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## **Results of the Survey to Prioritize Nutrition Counseling Messages for People Living with HIV and/or Tuberculosis in Mozambique**

Melanie Remane Picolo

October 2013

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## Abbreviations and Acronyms

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AIDS	Acquired immunodeficiency syndrome
ANSA	Nutrition and Food Security Association, <i>Associação para Nutrição e Segurança Alimentar</i> in Portuguese
ART	antiretroviral treatment
BMI	body mass index
FANTA	Food and Nutrition Technical Assistance III Project
FANTA-2	Food and Nutrition Technical Assistance II Project
HAI	Health Alliance International
HIV	Human immunodeficiency virus
HKI	Helen Keller International
kg	Kilograms
m <sup>2</sup>	Square meter
MISAU	Ministry of Health, <i>Ministério da Saúde</i> in Portuguese
PLHIV	people living with HIV
PLWHA	people living with HIV/AIDS
TB	tuberculosis
USAID	U.S. Agency for International Development

## Executive Summary

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### Introduction

In Mozambique, all nutrition assessment and support services are provided through the Ministry of Health's (MISAU) Nutrition Rehabilitation Program. Such services are of special importance to PLHIV and/or TB because their nutritional status becomes very vulnerable in the presence of either infection and even more when they co-exist; and undernutrition, in turn, weakens the immune system, creating a vicious cycle between infection and undernutrition. Comprehensive nutrition services provided to PLHIV and/or TB must include a strong counseling component, as the evidence suggests that PLHIV who know dietary recommendations related to their health condition 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, in comparison to those who don't (Fields-Gardner et al. 1997).

Nutrition counseling is an interactive process between a trained counselor and a client that consists of interpreting the information generated during nutrition assessment; identifying client preferences, restrictions, and options; jointly planning a feasible course of action to support healthy eating practices; and referring the client for any nutrition support services needed. In 2011, the Food and Nutrition Technical Assistance II Bridge Project (FANTA-2 Bridge) conducted a preliminary investigation to assess the nutrition services provided in outpatient care in a model health facility in Mozambique and to identify strengths, weaknesses, and gaps of the materials on nutrition and HIV/AIDS currently available to support nutrition counseling in Mozambique. The results of the preliminary investigation showed that nutrition services at the health facility level are focused on nutrition education and not nutrition counseling; there are no job aids available to support nutrition education at the health facility; and, for each topic on nutrition and HIV included in the materials analyzed, the messages are excessive in number (Michaud-Létourneau and Remane 2011 [draft]).

Based on the preliminary work conducted, it became evident that there is a need to develop practical job aids that promote dialogue between the trained counselor and the client and that can be used within the limited time health care providers have to provide nutrition counseling. Discussions with experts in the field showed that this need is not limited to Mozambique and that the international nutrition and infectious diseases community could benefit from having such job aids. These job aids should, to the largest extent possible, help the counselor to select the counseling topic most relevant to the client's health and nutritional status during that visit and the three to four most relevant messages to improve their current health and nutritional status, as opposed to bombarding the counselor with long lists of topics messages and and to select from.

As a first step for the selection of the key messages to be included in the planned job aids, the Food and Nutrition Technical Assistance III Project (FANTA) conducted a survey to prioritize the nutrition counseling messages for PLHIV and/or TB among health and nutrition professionals in Mozambique and in the international nutrition and infectious diseases community. This report presents the results of the survey, a discussion of the results, and an overview of the use of the data to develop the job aids.

### Objective

The objective of the survey was to determine the nutrition counseling messages that are most relevant for, and effective in, preventing the deterioration of the nutritional status of PLHIV and/or TB, from the perspective of the health and nutrition professional.

## Methods

Accessibility sampling was used for the selection of health and nutrition professionals who provide health and nutrition care services to PLHIV and/or TB, from frontline workers to policymaking stakeholders. The survey, available in both Portuguese and English versions, was available online and on hard copy. Email was used to disseminate the online survey to potential respondents with ease of access to the Internet, while about 100 hard copies were distributed to the relevant departments at MISAU and its provincial directorates in all 11 provinces of Mozambique.

The questionnaire listed nutrition counseling messages pertaining to nine different topics, extracted from materials on nutrition and HIV currently available for use in Mozambique or that could potentially be adapted for use in Mozambique (**Annex 1**). Closed- and open-ended questions guided all responders to categorize, by level of importance or frequency of reporting, the practices, messages, symptoms/conditions, and barriers listed, or others they considered relevant, for each of the nine topics. The data submitted online were entered in an automatically generated database on Google Survey, while the data submitted manually were equally manually entered in the database once it was exported to Microsoft Excel.

In total, 85 completed questionnaires were submitted in Mozambique and 16 completed questionnaires were submitted internationally. The resulting data were aggregated in a single database and analyzed as a whole. The responses to closed-ended questions were analyzed by calculating a score of importance or frequency for each variable (health and nutrition practices, messages, symptoms/conditions, and barriers) analyzed; the responses to open-ended questions were analyzed by counting the number of times a single variable was mentioned as one of the three most important. For each topic, the five variables that ranked highest according to the score in the closed-ended question were compared with the three variables most frequently mentioned in the open-ended question, and the nuances between them were analyzed.

## Results

Of the 101 respondents, only about half (51 percent) reported having received training in nutrition; 33 percent reported that they were nurses, 30 percent medical or nutrition technicians, 11 percent medical doctors, and 8 percent nutritionists; on average, respondents reported occupying their professional positions for 10 years; and 62 percent reported working in health facilities (35 percent in health centers and 27 percent in hospitals), 18 percent in nongovernmental organizations, and 11 percent in governmental organizations or directorates (**Annex 2**).

The results of the survey are presented in the table below, organized by the topic sections to which they refer. The complete rankings of the categorized variables can be found in **Annex 3**.

**Table ES-1. Results of the Survey to Prioritize Nutrition Counseling Messages for PLHIV and/or TB in Mozambique**

Section	Variables	5 variables with the highest scores of the closed-ended question	3 variables most frequently mentioned in open-ended question responses
		Marked with an "x"	
1: Key health and nutrition practices	Take prescribed drugs according to medical recommendations	x	x
	Seek early treatment for any infections	x	
	Have regular medical examinations	x	x
	Eat a balanced diet that provides additional energy if you are pregnant or if you are breastfeeding	x	
	Eat a variety of foods	x	
	Eat a balanced diet, with locally available, fresh, non-processed and accessible foods		x
2: Frequency of symptoms/conditions associated with HIV	Tuberculosis	x	x
	Diarrhea	x	x
	Loss of appetite	x	
	Mouth sores or difficulty swallowing	x	x
	Fever	x	
3: Managing loss of appetite	If you are sick, continue eating throughout the disease episode	x	x
	Eat small quantities of food more frequently throughout the day	x	x
	Avoid alcoholic drinks	x	
	Try to practice light physical activity, such as walking or going to the garden	x	
	Eat energy-dense foods (e.g., fermented porridges)	x	
	Avoid eating alone; try to eat with family or friends		x
4: Managing diarrhea	Seek treatment if severe diarrhea continues for more than 3 days	x	x
	Drink plenty of clean, safe water whenever you are thirsty	x	x
	Do not stop eating while you have diarrhea	x	
	Take oral rehydration solution (ORS) if diarrhea is severe	x	
	Eat small quantities of food more frequently	x	
	Drink rice water or coconut water		x
5: Managing nausea and vomiting	If you're vomiting, drink continuous small quantities of clean and safe water, soups, rice or coconut water, tea, or ORS to avoid dehydration	x	
	Eat small quantities of food more frequently	x	x
	Drink liquids between meals; avoid drinking large volumes of liquids while you eat	x	
	Avoid long intervals between meals	x	x
	Avoid fatty foods	x	

Section	Variables	5 variables with the highest scores of the closed-ended question	3 variables most frequently mentioned in open-ended question responses
		Marked with an "x"	
	Avoid going to bed immediately after eating; wait for at least an hour		x
6: Managing mouth sores or difficulty swallowing	Seek treatment as soon as possible	x	x
	Avoid drinking alcohol and smoking	x	
	Eat soft or mashed foods such as porridge, soup, and non-acidic, ripe fruit	x	x
	Clean your mouth after each meal with a cotton cloth and a solution made of a cup of clean and lukewarm water and a teaspoon of salt	x	x
	Avoid citrus fruits, spicy food, and very sweet, sticky, and hard foods	x	
7: Managing anemia	Eat iron-rich foods such as meats, offal, eggs, fish, and dark green leafy vegetables (spinach, pumpkin leaves, cassava leaves)	x	x
	Sleep under an insecticide-treated net and seek treatment immediately after diagnosis of malaria	x	x
	Take deworming drugs if you haven't taken them in the past and then every six months thereafter	x	x
	Eat vitamin-C rich foods, such as oranges, tangerines, grapefruit and tomato, as these potentiate iron absorption	x	
	If you're not taking any other specialized nutrition products, get iron supplements from the health center	x	
8: Barriers to eating well reported by PLHIV	Lack of money to buy food	x	x
	No help to buy or prepare food	x	x
	Loneliness during meals	x	x
	Healthy foods not in season	x	
	Lack of time to prepare meals	x	
9: Counseling messages to overcome the barriers to eating well	Healthy foods not in season: Preserve crops after harvesting, for example, by drying and storing them in a safe place for consumption at another time of the year	x	
	Lack of money to buy food: Start a home or community food garden	x	x
	Loneliness during meals: Eat with family or friends	x	x
	No help to buy or prepare food: Seek help from your health care provider to link you to a community subsistence program	x	
	Lack of money to buy food: Buy nutritious, affordable, and accessible foods such as peanuts	x	
	Seek help from family, friends, social support groups, and community subsistence programs		x

## Discussion of Results

Although about half of respondents reported not having received training in nutrition, the fact that more than 60 percent of respondents reported working in health centers or hospitals offers some confidence that the prioritization of the messages was based on their daily experience with PLHIV

and/or TB who receive health and nutrition care services in their workplaces, which was the intention with this survey.

The interpretation of the results of the survey and the use of the prioritized messages to develop job aids to assist in providing nutrition counseling to PLHIV and/or TB must be carefully considered. For example, it is possible to notice a tendency for the prioritization of medical- or general health-oriented counseling messages, at the expense of specifically nutrition-oriented counseling messages in some sections, namely sections 1, 6, and 7. Since this survey was intended for the prioritization of messages that will be included in job aids specifically for nutrition counseling, the relevancy of the messages must be considered from a nutrition standpoint, taking into account that medical- or general health-oriented messages are already generally provided at other points of contact with PLHIV and/or TB, whereas nutrition-oriented messages are usually not.

The inclusion of an open-ended question also resulted in interesting contrasts in the prioritization of the messages. In sections 3, 4, and 5, for instance, the variables that were most frequently mentioned as one of the three most important/frequent in the open-ended question responses did not coincide in full with the five most important/frequent messages according to the closed-ended question scores. These differences must also be considered for the selection of the key messages that will be included in the nutrition counseling job aids to be developed.

Two limitations were identified in the development, implementation, and analysis of the results of this survey, of which one has the potential to affect the success of the use of the job aids to be developed. Since beneficiaries' behavior is the key object of change that the materials aim to assist in generating, ideally the beneficiaries of the counseling messages should have been part of the sample of respondents who completed this survey. However, time constraints and ethical considerations prevented this from being achieved. It is expected that the pretesting of the nutrition counseling job aids with beneficiaries will inform their finalization, in order to minimize the impact of this limitation.

### **Using the Data**

The final selection of the highest priority nutrition counseling messages for PLHIV and/or TB will take into account that the number of messages to include in the job aids must not necessarily be limited to five. The final list of key messages must be sound from a nutrition standpoint and must be supported by a solid evidence base. Once the key messages have been selected, a creative firm will assist FANTA in developing the nutrition counseling job aids, considering the communication specificities that they call for, including language, illustrations, and material format. The job aids may include materials to assist in interpersonal communication between the nutrition counselor and the client, display materials for health facilities, and materials that the client can take home.

It is expected that the job aids developed and the messages included in them, which were derived from materials on nutrition and HIV, can respond to the needs of people living with TB, with or without HIV, to a large extent, until guidelines for nutrition care of people living with TB become available internationally and are endorsed at local level.

It is also expected that the job aids developed to be used in Mozambique can be translated and adapted to be used in other countries where the prevalence of HIV and TB are high, taking into account that the survey results obtained from international respondents were highly concordant with the results obtained from respondents in Mozambique.

## 1. Introduction

Job aids for nutrition counseling of people living with HIV (PLHIV) and/or tuberculosis (TB) are scarce, yet their individual nutrient needs are complex and require individualized counseling.

This report presents the results of the survey to prioritize nutrition counseling messages for PLHIV and/or TB, which had health care providers as the target audience. The background, objective, and methods are described, followed by a presentation of the results for each section of the survey. The report ends with a discussion of the results and an overview of the use of the data to develop nutrition counseling job aids for PLHIV and/or TB.

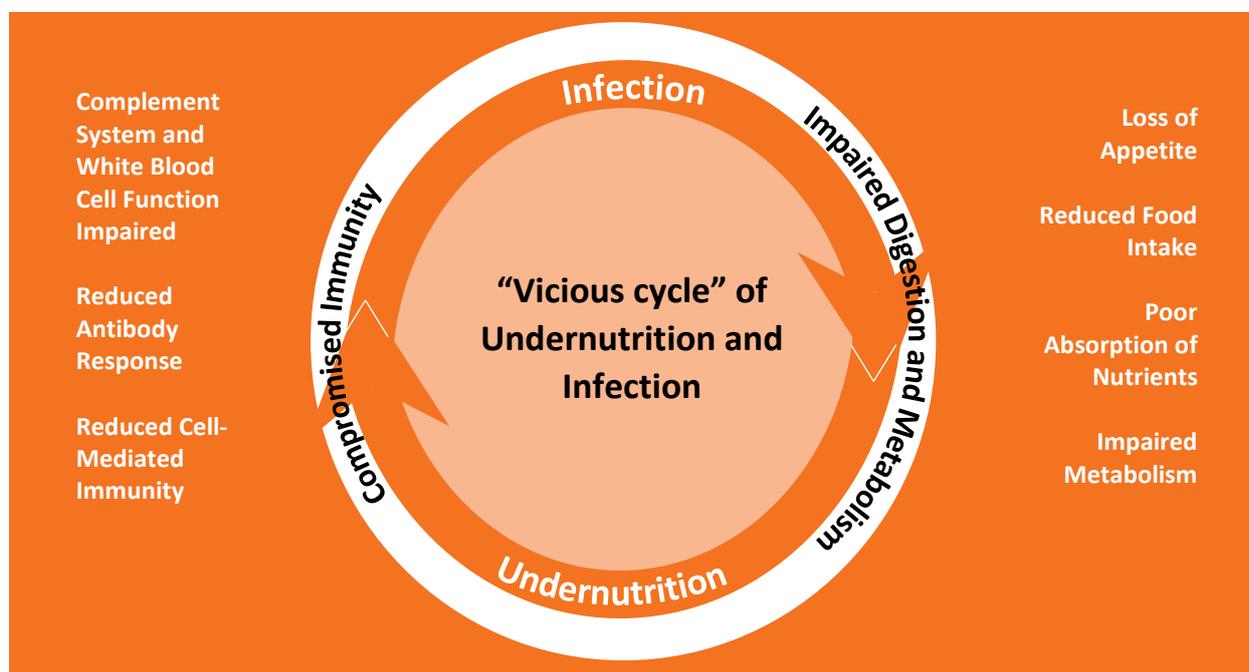
## 2. Background

### 2.1 The Relationship between Nutrition, HIV/AIDS, and TB

#### Nutrition and infectious diseases in general

Undernutrition and infectious disease reinforce each other in a vicious cycle (**Figure 1**). Infection affects nutritional status through increased nutrient needs due to increased resting energy expenditure, reduced food intake, nutrient malabsorption, nutrient losses, and complex metabolic alterations, which culminate in weight loss, muscle wasting, and nutrient deficiencies (World Health Organization [WHO] 2003). Undernutrition, in turn, leads to impaired immune function, and, as a result, reduced ability to fight primary and secondary infections and accelerated progression to the disease state.

**Figure 1. The Vicious Cycle of Undernutrition and Infection**



Adapted from EC-FAO Programme on Linking Information and Decision Making to Improve Food Security. 2007. *Distance Learning to Support Capacity Building and Training for National and Local Nutritional Status Assessment and Analysis*. Rome: FAO.

## Nutrition and HIV

HIV infection may increase the energy needs of an individual by 10 percent in the asymptomatic stage and by 20 to 30 percent in symptomatic stages (WHO 2003). At the same time, the common symptoms and conditions of the disease (e.g., nausea, diarrhea, and oral thrush), as well as the side effects of the medication can reduce appetite and negatively affect digestion and nutrient absorption, therefore making PLHIV prone to undernutrition. Undernutrition, in turn, increases the velocity at which HIV progressively reduces the ability of the immune system to respond to opportunistic infections and HIV infection itself, which creates a debilitating cycle where undernutrition and HIV/AIDS potentiate each other. For this reason, undernutrition is a known predictor of disease progression of HIV to AIDS (Langford et al. 2007).

## Nutrition and TB

The vicious cycle of undernutrition and TB increases the probability that latent TB will progress to active disease. The majority of active TB patients experience weight loss (Dodor 2008, Zachariah et al. 2002). Although it is likely that, similar to cases of other infectious diseases, the nutrient needs of TB-infected individuals increase, there is no evidence of the level of this increase. Weight loss may result from reduced food intake due to loss of appetite, nausea, and abdominal pain; nutrient losses due to vomiting and diarrhea (Metcalf 2005, Podewils et al. 2011); and metabolic alterations. Evidence shows that a person who has been treated for TB and is undernourished has an increased risk of disease relapse (Khan et al. 2006, Krapp et al. 2008).

The term “triple trouble” was created to describe the combination of the HIV/TB co-infection and undernutrition. HIV and *Mycobacterium tuberculosis* interact in a synergic manner: HIV is the highest risk factor for active TB in adults, and TB is an important mortality cause for HIV-positive adults. The HIV/TB co-infection adds another dimension to the vicious cycle of undernutrition and infectious disease, one making the other worse more than when either HIV or TB infection are singly present (Africa’s Health in 2010, 2008).

## 2.2 Importance of Nutrition Counseling for PLHIV and/or TB

Nutrition counseling is an interactive process between a trained counselor and a client that consists of interpreting the information generated during nutrition assessment; identifying client preferences, restrictions, and options; jointly planning a feasible course of action to support healthy eating practices; and referring the client for any nutrition support services needed.<sup>1</sup>

PLHIV who know dietary recommendations related to their health condition 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. PLHIV who do not follow dietary recommendations—especially in critical moments of the disease progression and at the beginning of treatment—have an increased risk of suffering from the severe effects of undernutrition and HIV-related symptoms (Fields-Gardner et al. 1997).

## 2.3 Current Situation of Nutrition, HIV and TB, and Nutrition Counseling in Mozambique

A retrospective study showed that, in a nationally representative cohort of 2,596 HIV-positive adults who began antiretroviral treatment (ART) between 2004 and 2007, of the 1,200 adults whose clinical

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<sup>1</sup> For more information on nutritional counseling for people living with HIV/AIDS and/or tuberculosis, please see: the Republic of Kenya Ministry of Health, U.S. Agency for International Development (USAID), United Nations Children’s Fund (UNICEF), and Food and Nutrition Technical Assistance Project (FANTA). 2007. *Nutrition and HIV/AIDS: A Toolkit for Service Providers in the Comprehensive Care Centres*. Nairobi. These materials are available at [http://pdf.usaid.gov/pdf\\_docs/PNADL230.pdf](http://pdf.usaid.gov/pdf_docs/PNADL230.pdf).

registries had data on body mass index (BMI), 28 percent were undernourished (BMI < 18.5 kg/m<sup>2</sup>).<sup>2</sup> Moreover, the study showed that, among the 2,564 adults for whom data on TB treatment were available, 11 percent had active TB (Auld et al. 2011).

In Mozambique, all nutrition assessment and support services are provided through the Ministry of Health's (MISAU) Nutrition Rehabilitation Program. However, comprehensive nutrition services must include a strong counseling component, which is currently lacking.

Currently, MISAU does not have job aids specific for nutrition counseling of PLHIV and/or TB, but some materials on nutrition and HIV/AIDS, in varying formats and containing varied content, are available for use. In 2011, the Food and Nutrition Technical Assistance II Bridge Project (FANTA-2 Bridge) conducted a preliminary investigation to identify the strengths, weaknesses, and gaps of these materials and to assess the nutrition services provided in outpatient care in a model health facility in Mozambique. The results of the preliminary investigation revealed that, for each topic on nutrition and HIV included in the materials analyzed, the messages are excessive in number (e.g., there are 19 messages available for counseling on the dietary management of HIV-related diarrhea); nutrition services at the health facility level are focused on nutrition education, with unidirectional transmission of information and not nutrition counseling, with dialogue and negotiation of small doable actions to adopt; health care providers claim to not having time or training to provide individualized nutrition counseling; and there are no job aids available to support the nutrition education activities that generally take place at the health facility (Michaud-Létourneau and Remane 2011 [draft]).

Based on the preliminary work conducted, it became evident that there is a need to develop practical job aids that promote dialogue between the trained counselor and the client and can be used within the limited time health care providers have to provide nutrition counseling. Moreover, discussions with experts in the field showed that this need is not limited to Mozambique and that the international nutrition and infectious diseases community could benefit from having such job aids. These job aids should, to the largest extent possible, help the counselor to select the counseling topic most relevant to the client's health and nutritional status during that visit and the three to four most relevant messages to improve their current health and nutritional status, as opposed to bombarding the counselor with long lists of topics and messages to select from.

In order to select the counseling messages most relevant for each topic on nutrition and HIV, which, to a large extent, are also applicable for people living with TB with or without HIV, the Food and Nutrition Technical Assistance III Project (FANTA) developed a survey to prioritize the nutrition counseling messages for PLHIV and/or TB, to be responded to by health and nutrition professionals in Mozambique and in the international nutrition and infectious diseases community, based on their daily experience of the relevancy of the different topics and messages associated with them.

### 3. Objective

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The objective of the survey was to determine the nutrition counseling messages that are most relevant for, and effective in, preventing the deterioration of the nutritional status of PLHIV and/or TB, from the perspective of the health and nutrition professional.

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<sup>2</sup> This study defines adults as individuals age 15 years or above, in conformity with the norms established by the National Health System.

## 4. Methods

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### 4.1 Sampling

Accessibility sampling was used for the selection of health professionals who provide health and nutrition care services to PLHIV and/or TB, from frontline workers to policymaking stakeholders, including MISAU and provincial health directorates' staff, clinic- and community-level implementing partners, United Nations agencies, and subscribers of national (University Eduardo Mondlane's Faculty of Medicine's Facebook page) and international (ProNUTRITION) health and nutrition forums.

### 4.2 Questionnaire

The questionnaire listed nutrition counseling messages for the following topics: health and nutrition practices for PLHIV, symptoms/conditions associated with HIV and their dietary management, barriers to eating well, and solutions to overcome the barriers to eating well. These messages were extracted from materials on nutrition and HIV currently available for use in Mozambique or with potential to be adapted for use in Mozambique, which included a pamphlet on nutrition care for people living with HIV/AIDS (PLWHA), a nutrition guide and nutrition counseling cards for PLWHA (Helen Keller International [HKI]/Health Alliance International [HAI]), a booklet on nutrition orientation for PLHIV (MISAU/Associação para a Nutrição e Segurança Alimentar [ANSA]), training materials on nutrition care for PLHIV (MISAU/ANSA/FANTA), and a flipchart on eating and living well with HIV and AIDS (FANTA).

The questionnaire was divided in nine sections and consisted of close- and open-ended questions that guided all responders to categorize, by level of importance or frequency of reporting, the practices, messages, symptoms/conditions, and barriers listed, or others they considered relevant, for each of the nine topics. Two versions of the questionnaire were developed, one in Portuguese and one in English (**Annex 1**), which were identical in content.

### 4.3 Data Collection

The survey, available in both Portuguese and English versions, was available online and on hard copy from July to September, 2012. Over that period, potential respondents with easy access to the Internet were sent several emails directing them to the online survey. At the same time, about 100 hard copies were distributed to the relevant departments at MISAU and its provincial directorates. Respondents submitted their completed surveys either online, through Google Survey, or by returning the hard copies to the Nutrition Department at MISAU. No personal information was collected from respondents. In total, 85 completed questionnaires were received within Mozambique and 16 completed questionnaires were received from international respondents.<sup>3</sup>

### 4.4 Data Analysis

The data collected were compiled in a database in Microsoft Excel. The data submitted online were entered in an automatically generated database on Google Survey, while the data submitted manually were equally manually entered in the database once it was exported to Microsoft Excel. Initially, the results of the 85 questionnaires submitted within Mozambique and the results of the 16 questionnaires submitted by international respondents were analyzed separately, with the objective of analyzing whether the prioritized variables differed to a large extent between the cultural context of Mozambique and the cultural context of other nations. Although the international sample was too small to allow for the analysis of emerging patterns, it was possible to observe that, for each section,

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<sup>3</sup> The 16 international respondents are, most likely, subscribers of the international nutrition forum ProNUTRITION, making it impossible to determine country of origin.

the concordance rate between the five variables prioritized within Mozambique and the five variables prioritized outside the country was, at least, 60 percent. In addition, for five out of the nine sections, the concordance rate was 80 percent or above. Thus, the data were all aggregated in a single database, and its analysis generated the results presented below.

The responses to closed-ended questions were analyzed by calculating a score for each variable analyzed.<sup>4</sup> The process used is described below.

- Each variable could be categorized under one of four to five categories of importance or frequency.
- To each category of importance or frequency a weight was attributed, e.g., extremely important = 3; very important = 2; important = 1; neutral = 0; not so important = -1; not at all important = -2.
- The score for each variable was calculated by the sum of the products of the weight of each selected category and the number of times that that category was selected, e.g., if 30 people selected “very important” and 20 people selected “not so important,” the score of that variable would be  $(30*2) + (20*-1) = 40$ .
- For each section, the five variables with the highest scores were determined as priority.

The responses to open-ended questions were analyzed by counting the number of times a single variable was mentioned as one of the three most important. For each topic, the five variables that ranked highest according to the score in the closed-ended question were compared with the three variables most frequently mentioned in the open-ended question, and the nuances between them were analyzed.

## 4.5 Ethical Considerations

The FHI 360 Office of International Research Ethics determined that this research does not constitute “human subject research” and therefore Institutional Review Board review and approval were not required.

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<sup>4</sup> For the purpose of this report, variables refer to the practices, messages, symptoms/conditions, and barriers listed for prioritization.

## 5. Results

The survey’s resulting data are presented below, organized by respondents’ profile and the different topic sections to which they are referent. The complete rankings of the variables categorized in the closed-ended questions can be found in **Annex 3**. It is important to note that the messages presented in this report are not the final messages that will be included in the planned job aids, particularly with regards to the language used (please refer to “**Using the Data**” in **section 7** for more information about the finalization of messages).

### Respondents’ Profile

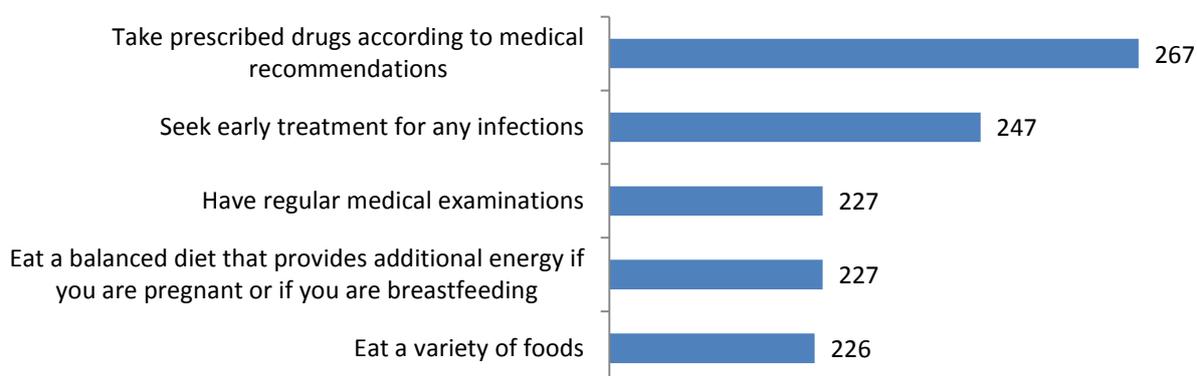
In total, 101 questionnaires completed at national and international levels were received. Of the 101 respondents, 51 percent had received training in nutrition, while the remaining 49 percent reported not having received training in nutrition. The plurality of respondents (33 percent) were nurses, 30 percent were medicine or nutrition technicians<sup>5</sup>, 11 percent were medical doctors, and 8 percent were nutritionists. Respondents reported occupying their professional positions for an average of 10 years, with a maximum of 44 years and a minimum of 1 month. Among the respondents, the majority reported working in health facilities (35 percent in health centers and 27 percent in hospitals) and, among the remaining 38 percent, those who reported working in nongovernmental organizations (18 percent) and governmental organizations or directorates (11 percent) stood out. Please refer to **Annex 2** for data regarding the profile of respondents.

### Section 1: Key Health and Nutrition Practices

According to the scores, the five most important health and nutrition practices for PLHIV are: “take prescribed drugs according to medical recommendations”; “seek early treatment for any infections”; “have regular medical examinations”; “eat a balanced diet that provides additional energy if you are pregnant or if you are breastfeeding”; and “eat a variety of foods” (see **Figure 2**).

According to open-ended responses, the health and nutrition practices most often mentioned as one of the three most important include: “have regular medical examinations”; “take prescribed drugs according to medical recommendations”; and “eat a balanced diet, with locally available, fresh, non-processed and accessible foods.”<sup>6</sup>

**Figure 2. The Five Most Important Health and Nutrition Practices, According to the Scores**



<sup>5</sup> Medicine or nutrition professionals who have attained a technical level of education.

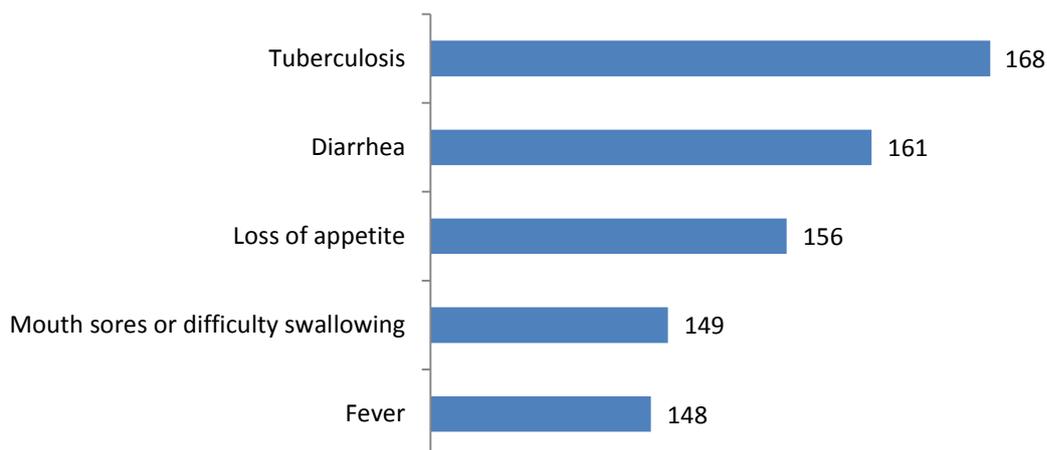
<sup>6</sup> “Eat a balanced diet, with locally available, fresh, non-processed and accessible foods” was mentioned numerous times by different respondents as one of the three most important messages but was not part of the list of messages of the closed-ended question.

## Section 2: Frequency of Symptoms/Conditions Associated with HIV

According to the scores, the five most frequent symptoms/conditions associated with HIV are: tuberculosis, diarrhea, loss of appetite, mouth sores or difficulty swallowing, and fever (see **Figure 3**).

According to open-ended responses, the symptoms/conditions associated with HIV most often mentioned as one of the three most frequent include: tuberculosis, diarrhea, and mouth sores or difficulty swallowing.

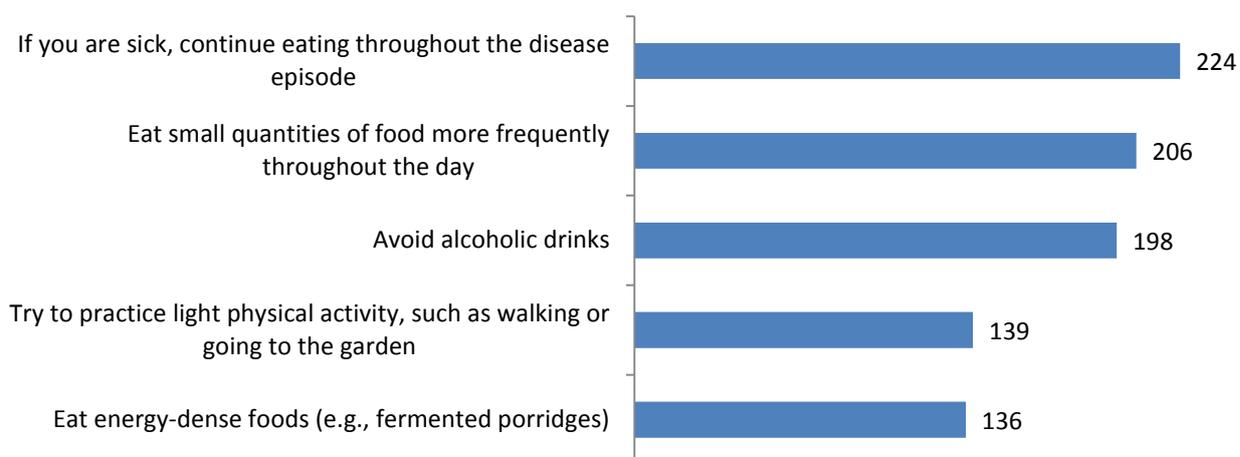
**Figure 3. The Five Most Frequent Symptoms/Conditions Associated with HIV, According to the Scores**



## Section 3: Managing Loss of Appetite

According to the scores, the five most important messages to manage loss of appetite are: “if you are sick, continue eating throughout the disease episode”; “eat small quantities of food more frequently throughout the day”; “avoid alcoholic drinks”; “try to practice light physical activity, such as walking or going to the garden”; and “eat energy-dense foods (e.g., fermented porridges)” (see **Figure 4**).

**Figure 4. The Five Most Important Messages to Manage Loss of Appetite, According to the Scores**



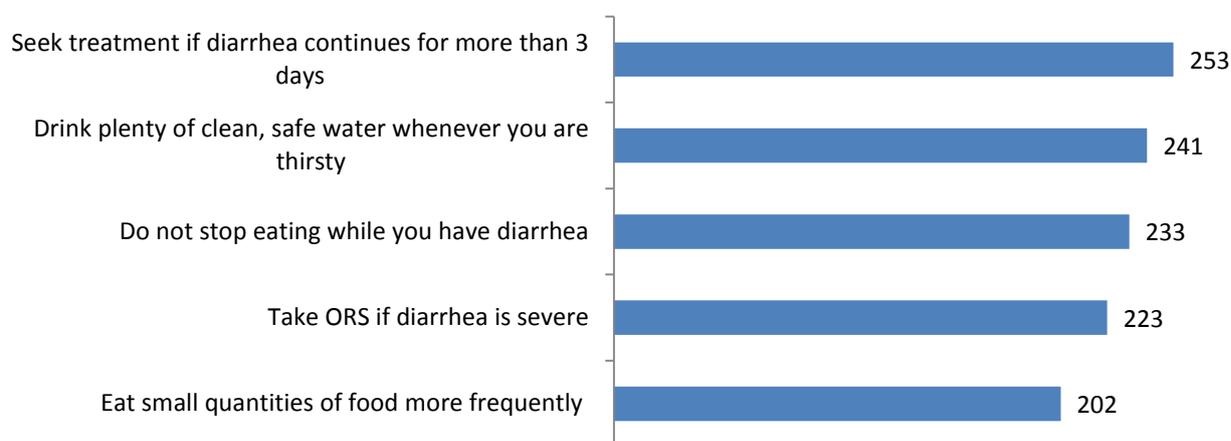
According to open-ended responses, the messages to manage loss of appetite most often mentioned as one of the three most important include: “avoid eating alone”; “try to eat with family or friends”;<sup>7</sup> “eat small quantities of food more frequently throughout the day”; and “if you are sick, continue eating throughout the disease episode.”

#### Section 4: Managing Diarrhea

According to the scores, the five most important messages to manage diarrhea are: “seek treatment if diarrhea continues for more than 3 days”; “drink plenty of clean, safe water whenever you are thirsty”; “do not stop eating while you have diarrhea”; “take ORS if diarrhea is severe”; and “eat small quantities of food more frequently” (see **Figure 5**).

According to open-ended responses, the messages to manage diarrhea most often mentioned as one of the three most important include: “seek treatment if diarrhea continues for more than 3 days”; “drink plenty of clean, safe water whenever you are thirsty”; and “drink rice water or coconut water.”<sup>8</sup>

**Figure 5. The Five Most Important Messages to Manage Diarrhea, According to the Scores**



#### Section 5: Managing Nausea and Vomiting

According to the scores, the five most important messages to manage nausea and vomiting are: “if you’re vomiting, drink continual small quantities of clean and safe water, soup, rice or coconut water, tea, or ORS to avoid dehydration”; “eat small quantities of food more frequently”; “drink liquids between meals, avoid drinking large volumes of liquids while you eat”; “avoid long intervals between meals”; and “avoid fatty foods” (see **Figure 6**).

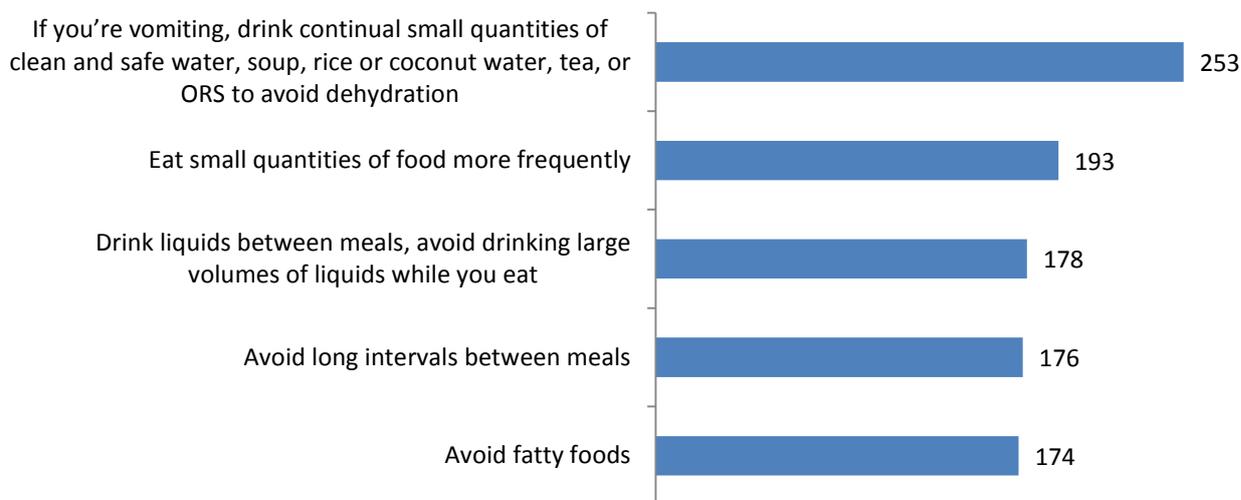
According to open-ended responses, the messages to manage nausea and vomiting most often mentioned as one of the three most important include: “eat small quantities of food more frequently”; “avoid long intervals between meals”; and “avoid going to bed immediately after eating, wait for at least an hour.”<sup>9</sup>

<sup>7</sup> “Avoid eating alone; try to eat with family or friends” was part of the list of messages of the closed-ended question, but was not part of the five most important messages according to the scores based on the closed-ended question responses.

<sup>8</sup> “Drink rice water or coconut water” was part of the list of messages of the closed-ended question, but was not part of the five most important messages according to the scores based on the closed-ended question responses.

<sup>9</sup> “Avoid going to bed immediately after eating; wait for at least an hour” was part of the list of messages of the closed-ended question, but was not part of the five most important messages according to the scores based on the closed-ended question responses.

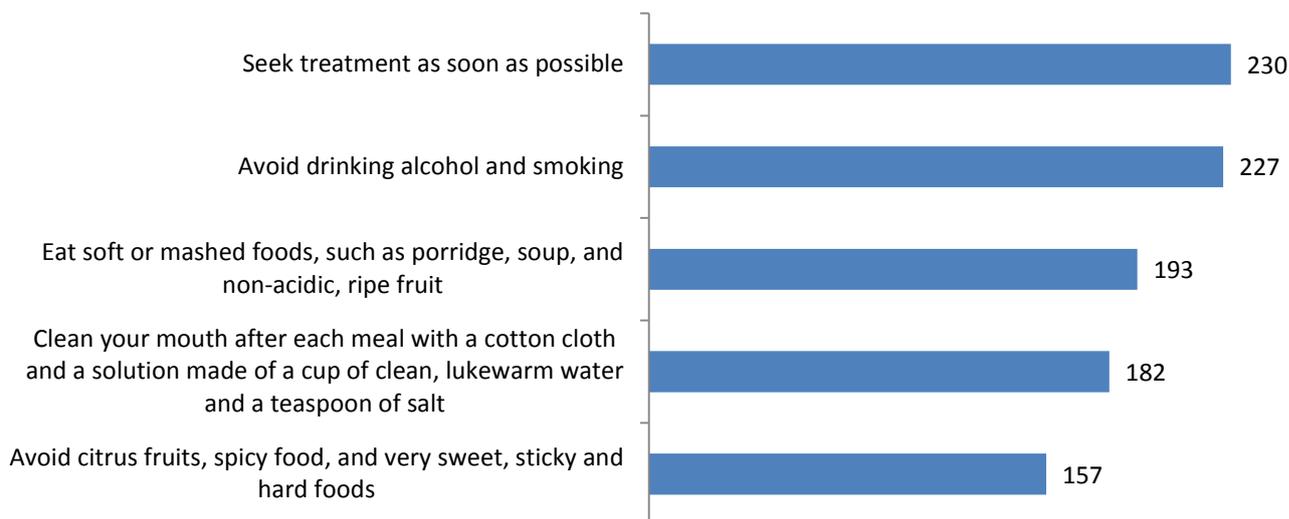
**Figure 6. The Five Most Important Messages to Manage Nausea and Vomiting, According to the Scores**



## Section 6: Managing Mouth Sores or Difficulty Swallowing

According to the scores, the five most important messages to manage mouth sores or difficulty swallowing are: “seek treatment as soon as possible”; “avoid drinking alcohol and smoking”; “eat soft or mashed foods, such as porridge, soup, and non-acidic, ripe fruit”; “clean your mouth after each meal with a cotton cloth and a solution made of a cup of clean, lukewarm water and a teaspoon of salt”; and “avoid citrus fruits, spicy food, and very sweet, sticky and hard foods” (see **Figure 7**).

**Figure 7. The Five Most Important Messages to Manage Mouth Sores or Difficulty Swallowing, According to the Scores**



According to open-ended responses, the messages to manage mouth sores or difficulty swallowing most often mentioned as one of the three most important include: “seek treatment as soon as possible”; “clean your mouth after each meal with a cotton cloth and a solution made of a cup of clean, lukewarm water and a teaspoon of salt”; and “eat soft or mashed foods.”

## Section 7: Managing Anemia

According to the scores, the five most important messages to manage anemia are: “eat iron-rich foods, such as meats, offal, eggs, fish, and dark green leafy vegetables (spinach, pumpkin leaves, cassava leaves)”;

“sleep under an insecticide-treated net and seek treatment immediately after diagnosis of malaria”;

“take deworming drugs if you haven’t taken them in the past and then every six months thereafter”;

“eat foods rich in vitamin C, such as oranges, tangerines, grapefruit, and tomato, as these potentiate iron absorption”;

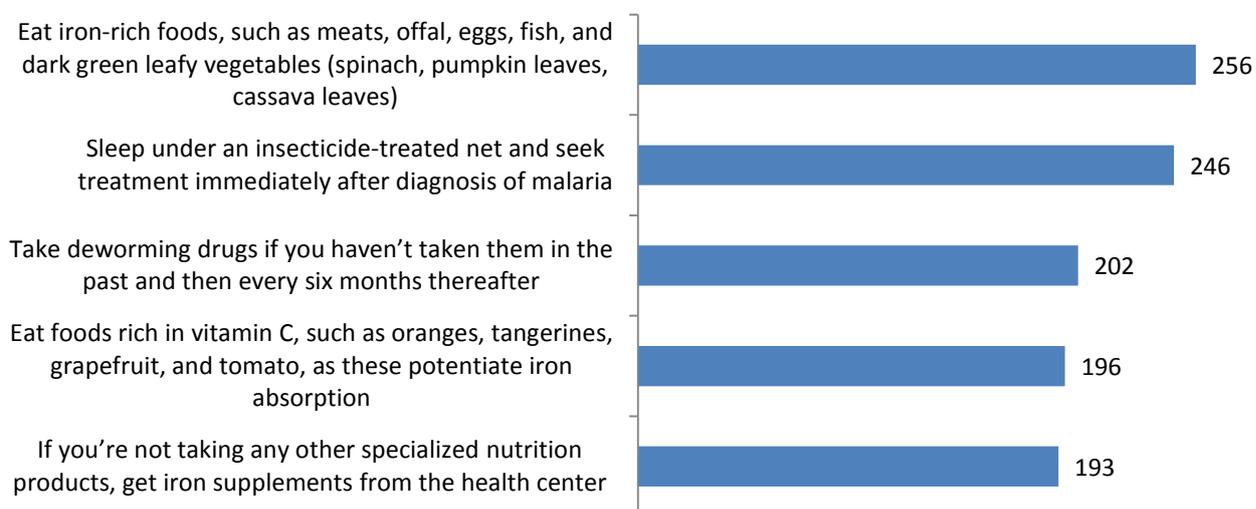
and “if you’re not taking any other specialized nutrition products, get iron supplements from the health center” (see **Figure 8**).

According to open-ended responses, the messages to manage mouth sores or difficulty swallowing most often mentioned as one of the three most important include: “eat iron-rich foods, such as meats, offal, eggs, fish, and dark green leafy vegetables”;

“sleep under an insecticide-treated net and seek treatment immediately after diagnosis of malaria”;

and “take deworming drugs if you haven’t taken them in the past and then every six months thereafter.”

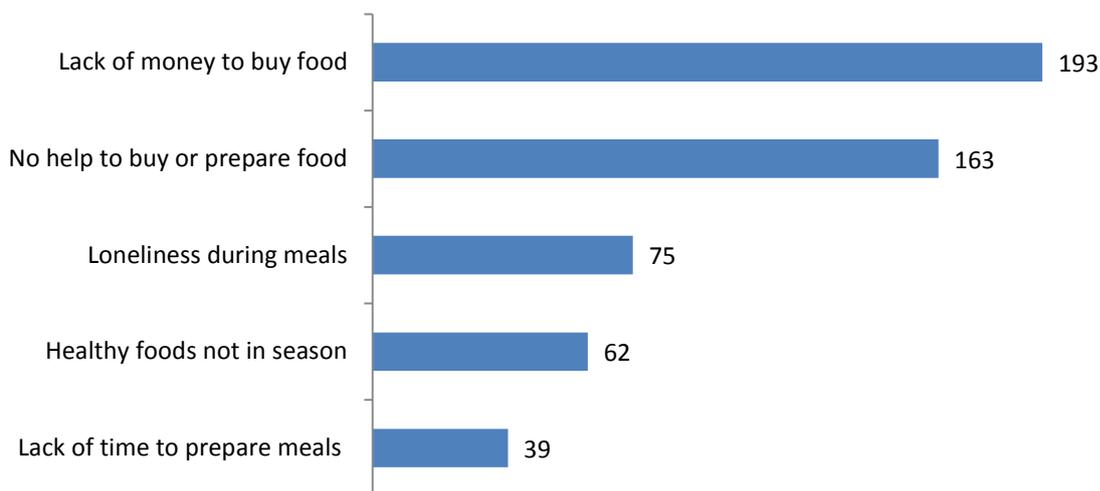
**Figure 8. The Five Most Important Messages to Manage Anemia, According to the Scores**



## Section 8: Barriers to Eating Well Reported by PLHIV

According to the scores, the five barriers to eating well most frequently reported by PLHIV are: lack of money to buy food; no help to buy or prepare food; loneliness during meals; healthy foods not in season; and lack of time to prepare meals (see **Figure 9**).<sup>10</sup>

**Figure 9. The Five Most Frequent Barriers to Eating Well Reported by PLHIV, According to the Scores**



According to open-ended responses, barriers to eating well reported by PLHIV most often mentioned as one of the three most frequent include: lack of money to buy food, no help to buy or prepare food, and loneliness during meals.

## Section 9: Counseling Messages to Overcome the Barriers to Eating Well

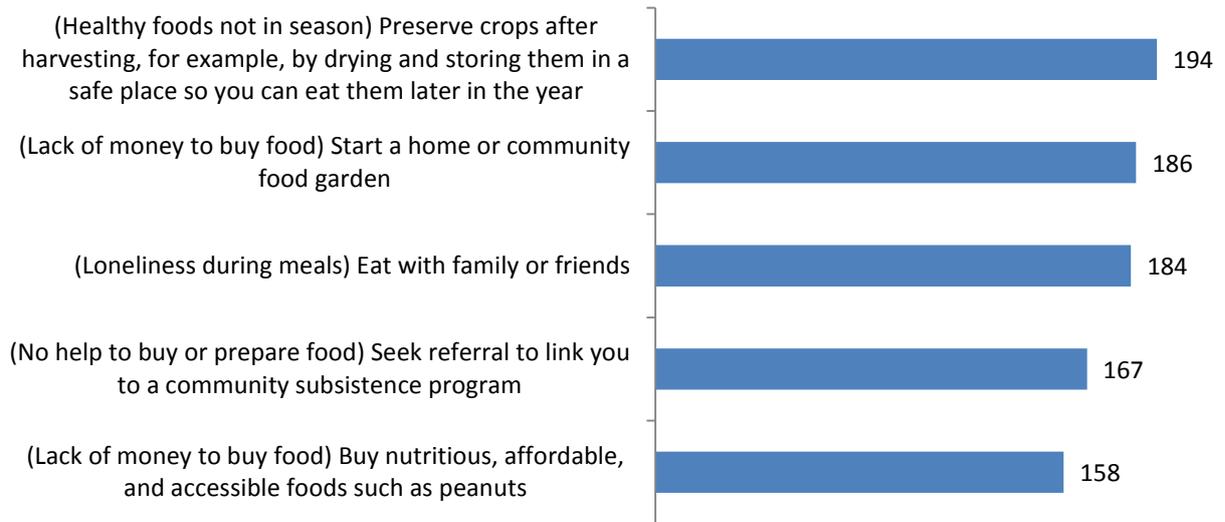
According to the scores, the five most important messages to overcome the barriers to eating well are: “preserve crops after harvesting, for example, by drying and storing them in a safe place so you can eat them later in the year” for the barrier “healthy foods not in season”; “start a home or community food garden” for the barrier “lack of money to buy food”; “eat with family or friends” for the barrier “loneliness during meals”; “seek referral to link you to a community subsistence program” for the barrier “no help to buy or prepare food”; and “buy nutritious, affordable, and accessible foods such as peanuts” for the barrier “lack of money to buy food” (see **Figure 10**).

According to open-ended responses, the messages to overcome the barriers to eating well most often mentioned as one of the three most important include: “start a home or community food garden”; “eat with family or friends”; and “seek help from family, friends, social support groups, and community subsistence programs.”<sup>11</sup>

<sup>10</sup> It is important to note that only five barriers were listed in the closed-ended question.

<sup>11</sup> “Seek help from family, friends, social support groups, and community subsistence programs” was mentioned numerous times by different respondents as one of the three most important messages, but was not totally part of the list of messages of the closed-ended question.

**Figure 10. The Five Most Important Messages to Overcome the Barriers to Eating Well, According to the Scores**



## 6. Discussion of Results

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The profile of respondents confirms what was observed during the preliminary investigation and what is commonly observed during supervision visits to nutrition services provided in Mozambique (Michaud-Létourneau and Remane 2011 [draft]). The majority of nutrition service providers at the health facility level are nurses or other non-nutrition professionals. Nutrition technicians and nutritionists, together, represent only 21 percent of respondents. It is also common to observe that those who provide nutrition services and that directly or indirectly intervene in the area of nutrition often do not have training in nutrition. In conformity with this observation, nearly half of the respondents of this survey reported not having received training in nutrition. Nevertheless, the fact that over 60 percent of respondents reported working in health centers or hospitals offers some confidence that the prioritization of the messages was based on their daily experience with PLHIV and/or TB who receive health and nutrition care services in their workplaces, which was the intention with this survey.

The interpretation of the results of the survey and the use of the prioritized messages to develop job aids to assist in the provision of nutrition counseling to PLHIV and/or TB must be carefully considered. It is possible to notice a tendency for the prioritization of medical- or general health-oriented counseling messages, which can be communicated at several points of contact with PLHIV and/or TB other than nutrition counseling sessions. Specifically nutrition-oriented counseling messages, on the other hand, are unlikely to be communicated at other points of contact. Thus, if it is decided that some counseling messages that are not specifically nutrition-oriented should be prioritized over those that are nutrition-oriented, an opportunity to communicate some of the key nutrition counseling messages may be lost. To illustrate this tendency, we can look closely at the results of section 1, discussed below.

If the counseling session was focused on nutrition aspects only, taking into account the augmented nutrition requirements of PLHIV and, simultaneously, the reduced appetite, nutrient malabsorption, and increased nutrient loss due to the HIV infection itself and the symptoms or conditions associated with opportunistic infections and medication side effects, a nutritionist could select the following practices listed in section 1 as the most important ones: “Eat five times a day (three meals and two snacks)”; “Eat a variety of foods”; “Increase the intake of energy-dense foods”; “Have regular nutrition assessments”; and, in the specific case of pregnant and lactating women, “Eat a balanced diet that provides additional energy if you are pregnant or if you are breastfeeding.” It is acknowledged that the question itself did not only list nutrition practices but also general health practices that are not specific to nutrition but were included as part of the materials on nutrition and HIV from which they were extracted. Since all messages are important, participants were not required to make this distinction; however, the users of these data should consider these specificities.

The inclusion of an open-ended question allowed participants to select, of all the variables listed, the three they considered that could not be left out of a nutrition counseling session. Moreover, this question allowed participants to mention one or more variables that were not listed but that they thought were extremely important. In section 1, for example, among the three most often mentioned as the most important health and nutrition practices was “Eat a balanced diet, with locally available, fresh, non-processed and accessible foods,” which was not listed in the closed-ended question but was mentioned numerous times by different respondents in the open-ended question. Another interesting observation is that, for sections 3, 4, and 5, even when the variables mentioned as the three most important/frequent in the open-ended question were included in the list provided in the closed-ended question, they did not always coincide in full with the five most important/frequent messages according to the closed-ended question scores. These differences must also be considered for the selection of the key messages that will be included in the nutrition counseling job aids to be developed.

The final selection of nutrition counseling messages for PLHIV and/or TB must also take into account that the number of messages used in the job aids that are intended to be developed does not necessarily have to be restricted to five. In some sections, such as sections 1 and 6, the message in 6th position in the final ranking (which included the aggregated data from the national and international surveys) was in fact among the five priority messages when the results of the national and international surveys were analyzed separately and, therefore, its inclusion in the final list of key messages can be considered.

Some limitations of the survey can affect the use of the results. A limitation particular to the design of section 4 of the English version of the online survey, which was disseminated at international level, meant that the scores of the variables “Avoid coffee, tea, sweetened juices, soft drinks, and alcoholic drinks” and “Take foods and drinks at room temperature and not too hot or too cold” could not be calculated. Instead of appearing as two variables that could be categorized individually and for which scores could equally be calculated individually, they appeared together as a single variable. Thus it is impossible to know to which variable the categories of importance assigned by respondents refer to in the international survey. Taking into account that this problem was not present in the Portuguese version of the survey, which was disseminated at national level, it is assumed that the effect that the score of the international survey would have in the final ranking for these two variables would be minimal, considering that the international sample of respondents was five-fold smaller in comparison to the national sample.

Another limitation is related to the fact that the audience of this survey did not include the beneficiaries of nutrition counseling, i.e., PLHIV and/or TB, due to ethical considerations and time constraints. Although it is expected that the pretest of the materials that are intended to be produced will allow for the assessment of the feasibility of the messages in the context in which PLHIV and/or TB live, ideally, these people should have been involved in the prioritization exercise from the beginning, in order to obtain their perspective about the behaviors that most effectively help them to maintain or improve their nutritional status and that they can practice in their daily lives. In the future, similar surveys should take this aspect in consideration.

## 7. Using the Data

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In order to finalize the selection of the priority nutrition counseling messages for PLHIV and/or TB, FANTA will work to ensure that the selected messages are the most relevant from a nutrition and evidence-base standpoint. The selected messages will then be used to produce job aids for nutrition counseling of PLHIV and/or TB, with the assistance of a creative firm to work with care on the language used, the illustration of messages, and the format that the materials will take, including materials to assist in interpersonal communication between the nutrition counselor and the client, display materials for health facilities, and materials that the client can take home.

During the development of the materials, FANTA will make sure to follow closely the development and publication of international guidelines for nutrition care of people living with TB, and their endorsement in Mozambique, which are not currently available. Nonetheless, it is expected that the nutrition counseling messages for PLHIV currently available can respond to a large extent to the nutrition needs of people living with TB, with or without HIV co-infection, until these guidelines become available.

Taking into account the high concordance rate between the results obtained in Mozambique and the results obtained from international respondents, it is expected that the job aids that are intended to be developed for use in Mozambique can be translated and adapted for use in other countries with high prevalence of HIV and TB. However, different countries may opt to replicate this survey to ensure that the messages included in the job aids for use in their countries respond to their contextual specificities. If replicated, the lessons learned from this survey should be taken into account. These include the following:

- Though most health service providers in countries may not have training in nutrition, the fact that they regularly interact with PLHIV and/or TB would still ensure that they will be able to identify and prioritize relevant nutritional messages specific to their clients' needs.
- When looking into prioritizing the content of nutrition counseling messages, it is important to clearly distinguish nutrition-oriented counseling messages and general medical/health-oriented counseling messages. This will help ensure that the focus remains on prioritizing counseling content specific to the nutritional needs of PLHIV and/or TB.
- Open-ended- and closed-ended responses may identify different high priority messages, and these differences must be carefully analyzed and understood before the development of counseling materials/messages.
- The final selection of nutrition counseling messages for a given topic should be based on evidence and context-specific factors as opposed to a preset restricted number of messages. Nutrition counseling providers should be trained in the skills required to select a restricted number of messages during a counseling session, based on previous nutrition assessment and dialogue with the client.
- Pretesting online versions of surveys should be considered to avoid problems during data analysis and interpretation.
- PLHIV and/or TB should be included in the sample of respondents in future research.

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## Annex 1. Survey on Nutrition Counseling Messages for People Living with HIV

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This questionnaire aims to guide the respondent in prioritizing the nutrition counseling messages provided to people living with HIV (PLHIV), to maximize beneficiaries' retention of essential messages for a good nutrition and health status and, thus, maximize the benefits of nutrition counseling.

Please indicate if you have received training in nutrition by selecting "yes" or "no" below\*

- Yes
- No

Please choose your occupation from the list below

- Nurse
- Doctor
- Nutritionist
- Medicine Technician
- Nutrition Technician
- Community Health Worker
- Other (please specify):

Please indicate below how many years you have worked in this position

\_\_\_\_\_

Please choose your place of work from the list below

- Hospital
- Health center
- Health post
- Governmental organization or directorate
- Non-governmental organization
- Community based organization
- Other (please specify):

**\*This is a required question**

### Section 1: Key health and nutrition practices

Please select the box that reflects the level of importance of the following health and nutrition practices for PLHIV:

	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Have regular medical examinations	<input type="checkbox"/>					
Have regular nutrition assessments	<input type="checkbox"/>					
Eat a variety of foods	<input type="checkbox"/>					
Eat five times a day (three meals and two snacks)	<input type="checkbox"/>					
Increase the intake of energy-dense foods	<input type="checkbox"/>					
Drink plenty of clean and safe water whenever you are thirsty	<input type="checkbox"/>					
Exercise regularly and continue daily activities	<input type="checkbox"/>					
Take prescribed drugs according to medical recommendations	<input type="checkbox"/>					
Manage drug-food interactions (side effects) through diet	<input type="checkbox"/>					
Practice recommended hygiene and sanitation behaviors (e.g., correct handwashing at critical times)	<input type="checkbox"/>					
Seek early treatment for any infections	<input type="checkbox"/>					
Manage symptoms through diet	<input type="checkbox"/>					
Live positively (messages on safe sex, drinking alcohol, and smoking)	<input type="checkbox"/>					
Eat a balanced diet that provides additional energy if you are pregnant or if you are breastfeeding	<input type="checkbox"/>					

Based on the messages above or others you may consider important, please list the three most important health and nutrition practices for PLHIV.

## Section 2: Frequency of symptoms/conditions associated with HIV

Please select the box that reflects the frequency with which the following symptoms/conditions affect PLHIV:

	Never	Rarely	Sometimes	Frequently	Always
Loss of appetite	<input type="checkbox"/>				
Diarrhea	<input type="checkbox"/>				
Nausea	<input type="checkbox"/>				
Vomiting	<input type="checkbox"/>				
Mouth sores or difficulty swallowing	<input type="checkbox"/>				
Anemia	<input type="checkbox"/>				
Taste changes or dry mouth	<input type="checkbox"/>				
Constipation	<input type="checkbox"/>				
Heartburn and swollen stomach	<input type="checkbox"/>				
Fever	<input type="checkbox"/>				
Tuberculosis	<input type="checkbox"/>				

Based on the symptoms/diseases above or others you may consider important, please list the three most frequent symptoms/conditions associated with HIV.

### Section 3: Managing loss of appetite—lack of desire to eat

Please select the box that reflects the level of importance of the following counseling messages for PLHIV:

	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Eat small quantities of food more frequently throughout the day	<input type="checkbox"/>					
Try to practice light physical activity, such as walking or going to the garden	<input type="checkbox"/>					
Eat your favorite foods	<input type="checkbox"/>					
Add spices, fresh herbs, or ingredients such as garlic and/or lemon to improve the flavor of foods	<input type="checkbox"/>					
Eat more during times when appetite is better	<input type="checkbox"/>					
Avoid low-energy or “diet” foods with limited nutritional value	<input type="checkbox"/>					
Avoid foods with a strong odor	<input type="checkbox"/>					
Drink lots of liquids, preferably between meals and not during meals	<input type="checkbox"/>					
Drink a lukewarm drink when waking up and before going to bed	<input type="checkbox"/>					
Avoid alcoholic drinks	<input type="checkbox"/>					
If possible, ask family or friends to cook your meals	<input type="checkbox"/>					
Avoid eating alone; try to eat with family or friends	<input type="checkbox"/>					
Eat energy-dense foods (e.g., fermented porridges)	<input type="checkbox"/>					
If you are sick, continue eating throughout the disease episode	<input type="checkbox"/>					
Eat light meals	<input type="checkbox"/>					
Grind meat or chicken or cut it in small pieces to help you eat	<input type="checkbox"/>					
Eat pureed and moist food	<input type="checkbox"/>					

**Based on the messages above or others you may consider important, please list the three most important messages to manage loss of appetite.**

### Section 4: Managing diarrhea—increase in the number of bowel movements and/or presence of soft or liquid feces and/or blood in the stool

Please select the box that reflects the level of importance of the following counseling messages for PLHIV:

	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Do not stop eating while you have diarrhea	<input type="checkbox"/>					
Drink plenty of clean, safe water whenever you are thirsty	<input type="checkbox"/>					
Eat small quantities of food more frequently	<input type="checkbox"/>					
Drink rice water or coconut water	<input type="checkbox"/>					
Take ORS <sup>12</sup> if diarrhea is severe	<input type="checkbox"/>					
Eat light foods in small, frequent portions	<input type="checkbox"/>					
Avoid oily or fried foods	<input type="checkbox"/>					
Avoid sweet foods	<input type="checkbox"/>					
Remove skin, pips, and seeds before eating fruit	<input type="checkbox"/>					
Cook vegetables before eating	<input type="checkbox"/>					
Avoid coffee, tea, sweetened juices, soft drinks, and alcoholic drinks	<input type="checkbox"/>					
Take foods and drinks at room temperature and not too hot or too cold	<input type="checkbox"/>					
Avoid foods that can cause flatulence or colic (e.g., beans, cabbage)	<input type="checkbox"/>					
Avoid spicy foods	<input type="checkbox"/>					
Avoid citrus fruit, such as lemon and orange	<input type="checkbox"/>					
Reduce milk intake while you have diarrhea	<input type="checkbox"/>					
Include foods that have a lot of soluble fiber, such as rice and sweet potato	<input type="checkbox"/>					
Eat fermented foods, such as yogurt	<input type="checkbox"/>					
Seek treatment if diarrhea continues for more than 3 days	<input type="checkbox"/>					
Eat light foods in small, frequent portions	<input type="checkbox"/>					

Based on the messages above or others you may consider important, please list the three most important messages to manage diarrhea.

<sup>12</sup> Oral rehydration solution

### Section 5: Managing nausea—sensation of discomfort in the stomach with an urge to vomit—and vomiting—active expulsion of the stomach’s content through the mouth

Please select the box that reflects the level of importance of the following counseling messages for PLHIV:

	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Eat small quantities of food more frequently	<input type="checkbox"/>					
If you’re vomiting, drink continual small quantities of clean and safe water, soup, rice or coconut water, tea, or ORS to avoid dehydration	<input type="checkbox"/>					
Drink liquids between meals; avoid drinking large volumes of liquids while you eat	<input type="checkbox"/>					
Eat dry and savory foods, such as bread	<input type="checkbox"/>					
Add lemon juice to food	<input type="checkbox"/>					
Avoid spicy foods	<input type="checkbox"/>					
Avoid fatty foods	<input type="checkbox"/>					
Avoid sweet foods	<input type="checkbox"/>					
Avoid long intervals between meals	<input type="checkbox"/>					
Avoid going to bed immediately after eating; wait for at least an hour	<input type="checkbox"/>					
Avoid foods with a strong odor	<input type="checkbox"/>					
If possible, ask your family or friends to cook your meals	<input type="checkbox"/>					
Eat light foods, e.g., soups	<input type="checkbox"/>					

Based on the messages above or others you may consider important, please list the three most important messages to manage nausea and vomiting.

### Section 6: Managing mouth sores or difficulty swallowing

Please select the box that reflects the level of importance of the following counseling messages for PLHIV:

	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Clean your mouth after each meal with a cotton cloth and a solution made of a cup of clean, lukewarm water and a teaspoon of salt	<input type="checkbox"/>					
Rinse your mouth morning and evening with a tablespoon of salt or sodium bicarbonate dissolved in a cup of clean, lukewarm water	<input type="checkbox"/>					
Rinse your mouth with a solution made of clean, safe water and a ground garlic clove	<input type="checkbox"/>					
Avoid citrus fruits; spicy food; and very sweet, sticky, and hard foods	<input type="checkbox"/>					
Eat cold or room-temperature foods	<input type="checkbox"/>					
Eat soft or mashed foods, such as porridge, soup, and non-acidic, ripe fruit	<input type="checkbox"/>					
Drink with a straw to help you swallow	<input type="checkbox"/>					
Avoid drinking alcohol and smoking	<input type="checkbox"/>					
Eat fermented foods such as yogurt and fermented porridge	<input type="checkbox"/>					
Eat foods prepared with garlic	<input type="checkbox"/>					
Seek treatment as soon as possible	<input type="checkbox"/>					

**Based on the messages above or others you may consider important, please list the three most important messages to manage mouth sores or difficulty swallowing.**

### Section 7: Managing anemia—paleness of the palms and/or soles

Please select the box that reflects the level of importance of the following counseling messages for PLHIV:

	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Eat iron-rich foods, such as meats, offal, eggs, fish, and dark green leafy vegetables (spinach, pumpkin leaves, cassava leaves)	<input type="checkbox"/>					
Eat foods rich in vitamin C, such as oranges, tangerines, grapefruit, and tomato, as these potentiate iron absorption	<input type="checkbox"/>					
Avoid drinking coffee/tea with iron-rich meals because these inhibit iron absorption	<input type="checkbox"/>					
Take deworming drugs if you haven't taken them in the past and then every six months thereafter	<input type="checkbox"/>					
Sleep under an insecticide-treated net and seek treatment immediately after diagnosis of malaria	<input type="checkbox"/>					
If you're not taking any other specialized nutrition products, get iron supplements from the health center	<input type="checkbox"/>					

Based on the messages above or others you may consider important, please list the three most important messages to manage anemia.

### Section 8: Barriers to eating well reported by PLHIV

Please select the box that reflects how often PLHIV report the following barriers to eating well:

	Never	Rarely	Sometimes	Frequently	Always
Lack of time to prepare meals	<input type="checkbox"/>				
Lack of money to buy food	<input type="checkbox"/>				
Healthy foods not in season	<input type="checkbox"/>				
No help to buy or prepare food	<input type="checkbox"/>				
Loneliness during meals	<input type="checkbox"/>				

Based on the barriers above or others you may consider important, please list the three barriers to eating well most reported by PLHIV

### Section 9: Counseling messages to overcome the barriers to eating well

Please select the box that reflects the level of importance of the following counseling messages for PLHIV:

Barrier to eating well	Counseling message	Not at all important	Not so important	Neutral	Important	Very important	Extremely important
Lack of time to prepare meals	Soak beans in water overnight	<input type="checkbox"/>					
	Mix all ingredients in the same pan	<input type="checkbox"/>					
	Alternate cooking duties with others	<input type="checkbox"/>					
Lack of money to buy food	Start a home or community food garden	<input type="checkbox"/>					
	Rear chickens or rabbits	<input type="checkbox"/>					
	Buy nutritious, affordable, and accessible foods such as peanuts	<input type="checkbox"/>					
	Buy seasonal foods	<input type="checkbox"/>					
Healthy foods not in season	Preserve crops after harvesting, for example, by drying and storing them in a safe place so you can eat them later in the year	<input type="checkbox"/>					
No help to buy or prepare foods/meals	Seek referral to link you to a community subsistence program	<input type="checkbox"/>					
Loneliness during meals	Eat with family or friends	<input type="checkbox"/>					

**Based on the messages above or others you may consider important, please list the three most important messages to overcome the barriers to eating well.**

**Your comments:**

## Annex 2. Respondents' Profile

Training in nutrition	Yes		No		Total	
	n	%	n	%	n	%
	52	51	49	49	101	100

Occupation	n	%
Nurse	33	33
Medicine technician	17	17
Nutrition technician	13	13
Doctor	11	11
Nutritionist	8	8
Other	13	13
Non-identified	6	6
TOTAL	101	100

No. of years in current position	n	%
<5	25	25
5–9	27	27
10+	32	32
Non-identified	17	17
TOTAL	101	100

Place of work	n	%
Health center	35	35
Hospital	27	27
NGO	18	18
Governmental organization or directorate	11	11
Other	8	8
Non-identified	2	2
TOTAL	101	100

## Annex 3. Complete Rankings of the Variables Categorized in the Closed-Ended Questions

### Section 1: Key health and nutrition practices

Variable	Score
Take prescribed drugs according to medical recommendations	267
Seek early treatment for any infections	247
Have regular medical examinations	227
Eat a balanced diet that provides additional energy if you are pregnant or if you are breastfeeding	227
Eat a variety of foods	226
Live positively (messages on safe sex, drinking alcohol, and smoking)	223
Practice recommended hygiene and sanitation behaviors (e.g., correct hand washing at critical times)	216
Drink plenty of clean and safe water whenever you are thirsty	215
Have regular nutrition assessments	204
Exercise regularly and continue daily activities	175
Manage drug-food interactions (side effects) through diet	161
Increase the intake of energy-dense foods	151
Eat five times a day (three meals and two snacks)	142
Manage symptoms through diet	90

### Section 2: Frequency of symptoms/conditions associated with HIV

Variable	Score
Tuberculosis	168
Diarrhea	161
Loss of appetite	156
Mouth sores or difficulty swallowing	149
Fever	148
Anemia	129
Taste changes or dry mouth	100
Nausea	80
Vomiting	76
Heartburn and swollen stomach	53
Constipation	19

**Section 3: Managing loss of appetite**

Variable	Score
If you are sick, continue eating throughout the disease episode	224
Eat small quantities of food more frequently throughout the day	206
Avoid alcoholic drinks	198
Try to practice light physical activity, such as walking or going to the garden	139
Eat energy-dense foods (e.g., fermented porridges)	136
Eat your favorite foods	135
Drink lots of liquids, preferably between meals and not during meals	133
Eat more during times when appetite is better	125
Avoid eating alone; try to eat with family or friends	120
Eat light meals	102
Avoid low-energy or “diet” foods with limited nutritional value	98
If possible, ask family or friends to cook your meals	93
Grind meat or chicken or cut it in small pieces to help you eat	65
Add spices, fresh herbs, or ingredients such as garlic and/or lemon to improve the flavor of foods	60
Avoid foods with a strong odor	57
Eat pureed and moist food	28
Drink a lukewarm drink when waking up and before going to bed	25

**Section 4: Managing diarrhea**

Variable	Score
Seek treatment if diarrhea continues for more than 3 days	253
Drink plenty of clean, safe water whenever you are thirsty	241
Do not stop eating while you have diarrhea	233
Take ORS if diarrhea is severe	223
Eat small quantities of food more frequently	202
Avoid oily or fried foods	180
Drink rice water or coconut water	179
Include foods that have a lot of soluble fiber, such as rice and sweet potato	165
Eat light foods in small, frequent portions	164
Avoid spicy foods	153
Avoid foods that can cause flatulence or colic (e.g., beans, cabbage)	151
Cook vegetables before eating	139
Avoid coffee, tea, sweetened juices, soft drinks, and alcoholic drinks	129*
Reduce milk intake while you have diarrhea	129
Take foods and drinks at room temperature and not too hot or too cold	83*
Avoid sweet foods	83
Eat fermented foods, such as yogurt	67
Remove skin, pips, and seeds before eating fruit	58
Avoid citrus fruit, such as lemon and orange	43

\*This score is based on national survey data only, i.e., it does not account for the score resulting from the international survey. Please see the explanation for this limitation on page 20.

**Section 5: Managing nausea and vomiting**

Variable	Score
If you're vomiting, drink continual small quantities of clean and safe water, soup, rice or coconut water, tea, or ORS to avoid dehydration	253
Eat small quantities of food more frequently	193
Drink liquids between meals; avoid drinking large volumes of liquids while you eat	178
Avoid long intervals between meals	176
Avoid fatty foods	174
Avoid going to bed immediately after eating; wait for at least an hour	166
Eat light foods, e.g., soups	165
Avoid foods with a strong odor	146
Avoid spicy foods	141
If possible, ask your family or friends to cook your meals	114
Avoid sweet foods	114
Eat dry and savory foods, such as bread	71
Add lemon juice to food	66

**Section 6: Managing mouth sores or difficulty swallowing**

Variable	Score
Seek treatment as soon as possible	230
Avoid drinking alcohol and smoking	227
Eat soft or mashed foods, such as porridge, soup, and non-acidic, ripe fruit	193
Clean your mouth after each meal with a cotton cloth and a solution made of a cup of clean, lukewarm water and a teaspoon of salt	182
Avoid citrus fruits; spicy food; and very sweet, sticky, and hard foods	157
Rinse your mouth morning and evening with a tablespoon of salt or sodium bicarbonate dissolved in a cup of clean, lukewarm water	150
Eat cold or room-temperature foods	128
Drink with a straw to help you swallow	115
Eat fermented foods such as yogurt and fermented porridge	114
Eat foods prepared with garlic	93
Rinse your mouth with a solution made of clean, safe water and a ground garlic clove	65

**Section 7: Managing anemia**

Variable	Score
Eat iron-rich foods, such as meats, offal, eggs, fish, and dark green leafy vegetables (spinach, pumpkin leaves, cassava leaves)	256
Sleep under an insecticide-treated net and seek treatment immediately after diagnosis of malaria	246
Take deworming drugs if you haven't taken them in the past and then every six months thereafter	202
Eat foods rich in vitamin C, such as oranges, tangerines, grapefruit, and tomato, as these potentiate iron absorption	196
If you're not taking any other specialized nutrition products, get iron supplements from the health center	193
Avoid drinking coffee/tea with iron-rich meals because these inhibit iron absorption	141

**Section 8: Barriers to eating well reported by PLHIV**

Variable	Score
Lack of money to buy food	193
No help to buy or prepare food	163
Loneliness during meals	75
Healthy foods not in season	62
Lack of time to prepare meals	39

**Section 9: Counseling messages to overcome the barriers to eating well**

Variable	Score
(Healthy foods not in season) Preserve crops after harvesting, for example, by drying and storing them in a safe place so you can eat them later in the year	194
(Lack of money to buy food) Start a home or community food garden	186
(Loneliness during meals) Eat with family or friends	184
(No help to buy or prepare foods/meals) Seek referral to link you to a community subsistence program	167
(Lack of money to buy food) Buy nutritious, affordable, and accessible foods such as peanuts	158
(Lack of money to buy food) Buy seasonal foods	155
(Lack of money to buy food) Rear chickens or rabbits	134
(Lack of money to buy food) Alternate cooking duties with others	99
(Lack of time to prepare meals) Soak beans in water overnight	89
(Lack of time to prepare meals) Mix all ingredients in the same pan	73