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MINISTRY OF HEALTH AND SOCIAL SERVICES

Nutrition in HIV Care in Namibia: A Needs Assessment

APRIL 1-30, 2008

PREFACE

The HIV epidemic in Namibia has resulted in one of the highest rates of HIV seroprevalence worldwide. Although the 2006 sentinel surveillance survey among pregnant women attending antenatal clinics showed a slight decline in the prevalence rate, from 22.3 percent in 2002 to 19.9 percent in 2006, HIV continues to devastate the livelihoods of Namibians countrywide.

There is currently no cure for HIV, but nutrition plays an important role in the care of people living with the infection. Achieving and maintaining optimal nutrition in people living with HIV can delay the progression of the disease to full-blown AIDS, enhance the body's ability to fight opportunistic infections (OIs), optimise immune system function, reduce the overall cost of medical care, improve the effectiveness of drug treatment, and improve the person's quality of life. In addition to eating well, an integrated and guided nutrition care approach must include management of HIV-related conditions and side effects and nutrition care during antiretroviral therapy.

In 2008 the Ministry of Health and Social Services conducted an assessment of the food and nutrition needs of people with HIV in Namibia, the support needed by health care providers to provide quality nutrition assessment and counselling, and opportunities to integrate nutrition into HIV services.

The Ministry of Health and Social Services would like to express its sincere gratitude to the partners who contributed to the design and implementation of this assessment: the Directorate of Primary Health Care Services, USAID/Namibia, and the Food and Nutrition Technical Assistance (FANTA) Project of the U.S. Agency for International Development (USAID), managed by the Academy for Educational Development (AED).

We also appreciate the support and assistance of the Regional Management Teams, and the District Coordinating Committees. This assessment would not have been possible without the cooperation and participation of the staff and patients at the HAART clinics.

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PERMANENT SECRETARY

ACKNOWLEDGEMENTS

This assessment of the needs for HIV and nutrition care in Namibia was conducted by the Ministry of Health and Social Services, specifically the Food and Nutrition Sub-division of the Directorate of Primary Health Care. The Food and Nutrition Technical Assistance (FANTA) Project of the U.S. Agency for International Development (USAID), managed by the Academy for Educational Development (AED), provided technical and financial support.

The members of the assessment team included Pamela Fergusson, Marjorie Van Wyk, and Marjorie Katjire. Assistance with data assessment was provided by Dr. Earnest Muyunda and Dr. Robert Mwadime.

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ABBREVIATIONS AND ACRONYMS

ART	Antiretroviral treatment
BMI	Body mass index (kg/m^2)
CDC	Centers for Disease Control and Prevention
FANTA	Food and Nutrition Technical Assistance (USAID Project)
I-TECH	International Training and Education Centre on HIV/AIDS
M&E	Monitoring and evaluation
MOHSS	Ministry of Health and Social Services (Namibia)
NGO	Non-governmental organization
NRCS	Namibian Red Cross Society
OI	Opportunistic infection
PLWHA	People living with HIV and AIDS
PMTCT	Prevention of mother-to-child transmission (of HIV)
SD	Standard deviation
WFH	Weight for height

EXECUTIVE SUMMARY

Namibia's estimated adult HIV prevalence rate of 19.9 percent (MOHSS 2006b) is one of the highest in the world. The estimated rate of mother-to-child transmission of HIV is 25 percent (MOHSS 2008). The Namibian Ministry of Health and Social Services (MOHSS) is rolling out antiretroviral therapy (ART) across the country. To date 57 percent of adults (33,461) and 91 percent of children (4,386) with advanced HIV infection are estimated to be receiving ART (MOHSS 2008). Undernutrition is also of public health concern in Namibia. In 2004–2005, 3.2 percent of infant deaths, 7.5 percent of deaths among children under five, and 1.6 percent of deaths of people of all ages were attributed to undernutrition (MOHSS 2006a).

Namibia is a vast country, culturally and ecologically diverse, with a wealth of natural resources, well-developed infrastructure, and low population density. There are, however, vast income and health inequalities. All of these elements impact the health and nutritional status of persons living with HIV/AIDS (PLWHA).

In 2007 the MOHSS determined a need for an assessment of HIV and nutrition in order to consolidate efforts to strengthen the integration of nutrition into HIV services.

Objectives

The objectives of this assessment were to determine food and nutrition-related actions needed to improve the nutrition and health status of PLWHA in Namibia, support and capacity building needed by service providers to provide effective nutrition care and support to PLWHA, and opportunities to integrate nutrition interventions into HIV treatment and care facilities and programmes. The assessment design was explorative, using qualitative research methods with collection of additional quantitative information, including anthropometrics, to set the context.

Methodology

Data were collected at ART clinics in five hospitals, including Gobabis State Hospital, Katutura State Hospital (and Katutura Health Centre), Oshakati Intermediate Referral Hospital, Katima Mulilo State Hospital, and Walvis Bay State Hospital. Sites were selected to include regions with higher and lower HIV prevalence and a cross-section of representative cultures in Namibia in both urban and rural settings.

The assessment team conducted 12 patient interviews, 24 staff interviews, and 5 focus group discussions at the study sites between April 1 and 30, 2008. Ten of the patient interviews included 24-hour dietary recall. Patients were interviewed in their own languages (Afrikaans, Oshivambo, or Silozi), with interviews translated into and transcribed in English. Staff interviews were carried out in English and transcribed. Interviews and focus group discussions were tape recorded after obtaining the participants' consent.

Data were analysed by a team of researchers using thematic content analysis (Green and Thorogood 2004). The information was then cross-referenced using interview, focus group, and observation data and between staff and patient reports to cross-check themes and findings.

Anthropometric Assessment

The assessment team weighed and measured 319 HIV-infected, non-pregnant adult patients, including both ART and pre-ART clients. Of those measured, 64.6 percent had a body mass index (BMI) within the healthy range (BMI 18.5–24.9), 20.1 percent were undernourished (BMI <18.5), 2.5 percent were severely malnourished (BMI <16), and 17.6 percent were moderately or mildly malnourished (BMI 16–18.5). Overweight and obesity were also found to be of concern: 15.4 percent of patients were either overweight or obese, with 11.9 percent overweight (BMI 25.0–29.9), and 3.4 percent obese (BMI 30 and over).

Qualitative Assessment

The assessment team generated the following themes from the data analysis: 1) food security and livelihoods, 2) gender, HIV and nutrition, 3) culture, diversity and diet, 4) nutrition, infection, and response to treatment, and 5) resources and capacity of service providers.

Food security and Livelihoods
Almost all patients interviewed reported poor food security and rated access to healthy food as their second biggest concern after unemployment. Although the typical diet varied across the five assessment sites, generally patients reported high protein intake. This intake of protein-dense foods may protect against undernutrition even in food-insecure situations. Intake of fruit and vegetables across the five sites was low. The diet of most patients lacked diversity. Many patients (although not all) reported having access to clean water, although water was very expensive.

The communities were resourceful in increasing their food security. Patients at Oshakati reported fishing in the flood waters or *oshanas*, and patients at Katima Mulilo collected wild fruits. Food preservation, including sun-drying foods such as meat, fish, mopani worms, and spinach, increased food security. Sour milk was also commonly consumed.

Gender, HIV and Nutrition
Men were under-represented at ART clinics, particularly in the north of Namibia, where women made up 62 percent of the clinic census in Oshakati and 68 percent in Katima Mulilo. Both staff and patients felt that the main reason men were not attending the clinics was stigma related to HIV. As men frequently present late to the clinics, they may be at increased risk of undernutrition because of advanced disease and opportunistic infections (OIs). Women present more frequently with overweight and obesity than men.

Women living with HIV face various problems related to nutrition. They also experience stigma, and this may lead to fear of disclosure. Some women may be reluctant to choose artificial feeding because of stigma.

Culture, Diversity and Diet
Namibia is a culturally diverse nation, and dietary intake and food preferences across the five assessment sites were closely tied to environment and culture. At Gobabis, an arid ranching area, diets predominantly consisted of sour milk and meat with maize porridge, whereas at the northern sites, patients were more likely to include wild fruits, millet and river fish in their diets. Patients living in urban areas, including Walvis Bay and Windhoek, were more likely to eat processed foods purchased from supermarkets.

Both staff and patients reported high alcohol consumption in the communities. There were concerns that alcohol may affect adherence to ART, HIV transmission, dietary intake, and household expenditure on food. There was also some concern that food-insecure patients may drink alcohol to have something in their stomach to prevent the side effects they experience from taking medication on an empty stomach.

Nutrition, Infection, and Response to Treatment
Staff are not currently using BMI to diagnose and monitor undernutrition and overnutrition in the clinics. Staff and patients perceive nutrition primarily as a food security issue rather than a clinical issue. Further training and advocacy are essential to raise the profile of nutrition and ensure it is integrated into clinical and social care in the ART clinics. The nutrition programme should focus on healthy eating and active lifestyles for PLWHA to reduce the risk of both undernutrition and overnutrition. Staff reported that opportunist infections generally resolved with good adherence to ART. Staff and patients interviewed reported good progress in ART programs, especially in improving the well-being and nutrition status of patients.

Infant and young child feeding practices, including early abrupt weaning with inappropriate introduction of solid food and potential consumption of contaminated water, may put children at increased risk of undernutrition. Relevant policy should be reviewed in light of international research and recommendations to develop clear national guidelines for the Namibian context.

Resources and Capacity of Service Providers
Clinics are staffed with highly qualified medical professionals. However, most staff depend on pre-service training for their HIV and nutrition knowledge and skills, and training is urgently required for all cadres. A 4-day training course entitled *Nutrition Management with HIV and AIDS: Practical Tools for Health Workers* was developed in 2007 by the MOHSS with technical assistance from the International Training and Education Center on HIV/AIDS (I-TECH), and 260 nurses and 36 trainers have been trained in this course. This training should be rolled out further, and more should be done to ensure that those who have been trained are able to implement their training. Staff rotation through departments and promotion to administrative positions may reduce the numbers of trained staff working at the clinic level.

Most clinics visited have the necessary equipment to take height and weight measurements, and weight is regularly measured. Height is rarely recorded, and there is no place in clinic forms to record height or BMI for adults or weight for height (WFH) for children. Tools for patient education are needed, such as posters and flipcharts, focusing on dietary diversity, promoting the consumption of traditional foods, especially fruits and vegetables, and moderation of alcohol intake.

Recommendations

Based on the findings of the assessment, the team recommends the following food and nutrition-related actions **to improve nutrition for PLWHA**:

1. Individual and group nutrition education should focus on healthy eating and maintenance of healthy weight to prevent both undernutrition and overnutrition.

2. Nutrition education should include messages about avoiding alcohol or taking alcohol in moderation.
3. PLWHA who present with severe malnutrition should be admitted to hospital for appropriate medical and nutrition care.
4. The MOHSS may need to investigate the need for specialized foods to meet the needs of PLWHA with severe malnutrition and food supplementation for PLWHA who present with moderate malnutrition. Supplementation should be offered as take-home rations through the ART clinics, which may benefit from support of local nongovernmental organizations (NGOs) to assist with distribution. The rations should be shelf stable (for example in the form of a fortified cereal) and supplied on an individual basis with clear clinical entry and exit criteria. This intervention should be piloted and evaluated to determine impact and clarify ration type, quantity, and distribution modalities.
5. The nutritional status of PLWHA in Namibia should be investigated further, using more structured methodology and a larger client sample.

The assessment team recommends the following nutrition-related support and **capacity building for HIV service providers**:

1. Review nursing curriculum content on HIV and nutrition.
2. Train all cadres of staff at the national, regional, district and facility level in HIV and nutrition.
3. Develop tools for integration of nutrition management in ART and HIV care and support.
4. Develop tools for nutrition education with pictures and in local languages to reflect cultural diversity.
5. Provide equipment for measuring weight and height for facilities that lack this equipment and charts for calculating BMI and WFH for all facilities providing HIV services.

The assessment team recommends the following actions to address gaps in **integrating nutrition activities into HIV care and treatment**:

1. Increase nutrition capacity at national, regional, district, and facility levels.
2. Designate a person responsible for nutrition programming in each health facility providing HIV services.
3. Identify nutrition indicators for monitoring and evaluation and incorporate them into the quality monitoring programme at Namibian ART clinics.

1. HIV AND NUTRITION IN NAMIBIA

Namibia's estimated adult HIV prevalence rate of 19.9 percent (MOHSS 2006b) is one of the highest in the world. There is little difference between urban (19.9 percent) and rural (20.0 percent) prevalence rates (MOHSS 2006b). The estimated rate of mother-to-child transmission of HIV is 25 percent (MOHSS 2008). HIV prevalence is unevenly distributed in the country, with three foci of high HIV prevalence: the south (Karasburg and Luderitz), centre (Windhoek and Walvis Bay), and the north (Oshakati, Oshikuku, Outapi, Onandjokwe, Eenhana, Engela, Rundu, and Katima Mulilo). HIV prevalence exceeds 20 percent in all three regions (MOHSS 2006b).

The Ministry of Health and Social Services (MOHSS) is rolling out antiretroviral therapy (ART) across the country. To date 57 percent of adults (33,461) and 91 percent of children (4,386) with advanced HIV infection are estimated to be receiving ART (MOHSS 2008). The number of ART beneficiaries has more than doubled since 1995 (MOHSS 2008).

Namibia is a vast country, culturally and ecologically diverse and with a wealth of natural resources, well-developed infrastructure, and low population density. There are, however, vast income and health inequalities. Namibia has both a private and a state system of health care, and most people in stable employment have access to private health care. Despite large public investment in health and education since independence in 1990, large income and health inequalities, poverty, and a human resource base devastated by HIV are reversing human development indicators (Office of the President 2004). Life expectancy at birth is now 52 years for men and 55 years for women (WHO 2006a).

Undernutrition is also a public health concern in Namibia, responsible for 2 percent of paediatric hospital admissions in 2004–2005. The 2006 Namibia Demographic and Health Survey (DHS) reported that 1.9 percent of children had weight-for-height (wasting) < –3SD and 7.5 percent < –2SD. Low weight for age was also common, with 3.8 percent of children < –3SD in weight for age and 16.6 percent < –2SD (MOHSS 2006a).

HIV and undernutrition are interrelated not only epidemiologically but also physiologically, with each condition worsening the other. For many PLWHA, HIV causes or aggravates undernutrition through reduced food intake, increased energy needs, and poor nutrient absorption. Undernutrition in turn can hasten the progression of HIV and worsen its impact by weakening the immune system, increasing susceptibility to OIs, and reducing the effectiveness of treatment. WHO (2007) states that energy needs for PLWHA without HIV-related symptoms increase by 10 percent, while energy needs for symptomatic adult PLWHA increase by 20–30 percent. Studies show that PLWHA with poorer nutritional status are at greater risk of mortality. HIV can also have social and economic impact; for example, stigma resulting from family and community non-acceptance, increased poverty, reduced household capacity to respond to crises and ongoing needs, and absence or illness of parents who are thus unable to care for children.

Optimal nutrition is a basic need and crucial to the realization of Vision 2030, Namibia's National Development Plan 3, and the Millennium Development Goals. Undernutrition plays a huge role in the global burden of disease and a range of cost-effective health sector interventions to improve nutrition are available, making nutrition interventions one of the best approaches to improving health service efficiency and quality. The nutritional status of children under five improved from 28 percent in 1992 to 24 percent in 2000 for stunting and

from 26 percent to 24 percent for underweight. No significant change was seen in wasting levels.

The MOHSS Food and Nutrition Subdivision is mandated to plan, implement, monitor, and evaluate food and nutrition activities for the improvement of the nutritional status of communities. The Subdivision's goals are to improve the nutritional status of the Namibian population, with special emphasis on children, women and PLWHA, to reduce morbidity and mortality due to or associated with undernutrition.

The Food and Nutrition Subdivision comes under the Family Health Division, Directorate of Primary Health Care. The Food and Nutrition Subdivision is responsible for food and nutrition issues and supporting interventions to prevent nutrition-related diseases. Since its inception in 1992, the Subdivision has focused its activities on growth monitoring and promotion; breastfeeding promotion, support, and protection; and prevention, control, and treatment of micronutrient deficiencies, such as vitamin A and iodine deficiency. In response to HIV, the Subdivision has extended its focus to nutrition care of PLWHA.

There is no provision for dieticians at district hospitals or dieticians/nutritionists at regional level. This hampers the implementation of efficient and effective nutrition services throughout the country. The slow process of finalizing and approving policies and guidelines delays the implementation of nutrition activities. A shortage of staff has meant that three of the key positions within the Food and Nutrition subdivision have not been filled. This leads to inadequate follow-up and monitoring of the implementation of activities. Inadequate integration of services at all levels makes it difficult to provide comprehensive services to all patients and the community at large.

The Food and Nutrition Subdivision has achieved the following since the start of the HIV and nutrition programme in 2006**:**

- Development of "Nutrition Management for People Living with HIV/AIDS: A Resource Guideline for Clinical Health Workers"
- Development of a Nutrition and Food Security Assessment Tool.
- Development of the *Nutrition Management with HIV and AIDS: Practical Tools for Health Workers* training manual
- 37 trainers and 158 health workers (in-service, pre-service, counsellors, and University of Namibia lecturers) trained in nutrition management with HIV/AIDS
- At least one registered nurse in each ART clinic trained in nutrition management with HIV
- Integration of nutrition considerations into national HIV/AIDS policy
- Integration of nutrition issues into ART/PMTCT guidelines and training manual
- Integration of nutrition considerations into the paediatric HIV training manual
- Integration of nutrition and infant feeding considerations into roll-out of and training for early infant HIV diagnosis (DNA polymerase chain reaction, or PCR testing)
- Regular integrated supportive supervisory visits, including nutrition
- Regular integrated review and planning meetings with sub-national health staff and other sectors

While many advances have been made in Namibia in HIV prevention, detection, and treatment, the MOHSS acknowledges critical gaps in implementation, monitoring, and evaluation of programmes related to HIV and nutrition. Health care providers in key HIV

service delivery sites (especially ART and PMTCT sites) have limited training, time, or incentive to conduct basic clinical nutrition assessment or recommend appropriate nutrition counselling for PLWHA. Further, the new components and post structure specified by the MOHSS for the Food and Nutrition Subdivision specifies a Chief Health Programme Administrator and three Senior Health Programme Administrators. The Food and Nutrition Subdivision currently is staffed by only one nutritionist (the Chief Health Programme Administrator) working at national level, giving it limited capacity to support staff at the facility level.

2. OBJECTIVES OF THE ASSESSMENT

The 2008 assessment by the MOHSS aimed to answer the following questions:

1. What food- and nutrition-related actions are needed to improve the nutritional and health status of PLWHA in Namibia?
2. What types of support and capacity building do service providers need to provide effective nutrition care and support to PLWHA?
3. What gaps and opportunities exist in HIV treatment and care facilities for integrating nutrition interventions?

The information from this assessment will guide efforts to strengthen the integration of nutrition into HIV interventions, including the development of a national HIV and nutrition programme, a revised and updated training course, counselling and information, education, and communication materials and monitoring and evaluation indicators.

3. ASSESSMENT METHODS

The assessment design was explorative, using qualitative research methods which are particularly appropriate where prior research is lacking and the subject is contextually and culturally bound (Barnett et al 1997). This approach is particularly relevant in Namibia, as despite the country's high prevalence, there is a dearth of research available to guide policy and practice in HIV and nutrition for the Namibian context.

Qualitative methods are appropriate for exploring sensitive topics and understanding the perspectives and attitudes of different groups by enabling them to express the realities of their lives (Eng 1990; Aube, 1991; Pope and Mays 1995). This assessment gathered and analysed the perspectives of both patients and staff. The assessment team used in-depth interviews to explore experiences, beliefs, perceptions, and motivations (Britten 1995). The interviews were complemented by focus group discussions to obtain information about attitudes and behaviours sparked through interaction (Kitzinger 1995) and cross-checked through observation.

Figure 1: Map of Namibia showing HIV and nutrition assessment sites

Data were collected at five ART clinics in five hospitals (figure 1), including Gobabis State Hospital, Katutura State Hospital (and Katutura Health Centre),

Oshakati Intermediate Referral Hospital, Katima Mulilo State Hospital, and Walvis Bay State Hospital. These sites were selected to include regions with high and lower HIV prevalence and a cross-section of representative cultures in Namibia in both urban and rural settings.

Each ART clinic in Namibia follows a large number of patients. The National Guidelines for Antiretroviral Therapy (MOHSS 2007) state that adolescents and adults should start highly active antiretroviral therapy (HAART) when they 1) reach WHO clinical stage 3 or 4 HIV disease regardless of CD4 count or 2) have a CD4 count < 200 cells/mm3 (< 250 in pregnant women) regardless of WHO clinical stage, and 3) meet social eligibility criteria. At our five assessment sites, the percentage of all patients tested positive for HIV who are on ART ranged between 33.2 and 63.3 percent. The high proportion of patients requiring ART indicates that many patients present at clinics at an already advanced stage of illness. Table 1 lists the HIV prevalence, number of patients, number of patients on ART, percentage of female patients, and characteristics of each assessment site.

Table 1: HIV and nutrition assessment site patient loads and characteristics

Site/ region	HIV prevalence (%)	Number of patients	Number (%) on ART	% of female patients	Description
Gobabis Omaheke Region	7.9	1,873	622 (33.2)	64	Arid and mostly rural area with poor food security in the east
Windhoek* (Katutura Health Centre) Khomas Region	21.1	2,025	1,156 (57.1)	50	Highly populated poor urban area in the capital in central Namibia
Walvis Bay Erongo Region	22.1	3,606	1,693 (46.9)	56	Highly populated urban port/desert area on the coast, also servicing neighbouring rural areas
Oshakati Oshana Region	27.1	8,952	5,671 (63.3)	62	Highly populated agricultural area in the north, with both urban centres and rural areas
Katima Mulilo Caprivi Region	39.4	4,263	2,810	68	Highly populated agricultural border area in the north with one main urban centre

* The assessment team visited both the Katutura State Hospital Communicable Disease Clinic for ART patients and the Katutura Health Centre in Windhoek. Because the ART clinic has a large client load, patients from other regions are encouraged to go instead to the Katutura Health Centre.
** Namibia MOHSS Report of the 2006 National HIV Sentinel Survey.

Study tools included separate question guides for focus group discussions and in-depth interviews with patients and each cadre of staff. Site audit tools were developed to collect quantitative context-setting data and anthropometrics. A team of Namibian and international researchers designed all data collection tools. All tools were tested at the initial assessment site and then modified as appropriate.

The assessment team included the Chief Health Programme Administrator of the MOHSS Food and Nutrition Subdivision, a senior lecturer from the University of Namibia Faculty of Medical and Health Sciences with expertise in qualitative methods, and a consultant with expertise in HIV and nutrition in Africa and the use of qualitative methods. The team used qualitative methods to explore sensitive topics such as HIV and nutrition in the Namibian context. The use of multiple methods—interviews, focus group discussions, and observation—allowed for triangulation of the data. The team regularly reviewed the transcripts and observation records to tailor the question guides to capture all emerging themes.

Staff were purposively selected for interviews and focus group discussions to reflect the various cadres of HIV service providers, including principal medical officers, chief medical officers, doctors, nurses, community counsellors, pharmacists, and social workers. Between April 1 and April 30, 2008, the team conducted 24 staff interviews, 12 patient interviews, and 5 focus group discussions at the assessment sites. Patients were interviewed in their own languages (Afrikaans, Oshivambo, and Silozi), with the interviews later translated and transcribed into English. Staff interviews were carried out in English and transcribed. Interviews and focus group discussions were tape recorded after obtaining the participants' consent. No reward was offered to staff or patients for their participation. No patient or staff member refused to be interviewed. One patient who agreed to be interviewed but refused tape recording consented to the team taking notes during the interview.

The team analysed the data using thematic content analysis (Green and Thorogood 2004). The information was then cross-referenced using interview, focus group discussion and observation data and between staff and patient reports to cross-check themes and findings.

Informed consent was obtained from all participants, and the process of data collation, analysis, and presentation was confidential and anonymous. The MOHSS Research Management Committee granted ethical clearance for the assessment.

4. ANTHROPOMETRIC RESULTS

The team measured the heights and weights of 319 of the non-pregnant adult patients who arrived at the assessment sites on the day of the visits and calculated their BMI using the formula (weight in kg/height in m^2). While these patients were not a representative sample, their measurements gave an indication of the anthropometrics of a range of patients presenting at the clinics on the assessment days, including older and younger patients, men and women, and patients on and not on ART.

Of the 319 patients measured, 60.8 percent (194) were female and 39.2 percent (125) were male. Their mean age was 38.1 years (SD 9.1). The youngest person measured was 17, and the oldest was 70. Mean BMI was 21.6 (SD 4.0). This is within the normal range for BMI (18.5–24.9). The lowest BMI recorded was 13.7, and the highest was 42.3. Table 2 lists the mean BMI of the patients measured at each site and the percentage presenting with severe malnutrition (BMI <16), moderate malnutrition (BMI 16.0–18.4), normal nutrition (18.5–24.9), and overweight or obesity (BMI 25+).

Table 2: BMI results by assessment site

Site	No.	# (%) on ART	Mean BMI (SD)	Severely mal-nourished (BMI <16) (%)	Moderately or mildly mal-nourished (BMI 16.0–18.4) (%)	Normal (BMI 18.5–24.9) (%)	Over-weight or obese (BMI 25+) (%)
Gobabis	50	36 (72)	21.4 (3.8)	0 (0)	14 (28.0)	28 (56.0)	8 (16.0)
Windhoek	56	48 (85.7)	22.2 (4.0)	0 (0)	8 (14.3)	34 (60.7)	14 (25.0)
Walvis Bay	57	36 (63.2)	23.7 (5.1)	0 (0)	8 (14.0)	35 (61.4)	14 (24.6)
Oshakati	97	88 (90.7)	20.4 (2.8)	6 (6.2)	14 (14.3)	71 (73.2)	6 (6.2)
Katima Mulilo	59	48 (81.4)	20.9 (3.8)	2 (3.4)	12 (20.3)	38 (64.4)	7 (11.9)
Total	319	256 (80.3)	21.6	8 (2.5)	56 (17.6)	206 (64.6)	49 (15.4)

The majority of PLWHA patients (64.6 percent or 206/319) had a BMI within the healthy range. This would indicate that most were managing to achieve and maintain healthy body weight. The results showed that 20.1 percent of patients (64/319) were undernourished, including 2.5 percent (8/319) who were severely malnourished, and 17.6 percent (56/319) were moderately or mildly malnourished. Undernutrition may put patients at increased risk of developing OIs.

Overweight and obesity were present in 15.4 percent of patients (49/319), with 11.9 percent (38/319) overweight and 3.4 percent (11/319) obese. Overweight or obese patients may be at increased risk of developing diabetes, cardiovascular conditions, and hypertension. (This assessment did not assess prevalence of non-communicable diseases.)

Figure 2 shows that a much higher proportion of the overweight or obese patients were women (91.8 percent or 45/49).

Figure 2: BMI categories by gender

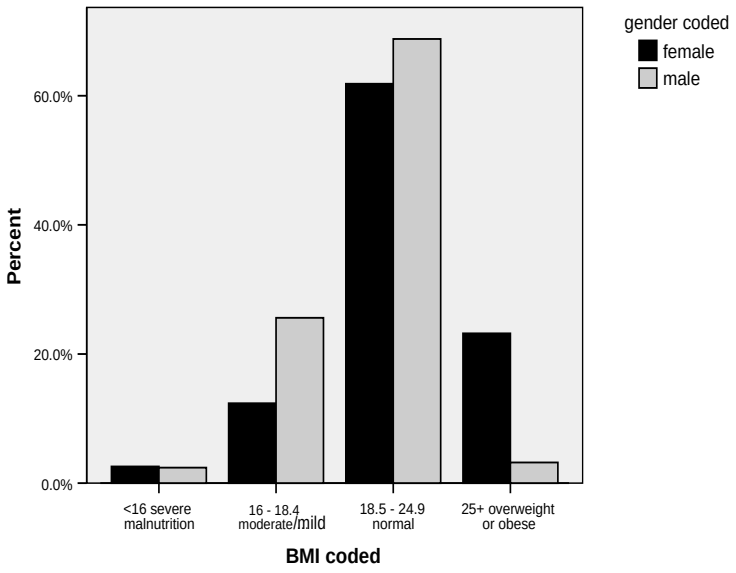
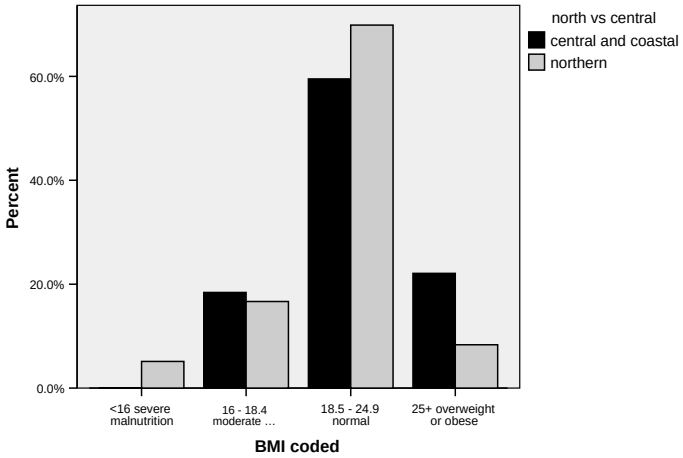


Figure 3 shows that overweight and obesity were less common in the north (Oshakati and Katima Mulilo) than in the central, eastern, and coastal regions. Patients in the eastern, central, and coastal regions had a higher risk of obesity than those living in the north. Moreover, all the severely malnourished patients measured in this assessment lived in the north. Severe malnutrition is likely to be secondary to low CD4 count and OIs in this population, and higher unemployment and poverty may also contribute to food insecurity.

Figure 3 BMI categories by location



Finally, severe malnutrition was more common among patients on ART (2.7 percent or 7/256) than those not on ART (1.6 percent or 1/63). Moderate malnutrition was more common among patients on ART (22.2 percent or 14/63) than those not on ART (16.4 percent or 42/256).

While these results offer insight into patterns of malnutrition among HIV patients at these sites, they should not be used to draw conclusions about the population of HIV patients in Namibia because the sample of 319 patients measured was not a representative sample.

5. QUALITATIVE RESULTS AND DISCUSSION

The assessment team generated the following themes from the data analysis: 1) food security and livelihoods, 2) gender, HIV and nutrition, 3) culture, diversity and diet, 4) nutrition, infection, and response to treatment, and 5) resources and capacity of service providers. The following sections focus on strengths, gaps, and opportunities in each theme.

5.1 Food Security and Livelihoods

Strengths, gaps and opportunities in the area of food security and livelihoods are described in this section.

5.1.1 Strengths

Staff and patients interviewed reported many examples of resourcefulness in increasing food security. Patients at Oshakati fished in the flood waters or *oshanas*, and patients at Katima Mulilo collected wild fruits. People mentioned sun-drying foods such as meat, fish, mopani worms, and spinach to increase food security. Sour milk was commonly drunk, and high-protein foods were common in patient diets. All patients reported eating meat, chicken, fish, or beans the previous day in the 24-hour dietary recall. Although empirical evidence is lacking to confirm this, the high-protein content of the diet may protect against undernutrition. Further research in this area is warranted.

Most patients and staff reported that patients shopped in local open market, where prices were generally lower than in supermarkets. Many patients, particularly in the north, grew their own vegetable gardens, including such crops as beans, squash, millet, and maize. In the east, central, and coastal regions, people who grew their own food tended to be Oshivambo speakers originally from the north. This may be because fruit and vegetables are culturally familiar to Oshivambo-speaking people and they have the agricultural skills and experience to grow them successfully.

Staff members and patients reported that some patients had access to clean, safe water through municipal water piped into their homes or community boreholes.

Staff were aware of the importance of good food security to a healthy diet, and most were sending clear messages about eating locally available foods. A male doctor reported, *Yeah, they are eating their traditional foods, like the millet and the mopani worms. We encourage them to eat the locally available food. They don't need to struggle and go to the shops.*

5.1.2 Gaps

Most of the patients interviewed reported poor food security, and the 24-hour dietary recall showed poor dietary diversity. Patients rated access to healthy food as the second most important concern after unemployment. They did not commonly eat fruit and vegetables and perceived them as expensive, although healthy. These foods may be culturally unfamiliar to some Namibians. The cost of fruit and vegetables per serving is roughly one-half the cost of milk per serving, one-third the cost of fish, and about one-fifth the cost of meat (table 3).

Table 3: Cost per week of four servings per day of various foods in Namibia (one serving/person/day for a family of four)

Food item	Meat	Fish	Milk	Fruit and vegetables
Cost per week	N$100–150	N $70 - $100	N$70–100	N$30–50

Source: Market visits by the assessment team

The Food and Nutrition Guidelines for Namibia recommend eating fruit and vegetables every day, and fruit and vegetables are one of the four food groups in the guide. Low intake of fruit and vegetables, coupled with the refined maize eaten by many patients in urban areas, may contribute to low-fibre diets and risk of cardiovascular disease and cancers of the gastrointestinal tract (Greenwald et al 2001; Brunner et al 2008). Emerging overweight and obesity among PLWHA in Namibia may further compound this risk.

Although some patients reported having access to clean water, there were other reports of problems with water quality. Some people said they bought water directly from the municipality at a high cost (between N$200 and N$500 per month), and others said they bought or begged water from neighbours. Water may then be stored in open containers and could become contaminated. Access to clean water is essential for PLWHA to prevent infections including diarrhoeal illness. For households with children, access to clean water is critical because of the risks of diarrhoea (MOHSS, 2006) and to support safer artificial feeding for children of HIV-positive mothers who choose not to breastfeed. Some patients and staff mentioned that the high cost of water limited opportunities to grow gardens at home, especially in urban areas.

A male community counsellor commented, *Even I try to give the ones that are farming advice to grow a small garden. Talking about water it is always a problem. They say they try, but there are times when they cannot afford to pay for water, then everything is go [sic] down.*

The main priorities mentioned in in-depth interviews and focus group discussions were food and employment. Patients felt there was a strong link between food and income security. One male patient interviewed in Katutura said, *I have no power or energy to work. Thus I am unemployed. I have not money to buy food. Food is a big problem*. Another man in Gobabis said, *In the past year there were times when I did not have enough food. I became sick and had to stop working. I did not have enough money to buy food. I had to beg from friends and relatives. Ou-re.*[1] Many patients and staff reported that family members were supporting PLWHA. In some cases many family members and friends depend on the income of a relative with a higher-paying job. While this type of support is helpful, not all patients can rely on it. Some reported that poverty, disease, stigma, and alcohol misuse had eroded community capacity to respond to need. *It is difficult to get food*, said one man in Katutura. *I am deserted by my friends*.

Infant and young child feeding is another important medical and food security issue. With the country's high HIV prevalence and MOHSS advice to practice early weaning, infants and young children need good food security and nutritional adequacy. This area remains challenging for health care providers and mothers.

5.1.3 Opportunities

Continued patient nutrition education on eating a variety of inexpensive, locally available foods is warranted. Where fruit and vegetables are not grown, these may be purchased at open markets.

ART clinics could refer patients to other ministries, food for work, community-based organisation, faith-based organisation, and local NGO services to improve employment, social security, and food security (e.g., Directorate of Emergency Management food support, MAWF community gardening initiatives, or the Ministry of Environment and Tourism cultural village programme to generate income from tourism).

Therapeutic feeding of severely malnourished PLWHA and supplementary feeding of moderately malnourished PLHIV would require a comprehensive planning, implementation, and monitoring system. Culturally appropriate, affordable, and shelf-stable food products (e.g., nutritional pastes and fortified cereals) would have to be identified. These products should be nutritionally adequate to meet the needs of severely or moderately malnourished people, with guidelines to ensure safe preparation by patients and accurate forecasting and procurement by health facilities. A plan should be developed at the national level for the acquisition, storage, and delivery of therapeutic and supplementary foods.

[1] The concept of *ou-re* in Namibian society means borrowing without the intention or expectation of repayment.

5.2 Gender, HIV, and Nutrition

Gender is an important issue related to food and nutrition in the experience of PLWHA. In male-only focus group discussions, men reported that they had little control over their diet and simply ate what was prepared for them by the women in their families.

Men are under-represented at ART clinics, particularly in the north of Namibia, where women made up 62 percent of the clinic census in Oshakati and 68 percent in Katima Mulilo. Staff and patients speculated that men may be working and attending private clinics or may not want to wait all day in the queues. Staff also mentioned that women were more likely to be tested and referred for treatment through their attendance at antenatal clinics.

The main reason, however, that both staff and patients felt that men did not attend HIV services was stigma associated with HIV. An ART clinic doctor noted, *In general men come late. They come when they are in wheelchairs, they are finished. I think we are still having an issue of stigma yeah, and men do not want to lead.* This situation was said to be improving, however. In Oshakati the Principal Medical Officer said that in the past year the proportion of males attending the ART clinic had doubled. Following a 2007 national conference on male issues in HIV, the Oshakati clinic piloted an intervention to encourage men to come forward for testing. One of the clinic's male doctors reported, … *at the end of 2007, we had almost 60 percent, that was the number of patients that were female, almost 12 percent were children, and the rest they are men, almost 30 or 28 percent. We are still having the situation of male involvement. But the situation has improved a bit. Now men are coming … because we had to organize a conference to target this issue, to talk about it … We had to train some recruiters from the traditional authorities to motivate them to bring people. Now also, some HIV-positive patients, they are to sensitize people in the community. If a woman is married, we always make sure she brings the husband … when we invite them, as a medical professional, we will send an official invitation to him to come to this clinic.* Male PLWHA, who frequently present late to the clinics, may be at increased risk of undernutrition because of advanced disease and opportunistic infections.

Women living with HIV face different problems related to nutrition. They also experience stigma that may lead to fear of disclosure. A doctor told the assessment team, … *we also have some cases of divorce. The woman comes, she is pregnant, she has tested positive, she goes to disclose to the husband. There is a divorce, we have some cases like that*. A registered nurse in another facility reported that HIV-positive women may be reluctant to choose replacement feeding for their infants because of stigma if they are not breastfeeding. *Along with the issues of stigma is this issue of not wanting to disclose. Because some of them they have not even disclosed to their husbands. So it would be difficult for someone coming from the maternity ward to use infant formula when you have got your two breasts*.

Stigma may be a factor in the prevalence of overweight and obesity among clinic patients. Patients and staff reported that thin people were assumed to be sick and possibly HIV infected. However, women seen in the clinics were more likely than men to be overweight or obese. This may be related to a cultural preference for larger body types in women. One woman staff member reported that she was obese but her husband discouraged her from trying to lose weight. So, she said, *I am motivated to stay fat*. A member of the assessment team noted the cultural practice of paying for wives with cows and the preference for larger women, quoting a bridegroom's perspective: *When I see her walking, I want to see her body parts shaking, then I can see the value of my cows when I look at her*.

5.2.1 Opportunities

Clinic staff as well as MOHSS staff at district, regional, and national levels must be sensitised on the influence of stigma and cultural ideals on nutrition and diet and use sensitive care practices in this context. Programme, policy, training, and educational resource design should take these factors into consideration. Further research into the effects of gender on the prevalence of underweight, overweight, and obesity and on gender and body image could be undertaken in Namibia.

5.3 Culture, Diversity, and Diet

Namibia is a culturally diverse nation, and this diversity was reflected among the patients participating in the assessment. Included in the interviews and focus group discussions were people who spoke Oshivambo, Herero, Silozi, Damara, Afrikaans, Rukwangali, and San languages. Culture and diet were closely related, and typical diets varied across the five sites. Dietary intake and food preferences were closely tied to environment. At Gobabis, an arid ranching area, food intake predominantly consisted of sour milk and meat with maize porridge, whereas in the northern sites patients were more likely to eat wild fruits, millet, and river fish. Patients in urban areas, including Walvis Bay and Windhoek, were more likely to eat processed foods purchased from supermarkets, including Top Score, a refined maize cereal.

5.3.1 Gaps

Across the five assessment sites, fruit and vegetables were not well represented in the diets.

Staff at each clinic reported concern that some patients took privately purchased nutrition supplements. One pharmacist reported that up to 30 percent of patients were taking some form of these supplements, which are available in Namibia at supermarkets, department stores, and pharmacies. A pharmacy visited by the assessment team sold a one-litre bottle of water infused with "cancer bush extracts". The label on the supplement, produced in South Africa, said, *This medicinal plant fights AIDS* and was *recommended by traditional hea*lers. The pharmacy assistant said that the supplement was very popular and that she drank it herself. Staff were concerned about patients spending money on supplements that were unnecessary and potentially harmful.

Alcohol is an important part of the social fabric of Namibian society. Friends and families often gather in "shebeens", which are pubs located prolifically throughout poorer communities in Namibia. Staff and patients both mentioned alcohol as one of the biggest problems in their communities. *Oh, it's an open secret. Yes, alcohol intake has always been a concern*, said a male doctor. Alcohol is advertised on large billboards throughout the country, and the price of alcohol in shops and restaurants is similar to, or less expensive than, that of water or soft drinks. Patients reported that most alcohol is produced at home. Some patients commented on alcohol's effect on HIV and nutrition. A man in a focus group discussion in Oshakati said, *This is the problem, one, you can for forget your medication, two you can lose your appetite, three you can make the wrong decisions, four you might have sex without a condom*. Another in the same group noted, *You will continue not eating and only wanting alcohol*. A male community counsellor pointed out drinking's contribution to promiscuity and risk of HIV infection. *Alcohol? It is not good. Because others, you will just find that alcohol is their food. Once he take alcohol, he just sleep around. In the bar, whatever. He*

does not choose who is better for him. Provided he is having money, so he will make sex with her.

Alcohol is clearly a concern for both staff and patients and may affect adherence to ART, HIV transmission, dietary intake, and household funds available to buy food. There also is some concern that food-insecure patients may drink alcohol to have something in their stomach to prevent the side effects they experience from taking medication on an empty stomach. Patients may use alcohol as a supplement; as it is widely available and inexpensive. Alcohol does not support the nutritional needs of PLWHA, can interfere with ART, and may lead to-risk behaviours which conflict with living positively with HIV.

5.3.2 Opportunities

HIV and nutrition patient education and counselling materials should emphasize the importance of dietary diversity, making use of the recommendations in the Food and Nutrition Guidelines for Namibia. This should also be a focus of practical, skills-based training for health care providers and counsellors.

Patients should be counselled on the potential risks of dietary supplements which are not prescribed by clinic staff. At the national level, regulations and legislation controlling the production, sale, and marketing of these products should be investigated to ensure that PLWHA are protected. Staff should also continue to counsel on the risks of drinking alcohol for PLWHA, especially those on HAART.

5.4 Nutrition, Infection, and Response to Treatment

This section highlights strengths, gaps and opportunities identified from the assessment.

5.4.1 Strengths

Staff and patients interviewed reported that the ART programme was working well to improve the general health and nutritional status of PLWHA. Some staff reported that they saw OIs regularly, while others said that these were now rare. All staff reported that OIs generally resolved with good adherence to ART. One nurse in Katima Mulilo reported that when the ART programme first started, patients were very sick and often lay down on the floors of the clinic while waiting for care, but now that the programme was in its fourth year, most patients were healthy and doing well. This sentiment was echoed in Windhoek, where one registered nurse said, *First when we started the clinic the patients were suffering. They were so unhappy. But after one year I can see a difference.*

All patients and staff interviewed reported that most patients gained weight on ART. A doctor commented, *They do gain weight. Definitely. The norm almost. You can actually take the booklets [Adult Health Passports] and see the change for almost everyone.*

Staff and patients reported that adherence to treatment of patients attending the clinics was generally good, with few patients on second-line therapies. Defaulting, however, continues to be an issue, with some patients confirmed defaulters and others lost to follow-up.

Patients valued good nutrition highly, linking healthy food with strong immunity.

Patients also reported that they saw food as part of their treatment and that healthy food and medication worked synergistically. They were motivated to eat well and to learn more about nutrition. Male patients in the focus group at Katutura State Hospital said, *Food, it is very important because it will boost up your immune system … OK, it is important to become well and to grow strong …We are taking medicines, and medicines are working together with food.* In Oshakati, one male patient said, *The food and the medication can not be separated, because food is part of the treatment.*

5.4.2 Gaps

Staff interviewed saw nutrition primarily as a food security issue. This perception shows an understanding of some social aspects of food and nutrition, including poverty and food insecurity, but staff in a clinical setting should recognise the interaction between nutrition and infection.

The ART clinics visited also treat pregnant women who qualify for ART, in partnership with the PMTCT programme. Nursing staff provide infant feeding counselling. Some of the nurses said they had received training in infant feeding counselling, while others reported that they were giving the counselling but had not been trained in infant feeding and HIV. The National Policy on Infant and Young Child Feeding states that staff should "Counsel and support HIV-positive mothers to care for themselves and practice one of the following child feeding options safely:

- Exclusive replacement feeding using infant formula or modified cow/goat milk, where they are affordable or are available in the home; and
- Exclusive breastfeeding for the first 4 months and abrupt weaning to alternative feeding options".

As this is a national policy, rather than guidelines, no further explanation is given on what those "alternative feeding options" should be. Guidelines are needed to clarify this area. Clinic staff reported that weaning mothers generally fed their children family foods, including primarily maize or millet porridge, and milk when available, fish, fruit, and vegetables. Weaned children were said to drink water for hydration. This diet may not be nutritionally adequate for infants and may put children at increased risk of undernutrition and diarrhoeal diseases, depending on water quality.

The consensus statement from a 2006 WHO technical consultation on HIV and infant feeding states that "At 6 months, if replacement feeding is still not AFASS,[2] continuation of breastfeeding with additional complementary foods is recommended. All breastfeeding should stop once a nutritionally adequate and safe diet without breast milk can be provided" (WHO 2006b). Further investigation of the adequacy of local complementary foods as well as water safety will be necessary to assist with designing national Guidelines for Infant and Young Child feeding which best fit with international research and guidance and also the realities of the Namibian context.

Most staff members interviewed were familiar with the National Policy on Infant and Young Child Feeding but reported that they gave mothers different advice on the time of weaning, varying from 3 to 6 months. When asked whether mothers had problems with abrupt

[2] Affordable, acceptable, feasible, sustainable, and safe.

weaning, one male doctor said, *Usually I tell them during the first 2 months or 4 months that you are going to breastfeed, from the first month try to make him used to the bottle. You know, give the mixed feeding, mix the artificial and the breastfeeding—try that, and that when you come to 4 months, you won't have problems.* Studies have linked mixed feeding practice with increased mother-to-child transmission of HIV.

The findings from this assessment indicate that a review of both the National Policy on Infant and Young Child Feeding and staff interpretation and implementation of the policy are urgently needed.

Clinic staff were aware of the issue of overweight and obesity. Doctors at several clinics visited reported that they co-managed diabetes and hypertension in overweight and obese PLWHA. Patients were unconcerned about overweight and obesity, however, and seemed unaware of the risks. Several patients interviewed who were already in the healthy or even overweight BMI range reported that they would like to continue to gain weight. A male patient at Katima Mulilo was admitted to the ART programme weighing 45 kg. He reported that since he entered the programme, he had changed his diet to include more variety and was eating more regularly and gaining weight. He had more than doubled his weight and said, *When I pick up the weight it shows me that it is working, the ARV is working.* Weight gain is also valued because of the HIV-related stigma associated with wasting.

5.4.3 Opportunities

Opportunities exist to create awareness of the clinical as well as dietary (and ART) aspects of nutrition in staff nutrition training. Further education of medical and nursing staff on the clinical applications of nutrition may improve the quality of patient care. Although most in-service training in Namibia is conducted separately for doctors and nurses, Integrated Management of Childhood Illnesses (IMCI) training has both cadres together. It would be valuable to train staff as a team, including both doctors and nurses in the same sessions to build team working skills and mutual respect for roles in the clinic. This would allow integration of nutrition into the routine clinical care offered by doctors and nurses at the ART clinics.

The development of guidelines and a training package to operationalise and implement the National Policy on Infant and Young Child Feeding is warranted.

Patients would benefit from nutrition education on the risks of both undernutrition and overnutrition and the importance of good nutrition and a healthy lifestyle to maintain a healthy body weight (Cimoch 1997). A graph for health care providers to plot individual patient BMI information could be included in the Adult Health Passports. This would help monitor patient health and nutritional status and serve as a nutrition education tool.

5.5 Resources and Capacity of Service Providers

This section summarizes the strengths, gaps and opportunities in the area of resources and service provider capacity for HIV and nutrition services.

5.5.1 Strengths

Each of the ART clinics the assessment team visited had a team of highly qualified staff, including at least one doctor, one pharmacist, and one registered nurse.[3] Most of the clinics had more than one doctor and registered nurse on staff, along with several enrolled nurses and community counsellors and a data entry clerk. Additionally, the hospital social workers support the ART clinics by linking patients to government or NGO services in the community, where available.

The community counsellor initiative was introduced by the MOHSS in 2004 with Centers for Disease Control and Prevention (CDC) and U.S. President's Emergency Plan for AIDS Relief (PEPFAR) support to relieve the burden on clinical health care providers. The community counsellors receive 12 weeks of training (6 weeks in the classroom and a 6-week practicum) given by the Namibian Red Cross Society (NRCS), Lifeline/Childline, I-TECH, and the Namibia Institute of Pathology. All of the counsellors working in the ART clinics in Namibia are trained by the NRCS to provide supportive, adherence, infant feeding, and couples counselling. As of June 2006, 327 community counsellors had been trained.

The community counsellors at Katutura State Hospital Communicable Disease Clinic, which provides ART to PLWHA, are employed by either the MOHSS or the NRCS, and many have been trained by I-TECH in a 3-week course that includes nutrition assessment, mainly for paediatric clients. They chart weights of adult patients but "would need permission from the nurses to compute BMI". They refer patients who are "chronically hungry" to social workers, the NRCS, or the NGO Lironga Eparu for social and nutrition support (HIV-positive pregnant and post-partum women are referred to the NGO Mt. Sinai Centre for infant formula and counselling on replacement and complementary feeding).

All ART centres in Namibia give free treatment, although fees are charged for HIV tests and printouts of results. At Katutura State Hospital in Windhoek, ART patients see doctors every 3 months but pick up their medications at the pharmacy each month. Patients carry Adult Health Passports, or mini-medication records. Laboratory results and medical records are computerized, and clinic data are sent to the MOHSS and the CDC. Each patient has a Patient Care Booklet, which is an HIV care/ART card kept at the clinic, from which the database is regularly updated.

All of the clinics visited by the assessment team had weighing scales, and some had balance scales with attachments for measuring height and weight. Some of the clinics also had televisions with DVD players for showing health education videos in the waiting rooms. All of the clinics had health education posters on display. Although none of these posters focused on nutrition, one clinic had developed its own nutrition poster. This innovative endeavour shows that staff value nutrition as an important part of their service provision.

In 2006 the MOHSS, with technical assistance from I-TECH, developed a 4-day training course on HIV and nutrition entitled *Nutrition Management with HIV and AIDS: Practical Tools for Health Workers*, along with a handbook entitled "Nutrition Management for People Living with HIV/AIDS: A Resource Guideline for Clinical Health Workers". Between 2006

[3] I-TECH clinical mentors in each region provide on-site clinical training to medical officers on treatment of HIV cases according to Namibian national guidelines and develop standard operating procedures for HIV clinical care in collaboration with other hospital departments.

and April 2008, 260 nursing staff had been trained in the 4-day course, and a further 36 staff had been trained as trainers to facilitate the training.

5.5.2 Gaps

The MOHSS Food and Nutrition Subdivision is staffed by only one nutritionist (at the rank of Chief Health Programme Administrator) at the national level. There are no nutritionist positions at the regional, district or facility levels in Namibia. No staff members in the clinics have been identified as responsible for implementing and monitoring HIV and nutrition activities. Furthermore, the country's HIV and nutrition programme lacks clear objectives and activities, and nutrition-related indicators are not used as part of monitoring and evaluation.

Although each clinic visited by the assessment team had a good number of well-qualified staff and clinics were generally well organized, the number of patients is high. In some cases patient numbers overwhelm clinic capacity, leading to long waiting times. In several clinics patients were standing in corridors because the small waiting rooms could not accommodate them. In Windhoek the ART clinic pharmacy has staggered times like an outpatient clinic, but patients usually show up all at once. Staff say that the waiting rooms are usually full of patients beginning at 7:00 am, and some patients wait up to 5 hours to receive their medications.

Most of the staff in the clinics visited reported that they had not been trained in HIV and nutrition or had received such training in pre-service or in-service training many years ago. All cadres of staff said that this training was urgently needed and would be welcomed. Most nurses working in Namibia have been trained through either the University of Namibia or the National Health Training Centre. The University of Namibia revised its nursing curriculum in 2007, and nutrition is included. The subject of nutrition is taught by the Education Faculty rather than the Medical Faculty, however, and therefore may lack some of the more clinical aspects of HIV and nutrition. The 4-day MOHSS training on HIV and nutrition has been limited to nurses. Some nursing staff mentioned that they had received training in HIV and nutrition as part of their training on ART. The ART training includes a 2-hour session on nutrition delivered by the Chief Health Programme Administrator of the MOHSS Food and Nutrition Subdivision. I-TECH conducts two training courses through its clinical mentoring programme: training on the use of the National Guidelines for Antiretroviral Therapy and 2) training of doctors on comprehensive paediatrics HIV care.

Ensuring training of staff working directly with patients at the ART clinics and maintaining a high level of expertise in HIV and nutrition are challenging. Clinic staff are highly mobile. Some may rotate between departments within a hospital, move to other districts, or be promoted to management positions, eroding capacity in the ART clinics. Although this policy has important benefits in ensuring that staff are up to date in a variety of clinical practice areas, it also increases the need for frequent training.

Because Namibia does not have a medical degree programme, all the country's doctors are trained abroad. This means that the level of pre-service training in HIV and nutrition for doctors varies by location and area of study. Although most staff interviewed for this assessment reported that they felt nutrition was important and that they tried to include nutrition counselling in their care provision, some doctors felt that nutrition was not part of their role as clinicians.

Nutrition assessment of PLWHA clients is critical to determine nutritional status, dietary intake, and physiological needs such as HIV-related symptoms and drug side effects. It provides information that determines the content of counselling and other interventions to improve the quality of the diet and the effectiveness of ART and reduce morbidity and mortality. Nutritional status is determined by measuring height and weight, calculating WFH for children, and measuring mid-upper arm circumference (MUAC) for children and by measuring MUAC or calculating BMI for adults.

Most nurses in the ART clinics in Namibia weigh patients but do not measure height for adult clients (there is a space for height for children on the CDC clinic form). In most clinics visited during the assessment, weight was tracked on each clinic visit and recorded in the Patient Care Booklets and Adult Health Passports. WFH or BMI are not calculated or used to diagnose undernutrition or overnutrition. Several of the nurses interviewed were not familiar with BMI. Two of the doctors reported using BMI to diagnose and monitor overweight, but not undernutrition or overnutrition. Several doctors reported that they were concerned when a male patient's weight dropped below 60 kg or a female patient's weight dropped below 50 kg.

Staff interviewed reported using weight for several functions in the clinic. First, weight is used to assess dosing requirements for medications. Weight loss of >10 percent also is used as a staging criterion for initiating ART Finally, staff saw unintentional weight loss among patients on ART as a warning sign of problems with adherence or emerging OIs. A male doctor noted: *Actually, with the weight loss, we try to find out what is happening with the patient because it might be treatment failure.*

While most staff interviewed by the assessment team reported that they did some HIV and nutrition counselling, both individual and group, patients were less positive in their reports of receiving that counselling. In exit interviews with 36 patients, 67 percent reported that they had ever received individual counselling related to nutrition at the ART clinic, and 31 percent reported that they had ever received group counselling related to nutrition. Only 28 percent reported receiving any information related to food or nutrition on the day of the assessment team's visit. It is important to note, however, that patient satisfaction was high. In the 36 patient exit interviews, 92 percent of patients reported that they were happy with the service they received at the clinic.

A large patient load (nurses at Katutura State Hospital's ART clinic reported 50 or more patients each morning) leaves the nurses little time for counselling. With the CDC treatment-based approach, most counselling is on ART adherence. There is no dietary counselling on symptom management. A male doctor at one of the clinics visited commented, *Our counsellors are trained to counsel on nutrition as well. If you are interested in counselling on nutrition, it is the counsellors really. The doctors, they really don't have time to go into nutrition. We are really hooked to the treatment, and so on, with so many patients to see. We can mention in passing some aspects of nutrition. But to really sit down and go deep into nutrition, the time does not allow*.

Staff providing HIV services reported that they needed tools to conduct both individual and group nutrition counselling and that these were not available.
No posters, flip charts, or brochures specifically focused on nutrition with pictures and text in local languages were visible in the clinics visited during this assessment.

Patients raised several important issues related to their experience of attending the clinics and the challenges they faced. They have to pay transportation expenses for themselves and treatment supporters, as well as the cost of food while waiting at the clinic. Patients mentioned that these costs were becoming more expensive, especially because of the rising costs of food and fuel.

Providing health care for PLWHA in Namibia is challenging because of the vast distances between settlements and low population density. Patients often travel long distances to ART clinics for services. In most cases, the patients interviewed during the assessment had travelled 20–30 kilometres, although staff in Gobabis reported that some patients travel up to 450 kilometres for ART services in their region. This challenge may lead to defaulting. Staff report that approximately 10–20 percent of patients default and that defaulter tracing is difficult, as patients do not all have telephones and often move around the country for work. Further, defaulter tracing is expensive due to the high costs of fuel, vehicles, and staff time. The MOHSS is responding to this issue by decentralizing HIV care and ART services so that ART is offered at health centres in the regions on an outreach basis. Instead of the health centre staff providing ART themselves, staff from the regional clinics travel out to the health centres for this purpose.

5.5.3 Opportunities

Opportunities exist for training both in-service and pre-service staff in HIV and nutrition. Staff at all levels indicated that they needed and would value the training. More staff should be trained in the established 4-day course by the existing trained trainers, and additional trainers should be hired and trained. Training all staff linked to ART clinics, including management staff, in HIV and nutrition could raise the profile of nutrition and ensure nutrition indicators are included in M&E and supervision tools. Data entry clerks in the ART clinics should be included in the M&E planning and training. As data collection for M&E in the ART clinics is done in collaboration with CDC, the question of how best to monitor nutrition will need to be discussed between the MOHSS and CDC.

ART clinic HIV and nutrition service provision may benefit from the creation of a new cadre of staff at the facility level dedicated to nutrition duties. These staff members could be employed at a level equivalent to enrolled nurses to support other staff in providing group and individual nutrition counselling, measuring patient heights and weights, calculating BMI or WFH, and prescribing nutrition supplementation, if the MOHSS policy determines that this is appropriate. It is essential to give nutrition a high profile for all members of staff and to integrate nutrition into clinical and social care provided in the ART clinics. It may be possible to build on the skills of the 36 trainers trained to facilitate the 4-day training course by allowing them to assist with some HIV and nutrition duties, including nutrition assessment, education, and M&E at regional, district, or facility level.

In the in- depth interviews conducted during the assessment, all patients reported that they felt they would benefit from group counselling in HIV and nutrition. A woman in Oshakati commented, "*Yes, you will know the importance of food and how it works. You will also learn and benefit from others. Sharing in ways of coping and what to do*."

The long wait times for ART patients allow plenty of opportunity for health education. Group health education on topics such as HIV prevention and ART adherence is already conducted at the ART sites by both counsellors and nurses and is an excellent opportunity to include or expand on nutrition topics. Both group and individual counselling related to HIV and nutrition should focus on eating a variety of locally available foods in season to obtain a healthy balanced diet at low cost, as well as on symptom management, drug-food interactions, and hygiene.

At the Katutura State Hospital ART clinic, the main waiting room, pharmacy waiting room, and paediatric waiting room each had a television and DVD player. Most if not all health centres are reported to have this equipment, although not always in working order. This is an opportunity for HIV and nutrition education. Innovative and entertaining DVDs could be produced on dietary management of HIV-related symptoms, management of drug side effects, and the reasons for optimal lifestyle choices.

In interviews, some staff reported that they would be interested in reviewing documents and resources intended for patient education on HIV and nutrition. This is an excellent opportunity to get on-the-ground involvement in resource development. These tools should be produced in at least English, Afrikaans, and Oshivambo and piloted with patients from different regions and cultures.

Box 1. Terminology

F75: Therapeutic milk for treatment of severe acute malnutrition, first phase

F100: Therapeutic milk for treatment of severe acute malnutrition for the transition and second phases

Moderate/mild malnutrition: In adults, BMI <16–18.5 or MUAC* 185–210 mm

Severe malnutrition: In adults, BMI <16 or MUAC <185 mm (for pregnant women or PLWHA with oedema, whose weight does not necessarily indicate their nutritional status)

RUF: Ready-to-use food, generally a shelf-stable, macronutrient-dense product with added micronutrients, requiring no preparation

RUSF: Ready-to-use supplementary food, used to treat moderate malnutrition or people requiring nutritional support in addition to their usual diet

RUTF: Ready-to-use therapeutic food, nutritionally similar to F100, used to treat severe malnutrition

Wasting syndrome: Profound involuntary weight loss of > 10 percent of baseline body weight, plus either chronic diarrhoea (at least two loose stools per day for more than 30 days) or chronic weakness and documented fever (for more than 30 days, intermittent or constant) in the absence of concurrent illness or condition other than HIV infection that could explain the findings (such as cancer, tuberculosis, cryptosporidiosis, or other specific enteritis)

* WHO has not established MUAC cut-offs for moderate/mild malnutrition, but the above cut-offs are used by many nutrition programmes.

Patients and several staff members also suggested that inexpensive cafes should be attached to ART clinics so that patients can buy healthy food while they wait for treatment.

6. IMPLICATIONS AND RECOMMENDATIONS

This section describes the policy and programme implications of the assessment findings and makes recommendations with reference to each of the assessment objectives.

6.1 Food and Nutrition Needs of PLWHA in Namibia

Nutrition education and counselling (both group and individual) should focus on healthy eating and maintaining a healthy weight to prevent both undernutrition and obesity. Group nutrition counselling could include cooking demonstrations by community counsellors (with additional specialised training) with locally available, traditional foods, used in simple,

inexpensive recipes. Nutrition education should continue to emphasize avoiding alcohol or drinking in moderation

Severely malnourished adult patients should be admitted to hospital for nutrition treatment and care. The hospital food observed during this assessment was of excellent nutrition quality, including a variety of foods in abundant quantity. Several adult inpatients interviewed at the ART clinics reported eating and liking the food. The MOHSS may need to investigate the need for specialised therapeutic foods to meet the needs of these inpatients. These adult patients are likely to have some OIs as underlying causes of their severe malnutrition and should receive both nutritional and medical care as part of inpatient treatment. Moderately and mildly malnourished patients may benefit from supplementary foods. Supplementation should be offered through the ART clinics (local NGOs might be able to support distribution) and provided as a take-home ration. The ration should be shelf stable; for example a fortified cereal. This ration should be supplied on an individual basis with clear clinical entry and exit criteria. This intervention should be piloted and evaluated to determine impact and clarify ration type, quantity, and distribution modalities.

Both therapeutic and supplementary feeding programmes should have clearly defined entry and exit criteria. If the MOHSS determines that WFH for children and BMI and MUAC for adults should be used as entry and exit criteria, staff will need training in the use, calculation, and practical applications of these measurements. ART staff are accustomed to supplementary feeding linked to food insecurity, and there is some risk that if criteria are unclear or staff do not buy into the concept of undernutrition defined by BMI as a clinical condition requiring urgent medical and nutritional intervention, supplements may be given on the basis of food insecurity.

Hospitals may want to investigate setting up cafes with healthy, reasonably priced foods for outpatients and family members.

6.2 Support Needed by Services Providers to Provide Nutrition Assessment, Counselling, and Follow-up

Training in HIV and nutrition is essential for all cadres of HIV service providers. Training should cover the role of nutrition in HIV, nutrition assessment, clinical aspects of HIV and nutrition, and nutrition counselling. Training should include the interaction between HIV and nutrition; classification of undernutrition and overnutrition using WFH, BMI and MUAC criteria; the role of good nutrition in preventing or reducing the severity of OI, increasing quality of life and delaying mortality; dietary management of HIV-related symptoms, complications related to opportunistic infections and side-effects of medication; locally available, inexpensive foods that can be included in a healthy diet; and the importance of PLWHA maintaining a healthy body weight and active lifestyle. Doctors and nurses could be trained together, with an emphasis on integrating nutrition into clinical care. More community counsellors could be trained in HIV and nutrition in partnership with the NRCS and I-TECH. Depending on MOHSS policy, community counsellors also could be trained to do nutrition assessment and counselling, relieving clinicians from this time-consuming role.

All clinics should have adequate equipment for taking weights and heights, including accurate weighing scales and calibrated height boards. Staff should be trained to do anthropometric measurements, including height and weight and MUAC, and supplied with

tools to calculate BMI and WFH. Biochemical assessment of nutrition-related markers, including haemoglobin and vitamin A status, should be incorporated into care.

Staff should also be trained on integrating nutrition into clinical assessment and care. Health care providers already trained in the 4-day HIV and nutrition course could benefit from short refresher training that is practical, skills based and related to actual implementation in their workplaces. Health care providers who have not been trained in the 4-day course should be trained as soon as possible. The training should target implementers as well as managers and be focused on skills development.

Pre-service training related to HIV and nutrition is also important to create a workforce ready to respond to the needs of PLWHA. The MOHSS could link with the University of Namibia and the National Health Training Centre to revise and develop nutrition curricula for nurses to include HIV and nutrition.

Trained staff will benefit from nutrition education materials that emphasize healthy eating and dietary variety and reflect cultural diversity. The materials should communicate messages using illustrations, with text in local languages (English, Oshivambo, Afrikaans, and Silozi).

6.3 Opportunities to Integrate Nutrition into HIV Services

Although most patients treated at ART clinics have BMI within the healthy range, an important proportion are underweight or overweight. A comprehensive nutrition programme is urgently needed to improve HIV and nutrition care in ART clinics. This programme should have clear objectives and activities, including training and capacity building for staff, tool development for nutrition education and counselling, hospital admission for severely malnourished patients and food supplements for moderately malnourished patients. Nutrition education should emphasize achieving and maintaining healthy weight through activity and healthy eating and avoiding alcohol or taking alcohol in moderation.

HIV and nutrition care provision at ART clinics in Namibia would benefit from being a component of a coordinated and effective national nutrition programme. The national nutrition programme should have clear objectives and activities developed and with input from stakeholders including the National HIV/AIDS/STI Control Programme, ART clinic staff, and local and international organizations and NGOs.
The national nutrition programme should include reviewing and updating existing policy related to infant and young child feeding in the context of HIV and developing guidelines and a training package to operationalise that policy to promote both PMTCT and child health and wellbeing.

It is essential to increase human resources and capacity for nutrition at the facility, district, regional, and national levels. Staff are needed to implement, monitor, and evaluate the national nutrition programme and activities related to HIV and nutrition. Each facility should have a dedicated person responsible for HIV and nutrition activities and monitoring and evaluation.

DVDs could be produced on HIV and nutrition in local languages using local foods, actors, and dramatized stories illustrating food-drug interactions, symptom management, and cooking demonstrations (the MOHSS has produced a cookbook using local foods) for ART clinic waiting rooms that have televisions and DVD players.

CDC is currently assisting the MOHSS in coordinating data collection for quality monitoring at ART clinics. The following nutrition indicators should be included in ART clinic quality monitoring within a computer-based data collection system:

- Percentage of undernourished patients by age (children, adults, and pregnant women) using WFH for children, BMI for non-pregnant adults, and MUAC for pregnant adults
- Percentage of patients receiving food and micronutrient supplements by age (children and adults)
- Infant feeding option (chosen during antenatal care)
- Infant feeding option at 3 months.

In addition to these anthropometric indicators, it is recommended that ART clinics also include indicators measuring coverage and quality of nutrition services and dietary behaviours among clients. The data collection system should be harmonized with all data information systems in the MOHSS; developed in partnership with CDC, UNICEF, and WHO; and integrated into the existing M&E framework in ART clinics.

7. CONCLUSION

The results of this assessment of nutrition in ART clinics in Namibia clearly showed a need for nutrition intervention for PLWHA. Both underweight and overweight are public health problems among ART patients. While staff are well educated and dedicated to their work, most lack recent training in HIV and nutrition. Increased resources, e.g., posters and counselling flipcharts, are needed to implement nutrition counselling and education. A comprehensive HIV and nutrition programme should be planned for Namibia to help patients achieve and maintain healthy body weight by integrating nutrition into both clinical care and health promotion in ART clinics. The HIV and nutrition programme should develop standards for and support implementation and monitoring of staff training, resource development, nutrition supplementation for undernourished patients, and nutrition education. Monitoring and evaluation should be integrated into the national health monitoring system for ART clinics.

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ANNEX 1. FACILITY ASSESSMENT VISIT INFORMATION AUDIT

This audit will be completed by our team visiting for the assessment, with the cooperation and assistance of local clinic staff. It would be very helpful and appreciated if the local clinic staff can have this information ready and accessible on the proposed visit day. We understand that perhaps not all of this information is collected or available.

Person completing audit: _____

Audit item	Please complete if possible. If information is not available, please write "Not available" and record why not.
Name of facility	
Date of visit DD/MM/YYYY	
Number of patients in HIV clinic (total)	
Number of female patients	
Number of male patients	
Number of patients on ARVs	
Number of new patients during previous month	
Number of deaths during previous month	
Do you have paediatric patients?	Yes/No
Do you have a weighing scale? (Describe type)	Yes/No
Are you collecting patient weights?	Yes/No
Do you have equipment for measuring height? (Describe type)	Yes/No
Are you collecting patient heights?	Yes/No
Do you have an NGO working with you?	Yes/No If yes, which one(s)?
Do you have any tools here for nutrition counselling (e.g., posters, brochures)?	Yes/No If yes, which one(s)?

Patient age (years)	Patient gender	Patient weight (kg)	Patient height (cm)	Patient on ARVs?
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
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	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No
	M/F			Yes/No

Notes:

ANNEX 2. QUESTION GUIDE FOR PLWHA IN CLINICAL AND SUPPORT GROUP SETTINGS

Q#	Question	Response
1	Are you weighed when you come to this clinic?	Never/Sometimes/Usually
2	Were you weighed today at this clinic?	Yes/No
3	Have you ever had individual nutrition counselling or advice from staff here the clinic?	Yes/No
4	Have you ever been part of group nutrition counselling or advice from staff here at the clinic?	Yes/No
5	Do you think you could benefit from group nutrition counselling?	Yes/No
6	Did you receive any information about food and nutrition during your visit today?	Yes/No
7	Do you feel you receive enough information about food and nutrition from this clinic?	Yes/No
8	Are you happy with the service you receive at this clinic?	Yes/No
9	What was the purpose of your visit today?	Circle all that apply a. New admission b. To pick up medication c. I am not feeling well d. For some tests Other (please explain.)

ANNEX 3. FOCUS GROUP DISCUSSION QUESTIONS FOR FACILITATION GUIDE

1. Is nutrition important for people with HIV? Why?
2. What are the biggest problems you face in your life with HIV?
3. How do these problems affect your diet and nutrition?
4. If you were losing weight rapidly, what would you do?
5. What advice concerning food and nutrition would you give a friend who comes to you and tells you they have just been diagnosed with HIV? (If nothing said about nutrition and ART, prompt for this.)
6. What could be done at this clinic to help you more with your food, nutrition and diet?
7. Is alcohol a problem in the community? Why?
8. How is alcohol related to HIV?
9. Does alcohol have an impact on nutrition?

ANNEX 4. QUESTION GUIDE FOR PLHIV IN CLINICAL AND SUPPORT GROUP SETTINGS

1. How is your health generally?
2. Are food and nutrition important to you? Why?
3. Has your weight changed since you learned of your HIV status? What did you weigh before you learned of your HIV infection?
4. Are you taking ARVs?
5. Do you take your ARVs regularly or do you sometimes miss a dose? If yes, then why do you miss a dose?
6. Has your weight changed since starting ARVs? What did you weigh when you started on ARVs?
7. Do you feel you have a healthy weight? Would you like to gain or lose weight? Why?
8. Do you have enough food at home? Do you feel it is healthy food?
9. What do you regard as healthy food?
10. Have there been any changes to your diet since you contracted HIV?
11. How is your appetite?
12. In the past year, were there times in which you did not have enough food to meet your family's needs? Can you tell me more about that? What did you do?
13. Have you ever experienced any symptoms like nausea or mouth sores or diarrhoea? Have these affected your appetite or diet?
14. Do you have any concerns about diet or nutrition?
15. Did you receive any information about food and nutrition during your visit today? What information?
16. What could be done at this clinic to help you more with your nutrition and diet?
17. Do you think you could benefit from group nutrition counselling? How?
18. What advice concerning food and nutrition would you give a friend who was newly diagnosed with HIV?
19. Where do you get your water?
20. Do you drink alcohol? Did you drink before you became sick? What type of alcohol?

ANNEX 5. INTERVIEW GUIDE FOR DISTRICT PRINCIPAL MEDICAL OFFICER

1. Can you please tell me about the HIV and ART services you are providing in this region?
2. What nutrition problems exist in this region?
3. How important is food and nutrition for the care for people with HIV and AIDS?
4. What do you feel are the most important food or nutrition related issues facing Namibians with HIV and AIDS?
5. What information is collected at HIV and ART clinics concerning food and nutrition?
6. What type of food and nutrition counselling or education is presented at HIV and ART clinics?
7. Are you receiving the information you need concerning food and nutrition issues from HIV and ART clinics?
8. Are there any monitoring and evaluation related to food and nutrition indicators being reported from HIV and ART clinics? Which indicators?
9. What are the challenges in providing HIV and ART services?

ANNEX 6. QUESTION GUIDE FOR CLINICIANS

1. How would you describe the general health of your patients with HIV?
2. Are most of your patients with HIV underweight, of normal weight or overweight?
3. What changes do you see in the weight of your patients? Do they usually gain or lose weight?
4. Are the weights and heights of your HIV infected patients recorded anywhere?
5. Are patient heights and weights used to calculate BMI?
6. How are weight and BMI used in the clinic?
7. For the monitoring and treatment of individual patients?
8. For the monitoring, evaluation and planning for the clinic?
9. Does a patient's weight affect the care you provide? For example, if you have a very thin patient or a patient who has lost a lot of weight, what do you do?
10. What questions related to food and nutrition do PLWHA ask you?
11. What responses do you give to these questions?
12. Do patients taking antiretrovirals experience weight changes?
13. Do patients taking ARVs have changes in appetite or changes in nutritional needs?
14. Is it difficult for PLHIV to meet their nutritional needs? Why?
15. Do you have any ideas for strategies to help them to over come those problems?
16. Do PLWHA whom you see experience symptoms that affect nutritional status or require nutritional management?
17. Do PLWHA whom you see experience drug side effects that affect nutritional status or require nutritional management?
18. Do you ever prescribe multivitamin or micronutrient supplementation for PLWHA? Why or why not? Do you think that multivitamins can be beneficial in PLWHA?
19. Do most PLWHA whom you see have access to clean water?
20. Do PLWHA whom you see seem to be able to access adequate quantities of food that they need? If not, why not?
21. What information about infant feeding do you give pregnant PLHIV?
22. What tools (checklists, information booklets, etc.) do you have for use in your care of the nutrition needs of PLWHA?
23. What would help you most to improve the nutrition care of your HIV-infected patients? Can you think of any tools that you need?
24. Do you record any information related to HIV and nutrition for monitoring and evaluation purposes? What information might be useful from a monitoring and evaluation perspective?
25. What do you think is the most important thing you can tell PLWHA related to nutrition?

ANNEX 7. QUESTION GUIDE FOR NURSES

1. How would you describe the general health of your patients with HIV?
2. Are most of your patients with HIV underweight, of normal weight or overweight?
3. Do you usually weigh and measure the height of your patients? Where do you record this information?
4. What changes do you see in the weight of your patients? Do they usually gain or lose weight?
5. What do you do if a patient is very thin or has lost a lot of weight?
6. Can you give me a specific example of a nutrition problem you see here at this clinic, and how you have dealt with it? (if no answer probe for diarrhoea, mouth sores etc)
7. Do patients taking antiretrovirals experience weight changes?
8. Do patients taking ARVs have changes in appetite or changes in nutritional needs?
9. Is it difficult for PLWHA to meet their nutritional needs? Why?
10. Do you have any ideas for strategies to help them to over come those problems?
11. Do PLWHA whom you see experience symptoms that affect nutritional status or require nutritional management?
12. Do PLWHA whom you see experience drug side effects that affect nutritional status or require nutritional management?
13. Are multivitamin or micronutrient supplementation services available for PLWHA?
14. Do most PLWHA whom you see have access to clean water?
15. Do PLWHA whom you see seem to be able to access adequate quantities of food that they need? If not, why not?
16. What information about infant feeding do you give pregnant PLWHA?
17. What tools (checklists, information booklets, etc.) do you have for use in your care of the nutrition needs of PLWHA?
18. What would help you most to improve the nutrition care of your HIV infected patients? Can you think of any tools that you need?
19. How much time do you normally have with each client?
20. Would it be possible to measure height and calculate BMI or MUAC for each patient on the first visit?
21. Did you take the 4 day HIV and nutrition course? What was most useful to you in the HIV and nutrition course you took?
22. What was most useful to you in the 4-day HIV and nutrition course?
23. What do you need to learn more about to provide nutrition care and support to PLWHA?
24. What do you think is the most important thing you can tell PLWHA about nutrition?

ANNEX 8. QUESTION GUIDE FOR COMMUNITY COUNSELLORS

1. Tell me about your job as a community counsellor – what do you do?
2. How do you link to the community itself?
3. What problems in general do you think your clients face?
4. How would you describe the general health of your patients with HIV?
5. Are most of your patients with HIV underweight, of normal weight or overweight?
6. What changes do you see in the weight of your patients with HIV infection? Do they usually gain or lose weight?
7. What do you do if a patient is very thin or has lost a lot of weight?
8. What questions related to food and nutrition do PLHIV ask you?#
9. What responses do you give to these questions?
10. Do patients taking ARVs experience weight changes?
11. Do patients taking ARVs have changes in appetite or changes in nutritional needs?
12. Is it difficult for PLWHA to meet their nutritional needs? Why?
13. Do you have any ideas for strategies to help them to overcome those problems?
14. Do PLWHA whom you see experience symptoms that affect their appetite? For example, nausea, thrush, or diarrhoea? What advice do you give them?
15. Do most PLWHA whom you see have access to clean water?
16. Is alcohol an issue in this community? Why or why not? How does alcohol relate to HIV? How does alcohol relate to nutrition?
17. Do PLWHA whom you see seem to be able to access adequate quantities of food that they need? If not, why not?
18. Is stigma a problem for people in this community accessing services for PLWHA? How so?
19. What tools (checklists, information booklets, etc.) do you have for use in your care of the nutrition needs of PLWHA?
20. What would help you most to improve the nutrition care of your HIV- infected patients? Can you think of any tools that you need?
21. How much time do you normally have with each client?
22. Did you take the 4-day HIV and nutrition course? What was most useful to you in the HIV and nutrition course you took?
23. What do you need to learn more about to provide nutritional care and support to PLWHA?
24. What tools do you have access to: checklists, information booklets etc do you have for use in your care of the nutritional needs of PLWHA? Can you think of any others that you need?
25. Finally, what advice concerning food and nutrition would you give to a friend who has just been diagnosed with HIV?