8.htm>  
<http://www.niaid.nih.gov/factsheets/evidhiv.htm>  
<http://www.advocatesforyouth.org/youth/health/hiv/index.htm>

## Handout 2: The HIV Life Cycle



A Service of the U.S. Department  
of Health and Human Services

# The HIV Life Cycle

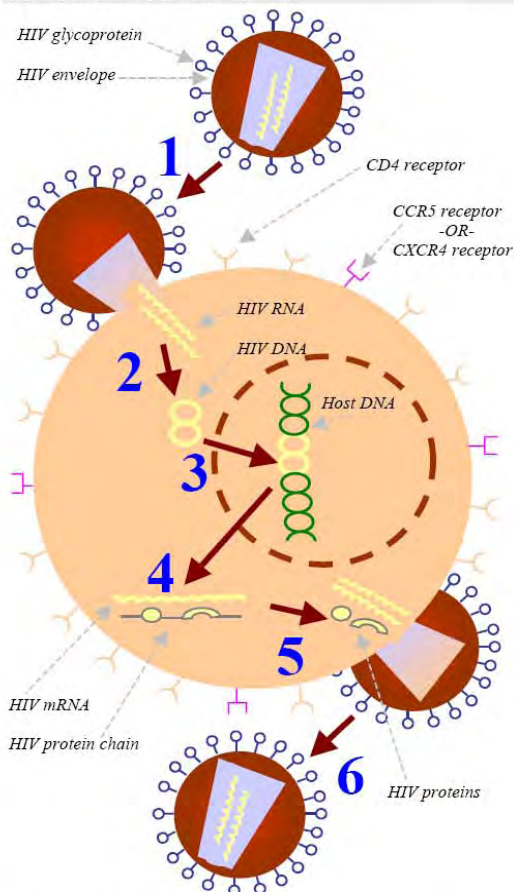
- 1 Binding and Fusion:** HIV begins its life cycle when it binds to a **CD4 receptor** and one of two **co-receptors** on the surface of a **CD4<sup>+</sup> T-lymphocyte**. The virus then fuses with the host cell. After fusion, the virus releases RNA, its genetic material, into the host cell.
- 2 Reverse Transcription:** An HIV enzyme called reverse transcriptase converts the single-stranded HIV RNA to double-stranded HIV DNA.
- 3 Integration:** The newly formed HIV DNA enters the host cell's nucleus, where an HIV enzyme called integrase "hides" the HIV DNA within the host cell's own DNA. The integrated HIV DNA is called provirus. The provirus may remain inactive for several years, producing few or no new copies of HIV.
- 4 Transcription:** When the host cell receives a signal to become active, the provirus uses a host enzyme called RNA polymerase to create copies of the HIV genomic material, as well as shorter strands of RNA called messenger RNA (mRNA). The mRNA is used as a blueprint to make long chains of HIV proteins.
- 5 Assembly:** An HIV enzyme called protease cuts the long chains of HIV proteins into smaller individual proteins. As the smaller HIV proteins come together with copies of HIV's RNA genetic material, a new virus particle is assembled.
- 6 Budding:** The newly assembled virus pushes out ("buds") from the host cell. During budding, the new virus steals part of the cell's outer envelope. This envelope, which acts as a covering, is studded with protein/sugar combinations called HIV glycoproteins. These HIV glycoproteins are necessary for the virus to bind CD4 and co-receptors. The new copies of HIV can now move on to infect other cells.

### Terms Used in This Fact Sheet:

**CD4 receptor:** A protein present on the outside of infection-fighting white blood cells. CD4 receptors allow HIV to bind to and enter cells.

**Co-receptor:** In addition to binding a CD4 receptor, HIV must also bind either a CCR5 or CXCR4 co-receptor protein to get into a cell.

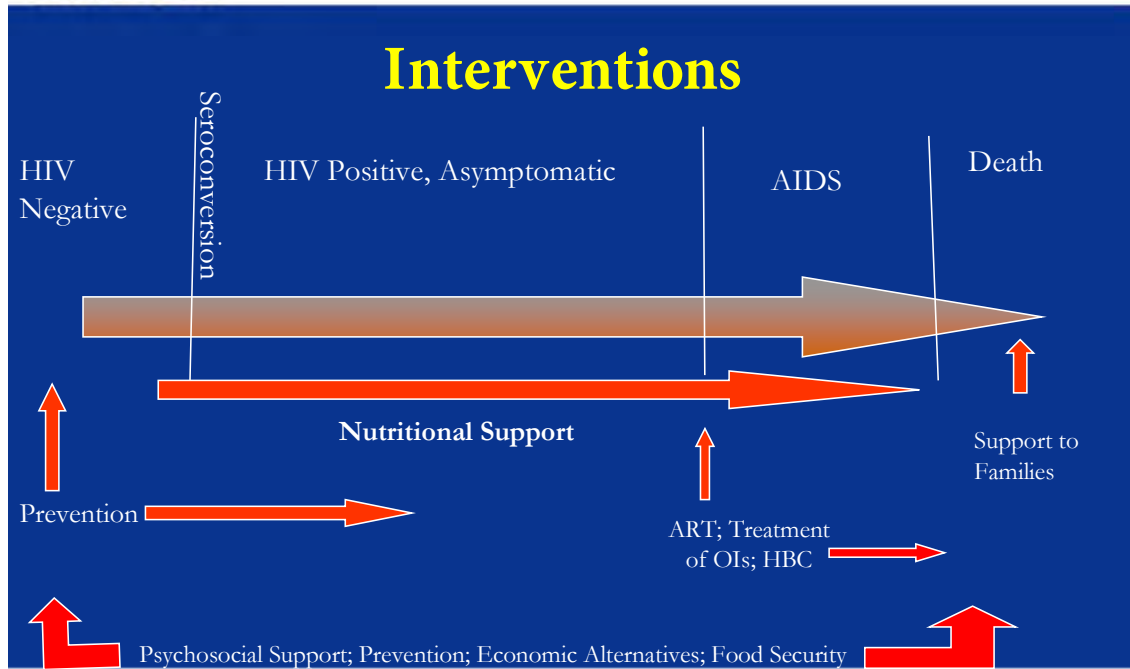
**T-lymphocyte:** A type of white blood cell that detects and fights foreign invaders of the body.



### For more information:

Contact your doctor or an *AIDSinfo* Health Information Specialist at 1-800-448-0440 or <http://aidsinfo.nih.gov>.

## Handout 3: Interventions



## References for Module 3

### Resources Consulted

Global Aids Alliance. "HIV and AIDS: The Basics". [www.globalaidsalliance.org](http://www.globalaidsalliance.org)

AIDSInfo, US Department of Health and Human Services. "The HIV Life Cycle". May 2005. <http://aidsinfo.nih.gov/>

### Recommended Reading

News releases, fact sheets and other NIAID-related materials are available on the NIAID Web site at <http://www.niaid.nih.gov>.

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# Module 4: Links between HIV, Nutrition & Food Security

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## Overview of Module 4

### Title of the Module

Links between HIV, Nutrition and Food Security

### Purpose of the Module

The purpose is to understand how HIV, nutrition and food security interact with one another.

### Learning Objectives

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

- explain the effects of HIV on nutrition outcomes, and the effects of nutrition on HIV disease outcomes
- explain the effects of HIV on food security outcomes, and the effects of food security on HIV disease outcomes

### Estimated Time

PowerPoint Presentation: 60 minutes

Exercise 1: 30 minutes

Exercise 2: 30 minutes

*Total estimated time: 2 hours*

### Prerequisite Modules

It is recommended that the facilitator cover all preceding modules prior to tackling this module.

### Materials Required

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments, handouts of exercises, and materials for exercises (listed in each exercise)

### Recommended Preparation

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.

Assess the level of knowledge of the participant audience to determine the length of time to be allocated to PowerPoint presentation and the activities in this module.

Review each of the exercises carefully and prepare necessary materials for each.

Review reference materials and other recommended readings.

## Facilitator Notes for Module 4

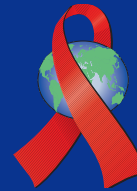
### Slide 1

This slide should be used to introduce the session.



# Links Between HIV, Nutrition and Food Security

## Module 4



**Facilitator Notes:**

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## Slide 2

HIV, nutrition and food security are intricately linked, and it is crucial to understand the nature of these links when developing integrated programming. While these links are often seen as a constraint to good health (i.e. the Vicious Cycle of malnutrition and HIV), they can also present opportunities for improving the health of PLHIV and the members of affected households (HHs). By the end of this module, the participant should 1) be able to explain the effects of HIV on nutritional outcomes, and the effects of malnutrition on HIV-related disease outcomes; 2) understand the vicious cycle of malnutrition and HIV; and 3) be able to explain the effects of HIV on food security outcomes, and the effects of food security on HIV-related disease outcomes.



### Goal

To understand how HIV, nutrition and food security interact with one another

### Objectives

1. To be able to explain the effects of HIV on *nutrition* outcomes, and the effects of nutrition on HIV disease outcomes
2. To be able to explain the effects of HIV on *food security* outcomes, and the effects of food security on HIV disease outcomes

### Facilitator Notes:

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### Slide 3

At the WHO, WFP and partners conference on Nutrition and HIV and AIDS (Durban, South Africa 2005), the Participants Statement clearly expressed acknowledgement of a powerful link between nutrition and HIV and AIDS, and acknowledged the opportunity that it presents for improving the quality of life for PLHIV.



## The Powerful Link between Nutrition and HIV

“Adequate nutrition cannot cure HIV infection but it *is* essential to maintaining the immune system, physical stamina, and optimal quality of life for PLHA.”

-- *WHO conference on Nutrition and HIV and AIDS in South Africa in 2005, Participants' Statement*


### Facilitator Notes:

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#### Slide 4

In the modules entitled 'Basics on Nutrition and Balanced Diet' and 'Nutrition through the Lifespan', we have spent a lot of time discussing the importance of good nutrition. Many of these messages are ones that we have grown up with and possibly become habits, while others take a bit more effort to put into practice. But what is the link between nutrition and HIV?

ADAPTATION: The slide presents some common sayings about the importance of good nutrition. These can be adapted if there are other sayings that are used in your local context. You may also ask participants to provide additional examples of sayings from their own contexts as a way of encouraging participation.




We all know the importance of good nutrition...

“Eat carrots so you can see at night.”

“An apple a day keeps the doctor away.”

“You are what you eat.”

“ Live to eat, don't eat to live”

A blue rectangular box containing the text and illustrations. On the left is an illustration of a carrot. On the right is an illustration of a white milk bottle with a blue cow's head logo on it.

**Facilitator Notes:**

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## Slide 5

The link between nutrition and HIV is *bi-directional*. This means they are reciprocal, or affect one another in both directions.

1. Nutrition affects disease outcomes
2. HIV affects nutrition outcomes

Both conditions affect the capacity of the immune system to fight infection and keep the body healthy.



## But what is the link between nutrition and HIV ?

The link is *bi-directional*. This means that it works in both directions:

1. HIV affects nutrition outcomes
2. Nutrition affects HIV disease outcomes

### **Facilitator Notes:**

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**Slide 6**

Refer to the instructions on the Handout for Exercise #1, Module 4: Bi-Directional Effects of Nutrition and HIV



## Exercise #1

Bi-Directional Effects of  
Nutrition and HIV

**Facilitator Notes:**

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## Slide 7

**Decreases food consumption:** HIV, at its symptomatic stage, can result in reduced intake of food due to: loss of appetite (from fatigue, depression, and other psychological changes), side effects from medication (including nausea, appetite loss, diarrhea, vomiting and abdominal cramps), and other physical discomfort (i.e. mouth or throat sores, abdominal pain, etc.).

**Impairs nutrient absorption:** HIV interferes with the body's ability to absorb nutrients, especially during infections, and causes poor absorption of fats and carbohydrates for various reasons, including: HIV infection of intestinal cells, frequent diarrhea and vomiting, and opportunistic infections.

### **Changes in the way our bodies use nutrients (our metabolism), due to:**

1. HIV infection increases energy requirements;
2. HIV increases the need for antioxidant to reduce oxidative stress, which leads to increased HIV replication and higher viral loads.

Cells normally die off over time, but illness, stress, fighting diseases, direct sunlight etc. make cells die even more quickly. Dead cells leave tiny fragments, called 'free radicals', circulate in the bloodstream. They can do damage if you can't get rid of them. This is called 'oxidative stress'. If left unchecked, oxidative stress may cause heart damage, cancer, cataracts, and a weak immune system. To help you neutralize and/or get rid of free radicals, you need special vitamins and minerals called 'Anti-oxidants'. This is a good bit of nutrition info for anyone to know, but especially useful for people with HIV.

Along with other healing and protective functions, Vitamin C, Vitamin E, Vitamin A, and Selenium are the top performers for antioxidant duties.



## 1. How does HIV affect Nutrition outcomes?

- Decreased food consumption
- Impaired nutrient absorption
- Changes in the way bodies use nutrients

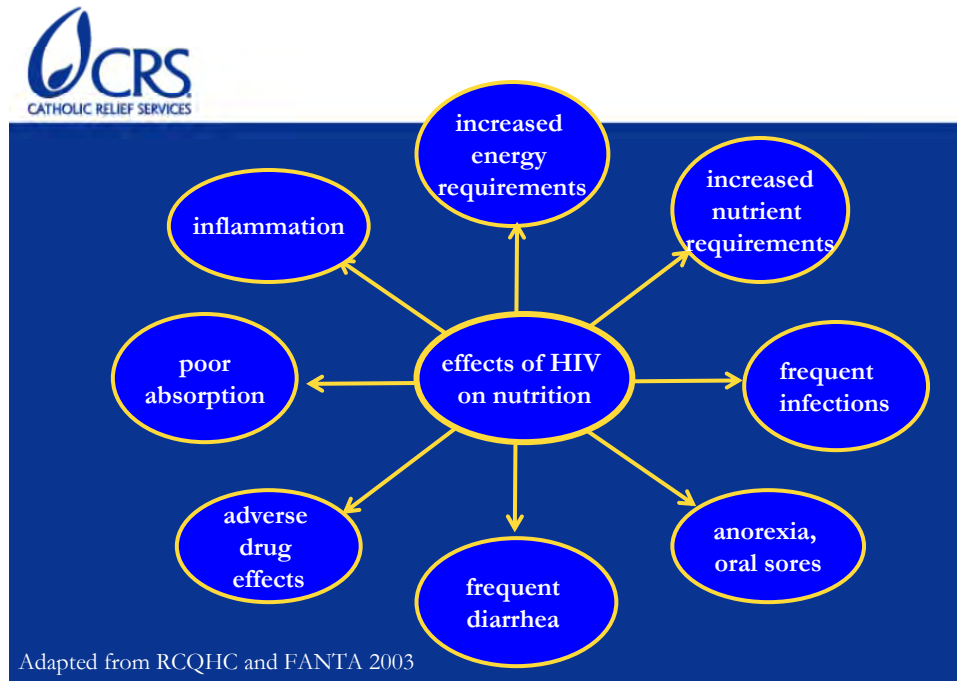
### **Facilitator Notes:**

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## Slide 8

This visual demonstrates the multitude of ways in which HIV affects the nutritional status of PLHIV. Many of these concepts and their implications will be covered in more depth in the modules entitled: 'Nutritional Health for PLHIV' and 'Symptomatic PLHIV, ART and Nutrition Rehabilitation'.



### Facilitator Notes:

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## Slide 9

As noted earlier, this 'link' also underlines the *opportunity* that good nutrition presents in terms of programming integrated responses for PLHIV. For example, improving and maintaining good nutrition can prolong health and delay HIV disease progression. Counseling and other nutrition interventions to prevent or reverse weight loss are likely to have the greatest impact early in the course of HIV infection, and nutritional supplements, particularly antioxidant vitamins and minerals, may improve immune function and other HIV-related outcomes, especially in nutritionally vulnerable populations. This will be discussed in more detail in upcoming modules.



## 2. How does Nutrition affect HIV disease outcomes ?

- Malnourished HIV+ individuals have lower CD4 counts and higher viral loads
- This leads to higher risk of getting opportunistic infections, faster progression from HIV to AIDS, slower healing time, and shorter survival time

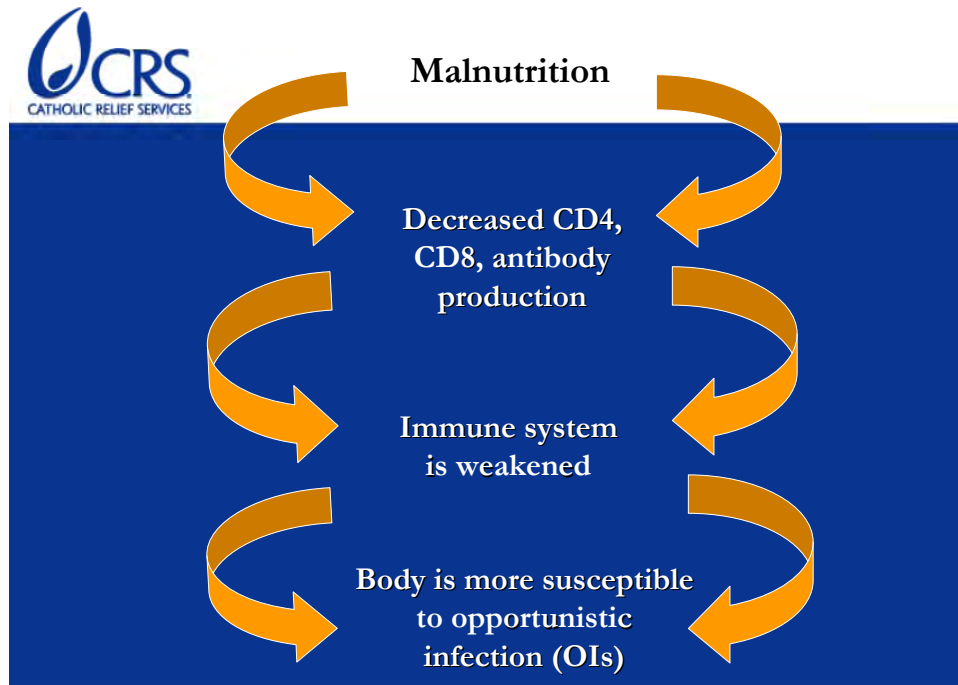
### Facilitator Notes:

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**Slide 10**

This visual representation demonstrates the impact of malnutrition on HIV disease outcomes.



**Facilitator Notes:**

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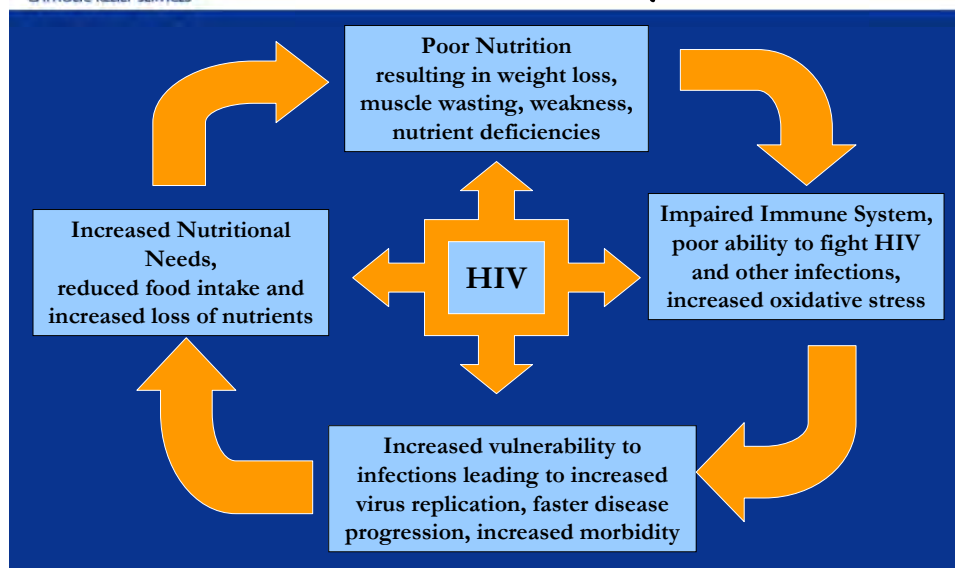
## Slide 11

The vicious cycle shows how malnutrition and HIV negatively affect one another in a repetitive and cyclical manner. HIV infection may result in poor nutrition as a result of insufficient dietary intake, mal-absorption, and altered metabolism. This cycle then continues with the following results:

- Weight loss, the most common and often disturbing symptom of HIV, reported in 95 – 100% of all patients with advanced disease
- Loss of muscle tissue and body fat
- Vitamin and mineral deficiencies
- Reduced immune function and competence
- Increased susceptibility to secondary infections
- Increased nutritional needs because of reduced food intake and increased loss of nutrients leading to rapid HIV disease progression.



## The vicious cycle



Adapted from RCQHC and FANTA 2003

### Facilitator Notes:

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## Slide 12

People living with HIV need more energy -more calories. The basis of this calculation is that it builds onto a complete balanced diet (which many people don't have to begin with!). If they are sick, or pregnant/breastfeeding, they need even more. This will be covered more thoroughly in the next module.



### PLHIV have increased Energy Needs

Population Group	HIV phase	Energy requirement
Adults	Asymptomatic	10% increase
	Symptomatic	20-30 % increase
Pregnant/lactating women*	Asymptomatic	10% increase
	Symptomatic	20-30% increase
Children	Asymptomatic	10% increase
	Symptomatic (with no weight loss)	20-30% increase
	Symptomatic (with weight loss)	50-100% increase

\* This is in addition to extra energy, protein and micronutrients required by pregnancy or lactation.

### Facilitator Notes:

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### **Slide 13**

Thus far, this module has focused on the relationship between HIV and nutrition. But good nutrition should not be seen in isolation. It is part of a larger picture, and dependent on a variety of factors. At this stage, it is important to review the concept of 'food security', how it relates to nutrition; and its relationship with HIV.



Where does 'food security' fit  
into the picture?

And what is its relationship  
with HIV?

**Facilitator Notes:**

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## Slide 14

USAID defines food security as a situation in which “...all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.” Achieving food security requires sufficient physical supplies of food, adequate household access to these food supplies, and appropriate use of food to meet people’s specific dietary needs. The USAID definition involves three distinct but interrelated aspects of food security: food availability, food access, and food utilization.



## USAID Definition of Food Security

All people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.

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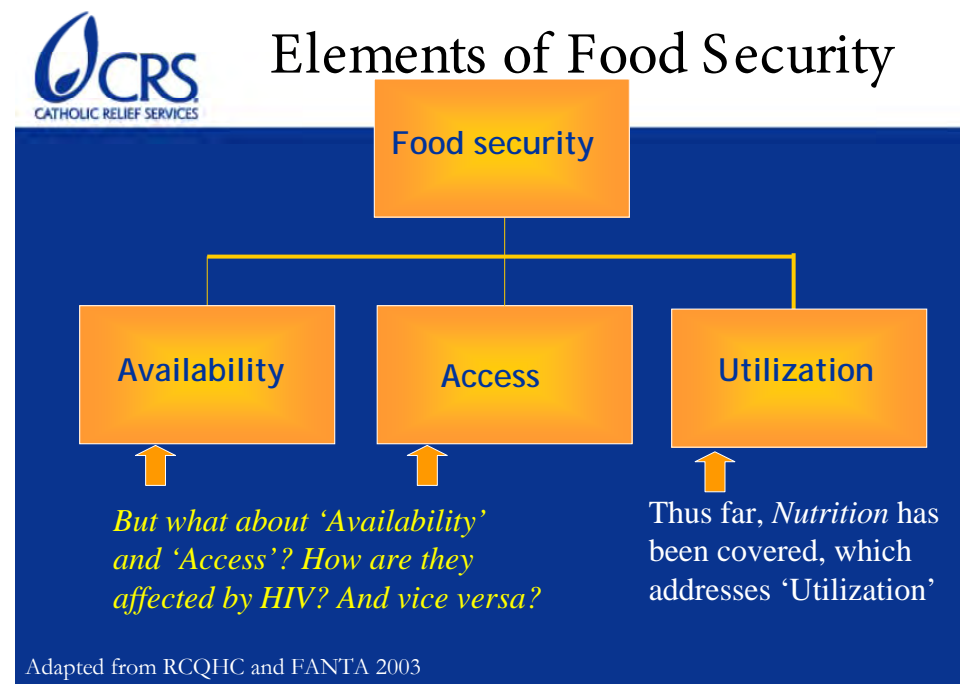
**Facilitator Notes:**

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## Slide 15

Food **availability** is achieved when sufficient quantities of food are consistently available to all people in a country or region. Such food can be supplied through household production, food grown or imported for sale, or food assistance. Food **access** is ensured when households (and all people in them) have adequate resources to obtain appropriate foods for a nutritious diet. Access depends on income available to the household, the distribution of income within the household, and the price of food. Food **utilization** is the proper biological use of food, which requires potable water, adequate sanitation, a diet that provides sufficient energy and essential nutrients, and knowledge within the household of food storage and processing techniques, basic principles of nutrition and proper child care, and illness management.

So far in this module, Nutrition has been covered, which addresses the 'Utilization' component of Food Security. But Utilization is only one leg of the three legged stool.



### Facilitator Notes:

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**Slide 16:**

Like Nutrition, the other two components of food security – Access and Availability – also have a bi-directional relationship with HIV. HIV can cause an increase in food insecurity, and food insecurity can increase vulnerability to HIV infection and thus the impact of HIV and AIDS.



The relationship between HIV and Food Security (Access and Availability) is *also* bi-directional



Adapted from RCQHC and FANTA 2003

**Facilitator Notes**

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**Slide 17**

Refer to the instructions on the Handout for Exercise #2, Module 4: Bi-Directional Effects of Food Security (Access/Availability) and HIV.



## Exercise #2

Bi-Directional Effects of  
Food Security (Access/Availability)  
and HIV

**Facilitator Notes:**

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## Slide 18

HIV can have a powerful impact on food **availability** and **access**. Sufficient quantities of a variety of nutritious foods must be steadily available, and households and people living with HIV and AIDS must have the resources to access an adequate quantity and variety of such foods.

Households affected by HIV and AIDS may have reduced labor capacity (to cultivate crops and/or generate off-farm income) since household members may be ill or caring for those who are ill. Both income and savings may be decreased for these same reasons and may also be diverted to cover health care and funeral costs associated with AIDS. Households may have to sell off productive assets, and may not have the residual income to devote to food purchases. Early mortality also prevents parents from passing on crucial agricultural knowledge to children which would otherwise contribute to their future capacity to remain food secure. And in general, increased AIDS-related morbidity and mortality destroys social safety nets that would otherwise be in place to protect vulnerable groups from food insecurity.

Finally, the stigma attached to being HIV infected or affected (i.e. parents who died of AIDS) can affect individuals access to food. For example, an OVC may face intra-household discrimination resulting in reduced access to food.



## Effects of HIV on Food Security (Availability & Access)

- Reduces labor availability
- Decreases income and depletes savings
- Leads to sale or loss of productive assets
- Depletes food reserves
- Interrupts knowledge transfers
- Weakens safety nets and support systems
- Decreases food access due to stigma and discrimination

Adapted from RCQHC and FANTA 2003

### **Facilitator Notes:**

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## Slide 19

In some cases food insecurity leads people to adopt behaviors and livelihood strategies that put them at greater risk of HIV infection. Food-insecure populations are often the most vulnerable to the disease and its impacts. For example, household members may resort to commercial or transactional sex to earn money for food and basic necessities, thereby increasing the risk of infection to themselves, their spouses, and any future children. Members of food-insecure households may be more likely to work as migrant laborers to increase income, which may also lead to greater exposure to the virus.

Food-insecure populations may also lack access to education needed to prevent infection. Food-insecure households will also experience the impact of HIV and AIDS differently than food secure HHs. They are often less able to access and afford health care services for infected people; they may be forced to choose between spending money on food or on health care; and with less access to formal coping strategies such as insurance, food insecure households rely more on family, friends, and community, which becomes an increasingly weak support system as more and more households are themselves affected by the disease.



## Effects of Food Insecurity (Availability and Access) on HIV

- May lead to livelihood strategies that increase risk of infection
- Reduces access to HIV prevention education and commodities
- Increases severity of AIDS impact

Adapted from RCQHC and FANTA 2003

### **Facilitator Notes:**

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## **Exercises for Module 4**

## **Exercise 1: Bi-Directional Effects of Nutrition and HIV**

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This exercise is meant to help introduce the relationship between nutrition and HIV and AIDS.

The facilitator should write each of the 'effects' below on separate pieces of paper.

### **Sign #1: How Nutrition affects HIV**

### **Sign #2: How HIV affects Nutrition**

On the wall, post the two signs. On the left, post a sign that says "Effects of nutrition on HIV," and on the right write "Effects of HIV on nutrition."

Pass out the pieces of paper with the 'effects' written on them, one to each participant. Ask students to go to the wall and stick or tape their factors under the correct sign. Allow time for discussion. Then ask students to explain their choices (for example, why anorexia was placed under "Effects of HIV on nutrition" rather than under "Effects of nutrition on HIV").

Although sample answers are provided below, many of these answers can be justified in different categories. Consensus among the groups is not necessary, the process and discussions are most important. As the information is presented, the facilitators can leave some ambiguity, continue with the PowerPoint, and return to the exercise at a later when more information has been gathered by the group.

### ***Effects of HIV on Nutrition***

- Increased energy needs
- Mal-absorption
- Adverse drug effects
- Frequent diarrhea episodes
- Anorexia and nausea
- Frequent infections, e.g. skin, chest, thrush, etc....
- Increased nutrient requirements
- Inflammatory response
- Abnormal metabolic response
- Depression or anxiety leading to decreased appetite

### ***Effects of Nutrition on HIV***

- Further decrease in Immunity
- Healing process slowed or impaired
- Disease progression accelerated
- Cost of treatment

## **Exercise 2: Bi-Directional Effects of Food Security (Access/Availability) and HIV**

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Participants should break into groups of two. Each pair should review the scenario described below and answer the questions together. Once all pairs have completed the exercise, they should come back the plenary group and the facilitator should facilitate a discussion around each of the questions, and what the pairs came up with for answers / possibilities.

A 35-year-old widow living with HIV has received nutritional care and support counseling through a health center for the last 3 months. She shows knowledge and awareness of her nutritional needs, but her health and nutritional status has shown no improvement during this time. In fact, she has lost 2kg.

The woman explains that she has not been able to follow most of the recommendations because of her family situation. She and her three children live with her brother, his wife, and their four children. She has not been well enough to work and her brother's income barely covers basic necessities for the 10 of them. Her sister-in-law has been suggesting that the woman and her children are a burden and has favored her own family at mealtimes.

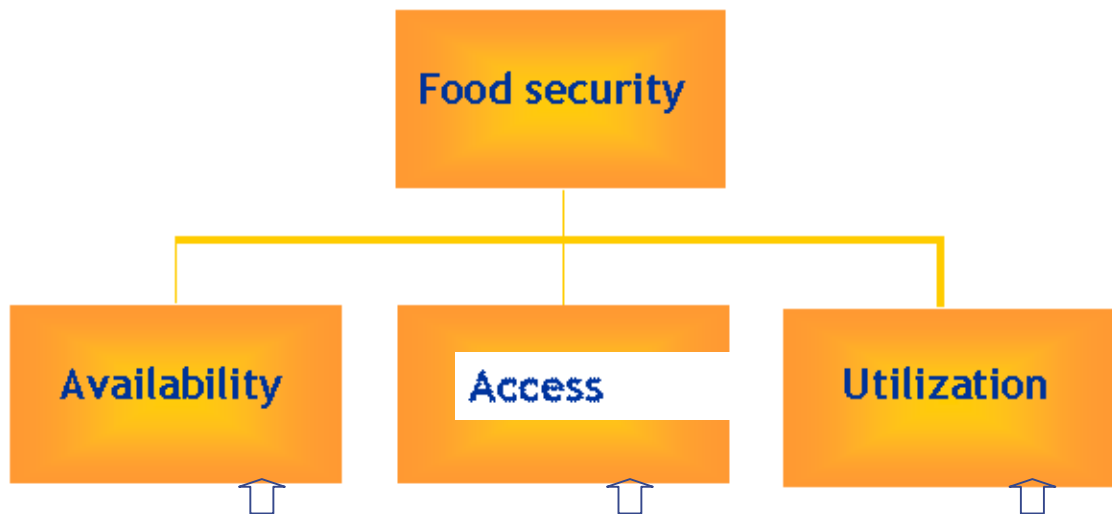
Help the woman identify options to improve her food security status discussing the following questions:

- What constraints does the woman face in relation to access and availability of food? Name at least three.
- What options might be available to the woman to improve her food security status?
- What additional education or training might she need to achieve these options?
- Are there community based safety nets or support mechanisms that might also be considered?

## **Handouts for Module 4**

## Handout 1: Food Security and HIV

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But what about 'Availability' and 'Access'? How are they affected by HIV? And vice versa?

Adapted from RCQHC and FANTA 2003

So far, we've been talking about *Nutrition*, which addresses the 'Utilization' component of food security

### **Effects of HIV on Food Security (Access / Availability)**

- Reduces labor availability
- Decreases income and depletes savings
- Leads to sale or loss of productive assets
- Depletes food reserves
- Interrupts knowledge transfers
- Weakens safety nets and support systems
- Discrimination from access due to stigma

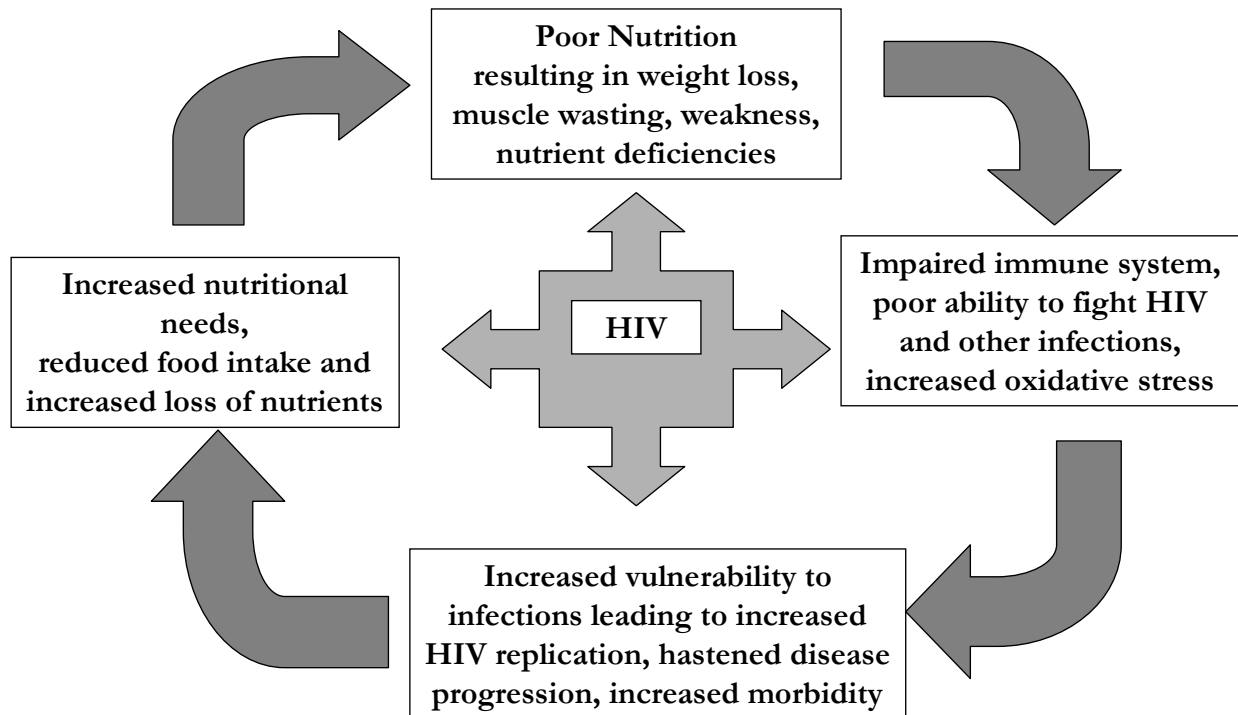
### **Effects of Food Insecurity (Access / Availability) on HIV**

- May lead to livelihood strategies that increase risk of infection
- Reduces access to HIV prevention education and commodities
- Increases severity of AIDS impact



## Handout 2: The Vicious Cycle

### The Vicious Cycle



Adapted from RCQHC and FANTA 2003

## **References for Module 4**

### **Resources Consulted**

USAID, AED, and RCQHC. 2003. "Nutrition and HIV/AIDS: A Training Manual." Kampala, Uganda, FANTA, and LINKAGES.

Piwoz, Ellen. April 2004. "Nutrition and HIV/AIDS: Evidence, Gaps, and Priority Actions". AED.

Haddad, Lawrence and Stuart Gillespie. June, 2001. "Effective Food and Nutrition Policy Responses to HIV/AIDS: What we Know and What we need to Know". FCND Discussion Paper No. 112, IFPRI.

*Many slides were adapted from the above resources.*

### **Recommended Reading**

Piwoz, Ellen. April 2004. "Nutrition and HIV/AIDS: Evidence, Gaps, and Priority Actions". AED.

Bonnard, Patricia. 2002. "HIV/AIDS Mitigation: Using What We Already Know". FANTA Technical Note #5. Washington, DC: FANTA Project, AED.

# **Module 5: Nutritional Health for PLHIV**

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## **Overview of Module 5**

### **Title of the Module**

Nutritional Health for PLHIV

### **Goal of the Module**

The purpose of this module is to provide nutrition guidance that will help to mitigate the destructive effects of HIV infection.

### **Learning Objectives**

By the end of this module, participants will understand how to help PLHIV to:

- maintain healthy body weight
- protect and replenish stores of essential nutrients
- keep their digestive system healthy

### **Estimated Time**

PowerPoint Presentation: 90 minutes

Exercise 1: 40 minutes

*Total Estimated Time: 2 hours and 10 minutes*

### **Prerequisite Modules**

It is recommended that the facilitator cover all preceding modules prior to tackling the current one.

### **Materials Required**

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments, handouts of exercises, and materials for exercises (listed in each exercise). The notes from 'Basic Nutrition and Health Eating' will be helpful to participants as they work on the exercise.

Note: If a set of Guidelines for Nutrition and HIV has been developed in the country of implementation, the facilitator should have a copy and be familiar with the contents. If the participants don't already have copies of their own, they should be distributed at this session.

### **Recommended Preparation**

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.

Assess the level of knowledge of the participant audience to determine the length of time to be allocated to PowerPoint presentation and the activities in this module.

Review the exercise carefully, and review the discussion points (from Facilitator to Participant) on Slides 3, 4, 6 and 15.

Copy handouts required for Slides 4 and 5.

Review reference materials and other recommended readings.

## Facilitator Notes for Module 5

### Slide 1

Use this slide to introduce the module.



# Nutritional Health for PLHIV

## Module 5



**Facilitator Notes:**

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## Slide 2

Building on the module 'Links between HIV, Nutrition and Food Security', remember that the HIV virus lives in a PLHIV's body for several years, gradually eroding his or her nutrient stores and continuously releasing debris into their body. This depletion of nutrient stores and build up of debris is damaging to a PLHIV's body and allows infections and diseases to gain a foothold more easily. Malnutrition in general weakens the immune system and increases vulnerability to opportunistic infections. Using good nutrition and dietary habits can counteract the effects of the virus over time, reduce illness and discomfort from HIV infection and slow the progression of HIV to AIDS.

With that in mind, this module will help you understand how PLHIV can:

1. Maintain their body weight in a healthy range
2. Protect and replenish their stores of essential nutrients
3. Keep their digestive systems healthy



### Goal

To provide nutrition guidance that will help to mitigate the destructive effects of HIV infection.

### Objectives

To understand how to help PLHIV to

1. Maintain healthy body weight
2. Protect and replenish stores of essential nutrients
3. Keep their digestive system healthy

### Facilitator Notes:

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### Slide 3

The module on 'Basic Nutrition and Healthy Eating' provided a lot of information about how to plan a healthy diet. The basics of good nutrition are good for everyone – but they are **ESPECIALLY** important for PLHIV.

Many people know how to protect their health, although they don't usually apply that knowledge rigorously. For PLHIV, the stage of asymptomatic disease is the best time to develop good habits and put practical tools in place that make it easy to follow the rules, so that protecting one's health and nutritional status become easy and 'normal'. Periods of illness will require adaptations but a strong foundation makes it much easier.

Facilitator to participants: What are some of the 'rules' that we try to live by, that have to do with nutrition and health? (*Answers: wash your hands before you eat and after using the toilet; eat from all six food groups every day; don't eat too much of one thing; don't over-indulge with sweets, soft drinks or alcohol; brush your teeth after eating; ensure that drinking water is clean and drink lots of it; wash fruits and vegetables before you eat them...*) People who have the knowledge, resources and commitment to practice these 'rules' routinely have a strong foundation for Positive Living (or living 'well' with HIV).



## Back to Basics

- The basics of good nutrition are good for everyone – but they are **ESPECIALLY** important for people living with HIV
- The best time to make changes in lifestyle is when someone is feeling **well**, not after they get sick!

### Facilitator Notes:

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## Slide 4

### **Handout #1: *Living Positively with HIV***

Positive Living is a collection of strategies aimed at increasing the quality of health through immune-strengthening and disease-prevention methods, thus extending the length of healthy living (in the period between contracting the virus and the onset of AIDS). It has evolved as a response to the HIV epidemic to provide direction and a sense of empowerment about how to manage HIV illness. Positive Living outlines specific activities to strengthen the immune system, avoid common infections and maintain a positive outlook on life. Embracing Positive Living can extend the period between contracting the virus and the onset of AIDS-defining illnesses, minimize the impact of opportunistic infection (through early identification and correct treatment) and support informed decision-making about treatment and lifestyle options. Helping PLHIV and their families incorporate and sustain Positive Living strategies is a vital part of all HIV programming.

**Understanding HIV as a Chronic Illness:** This was presented in the modules 'Introduction to HIV' and 'Links between HIV, Nutrition and Food Security'.

**Making 'Good Nutrition' a Reality:** Much of this was covered in 'Basic Nutrition and Health Eating'. This module will introduce aspects that need special emphasis.

**Motivation and Commitment:** This boils down to 'Walking the Talk'. Putting lifestyle changes in place (permanently!) requires a great deal of commitment. Chronic stress (suppressed anger/fear/guilt/ shame) is extremely influential (chronic release of cortisol, a hormone that is known to suppress the immune system). Chronic stress, especially over a long time span (rather than short-term [typical emergency] stress, can contribute to immune system decline over time. Psycho-Neuro-Immunology (PNI) is an area of study that looks at the links between the nervous system (the brain), the endocrine system (hormones) and the immune system (CD4 cells, CD8 cells, antibody production etc.)

Facilitator to Participants: What are some of the things that cause chronic stress? (Multiple losses, fear of food/economic insecurity, fear of transmitting the virus, shame, self-blaming...)

This module will focus on the Nutrition aspects of Positive Living.



## *What is Positive Living?*

Positive Living aims to increase the quality of health through immune-strengthening and disease-prevention methods, in order to extend the period between contracting HIV and the onset of illness. It involves:

- Understanding HIV as a Chronic Illness
- Making ‘Good Nutrition’ a Reality
- Motivation and Commitment

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### **Facilitator Notes:**

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## **Slide 5**

### **Handout 2: *Energy Requirements of People Living with HIV (PLHIV).***

This table was first presented in the Module on 'Links between HIV, Nutrition and Food Security'. Developed by WHO, this guidance is intended to help PLHIV maintain good nutritional status and avoid the gradual weight loss associated with chronic HIV infection. The 10% increase in calories means that PLHIV have to eat a larger plateful of food or an extra snack at some point in their day, every day. Twenty, 30 or 50% more calories obviously requires a more concerted effort. To get these extra calories, food choices should reflect the same healthy balance as the rest of the diet, with foods from all 6 food groups (as described in module "Basic Nutrition and Healthy Eating).

These additional percentages, in theory, build on a healthy balanced diet which provides 100% of the adult requirements for protein, vitamins and minerals and includes the recommended number of servings from the 6 food groups (there are no established requirements for carbohydrates and fats). It is acknowledged, however, that many people in the target population do not have a healthy diet and may have been marginally malnourished for years, indicating an even greater need for counseling and support if PLHIV are going to meet these requirements.

During the first several years of HIV infection (the Early Phase), people are generally healthy and their weight is stable. The focus during this time is to maintain weight and strength. Asymptomatic PLHIV typically do not need specific products. For instance, it is not generally appropriate to prioritize them for food aid on the basis of their HIV status alone when they are not having symptoms of illness. The most important task during this phase is to learn about HIV and nutrition and begin to adapt food and lifestyle patterns to maximize healthy choices.

The Middle Phase of HIV infection is marked by illness and weight loss. This, and the Later Phase, will be covered more thoroughly in Nutrition and symptomatic PLHIV.

## PLHIV Have Higher Nutrition Requirements

Population Group	HIV phase	Energy requirement
Adults	Asymptomatic	10% increase
	Symptomatic	20-30 % increase
Pregnant/lactating women*	Asymptomatic	10% increase
	Symptomatic	20-30% increase
Children	Asymptomatic	10% increase
	Symptomatic (with no weight loss)	20-30% increase
	Symptomatic (with weight loss)	50-100% increase

\* This is in addition to extra energy, protein and micronutrients required by pregnancy or lactation.

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### Facilitator Notes:

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## Slide 6

Most of the target population lack access to good quality diets and are chronically under-nourished. They often consume low protein diets with insufficient fruit and vegetables leading to micronutrient deficiencies. Starting with Macronutrients (Carbohydrates, Proteins and Fats) it should be ensured that PLHIV are not only getting as close to a healthy balanced diet as possible, but that they are also getting the extra percentage (10, 30, 50%) required to defend their nutritional status from the impact of HIV.

Asymptomatic PLHIV do not need special protein or fat supplements, but their additional energy intake should be made up of the correct balance of all macronutrients (not just extra carbohydrate, such as cereal). This means their protein and fat intake should be proportionately higher.

Poor Absorption: Even when someone has enough to eat, problems with digestion and absorption can still cause weight loss. This results in weight loss even when someone enough. This is especially true of digesting proteins (meat, fish, nuts).

ADAPTATION: Please adapt serving sizes to the host country's nutrition framework and match the number of food groups.

Facilitator to Participants: From the session on The Basics of Nutrition, how many servings of the legume/nut group and the animal food group are needed each day? (Legumes and Nuts: 2-3 servings are recommended. 1 serving = 1 cup legumes or 1/3 cup nuts. Animal foods: 1-2 servings. 1 serving = 1/3-1/2 cup meat, 1 egg, 1 cup milk/yogurt). *If 1 or less servings of animal foods are consumed then more servings of legumes or nuts are needed. If dairy products are not consumed then it is important to eat dark leafy greens.*

*NB. If a set of guidelines for Nutrition and HIV have been developed in the host country, the facilitator should have a copy of them and be familiar with the contents.*



## Start with Macronutrients: Carbohydrate, Protein & Fat

- Without additional calories, PLHIV gradually lose weight and strength – even in the absence of illness.



- Asymptomatic PLHIV do not need special protein or fat supplements, but their additional energy intake should be made up of the correct balance of ALL macronutrients - not just extra cereal.

**Facilitator Notes:**

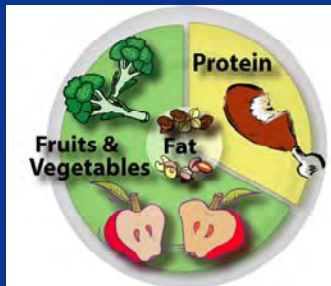
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## Slide 7

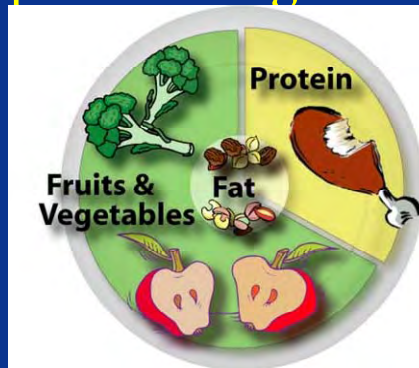
It is important to explain to the participants that extra caloric needs should not be composed solely of carbohydrates (or any other food group), rather the proportions of food groups should remain the same.



## Getting the Proportions Right...



Healthy individual without extra caloric needs



HIV+ individual with extra caloric needs. The proportions remain the same, but the overall intake increases.

## Slide 8

*See supplemental material for additional information*

**Vitamin B6:** Deficiencies of vitamin B6 can occur as a result of certain medications, such as Isoniazid (or INH) for tuberculosis. B Vitamins can be found in meat, fish, poultry, milk, eggs, green leafy vegetables, broccoli, maize, avocados and nuts. However, many foods, such as maize, have the vast majority of their vitamins and nutrients in their kernels and shells. Therefore, grains and legumes should not be processed or refined, if using these as a source of vitamins.

**Vitamin C:** Vitamin C is a water-soluble vitamin that is an important antioxidant. The need for vitamin C increases with infection or injury. It is essential for the maintenance of bones, teeth, blood vessels and connective tissue. The best sources of vitamin C from food are oranges and other red, green, orange or yellow colored fruits and vegetables. Vitamin C also increases our ability to absorb iron, so it's a good idea to mix those foods that contain Vitamin C with those that contain iron (like dark leafy greens and organ meats).

Facilitator should ask the participants: From the session on Basic Nutrition, can you name food high in Vitamin C?

**Vitamin A:** People with compromised immune systems often have lower levels of Vitamin A thus foods high in vitamin A are recommended. Vitamin A deficiencies have been linked to a higher mortality rate among people living with AIDS.

Facilitator should prompt the participants: From the session on Basic Nutrition, can you name food high in Vitamin A?

**Vitamin E:** Vitamin E is a fat-soluble antioxidant that plays an important role in protecting the cell membrane and the immune system from oxidative stress. The best sources of vitamin E from food are vegetable oils, eggs, and whole-grain cereals.



## Ensure Micronutrient Intake

- Many PLHIV have lower blood levels of important micronutrients. These low levels are associated with higher rates of both sickness and death.



- Vitamin B6:** deficiency can be caused by some TB medications
- Vitamin C, A and E** are important anti-oxidants

**Facilitator Notes:**

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## Slide 9

### Zinc

The best local food for zinc is wild spinach, sunflower seeds, peanuts and pumpkin seeds

### Selenium

The best sources of selenium from food are Brazil nuts, seafood, liver, meat and grains. Additional smaller amounts of selenium can be found in chicken, beef, eggs, peanuts, rice, and pumpkin or squash seeds.



## Micronutrients - continued

- Zinc and Selenium have strong anti-oxidant properties but are not found as readily in food as Vitamins C, A and E.
- However, increased dietary sources of zinc and selenium (rather than tablet supplements) are recommended.

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### Facilitator Notes:

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## Slide 10

This topic was touched upon in the previous module. Besides being a by-product of normal body metabolism, free radicals also emerge when people have contact with environmental factors such as pollution, radiation and cigarette smoke. 'Oxidative stress' occurs when there are more free radicals than the body can deal with. If left unchecked, free radicals may cause heart damage, cancer, cataracts, and a weak immune system.

Antioxidants counteract free radicals, and bind with them before they can cause damage. Fruits, vegetables and whole grains are better sources of antioxidants than pill forms – eating from all food groups will help to ensure an adequate antioxidant intake.



### *What are anti-oxidants and why are they needed?*

- Anti-oxidants help protect the body from 'free radicals'
- Free radicals are produced as part of normal body functions, especially when someone is exposed to any toxins or irritants
- Anti-oxidants disable free radicals and help protect the body from the damage they cause
- Anti-oxidants include Vitamins A, C and E, Zinc and Selenium.

#### **Facilitator Notes:**

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## Slide 11

Caution must be exercised when advising PLHIV to use micronutrient supplements. Often people take too much, causing adverse effects such as diarrhea, nausea, and even stimulation of viral replication (zinc, iron, and vitamins E and C). It's important to stress with PLHIV that tablets are no substitute for a good diet and that if they are taking tablets, they must take them as prescribed. Special care must be taken when giving supplements, especially during pregnancy and breastfeeding. Taking multiple micronutrients is recommended rather than single ones, unless it's part of a government protocol (Vitamin A, Iron).



### *Should PLHIV take Micronutrient Supplements?*

- Maintaining adequate vitamin and mineral levels may slow disease progression, though the evidence is not yet conclusive.
- Advice about vitamin A, zinc, iron, folate and multiple micronutrient supplements should be consistent with local MoH protocol
- Micronutrient supplements are best used in combination with an adequate and well-balanced diet -- they never replace the need for proper food intake.

#### **Facilitator Notes:**

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## Slide 12

'Sprinkles' or other micronutrient mixes may be used to fortify foods at home. Directions on use must be adhered to.

Modifying diets to improve digestibility and availability of nutrients (using fermentation, germination or blending foods together that increase nutrient availability).



### *How can a person protect and improve their micronutrient intake?*

- By choosing and consuming fortified foods, even if they cost a bit extra
- By modifying diets to improve digestibility and availability of nutrients
- By ensuring that they consume a diversified (colorful!) diet every day

#### **Facilitator Notes:**

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### Slide 13

The facilitator should stress that these foods are to be consumed in moderation, but depend on the status of the PLHIV. It should also be stressed that excess consumption is the problem. Additionally, these depend on the health status of the PLHIV, as well as whether they are on ART or not.

Fried Foods: crisps, fried meats

Difficult for the stomach to digest; cooked oils also contribute to increased cholesterol levels

Caffeine: soft drinks, tea, coffee, chocolate

May result in anxiety, hyperactivity, and insomnia

Sugars: soft drinks, sweets, sugar in tea... Can exacerbate thrush

Alcohol: When consumed in excess, depresses the nervous system, inhibits bone marrow's ability to regenerate blood cells, is toxic to the liver, depletes B-vitamins, and is dehydrating. Finally, it reduces one's ability to make or follow through on good decisions.



## Take in moderation only:

- Fried Foods
- Caffeine
- Sugars
- Alcohol

**Facilitator Notes:**

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**Slide 14**

Refer to the instructions on the Handout for Exercise #1, Module 5: What did you eat yesterday?



**Exercise #1**

**What did you eat yesterday?**

**Facilitator Notes:**

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**Slide 15**

Let's have a look at the Vicious Cycle, and see where we are...



*Will improving nutritional intake be  
enough to help us break  
the Vicious Cycle  
of Malnutrition and HIV?*

**Facilitator Notes:**

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## Slide 16

This slide is from the module on 'Links between HIV, Nutrition and Food Security'. The Vicious Cycle shows how malnutrition and HIV negatively affect one another in a repetitive and cyclical manner.

### Handout #3

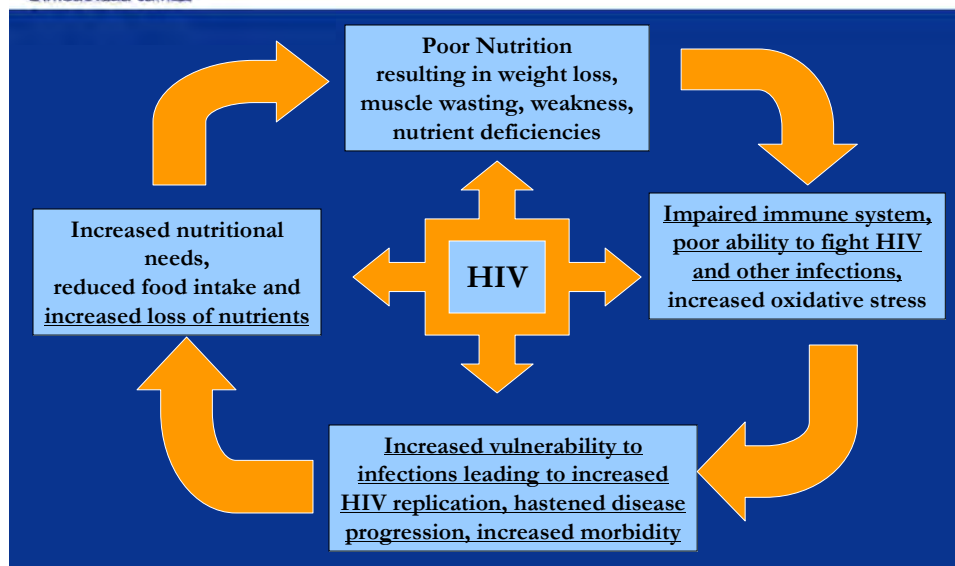
Several elements of the 'Vicious Cycle' have been covered in 'Balanced Diet and Healthy Eating.' Much of the material covered in this module so far today covers the rest -- increased nutritional needs, reduced food intake; poor nutrition resulting in weight loss, muscle wasting, weakness, nutrient deficiencies; and to some extent - impaired immune system, poor ability to fight HIV and other infections, increased oxidative stress. The remaining parts of the chain that still need to be 'broken' are underlined on the slide.

1. increased loss of nutrients
2. Impaired immune system, poor ability to fight HIV and other infections, and
3. Increased vulnerability to infections leading to increased HIV replication, hastened disease progression, increased morbidity

The next section will look at other nutrition and water and sanitation strategies that will help to break the Vicious Cycle.



## The Vicious Cycle: Breaking the Chain



Adapted from RCQHC and FANTA 2003

### Facilitator Notes:

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## Slide 17

There is a clear link between staying healthy and water and sanitation programming. **More people die from stomach and intestine problems than any other kind of illness.** This includes diarrhoea and dysentery (diarrhoea with painful stomach cramps). There are many germs - parasites, worms, bacteria, viruses, protozoa - that live in uncooked food, and in water that is not boiled or treated to kill these germs. **This is especially relevant to PLHIV – they have to be extremely vigilant.**

People go to a lot of trouble/expense to procure, prepare and eat the right foods – they want to be sure those foods stay in their bodies and then use some good! Clean water and clean food are crucial to preventing the needless loss of nutrients. A clean stomach also ensures that a person gets the value of the food that they eat – they didn't go to all this trouble and expense simply to give intestinal parasites a comfortable place to live!



### Get the most out of what you eat... stay clean!

- **Clean Water:** Drink only clean water, and plenty of it
- **Clean Food:** Wash food in clean water and cook it properly
- **Clean Stomach:** Take de-worming medicine every 3 – 6 months



#### Facilitator Notes

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## Slide 18

People go to a lot of trouble/expense to procure, prepare and eat the right foods – they want to be sure those foods stay in their bodies and do them some good! Clean water is one of the most important ways to reduce the loss of nutrients.

Here the facilitator should ask participants how many glasses of water a day they drink? Ask them, from the Module on Basic Nutrition and Healthy Eating, what is the role of water? (**Water** is also considered a nutrient, although it doesn't provide any energy, it acts as a solvent and lubricant helping to **clean** the intestines and remove dangerous waste from our bodies. It also transports nutrients)

The facilitator should ask them how can they tell if water is safe to drink? What about water from rivers, streams, dams? Boreholes? Municipalities?

**Tea and coffee** are fine in moderation. However, one should not drink tea and coffee instead of water: **it is important to drink two litres of water AS WELL AS any tea or coffee.** Additionally, one should try to reduce the amount of sugar in their tea or coffee to one teaspoon per cup, or less. Both tea and coffee contain tannin, which can be good for the stomach, especially if someone has an upset stomach. However, drinking too much should be avoided, as too much can cause a runny stomach. Use clean water to make tea or coffee. Ensure that the water boils for at least five minutes before making tea or coffee. **Soft drinks** generally have a LOT of sugar so should be taken rarely, if at all.

**Alcohol:** Alcohol can damage one's body's ability to fight HIV. However, small amounts are ok, as long as it not consumed everyday to excess. When drinking spirits (e.g., brandy, whisky, vodka), either sugar-free cool-drink should be used to mix with it, or water, or only a little ordinary cool-drink from a can. There is a lot of sugar in cans of cool-drink, and too much is not healthy. One or two ounces of spirits, once or twice a week, should not be harmful, unless you are an alcoholic. However, regular drinking of alcohol is harmful to the immune system.

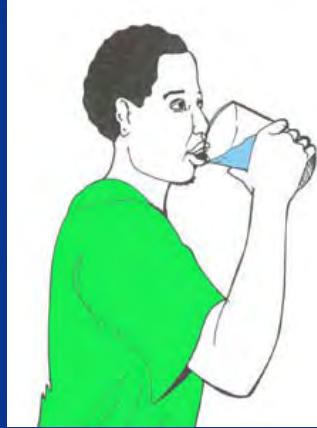
**Beer:** Contains lots of sugar and yeast. This is not good for a PLHIV's system, especially if they have mouth or vaginal infections (thrush). Once again, one or two beers, once or twice a week, is not harmful. More than that can be harmful.

**Fruit juice:** Contains many good substances. However, there are some cautions:

- **Always dilute fruit juice in half with CLEAN water.** Pure fruit juice can be too strong for your stomach.
- **Try to drink sugar-free (unsweetened) fruit juice only.** Sweetened syrups (e.g., orange squash) used to make cool-drinks have a lot of sugar. If you want to use such syrups, then mix it with a lot of water – twice as much water than is recommended on the syrup bottle label.
- Fruit juice - and all fruit - contain a type of sugar called **fructose**. If a PLHIV has **fungal infections** (thrush) in their mouth, vagina, anus, or throat, they should not eat fruit or drink fruit juice until the infection is gone.

## Clean Water

Clean water is critical to everyone's health: everyone should drink at least two litres of clean water a day to be healthy.



*How much water a day do **you** drink?*

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### **Facilitator Notes:**

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## Slide 19

1. **All food should be washed thoroughly with CLEAN water.** This includes ALL vegetables, eggs, and meat. To make fresh vegetables and fruit safe, they should be soaked for 20 minutes in 1 liter of water with 5–10 drops of bleach. The bleach will evaporate, and will not affect the taste of the food. The bleach will kill all germs. If this is not possible, a good rule is to “boil it, cook it, peel it, or forget it.” **Before eating, hands should be washed with CLEAN water.** If this is not done, dirty hands can transfer germs into food. **After working with food that has not been cleaned, hands should be washed with CLEAN water.** **All cooking surfaces and utensils** (knives, forks, spoons, plates, cups) **should be washed with CLEAN water before using them to eat.**
2. **“Boil it, cook it, peel it, or forget it.”** All **root vegetables** – cassava, sweet potatoes, coco yam, and potatoes - need to be boiled or baked well. However, **green leafy vegetables** should not be overcooked, as they will lose their goodness. If such green vegetables are boiled, they should only be boiled long enough that they are edible – for many vegetables, crunchy is good! When making a **stew**, place these leafy green vegetables in the stew just before you are finished cooking the stew. These vegetables should still be firm when they are eaten.
3. **Meat should be cooked well.** Meat often contains worms and other parasites. Meat should be cooked until there is no pink or red flesh inside, especially chicken, bacon and other meat from pigs. Raw meat should be kept separate from other food. Meat should not be eaten from an animal that has died from unknown causes.
4. **Fruits and vegetables should be eaten fresh** – the fresher, the better! **Leftover food should not be eaten.** Food that has been cooked and then left to cool down can gather many germs because germs enjoy the warmth. Rather it is advised cook only as much food as will be eaten. If you leftover food must be eaten, it should be reheated. This means heating the food to a high heat for a few minutes, to kill any germs.
5. **Expired food, or food in damaged/bulging packaging should be avoided.**
6. **Prepared foods from road side vendors and “deli type meat” should be avoided.** Remember, PLHIV have to be especially rigorous about only eating food prepared with the highest hygienic standards.

This guidance ties into breaking the Vicious Cycle (see your Handout: Impaired immune system, poor ability to fight HIV and other infections). Even if someone used to eat this food and it didn't bother them, if they now have HIV, their immunity is reduced, their tolerance is lowered and the risk of getting something that would cause them to lose weight must be avoided.

## Clean Food

1. Clean water should be used for all food related activities
2. “Boil it, cook it, peel it, or forget it.”
3. Meat should be cooked well
4. Fresh food should be eaten, while avoid eating leftovers
5. Expired food, or food in damaged or bulging packaging should be avoided
6. Prepared foods from road side vendors and “deli type meat” should be avoided



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### **Facilitator Notes:**

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## Slide 20

Keeping a PLHIV's stomach clean and healthy – including taking care of diarrhoea rapidly – is absolutely essential. Stomach and intestinal parasites will weaken a person's body's ability to fight HIV, and will cause them to have problems getting all the nutrients out of your food.

**Regular de-worming:** Regular (every 6 months) de-worming is important for all PLHIV (not just children!). Anti-parasitic medicine (e.g., *mebendazole* – usually sold as *Vermox*<sup>®</sup> – treats many types of worm infections except tapeworms; for tape worms, get *praziquantel* – usually sold as *Biltricide*<sup>®</sup>), obtainable from most pharmacies or hospitals.

**NB.** Young children, babies, sick people, and pregnant women should only take such medicines as prescribed by their doctor.

The below home remedies are anecdotal and have not been scientifically proven. However, it is possible that your clients may be using one of these remedies. During the training, you can probe the participants to see if there are others. As some home remedies can actually be contraindicated with certain medications, so it is important to understand what local remedies are being used.

Pumpkin Seeds: To clean them, simply place the seeds and pulp in a bowl of hot water. The seeds will separate from the pulp. Then dry the seeds in a warm place, such as a windowsill. They can be eaten with the skin. The seeds can also be roasted. Pumpkin seeds are an old remedy for worms and parasites, and work very well.

Papaya: Papaya softens food to make it easier to digest. Papaya seeds and leaves have been used for many years to clean worms and parasites out of the stomach. The seeds are dried, crushed, and then used as pepper over food. Another method is to crush half a papaya leaf and pour boiling water poured over it. When the liquid is cool, it is drunk as a tea.

Garlic: Two to three cloves (the smaller pieces of the larger bulb) per day is believed by many to prevent many infections, not only worms and parasites. Garlic is best chopped into pieces, and eaten raw. Caution: People who are taking the ART medicines Ritonavir or Saquinavir should not take garlic at the same time, as these medicines do not work well with garlic. Also, people with diabetes – and taking insulin – should only use garlic in small amounts.



## Clean Stomach



- Regular de-worming
- Anecdotal (unverified) evidence suggest home remedies, such as those below, can be beneficial:
  - Pumpkin seeds
  - Papaya
  - Garlic



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### **Facilitator Notes:**

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**Slide 21**

Credit: © 2006 Ilana Jacobs, Courtesy of Photoshare

Caption: The Rakai Health Sciences Program distributes water containers, water purifiers, and mosquito nets to HIV patients in the Rakai district, Uganda.



**Facilitator Notes:**

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## Slide 22

When a person has **diarrhoea** (or **night sweats**, to a lesser degree), their body rapidly loses important substances and water. This leads to weakness and dehydration (loss of water). Diarrhoea is a significant cause of weight loss in PLHIV, and a person can die from diarrhoea if it continues for too long. Prevent dehydration by using ORS – diarrhoea can often be managed at home without medicine if you can avoid getting dehydrated.

Use ORS packets, or

- **One cup of water + Two teaspoons of sugar + Quarter teaspoon salt + the juice of a fresh orange or mango or papaya.** This should be drunk after each trip to the toilet.
- **Replace potassium and sodium:** a **bottle of cola** drink can be stirred until the bubbles are gone. One bottle of this should be drunk during the day. **Coconut milk** also has plenty of potassium and sodium, and can be used instead of cola.
- **Drink plenty of clean water (or fruit juice)** – at least eight glasses during the day. If drinking fruit juice, one-third fruit juice and two-thirds clean water can be mixed.

There are many good local methods for managing diarrhoea. If a person has diarrhoea, their top priority is to stop their stomach from cramping. Some people have tried:

- **The central core of a pineapple:** thought to be effective in killing harmful stomach bacteria.
- **Guava leaves:** contain high levels of tannin, which helps to kill stomach bacteria, and also help to stop stomach cramping. Place a crushed guava leaf in a cup of boiling water. When it's cool, drink it slowly.

**Emergency methods:** If a person cannot get to a doctor quickly, they can take **two tablespoons of ordinary flour (or one tablespoon maize flour), and mix it in half a cup of clean water and drink it immediately.**

Imodium and other medicines that slow down diarrhea should NOT be used except in an emergency (i.e. if someone has to travel to get to the clinic) or when it's prescribed by a health care professional. By stopping the flow of diarrhea, the harmful germs causing the diarrhea are also retained in the intestine which provides a perfect environment for them to multiply (warm, dark and wet!). Diarrhea is the body's way of getting rid of harmful substances – the level of illness should be assessed before trying to stop it.

Some studies have shown that zinc supplementation reduces mortality and morbidity in children under five with diarrhea

(<http://bmj.bmjournals.com/cgi/reprint/325/7372/1059.pdf>, [http://www.jhsph.edu/publichealthnews/press\\_releases/PR\\_2000/zinc\\_diarrhea.html](http://www.jhsph.edu/publichealthnews/press_releases/PR_2000/zinc_diarrhea.html) ). There is no available conclusive research on zinc supplementation for diarrhea in PLHIV.

## Manage Diarrhoea



- **Rehydrate:** ORS packets can be used, flat cola, young coconut milk or diluted fruit juice
- **Home remedies** can be used while deciding whether to go to the clinic
- **For emergencies:** Two tablespoons of flour (ordinary or maize) mixed with  $\frac{1}{2}$  cup of water is effective when it is immediately consumed

Graphic from FHI/Impact

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### **Facilitator Notes:**

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### Slide 23

The handout on Vicious Cycle explains that 'Increased vulnerability to infections leads to increased HIV replication, hastened disease progression, increased morbidity'. The aim is to break that link in the cycle by helping PLHIV protect themselves from needless infections that cause weight loss.

Weight monitoring does not have to be done at the clinic alone. PLHIV should be attune to how their body feels and how their clothing fits, and support groups meetings could facilitate weight checks.

Many PLHIV eat 6 small meals / day to ensure they actually eat enough food, especially when they don't have much appetite or get full quickly.

#### **To re-gain weight:**

1. More protein rich foods should be eaten – beans, meat, nuts, fish, chicken, milk, eggs. This is because the weight lost in Wasting Syndrome is mostly muscle, not fat.
1. The **inner white part of the skin of a lemon or orange should be eaten with meals and apples**. This contains **pectin**, which holds the food in your system longer, allowing better absorption.
2. **Too much fatty** (i.e., bacon, sausages) **and fried food should be avoided**. Although it is generally okay to eat some sugar, **a PLHIV may need to eat less sugar, and more starches** (porridge, maize, root vegetables) to ensure that they have energy for longer period of time, instead of short periods of energy. Starches should be eaten in the morning to give energy through the day. Also, **the sugar may be related to mouth and stomach infections that can prevent the stomach from absorbing food properly**.
3. A PLHIV needs to be intentional about avoiding malaria and TB. They need to get a bednet and use it and learn about TB and how to protect themselves and their family.

## Ensure Stable Body Weight

1. Regular weight monitoring
2. Smaller, more frequent meals should be eaten
3. Lost weight should be regained as soon as possible
4. Pectin should be eaten with foods to help increase absorption
5. Fatty food, fried food, junk food and sugar should be avoided
6. Other kinds of infections such as malaria and TB, must be avoided.

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### **Facilitator Notes:**

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## Slide 24

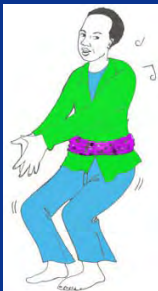
Muscle loss often occurs during periods of illness (because illness usually increases the body's demand for nutrients). Unfortunately, illness often makes people lose our appetite at the same time as they need to be eating more! This can cause the body to use protein from muscle stores to fight the disease. Over time, the muscles become weaker and smaller and less flexible. Eventually muscle loss makes it difficult to recover from illness, impairs mobility, and affects quality of life. A person can help preserve muscle and lean body mass through regular exercise.

Activities for PLHIV should be of moderate intensity. Weight-bearing exercises such as carrying light loads and gardening/farming build lean body mass and improve body composition. PLHIV should be sure to protect themselves from harsh conditions such as hot sun, cold rain, etc. and to be sure their fluid intake keeps pace with any additional demand from exercising.



### *Is physical exercise OK for PLHIV?*

**YES!** Physical activity improves:



**Dance!**

- » Appetite
- » Lean body mass and body composition
- » Quality of sleep
- » Circulation
- » Strength and balance
- » Bone density
- » Quality of life
- » Mental outlook/mood



**Housework or gardening is a good choice!**



**Facilitator Notes:**

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## Slide 25

Holistic, multi-sectoral programming is needed to ensure sustainable nutritional health for PLHIV. Strong referral mechanisms between programs are required.



### *How can we use this information for programming?*

- Livelihoods programming that includes PLHIV
- Expanded nutrition assessment, education and counseling
- WatSan programming adapted for PLHIV
- De-worming protocol for all PLHIV
- Malaria protection including bed net access
- Production of home remedies and nutrition supplements as income generating activities

#### **Facilitator Notes:**

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## **Exercises for Module 5**

## **Exercise 1: What did you eat yesterday?**

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Participants should break into groups of four. The facilitator should ask one member of each group to volunteer to list everything he or she ate yesterday. Analyze this diet by asking the question:

**“Would this be appropriate for someone living with HIV? What adjustments could you have made?”**

Be prepared to present three key learning points from your group’s discussion.

**Note to Facilitator:** Have notes from the Module ‘Basic Nutrition and Healthy Eating’ at hand. Participants should be aiming for a diversified diet with sufficient amounts from all 6 food groups represented as a starting point, then intentionally adding the extra 10% energy requirement. As the additional 10% is added, food choices should reflect the same healthy balance as the rest of the diet, with foods from all 6 food groups.

During the discussion, note each key learning point on the flipchart and note similarities/differences between groups. Brainstorm with the larger group about how we can help PLHIV get the nutrition they need to stay healthy.



## **Handouts for Module 5**

## Handout 1: Living Positively with HIV

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**HIV as a Chronic Illness:** HIV is unique because it interacts with the immune system over a much longer time span than any other infection we know of. The virus itself not only damages the immune system over time, but it causes the body to use up nutrients at a faster rate than our bodies are used to, as we fight both HIV and opportunistic infections. The long-term effects on the immune system are different than for a short-term (acute) infection and the support needed by the immune system (to keep it strong) is unique. While Positive Living (PL) is good for everyone (even healthy people!), it is particularly important for people living with HIV. Advocates of PL believe that it is possible to slow the progression of HIV to AIDS, extending the average period of asymptomatic HIV infection (now typically 6-8 years) by four years, to a new average of 10-14 years.

**Clean Stomach/Clean Water:** These basic requirements for health are the obvious precursors to specific dietary interventions and cannot be overlooked. Any PL intervention with communities has to start with basic hygiene and access to clean drinking water. Sand filtration for removing sediment, and using UV light, chlorination or boiling for disinfection must be promoted in places without access to clean water. Chronic intestinal parasites (worms) are a major threat: they not only damage the body's intestinal tract, they reduce the body's ability to absorb nutrients by stealing the nutrients from the digested food! Chronic intestinal infections provoke a chronic immune system response, which diverts resources away from fighting HIV infection. Regular de-worming, for adults, is often overlooked and could be very useful.

**Good Food:** People living with HIV need to eat more food and consume at least 10% more energy-giving food to meet their body's requirements and avoid losing weight. A diverse diet is extremely important, and certain nutrients must be specifically prioritized. Refined sugar (in any form) promotes certain kinds of infections (especially thrush) and should be replaced by other energy foods. Foods rich in selenium, Vitamin A, zinc, Vitamins B12, C and E should be incorporated into the diet; selenium, in particular, is believed to have a significant impact on slowing the progression of HIV to AIDS.

**Home Gardens:** A properly managed 1 x 3 meter kitchen garden (which caters for everything except staple foods like maize and animal sources of protein) can feed an individual all year. If several gardens are started (for instance, four for a household or in communal arrangement) food can be more easily grown in cycles, in the amounts required for consumption, for a steady, year-round supply. Trench gardens, which require no chemical fertilizer, are initially labor-intensive but subsequently easy to manage and only need renewing after five years. Home gardens allow more creativity to ensure year-round water supply and replenishing the soil of nutrients. Household water (for bathing, washing plates etc.) can be filtered through sand to remove soap and particles and used to water the garden. Shade can be created to reduce water requirements. Trench gardens incorporate a type of composting that makes use of organic material, grass and twigs, manure, old bones and tin cans. Composting will replenish selenium levels in depleted soil, and bones and tins will replenish calcium and iron levels, thus making these much-needed nutrients available in vegetables.

**Home Remedies:** There is a range of home remedies that can be prepared using locally available foods; many people believe them to be effective for strengthening and balancing the immune system and for managing opportunistic infections. For instance, eating garlic regularly can prevent infections and clean out intestinal parasites. Garlic can also be used to treat skin conditions. The flesh of the aloe plant can be made into a juice to help with weight gain and it is also an important source of selenium. Amaranthus (wild spinach), grown wild and easily in drought-prone areas, is an excellent source of many nutrients, including zinc. Lemon juice can ease herpes blisters and the pectin (found in the white part of the skin) can be eaten to increase food absorption for those trying to gain weight.

**Psycho-neural Immunology (PNI)/Attitude:** Chronic stress, brought on by fear, shame, guilt and worry, drains the immune system over time, contributing to disease progression. People who are determined to live long (with HIV) and who take on HIV as a challenge (rather than a threat) are living longer, healthier lives than was ever imagined – some more than 20 years -- without anti-retrovirals (ARVs). One of their strategies is 'attitude': people who feel more in control experience less stress and fear, and stay healthier. Knowledge is power – it is important to actively seek information, take care of our bodies, seek medical help without delay, face our fears and lead active lives.

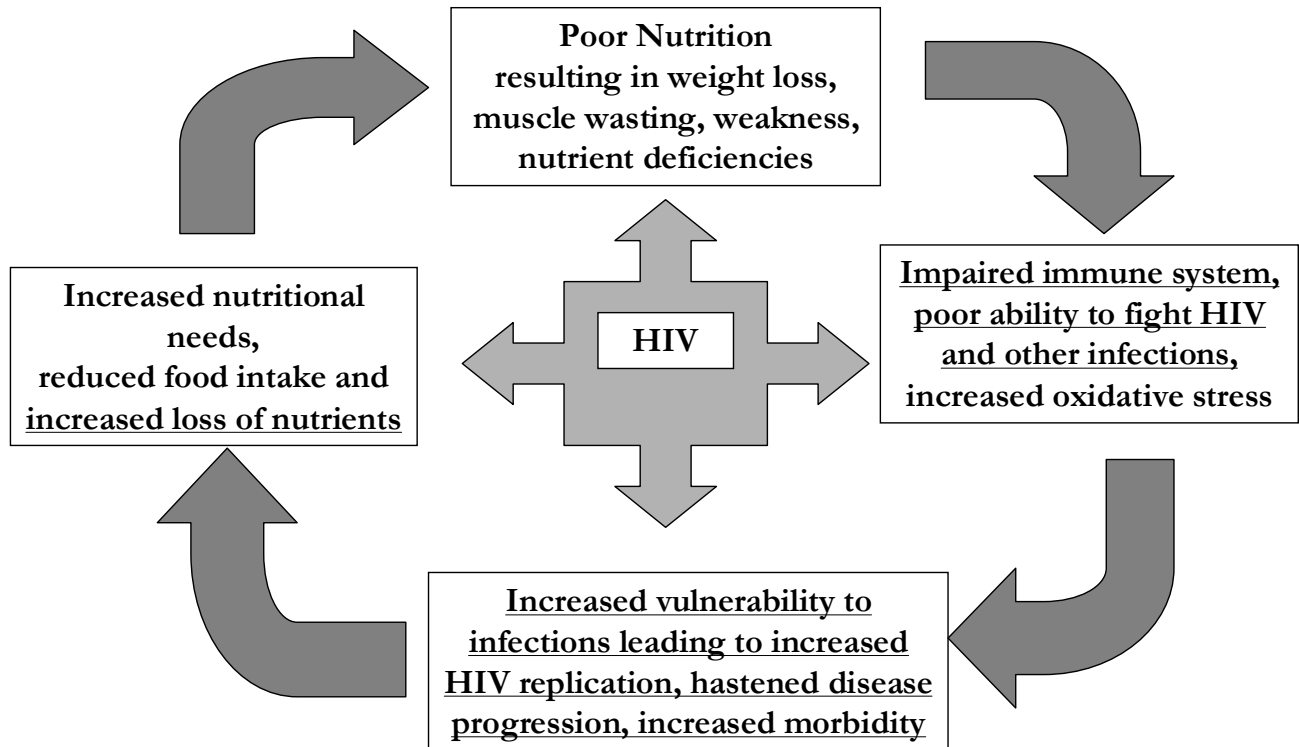
## Handout 2: Energy Requirements of People Living with HIV (PLHIV)

<b>Population Group</b>	<b>HIV phase</b>	<b>Energy requirement</b>
<b>Adults</b>	<b>Asymptomatic</b>	<b>10% increase</b>
	<b>Symptomatic</b>	<b>20-30% increase</b>
<b>Pregnant/ Lactating women*</b>	<b>Asymptomatic</b>	<b>10% increase</b>
	<b>Symptomatic</b>	<b>20-30% increase</b>
<b>Children</b>	<b>Asymptomatic</b>	<b>10% increase</b>
	<b>Symptomatic (with no weight loss)</b>	<b>20-30% increase</b>
	<b>Symptomatic (with weight loss)</b>	<b>50-100% increase</b>

\* This is in addition to extra energy, protein and micronutrients required by pregnancy or lactation.

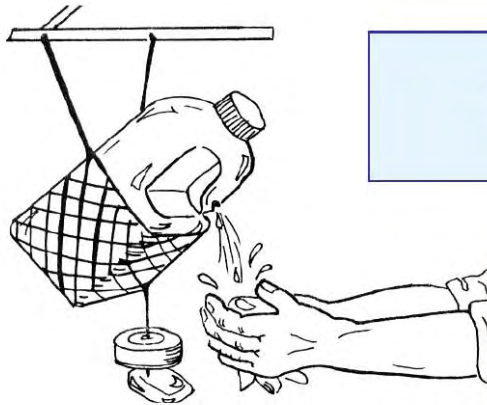
## Handout 3: Breaking the Vicious Cycle

### The Vicious Cycle: Breaking the Chain



Adapted from RCQHC and FANTA 2003

## Handout 4: Tippy Taps



# Tippy Taps

A design for simple, economical, and effective hand-washing stations

Studies have shown that proper hand-washing techniques can reduce the incidence of diarrheal disease by 42-47 percent<sup>1</sup>. However, lack of access to both piped water supply and soap, especially in schools, is a barrier to hand-washing in the developing world. "Tippy Taps" are simple and economical hand-washing stations, made with commonly available materials and not dependent on a piped water supply. This publication describes how to construct and maintain a Tippy Tap and was adapted from the *Uso y Calidad del Agua en la Escuela* pamphlet published in September 1995 by the Centro de Investigación, Desarrollo, Evaluación y Promoción de Tecnología Apropriada (CIDEPTA) and the Pan American Health Organization (PAHO).

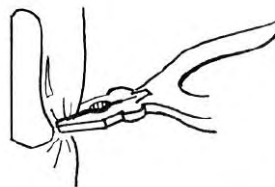
### Tippy Tap Construction



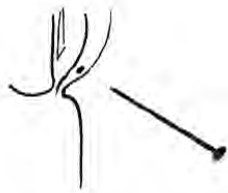
1. First, select a plastic container of approximately 5 liters, or 1.5 gallons, with a handle.



2. Then, warm the base of the handle with a candle until the plastic is soft.



3. When the base is soft, pinch the base closed with a pair of pliers and then let it cool. Make sure that no water can flow through the pinch-closed base.



4. With a hot nail, make a 2 millimeter hole just above the pinch-closed base of the handle.

5. With a plastic net, suspend the bottle from a metal support. Let one piece of plastic hang down to suspend the soap from. \*



6. Make a hole in the center of a bar of soap. From the hanging piece of plastic, suspend with a string the soap and a plastic or metal cover (such as a tin can) to protect it from sun and rain.

\* If a net is not available, two holes can be made in the back of the bottle, and the Tippy Tap can be suspended by connecting a string through those holes to the support.



### To Install and Use a Tippy Tap

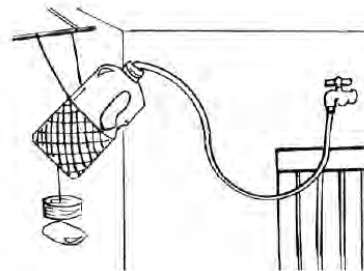
- Hang the Tippy Tap near a latrine, kitchen, or school.
- Use the handle to tip the container and allow water to flow out of the hole onto your hands. Use soap every time you wash your hands!

### Recommendations for Tippy Tap Maintenance

- If there is a water tap present, a hose can be used to fill the Tippy Tap.



- Clean the outside of the Tippy Tap with a brush and soap daily, and clean the inside of the Tippy Tap once per week with clean water and disinfectant.



If you have any questions on Tippy Taps, or about safe water and sanitation in the developing world, please contact the Centers for Disease Control and Prevention, Foodborne and Diarrheal Disease Branch, at [safewater@cdc.gov](mailto:safewater@cdc.gov) or visit <http://www.cdc.gov/safewater>. We would like to thank CIDEPTA and PAHO for the figures and source material.

1. Curtis, Val and Sandy Cairncross (2003). "Effect of washing hands with soap on diarrhoea risk in the community, a systemic review." *The Lancet: Infectious Diseases*, Volume 3, May 2003.

## References for Module 5

### Resources Consulted

National AIDS and STI Control Programme of Kenya (NAS COP). May 2007. "Nutrition and HIV/AIDS: A Toolkit for Service Providers in Comprehensive Care Centers". Nairobi, Kenya: NAS COP.

USAID, AED, and RCQHC. 2003. "Nutrition and HIV/AIDS: A Training Manual." Kampala, Uganda, FANTA, and LINKAGES.

Patient, David and Neil Orr. Fourth Edition, 2004. "Positive Health". Empowerment Concepts.

*Many slides were adapted from the above resources. In addition, some of the graphics were lifted from the Self-Care Series (FHI/Impact) and the draft edition of the 'Flipchart for Patient Education', under development by the Ministry of Health, Zambia.*

### Recommended Reading

CABI Bioscience. 2003. "How to Live Positively: A practical manual for facilitating community action in HIV & AIDS-affected areas".

FAO. 2002. "Living well with HIV&AIDS: A manual on nutritional care and support for people living with HIV&AIDS".

Francis, Lynde with Jim Rose. 2003. "Positive Living – Food and Us. Zimbabwe HIV & AIDS". Project/JSI.

FANTA. Second Edition, 2004. "HIV/AIDS: A guide for nutrition, care and support". Washington, DC: FANTA Project, AED.

Family Health International (FHI)/Impact Self-Care Series. "Book One: What Should I do if I think I have HIV/AIDS?"

FHI/Impact Self-Care Series. "Book Two: Living with Hope and Staying Healthy."

FHI/Impact Self-Care Series. "Book Three: Living Peacefully with AIDS."

FHI/Impact Self-Care Series. "Book Four: Staying Healthy for Mothers Living with HIV."

Country-specific Nutrition and HIV Guidelines, if available.



# Module 6: Nutrition for PLHIV with Illness

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## Overview of Module 6

### Title of the Module

Nutrition for PLHIV with Illness

### Goal of the Module

The purpose of this module is to provide basic knowledge for the nutritional management of adult and child HIV-related illness.

### Learning Objectives

By the end of this module, participants will understand how to help PLHIV to

- use food to support recovery from illness
- reduce the impact of illness on nutritional status
- be aware of ART, food and nutrition implications

### Estimated Time

PowerPoint Presentation: 70 minutes

Exercise: 20 minutes

*Total Estimated Time: 1 hour and 30 minutes*

### Prerequisite Modules

It is recommended that the facilitator cover all preceding modules prior to tackling the current one.

### Materials Required

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments, handouts of exercises, and materials for exercises (listed in each exercise)

Note: If a set of National Guidelines for Nutrition and HIV has been developed in the host country, the facilitator should have a copy and be familiar with the contents. If the participants don't already have copies of their own, they should be distributed at this session. (This should have been distributed at a previous session.)

If budget allows, the Recommended Reading "AIDS Alliance. ART Fact Sheet #8: Food for People on ARV Treatment" would make a useful handout.

([http://www.aidsalliance.org/graphics/secretariat/publications/FS08\\_Food\\_and\\_ART\\_2007.doc](http://www.aidsalliance.org/graphics/secretariat/publications/FS08_Food_and_ART_2007.doc))

If the host office does any IMCI (Integrated Management of Childhood Illnesses) programming, it would be useful to have a staff member from that program on hand to share the adaptations to IMCI protocol related to HIV exposure and HIV+ children.

### **Recommended Preparation**

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.

Assess the level of knowledge of the participant audience to determine the length of time to be allocated to PowerPoint presentation and the activities in this module.

Review each of the exercises carefully and prepare necessary materials for each.

Review reference materials and other recommended readings.

## Facilitator Notes for Module 6

### Slide 1

This module focuses on the needs of PLHIV in the middle and late phases of their infection, when illness sets in.

Fortunately, ART is increasingly accessible and more and more PLHIV are starting on treatment, so this module will address the nutrition needs of PLHIV on ART as well. (It is important to note that at this time this was written, April 2008, approximately 30% of PLHIV who needed ART had access to the appropriate medication.)



## Nutrition for PLHIV with Illness

### Module 6



### Facilitator Notes:

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## Slide 2

Medical treatment is critical to treat symptoms and opportunistic infections, as well as to treat HIV disease itself, and good nutrition complements medical treatment. Good nutrition enhances the capacity of the body to fight opportunistic infections and therefore maximizes the effectiveness of medical treatment. Where treatment options are limited, nutrition can help people manage symptoms and strengthen immune function.

This module focuses on the needs of PLHIV in the middle and late phases of their infection, when illness sets in. It will look at a range of symptoms PLHIV often experience as their disease progresses, and discuss how to help manage these symptoms with diet strategies. Specifically, the module will cover symptoms such as fever, diarrhea, bloating, heartburn, loss of appetite, fever, and others. The module will also look at what can be done specifically for children. Fortunately, ART is increasingly accessible, so more and more PLHIV are starting on treatment, so some time will be spent looking at some of the adaptations that are necessary for people on ART.

NB. If a set of guidelines for Nutrition and HIV have been developed in the host country, the facilitator should have a copy of them and be familiar with the contents.



### Goal

To provide basic knowledge for the nutritional management of adult and child HIV-related illness

### Objectives

To understand how to help PLHIV to

1. Use food to support recovery from illness
2. Reduce the impact of illness on nutritional status
3. Be aware of ART, food and nutrition implications

### Facilitator Notes:

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### Slide 3

The onset of opportunistic infections is usually accompanied by fever, night sweats, fungal infection of the mouth, chronic diarrhea, and weight loss and is a sign of a weakened immune system. Many PLHIV experience a lack of appetite at this stage, precisely when they need to be eating more food, not less. Fever increases energy expenditure and the need for adequate fluid intake. The persistence of symptoms and opportunistic infections that cause increased energy and nutrient needs are often accompanied by reduced food intake and poor absorption of nutrients, and generally lead to weight loss and wasting.

To help PLHIV avoid weight loss and wasting, and to help them make a successful transition to ART, nutrition assessment and counseling along with the dietary management of HIV-related symptoms should be integrated in all services and activities where health workers and counselors meet people living with HIV (e.g., counseling, testing, and antenatal visits). During clinic visits and counseling sessions, health workers and counselors should always assess how PLHIV are managing HIV-related diet concerns / challenges and, when needed, help identify alternative options or make the appropriate referral.



## Dietary Management of Illness is a powerful tool. It can:

- Enable greater food intake
- Reduce severity of symptoms and contribute to increased comfort
- Compensate for nutrient losses and prevent dehydration
- Complement and strengthen medical treatment, including adherence to ART and TB treatment

### **Facilitator Notes:**

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#### Slide 4

Clinical assessment is crucial for the identification and management of PLHIV-specific nutrition needs. These might include nutritional care and support (in-patient or out-patient); food/micronutrient supplements; medical treatment; and/or referral for further assessment.



### At a minimum, symptomatic PLHIV should:

- Monitor weight closely and have regular (more comprehensive) nutrition assessments
- Maintain especially high levels of sanitation, food hygiene, and food/water safety at all times



#### Facilitator Notes:

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## **Slide 5**

### **Handout #1: Dietary Management of Specific Symptoms**

#### **Arising from common HIV-related infections**

People living with HIV tend to have various oral conditions that may affect food intake. They may suffer from infections in their gums, viral infections such as herpes and fungal infections such as thrush. Dental problems such as cavities are not HIV/AIDS-related but can also affect food intake and lead to dental abscesses, so should be treated promptly.

**Poor appetite:** If someone has a poor appetite, they should eat smaller amounts, more often. Instead of eating three times a day, they should eat small meals six times a day. More calories can be hidden in food by adding fat (e.g., cooking oil, butter, or margarine) or protein (e.g. crushed groundnuts, cooked egg), to increase caloric intake. To encourage snacking, it can be beneficial to keep favorite foods nearby.

**Thrush:** Sore mouth is one of the most common deterrents to a good dietary intake. This is often caused by yeast infections in the mouth (thrush), which looks like a creamy substance inside the mouth. When possible, PLHIV should get treated with medicine from the clinic (nystatin (e.g. Nystan oral suspension), amphotericin (e.g. Fungilin lozenges) or miconazole (e.g. Daktarin oral gel). There are several methods of controlling thrush at home which might be helpful.

- Raw garlic can be chewed every few hours;
- The mouth can be rinsed with warm salt water, or a mixture of baking soda and water; don't use ordinary mouthwashes – they can be too strong.
- ALL forms of sugar (including honey and soft drinks) should be avoided as they help infections in the mouth to grow.
- Lemon can be sucked on, if it can be tolerated.

A PLHIV should not stop eating. Spicy and acid foods should be avoided until the mouth is healed. Soft foods, such as soups, soft-cooked eggs, milk, and warm (not hot) porridge can be eaten more easily.

**Fever:** It's important to understand why a person has a fever, so PLHIV with unexplained fever should seek medical help as soon as possible. Having a fever uses up a lot of the body's fluids and energy. A person with a fever should be sure to drink as much as possible and continue to eat (even small amounts at a time).

## Dietary Management of Specific Symptoms

**Poor appetite:** Eat small amounts of food frequently and eat energy-dense foods



**Thrush:** Eat soft mashed foods cold or at room temperature and avoid spices and sugar



**Fever:** Drink plenty of fluids and eat soups that are rich in energy and nutrient dense foods



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### Facilitator Notes:

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## Slide 6

Taking antibiotics can cause either diarrhea or constipation, because as well as attacking the main infection, they kill some of the friendly bacteria that live in the bowels. Eating natural unsweetened yoghurt or soured milk can help to get your bowels back in proper working order. Don't take the yogurt/sour milk at the same time as the antibiotics though, as some antibiotics only work properly when taken without anything to eat.

**Diarrhea:** For most cases of diarrhea no medicine is needed. If the diarrhea is severe, the biggest danger is dehydration. If the diarrhea lasts a long time, the biggest danger is malnutrition. So the most important part of treatment has to do with giving enough liquids and enough food. Bananas can help to both slow down the diarrhea (they contain fiber) and restore minerals lost through having diarrhea. Note: When a person has loose or watery stools, he has *diarrhea*. If mucus and blood can be seen in the stools, he has *dysentery*. *Dysentery must be treated at the clinic.*

**Nausea:** Gentle foods: rice, mashed potato, maize meal porridge... Ginger, peppermint or chamomile teas or sweets may also be helpful, as well as frequent small meals. Coffee, smoking, alcohol, aspirin and very spicy foods should be avoided if possible. When a drug has to be administered on an empty stomach, small quantities of salty crackers may lessen the nausea.

**Constipation:** It helps to eat plenty of fruit or food with a lot of fiber (such as whole grain bread, cassava, wheat bran, rye, carrots, turnips, raisins, nuts, pumpkin or sunflower seeds) – managing constipation with diet is better than using laxatives. It also helps to add a little vegetable oil to food each day. Walking and exercising helps with constipation and gas. Older people, people who aren't doing much physical activity, or someone using painkillers will need to be especially vigilant in preventing constipation.

Facilitator to participants: What would you normally do for diarrhea, nausea, constipation; does it work?

## Dietary Management (cont.)

**Diarrhea:** Drink lots of fluids, use ORS, and eat energy- and nutrient-dense foods



**Nausea:** Eat small frequent meals, eat foods gentle on your stomach, avoid fatty foods and dairy products

**Constipation:** Drink more water, and eat more high-fiber foods, exercise

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### **Facilitator Notes:**

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## Slide 7

**Anemia:** People get anemic when blood is lost or destroyed faster than the body can replace it. Blood loss from large wounds, bleeding ulcers, or dysentery can cause anemia. So can malaria, which destroys red blood cells. Not eating enough foods rich in iron can cause anemia or make it worse.

Note that there are also foods that can inhibit the absorption of iron, such as oxalic acid in spinach, phosphates in milk and egg whites, phytates in beans and other vegetables, and possibly the tannins in tea. Calcium supplements also may decrease iron absorption. (<http://health.rutgers.edu/factsheets/iron.htm>)

**Bloating and heartburn:** Acid indigestion and 'heartburn' often come from eating too much heavy or greasy food or from drinking too much alcohol or coffee, or from medications. These make the stomach produce extra acid, which causes discomfort or a 'burning' feeling in the stomach or mid chest. Some people mistake the chest pain, called 'heartburn', for a heart problem rather than indigestion. If the pain gets worse when lying down, it is probably heartburn.

**Gas:** Some people have difficulty digesting certain foods completely. This can lead to partially digested food passing from the small intestines to the colon. There are a large number of bacteria in the colon that will readily "digest" the food further and produce gases in the process. Foods that contain certain sugars that are very difficult for most people to digest include baked beans, onions, lima beans, turnip, rape, cabbage and lentils. Some people have difficulty digesting lactose (milk sugar) because they do not make enough of the enzyme, lactase, which is needed to breakdown lactose. If there is a large amount of lactose in their diet, then the incompletely digested lactose will pass to the colon where bacteria break it down and produce gas.

**Poor absorption:** Weight loss can occur even when there is proper intake if one's stomach is having trouble digesting the foods that are eaten. This is especially true of digesting **proteins** (meat, fish, nuts), leading to loss of muscles. **Papaya** fruit, juice, leaves and seeds are excellent to help with this, as they contain a substance called *papain* that break down the protein, making them easier to absorb. It can be beneficial to marinate (soak) meat in papaya juice, or place papaya skins on meat or fish for a few hours before cooking it; another technique is to crush papaya seeds and sprinkle them over food like pepper. Lastly, another method is to pour boiling water over a crushed papaya leaf, leave it to soak for ten minutes, and then use this water to drink or pour into food.

NB: The diet supplements industry is not well regulated in many countries. Labeling may contain misleading information about uses and benefits of products.

**TB and Anemia:** Anemia is a common hematological abnormality in patients with TB and close observation is sufficient for patients with TB-associated anemia, because TB-associated anemia is usually mild and resolves with anti-TB treatment. (<http://www.ncbi.nlm.nih.gov/pubmed/17179681>)

## Dietary Management (cont.)

**Anemia:** A PLHIV should eat iron-rich foods, such as animal products, green leafy vegetables. They should take iron supplement if prescribed by their doctor.

**Bloating, heartburn and gas:** Eat small and frequent meals, avoid gas-forming foods, and leave time between eating and going to sleep.

**Poor absorption:** When nutrients aren't being absorbed, weight loss can occur even when intake is adequate.

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### Facilitator Notes:

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**Slide 8**

Refer to instructions on the Handout for Exercise #1: Applying Nutrition to HIV-related Illness



**Exercise #1**

**Applying Nutrition to  
HIV- related Illnesses**

**Facilitator Notes:**

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## Slide 9

The course of HIV infection in babies and children is different to that in adults, and it is important that the monitoring, care and treatment of your child is provided by doctors and other staff at a specialist clinic skilled in looking after infant, children and young people with HIV.

Note: children under 2 covered in module 8



### Special considerations for children (over 2) with HIV

- Malnutrition is common in HIV+ children, which complicates their medical management.
- Micronutrient deficiencies are common among HIV+ children. They reduce immunity, and predispose them to more infections and worsening nutritional status.

#### **Facilitator Notes:**

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## Slide 10

HIV infected children in developing countries show a decline in length and weight within the first months of life, and eventually manifest a picture of chronic malnutrition. Stunting (low height/weight for their age) and/or underweight is common because their HIV infection is 'eating' their nutrients and keeping them from growing.

The infectious causes of diarrhea in HIV-infected children are similar to the common causes in non-infected children. Caregivers should ensure adequate nutrient intake based on locally available foods; provide universal (vitamin A) or targeted (e.g., iron, folate, zinc) micronutrient supplements as per MoH guidelines.



## Child Growth Monitoring and HIV

- Children born to HIV+ mothers start with a compromised nutritional status
- Nutrition Rehabilitation Units are seeing increasing numbers of HIV+ children
- The severity of growth failure among HIV+ children is associated with reduced survival

### Facilitator Notes:

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**Slide 11**



## **Child Growth Monitoring: An opportunity to save lives**

- Growth is a very sensitive indicator of HIV disease and disease progression in children
- Growth monitoring programs provide an entry point for identification of HIV+ children
- Growth faltering in HIV+ children is a trigger for ART assessment
- Growth faltering in HIV+ children responds well to ART

**Facilitator Notes:**

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**Slide 12**

Credit: © 1991 Lauren Goodsmith, Courtesy of Photoshare

Caption: A child is weighed for a nutritional survey in the Brakna Region of Mauritania.

This photo is used to depict how children are weighed. The inclusion of this photo should not be construed to mean that the child is HIV positive.



**Facilitator Notes:**

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### **Slide 13**

The guidance on this slide applies to all HIV+ children regardless of whether they are on treatment or not.

1. Participants should use what they already know and refer to the strategies that were identified in earlier slides in this session that describe symptom management. Additionally, what works for non-HIV-infected children (i.e. Integrated Management of Childhood Illnesses (IMCI) protocols) will work for children with HIV but must be applied with real rigor. Vitamin A and other micronutrient supplementation should be provided according to national guidelines. Participants should refer to the session on Asymptomatic PLHIV – strategies described there are considered the starting point and must be implemented throughout illness phases as well.

The facilitator may want to ask participants how many strategies they can name from that session.

Answers-

- Prevent water-borne illnesses -- Clean water!
- Prevent food-borne illnesses– Clean food!
- Presumptive de-worming should be done on both HIV+ adults and children every 6 months

2. Early supplementation with high-energy nutrient dense foods, such as CSB, in HIV+ children helps preserve lean body mass (LBM) and slows disease progression.

3. Detect and address early growth faltering. Weigh the child monthly (more often if indicated) and plot the weight on a growth chart. Provide an extra meal per day after episodes of illness, to allow for catch-up growth (see IMCI guidelines).

4. Provide nutritional counseling and care and more intensive follow-up (initially 2 weekly and then monthly). Ready-to-Use Therapeutic Foods (RUTF) such as Plumpy'Nut are proving to be extremely effective for use in communities, allowing mild-moderate childhood malnutrition to be managed at home rather than in the clinic.

5. Promote “catch up” growth: In childhood, growth is the normal state, and a slowing of the rate of growth will result in a progressive falling away from the normal growth curve with time. Special effort is required to make sure children have enough food to not only continue growing but to catch up for the growth they missed.

6. HIV+ children need access to a reliable, experienced ART service provider who is able to start their treatment at the optimal time and monitor them closely!

7. Give Cotrimoxizole prophylactically to HIV+ pregnant women to reduce incidence of Malaria.

## *How the Nutritional Status of HIV+ Children Can Be Protected*

1. Use what you already know about child nutrition and child nutrition programming
2. Don't wait until there are signs of malnutrition to support nutrition in HIV+ children.
3. Develop and adapt GMP systems to detect and address early growth faltering
4. Provide nutrition counseling and follow-up
5. Promote "catch-up" growth
6. Improve children's access to ART
7. Give Cotrimoxizole prophylactically to HIV+ pregnant women to reduce incidence of Malaria.

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### **Facilitator Notes:**

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## Slide 14

Responsive feeding / active eating for children (not just infants) should be encouraged—children should be encouraged to eat whenever they're hungry, nutritious foods they like to eat should be provided, foods can be made into drinks, good quality snacks should be made available to children who can feed themselves... Making food more palatable simply by adding more sugar should be avoided – other spices might work just as well.



### HIV+ children need to eat more, eat better...

- Increase their micronutrient intake by diversifying diet
- Feed HIV+ children more often; encourage active eating
- Use high-energy and nutrient-dense foods (e.g., germinated, fermented, and fortified foods)
- Modify preparation to enable increased intake (e.g., pureeing, juicing, mashing, or slightly spicing food)

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#### Facilitator Notes:

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## Slide 15

The side effects of drugs on food intake and the effects of drugs on nutrient absorption, metabolism, distribution and excretion may have the most negative impact on the nutritional status of PLHIV. The side effects of drugs and the effects of the disease are often difficult to distinguish. For example, headaches, malaise, fever, and gastrointestinal symptoms may be side effects of drugs but can also be associated with HIV and AIDS. Regardless of their origin, the right dietary responses may help to sort them out. Let's have a brief look at the interaction of antiretroviral drugs and food.



*Is the nutrition  
guidance different for  
PLHIV on ART?*

**Facilitator Notes:**

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**Slide 16:**

Credit: © 2005 David Snyder, Courtesy of Photoshare

Caption: An HIV+ beneficiary receives anti-retroviral medications during a regular home visit by a Ugandan NGO worker in Kampala, Uganda. Home-based care is an essential element of the war on AIDS in Africa, reaching tens of thousands of HIV positive people with critically-needed medications, care, and perhaps most importantly, psychological support as they battle their illness.



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**Facilitator Notes**

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## Slide 17

1. Dietary management to improve the efficacy of a medication includes taking the medication with food, on an empty stomach, or with or without certain types of foods. For instance, a full stomach reduces the absorption of INH (Isoniazid), a medication commonly used to treat TB. Therefore, INH has to be taken 1 hour before or 2 hours after meals. As the effect of food on the efficacy of a drug is food and drug specific, the counselor should help the PLHIV draw up a food and drug timetable. This timetable should take into account both the food and drug interactions of each drug to be taken and the PLHIV's eating habits to ensure the greatest efficacy of the treatment.
2. Dietary management may require either increasing food intake or taking a nutrient supplement to compensate for the nutrient affected. For instance, many people experience diarrhea when they first start ART – for 4-6 weeks – which often resolves by itself. During this time, increased food and fluid intake is essential. Other drugs may cause changes in fat levels in the blood, or interfere with the way sugar is metabolized, (this causes symptoms similar to diabetes) – these side-effects require changes in diet to manage them.
3. Side effects may include changes in taste, loss of appetite (anorexia), nausea, bloating and heartburn, constipation, vomiting and diarrhea that affect food intake and nutrient absorption. Using flavor-enhancers and eating nutrient-rich/energy-dense foods can help reduce the chance of weight loss.
4. These are very specific and are constantly being updated as we learn more and as drug protocols evolve. PLHIV on ART should seek this information from a qualified health care provider and adhere to their advice closely.



## Food / Drug Interactions (for all ages)

The main types of food and drug interactions are:

1. Food effects on drug efficacy
2. Drug effects on nutrient absorption, metabolism, distribution, and excretion
3. Side effects of medications that affect food intake and nutrient absorption
4. Drug and food interactions that cause unhealthy side effects

### Facilitator Notes:

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## Slide 18

Because different drugs have different food interactions, recommendations should be drug specific. The counselor should understand the specific interactions of each drug used and counsel accordingly. Successful management of the PLHIV's drug and food interactions requires that the counselor understand the specific context of food access and eating habits. The counselor should motivate the PLHIV to use available foods to address side effects and interactions of the medications. The PLHIVs should be encouraged to ask questions about food/drug interactions during clinic appointments, and to explain any difficulties they have with following guidance on taking drugs, medications (traditional and prescribed ones) to their health care provider.

Careful consideration and management of drug and food interactions is required in HIV and AIDS therapy to ensure drug efficacy and PLHIV adherence and avoid negative effects on nutritional status.



### *What can be done about food/ drug interactions?*

- Specific guidance should be provided by a health care professional
- Encourage clients to discuss ALL their medications (including traditional ones) with their doctor

#### **Facilitator Notes:**

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## Slide 19

Once PLHIV are stabilized on ART, they are much like asymptomatic PLHIV from the previous module. They need nutrition assessment which includes regular weight checks along with nutrition counseling and education to ensure that they stabilize with a healthy body weight. They need to eat food from all food groups (see module on Balanced Diet and Healthy Eating) and may need assistance to ensure their access to this kind of healthy diet in the long term.

Refer to Module 5 where two identical plates of food were displayed – one larger than the other, but proportional. When energy needs increase, the proportion of protein, carbohydrates and fats should remain the same.



### *Do PLHIV on ART have special nutritional needs?*

PLHIV on ART need:

- 10% more energy for the rest of their lives, and 30% during any periods of illness;
- A balanced, colorful diet – with all food groups -- every day
- To follow medical advice about the interaction between food and the drugs they're on

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**Facilitator Notes:**

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**Slide 20**



*Do PLHIV on ART have special nutritional needs (cont.)*

- Counseling and support for management of drug / food interactions
- Ongoing nutrition counseling and regular weight checks
- Nutritional rehabilitation to restore body weight, if they are wasted when starting ART

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**Facilitator Notes:**

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## Slide 21

**Nausea:** Nausea is a common adverse effect of many antiretroviral (ARV) and other medications and often occurs within weeks of starting new medications. In some cases, nausea causes significant discomfort and may interfere with medication adherence. ([http://www.aids-ed.org/aetc?page=cm-411\\_nausea](http://www.aids-ed.org/aetc?page=cm-411_nausea)) It can also make certain foods (or all foods) unappealing to consume.

**Lipodystrophy:** Body fat changes in HIV are also known as lipodystrophy. Three patterns of body fat changes are being seen in people with HIV who are taking potent combinations of anti-HIV drugs (often called Highly Active Antiretroviral Therapy or HAART for short). These are:

-Gaining fat on the abdomen/belly (central fat), between the shoulder blades, or around the neck or in the breasts (mostly in women).

-Losing fat from under the skin which becomes most obvious in the arms, legs, buttocks and face, resulting in facial wasting, shrunken buttocks and prominent veins on the arms and legs. Only this particular kind of fat loss is specific to HIV infection. Fat gain may be caused by metabolic changes that also occur in HIV-negative people.

-A mixture of both fat gain and fat loss.

The fat gain is not sub-cutaneous fat (the squidgy fat directly under the skin). Central fat gain is within the abdomen. This makes the belly feel harder; some people have described it as feeling taut, like a football or like pregnancy. This fat accumulation may also interfere with food intake.

The majority of people who develop these changes experience a mixture of both types of body fat change. You may often hear these fat changes referred to as 'fat redistribution'. The body fat changes can be accompanied by metabolic changes (rises in levels of fats and sugar in the blood). A few people will also develop small, unusual fat deposits on other parts of the body, usually the limbs and trunk. These are called lipomas. (<http://www.aidsmap.com/en/docs/9A13F454-C8C1-4AF0-ACAB-AC8654A144F9.asp>)

**High Cholesterol:** Dyslipidemia (Hypertriglyceridemia, low HDL cholesterol, high LDL cholesterol) to levels associated with increased risk of cardiovascular disease occurs in about 70% of HIV-1 infected patients receiving antiretroviral therapy. (<http://www.cmaj.ca/cgi/reprint/170/2/229>)

**Insulin Resistance:** New-onset diabetes mellitus, clinically similar to type 2 diabetes, affects a small proportion (1% to 6%) of HIV infected patients treated with PI-based antiretroviral regimens. Many more patients receiving PI therapy have evidence of insulin resistance without frank diabetes. However, insulin resistance may also be associated with HIV infection itself in patients not receiving PI therapy, perhaps resulting from the direct effects of the HIV virus on pancreatic  $\beta$  cell function and insulin secretion. (<http://www.cmaj.ca/cgi/reprint/170/2/229>)

**Refeeding Syndrome:** Refeeding syndrome occurs when previously malnourished patients are fed with high carbohydrate loads, the result is a rapid fall in phosphate, magnesium and potassium, along with an increasing ECF volume, leading to a variety of complications. ([http://www.ccmtutorials.com/misc/phosphate/page\\_07.htm](http://www.ccmtutorials.com/misc/phosphate/page_07.htm)) This can possibly occur when an untreated, undernourished patient is put on ARV and given food assistance.

Some side effects of ARVs have specific nutrition implications...

- Nausea
- Lipodystrophy
- High cholesterol
- Insulin resistance (Diabetes)
- Refeeding Syndrome

**Facilitator Notes:**

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**Slide 22**

Brainstorm with the group to develop additional ways this can improve programming.



*How can this information  
improve programming?*

- Adapt and closely monitor GMP programs to ensure HIV+ children are identified early
- Provide nutrition support to ART , TB and HBC clients
- Ensure nutrition assessment and counseling staff have an understanding of HIV, AIDS and ART
- Adapt nutrition education programming to an HIV context
- Adapt WatSan programming to an HIV context

**Facilitator Notes:**

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## **Exercises for Module 6**

## **Exercise 1: Applying Nutrition to HIV-related Illnesses**

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The facilitator should divide participants into two groups, with several smaller groups working on the same exercise if necessary. Using their copy of the slides and the handout provided, participants should discuss and present their suggestions for the following symptoms of HIV-related illness.

**Group 1: Fever, anorexia, nausea, and vomiting**

**Key answers:** Eat small amounts of favorite foods; avoid strong smelling foods, alcohol, and spicy foods; select foods that are more energy dense; try to eat soups and consume liquids; drink herbal teas; use ORS to prevent dehydration; seek medical advice for fever and vomiting if severe/prolonged; seek medical advice immediately for bloody diarrhea; try dry biscuits or bread to settle stomach before taking medication;

**Group 2: Muscle wasting, thrush, constipation**

**Key answers:** Use garlic for thrush; avoid spicy foods and sugar; eat soft foods; eat high fiber foods such as fruits; increase proteins and carbohydrates; eat small meals often; ensure sufficient fluid intake; ensure good oral hygiene; take gentle exercise;

## **Handouts for Module 6**



## Handout 1: Dietary Management of Specific Symptoms Arising from Common HIV-Related Infections

Symptoms	Treatment
Fever and loss of appetite	<p>Drink high-protein liquids and fruit juice</p> <p>Eat small portions of soft, preferred foods throughout the day</p> <p>Eat nutritious snacks whenever possible</p> <p>Drink liquids often</p>
Sore mouth and throat	<p>Avoid citrus fruits, tomato and spicy foods</p> <p>Avoid very sweet foods and drinks</p> <p>Drink high-energy, high-protein liquids with a straw</p> <p>Eat foods at room temperature or cooler</p> <p>Eat thick, smooth foods, such as porridge, mashed cassava, mashed carrots, mashed avocado, banana or other non-acidic vegetables and fruits</p>
Diarrhea	<p>Drink liquids frequently, use ORS</p> <p>Drink diluted juices</p> <p>Keep eating: bananas, mashed fruits, soft rice, porridge</p> <p>Seek treatment if you're getting dehydrated, if there's blood in the stool or it lasts more than three days</p>
Loose bowels	<p>Eat bananas, mashed fruits, soft rice, porridge</p> <p>Eat smaller meals, more often - don't stop eating!</p> <p>Eliminate dairy foods to see if they are the cause</p> <p>Decrease high fat foods</p> <p>Don't eat foods with insoluble fiber ("roughage")</p> <p>Drink liquids often</p>
Nausea and vomiting	<p>Eat small snacks throughout the day and avoid large meals</p> <p>Eat crackers, toast and other plain dry foods</p> <p>Avoid foods that have a strong smell</p> <p>Drink diluted fruit juices, boiled/sterilized water and soup</p> <p>Eat simple boiled foods, such as porridge, cassava, beans</p>
Fatigue, lethargy	<p>Have someone pre-cook foods to avoid energy and time spent in preparation (avoid re-heating food)</p> <p>Eat fresh fruits, especially avocado, that don't require preparation</p> <p>Eat snack foods often throughout the day</p> <p>Drink high-energy, high-protein liquids</p> <p>Set aside time each day for eating</p>

Adapted from CABI Bioscience, 2003. *How to Live Positively: Facilitating community action in HIV/AIDS-affected areas of Africa.*

## References for Module 6

### Resources Consulted

National AIDS and STI Control Programme of Kenya (NASCO). May 2007. "Nutrition and HIV/AIDS: A Toolkit for Service Providers in Comprehensive Care Centers". Nairobi, Kenya: NASCO.

FANTA. Second Edition, 2004. "HIV/AIDS: A guide for nutrition, care and support". Washington, DC: FANTA Project, AED.

USAID, AED, and RCQHC. 2003. "Nutrition and HIV/AIDS: A Training Manual." Kampala, Uganda, FANTA, and LINKAGES.

*Many slides were adapted from the above resources.*

### Recommended Reading

FANTA. Second Edition, 2004. "HIV/AIDS: A guide for nutrition, care and support". Washington, DC: FANTA Project, AED.

International HIV/AIDS Alliance. 2007. "ART Fact Sheet #8: Food for People on ARV Treatment".

International HIV/AIDS Alliance Website has links to other Fact Sheets on related topics.

African Network for the Care of Children Affected by AIDS (ANECCA). Revised Edition, July 2006. "Handbook on Paediatric AIDS in Africa".

Food Medication Interactions [www.foodmedinteractions.com](http://www.foodmedinteractions.com)

Lockwood, Kathryn, Kwame Msapato, Shannon Senefeld, Jill Nogi and Paul Perrin. July 2006. "Water & Sanitation Assessment of HBC Clients in Malawi". Baltimore, Maryland: Catholic Relief Services.

Country-specific Nutrition and HIV Guidelines, if available.

# Module 7: Nutrition for Pregnant and Lactating HIV Positive Women and their Infants

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## Overview of Module 7

### Title of the Module

Nutrition for HIV+ Pregnant and Lactating Women and Their Infants (up to 2 years)

### Purpose of the Module

The purpose of this module is to provide guidance that will contribute to positive outcomes for HIV+ mothers and HIV-exposed infants (under 2 years).

### Learning Objectives

By the end of this module, participants will understand how to help HIV+ pregnant and lactating women (PLW) to:

- protect and enhance their nutritional status
- protect their infants from both malnutrition and MTCT of HIV
- get the information and support they need to make good decisions about infant feeding.

### Estimated Time

PowerPoint Presentation: 60 minutes

Exercise 1: 30 minutes

Exercise 2 (alternate exercise): 30 minutes

*Total estimated time: 1 hour and 30 minutes – 2 hours*

### Prerequisite Modules

It is recommended that the facilitator cover all preceding modules prior to tackling the current one.

### Materials Required

LCD projector, flip chart, note paper, pens, handouts of PowerPoint slides and comments, handouts of exercises, and materials for exercises (listed in each exercise)

### Recommended Preparation

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.

Assess the level of knowledge of the participant audience to determine the length of time to be allocated to PowerPoint presentation and the activities in this module.

Review each of the exercises carefully and prepare necessary materials for each.

Review reference materials and other recommended readings. Also know the guidelines for vitamin and mineral supplementation for Pregnant and Lactating Women (PLW) for your country and any specific recommendations for HIV+ PLW – there should be a MoH protocol.

## Facilitator Notes for Module 7

### Slide 1



# Nutrition for HIV+ Pregnant and Lactating Women and Their Infants (up to 2 years)

## Module 7



**Facilitator Notes:**

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## Slide 2

To get the most out of this module, it's important that the participants are able to build on information from two previous modules: Basic Nutrition and Healthy Eating, and Nutritional Health and PLHIV.

This module will look at some of the most common questions asked about pregnancy and breastfeeding, HIV and nutrition – a loaded topic! Questions will be addressed such as:

*Nutrition, Pregnancy and HIV: What are the links?*

*How can HIV+ PLW be assisted in protecting their nutritional status?*

*How does HIV transmission occur during breastfeeding?*

*Should HIV+ mothers breastfeed?*

*How can breastfeeding – and replacement feeding – be made safer for HIV+ women and their babies?*



### Goal

To provide guidance that will contribute to positive outcomes for HIV+ mothers and HIV-exposed infants (under 2 years).

### Objectives

To understand how to help HIV+ PLW to:

1. Protect and enhance their nutritional status
2. Protect their infants from both malnutrition and MTCT of HIV
3. Get the information and support their need to make good decisions about infant feeding.

### Facilitator Notes:

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### Slide 3

As was discussed in the session on Links between HIV and Nutrition, the virus and malnutrition work in tandem. Unfortunately, in many affected countries, many women are already malnourished when they become pregnant. They are often malnourished prior to HIV infection as well. If the woman is HIV positive, then the effects of malnutrition and HIV increase her vulnerability to some of the health dangers associated with pregnancy and childbirth.

Poor nutritional status has even greater implications for the HIV+ woman than her HIV negative peers. HIV infection alone increases the risk of premature delivery and having a low birth weight infant; nutritional deficiencies compound those risks. Maternal weight loss during pregnancy is correlated with reduced survival in HIV-infection.

Keeping HIV+ mothers well-nourished and healthy during pregnancy and lactation is a key component of a successful PMTCT strategy.



## *Nutrition, Pregnancy and HIV: What are the links?*

- Good nutrition is critical to protect maternal and infant nutritional status
- Without careful management, HIV erodes nutritional status over time, putting HIV+ PLW at increased risk of morbidity / mortality during pregnancy
- HIV increases the risk of poor pregnancy outcomes.

### **Facilitator Notes:**

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#### Slide 4

The facilitator may want to ask the group who can remember the additional energy requirements for PLHIV?

- 10% increase in energy requirements during asymptomatic HIV infection
- 20% to 30% increase during symptomatic HIV infection
- Protein intake should increase proportionately

(FANTA, HIV/AIDS: A guide for Nutritional Care and Support, 2004.)

It will be helpful for the facilitator and the group to have access to and learn the guidelines for vitamin and mineral supplementation for PLW for your country, and what is recommended specifically for HIV+ PLW -- there should be a MoH protocol.



*So what do HIV+ PLW need to protect their nutritional status?*

1. They need to know their HIV status!
2. They need to be vigilant about monitoring their weight and complying with nutrition advice
3. They need extra food: nutritional requirements for HIV+ PLW are greater than for HIV- PLW (as per WHO Guidelines).

**Facilitator Notes:**

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## Slide 5

Nutrition requirements for pregnancy and lactation are additional to the PLHIV requirements (i.e. add the PLHIV requirements first (10-30%) then the PLW requirements).

**Pregnancy:** As learned in the Nutrition and the Lifecycle module, the physiological changes that occur during pregnancy require extra nutrients for adequate gestational weight gain in order to support the growth and development of the fetus.

**Lactation:** As learned in the Nutrition and the Lifecycle Session, lactation requires even MORE energy than pregnancy, in order to meet the demands of a rapidly growing infant. A woman's body will continue to produce sufficient breast milk even when her own intake is insufficient but utilizing and depleting her own stored nutrients. For HIV+ PLW in particular, this depletion and any associated weight loss must be avoided.

NB. The impact of breastfeeding on maternal HIV disease progression is still under investigation.



**On top of the PLHIV requirements,  
HIV+ PLW require:**

	<b>Pregnancy</b>	<b>Breastfeeding</b>
<b>Energy</b>	Extra 285 kcal/day above non-pregnancy levels	Extra 500 kcal/day above non-lactating levels
<b>Protein</b>	71 grams/day	71 grams/day

Source: The National Academies. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington D.C. The National Academies, 2002.

### **Facilitator Notes:**

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## **Slide 6**

1. The basics of nutrition for pregnant and lactating women are covered in the Nutrition through the Lifespan module. The guidance there applies to HIV+ with some additional considerations.

The goals of nutrition care and support for HIV+ PLW include the following:

A. Improve nutritional status by maintaining weight, preventing weight loss and preventing loss of muscle mass. Nutritional status is not only affected by the amount and types of food they are receiving, malaria and intestinal parasites cause harmful affects on nutrition as well.

B. Ensure adequate weight gain during pregnancy. Women gaining less than one kilogram per month in the second and third trimester should be referred to a health unit immediately where they can receive more care. A lactating mother who is HIV+ should not lose weight. If a woman is at risk of malnutrition and she is breastfeeding, programs should consider providing nutritional support (food, counseling) to prevent rapid weight loss and disease progression, as well as to enhance the success of exclusive breastfeeding.

C. Ensure adequate nutrient intake by improving eating habits (through information and counseling) and making access to good nutrition practical. These nutrients include carbohydrates, protein, important antioxidant nutrients and other vitamins and minerals necessary for the functioning of the immune system. If women are unable to obtain adequate and balanced diets, a fortified, nutrient-dense commodity should be provided rather than staples alone.

D. Prevent food-borne illnesses by promoting hygiene, and food and water safety. (This was covered in the module on Nutritional Health for PLHIV)

2. Provide counseling and information to help the women select the best infant feeding option (breastfeeding, breastmilk substitute, replacement feeding, etc.) and then support the mothers' feeding decisions. Provide nutrition support for breastfeeding women, as well as for women choosing to use breastmilk substitutes. Provide coaching/training on breast health, avoiding cracked nipples and treating thrush (NB. More will be covered under infant feeding in coming slides).

## Goals of Nutrition Care for HIV+ PLW

1. Protect mother's health by ensuring that the fundamental goals of Care & Support are met: *everything that's important for HIV negative PLW is especially important for PLW with HIV*
2. Encourage and support safe, informed infant feeding practices

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### **Facilitator Notes:**

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## Slide 7

Note: Iron and Vitamin A supplements must be taken only as prescribed, as taking more than necessary may contribute to HIV disease progression and/or increased MTCT.



### *Should HIV+ PLW take micronutrient supplements?*

- A diversified diet is the best source of micronutrients.
- Use MoH guidelines for micronutrient supplementation for PLW, and if they have specific guidelines for HIV+ PLW, use those.
- Adhere to national guidelines as supplementation above the RDA has been shown to increase MTCT.

#### **Facilitator Notes:**

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## Slide 8

Prevention of Mother to Child Transmission OR Prevention of Parent to Child Transmission... It depends on the country context.

CF – infants should not be given anything besides breastmilk until they are 6 months old. From 6 months, food offered alongside breastmilk is Complementary.

RF: Usually infant formula.



### Acronyms Used in this Program Area:

- PMTCT or PPTCT?
- EBF: Exclusive Breastfeeding
- CF: Complementary Food or Feeding
- RF: Replacement Food or Feeding (for breastmilk)
- MF: Mixed Feeding : giving anything besides breastmilk during the first 6 months

**Facilitator Notes:**

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## Slide 9

*The facilitator may want to point out that this topic needs to be included because infant feeding is directly connected to HIV transmission.*

Breastmilk can contain HIV in two forms: as 'free viruses' (those that have not infected a white blood cell) and white blood cells that are infected with HIV already. Both forms are infectious.

A baby's gut is not designed to absorb anything but breastmilk until 6 months of age – it was perfectly designed for breastmilk and ONLY breastmilk! All other substances – water, porridge, juice, fruit – irritate the gut and cause little sores. These sores are a direct path to the bloodstream and make it easy for the virus to enter the baby's system. The virus itself doesn't swim or drill its way into the baby – it has to have an open route and relies on absorption to pass it through. Babies on breastmilk alone are much more likely to simply shed the viruses that are taken in breastmilk – the virus can pass right through the baby without infecting them. Of course, the more viruses that are present, the more likely it is that some will get through. A mother with a weaker immune system (or a mother who is ill) has more viruses in her breastmilk, so MTCT is more likely to occur. Also, someone newly infected with HIV will have a huge number of viruses in their bloodstream (and breastmilk) until their HIV settles down into the long asymptomatic phase. Since this short period creates a high risk of MTCT, primary prevention of HIV infection is especially important for mothers who are pregnant or breastfeeding.



### *How does HIV transmission occur during breastfeeding?*

- HIV is present in breastmilk
- HIV enters the infant's blood stream through the lining of the mouth, stomach or intestines
- Gaining entry is much easier when the linings of those areas are damaged in any way.

#### **Facilitator Notes:**

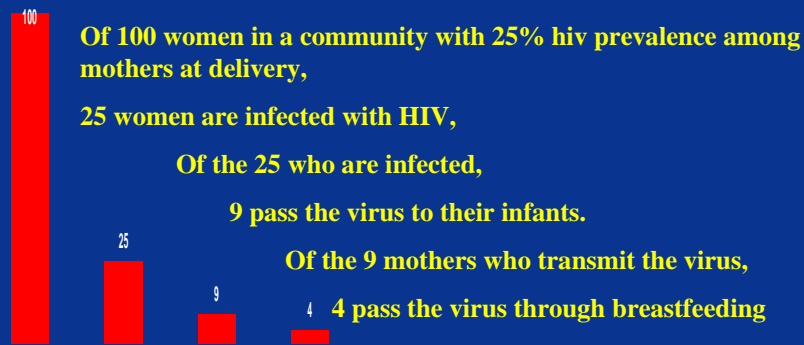
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## Slide 10

This slide provides the most recent information about the risk of HIV transmission from mother to child, in a country with 25% prevalence rate among antenatal mothers.



### *What is the risk, and when is it highest?*



Data from Linkages (2006) Breastfeeding and HIV/AIDS: Frequently Asked Questions (FAQ)

### **Facilitator Notes:**

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## **Slide 11**

The most remarkable aspect of HIV transmission during breastfeeding is that although an infant exposed to HIV may consume a half million virions and 25,000 infected cells per day, the majority do not become infected. Immune factors in breastmilk and infant saliva are believed to play a role in preventing transmission.

Mixed feeding (giving the baby any food or drinks other than breastmilk) is often irritating to the baby's stomach, especially in babies under 6 months. These irritations in the stomach lining make it easier for HIV to infect the baby.

The facilitator may want to ask participants to name foods/drinks commonly given to babies under 6 months (since 0-6 months should be reserved for exclusive breastfeeding), what age they're often given and why mothers think they're important (e.g. porridge to make them strong; water because they're thirsty; pureed meat makes boys strong, etc.).

Remember, maternal viral load is higher in mothers with recent HIV infection or advanced disease. The risk of MTCT during breastfeeding nearly doubles if the mother becomes infected while breastfeeding. Viral load also rises (temporarily) when the body is fighting another infection – malaria, TB, STIs etc. Protecting pregnant or lactating HIV+ mothers from opportunistic infections helps reduce MTCT.

Breast inflammation is another important risk factor for HIV transmission during breastfeeding. According to available data, 11-13% of women experience one or more breast pathologies during breastfeeding. The conditions are usually more common during the first weeks of lactation.

Mastitis is an inflammation in the breast that occurs almost exclusively in breast-feeding mothers. It often starts because of breasts being too full, not emptied fully or having cracked nipples, which make it easy for an infection to enter the breast. It's very painful and comes with all the signs of infection (fever, swollen lymph glands, feeling tired). It will need to be treated with antibiotics. The infection in the breast is usually caused by common bacteria and if not treated, the infection becomes walled off and forms an abscess. A breast abscess is a pocket of pus in the breast tissue which will usually have to be drained.

Sores in the baby's mouth – thrush, cracked lips, oral herpes, teething, etc. make it easier for the viruses in breastmilk to infect the baby. Thrush looks like slightly raised, creamy white, sore patches in the mouth or on the tongue. Babies with thrush are often fussy and cranky when feeding as their mouths are sore. Thrush can infect the mother's breast through breastfeeding, contributing to feeding problems – thus if the baby has thrush, it's best if both mother and baby can be treated. Otherwise, it's likely that the thrush infection will just keep moving back and forth between the two of them.



## *What are the risk factors?*

While most infants will not contract HIV from breastmilk, risk factors include:

- Mixed feeding
- Mother's poor immune status: High viral load and/or low CD4 count
- Breast problems: mastitis, abscesses, etc.
- Sores in the baby's mouth

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### **Facilitator Notes:**

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## Slide 12

**Colostrum** is a form of milk produced for the first few days after giving birth. Babies have very small digestive systems, and colostrum delivers its nutrients in a very concentrated low-volume form. It has a mild laxative effect, encouraging the passing of the baby's first stool, which is called meconium. This clears excess bilirubin, a waste product of dead red blood cells which is produced in large quantities at birth due to blood volume reduction, from the infant's body and helps prevent jaundice.



### *Can women on ART still breastfeed? YES!*

- Pregnant or lactating women who need ART should start as soon as possible – Colostrum has more densely packed nutrients and antioxidants than breastmilk
- Women who are breastfeeding should continue taking their ARVs
- Guidance for breastfeeding women on ART is the same as for those not on ART

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#### **Facilitator Notes:**

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### Slide 13

The UN policy statement on HIV and infant feeding (first issued in 2001 and reaffirmed in 2006), following expert consultations on mother-to-child transmission of HIV. Regarding the balance of risks between breastfeeding and replacement feeding, the statement says:

*“When replacement feeding is acceptable, feasible, affordable, sustainable, and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first months of life. To minimize HIV transmission risk, breastfeeding should be discontinued as soon as feasible, taking into account local circumstances, the individual woman’s situation, and the risks of replacement feeding (including infections other than HIV and malnutrition). When HIV-infected mothers choose not to breastfeed from birth or stop breastfeeding later, they should be provided with specific guidance and support for at least the first 2 years of the child’s life to ensure adequate replacement feeding. Programmes should strive to improve conditions that will make replacement feeding safer for HIV-infected mothers and families.”*

The statement emphasizes the need for counseling on the risks and benefits of different feeding options but recognizes that “many women find that receiving information on a range of infant feeding options is not sufficient to enable them to choose and they seek specific guidance.” Thus the decision should be based on a woman's individual circumstances, with a high degree of consideration of the health services available and the counseling and support she is likely to receive. To assist with decision making, criteria have been developed – called ‘AFASS’.



### *So why is breastfeeding still recommended?*

Several research studies have shown that, in low-resource contexts:



1. The risk of child morbidity / mortality from using breastmilk substitutes is much higher than the risk of HIV transmission through breastfeeding.
2. Exclusive breastfeeding is associated with very low levels of MTCT

Therefore, exclusive breastfeeding is recommended unless replacement feeding meets the AFASS criteria.

Graphic from FHI/Impact

**Facilitator Notes:**

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## Slide 14

### Handout #1: AFASS Criteria

**Acceptable:** The mother perceives no barrier to choosing replacement feeding for cultural or social reasons, or for fear of stigma and discrimination.

**Feasible:** The mother (or family) has adequate time, knowledge, skills, resources, and support to correctly prepare breast milk substitutes and feed the infant 8–12 times in 24 hours.

**Affordable:** The mother and family, with available community and/or health system support, can pay for the costs associated with the purchase/production, preparation, storage, and use of replacement feeds without compromising the health and nutrition of the family. Costs include ingredients/commodities, fuel, clean water, and medical expenses that may result from unsafe preparation and feeding practices.

**Sustainable:** A continuous, uninterrupted supply and a dependable system for distribution of all ingredients and products needed to safely practice replacement feeding are available for as long as needed.

**Safe:** Replacement foods are correctly and hygienically stored and prepared and fed with clean hands using clean cups and utensils – not bottles or teats.

Looking at these criteria, it's clear that there's a significant need for high-quality programming that delivers sound education and support to mothers and families making difficult infant feeding decisions.



## *What are the AFASS criteria?*

A = Acceptable

F = Feasible

A = Affordable

S = Sustainable

S = Safe

**Source:** Adapted from WHO (2003). HIV and infant feeding: A guide for health-care managers and supervisors.

### **Facilitator Notes:**

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## Slide 15

Refer to the instructions on the Handout for Exercise #1, Module 8: Unpacking an Acronym: Understanding AFASS

ADAPTATION: Depending on the audience, the facilitator may choose to use Exercise #2 instead. This exercise will involve an in-depth discussion with multiple factors that go beyond a simple AFASS evaluation.



## Exercise # 1

Unpacking an Acronym:  
Understanding AFASS

**Facilitator Notes:**

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### Slide 16:

If babies are given other drinks or foods, even in small amounts, some of the advantages of breastfeeding are lost. In particular, introducing foods and drink other than breastmilk increases the risk of illness as the immunological effects of breastfeeding are decreased. The introduction of other foods also increases the risk for diarrhea. In developing countries, babies exclusively breastfed for the first 6 months of life, for the most part, gain more weight and grow better than infants given mixed diets (breastfed and provided other foods and infants non-breastfed).

In general, and even in the absence of HIV, infants fed mixed diets and those not breastfed have a much greater risk of dying than infants exclusively breastfed for the first 6 months of life. For mothers who are HIV+, mixed feeding their babies who are still under 6 months old is even more risky because of the risk of infection. **For babies up to 6 months, breastmilk alone is sufficient** – there is no need to put infants at risk by introducing other foods. However, from the age of 6 months, babies need more nourishment than the breast can provide, so mothers have no choice but to introduce foods. The good news is that at this age, babies' intestinal system is much more ready to tolerate food and their immune systems are stronger as well. They are less likely than a newborn to get sick from eating food, and are also less likely to contract HIV from breastmilk now that they are a little stronger.

For mothers considering using a breastmilk substitute as they undertake weaning, the AFASS criteria still apply.



### *Should HIV+ mothers breastfeed?*

- Exclusive breastfeeding is recommended for the first 6 months unless replacement feeding is AFASS
- At 6 months, if replacement feeding is still not AFASS, continuation of breastfeeding with complementary foods is recommended
- Once a nutritionally adequate and safe diet (without breastmilk) can be provided, breastfeeding should stop.

### **Facilitator Notes**

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## Slide 17

Practitioners have both the opportunity and the obligation to make breastfeeding safer for ALL women. Luckily, many 'better practices' for uninfected mothers also reduce the risk of HIV transmission through breastfeeding. Community-wide promotion of better practices would 1) bring benefits to uninfected mothers and their infants, 2) help reduce MTCT among the many women who do not know their HIV status 3) reduce the stigma associated with these practices for infected mothers regardless of whether they know their status.

Regular weight monitoring during breastfeeding is crucial for HIV+ PLW to identify weight loss early and make appropriate interventions before it jeopardizes the mother's health. In addition, it would be helpful to develop programming that increases adherence to exclusive breastfeeding and promotes good breastfeeding techniques and breast health. Support for safer breastfeeding should include immediate treatment for mastitis and any other infections that affect viral load in breast milk. This may be most important in the early months of HIV infection when these conditions are more common and transmission risk is also highest. Finally, safer sex practices should be promoted among HIV-negative women to **prevent** HIV infection during the postnatal breastfeeding period.



### *How can we make breastfeeding safer for HIV+ women and their babies?*

- Support women's access to PMTCT-Plus programs and HIV testing
- Ensure good nutrition throughout pregnancy and breastfeeding
- Support exclusive breastfeeding, safe weaning & the prevention / early treatment of breast problems

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#### **Facilitator Notes:**

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## Slide 18

Studies suggests that flash-heat can inactivate HIV in naturally infected breast milk from HIV-positive women. (<http://www.aidsmap.com/en/news/9DC051B9-C299-45E4-9C67-9099F9A2D2EB.asp>)



### *Other methods to make breastfeeding safer for HIV+ women and their babies?*

- Introduce a regimen of HAART as early as possible where indicated
- Treat expressed breastmilk through flash heating or solar treating to assist with weaning
- Introduce a breastmilk bank of HIV negative donors or wetnurses

#### **Facilitator Notes:**

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## Slide 19

HIV+ mothers and their families need help to make appropriate decisions about when to stop breastfeeding. This decision should be based on an assessment of the health status of both the mother and the infant. Parents need to help to ensure that the transition is safe for them and their baby. This includes teaching infants to drink from a cup (expressed breastmilk), teaching parents how to prepare replacement milks and foods safely and hygienically, and helping parents to address any pressure or stigma in the community. Heat-treating breastmilk may help in the transition process, and where it is culturally acceptable, it should be taught.

While early breastfeeding cessation will prevent a sizeable fraction of postnatal transmission, early cessation must be accompanied by adequate nutrition for the infant in order to prevent malnutrition and ensure adequate child growth, health and development. Since breastmilk is an essential part of the infant diet throughout the first year (and an important complement from 12-24 months) programs that encourage early cessation should *provide* nutritious breastmilk substitutes and/or multi-nutrient supplements, such as animal milk foods. In the absence of breastmilk, it is not possible to create a nutritionally adequate diet for infants between 6-12 months without animal sources of protein – fortified products or nutrient supplements are required. The development and programming of “ready to eat foods” specifically for this age group is being studied for this purpose.

**Nutrition education and counseling are absolutely critical.**



### *How can a practitioner help the transition from breastfeeding be safer?*

- Assist families with applying AFASS criteria to their own situation
- Provide adequate infant food supplements and micronutrients when breastfeeding ends
- Provide nutrition counseling and support for safe weaning and choosing appropriate weaning foods



Graphic from FHI/Impact

#### **Facilitator Notes:**

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## Slide 20

*Replacement feeding* is the process of feeding a child who is not receiving any breastmilk a diet that provides all the nutrients the child needs. Replacement foods may be made from a combination of locally available foods (such as modified animal milk) or may be commercially prepared (for purchase or provision by the program). Models for programming both locally prepared and commercially prepared products, or breastmilk substitutes, are currently being piloted in several countries.

The next few slides give a visual image of how much food babies might get (in the absence of education and support) and how much they really need...



### *In the absence of breastmilk, how should babies be fed?*

- Little is known about how to feed babies 6 - 9 months without breastmilk
- Breastmilk usually provides:
  - 60-80% of energy and protein
  - 50-90% of micronutrients
  - 60-100% of fluid intake

#### **Facilitator Notes:**

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**Slide 21**



*What does an adequate  
infant diet look like?*

**Facilitator Notes:**

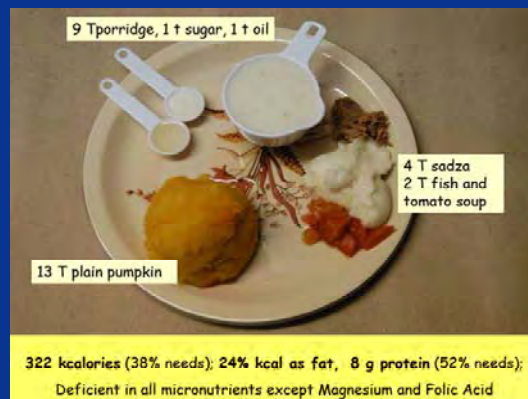
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## Slide 22

These slides were prepared by a PMTCT program in Zimbabwe. They show how hard it can be to provide a nutritionally adequate diet for this age group in the absence of breastmilk or formula. When a baby's diet is analyzed against what they actually need to grow well, it's not surprising that they come up short – especially when breastmilk is not available. This diet would be adequate for a child beginning to take complementary food (alongside breastmilk) but is completely inadequate when breastmilk is withdrawn.



In a traditional setting, this was one day's food for a 6-9 month old baby



\* Thanks to Jean Humphrey for allowing us to use these photographs from Zimbabwe.

### Facilitator Notes:

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### Slide 23

This diet is moving in the right direction, with a number of important additions, including formula. But it's still seriously inadequate.



## More food, but still inadequate...



514 kcalories (58% needs); 42% kcal as fat, 13 g protein (79% needs);  
Deficient in all micronutrients except Magnesium and Folic Acid

### Facilitator Notes:

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## Slide 24

The addition of cow's milk or formula has brought this diet much closer to adequate, but supplements will still be required to provide sufficient intake of Iron, Zinc and vitamins (including Vitamin A supplementation).



## Almost adequate – several supplements still required

\*More milk and sugar



851 kcalories (101% needs); 38% kcal as fat; 20 g protein (128% needs):

Adequate in Ca, must supplement Fe/Zn and multivits.

Need 220-520 ml water

### Facilitator Notes:

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## Slide 25

It's a LOT of food – especially for a 6 month old baby! And even with all this, iron supplements will still be needed to avoid anemia.



### Very close... iron supplements needed

Adequate without supplements

2T meat      1/2 cup pumpkin  
2T oil      2T sugar      1/2 banana      1/2 cup tomato      2 eggs  
30g (1/2 cup) kapenta

853 kcalories (101% needs); 56% kcal as fat; 41 g protein (257% needs);  
No supplement except Fe;  
Need ~900-1200 ml water

### Facilitator Notes:

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## Slide 26

Ready-to-Use Therapeutic Foods (RUTF) such as Plumpy'nut can be a much simpler way to achieve 100% adequacy because it's not only energy-dense, it's fortified. While it was originally designed for the rehabilitation of malnourished children (1-5 years), Plumpy'nut and similar products are now being piloted for their use as part of a weaning strategy for HIV+ mothers.

It is possible to meet a baby's needs without a RUTF. However, these slides can be used to illustrate how important appropriate counseling is for mother's of weaning babies to ensure that they are receiving the appropriate nutrition.



## Complete - with a RUTF supplement



## Facilitator Notes:

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## Slide 27

In settings where replacement feeding is being provided or practiced, there must also be efforts to make it safer for HIV+ women and to prevent spill-over in the general (non-HIV) population. Safe replacement feeding almost always requires not only the provision of adequate supplies of breastmilk substitutes, but also safe water and environmental conditions. Family support and community understanding are also needed. As mentioned before, postnatal follow-up and enhanced care are required for all mothers to ensure that they can safely feed their children – and this is especially true among infants who are not breastfed/no longer breastfeeding. This care should include all the essential child health and survival interventions (immunizations, growth promotion, nutrition management, vitamin A supplementation, use of bednets, etc).

**Unfortunately, in most resource-constrained settings, it's very difficult to achieve an environment that is safe for replacement feeding.**



### *How can practitioners make replacement feeding safer?*

- Provide education and where necessary, tangible support (cash, supplements, free commodities)
- Provide safe water & favorable environmental conditions
- Secure family support and community understanding
- Provide close postnatal follow-up and care
- Screen mothers, target those most at risk
- Take measures to prevent unnecessary use of replacement feeding commodities (spillover).

#### **Facilitator Notes:**

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## Slide 28

**HIV exposed infants** are those whose HIV status isn't known, but who have been exposed to the virus during pregnancy, delivery or breastfeeding because their mothers are HIV+. Many HIV-exposed infants start out 'small' (premature or low-birth-weight (LBW) but with good nutrition care and support, should be able to gain weight steadily.

**What works for non-HIV-infected children (i.e. IMCI protocols) will work for children with HIV but must be applied with real rigor.** Detect and address early growth faltering. Weigh the child monthly and plot the weight on a growth chart. Provide an extra meal per day after episodes of illness, to allow for catch-up growth (see **IMCI guidelines**). Provide vitamin A and other micronutrient supplementation according to national guidelines. Maximize the reach and application of existing systems and protocols (IMCI, growth monitoring and promotion programs) and be sure staff/volunteers are trained to identify early growth faltering.



### *How can practitioners be sure HIV-exposed infants are growing?*

- Use what is already known about child nutrition and child nutrition programming
- These systems can be adapted, and staff/volunteers trained, to ensure HIV-exposed infants and their mothers get appropriate follow-up and referral

#### **Facilitator Notes:**

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**Slide 29**

Credit: © 1991 Lauren Goodsmith, Courtesy of Photoshare

Caption: A child is weighed for a nutritional survey in the Brakna Region of Mauritania.

This child is representative of nutritional surveys and is not intended to depict an HIV positive child.



**Facilitator Notes:**

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### Slide 30

1. Nutrition education, nutrition assessment and counseling and support should be available to all HIV+ pregnant and lactating women; HIV+ lactating mother and their infants need close follow-up
2. Nutrition care and support for HIV+ mothers and their infants can be delivered as a stand-alone program, or integrated into a range of programs (Reproductive Health (RH), Food Aid, HBC, ART, etc.). If integrated, it is more successful when planned and resourced from inception.
3. This is a sensitive, political area of programming. Experienced technical advice (HIV, Nutrition and Reproductive Health) should be sought for the design phase to help with decisions about the program's goal, the M&E plan and the commodities.



### *How can a practitioner use this to improve programming?*

1. Make nutrition education, nutrition assessment and counseling available to all HIV+ PLW & their infants
2. Nutrition care and support for HIV+ mothers & infants can be stand-alone or integrated into reproductive health programming, food aid, HBC, ART, etc.
3. Food assistance is a very useful resource for programming aimed at HIV+ PLW; however, **experienced technical advice** should be sought for the design phase and implementation.

### **Facilitator Notes:**

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## **Exercises for Module 7**

## **Exercise 1: Unpacking an Acronym – Understanding AFASS**

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The facilitator should break the group into five small teams and assign each team a letter:

A = Affordable

F = Feasible

A = Acceptable

S = Sustainable

S = Safe

Each group will address the two questions below for 15 minutes as they apply to one of the AFASS criteria. Allow each group 3 minutes to present a summary of their discussion.

List the potential constraints that prohibit many mothers in resource poor settings developing world from meeting this AFASS criteria.

Identify practical interventions that could potentially overcome or mitigate this constraint.

## **Exercise 2: Understanding AFASS: Case Studies**

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*This is an alternate for exercise #1. Although, both exercises may be used if deemed appropriate.*

The facilitator should divide the participants into two groups. Ask them to assess one of below scenarios and make recommendations as to whether according to the AFASS criteria, the mother should breastfeed or formula feed her newborn baby.

### **Scenario #1**

An HIV+ woman lives in a town that shares borders with another state that has experienced armed conflict for several years. During this time, many people gradually crossed the border and were absorbed into her country's villages and towns. Until recently, it has not affected her quality of life. She has had access to a safe water pump and will have infant formula and soap (when she delivers her baby) provided to her by a local Catholic hospital where she receives her ARVs.

Over the past month, however, intensifying hostilities, combined with severe food shortages in the neighboring country, have resulted in an influx of 120,000 people fleeing across the length of her 250km shared border. Many of those fleeing hostilities are women, unaccompanied children and elderly people who are exhausted and malnourished. It is reported that the women and girls especially have been victims of sexual violence and intimidation. These IDPs have begun to be absorbed into her village and have set up neighboring camps to make use of the hospital and water source.

According to the AFASS criteria, what are the group's recommendations for breastfeeding versus formula feeding?<sup>1</sup>

### **Scenario #2**

A woman is married to a man whom she knows is not faithful. The relationship is unequal she is subject to abuse when she questions her husband. He is a shopkeeper and considered among the wealthiest in their village. She has never gone hungry and has always had access to basic goods while married to her husband.

They live in a rural area with a mountain stream that is believed to be clean. The women wash their clothes and dishes downstream and draw drinking water upstream. The village is two days walk from the closest clinic and therefore makes any type of regular medical care difficult.

During her first prenatal visit at eight months of pregnancy, she learned she was HIV+. She immediately knew that she could not tell her husband because he would blame her, beat her, or worse. Because the clinic was so far away, it would also make access to ARVs difficult.

According to the AFASS criteria, what are the group's recommendations for breastfeeding versus formula feeding?

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<sup>1</sup> Adapted from: [http://data.unaids.org/pub/InformationNote/2003/IASC\\_HIVtrainersguide\\_en.pdf](http://data.unaids.org/pub/InformationNote/2003/IASC_HIVtrainersguide_en.pdf)



## **Handouts for Module 7**

## Handout 1: AFASS Criteria for Safe Infant Feeding Decisions

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<b>A</b>	<b>Acceptable:</b> The mother perceives no barrier to choosing replacement feeding for cultural or social reasons, or for fear of stigma and discrimination.
<b>F</b>	<b>Feasible:</b> The mother (or family) has adequate time, knowledge, skills, resources, and support to correctly prepare breast milk substitutes and feed the infant 8–12 times in 24 hours.
<b>A</b>	<b>Affordable:</b> The mother and family, with available community and/or health system support, can pay for the costs associated with the purchase/production, preparation, storage, and use of replacement feeds without compromising the health and nutrition of the family. Costs include ingredients/commodities, fuel, clean water, and medical expenses that may result from unsafe preparation and feeding practices.
<b>S</b>	<b>Sustainable:</b> A continuous, uninterrupted supply and a dependable system for distribution of all ingredients and products needed to safely practice replacement feeding are available for as long as needed.
<b>S</b>	<b>Safe:</b> Replacement foods are correctly and hygienically stored and prepared and fed with clean hands using clean cups and utensils – not bottles or teats.

## **References for Module 7**

### **Resources Consulted**

WHO. October 2006. "HIV and Infant Feeding Technical Consultation Consensus Statement".

WHO. 2003. "HIV and infant feeding: A guide for health-care managers and supervisors".

Ross, Jay. 2003. Presentation by Jay Ross (Policy Adviser, the LINKAGES Project, Academy for Educational Development) at the Colloquium for the Asia Pacific Region on Infant feeding and HIV in New Delhi on November 28, 2003.

Dewey, KG, Cohen, RJ and Rollins, NC. 2004. "Feeding of non-breastfed children from 6 to 24 months of age in developing countries". WHO Technical Background Paper. Food and Nutrition Bulletin, vol. 25, no. 4 The United Nations University.

*Many slides were adapted from the above resources. In addition, some of the graphics were lifted from the Self-Care Series (FHI/Impact).*

### **Recommended Reading**

LINKAGES Project. April 2004. "Infant Feeding Options in the Context of HIV". Washington, DC: LINKAGES Project, AED.

WHO. 2004. "Nutrition Counseling, Care and Support for HIV-infected Women: Guidelines on HIV-related Care, Treatment and Support for HIV-infected women and their children in resource-constrained settings".

LINKAGES. 2006. "Breastfeeding and HIV & AIDS: Frequently Asked Questions (FAQs)". Washington, DC: LINKAGES Project, AED.

WHO. October 2006. "HIV and Infant Feeding Technical Consultation Consensus Statement".

FHI/Impact Self-Care Series. "Book Four: Staying Healthy for Mothers Living with HIV."

# Module 8: Introduction to Clinical Nutritional Assessment for PLHIV

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## Overview of Module 8

### Title of the Module

Introduction to Clinical Nutrition Assessment for PLHIV

### Purpose of the Module

The purpose of this module is to understand the components of a nutrition assessment and how they are implemented.

### Learning Objectives

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

- to understand what a clinical nutrition assessment is, and its role with PLHIV
- to understand what a nutrition care plan (NCP) is
- to understand nutrition counseling and education; how they fit into a NCP; and how they can be used to support positive behavior change

### Estimated Time

PP: 1 hour and 30 minutes

Exercise 1: 15-25 minutes

Exercise 2: 30-40 minutes

Exercise 3: 45 minutes to 1 hour

*Total estimated time: 3 hours and 15 minutes*

### Prerequisite Modules

It is recommended that the facilitator cover all preceding modules prior to tackling the current one.

### Materials Required

LCD projector, flip chart, note paper, pens, pencils and calculator.

### Recommended Preparation

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.

Assess the level of knowledge of the participant audience to determine the length of time to be allocated to activities in this module.

Review the exercise carefully and prepare necessary materials.

Review reference materials and other recommended readings.

## Facilitator Notes for Module 8

### Slide 1

This module has been written with the assumption that the PLHIV client knows his/her status. However, an individual may present in a health care setting with malnutrition or weight loss without having yet been tested for HIV.



# Introduction to Clinical Nutrition Assessment for PLHIV

Module 8



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**Facilitator Notes:**

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## Slide 2



### Goal

To understand the components of a nutrition assessment and how they are implemented

### Objectives

1. To understand what a clinical nutrition assessment is, and its role with PLHIV
2. To understand what a nutrition care plan (NCP) is
3. To understand nutrition counseling and education

### Facilitator Notes:

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**Slide 3**



*What is a Clinical Nutrition  
Assessment?*

A process in which one makes a judgment about a person's nutritional status and situation. A client's vulnerability to poor nutrition is judged by taking measurements and asking questions.

**Facilitator Notes:**

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#### **Slide 4**

Specific nutrition needs might include nutritional care and support; food/micronutrient supplements; medical treatment; and/or referral for further assessment.



### *Why is Nutrition Assessment Critical for PLHIV?*

- To identify clients with specific nutrition needs
- To measure changes in nutritional status; inform individualized recommendations; and motivate clients to continue improved practices
- To catch nutrition problems and infections early for quick action and prevent further deterioration
- For drug dosage prescription

#### **Facilitator Notes:**

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## Slide 5

Country specific nutrition and HIV guidelines may provide more information regarding the periodicity of weight monitoring and nutrition assessment for PLHIV. They may also note the circumstances which trigger a nutrition assessment and development of a care plan.



## Nutrition Assessment and Monitoring for PLHIV

- Weight should be monitored at each clinic visit for all PLHIV
- Periodic nutrition assessments are important at all stages of HIV infection

### **Facilitator Notes:**

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## Slide 6

**Anthropometric measures** include, MUAC (mid-upper arm circumference), heights and weights.

**Dietary intake** can be assessed through 24 hour food recall or a food frequency questionnaire. Total food consumption, diversity of the diet, appetite, and social support in food preparation and consumption are also important to assess.

**Biochemical assessments**, such as, triglycerides, cholesterol, sugar levels, CD 4 counts, hemoglobin or the level of iron in the blood are also important components of a nutrition assessment. The availability of an equipped lab will determine which tests can be included.

**Clinical assessment**, such as, edema, hair color/texture, change in fat distribution, related infections, etc. can also be helpful in diagnosing nutrition and health problems.

A **function assessment** includes handgrip, recent illness, days bedridden, etc.

An assessment of **household food security** is also necessary as this often affects food intake in families with HIV infected individuals.

Note: Assessment never relies on just one sign or piece of data – they are looking for patterns and trends.

Note: It would be good to know what your country's MUAC thresholds are, and how the referral mechanism works.



### *What is included in a Nutrition Assessment?*

- Anthropometric measures, (e.g. height, weight)
- Dietary intake (e.g. food recall)
- Biochemical assessments (e.g. hemoglobin)
- Clinical assessment (e.g. edema, hair color)
- Functional (e.g. handgrip, morbidity)
- Household food security

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#### **Facilitator Notes:**

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## Slide 7

**MUAC** refers to the measurement of the circumference of the mid-upper arm, measured at the mid-point between the tip of the shoulder and the tip of the elbow, taken with the arm hanging down. It is a measure of adequacy in nutrition. It is used for patients whose weight for height can not be taken, i.e. patients that are bedridden. MUAC is also used in emergency situations or where scales and height boards are not available. One challenge with MUAC is the reproducibility of measurements.

**BMI**, body mass index, is another indicator of nutritional status, it is calculated by dividing a patient's weight by their height squared. BMI is used in adults, but not for pregnant or lactating women. In addition, BMI for age is used in children. It is important that health staff routinely performing measurements are well trained and supervised, as accuracy is important. It is also necessary to check equipment daily.

A handout has been provided with the ranges and cut-offs for MUAC and BMI along with appropriate nutrition support actions. It is recommended to discuss this along with this slide. However, it can also be used as a hand-out for exercise 3.

**Note to facilitator:** It may be beneficial at this point to demonstrate how to use a MUAC tape.



## Anthropometric Measurements

### MUAC and Body Mass Index (BMI)

- have cut-off points that are used to classify nutritional status and trigger specific actions (referral, treatment for services)
- are used for admission and discharge for programs (such as food assistance).

% unintended weight loss over time can also be used to trigger actions.

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### Facilitator Notes:

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## Slide 8

This is a photo of a child receiving a MUAC assessment. As indicated in the photo, the child's arm circumference is in the 'red' or severe acute malnutrition zone and therefore will be eligible for food assistance.



## Child Receiving a MUAC



Photo: Doctors Without Borders

### **Facilitator Notes:**

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## Slide 9

Demonstrate the correct way to measure a MUAC:

**1. Measurer:** Keep your work at eye level. Sit down when possible. Very young children can be held by their mother during this procedure. Ask the mother to remove clothing that may cover the child's left arm.

**2. Measurer:** Calculate the midpoint of the child's left upper arm by first locating the tip of the child's shoulder with your finger tips. Bend the child's elbow to make a right angle. Place the tape at zero, which is indicated by two arrows, on the tip of the shoulder and pull the tape straight down past the tip of the elbow. Read the number at the tip of the elbow to the nearest centimeter. Divide this number by two to estimate the midpoint. As an alternative, bend the tape up to the middle length to estimate the midpoint. A piece of string can also be used for this purpose. Either you or an assistant can mark the midpoint with a pen on the arm.

**3. Measurer:** Straighten the child's arm and wrap the tape around the arm at midpoint. Make sure the numbers are right side up. Make sure the tape is flat around the skin.

**4. Measurer and assistant:** Inspect the tension of the tape on the child's arm. Make sure the tape has the proper tension and is not too tight or too loose. Repeat any steps as necessary.

**5. Assistant:** Have the questionnaire ready.

**6. Measurer:** When the tape is in the correct position on the arm with the correct tension, read and call out the measurement to the nearest 0.1cm (Arrow 10).

**7. Assistant:** Immediately record the measurement on the questionnaire and show it to the measurer.

**8. Measurer:** While the assistant records the measurement, loosen the tape on the child's arm.

**9. Measurer:** Check the recorded measurement on the questionnaire for accuracy and legibility. Instruct the assistant to erase and correct any errors.

**10. Measurer:** Remove the tape from the child's arm.

[http://www.fantaproject.org/downloads/pdfs/anthro\\_5.pdf](http://www.fantaproject.org/downloads/pdfs/anthro_5.pdf)

**NOTE: MUAC cut off points for *adults* vary widely by country and are usually established by the local MOH. The facilitator should research your local adult MUAC cut off levels and include a separate slide if deemed necessary.**

## MUAC Measurement for Children

- **Severe Acute Malnutrition/Red:** Less than 11 cm/110 mm
- **Moderate acute Malnutrition/Orange:** 11–12.4 cm/ 110–124 mm
- malnutrition
- **Mild or no acute Malnutrition/Yellow/Green:** Greater than or equal to 12.5 cm/ 125 mm

<http://www.ifrc.org/Docs/pubs/disasters/resources/helping-recover/fs-assessment.pdf>

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### **Facilitator Notes:**

**Slide 10**



## Adult BMI Chart

WEIGHT lbs	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	
kgs	45.5	47.7	50.0	52.3	54.5	56.8	59.1	61.4	63.6	65.9	68.2	70.5	72.7	75.0	77.3	79.5	81.8	84.1	86.4	88.6	90.9	93.2	95.5	97.7	
HEIGHT In/cm	Underweight					Healthy					Overweight					Obese					Extremely obese				
5'0" - 152.4	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	
5'1" - 154.9	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40		
5'2" - 157.4	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39			
5'3" - 160.0	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38			
5'4" - 162.5	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	31	32	33	34	35	36	37			
5'5" - 165.1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	30	31	32	33	34	35	35			
5'6" - 167.6	16	17	17	18	19	20	21	21	22	23	24	25	26	27	28	29	29	30	31	32	33	34	34		
5'7" - 170.1	15	16	17	18	19	20	21	22	22	23	24	25	26	27	28	29	29	30	31	32	33	33			
5'8" - 172.7	15	16	16	17	18	19	20	21	22	22	23	24	25	26	27	28	28	29	30	31	32	32			
5'9" - 175.2	14	15	16	17	17	18	19	20	21	22	22	23	24	25	26	27	28	28	29	30	31	31			
5'10" - 177.8	14	15	16	17	18	18	19	20	21	22	23	24	25	26	27	28	28	29	30	30					
5'11" - 180.3	14	14	15	16	17	18	18	19	20	21	22	23	24	25	26	27	28	28	29	30					
6'0" - 182.8	13	14	14	15	16	17	18	19	19	20	21	22	23	24	25	26	27	27	28	29					
6'1" - 185.4	13	13	14	15	16	17	18	19	19	20	21	22	23	24	25	26	27	27	28						
6'2" - 187.9	12	13	14	15	16	17	18	19	19	20	21	22	23	24	25	26	27	27							
6'3" - 190.5	12	13	13	14	15	16	17	18	19	20	21	22	23	24	25	26	26								
6'4" - 193.0	12	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	26								

<http://www.bodyshapingtips.com/images/BMI-Chart.png>

**Facilitator Notes:**



**Slide 11**

See directions and handouts for Exercise 1, Module 7 “Calculating Your BMI”.



**Exercise # 1**  
**Calculating Your BMI**

**Facilitator Notes:**

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## Slide 12

Dietary assessment might examine frequency of eating, sources of food, food preparation, etc.



### Assessing Dietary Intake

#### *What to assess?*

- energy (calories) and nutrients (protein, carbohydrate, fat, vitamins and minerals),
- water and fluid intake,
- eating habits,
- drug & alcohol intake,
- food preparation methods and any factors affecting food intake.

#### **Facilitator Notes:**

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### Slide 13

A trained nutritionist conducts the nutrition assessment through a process of questioning or review of food records/diary maintained by the PLHIV. Dietary assessment forms are used to record information. Food models, cups, etc. can be used to help PLHIVs estimate quantities of food consumed. In addition, questions pertaining to food consumption are also necessary to assess other factors which influence food consumption, such as, access to food (food security); if symptoms or HIV-related illness are affecting food consumption; food preparation—who does this?, etc. How the patient is feeling emotionally is also important, as this will also affect food consumption. Tracking medications (traditional and modern) and drugs is also necessary as specific dietary recommendations need to consider this. Often a standardized questionnaire is utilized to gather this information and is retained in the PLHIV's chart.



### Assessing Dietary Intake (cont.)

- *How to assess?* 24-hour (or 3 day) food recall, food record diaries, food frequency survey, appetite assessment, food diversity assessment.
- *What affects food intake?* Food access, taste of foods, illness & symptoms, how the food is prepared, medications & drugs, smoking, alcohol, food taboos, depression and stigma.

### Facilitator Notes:

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## Slide 14

Biochemical assessment or lab tests are expensive and in many resource constrained settings labs are not always accessible and some are not fully equipped with trained staff. Not all patients with HIV need lab work at every visit, thus ART/HIV treatment protocols have been developed which specify the frequency of routine lab tests and the circumstances when other lab work is needed.



## Biochemical Assessment

*Why is lab work important? It:*

- complements other information and supports decision making for better patient management
- provides clear indicators of nutritional status, such as anemia, high cholesterol, micronutrient status
- helps diagnose diseases, such as diabetes, infections, malaria, intestinal infections
- helps classify a patient's disease stage (to determine when to start ART, for instance).

### Facilitator Notes:

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## Slide 15

Assessing functional abilities, in addition to the ability to perform self-care and activities of daily living, specifically includes an assessment of the pace of movement and the ability to stand without support. This information is useful as it provides basic information on the level of independence and patient self-care that is possible. Food and dietary recommendations need to consider this information as functional ability may limit the capacity to prepare food and the ability to self-feed, etc.

In some HIV clinic settings handgrip is assessed. It can be measured with a particular instrument and provides an assessment of muscle function by measuring grip strength and endurance. It is particularly useful when a series of measurements over time are available for comparison. Measurements can also be compared to standards for men and women.



### Functional Assessment

#### *What is included in a functional assessment?*

- Full Power Assessment
- Functional ability - self-care and activities of daily living
- Rating on an ECOG scale

#### *Why is it important?*

- It provides information on a patient's capacity to perform life tasks

#### **Facilitator Notes:**

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### Slide 16:

These scales and criteria are used by doctors and researchers to assess how a patient's disease is progressing, assess how the disease affects the daily living abilities of the patient, and determine appropriate treatment and prognosis.

ECOG is a functional measure used by many international agencies including the WHO (*WHO also has their own rating system not depicted here*). Health workers rate the client on the following 0 to 5 scale:

0 Fully active, able to carry on all pre-disease performance without restriction

1 Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work

2 Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours

3 Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours

4 Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair

5 Dead

Additional information is available on the ECOG website:

[http://www.ecog.org/general/perf\\_stat.html](http://www.ecog.org/general/perf_stat.html).

ECOG stands for Eastern Cooperative Oncology Group, the developers of the scale.



## ECOG Scale

Grade	ECOG
0	Fully active, able to carry on all pre-disease performance without restriction
1	Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, e.g., light house work, office work
2	Ambulatory and capable of all selfcare but unable to carry out any work activities. Up and about more than 50% of waking hours
3	Capable of only limited selfcare, confined to bed or chair more than 50% of waking hours
4	Completely disabled. Cannot carry on any selfcare. Totally confined to bed or chair
5	Dead

[http://ecog.dfci.harvard.edu/general/perf\\_stat.html](http://ecog.dfci.harvard.edu/general/perf_stat.html)

### Facilitator Notes

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## Slide 17

The Nutrition Assessment information is used to develop the Nutrition Care Plan. A nutrition care plan is included in a PLHIV's medical record so that all practitioners can refer to it. It is developed by a professional trained in nutrition in an interactive process with the PLHIV. How the PLHIV will implement the agreed recommendations are discussed along with what support is needed. During follow-up visits, the results of implementing the recommendations are discussed, assessed and modifications are made. As a PLHIV's nutrition and health issues change over time, they will be discussed and incorporated.

When developing a NCP and discussing it with PLHIV, it is important to be aware of the cultural myths of food and ensure that they are addressed.



## The Nutrition Care Plan

### *What is a nutrition care plan (NCP)?*

A NCP is what a practitioner decides to do with a client to help him/her improve their situation.

### **Facilitator Notes:**

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## Slide 18

The three steps in developing the NCP are:

- (1) summarizing the findings of the assessment,
- (2) identifying the key problems the PLHIV needs to address and how they can do this;  
and
- (3) identifying the provider support needed.

These are incorporated into a counseling session, which follows the nutrition assessment data collection. Usually, the same nutrition counselor is involved in the data collection. Step 1 of the NCP plan is usually done by the counselor. They would review all the findings of the nutrition assessment as well as findings from the medical assessment with the PLHIV and summarize the findings. The information gathered during the assessment will determine the need for individualized counseling and the development of a NCP with specific recommendations and planned follow-up visits.

In step 2 of the NCP development, the most important problems would be identified jointly and the approach to correct them would be discussed and negotiated. As part of this process, the support needed (step 3) to make the changes would be identified. The support might include regular follow-up visits with the counselor or the involvement of family members to prepare or purchase specific foods, participation in a self-help group, etc.



## The Nutrition Care Plan (cont.)

*What are the Steps in Making a NCP?*

1. Summarize the findings of the assessment
2. Jointly identify the key problems the client needs to address and how they can do this
3. Identify the support needed
4. Monitor and revise over time.

**Facilitator Notes:**

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**Slide 19**



## Basis of NCP

*What is the NCP based on?*

1. Findings of the health/nutrition assessment
2. Knowledge/experience of the patient; their resources
3. Any targets they have set in the past & progress toward solving the same or a related problem
4. Available health provider support
5. What other care/support they can access

**Facilitator Notes:**

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## Slide 20

The following provides examples of PLHIV with problems that require a complete nutrition assessment, NCP and follow-up:

Example (1), a BMI between 16 and 18.5 in adults indicates moderate malnutrition. When this occurs, a thorough nutrition assessment, including nutrition counseling and supplementary feeding (if available) is called for along with the development of a NCP including follow-up visits. It is also important to treat and prevent any infections.

Example (2), an unintended decrease in weight of > 5% in 2-3 months, which has been associated with an increased risk of hospitalization. A complete nutrition assessment including a food security assessment is called for to ensure adequate food access, availability and intake. The PLHIV should be assessed for infections, and, if any are identified they should be treated. If the weight loss is associated with food and nutrition concerns, nutrition counseling should also be provided and a nutrition care plan developed with follow-up visits.

Example (3), when weight loss is accompanied with diarrhea and other problems, such as, an oral yeast infection, a complete nutrition assessment is needed. Lab work may be needed to determine the cause of the diarrhea. A nutrition care plan which incorporates the use of soft foods, etc. to ease the pain when eating, drinking more fluid and use of ORS to decrease the risk of dehydration caused by the diarrhea along with specific foods and beverages which lessen the negative effects of diarrhea. The NCP should provide information, such as, signs of dehydration and when to seek medical treatment. In addition, the NCP should be developed with the PLHIV's input and incorporate follow-up would be needed.



## The Nutrition Care Plan (cont.)

### *How is the NCP Implemented?*

- It is jointly implemented as an outcome of the practitioner/client relationship
- The practitioner helps the client to explore personal issues and make good decisions
- The practitioner applies counseling techniques to help the client address concerns arising from HIV infection that affect their food intake and nutritional status.

### **Facilitator Notes:**

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**Slide 21**

See Instructions and handouts for Exercise 2, Module 7: Using a Case Study to Develop a Nutrition Care Plan.



**Exercise 2: Using a Case Study to  
Develop a Nutrition Care Plan**

**Facilitator Notes:**

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## Slide 22

The next few slides help to clarify what is nutrition education and what is nutrition counseling and how they overlap.

Nutrition education is more effective if it is based on identified problems that are related to lack of information, inefficient use of resources or when people's living situations change and potentially place them "at risk", such as, newly pregnant, new mothers, adolescent mothers, refugees, grandparents taking care of grandchildren. It is also more effective if it is practical, provided along with the skills to change behaviors, such as, learning how to prepare healthier meals and reinforced.

Nutrition education at the community level is more effective if it is linked with other program services, such as, individualized and group nutrition education as part of growth monitoring promotion in MCHN clinics when immunizations, vitamin A and deworming are provided. A process of designing nutrition education programming, which utilizes the results of surveys to inform focus group discussions with key informants and members of the target population to identify nutrition/health problems, potential solutions and the key behaviors necessary to change. Following this up by piloting the materials, messages and other components of the nutrition/health education intervention to assess effectiveness of changing the targeted behaviors and lessons learned prior to scaling up is also extremely useful.

Disseminating nutrition/health messages through various channels can also be effective particularly when it is linked with developing the practical skills to support the change. An example of this is programming, which helps increase production of diverse crops that complement other available foods. Along with this it is necessary to provide information on how much is needed to grow and store (and how to do this), along with how to prepare any new foods in nutritious ways and support the diet changes needed to improve identified nutrition gaps.



### What is Nutrition Education?

- Nutrition education is an instructional method that imparts information so that individuals can make informed decisions about food, dietary habits and health.
- It helps people learn new information and to develop the attitudes, skills and confidence needed to improve the amount and type of food they eat.

**Facilitator Notes:**

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### Slide 23

Facilitator to participants: Are any of your HIV or AIDS programs currently providing any nutrition assessment, nutrition counseling or nutrition education? If so, how it is being done? (Is it being done in groups? Who delivers any nutrition education? Is it a nutritionist? Have they been trained? Does it seem to be effective? Are there ways it should be improved?)



## Nutrition Education as part of PLHIV Nutrition Services

- As part of the counseling process, individualized nutrition education is provided.
- Nutrition education can also be provided to groups. Many PLHIV have similar food and nutrition concerns so providing group sessions can be more efficient.
- Groups can also be helpful as group members can learn from and support one another.

### **Facilitator Notes:**

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## **Slide 24**

Nutrition counseling is conducted as part of a one-on-one relationship between a counselor and a client.



### **What is Nutrition Counseling?**

A trained care provider works with a client to design a personal eating plan made of foods that are locally available, nutritious and tasty. Concerns arising from HIV infection (or other disease) that affect their food intake and nutritional status is also addressed.

#### **Facilitator Notes:**

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## Slide 25

**Creating rapport** involves sitting with an open posture, leaning forward and establishing eye contact in relaxed manner.

**Listening** to the client means looking at the client and using body language to indicate interest.

**Questioning skills** involve knowing when to use open or close-ended questions and prompts to encourage talking while avoiding interrogation.

**Empathizing** with the client involves making the client know that you understand what they are saying, commenting on their strengths and encouraging them to take action on their situation.

**Help the client identify the appropriate solutions** to the situation involves screening to ensure they are feasible, accessible, affordable, and practical. Whenever possible the client should verbally role-play the solutions to demonstrate they have the knowledge, skill, etc. to implement.

**Summarize the agreements** with the client to make sure the client understands the important aspects of the information and agreements.

**Discuss appropriate follow-up** with the client and encourage the client to stick to the follow-up plan.



## Nutrition Counseling Skills

- Create rapport
- Listen to the client
- Question the client
- Empathize with the client
- Clarify to make sure the counselor understands the client's situation
- Provide relevant nutrition information to help the client make appropriate choices
- Help the client identify the appropriate solutions to the situation
- Summarize the agreements with the client
- Discuss appropriate follow-up with the client

### Facilitator Notes:

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**Slide 26**

Refer to the instructions on the Handout for Exercise #3, Module 7: Including Nutritional Assessment and NCP in HIV Programming



## Exercise #3

Including Nutrition Assessment and  
NCP in HIV Programming

**Facilitator Notes:**

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## **Exercises for Module 8**

## Exercise 1: Calculating BMI and Assessing Weight

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Calculators will be needed for each group of two participants, along with the following pages with the formula for calculating BMI and the BMI chart. You may want to ask participants to bring calculators with them to the training. They also should come to the training knowing their height and weight, however, they can be estimated as it would be difficult to weight and measure participants during the training.

The exercise will take about 10-15 minutes for individuals to calculate their BMI and compare this to the BMI chart to assess if they are of normal, under or overweight. Depending on the levels of math skills of participants, you may want to do an example of calculating a BMI with the group first.

What might influence a BMI, i.e. make it higher or lower? (Answer: A muscular person might have a higher BMI and be considered overweight, but may not have the additional health risks. A person with little muscle mass might weigh less and have a lower BMI.) However, one should be careful in attributing that they are overweight because of additional muscle. This should be done in consultation with a health professional.

Following the individual work or work done in teams sharing calculators, you may want to lead a short discussion regarding their results. If their BMI fell into the overweight or normal weight range, was this expected? In some cultures, women in particular may not want to share this information, so please consider this when deciding how to facilitate the discussion. It's not essential to discuss this.

However, you may want to mention that there are increased health risks of being overweight, such as, heart disease, hypertension and diabetes. Healthy eating e.g. more low-fat foods, smaller portions, etc. can help with weight as can regular physical activity.

**Body mass index (BMI)** is an individual's weight in kilograms divided by height in meters squared ( $\text{kg}/\text{m}^2$ ).

Record your weight in kilograms: \_\_\_\_\_ kg.

Record your height in meters (the to second decimal place): \_\_\_\_\_ m.

Multiply your height in meters by your height in meters ( $\text{m} \times \text{m}$  or  $\text{m}^2$ ): \_\_\_\_\_.

Weight in kilograms divided by your height in meters squared ( $\text{kg}/\text{m}^2$ ): \_\_\_\_\_.

Check with the BMI chart on the next page to see if you have multiplied and divided correctly (convert your height to centimeters by multiplying the number in meters by 100). The chart also classifies BMI by under, normal, overweight and obese. Next determine if you are of normal weight, underweight, overweight or obese and fill in the space provided with you weight classification. \_\_\_\_\_

## **Exercise 2: Using a Case Study Developing a Nutrition Care Plan**

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In this exercise, participants will use information provided from a short case study to develop a nutrition care plan. A participant handout provides the background information needed to guide the process. In addition, a 2-page hand-out which provides information on how to care for the symptoms and illnesses related to HIV provides information to develop the nutrition care plan (NCP).

Divide the participants into groups of 3 or 4. Pass out the case study (Handout 2) and Handout 3 for the exercise and briefly describe the exercise. The group work of developing the NCP should take about 20 minutes. This should be followed by a discussion during which the groups quickly present their work of about 15-20 minutes. The facilitator should then share the answers provided below, followed by another group presenting the NCP steps they developed with the group making comments and additions. Following this, the facilitator can add or present from the answer below.

(Case study adapted from: Kenya National AIDS and STI Control Programme (NAS COP), Ministry of Health, FANTA/AED, and CENER. "Nutrition Management in Care and Treatment of PWHA in Kenya." PowerPoint slides. DRAFT, January 2007.)

### **Answers:**

Other information to look for in the chart: height, past weight

Assessment: calculate BMI and compare to anthropometric cut-offs to determine if he is suffering from severe or moderate acute malnutrition.

**Findings:** 42 year old man who has weight loss, chronic diarrhea and oral candidiasis  
NCP

Counsel on how to increase energy intake, e.g. consume high energy, soft, bland foods; eat small frequent meals of preferred, enriched foods.

Educate on dietary management of diarrhea, oral sores and thrush and provide advice on oral thrush.

Refer for medical care (for diarrhea and oral care). If severely or moderately acutely malnourished refer for treatment.

Agree on a follow-up return date and schedule the appointment (2 weeks?)

### **Exercise 3: Including Nutrition Assessment and NCPs in HIV Programming**

For this exercise, divide the participants into groups of four. This exercise includes two different approaches to the same activity, thus half the groups can use the first approach and the other groups can use the second.

For both approaches assume that you have sufficient resources and refer to the slides in the PowerPoint presentation whenever necessary. The handout on anthropometric cut-offs and nutrition support actions may also be helpful.

#### *Approach 1: Adapting Pre-existing Programming*

For an existing HIV-related program (e.g. ART or HBC), plan how nutrition monitoring, assessment and development of nutrition care plans can be incorporated. How would you do this? What additional staff, resources and training might be needed?

If you were to advocate for including nutrition assessment into your HIV program, what are three arguments you would develop to convince donors? What has particularly moved you that could influence others? Who is it necessary to influence?

#### *Approach 2: New Program Design*

Imagine that you have started designing a new program for PLHIV. Discuss ways of including nutrition monitoring, assessment and development of nutrition care plans into the program. What might you add to your needs assessment process to guide program design? What additional staff, resources and training might be needed?

If you were to advocate for including nutrition assessment into your HIV program, what are three arguments you would develop to convince donors? What has particularly moved you that could influence others? Who is it necessary to influence?

**Note to the facilitator:** There are no exact answers for this exercise. However, information from the PowerPoint slides should inform the plans developed and the discussions. For example, the slide on why nutrition assessment is important for PLHIV can be contextualized to your country and used to help develop your advocacy points for donors. Other information from the presentation can also help inform the staff, resource and training needs, and should be adapted to your programming context. An estimated 30 minutes is needed for the group work, with another 30 minutes for presentations and group discussion.

## **Handouts for Module 8**



## Handout 1: Body Mass Index Chart

# Body Mass Index Chart (English and Metric)

Body Mass Index (BMI) is an indicator of optimal weight for health. Find the intersection of your weight and height — this is your BMI. Adults with a BMI between 19 and 24 have less risk for illnesses such as heart disease and diabetes than individuals with a BMI between 25 and 29. A BMI greater than 30 indicates greatest risk for obesity-related diseases.

Adapted from The National Institute of Health. *NHLBI Clinical Guidelines on Overweight and Obesity* June 1998. [www.nhlbi.nih.gov/guidelines](http://www.nhlbi.nih.gov/guidelines)

		Height (feet and inches)																		
		5'0"	5'1"	5'2"	5'3"	5'4"	5'5"	5'6"	5'7"	5'8"	5'9"	5'10"	5'11"	6'0"	6'1"	6'2"	6'3"	6'4"		
Weight (pounds)	100	20	19	18	18	17	17	16	16	15	15	14	14	14	13	13	12	12	45	Weight (kilograms)
	105	21	20	19	19	18	17	17	16	16	16	15	15	14	14	13	13	13	47	
	110	21	21	20	19	19	18	18	17	17	16	16	15	15	15	14	14	13	50	
	115	22	22	21	20	20	19	19	18	17	17	17	16	16	15	15	14	14	52	
	120	23	23	22	21	21	20	19	19	18	18	17	17	16	16	15	15	15	54	
	125	24	24	23	22	21	21	20	20	19	18	18	17	17	16	16	16	15	57	
	130	25	25	24	23	22	22	21	20	20	19	19	18	18	17	17	16	16	59	
	135	26	26	25	24	23	22	22	21	21	20	19	19	18	18	17	17	16	61	
	140	27	26	26	25	24	23	23	22	21	21	20	20	19	18	18	17	17	63	
	145	28	27	27	26	25	24	23	23	22	21	21	20	20	19	19	18	18	66	
	150	29	28	27	27	26	25	24	23	23	22	22	21	20	20	19	19	18	68	
	155	30	29	28	27	27	26	25	24	24	23	22	22	21	20	20	19	19	70	
	160	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21	20	19	72	
	165	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21	20	75	
	170	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21	77	
	175	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	79	
	180	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	82	
	185	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23	84	
	190	37	36	35	34	33	32	31	30	29	28	27	26	26	25	24	24	23	86	
	195	38	37	36	35	33	32	31	31	30	29	28	27	26	26	25	24	24	88	
200	39	38	37	35	34	33	32	31	30	30	29	28	27	26	26	25	24	91		
205	40	39	37	36	35	34	33	32	31	30	29	29	28	27	26	26	25	93		
210	41	40	38	37	36	35	34	33	32	31	30	29	28	28	27	26	26	95		
215	42	41	39	38	37	36	35	34	33	32	31	30	29	28	28	27	26	98		
220	43	42	40	39	38	37	36	34	33	32	32	31	30	29	28	27	27	100		
225	44	43	41	40	39	37	36	35	34	33	32	31	31	30	29	28	27	102		
230	45	43	42	41	39	38	37	36	35	34	33	32	31	30	30	29	28	104		
235	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	29	29	107		
240	47	45	44	43	41	40	39	38	36	35	34	33	33	32	31	30	29	109		
245	48	46	45	43	42	41	40	38	37	36	35	34	33	32	31	31	30	111		
250	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	114		

150 152.5 155 157.5 160 162.5 165 167.5 170 172.5 175 177.5 180 182.5 185 187.5 190

Height (centimetres)

Underweight  
  Weight Appropriate  
  Overweight  
  Obese

## Handout 2: Case Study

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### Participant Background Information

A 46 year old man comes to the clinic because he feels weak. It is his second visit to the clinic since he found out he is HIV+. He is a shopkeeper and has had watery diarrhea on and off for the last 3 weeks.

He has lost 7 kilograms over the past 6 months and now weighs 72 kg. His mouth is painful and he has difficulty swallowing. Examination shows a thin, depressed and worried man. He can not stand without help. His mouth has extensive whitish spots and a very red pharynx.

Working together in groups, summarize your findings/impressions from the background information above in a sentence and record:

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What information might you be interested in looking up in the patient's chart? Is an assessment needed? Develop a NCP for the patient in 4 or so steps using the handout on caring for HIV-related symptoms and illnesses. What are the topics to cover in nutrition and diet counseling? What are the topics for health education? Include any referrals for medical care and the follow-up plan.

Information to look-up in the patient's record, recommended assessment, if needed:

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NCP steps:

1. Topics for nutrition/diet counseling:

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2. Topics for health education:

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3. Referrals for medical care:

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4. Follow-up Plan:

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### Handout 3: Caring for Symptoms and Illnesses Associated with HIV in Adults

Illness	Diet	Care Practices
Anorexia (appetite loss)	<ul style="list-style-type: none"> <li>• Try to stimulate appetite by eating favorite foods.</li> <li>• Eat small amounts of food more frequently.</li> <li>• Eat favorite foods.</li> <li>• Select foods that are more energy dense.</li> <li>• Avoid strong smelling foods.</li> </ul>	<ul style="list-style-type: none"> <li>• If loss of appetite is due to illness, seek medical treatment.</li> </ul>
Diarrhea	<ul style="list-style-type: none"> <li>• Drink lots of fluids to avoid dehydration (e.g., soups, diluted fruit juices, boiled water, herbal teas).</li> <li>• Drink juices such as passion fruit; avoid strong citrus (e.g., orange, lemon) because it may irritate the stomach.</li> <li>• Consume foods rich in soluble fiber to help to retain fluids (e.g., millet, banana, peas, lentils).</li> <li>• Eat starchy foods like rice, maize, sorghum, bread, potato, cassava and blended foods like corn-soy blend (CSB).</li> <li>• For protein, eat eggs, meat, chicken or fish.</li> <li>• Boil or steam foods.</li> <li>• Consume fermented foods like porridges and yogurt.</li> <li>• Eat small amounts of food frequently and continue to eat following illness to recuperate from weight and nutrient loss.</li> <li>• Eat soft fruits and vegetables like bananas, squash, banana matoke, mashed sweet potato, mashed carrots.</li> </ul> <p><i>Foods to avoid/reduce intake:</i></p> <ul style="list-style-type: none"> <li>• Some dairy products such as milk if lactose intolerant.</li> <li>• Caffeine (e.g., coffee, teas) and alcohol.</li> <li>• Fatty foods including fried foods and extra oil, lard or butter.</li> <li>• Gas-forming food such as cabbage, onions, and carbonated soft drinks (e.g., sodas).</li> </ul>	<p><i>Prevention</i></p> <ul style="list-style-type: none"> <li>• Drink plenty of clean, boiled water.</li> <li>• Wash hands with soap and water before handling, preparing, serving or storing foods.</li> <li>• Wash hands with soap and water after using a toilet or latrine or cleaning a child after defecation.</li> </ul> <p><i>Treatment</i></p> <ul style="list-style-type: none"> <li>• Drink more fluids to prevent dehydration. Prepare rehydration solutions using oral rehydration salt packets or a home-made solution of one liter of boiled water, four teaspoons sugar, and a half teaspoon of iodized salt.</li> <li>• Go to a health center if symptoms such as severe dehydration persist (e.g., low or no urine output, fainting, dizziness, shortness of breath, bloody stools, high fever, vomiting, severe abdominal pain or diarrhea).</li> </ul>
Fever	<ul style="list-style-type: none"> <li>• Eat soups that are rich in foods that give energy and nutrients, like maize, potatoes, and carrots.</li> <li>• Drink plenty of liquids, more than usual beyond thirst.</li> </ul>	<ul style="list-style-type: none"> <li>• Bathe in cool water.</li> <li>• Rest.</li> <li>• Continue to eat small frequent meals as tolerated.</li> <li>• Go to the health center in case of: fever that lasts several days and is not relieved with aspirin; loss of consciousness; severe body pain; yellow eyes; severe diarrhea; and fits.</li> </ul>
Nausea and Vomiting	<ul style="list-style-type: none"> <li>• Eat small and frequent meals.</li> <li>• Eat foods like soups, unsweetened porridge and fruits like bananas.</li> <li>• Eat lightly salty and dry foods like crackers to calm the stomach.</li> <li>• Drink liquids, such as clean boiled water.</li> <li>• Avoid spicy and fatty foods.</li> <li>• Avoid caffeine (e.g., coffee, tea) and alcohol.</li> <li>• Avoid overly sweets foods.</li> <li>• Avoid having empty stomach; nausea is worse if nothing is in the stomach.</li> <li>• Avoid lying down immediately after eating; wait at least 20 minutes to avoid vomiting.</li> <li>• Rest between meals.</li> </ul>	<ul style="list-style-type: none"> <li>• Eat small frequent meals. Nausea is worse if there is nothing in the stomach.</li> <li>• Avoid lying down immediately after eating; wait at least 20 minutes to avoid vomiting.</li> <li>• Rest between meals.</li> </ul>

<i>Illness</i>	<i>Diet</i>	<i>Care Practices</i>
Thrush	<ul style="list-style-type: none"> <li>• Eat soft mashed foods, such as carrot, scrambled eggs, mashed potatoes, bananas, soups, porridge.</li> <li>• If available, use a spoon or cup to eat small amounts of foods.</li> <li>• Eat cold or room temperature foods.</li> <li>• Drink plenty of fluids.</li> <li>• Avoid spicy, salty, or sticky foods; these may irritate mouth sores.</li> <li>• Avoid sugary foods; these cause yeast to grow.</li> <li>• Avoid strong citrus fruits and juices which may irritate mouth sores.</li> <li>• Avoid alcohol.</li> </ul>	<ul style="list-style-type: none"> <li>• Seek medical treatment.</li> <li>• Rinse mouth with boiled warm salt water after eating to reduce irritation and keep infected areas clean so yeast cannot grow.</li> <li>• Tilt head back when eating to help with swallowing.</li> </ul>
Anemia	<ul style="list-style-type: none"> <li>• Eat more iron- and folic acid-rich foods such as animal products (e.g., eggs, fish, meat, liver), green leafy vegetables (e.g., collard greens, spinach), legumes (e.g., beans, lentils, groundnuts), and fortified cereals.</li> <li>• Consume vitamin C-rich foods (e.g., citrus fruits, green leafy vegetables) at meal times to improve iron absorption.</li> <li>• Do not drink tea, coffee, milk and cocoa at meal times; these inhibit iron absorption.</li> <li>• Take iron folate supplements as recommended by a health worker.</li> </ul>	<ul style="list-style-type: none"> <li>• Seek treatment for malaria and hookworm.</li> </ul>
Muscle Wasting	<ul style="list-style-type: none"> <li>• Increase food intake by increasing quantity of food and frequency of consumption.</li> <li>• Increase protein in diet by eating animal products, cereals, and legumes.</li> <li>• Improve quality and quantity of foods by providing a variety of foods.</li> <li>• Eat small frequent meals.</li> </ul>	<ul style="list-style-type: none"> <li>• Eat small frequent meals.</li> <li>• Eat soft liquid food if mouth sores present.</li> <li>• Slowly introduce fat in the diet.</li> <li>• Increase intake of starchy foods in cereals and other staples.</li> <li>• Use fortified foods.</li> <li>• Maintain regular exercise. It is the only way to build muscles.</li> </ul>
Constipation	<ul style="list-style-type: none"> <li>• Eat more foods that are high in fiber content, such as maize, whole-wheat bread, green vegetables, and washed fruits with the peel remaining.</li> <li>• Drink plenty of liquids including boiled water.</li> <li>• Avoid processed or refined foods.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain regular exercise.</li> <li>• Drink water, juices, and nectars every day.</li> </ul>
Bloatedness/ Heartburn	<ul style="list-style-type: none"> <li>• Eat small, frequent meals.</li> <li>• Avoid gas-forming foods (e.g., cabbage, soda) and spicy foods.</li> <li>• Drink fluids between meals.</li> </ul>	<ul style="list-style-type: none"> <li>• Eat small, frequent meals.</li> <li>• Eat long enough before sleeping so food can digest.</li> <li>• Avoid lying down immediately after eating.</li> </ul>
Tuberculosis	<ul style="list-style-type: none"> <li>• Consume foods high in protein, energy, iron and vitamins.</li> </ul>	<ul style="list-style-type: none"> <li>• Consult medical personnel about taking food with medications.</li> <li>• If taking isoniazid for treatment, take a vitamin B6 supplement to avoid deficiency of this micronutrient.</li> </ul>
Loss of Taste and/or Abnormal Taste	<ul style="list-style-type: none"> <li>• Use flavor enhancers (e.g., salt, spices, herbs, lemon).</li> </ul>	<ul style="list-style-type: none"> <li>• Chew food well and move around mouth to stimulate receptors.</li> </ul>

Taken from: *HIV/AIDS: A Guide for Nutritional Care and Support*. 2<sup>nd</sup> Edition. FANTA, AED, Washington DC, 2004, pg. 24, 25.

### **Handout 4: Key Anthropometric Range and Cut-off Points and Nutrition Action for PLHIV (Adults)**

<b>MUAC LEVEL AND CONDITION</b>	<b>BMI LEVEL AND CONDITION</b>	<b>HIV/AIDS CLINIC NUTRITION SUPPORT ACTIONS</b>
< 16.0 cm Severe acute malnutrition	< 16 Severely malnourished	Rehabilitate with therapeutic foods Address food intake issues, possible metabolic issues and infection Assess for ART
16-18.5 cm Moderate acute malnutrition	16- 16.9 Moderate malnutrition	Admit for supplemental feeding, if available Nutritional counseling, if available Address infections, treatment and prevention If also with bilateral pitting edema, inability to stand, apparent dehydration, then admit/refer for admission to therapeutic feeding
18.5- 23 cm Mild acute malnutrition	17-18.4 Mild malnutrition	Nutritional counseling Resistance exercises to build muscles and prevention of infections
Above 23 cm Normal nutritional status	18.5-24.9 Normal nutritional status	
	25-30 Overweight	Nutritional counseling to reduce energy intake Aerobic physical activity to reduce weight
	30+ Obese	Counsel to change lifestyle Reduce energy intake Aerobic physical activity to reduce weight Pharmacological intervention if necessary

**Mid-upper arm circumference (MUAC)** is the circumference of the left upper arm, measured at the mid-point between the tip of the shoulder and the tip of the elbow, taken with the arm hanging down. Normal range is 23 cm and above. For MUAC, there is no established range for overweight and obesity.

**Body mass index (BMI)** is the weight in kilograms divided by height (in meters) squared ( $\text{kg}/\text{m}^2$ ). Normal range is 18.5-25; 25-30 indicates overweight and over 30 indicates obesity and is associated with significant health risks.

**Acute Malnutrition or “wasting”** is the condition of failing health that results from dietary intake that does not match nutritional needs. Anthropometric cut-offs define acute malnutrition as severe, moderate and mild. Acute malnutrition (mild, moderate and severe) is associated with increased risk of disease and death for HIV infected and uninfected individuals. (See modules 4, 5 and 6 for further information on the relationship of HIV and malnutrition.)

**Nutrition Support** includes nutrition assessment, the development of a nutrition care plan, along with education and counseling to improve specific eating behaviors. It can also include the prescription of micronutrient supplements and linkages with food based interventions and other programs as needed.

Adapted from: National AIDS and STI Control Programme of Kenya (NAS COP). May 2007. “Nutrition and HIV/AIDS: A Toolkit for Service Providers in Comprehensive Care Centers”. Nairobi, Kenya: NAS COP.

## References for Module 8

### Resources Consulted

National AIDS and STI Control Programme of Kenya (NAS COP). May 2007. "Nutrition and HIV/AIDS: A Toolkit for Service Providers in Comprehensive Care Centers". Nairobi, Kenya: NAS COP.

Ministry of Health, Republic of Kenya. "Kenyan National Guidelines on Nutrition and HIV/AIDS". Nairobi, Kenya: Ministry of Health, Republic of Kenya, April, 2006.

Many slides were adapted from: National AIDS and STI Control Programme of Kenya (NAS COP). May 2007. "Nutrition and HIV/AIDS: A Toolkit for Service Providers in Comprehensive Care Centers". Nairobi, Kenya: NAS COP.

Savage King, Felicity and Ann Burgess. Second Edition, 1993. *Nutrition for Developing Countries*. Oxford Medical Publications.

### Recommended Reading

National AIDS and STI Control Programme of Kenya (NAS COP). May 2007. "Nutrition and HIV/AIDS: A Toolkit for Service Providers in Comprehensive Care Centers". Nairobi, Kenya: NAS COP.

Ministry of Health, Republic of Kenya. "Kenyan National Guidelines on Nutrition and HIV/AIDS". Nairobi, Kenya: Ministry of Health, Republic of Kenya, April, 2006.

Hoddinott, John. 2002. "Methods for Rural Development Projects". International Food Policy Research Institute (IFPRI).

Country specific nutrition and HIV guidelines

# Module 9: HIV and Food Aid

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## Overview of Module 9

### Title of the Module

HIV and Food Aid

### Purpose of the Module

The purpose is to gain a basic understanding of the unique issues related to programming food aid in an HIV context.

### Learning Objectives

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

- Understand the purpose / role of food aid in an HIV context.
- Be aware of special considerations related to ration selection, targeting, ration types, and program duration when programming food aid in an HIV context.

### Estimated Time

PowerPoint Presentation: 60 minutes

Exercise 1: 30 minutes

Exercise 2: 30 minutes (or more depending upon how many commodities are collected)

*Total estimated time: 2 hours*

### Prerequisite Modules

It is recommended that the facilitator cover all preceding modules prior to tackling this module.

### Materials Required

LCD projector; handouts of PowerPoint slides and comments; handouts of exercises 1 and 2; and materials for exercises 1 and 2

Note: Exercise 2 will take some advance planning since the facilitator will need to collect samples of specialized foods and have them prepared in advance of the workshop.

### Recommended Preparation

The facilitator should have covered all preceding modules, and be familiar with the content of those as a basis for the current module. It may be necessary to review key points from those modules with participants prior to beginning this module.



Assess the level of knowledge of the participant audience to determine the length of time to be allocated to PowerPoint presentation and the activities in this module.

Review each of the exercises carefully and prepare necessary materials for each.

Review reference materials and other recommended readings.

## Facilitator Notes for Module 9

### Slide 1



# HIV and Food Aid

## Module 9



**Facilitator Notes:**

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## Slide 2

Programming food aid in a high HIV prevalence context requires that various special considerations are taken into account. This module will examine issues related to purpose / role of food aid where there is a high prevalence of HIV. It will also look at how food aid programming may need to be modified / adjusted from 'business as usual' with respect to ration selection, targeting criteria, ration types and the duration of food programming when working with PLHIV and/or HHs affected by HIV and AIDS.



### Goal

To gain a basic understanding of the unique issues related to food programming in an HIV context.

### Objectives

1. To understand the *purpose / role* of food aid in an HIV context.
2. To be aware of special considerations related to *ration selection, targeting, ration types, and program duration* when programming food aid in an HIV context.

### Facilitator Notes:

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### Slide 3

Donors financing Food by Prescription often mandate that the food be seen as a medicine for the individual, thus many do not allow for household rations, only food for the HIV-infected patient.



## Some new terminology and acronyms....

CSB: *Corn Soy Blend*

HEPS: *High Energy Protein Supplement*

RUTF: *Ready to Use Therapeutic Food*

Food by Prescription: *Food purchased with for the patient only; usually when the patient is moderately or severely malnourished and the food is treated as a medicine.*

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### Facilitator Notes:

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#### Slide 4

The purpose and role of food aid in an HIV context is similar to that of food aid in a non-HIV context, with several additional features.

**Physical / Biochemical** - Food aid is used to protect, restore and improve nutritional well being and is also used to improve the efficacy of TB-DOTS and ART. While empirical evidence showing a correlation between food rations and improved efficacy is lacking, anecdotal evidence abounds. And we do know that good nutrition enhances the capacity of the body to fight opportunistic infections, and therefore should maximize the effectiveness of medical treatment.

**Food Security / Income** – Food aid is used to improve HH food security and/or as an income transfer (i.e. FFW).

**Program Participation** – Food aid is used to improve enrollment and attendance in primary school, and to a lesser extent, secondary schools. In high HIV prevalence contexts, food rations are increasingly used to encourage participation of pregnant and lactating women in PMTCT programs. Finally, food aid has emerged as a strong incentive to promote treatment adherence to TB-DOTS and ART. As with 'efficacy' (above), there remains a dearth of empirical evidence showing a clear correlation between food rations and improved adherence. Testimonials from various countries, however, are convincing and have made it increasingly common to use food as an adjunct specifically for these purposes.

It should be noted that the basis of food aid programming remains food insecurity, and should only be considered where a thorough assessment of vulnerability to food insecurity is conducted and determines that food aid is warranted. Additionally, and as mentioned later in this module, food aid should only be programmed in conjunction with other multi-sectoral programmatic components – it should not be programmed in isolation.



## The Purpose/Role of Food Aid

1. Physical/biochemical
  - Nutritional well being/status
  - Treatment efficacy (TB and ART)
2. Food security/income
  - Household food security
  - Income transfer
3. Program participation
  - Attendance, enrolment (PMTCT, school feeding)
  - Treatment adherence (TB and ART)

#### Facilitator Notes:

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**Slide 5**



**Key Question:**  
**Where is your food coming from?**

1. **WFP or USAID Title II program:** large scale effort; fixed lists of commodities / limited options; significant level of advance planning required
2. **Local purchase with cash from your program or private donation:** smaller amounts, more flexible mechanism, possible to be more responsive to clients

**Facilitator Notes:**

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## Slide 6

As discussed in modules entitled 'Nutritional Health for PLHIV' and 'Nutrition for PLHIV with Illness', there are several factors to consider in designing a ration for PLHIV and HHs affected by HIV and AIDS. Increased energy needs; difficulties with eating as well as reduced ability to digest and absorb foods, especially for symptomatic PLHIV, and limited ability to process and prepare food are all covered in this module. Also, as with any food aid program, decisions regarding the size and composition of rations must also take the following into consideration: commodity management capacities; local policies; costs; desired or required shelf life; local culture and taboos; and other preparation constraints.



### Factors to Consider in Designing Ration Size and Mix

1. PLHIV's increased energy needs
2. Difficulties eating and reduced ability to digest and absorb foods, particularly with symptomatic HIV infection
3. Reduced ability to process & prepare food

**Facilitator Notes:**

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## Slide 7

In the module entitled 'Nutritional Health for PLHIV,' we learned about the increased energy requirements for PLHIV -- summarized in this slide. Note: For Pregnant and Lactating Women, these requirements are *in addition* to the extra energy, protein and micronutrients that they already require.

These additional percentages, in theory, build on a healthy balanced diet which provides 100% of their adult requirements for protein, vitamins and minerals and includes the recommended number of servings from the 6 food groups (there are no specific requirements for carbohydrates and fats). We acknowledge, however, that many people we serve do not have a healthy diet and may have been marginally malnourished for years, indicating an even greater need for counseling and support if PLHIV are going to meet this requirement. It should also be noted that additional energy intake should be made up of the correct balance of all macronutrients (not just extra carbohydrates, such as cereal) thus their protein and fat intake should be proportionately higher. Finally, if a set of Guidelines for Nutrition and HIV has been developed in your country, you should have a copy and be familiar with the contents.



### 1. Increased Energy Needs

Population Group	HIV phase	Energy requirement
Adults	Asymptomatic	10% increase
	Symptomatic	20-30 % increase
Pregnant/lactating women*	Asymptomatic	10% increase
	Symptomatic	20-30% increase
Children	Asymptomatic	10% increase
	Symptomatic (with no weight loss)	20-30% increase
	Symptomatic (with weight loss)	50-100% increase

\* This is in addition to extra energy, protein and micronutrients required by pregnancy or lactation.

### Facilitator Notes:

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## Slide 8

It's helpful to remember that the vast majority of HIV+ individuals are actually asymptomatic, and while they need to increase their daily caloric intake, they do not typically need food aid simply because they are HIV+.

In most cases, rations are designed to be supplementary, thus not intended to cover 100% of nutritional requirements. It may still be necessary and possible, however, to adjust the ration upwards given the additional energy needs of PLHIV. As mentioned in the earlier slide, additional energy intake should be made up of the correct balance of all macronutrients (not just extra carbohydrates, such as cereal) thus their protein and fat intake should be proportionately higher.

A HH ration instead of, or in addition to, the individual ration for the PLHIV should also be considered to ensure that the PLHIV's ration is not diluted due to intra-HH sharing, especially where there is underlying HH food insecurity.

Finally, ration *mix* may, in fact, be more relevant than the *size* of the ration. Including oil in the ration will increase energy density and is especially relevant for those who are ill and can only consume small amounts of food at a time. Commodities should be fortified to the maximum level, especially cereals and oils. And blended foods, rather than cereal staples, should be prioritized as they have a higher proportion of micronutrients and protein.



### *Do increased energy needs mean a larger ration?*

- Being HIV+ is not in itself an indicator for food aid
- 'Standard' rations may need to be adjusted upwards for symptomatic PLHIV
- Consider a HH ration to ensure PLHIV ration is not diluted due to intra HH sharing
- The ration 'MIX' may be more relevant than the 'SIZE'
  - Include oil to increase energy density
  - Consider blended foods (ie. CSB & WSB) over cereals

### **Facilitator Notes:**

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## Slide 9

In the module on 'Nutrition for PLHIV with Illness', we covered the various symptoms that make food intake difficult for PLHIV.

Before running through the answers on the slide, the facilitator may want to ask the group: 'What are some of the problems PLHIV can have that interfere with their ability to eat?' The participants should focus on problems with eating, rather than ALL the ways HIV interacts with nutrition – this will be covered in the next slides. Participants may, however, offer other answers (such as social considerations – 'being marginalized by family' or 'being too worried') if stigma is still prevalent.

These difficulties need to be taken into consideration when determining the ration mix to ensure that PLHIV are able to consume the commodities.



## 2. Difficulties Eating

Symptoms and illnesses associated with HIV and AIDS

- Oral thrush and other mouth infections
- Loss of appetite
- Taste changes
- Fever
- Nausea, especially if on medication
- Constipation/diarrhea
- Fatigue

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**Facilitator Notes:**

## Slide 10

Corn Soy Blend (CSB) and Wheat Soy Blend (WSB) are popular blended foods that are served as a porridge or gruel and are easier to swallow and digest than other typical food aid commodities such as maize and sorghum. Nutrient- and energy- dense foods are beneficial to PLHIV who need to receive maximum value from a small amount of food. Fortified blended foods, such as CSB and WSB, as well as others like CSM, HEPS, Likuni Phala, Sosoma, E'pap and Unimix are increasingly used for PLHIV. They are also good because a little bit goes a long way, especially when a little oil and sugar are added; they can be prepared in small quantities, and they are quick to prepare when the patient is hungry.



### *How does this affect the ration choice?*

Consider commodities that:

- Can be used as a porridge or gruel (e.g. CSB & WSB)
- Have a texture that makes it easier to swallow
- Are high in energy and nutrients
- Are processed so that it is easier to digest

**Facilitator Notes:**

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## Slide 11

In HHs with CI members, there is less time for gathering fuel and water and preparing meals due to extra time needed for providing care to those who are sick. Milling is often not an option due to time and financial constraints. And finally, where adult members of the HH are ill or busy with other activities, children are left in charge of food preparation. It is therefore important to consider commodities that are relatively easy and less time consuming to prepare.



### 3. Limitations on Ability to Process & Prepare Food

- Illness and time spent on care giving limits time available for fuel & water gathering and food preparation
- Food processing (milling) is too costly for affected households
- Children are often in charge of food preparation

#### Facilitator Notes:

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## Slide 12

“Blended foods” (CSB, WSB, and others mentioned earlier) also meet the criteria specified in this third factor – ‘limitations on ability to process and prepare food’. They are precooked and have two or more ingredients, usually with micronutrients added. The majority of the blended food products are intended for use as porridges or gruels. Bulgur is also popular in some countries (e.g. Ethiopia) due to its shorter cooking time.



### *How do these limitations affect ration choice?*

Consider commodities that are processed and/or partially pre-cooked:

- No further milling is necessary
- Cook in a minimal amount of time ( $\approx$  10 min)
- Require minimal fuel for cooking
- More easily prepared by children

#### **Facilitator Notes:**

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**Slide 13**



**Examples of How Rations are Adjusted  
for an HIV Context**

**Facilitator Notes:**

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## Slide 14

WFP distributes a family (HH) ration on a monthly basis through the PMTCT plus program. The ration consists of the following:

- 36 kg maize grain (unmilled)
- 18 kg corn-soya blend
- 6 kg pulses
- 3 kg oil

This ration was designed based on the expected composition of an average AIDS-affected household. It was designed to provide a high level of support for nutritional needs of a CI member, along with two rations aimed at meeting two-thirds of adult requirements, and two rations that are equivalent to supplementary feeding rations for young children or the partial needs of adults. At present, households are supported through the PMTCT-Plus program for 18 months following the delivery of the child, a period that also includes the follow-up visit of the child to determine whether the intervention successfully contributed to the prevention of HIV transmission from the mother to the child. Although the PMTCT-Plus program provides food to all households of participating mothers, some of the home-based care and ARV programs supported by WFP use additional eligibility criteria based on both social and clinical factors. Social workers from NGOs visit households and assess HHs against those criteria.



## WFP Mozambique – PMTCT-plus

### Monthly HH ration:

36 kg maize, 18 kg CSB, 6 kg pulses, 3 kg oil

### Targeting and Basis for Ration:

- Targeted at women in PMTCT and based on needs of average AIDS-affected HH.
- Provides high level of support for nutritional needs of CI member of HH
- Includes 2 rations aimed at meeting 2/3 of adult requirements and 2 supp. feeding rations for young children or partial needs of adults

Duration: HH supported through PMTCT program for 18 month following delivery.

## Facilitator Notes:

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## Slide 15

Like in the Mozambique example, the I-LIFE NGO consortium has adjusted the ration to accommodate HHs who have a chronically ill (CI) member or individual that is in TB treatment. In this scenario, and in recognition that HHs often take significant time to recover from the death of a CI member (especially when the CI individual is a breadwinner of the family) it can take up to 12 months or longer. For this reason, HHs remain in the program for an additional 12 months after the CI member has died. The program specifically aims to assist these compromised HHs to regain their livelihoods following this trauma to the HH economy.



## I-LIFE Malawi

### Monthly HH ration:

50 kg maize, 10 kg CSB, 5 kg pulses, 4 kg oil

### Targeting and Basis for Ration:

- Targeted at HHs with a chronically ill members or TB patients
- Ration aims to account for increased caloric needs of CI members, and to ease the time and resource constraints of caregivers while they regain capacity for productive livelihoods

### Duration:

From baseline through a period of 12 months following the death of the CI member

## Facilitator Notes:

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**Slide 16:**

One tool that can be used in ration planning is the NutVal calculator.

**NutVal 2006 - General Ration Planning and Calculation Sheet**

RATION CONTENTS		DAILY											
Click below to select commodities or type them in on the bottom two rows		RATION	ENERGY	PROTEIN	FAT	CALCIUM	IRON	IODINE	VIT. A	THIAMIN	RIBOFLAVIN	NIACIN	VIT. C
		g/person/day	kcal	g	g	mg	mg	µg	µg RE	mg	mg	mg NE	mg
MAIZE GRAIN, YELLOW	↑	400	1,400	40.0	16.0	52	10.8	0	564	1.54	0.80	8.8	0
LENTILS	↑	50	169	14.1	0.5	26	4.5	0	6	0.24	0.13	3.4	3
CORN SOY BLEND (USA)	↑	150	564	25.8	10.4	1,247	26.3	85	1,176	0.80	0.72	9.3	60
OIL, VEGETABLE (WFP SPECS.)	↑	25	221	0.0	25.0	0	0.0	0	225	0.00	0.00	0.0	0
Ration total		625	2,354	79.9	51.9	1,324	41.6	85	1,971	2.58	1.65	21.5	63
Beneficiaries: Whole Population		2,100	52.5	40.0	450	22	150	500	0.90	1.40	13.9	28	
% of requirements supplied by ration			112%	152%	130%	294%	189%	57%	394%	286%	118%	155%	225%
% of energy supplied by protein or fat			13.6%	19.8%									
Ration Name or Reference:		Mozambique Ration						Date: 05/20/08					

View Graph of Nutrients    View Pie Chart of Energy    Add Data to Tracking Sheet    View Tracking Sheet    Export Data to Save or Print

Ration Examples:    [Maize-Based](#)    [Rice-Based](#)    [Wheat-Based](#)    [Clear Ration Contents](#)

**Facilitator Notes**

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**Slide 17**

Refer to the instructions on the Handout for Exercise #1, Module 9: Adjusting the Ration to an HIV Context.



## Exercise #1

Adjusting the Ration to an HIV Context

**Facilitator Notes:**

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## Slide 18

A food security assessment is the first step towards determining the level of need and the type of response that is warranted. If food aid is determined to be appropriate, the assessment will also help determine the type of ration that is required.

**General Ration:** A general ration is mostly used in an emergency context (e.g. refugee camp) and usually aims to cover most or all of the RDA (since beneficiaries do not have access to other sources of food). In the food security crisis of 2002-3 in southern Africa, general rations were frequently adjusted to include CSB since many HHs were AIDS-affected.

**Supplementary Ration:** Targeted and blanket supplementary rations are used to rehabilitate moderately malnourished individuals and protect those who are nutritionally 'at risk' (respectively).

Here, the facilitator may want to ask the following question: In a high HIV prevalence context, who would typically be targeted for supplementary rations? (the CI; HIV-positive PLW (or all PLW where there is underlying food insecurity); OVC; individuals on ART or TB-DOTS; women participating in PMTCT programs; PLHIV and care givers participating in positive living training; nutrition education curricula, and a host of other capacity building opportunities.)

**Therapeutic Ration:** Therapeutic rations are used to rehabilitate severely malnourished persons and are generally considered a clinical intervention. The main aim is to reduce excess mortality. In classic emergency situations, the majority of those with severe wasting are young children. Where the HIV prevalence is high, a significant portion of these wasted children may be HIV+. Where HIV prevalence is high, there may also be relatively larger numbers of adolescents and adults who have become wasted. In such situations, separate TFP facilities may be established for these groups. TB-DOTS and ART programs report that the majority of their PLHIVs are malnourished when they start treatment and many need access to therapeutic rations.

The foods used for therapeutic feeding are specialized. For young children treated for severe acute malnutrition in therapeutic feeding centers specially designed infant formulas called F75 (initial phase of feeding) and F100 for later in treatment are used. Children suffering from severe acute malnutrition that are treated in the community through community-based therapeutic feeding programs are provided RUTF (ready to use therapeutic food), which is made from groundnuts, dried skim milk, vitamins and minerals; it is the consistency of a paste. RUTF is also being used to treat acute malnutrition in older children, adolescents and adults. For further guidance on criteria for therapeutic feeding, refer to the UNHCR/WFP Guidelines for Selective Feeding Programmes in Emergency Situations.

[http://www.who.int/nutrition/publications/en/selective\\_feeding\\_emergencies.pdf](http://www.who.int/nutrition/publications/en/selective_feeding_emergencies.pdf)

## Types of Rations

General Ration – Usually in emergency contexts. Ration generally covers most/all of RDA and can be adjusted for HIV context.

Supplementary Ration – ‘Targeted’ or ‘Blanket’ to vulnerable groups. May be taken home (dry) or on-site (wet) ration and covers a portion of RDA. In HIV contexts, CI, PLW & OVC are common targets .

Therapeutic Ration – To rehabilitate the severely malnourished. In HIV context, wasting among sick adults is common and a high portion of wasted children are HIV+.

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### **Facilitator Notes:**

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## Slide 19

Targeting the most vulnerable in an HIV context is not dissimilar from targeting in a non-HIV context. The 'do no harm' principle reminds us to avoid stigmatization of those we are targeting. In some communities where stigmatization of PLHIV is still an issue, targeting may require the use of proxies such as 'chronic illness' to reach those who are HIV+ and symptomatic. It is, however, important to assess and acknowledge where communities are self-disclosing and where use of proxies is not necessary (where using proxies may in fact perpetuate stigma).

Use of Socio-demographic indicators: Not all households caring for orphans are food insecure. Similarly, not all pregnant and lactating women are food insecure.

When programming food aid, indicators such as asset ownership, coping strategies, employment, income and food consumption correlate strongly with the level of food security and should be considered in combination with socio-demographic indicators to target the most vulnerable. Participative approaches to selecting targeting criteria, and to conducting the targeting and beneficiary selection process, will assist towards ensuring that the community understands and is supportive of the program.



## Targeting Criteria

As in non-HIV contexts, targeting should include both asset/wealth indicators *and* socio-demographics in order to reach the 'most vulnerable'.

### Socio Demographics

- ✓ Number of OVC in a HH
- ✓ Presence of CI in HH
- ✓ Child headed HH
- ✓ High dependency ratio
- ✓ HIV+ PLW

### Assets/wealth

- ✓ HH asset ownership
- ✓ Coping strategy index (CSI)
- ✓ Employment
- ✓ Food Consumption Score (FCS)

### **Facilitator Notes:**

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## Slide 20

Where HH food insecurity is high, it's crucial to program a HH ration in order to protect the ration intended for the primary beneficiary. However, where HHs are more food secure, it's more likely that an individual ration will achieve specific health/nutrition goals (such as weight gain, adherence to medication, etc.). When using food as a clinical adjunct (i.e. alongside of medication to encourage weight gain) it's extremely useful to have the clinical care provider (doctor, nurse) explain and reinforce the purpose of the food with the PLHIV and their family.

In either case, it's important to understand the influence of stigma on participation in the program. Depending on the context and the targeting mechanism, a HH ration might be considered stigmatizing simply because it's so obvious. In other cases, a HH ration is more easily absorbed on the basis that the entire HH is food insecure – it doesn't necessarily indicate illness in the home. Yet again, it may be important to program small (individual) take-home rations that are more easily concealed for transportation home.

Many of the decisions about the purpose of the food aid intervention, ration size/mix, duration of ration and targeting methods will be strengthened by having good HIV and Nutrition technical assistance on the design of the program from the beginning. Getting support and advice from stakeholders in the operational areas will also make decisions stronger and more acceptable to the community. This will also ensure that relevant information and education on both nutrition and HIV are programmed alongside the food, to ensure maximum uptake of the program and utilization of scarce resources.



## Household or Individual Ration?

How do we decide ? Need to consider...

- What is the objective of the food activity?
- What is the level of HH food insecurity?
- What is the influence of stigma?

Providing a HH ration in addition to an individual ration (e.g. for the PLW) can help ensure that the individual ration is not diluted through intra-HH sharing.

### **Facilitator Notes:**

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## Slide 21

Like the decision regarding HH vs. individual ration, the **duration** of the ration should be determined through a careful analysis of the **objectives** the food support (i.e. treatment adherence?, nutritional rehabilitation?, income transfer?); and the **level of food insecurity (and/or malnutrition)**, which should be **assessed and re-assessed** (periodically) throughout the program. Where food is distributed as an adjunct to a medical intervention (e.g. TB-DOTS), the length of treatment will play a role in the decision.

There may be cases where food aid (in conjunction with other safety net support) may be seen as an indefinite prospect – i.e. palliative care for PLHIV where ART has failed or is not an option, or households made destitute by AIDS. However, in a majority of cases, food aid should be programmed with a finite duration in mind. Flexibility to adjust that duration based on ongoing assessment, a graduation strategy for the beneficiary and an exit strategy for the program are essential.



### Duration of Ration

Should be determined through an analysis of the *objectives* of food support and ongoing monitoring of the *level of food insecurity* and/or malnutrition.

**CRS India - Chennai** – food as an adjunct to ART and TB-DOTS;  
*Duration of ration:* 6 months and BMI>18 for ART; and 8 months for TB-DOTS

**CRS Guatemala (proposed)** – food to PLHIV who are on ART, show signs of wasting and have scarce resources  
*Duration of ration:* 18 months and until BMI of 20-24 is achieved or economic situation improves.

### Facilitator Notes:

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## Slide 22

**Graduation Strategies:** It is not uncommon to see instances where individuals who have graduated from a therapeutic or supplementary feeding program, return several months later with the same, deteriorated nutritional status that they were admitted in previously. The development of concrete graduation strategies is critical to ensuring the sustainability of nutrition and food security outcomes, and this is no less important in an HIV context.

The value of linking short and medium term food aid programs to longer term food security and livelihoods programs cannot be underestimated, and should be planned from the program's outset. Some examples of graduation strategy activities for a supplemental feeding program for PLW include training on the construction of kitchen gardens, Positive Living, less labor-intensive agricultural methodologies, and referrals to support groups and other existing community safety nets.

**Integration:** In addition, food aid programs, including program components supported by cash grants or monetization, should not be seen as the only mechanism for addressing food insecurity and HIV and AIDS. Wherever possible, agricultural, health, water and sanitation, and livelihoods programming with complementary food security objectives or overlapping geographic areas should be integrated or linked to food-assisted programs. This will ensure that nutritional and food security difficulties are addressed in a holistic and more sustainable manner.



## Graduation Strategies and Integration

- *Graduation strategies* will help ensure that nutrition and food security outcomes are sustained once the beneficiary exits the program.
- Food aid programs should be planned in an *integrated manner* with agriculture, health, water and sanitation, and livelihoods activities...

### Facilitator Notes:

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**Slide 23**

Refer to the instructions on the Handout for Exercise #2: Touching and Tasting Specialized Foods



**Exercise #2**

Touching and Tasting  
Specialized Foods

**Facilitator Notes:**

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## **Exercises for Module 9**

## **Exercise 1: Adjusting the ration to an HIV context**

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This exercise is meant to help participants begin to think about how they might adjust the food aid ration to a high HIV prevalence context and the special nutritional requirements of PLHIV.

Participants should identify a partner to work with for this exercise. If there is an odd number, one group may work with three.

Each student should take turns describing to their partner one of the programs within their agency where food aid is provided in a high HIV prevalence context, or where PLHIV are being served. If they do not currently have a program of this nature, they may describe the scenario of a partner organization or other that they know of.

1. The student should then try to articulate the **specific positive and negative roles that food aid plays** in this program. They may refer to the slide if necessary for guidance.
  
2. The student should then list some of the **factors to consider** in the design of the ration mix for this particular program (i.e. the target audience). Again, refer to the slides if necessary.
  
3. Finally, the participants should list some of the ways that the program might consider **altering the ration**, in order to be more appropriate and relevant to an HIV context and the special needs of PLHIV. It is not necessary for the student to calculate the precise number of kg designated for the revised ration. Instead, simply discuss where an increase/decrease or suggested alternate commodities might be considered and why.

Participants should document their responses as they work through the three steps above, and be prepared to share with the larger group once each team is finished.

## **Exercise 2: Touching and tasting specialized foods**

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This exercise is meant to give participants exposure to some of the specific commodities that are available to them for programming to PLHIV.

The following preparatory work will need to be done for this exercise:

1. The facilitator will need to obtain and print copies of the following document for the participants: "Compilation of Specialized Food Products for HIV/AIDS", FANTA, April 2005.

On the following (sample) page from the FANTA document are eight of the 31 commodities listed. The full document should be provided on the CD accompanying this manual.

2. The facilitator will need to review the list in advance of the training, and find out which commodities are available in the country where the training is being held. If planned enough in advance, the facilitator may be able to request that samples are brought from neighboring countries, e.g. Likuni Phala might be brought from Malawi or HEPS from Zambia. The facilitator may find that there are additional commodities that are available locally and that may be appropriate substitutes for those on the list. These may also be considered for taste testing and discussion.

3. The facilitator should collect samples of as many of the commodities that he or she can find, and have them prepared for a tasting session during the module.

During the exercise, participants should move from one commodity to the next touching and tasting each food, and discussing some or all of the following topics:

Type of commodity that they are tasting

Energy content

Cost

Ingredients

Preparation time and process

Local accessibility

Cultural acceptability

Storage issues / shelf life

Other...

## **Handouts for Module 9**

**Handout 1: Excerpt from “Compilation of Specialized Food Products for HIV/AIDS”, FANTA, April 2005**

	PRODUCT / MANUFACTURER	TYPE OF PRODUCT	ENERGY kcal/100 g	Cost per 100g	INGREDIENTS	PREPARATION
14	Maheu 007 Crescent Candy Ltd. Zambia	Beverage	592 per 100 ml	\$0.07 per 100 ml	Sugar, flavorings, sweetener maize meal, food grade enzyme, preservative (potassium sorbate)	Ready to eat
15	Mainstay 3600 Survivor Industries, USA	Bar Compressed food	400	\$1.17	Enriched flour, vitamins and minerals, vegetable shortening, granulated sugar, corn starch, corn syrup, natural and artificial flavorings.	Ready to eat
16	Medi-Meal Nutritional Foods Ltd. South Africa	Blended food	394	\$0.32	Pre-cooked maize meal, fat powder with hydrogenated vegetable oil, sugar, soy protein, prebiotic (oligosaccharide), vitamins, minerals, artificial sweeteners (sodium cyclamate and aspartame).	Add liquid to prepare as a beverage
17	Nutridelight Proctor & Gamble USA	Powder	N/A	\$0.03 - 0.05 per 100 ml	GrowthPlus (patented source of iron, vitamin A and iodine)	Add liquid to prepare as a beverage
18	Nutrifil Nutrifil Ltd. Ireland	Powder	417	\$0.19	Baked wheat flour, whole milk powder, sucrose, vitamin and mineral premix	Add liquid to prepare as a porridge or beverage; or add to other foods
19	Philani/Philani Yabantwana Diva Nutritional Products South Africa	Blended food	441/421	\$0.23 /0.25	Instantized maize meal, soy protein isolate, maize syrup solids, sucrose, maize oil, canola oil, palm oil, soy oil.	Add liquid for a porridge or beverage
20	Plumpy'food Nutriset France	Paste	543	N/A	Vegetable fat, peanut paste, dry skimmed milk, whey powder, sugar, unfattened soy flour, cocoa, mineral and vitamin complex.	Ready to eat
21	Plumpy'nut Nutriset France	Paste	545	\$0.33	Vegetable fat, peanut butter, skimmed milk powder, lactoserum, maltodextrin, sugar, mineral and vitamin complex.	Ready to eat

## Handout 2: Energy Requirements of People Living with HIV (PLHIV)

<b>Population Group</b>	<b>HIV phase</b>	<b>Energy requirement</b>
<b>Adults</b>	<b>Asymptomatic</b>	<b>10% increase</b>
	<b>Symptomatic</b>	<b>20-30 % increase</b>
<b>Pregnant/ Lactating women*</b>	<b>Asymptomatic</b>	<b>10% increase</b>
	<b>Symptomatic</b>	<b>20-30% increase</b>
<b>Children</b>	<b>Asymptomatic</b>	<b>10% increase</b>
	<b>Symptomatic (with no weight loss)</b>	<b>20-30% increase</b>
	<b>Symptomatic (with weight loss)</b>	<b>50-100% increase</b>

\* This is in addition to extra energy, protein and micronutrients required by pregnancy or lactation.



## References for Module 9

### Resources Consulted

FANTA. April 2005. "Compilation of Specialized Food Products for HIV/AIDS". Washington, DC: FANTA Project, AED.

WFP. 2004. "Getting Started: WFP Support to the Prevention of Mother-to-Child Transmission of HIV and Related Programmes".

UNHCR and WFP. 1999. "Guidelines for Selective Feeding Programmes in Emergency Situations."

FANTA and RCQHC. 2004. "HIV/AIDS and Food Aid: Assessment for Regional Programs and Resource Integration". FANTA and RCQHC workshop in Entebbe, Uganda November 2004.

Many slides were adapted from the following sessions at the RCQHC workshop:

[3.7. Title II Food Aid Programming Guidance and Resource Availability](#), Judy Canahuati of USAID's Office of Food for Peace

[3.8. HIV/AIDS & Food Aid Programming Guidance & Resource Availability](#), Francesca Erdelmann of WFP's HIV Unit

[3.11. Food Aid Rations in the HIV/AIDS Context](#), Sandra Remancus of FANTA Project

WFP. 2006 "NutVal: General Ration Planning and Calculation Sheet".

USAID Bureau for Democracy, Conflict & Humanitarian Assistance, Office of Food for Peace. 2007. "P.L.480 Title II Program Policies and Proposal Guidelines Fiscal Year 2008".

USAID Bureau for Democracy, Conflict & Humanitarian Assistance, Office of Food for Peace and the U.S. President's Emergency Plan for AIDS Relief. 2007. HIV and Food Security Conceptual Framework".

### Recommended Reading

FANTA. Second Edition, 2004. "HIV/AIDS: A guide for nutrition, care and support". Washington, DC: FANTA Project, AED.

FANTA and WFP. 2007. "Food Assistance Programming in the Context of HIV". Washington, DC: FANTA Project, AED.

USAID Bureau for Democracy, Conflict & Humanitarian Assistance, Office of Food for Peace. 2003. "Title II Commodity Reference Guide".

# Evaluation

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The following pages provide sample resources that can be used for evaluation purposes related to the training. Each resource can be printed and handed out to participants as it is presented here or may be adapted to be relevant to the local context and related emphasis of the training. The following resources are available:

- 1.) Pre- and post-test: This resource should be administered at the beginning of the training and again after the training has concluded and can be used to measure changes in the participants' knowledge as a result of the training.
- 2.) Evaluation of the training: This resource can be administered all at once at the end of the training or the trainer can request the evaluation of the different modules as they conclude throughout the training.

## PRE- and POST-TEST

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1. PLHIV need more macronutrients than non-PLHIV.  
True                  False
2. Three servings of vegetables are recommended per day for a healthy individual.  
True                  False
3. Infant nutrient stores are not affected by maternal nutrition.  
True                  False
4. Pregnant women need an additional 300 calories per day on top of any additional HIV-related energy needs.  
True                  False
5. It is normal for a pregnant woman to lose 1-2 kilos in her second trimester.  
True                  False
6. It is indicated to add cereal to a four month old breastfed baby's diet to help him gain weight.  
True                  False
7. If you can see through water, it is clean.  
True                  False
8. One of the diagnostic symptoms of AIDS is a CD4 count below 200 for an HIV+ individual.  
True                  False
9. It is good to drink soda if you have thrush in your mouth.  
True                  False
10. Reusing needles is safe within a healthcare setting.  
True                  False
11. If no preventative action is taken, 30% of babies born to mother with HIV will be HIV+.  
True                  False
12. People with HIV need to eat more than people without HIV.  
True                  False
13. A PLHIV will eventually die of AIDS.  
True                  False
14. Malnourished HIV+ people have lower CD4 counts and higher viral loads.  
True                  False
15. Wasting syndrome is mainly caused by a loss of fat.  
True                  False
16. Symptomatic HIV+ children need a 25% increase in energy requirements.  
True                  False

17. Extra caloric requirements should be met through an increase in fats.  
True False
18. It's best not to eat or drink to allow the stomach rest during bouts of diarrhea.  
True False
19. PLHIV should not exercise.  
True False
20. Regular deworming is an essential part of a nutrition regimen.  
True False
21. Growth in children can serve as a proxy for HIV progression.  
True False
22. Infant replacement feeding can easily be accomplished with household staples.  
True False
23. A nutritional care plan contains nutritional counseling.  
True False
24. Nutrients are absorbed from foods while the foods are in the mouth.  
True False
25. Men need more calories than women, but women need more iron.  
True False
26. Men have a higher risk of becoming malnourished compared to women.  
True False
27. Malnutrition leads to an increased risk of opportunistic infections.  
True False
28. PLHIV should avoid antioxidants as much as possible.  
True False
29. Micronutrient supplements never replace the need for proper food intake.  
True False
30. Antiretrovirals always lead to increased nutrition of PLHIV.  
True False
31. Women on ART should not breastfeed.  
True False
32. All PLHIV should receive food aid within food programs.  
True False
33. A supplementary ration of food aid is used to rehabilitate severely malnourished persons.  
True False
34. Exclusive breastfeeding is recommended unless replacement feeding meets the AFASS criteria.  
True False

# EVALUATION FORM

## **Nutrition and HIV Training of Trainers**

We would appreciate your feedback regarding this training, so that we can improve the training in the future. For each of the nine training modules, we request that you provide feedback on the four following items:

1) How **understandable** the information and methods presented are

- |                                      |  |
|--------------------------------------|--|
| <b>4 = Very understandable</b>       | (I could <b>understand most</b> or all of it)        |
| <b>3 = Fairly understandable</b>     | (I could <b>understand more than half</b> of it)     |
| <b>2 = Not very understandable</b>   | (I could <b>not understand more than half</b> of it) |
| <b>1 = Not understandable at all</b> | (I could <b>not understand most</b> of it)           |

2.) How **useful or practical** the information and methods are

- |                            |   |
|----------------------------|---|
| <b>4 = Very useful</b>     | (I can <b>use most</b> or all of it)        |
| <b>3 = Fairly useful</b>   | (I can <b>use more than half</b> of it)     |
| <b>2 = A little useful</b> | (I can <b>not use more than half</b> of it) |
| <b>1 = Not useful</b>      | (I can <b>not use most</b> of it)           |

3.) **Most useful** method(s) and/or information

4.) **What you would like improved, added, or changed** in this module?

### 1. Basic Nutrition and Healthy Eating

Goal of the module: To learn basic nutrition information that relates to planning healthy diets

**Understandable**                      (*Very*) **4**      **3**      **2**      **1** (*Not*)

**Usefulness:**                              (*Very*) **4**      **3**      **2**      **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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### 2. Nutrition through the Lifespan

Goal of the module: To understand nutritional needs at various life stages

**Understandable**                      (*Very*) **4**      **3**      **2**      **1** (*Not*)

**Usefulness:**                              (*Very*) **4**      **3**      **2**      **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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### 3. Introduction to HIV and AIDS

Goal of the module: to introduce participants to the basics of HIV and AIDS.

**Understandable**                      (*Very*) **4**      **3**      **2**      **1** (*Not*)

**Usefulness:**                              (*Very*) **4**      **3**      **2**      **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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#### 4. Links between HIV, Nutrition and Food Security

Goal of the module: To understand how HIV, nutrition and food security interact with one another

**Understandable**            (*Very*) **4**        **3**        **2**        **1** (*Not*)

**Usefulness:**                (*Very*) **4**        **3**        **2**        **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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#### 5. Nutritional Health for PLHIV

Goal of the module: To provide nutrition guidance that will help to counteract the destructive effects of HIV infection

**Understandable**            (*Very*) **4**        **3**        **2**        **1** (*Not*)

**Usefulness:**                (*Very*) **4**        **3**        **2**        **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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### 6. Nutrition for PLHIV with Illness

Goal of the module: To provide basic knowledge for the nutritional management of adult and child HIV-related illness

**Understandable**                      (*Very*) **4**        **3**        **2**        **1** (*Not*)

**Usefulness:**                              (*Very*) **4**        **3**        **2**        **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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### 7. Introduction to Clinical Nutrition Assessment for PLHIV

Goal of the module: To understand the components of a nutritional assessment and how they are implemented in the context of HIV

**Understandable**                      (*Very*) **4**        **3**        **2**        **1** (*Not*)

**Usefulness:**                              (*Very*) **4**        **3**        **2**        **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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### 8. Nutrition for HIV+ PLW and their Infants (up to 2 years old)

Goal of the module: To provide guidance that will contribute to positive outcomes for HIV+ mothers and HIV-exposed infants (under 2 years)

**Understandable**                      (*Very*) **4**        **3**        **2**        **1** (*Not*)

**Usefulness:**                              (*Very*) **4**        **3**        **2**        **1** (*Not*)



Most useful:

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Improvement/Change/Add?

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**9.) HIV and Food Aid**

Goal of the module: To gain a basic understanding of the unique issues related to programming food aid in an HIV context

**Understandable**                      (*Very*) **4**      **3**      **2**      **1** (*Not*)

**Usefulness:**                              (*Very*) **4**      **3**      **2**      **1** (*Not*)

Most useful:

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Improvement/Change/Add?

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**OVERALL RATING OF CONTENTS OF TRAINING**

Please rate the contents of the training, overall:

5= Excellent / 4= Very Good / 3 = Fair / 2 = Not so good / 1 = Terrible!

5      4      3      2      1

Please write down any additional comments regarding the contents of the training, including the manual provided:

## **YOUR CONTRIBUTIONS TO THE TRAINING**

1. During the training, many issues and questions were raised. Most – we hope – were answered adequately. However, there may have been some issues raised that were not answered adequately. We would like to know what those issues were – the ones not dealt with fully or adequately – so that future trainings can be more complete. Please stick to training contents, not other issues (logistics, etc). If you felt every issue you raised was dealt with fully, then please say so.

(If you would like feedback on further investigation on this/these issues, please include an email or postal address)

2. During various modules, many participants made suggestions – methods, recipes, information – that they felt would be useful to others. If you made such suggestions, please write down these suggestions, so that we can investigate them and possibly include them in future trainings. We will also compile your input and disseminate to the training participants of this training.

(If you have information – documentation, web sites – that further explain such suggestions, please include these, or provide an email or postal address (yours or the source) that we can follow up and check).

**OVERALL COMMENTS ON THE TRAINING**

How will you use the information from this training?

What is the one thing that you liked most about this training?

What is the one thing you would like to see improved?

Any additional comments?

# Consolidated Resources

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### **Websites**

AED-SATELLIFE Center for Health Information and Technology, Essential Health Links Gateway: <http://www.healthnet.org/essential-links>

Empowerment Concepts: [www.empow.co.za](http://www.empow.co.za). Email [david@empow.co.za](mailto:david@empow.co.za), [www.empowermentconcepts.com](http://www.empowermentconcepts.com)

Food Medication Interactions: [www.foodmedinteractions.com](http://www.foodmedinteractions.com)

FANTA Project: [www.fantaproject.org](http://www.fantaproject.org)

International HIV/AIDS Alliance: [www.aidsalliance.org](http://www.aidsalliance.org)

LINKAGES Project: [www.linkages.org](http://www.linkages.org)

Mercy Corps Assessment Tools Resource Base:  
<http://assess.mercycorps.org/jiveassess/kbcategory.jspa?categoryID=87>