INDICATOR GUIDE

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FOOD AND NUTRITION TECHNICAL ASSISTANCE

USAID
FROM THE AMERICAN PEOPLE

Guide to Screening for Food and Nutrition Services among Adolescents and Adults Living with HIV

Alison Tumilowicz

March 2010

fhi360

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THE SCIENCE OF IMPROVING LIVES

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Acronyms and Abbreviations

ART	Antiretroviral therapy
BBW	Baseline body weight
BMI	Body mass index
CSB	Corn-soy blend
cm	Centimeter(s)
FANTA-2	Food and Nutrition Technical Assistance II Project
FBF	Fortified-blended food
HIV	Human immunodeficiency virus
IOM	Institute of Medicine at the United States National Academy of Sciences
IUGR	Intrauterine growth retardation
kg	Kilograms
LBW	Low birth weight
m	Meter(s)
MUAC	Mid-upper arm circumference
OI	Opportunistic infection
PEPFAR	United States President's Emergency Plan for AIDS Relief
PLHIV	People living with HIV
RDA	Recommended Daily Allowance
RUTF	Ready-to-use therapeutic food
SD	Standard deviation(s)
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization
>	Greater than
≥	Greater than or equal to
<	Less than
≤	Less than or equal to

Purpose and Scope of the Guide

The relationship between HIV and nutrition is bidirectional and multifaceted. HIV can cause or worsen malnutrition due to increased energy requirements, reduced food intake and poor nutrient absorption. Malnutrition, in turn, further weakens the immune system, increasing susceptibility to infections and worsening the disease's impact. Among those in antiretroviral therapy (ART), poor diet may also increase digestive track and metabolic-adverse reactions, reducing treatment adherence and increasing morbidity.

Recognizing the important role food and nutrition play in comprehensive care of people living with HIV (PLHIV), countries and programs, such as those supported by the United States President's Emergency Plan for AIDS Relief (PEPFAR), the World Health Organization (WHO) and the World Food Programme (WFP), are increasingly integrating food and nutrition services into HIV care and treatment programs. As HIV care and treatment programs scale up food and nutrition services among PLHIV, implementing agencies have expressed the need for guidance on how to screen PLHIV who need food and nutrition services.

This guide provides direction on how to screen HIV-infected older adolescents and adults[1] who need food and nutrition services, including:

1. Nutrition assessment and counseling
2. Provision of specialized food products
3. Micronutrient supplementation[2]
4. Food security and livelihood services

This guide is structured around the four services listed above and includes a section for each.

In the context of this guide, the objective of screening is to quickly classify clients into two groups: 1. those with more need for food and nutrition services and 2. those with less need for food and nutrition services. The screening criteria presented here are brief and simple, with clear cut-offs for referral or action.

This guide does not provide information on nutrition assessment; designing nutrition assessment protocols is outside the scope of this guide. The objective of nutrition assessment is to understand a client's nutritional status in order to develop a nutrition care plan consisting of nutrition goals, food and nutrition services, and medical treatment. Nutrition assessment involves evaluating more factors (client anthropometric measurements, biochemical lab tests, clinical characteristics and dietary patterns) and is more comprehensive than screening, which is the focus of this guide.

Ideally, every PLHIV should receive individualized nutrition assessment and counseling. However, it is not always possible for facilities to provide nutrition assessment and counseling for all clients because of limited staffing. This guide describes conditions that can be used to screen PLHIV who need nutrition assessment and counseling when prioritizing clients is necessary.

In some cases, screening criteria may be sufficient to determine if a food or nutrition service should be provided to a client. For example, screening clients for low body mass index (BMI) may provide sufficient information to determine if a client should receive specialized food products. However, because screening is brief, it generally results in referral for further nutrition assessment. For example, clients screened for weight loss should be assessed for the causes of weight loss and an integrated medical and nutrition care plan should be developed to reverse the weight loss. Clients screened for inadequate household food access may need further assessment for eligibility for food security and livelihood services.

Table 1 summarizes the differences between nutrition screening and nutrition assessment.

Table 1. Differences Between Nutrition Screening and Nutrition Assessment

	Nutrition Screening	Nutrition Assessment
Purpose	Identify clients who need food and nutrition services and clients who need further assessment	Obtain information as a basis to assess needs and develop a nutrition care plan which includes nutrition goals, food and nutrition services, and medical treatment
Description	Brief, easy-to-complete information collection with clear conditions for referral or action	In depth medical, dietary and social history; anthropometric data; biochemical data; and information on drug-nutrient interactions

Nutritional status changes over time, and clients who may not need food and nutrition services at one point may need such services at a later date. Therefore, clients should be screened regularly during clinical evaluation or visits by community-based service providers. Program managers must decide how to screen clients most efficiently and effectively in their facilities and programs. The timing of screening will differ depending on the set-up of services, capacity of service staff, client flow and services provided to clients at a given site.

Table 2 lists conditions that indicate that clients need one or more food and nutrition services.

Table 2. Conditions That Indicate Need for Food and Nutrition Services

Service	Conditions that Indicate Need for Service
1. Nutrition assessment and counseling	Pregnancy or lactation
	Symptoms that diet can help manage
	Unintentional weight loss
	Initiation of ART
	Consumption of specialized food products or micronutrient supplements
	Concern about or interest in nutrition
	Never had nutrition education or counseling
2. Provision of specialized food products	Low BMI
	Low BMI-for-age z-score
	Low mid-upper arm circumference (MUAC)
	Unintentional weight loss
	Inadequate weight gain during pregnancy
3. Micronutrient supplementation	No consumption of fortified specialized food product or micronutrient supplement (when micronutrient supplements are routinely provided by health facility)
4. Food security and livelihood services	Fulfillment of eligibility criteria established by existing food security and livelihood services
	No household consumption of foods from at least one of the following food groups in the past 24 hours due to an inability to access or buy these foods: a) vegetables and fruits; b) meat, poultry, seafood and eggs; c) milk and milk products; d) oils and fats

PLHIV may need one, several or all of the food and nutrition services. For example, clients screened for weight loss may need nutrition assessment and counseling as well as the provision of specialized food products. Clients may also have coexisting conditions, such as symptoms that diet can help manage and weight loss, and may need more than one service.

The guide is designed for use by program managers, government officials, service providers, technical assistance partners and others who are responsible for designing screening tools for food and nutrition services for PLHIV and/or identifying and estimating the number of PLHIV who need a food and nutrition service.

Figure 1 is a sample screening tool that can be adapted and integrated into facility- and community-based care and treatment programs. It is meant for screening for food and nutrition services, not for nutrition assessment.[3]

Figure 1. Sample Screening Questionnaire for Nutrition Services

NUTRITION SCREENING TOOL			
Date of screening (dd/mm/yy):	Name of staff person completing screening:		
Client name:	Sex (M/F):		Birthdate (dd/mm/yy):
1. NUTRITION ASSESSMENT AND COUNSELING			
Is the client pregnant or lactating?	Y	N	*If the answer to any of these questions is "yes," refer the client to nutrition assessment and counseling.*
In the past month, has the client experienced symptoms including diarrhea, nausea, vomiting, thrush/mouth sores, anemia and lack of appetite that could be alleviated through diet?	Y	N	
In the past month, has the client felt that he or she has lost weight unintentionally?	Y	N	
Has the client recently started or will soon start ART?	Y	N	
In the past month, has the client consumed specialized food products or taken micronutrient supplements?	Y	N	
Does the client have any nutrition concerns or questions about his or her diet?	Y	N	
Has the client ever received nutrition counseling since testing positive for HIV?	Y	N	*If the answer to either of these questions is "no," refer to nutrition assessment and counseling.*
Has the client ever received nutrition counseling since starting ART?	Y	N	
2. PROVISION OF SPECIALIZED FOOD PRODUCTS			
Weight in kilograms (kg)		Height in meters (m)	<u>For adults > 18 years of age</u> *If BMI < 16.0, refer for treatment of severe malnutrition.* *If BMI ≥ 16.0 and < 18.5, refer for treatment of mild to moderate malnutrition.*
Body mass index (BMI) (weight in kilograms) ÷ (height in meters)²			
<u>For adolescents 15-18 years of age</u> BMI-for-age z-score			*If BMI-for-age < -3 SD, refer for treatment of severe malnutrition.* *If BMI ≥ -3 and < -1 SD, refer for treatment of mild to moderate malnutrition.*
<u>For pregnant or post-partum women up to 6 months after delivery</u> Mid-upper arm circumference (MUAC) in centimeters			*If MUAC < 19.0 cm, refer for treatment of severe malnutrition.* *If MUAC ≥ 19.0 and < 22.0 cm, refer for treatment of moderate malnutrition.*
3. MICRONUTRIENT SUPPLEMENTATION			
Is the client consuming fortified specialized food products designed for malnourished people or people living with HIV (PLHIV), such as ready-to-use therapeutic food (RUTF) or fortified supplementary foods?	Y	N	*If the client is not consuming either a fortified specialized food product or micronutrient supplement, refer for micronutrient supplementation (only if facility provides MN supplements routinely).*
Is the client taking a micronutrient supplement?	Y	N	
4. FOOD SECURITY AND LIVELIHOOD SERVICES			
Did the client or anyone in the household eat any of the following foods yesterday?			
Vegetables or fruits	Y	N	
Meat such as beef; pork; lamb; goat; rabbit wild game; chicken, duck or other birds; liver, kidney, heart or other organ meats; fresh or dried fish or shellfish; eggs	Y	N	
Cheese, yogurt, milk or milk products	Y	N	
Foods made with oil, fat or butter	Y	N	
If the client or anyone in the household did NOT eat any of the foods from the food groups above, why not?			*If the reason was inability to access or buy the foods, refer to food security and livelihood services.*
RESULT OF SCREENING			
Referred to nutrition assessment and counseling?	Y	N	
Provided with specialized food product?	Y	N	
Provided with micronutrient supplement?	Y	N	
Referred to food security and livelihood services?	Y	N	

1. Nutrition Assessment and Counseling

The objective of nutrition assessment is to understand a client's nutritional status to develop a nutrition care plan, which includes nutrition goals, food and nutrition services and medical treatment. Nutrition assessment involves collecting information about a client's socioeconomic characteristics, medical history, dietary patterns, anthropometric measurements, clinical and biochemical characteristics, and current treatment including medications. Nutrition counseling refers to an interactive process between service provider and client to interpret information generated during assessment; understand client preferences, constraints and options; and plan a feasible course of actions that supports healthy dietary practices and referral for services.[4]

PLHIV who know dietary recommendations related to HIV and can consume a healthy diet are better able to manage symptoms, maximize the benefit of medications, enhance their quality of life, and maintain or improve their nutritional status. Clients who do not know about dietary recommendations – especially if they are pregnant or lactating or at critical points in disease progression and treatment initiation – may be at greater risk of suffering from the effects of malnutrition and HIV-related symptoms.

Ideally, every PLHIV should receive individualized nutrition assessment and counseling. However, it is not always possible for facilities to provide nutrition assessment and counseling for all clients because of limited staffing. When prioritization of clients is necessary, the following conditions identify PLHIV who need nutrition assessment and counseling. Facilities and programs screening clients can add other conditions as appropriate.

PREGNANCY OR LACTATION

HIV-infected pregnant and lactating women are especially vulnerable to malnutrition. In addition to increased nutrient requirements as a result of pregnancy or lactation, HIV-infected pregnant and lactating women have higher energy requirements than those who are not infected with HIV. Nutrition education and counseling are especially important for this group of women to help them meet their overall nutrition requirements and increased energy needs as a result of pregnancy, lactation and HIV. Pregnant and lactating women also need counseling and support for infant feeding.

SYMPTOMS THAT DIET CAN HELP MANAGE

Healthy dietary practices learned through nutrition education and counseling can help manage HIV-related symptoms and alleviate their effects on food intake and nutrient absorption. Common symptoms that can be managed through diet include diarrhea, nausea, vomiting, thrush/mouth sores, anemia and lack of appetite. Therefore, clients experiencing such symptoms can benefit from nutrition assessment and counseling.

UNINTENTIONAL WEIGHT LOSS

"Unintentional" means the weight loss is not the result of a deliberate effort to lose weight. Weight loss often indicates a decline in the nutritional and health status of PLHIV and is associated with mortality among PLHIV, regardless of treatment status.[5, 6] Clients may prevent or reverse weight loss by following food and nutrition recommendations related to the frequency of meals, nutrient density of foods and dietary management of symptoms.

INITIATION OF ART

Dietary practices can help manage food-drug interactions, minimize drug side effects, and improve ART adherence and effectiveness. Nutrition assessment is also important to identify drug side effects including anemia and lipodystrophy.

CONSUMPTION OF SPECIALIZED FOOD PRODUCTS OR MICRONUTRIENT SUPPLEMENTS

Once clients have been prescribed specialized food products or micronutrient supplements, trained clinicians should regularly complete nutrition assessments to determine a client's continuing need for them. In addition, trained clinicians should ascertain the adequacy and safety of the nutrient levels in specialized food products and micronutrient supplements, especially if they are not prescribed by the program.

Nutrition counseling can provide clients with guidance on the prescribed quantity and frequency of specialized food products that should be consumed, as well as on how to prepare specialized food products like corn-soy blend (CSB). Nutrition counseling can also provide clients with instruction on when to consume micronutrient supplements in relation to meals and how to improve nutrient intake by eating a diverse diet with foods rich in micronutrients.

CONCERN ABOUT OR INTEREST IN NUTRITION

Clients with immediate concerns or interest in learning more about nutrition are more receptive to improving their dietary practices. Specific concerns about diet and nutrition may require consultation and counseling with a service provider.

NEVER HAD NUTRITION EDUCATION OR COUNSELING

Clients who have never had the opportunity to discuss nutrition issues with a trained service provider since testing positive for HIV or since initiating ART should be prioritized for nutrition assessment and counseling. It is recommended that all PLHIV receive nutrition counseling at least once because following dietary recommendations helps PLHIV improve, maintain or slow the decline of nutritional status; manage symptoms; boost immune response; and improve adherence to ART.

2. Provision of Specialized Food Products

Studies have shown that malnutrition, manifested by thinness and weight loss, significantly increases the risk of mortality for PLHIV regardless of treatment status.[7, 8, 9, 10] There are multiple causes of malnutrition among PLHIV. PLHIV are prone to opportunistic infections (OIs) that cause diarrhea, vomiting and reduced appetite. These symptoms, as well as economic conditions, may reduce their intake of food. PLHIV also have an increased metabolic rate and malabsorption of nutrients because of fever and metabolic changes, which can lead to malnutrition. Services to address the root causes of malnutrition, such as nutrition assessment and counseling and treatment of OIs, should be part of all clients' medical care.

PLHIV can benefit from the provision of specialized food products as part of treatment for malnutrition. Examples of specialized food products include energy- and nutrient-dense ready-to-use therapeutic food (RUTF) such as Plumpy'Nut® (a fortified peanut-based paste) and supplementary foods such as fortified-blended food (FBF), which are commonly partially pre-cooked fortified cereal and legume products such as CSB.

Anthropometric indicators that are used to screen PLHIV for malnutrition and the need for specialized food products include BMI, mid-upper arm circumference (MUAC), weight gain during pregnancy and unintentional weight loss.[11] These indicators, described below, are often used without further assessment to determine eligibility for the provision of specialized food products. However, specialized food products should not be given in isolation, and medical examination and care, as well as nutrition assessment and counseling, are recommended for PLHIV with malnutrition. Furthermore, other clinical indicators of malnutrition, such as bilateral pitting edema, should also be considered when determining the need for treatment of malnutrition. Program implementers should follow existing eligibility criteria for specialized food products established by national policies, implementing agencies or facilities.

BMI

For adults over 18 years of age who are not pregnant or within six months post-partum, BMI is the preferred indicator of body thinness used to classify malnutrition. BMI is calculated by dividing weight in kilograms (kg) by height in meters (m) squared (BMI = kg/m²).

Table 3 shows the BMI classification of malnutrition in adults over 18 years of age given in the WHO guidance for the management of severe malnutrition.[12]

Table 3. Classification of Nutritional Status of Non-Pregnant, Non-Post-Partum Adults, > 18 Years of Age

BMI	Classification
< 16.0	Severe malnutrition
≥16.0 and < 17.0	Moderate malnutrition
≥17.0 and < 18.5	Mild malnutrition
≥18.5 and < 25.0	Normal

Source: WHO. 1999. Management of Severe Malnutrition: A Manual for Physicians and Other Senior Health Workers. Geneva: WHO.

BMI-FOR-AGE Z-SCORE

For adolescents 15-18 years of age who are not pregnant or within six months post-partum, BMI-for-age z-score is the preferred indicator of body thinness used to classify malnutrition.

For adults, simple BMI can be used as an indicator of nutritional status because most individuals over 18 years have completed their physical development. However, adolescents are still experiencing growth and development. Therefore, it is necessary to consider the age and sex of the adolescent when using BMI as an indicator of nutritional status.

The z-score, or standard deviation unit (SD), is defined as the difference between the BMI value for an individual and the median BMI value of the reference population for individuals of the same age and sex, divided by the SD of the reference population. A BMI-for-age z-score calculated for an individual tells exactly how many SDs an individual's BMI value is away from the median BMI value of the reference population. A positive BMI-for-age z-score means that the individual's measurement is higher than the median BMI value of the reference population and a negative BMI-for-age z-score means that the measurement is lower than the median BMI value of the reference population. **Annex 1** contains a look-up table for determining an individual 15-19 years of age's BMI-for-age z-score based on the WHO Reference 2007 for children and adolescents 5-19 years of age.[13] **Table 4** shows the BMI-for-age z-score classification of malnutrition in adolescents between 15-18 years of age.[14]

Table 4. Classification of Nutritional Status of Non-Pregnant, Non-Post-Partum Adolescents 15-18 Years of Age by BMI-for-Age

BMI-for-age	Classification
< -3 SD	Severe malnutrition
≥ -3 SD and < -2 SD	Moderate malnutrition
≥ -2 SD and < -1 SD	Mild malnutrition
≥ -1 SD	Normal

Source: WHO. 2007. Growth reference data for 5-19 years. http://www.who.int/growthref/en/ (accessed August 21, 2009).

MUAC

MUAC measures the circumference of the left upper arm in centimeters (cm). It is taken at a point midway between the tip of the shoulder and the elbow. MUAC is a proxy measure of nutrient reserves in muscle and fat that are not affected by pregnancy and are independent of height. It can be used to classify the nutritional status of women who are pregnant or up to six months post-partum and of non-pregnant/post-partum adults whose height or weight cannot be measured (e.g., the client cannot stand, no weighing or measuring equipment is available).[15]

Because there are few data on the relationship between MUAC and mortality and other functional measures in adults, WHO has not yet established standardized MUAC cutoffs to classify nutritional status among adults. To date, most program experience using MUAC to determine PLHIV eligibility for specialized food products has been with pregnant and post-partum HIV-infected women. The cutoffs in **Table 5** are suggestions based on current practice.[16]

Table 5. Classifications of Nutritional Status of Women Who are Pregnant or Within Six Months Post-Partum by MUAC

MUAC	Classification
< 19 cm	Severe malnutrition
≥ 19 and < 22.0 cm	Moderate malnutrition
≥ 22 and < 23.0 cm	Mild malnutrition
≥ 23.0 cm	Normal

INADEQUATE WEIGHT GAIN DURING PREGNANCY

Birth weight is one of the most important determinants of a child's survival and is highly influenced by the mother's nutritional status before and during pregnancy. Low pre-pregnancy weight and inadequate weight gain during pregnancy are the most significant predictors of intrauterine growth retardation (IUGR) and low birth weight (LBW).[17]

According to the Institute of Medicine at the United States National Academy of Sciences (IOM), women who begin their pregnancy with a BMI < 18.5 must increase their daily energy intake to gain at least 12.5 kg during pregnancy.[18] **Table 6** shows recommended total weight gain during singleton pregnancy and recommended weekly and monthly weight gain during the second and third trimesters by BMI at the beginning of pregnancy. Weekly or monthly weight gain less than that recommended by the IOM could be used as a criterion to screen pregnant women for need of specialized food products.[19]

Table 6. Recommended Weight Gain During Singleton Pregnancy According to Pre-Pregnancy BMI

Pre-pregnancy category BMI	Recommended total gain	Recommended weekly weight gain, second and third trimesters	Recommended monthly weight gain, second and third trimesters
< 18.5	12.7 – 19.5 kg	0.5 kg	2.0 kg
18.5 – 24.9	11.3 – 17.1 kg	0.5 kg	2.0 kg
25.0 – 29.9	6.8 – 12.2 kg	0.3 kg	1.2 kg
≥ 30.0	5.0 – 9.8 kg	0.2 kg	0.8 kg

Source: IOM. May 2009. Resource Sheet: *Weight Gain During Pregnancy: Reexamining the Guidelines*. Washington, DC: IOM.

UNINTENTIONAL WEIGHT LOSS

Unintentional weight loss, regardless of treatment status, is a strong predictor of mortality among PLHIV.[20, 21,22] As little as 5 percent unintentional weight loss from a baseline body weight (BBW), or weight first recorded in the medical record, has been associated with significantly increased risk of OIs and death. Unintentional weight loss could therefore be used as a criterion to screen for the need of specialized food products. However, weight loss alone should not be used to prescribe specialized food, products as patients who are losing subcutaneous fat with preservation of muscle mass may not benefit from increased energy intake.[23]

Unintentional weight loss is measured as the percentage of weight lost from the BBW, using the following formula:

% of weight lost = [(BBW – current body weight)/BBW] x 100

The cutoff for percentage of weight lost could be set at 5 percent on the basis of the association between a 5 percent weight loss and adverse outcomes. For example, for a woman with a BBW of 50 kg currently weighing 46 kg, the formula above would calculate an 8 percent weight loss from BBW. Assuming a cut-off of 5 percent weight loss, the woman would be eligible for specialized food products.

3. Micronutrient Supplementation

PLHIV are at high risk of micronutrient deficiencies as a result of decreased food intake, nutrient malabsorption and increased metabolic rate. The inherent risk of malnutrition among PLHIV is further complicated by underlying micronutrient deficiencies common in countries where HIV is prevalent. Micronutrient deficiencies have been associated with higher risks of HIV disease progression and mortality, and supplementation with selected micronutrients has been shown to improve outcomes. However, conflicting results from several studies have raised concerns about the safety of micronutrient supplementation of PLHIV.[24, 25, 26, 27, 28]

According to the current WHO recommendations, PLHIV should consume diets that ensure micronutrient intake at one Recommended Dietary Allowance (RDA).[29] Eating a diverse diet with foods rich in micronutrients is the best way to meet the RDA.[30] However, micronutrient supplements may be necessary to help PLHIV meet the RDA. If micronutrient deficiencies are suspected, trained staff or nutritionists should complete individualized dietary assessments before prescribing supplements.[31] In settings with a high prevalence of micronutrient deficiencies, however, programs or health facilities may have a policy of providing micronutrient supplements routinely to all PLHIV clients without completing individualized nutrition assessments.

Specialized food products are formulated to provide micronutrients. Because of the risk of adverse effects from some micronutrients in large doses, clients should consult the service provider before consuming specialized food products or taking micronutrient supplements in addition to those prescribed. If clients are already consuming specialized food products or micronutrient supplements, service providers should first complete individualized nutrition assessments to determine the adequacy and safety of the micronutrient levels before prescribing any additional supplementation. Whenever service providers give clients micronutrient supplements, they should advise them not to consume additional specialized food products or supplements without first consulting the service provider.

Facilities that have a policy to routinely provide all PLHIV with micronutrient supplements should restrict those supplements to clients who are not currently consuming either specialized food products or micronutrient supplements. They should provide individualized nutrition assessment and counseling to clients who are already consuming specialized food products or micronutrient supplements to determine the necessity and safety of additional micronutrient supplementation.

4. Food Security and Livelihood Services

Food insecurity occurs when people do not have continued access to a sufficient quantity and quality of food to meet their physiological needs. USAID defines food security as a situation in which "all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life."[32] This definition of food security consists of three components: food availability, food access and food utilization/consumption.

Food availability is achieved when sufficient quantities of food are consistently available to all people in a country, region or household through domestic production, commercial imports and/or food assistance.

Food access is achieved when households have adequate resources to obtain a sufficient quantity and quality of food for a nutritious diet and depends on available household income, distribution of household income and the price of food.

Food utilization/consumption is the proper biological use of food by the body, influenced by the efficiency of the body's physiological processes and the availability of clean and safe water, adequate sanitation, a diet that provides sufficient levels of essential nutrients, proper child care, illness management, and household food storage and preparation techniques.

PLHIV's loss of productivity and income as well as the time and money caregivers must spend to care for PLHIV often compromise the capacity of households affected by HIV to produce or access a variety of foods.[33] Services to strengthen household food security commonly aim to sustain or improve productive activities and livelihoods and mitigate the negative impacts of HIV.

Food security and livelihood services base eligibility criteria on household economic characteristics (e.g., income, assets), agricultural production, food consumption (e.g., dietary diversity, meal frequency), client functional status or dependency ratios (e.g., number of income earners/caretakers versus number of dependents). If possible, the best option for screening criteria is to use the eligibility criteria that programs use for services. However, sometimes it is not possible to use the eligibility criteria for screening, for example if the eligibility criteria are lengthy or require a home visit.

Currently, no indicator of household food access has been validated for screening at the household level across different populations.[34, 35, 36] However, household consumption of foods from food groups that are often relatively more expensive may be an indication of household food access. Based on this approach, food group screening questions are proposed below for classifying households with more or less difficulty with food access and need for food security and livelihood services. Note that health facilities and programs should evaluate the validity of the food group screening questions or the capacity of the questions to correctly classify households.

FOOD GROUP SCREENING QUESTIONS FOR HOUSEHOLD FOOD ACCESS

Clients' answers to the food group screening questions will allow classification of their households as having adequate or inadequate food access. Classification of inadequate access to food is based on reported non-consumption of foods from at least one of the four food groups (1. vegetables and fruits; 2. meat, poultry, seafood and eggs; 3. milk and milk products; and 4. oils and fats) in the previous 24 hours because of inability to access or buy those foods. **Table 7** provides examples of foods in each of these four food groups.

Table 7. Food Groups Used for Screening for Household Food Access

Food group	Examples[37]
Vegetables and fruits	All vegetables and fruits, including dark green leafy vegetables such as cassava leaves, bean leaves and kale, carrots, and squash and sweet potatoes that are yellow or orange inside
Meat, poultry, seafood and eggs	Beef, pork, lamb, goat, rabbit, wild game, chicken, duck, organ meats, fresh or dried fish or shellfish, eggs
Milk and milk products	Cheese, yogurt, milk or other milk products
Oils and fats	Foods made with oil, butter or fat

During screening, service providers should first ask clients whether they or anyone in their households consumed foods from each of the four food groups in the previous 24 hours. The client should be instructed to include the foods consumed by household members at home or outside the home. The previous 24 hours is used as the recall period because it provides the most accurate information. Service providers should determine whether the previous 24-hour period was "usual" or "normal" for the household. If it included a special occasion such as a funeral or a feast or if most household members were absent, another day (e.g., the day before yesterday) should be selected for the screening.

If the client responds that no one in their household consumed any foods from a specific group, service providers should ask, "What was the reason that no one consumed [food group not consumed]?" Service providers should refer clients for food security and livelihood services if neither the clients nor anyone in their household ate foods from at least one of the groups *because they were unable to access or buy them*.

The question about why a food group was not consumed is qualitative and open-ended and could result in many possible responses. Service providers using the food group screening questions should be trained to probe for information using non-leading questions that do not influence clients' responses. For example, "Did no one consume milk or milk products because you could not afford to buy it?" is a leading question because it proposes a possible answer and therefore should not be used. A non-leading question such as "What is the reason that you and no one in the household consumed milk or milk products?" elicits information without leading clients to an answer. Service providers also need to be trained to interpret responses so they can correctly identify clients with inadequate household food access. **Table 8** shows examples of answers that would and would not warrant referral to food security and livelihood services.

Table 8. Reasons for Not Eating Certain Foods That Warrant or Do Not Warrant Referral to Food Security and Livelihood Services

Referral	No Referral
• We did not have enough money to buy the food. • Harvest of the food was not sufficient and we cannot afford to buy it. • We ate something else because that food is too expensive. • We did not have enough to trade in exchange for the food.	• The food was not available in the market. • The food is not in season. • We don't like the food. • We did not eat the food for religious or cultural reasons (e.g., fasting).

Endnotes

[1] In this guide, "older adolescents" are people between 15 to 18 years old. "Adults" are people over 18 years old. For information regarding nutrition assessment for children, refer to: WHO. 2009. *Guidelines for an Integrated Approach to the Nutritional Care of HIV-infected children (6 months-14 years) Handbook*. Geneva: WHO.

[2] "Micronutrient" refers to vitamins and minerals.

[3] Guidance on nutrition assessment for PLHIV can be found in: Fields-Gardner, C, C Thomson, and CM Capozza. 1997. *Clinician's Guide to Nutrition and HIV and AIDS*. Chicago: American Dietetic Association.

[4] For additional information on nutrition counseling for PLHIV, see: Food and Nutrition Technical Assistance (FANTA) Project. 2004. *HIV/AIDS: A Guide for Nutritional Care and Support*. Second edition. Washington, DC: FANTA at 360; Republic of Kenya Ministry of Health, United States Agency for International Development (USAID), United Nations Children's Fund (UNICEF) and FANTA. 2007. *Nutrition and HIV/AIDS: A Toolkit for Service Providers in the Comprehensive Care Centres*. Nairobi. Both can be found at http://www.fantaproject.org/.

[5] Wheeler, DA, CL Gilbert, CA Launer, N Muurahainen, RA Elion, DI Abrams, and GE Bartsch. 1998. Weight Loss as a Predictor of Survival and Disease Progression in HIV Infection. Terry Beirn Community Programs for Clinical Research on AIDS. *Journal of Acquired Immune Deficiency Syndrome* 18: 80–85.

[6] Tang, AM, J Forrester, D Spiegelman, TA Knox, E Tchetgen, and SL Gorbach. 2002. Weight Loss and Survival in HIV-Positive Patients in the Era of Highly Active Antiretroviral Therapy. *Journal of Acquired Immune Deficiency Syndromes* 31: 230–36.

[7] Wheeler, DA et al, op cit.

[8] Tang, AM et al, op cit.

[9] Paton, N, S Sangeetha, A Earnest, and R. Bellamy. 2006. The Impact of Malnutrition on Survival and the CD4 Count Response in HIV-Infected Patients Starting AntiretroviralTherapy. *HIV Medicine* 7: 323–30.

[10] Van der Sande, M, AB Maarten, F Schim van der Loeff, AA Aveika, S Sabally, T Togun, R Sarge-Njie, AS Alabi, A Jaye, T Corrah, and HC Whittle. 2004. Body Mass Index at Time of HIV Diagnosis: A Strong and Independent Predictor of Survival. *Journal of Acquired Immune Deficiency Syndrome* 37: 1,288–94.

[11] For more information on procedures to measure height, weight and MUAC, refer to: Cogill, B. 2003. *Anthropometric Indicators Measurement Guide.* Washington, DC: FANTA at FHI 360.

[12] PEPFAR-supported care and treatment programs may provide food support to non-pregnant and non-lactating adult patients with a BMI < 18.5. PEPFAR Policy Change in Food and Nutrition Programming. http://www.pepfar.gov/pepfar/guidance/98836.htm (accessed September 18, 2008).

[13] The WHO Reference 2007 for Children and Adolescents 5 to 19 years is available on the WHO website: http://www.who.int/growthref/en/.

[14] PEPFAR policy guidance as of 2009 states that PEPFAR resources may be used to support food for HIV-positive adolescents until age 17 years regardless of nutritional status if programs choose to provide food accordingly. However, for programs that choose to screen adolescents for provision of specialized food products based on nutritional status, BMI-for-age z-score can be used to classify malnutrition.

[15] WHO. 1995. *Physical status: the use and interpretation of anthropometry.* Report of a WHO Expert Committee. Technical Report Series No. 854. Geneva: WHO.

[16] PEPFAR policy guidance as of 2009 states that PEPFAR resources may be used for food support for HIV-positive pregnant and post-partum women regardless of nutritional status. Programs that choose to screen pregnant and post-partum women for provision of specialized food products based on nutritional status could use MUAC as an eligibility criterion.

[17] For additional information on nutrition and HIV during pregnancy, see: FANTA. 2004. *HIV/AIDS: A Guide for Nutritional Care and Support*. Second edition. Washington, DC: FANTA at FHI 360.

[18] IOM. May 2009. Resource Sheet, *Weight Gain During Pregnancy: Reexamining the Guidelines*. Washington, DC: National Academies Press. http://www.iom.edu/CMS/3788/48191/68004.aspx.

[19] PEPFAR policy guidance as of 2009 states that PEPFAR resources may be used for food support for HIV-positive pregnant women regardless of nutritional status. Programs that choose to screen pregnant women for provision of specialized food products based on nutritional status could use inadequate weight gain as an eligibility criterion.

[20] Wheeler, David A, et al, op cit.

[21] Tang, Alice M, et al, op cit.

[22] Wanke, C, D Kotler, and the HIV Wasting Collabortive Consensus Committee. 2004. Collaborative recommendations: the approach to diagnosis and treatment of HIV wasting. *Journal of Acquired Immune Deficiency Syndrome* 37 (Suppl 5): S284–S291.

[23] PEPFAR has not established unintentional weight loss cutoffs for eligibility for specialized food products. BMI should be used to determine the eligibility of non-pregnant/post-partum adults for PEPFAR-supported specialized food products.

[24] Fawzi, W, G Msamanga, D Spiegelman, and D Hunter. 2005. Studies of Vitamins and Minerals and HIV Transmission and Disease Progression. *Journal of Nutrition* 135: 938–44.

[25] Friis, H. 2005. Micronutrients and HIV Infection: A Review of Current Evidence. Geneva: WHO.

[26] Drain, PK, R Kupka, F Mugusi, and WW Fawzi. 2007. Micronutrients in HIV-Positive Persons Receiving Highly Active Antiretroviral Therapy. *American Journal of Clinical Nutrition* 85: 333–45.

[27] Fawzi, WW, et al. 2000. Randomized Trial of Vitamin Supplements in Relation to Vertical Transmission of HIV-1 in Tanzania. *Journal of Acquired Immune Deficiency Syndrome* 23 (3): 246–54.

[28] McDermid, JM, J Assan, M Schim van der Loeff, J Todd, et al. 2007. Elevated Iron Status Strongly Predicts Mortality in West African Adults with HIV Infection. *Journal of Acquired Immune Deficiency Syndrome* 46 (4): 498–507.

[29] WHO. 2003. *Nutrient Requirements for People Living with HIV/AIDS.* Report of a technical consultation. May 13-15, 2003. Geneva: WHO.

[30] IOM. 2004. *Dietary Reference Tables: The Complete Set*. Washington, DC: National Academies Press. http://www.iom.edu/?id=21381 (accessed May 8, 2008).

[31] For more information on micronutrient deficiencies, refer to WHO and the Food and Agriculture Organization of the United Nations (FAO). 2004. *Vitamin and Mineral Requirements for Human Nutrition*. Second edition. Geneva: WHO and Rome: FAO.

[32] USAID Policy Determination, Definition of Food Security, April 13, 1992.

[33] FANTA and WFP. 2007. *Food Assistance Programming in the Context of HIV*. Washington, DC: FANTA at FHI 360.

[34] Hoddinott, J, and Y Yohannes. 2002. *Diversity as a Household Food Security Indicator.* Washington, DC: FANTA at FHI 360.

[35] The Household Dietary Diversity Score (HDDS) has been validated and demonstrated to be associated with food expenditures and consumption at the population level but not for household-level screening. For example, no cutoff for the score value to determine whether a household has adequate or inadequate access to food has been established. For more information, refer to: Swindale, A, and P Bilinsky. 2006. *Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide* (v.2). Washington, DC: FANTA at FHI 360.

[36] The Household Hunger Scale (HHS) has been validated as a culturally invariant measure of household hunger for use at the population level in food insecure settings. For more information, refer to: Deitchler, M, T Ballard, A Swindale, and J Coates. Forthcoming 2010. *Validation of a measure of household hunger for cross cultural use.* Washington, DC: FANTA-2 at FHI 360.

[37] As appropriate, locally available foods should be added to the food groups.

Annex 1. BMI-for-Age Look-Up Table for Adolescents 15-19 Years, WHO 2007 Growth Reference

Boys' BMI-for-age				Year:	Girls' BMI-for-age			
-3 SD	-2 SD	-1 SD	Median	Month	Median	-1 SD	-2 SD	-3 SD
14.7	16.0	17.6	19.8	15:0	20.2	17.8	15.9	14.4
14.7	16.1	17.7	19.8	15:1	20.3	17.8	15.9	14.4
14.8	16.1	17.8	19.9	15:2	20.3	17.8	15.9	14.4
14.8	16.1	17.8	20.0	15:3	20.4	17.9	16.0	14.4
14.8	16.2	17.9	20.0	15:4	20.4	17.9	16.0	14.5
14.9	16.2	17.9	20.1	15:5	20.4	17.9	16.0	14.5
14.9	16.3	18.0	20.1	15:6	20.5	18.0	16.0	14.5
15.0	16.3	18.0	20.2	15:7	20.5	18.0	16.1	14.5
15.0	16.3	18.1	20.3	15:8	20.6	18.0	16.1	14.5
15.0	16.4	18.1	20.3	15:9	20.6	18.1	16.1	14.5
15.0	16.4	18.2	20.4	15:10	20.6	18.1	16.1	14.6
15.1	16.5	18.2	20.4	15:11	20.7	18.1	16.2	14.6
15.1	16.5	18.2	20.5	16:0	20.7	18.2	16.2	14.6
15.1	16.5	18.3	20.6	16:1	20.7	18.2	16.2	14.6
15.2	16.6	18.3	20.6	16:2	20.8	18.2	16.2	14.6
15.2	16.6	18.4	20.7	16:3	20.8	18.2	16.2	14.6
15.2	16.7	18.4	20.7	16:4	20.8	18.3	16.2	14.6
15.3	16.7	18.5	20.8	16:5	20.9	18.3	16.3	14.6
15.3	16.7	18.5	20.8	16:6	20.9	18.3	16.3	14.7
15.3	16.8	18.6	20.9	16:7	20.9	18.3	16.3	14.7
15.3	16.8	18.6	20.9	16:8	20.9	18.3	16.3	14.7
15.4	16.8	18.7	21.0	16:9	21.0	18.4	16.3	14.7
15.4	16.9	18.7	21.0	16:10	21.0	18.4	16.3	14.7
15.4	16.9	18.7	21.1	16:11	21.0	18.4	16.3	14.7
15.4	16.9	18.8	21.1	17:0	21.0	18.4	16.4	14.7
15.5	17.0	18.8	21.2	17:1	21.1	18.4	16.4	14.7
15.5	17.0	18.9	21.2	17:2	21.1	18.4	16.4	14.7
15.5	17.0	18.9	21.3	17:3	21.1	18.5	16.4	14.7
15.5	17.1	18.9	21.3	17:4	21.1	18.5	16.4	14.7
15.6	17.1	19.0	21.4	17:5	21.1	18.5	16.4	14.7
15.6	17.1	19.0	21.4	17:6	21.2	18.5	16.4	14.7
15.6	17.1	19.1	21.5	17:7	21.2	18.5	16.4	14.7
15.6	17.2	19.1	21.5	17:8	21.2	18.5	16.4	14.7
15.6	17.2	19.1	21.6	17:9	21.2	18.5	16.4	14.7
15.7	17.2	19.2	21.6	17:10	21.2	18.5	16.4	14.7
15.7	17.3	19.2	21.7	17:11	21.2	18.6	16.4	14.7
15.7	17.3	19.2	21.7	18:0	21.3	18.6	16.4	14.7
15.7	17.3	19.3	21.8	18:1	21.3	18.6	16.5	14.7
15.7	17.3	19.3	21.8	18:2	21.3	18.6	16.5	14.7
15.7	17.4	19.3	21.8	18:3	21.3	18.6	16.5	14.7
15.8	17.4	19.4	21.9	18:4	21.3	18.6	16.5	14.7
15.8	17.4	19.4	21.9	18:5	21.3	18.6	16.5	14.7
15.8	17.4	19.4	22.0	18:6	21.3	18.6	16.5	14.7
15.8	17.5	19.5	22.0	18:7	21.4	18.6	16.5	14.7
15.8	17.5	19.5	22.0	18:8	21.4	18.6	16.5	14.7
15.8	17.5	19.5	22.1	18:9	21.4	18.7	16.5	14.7
15.8	17.5	19.6	22.1	18:10	21.4	18.7	16.5	14.7
15.8	17.5	19.6	22.2	18:11	21.4	18.7	16.5	14.7
15.9	17.6	19.6	22.2	19:0	21.4	18.7	16.5	14.7