Republic of Namibia
Ministry of Health and Social Services

Nutrition Assessment, Counselling and Support For PLHIV

Operational Guidelines

November 2010

Preface

Optimal nutrition is a basic need 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. 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. Malnutrition and HIV/AIDS are synergistic and create a vicious cycle that weakens the immune system. Research has shown that good nutrition can improve the health and quality of life of people living with HIV (PLHIV).

Namibia's HIV prevalence, reported at 17.8 percent among pregnant women attending antenatal care at the end of 2006 (MOHSS 2008) and compared with 5 percent in sub-Saharan Africa as a whole, ranks among the highest in the world. Although recent evidence suggests a decline, the pandemic poses significant challenges to this middle-income country, and high levels of income disparity and unemployment may further the spread. World Health Assembly Resolution 57.14 of 22 May 2004 urged member states to pursue policies and practices to promote integration of nutrition into a comprehensive response to HIV/AIDS. The following recommendations from the 2005 Durban Consultation on Nutrition and HIV/ AIDS in Africa were expected to result in enhancement of Member States' capacity to improve the nutritional status of HIV-infected individuals:

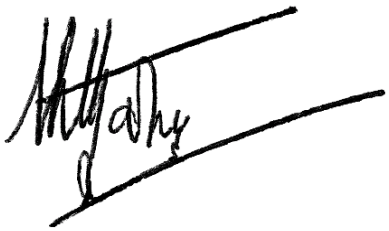
1. Develop strategies that are both evidence-based and feasible to help improve the health status of PLHIV in southern and eastern African countries.
2. Review and disseminate the latest evidence on nutrition and HIV/AIDS to help ensure nutrition is integrated as part of a comprehensive response to HIV/AIDS.

Consequently, and in recognition of the critical role of food and nutrition in effective responses to HIV, the Government of the Republic of Namibia supported the development of guidelines for health workers on nutrition management of people with HIV, a training manual for health care providers on nutrition and HIV, and an assessment of the food and nutrition needs of PLHIV, including support needed by health care providers to provide nutrition assessment and counselling. Building on these efforts, in 2007, USAID/Namibia and the Ministry of Health and Social Services with technical assistance from the Food and Nutrition Technical Assistance II Project (FANTA-2) developed guidelines for nutrition assessment, counselling and support of PLHIV.

These Operational Guidelines synthesize information from an extensive review of successful programmes in other African countries nutrition management of malnourished PLHIV. They describe the extent of malnutrition in Namibia and suggest step-by-step implementation strategies in accord with the 2007 National Policy on HIV/AIDS, which guides the HIV/AIDS responses of all sectors in Namibia. The Guidelines acknowledge that optimizing the government's investment in food and nutrition requires a coordinated, multi-year approach addressing human resources, capacity, infrastructure, and programme systems. In concert with the Strategic Plan for Nutrition 2010-2014, the Operational Guidelines are expected to go a long way in guiding policy makers and health care providers to improve nutritional status and quality of life of PLHIV.

I would therefore like to call upon all health care providers to make a commitment to provide quality care and support to PLHIV as specified in the operational guideline.

The Ministry of Health and Social Services would like to acknowledge all those who in various capacities, contributed to the development of these guidelines. Most of all we would like to thank USAID Namibia through FANTA-2, UNICEF, WFP, and I-TECH for their technical and financial support.



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Abbreviations and Acronyms

AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
ART	Antiretroviral therapy
BMI	Body mass index
CBO	Community based organizations
CHAI	Clinton HIV/AIDS Initiative
CHBCP	Community home based care providers
CHPA	Chief Health Programme Administrator
CMS	Central medical stores
DHS	Demographic and Health Survey
FANTA-2	Food and Nutrition Technical Assistance Project II
FBF	Fortified blended flour
FBP	Food-by-prescription
GRN	Government of the Republic of Namibia
HBC	Home based care
HIS	Health information system
HIV	Human immunodeficiency virus
I-TECH	International Training and Education Center for Health
IEC	Information, education, and communication
IMAM	Integrated management of acute malnutrition
Kcal	Kilocalories
M&E	Monitoring and evaluation
MAM	Moderate acute malnutrition
MOHSS	Ministry of health and social services
MT	Metric ton
MUAC	Mid-upper arm circumference
NACS	Nutrition assessment counselling and support
NGO	Non-governmental organization
NRCS	Namibian Red Cross society
OVC	Orphans and vulnerable children
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PHC	Primary health care
PLHIV	People living with HIV and AIDS
PMTCT	Prevention of mother-to-child transmission of HIV
RESOMAL	Rehydration solution for malnutrition
RDA	Recommended daily allowance
RUTF	Ready-to-use therapeutic food
SAM	Severe acute malnutrition
TB	Tuberculosis
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFA	Weight for age
WFH	Weight for height
WFP	World Food Programme
WHO	World Health Organization

Acknowledgements

These Operational Guidelines are the product of collaboration between the Government of the Republic of Namibia (GRN), Ministry of Health and Social Services (MOHSS), and the Food and Nutrition Technical Assistance II (FANTA-2) Project. The development of these guidelines was funded by USAID/Namibia. Many individuals provided technical guidance, management support and advice during the development of these guidelines. The following deserve special appreciation.

Marjorie Van Wyk, Chief Health Programme Administrator of the Food and Nutrition Sub-Division of the Family Health Division under the Primary Health Care Services Directorate of the MOHSS, provided original source materials and invaluable technical input and guidance in keeping the document focused on the needs of people living with HIV and AIDS in Namibia and on relevant Government of Namibia policies. FANTA consultant Charlotte Walford contributed critical contextual information and technical support in the development of the guidelines. UNICEF consultant Marie-Claude Desilets kindly assisted in reviewing the guidelines from the perspective of the national program for Integrated Management of Acute Malnutrition.

Technical and operational backstopping was provided by Earnest Muyunda, Wendy Hammond, Tony Castleman, Robert Mwadime and Fred Alumasa of FANTA-2. UN agencies, NGOs, and several GRN ministries also contributed useful data for the formulation of these guidelines. Last but not least, health care providers from the following health facilities contributed vital information about their needs, capacities, and challenges: Opuwo District Hospital in Kunene Region, Oshakati District Hospital and Oshundika Nutrition Rehabilitation Centre in Oshana Region, Onandjokwe Lutheran Hospital and Tsumeb District Hospital in Oshikoto Region, Katutura State Hospital and Katutura Health Centre in Khomas Region, and Andara and Nyangana Catholic Hospitals in Kavango Region.

Introduction

Malnutrition remains a major challenge to achieving the full impact of interventions aimed at improving their quality of life, productivity and survival among people living with HIV (PLHIV). At its advent, HIV was commonly referred to as “slim disease,” underlining the presence of severe wasting. This terminology has persisted, suggesting the common occurrence of nutritional wasting in PLHIV. Since nutritional disorders start early in the disease progression, comprehensive nutrition interventions are increasingly being advocated as an adjunct to ART. The overarching goal of nutritional interventions is to prevent malnutrition and restore good nutritional status of malnourished PLHIV with a view to maintain their productivity and immune function capacities. These interventions also aim to improve adherence to treatment and potentially prolong the pre-ART stage.

The Nutrition Assessment, Counselling and Support (NACS) Programme was planned with the understanding that a comprehensive set of nutrition interventions improves the outcomes of care, treatment and support of PLHIV. Pilot countries in sub-Saharan Africa have observed that provision of therapeutic and supplementary food products for clinically malnourished PLHIV is a critical component of comprehensive HIV care and support. Thus, the objective of the NACS programme is to provide nutrition assessment and counselling together with energy and nutrient-dense specialized food products to malnourished PLHIV.

These guidelines emanate from an assessment conducted in 2007 to determine the opportunities available to integrate nutrition interventions into HIV treatment and care facilities and programmes. The guidelines describe the package of services, target groups, entry and exit criteria, resources required and specific interventions for the NACS programme.

I. Nutrition Situation in Namibia

Namibia has a current estimated population of 2 million, with approximately 70 percent living in the north of the country. Many people in the northern communal lands depend on rain-fed subsistence farming and are asset poor. The extreme aridity of other areas limits agricultural production. Income distribution is highly distorted, with 5 per cent of the population owning 50 percent of the country’s wealth and 35 percent living on less than US$1 a day (UNDP *Human Development Report 2005*). Although Namibia as a country is food secure, many rural households are not able to produce or purchase enough food for consumption. Even in the north, which has the highest agricultural potential, households generally experience food deficits and rely on purchases and remittances to meet food needs. During a 2008 assessment of food and nutrition needs of people living with HIV (PLHIV) in antiretroviral therapy (ART) clinics in five regions by the Ministry of Health and Social Services (MOHSS) and the Food and Nutrition Technical Assistance (FANTA-2) Project, patients reported unemployment and food insecurity as major problems.

HIV prevalence in Namibia was estimated at 17.8 percent in 2007 (varying from 39 percent in the extreme northeast to 8 percent in the south), affecting approximately 197,000 people. The high rates of HIV infection are likely to impinge strongly on the nutritional status of a significant proportion of the population, negatively affecting their quality of life, productivity, and longevity. Although 66 percent of PLHIV in the country are receiving treatment and care, many suffer from undernutrition or over-nutrition.

A. Child Undernutrition

Health services in Namibia are provided through 35 public hospitals, 34 health centres, and more than 267 clinics, as well as 5 mission hospitals run by Catholic Health Services and the Lutheran Church in partnership with the MOHSS. Health facilities monitor the growth of children under 5 years old using weight for age (WFA), but the country has no formal nutrition surveillance system. Monthly outreach clinics conduct growth monitoring in rural areas but are sometimes irregular, and distances between settlements and health facilities can be great. For this reason, the undernutrition data in the national health information system (HIS) may be grossly underestimated. For example, 2007 HIS data indicated that only 5 percent of children under 5 attending health facilities were underweight (< –2 SD),[1] while the 2006–2007 demographic and health survey (DHS), the main source of household-level nutrition data in Namibia, estimated underweight among this age group at 17 percent.

Only 1,067 children were admitted into public hospitals for treatment of undernutrition (estimated using WFA) in 2007.[2] Health care providers do not routinely assess children for bilateral pitting oedema; if they did, it is likely that more children would be admitted for therapeutic nutrition care.

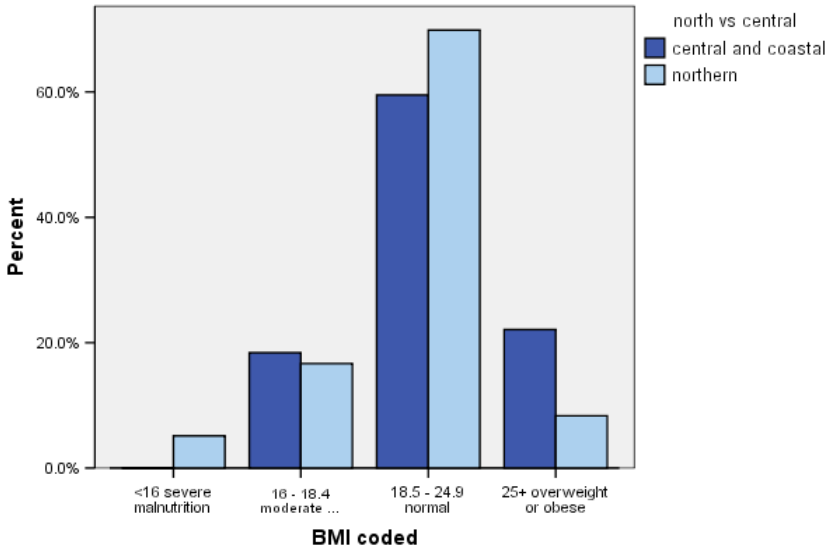
The 2006–2007 Namibia DHS estimated stunting (low height for age, or HFA) among children under 5 years old at 29 percent, which is much lower than the 46.8 percent found in the 2001–2002 Zambia DHS and the 45 percent listed for Angola in UNICEF's *2008 State of the World's Children*. Rates of stunting and wasting did not change markedly between the 1992 and 2006 DHS. Although food insecurity is a key factor in child undernutrition in Namibia, poor child feeding practices may also be a prominent contributing factor.

B. Adult Under- and Over-nutrition

Severe malnutrition among adults is rare in Namibia. Only 81 adults were admitted to hospital for undernutrition in 2007 (MOHSS HIS 2008). The 2008 MOHSS/FANTA-2 assessment among ART clients in five sites found severe malnutrition (body mass index, or BMI, < 16 kg/m^2) in only 2.5 percent of clients and moderate malnutrition (BMI < 18.5 kg/m^2) in only 17.6 percent. A greater proportion of male clients than female were found to be malnourished. Among women clients measured, 16 percent were moderately malnourished, slightly higher than the 14 percent reported in the 2006 DHS among non-pregnant and non-post-partum women. On the other hand, 11.9 percent of clients were overweight and 3.4 percent were obese. More women than men were overweight or obese. While poor access to food is a key factor in adult undernutrition (figure 1 shows that more undernutrition was found in the north than in other regions), nutrition problems associated with lifestyle are of increasing public health concern in Namibia.

[1] The standard deviation (SD) unit, or z-score, is the difference between the value for an individual and the median value of the reference population for the same age or height, divided by the standard deviation of the reference population.
[2] Personal communication, MOHSS May 2008.

Figure 1: BMI categories by location, 2008



C. Micronutrient Malnutrition

Vitamin A deficiency is not thought to be a public health problem in Namibia, but there are virtually no national data on micronutrient deficiency. Authorities agree that pregnant women, young children from poor households, and school children may suffer from this condition. The high prevalence of diarrhoea in summer and pneumonia in winter are likely to be secondary predisposing factors. Unlike many African countries, Namibia may not have widespread iron deficiency anaemia. Other nutrient-specific deficiencies may include isolated and periodic cases of niacin deficiency resulting in pellagra, especially in regions in the north where the main staple is maize, a poor source of niacin. People who consume large quantities of alcohol are more likely to present with this condition. Zinc deficiency also could be a public health problem, given that maize and millet are the common staple foods eaten by most Namibians. Animal products are a good source of zinc, but no data exist on individual consumption. There are no records to verify the prevalence of either niacin or zinc deficiency.

D. National Policies and Guidelines to Address Malnutrition

The Government of the Republic of Namibia (GRN) has approved the following policies and guidelines on nutrition:

- "Food and Nutrition Policy for Namibia," National Food Security and Nutrition Council, 1995
- "National Policy on Infant and Young Child Feeding," 2003 (being updated)
- "Nutrition Management for People Living with HIV/AIDS: Resource Guidelines for Clinical Health Workers," Ministry of Health and Social Services, 2007
- "Guidelines for Implementation of Nutrition Supplementation Program for TB Patients," National TB Programme, 2007
- "National Guidelines for the Integrated Management of Acute Malnutrition (IMAM)", 2008

These guidelines and policies form the basis for establishing a Nutrition Assessment, Counselling and Support (NACS) Programme for PLHIV. Additional guidelines are

needed on micronutrient fortification and supplementation. At present the MOHSS does not support distribution of therapeutic or supplementary food to patients through health facilities because of the perceived risk of dependency and lack of sustainability.

E. Food and Nutrition Assistance for PLHIV

Undernutrition worsens the impact of HIV and poses significant challenges to care and treatment. HIV can cause or aggravate undernutrition by reducing food intake, increasing energy needs, and decreasing nutrient absorption. In turn, undernutrition can hasten the progression of HIV by weakening the immune system, increasing susceptibility to opportunistic infections, and reducing the effectiveness of treatment. Food and nutrition interventions help break this vicious cycle by improving immune response, symptom management, treatment effectiveness, nutrition status, quality of life, and productivity. GRN initiatives to provide food and nutrition assistance to PLHIV are summarized below.

Ministry of Education school feeding programmes target learners 7–14 years old, including OVC[3] to increase school enrolment and improve attendance. Community members contribute firewood and water to cook a blended porridge consisting of 63 percent maize meal, 25 percent fortified soy flour, and 11 percent sugar and salt in the schools. Teachers are responsible for keeping stock and teaching nutrition and hygienic food preparation. This programme was funded earlier by the World Food Programme (WFP). In some areas the ministry partners with the Educational Quality Improvement Program (EQUIP 2) of FHI 360 to provide wet feeding in primary schools for both OVC and non-OVC. This programme provides cash to schools to purchase their own food commodities, which are cooked by community members. The programme intends to begin nutrition education for students and caregivers.

The **Ministry of Gender Equality and Child Welfare's** social grants system targets people who are unable to work because of physical disability, including chronic disease, old age, or the need to care for OVC. The current grant of N$200 per child per month and N$100 for each additional child is being reviewed. The ministry also partners with WFP and some local non-governmental organizations (NGOs) to provide food rations to OVC in six northern regions. This programme, which ends in April 2008, aims to alleviate household food insecurity while helping families register and access the social grant. Food assistance is provided through food rations to households with OVC, individual rations to otherwise unsupported OVC), supplementary feeding for malnourished children, and small-scale projects to promote food security. The food rations, which vary in quantity, consist of maize meal, corn/soy blend (CSB), beans, and vegetable oil.

The **Ministry of Health and Social Services** is responsible for nutrition training and service provision in health facilities. Nutrition is included in the ART and prevention of mother-to-child transmission of HIV (PMTCT) training for clinicians and training of

[3] ~~The U.S. President's Emergency~~ Plan for AIDS Relief (PEPFAR) defines an OVC as a child 0–<17 years old who is either orphaned or made more vulnerable because of HIV. "Orphaned" means having lost one or both parents. "Vulnerable" means 1) HIV positive or born to an HIV-positive mother, 2) living without adequate adult support, for example, with chronically ill parents, in a household that has experienced a recent death from chronic illness, or in a household headed by a grandparent or a child, 3) living outside of family care, for example, in residential care or on the streets, or 4) marginalized, stigmatized, or discriminated against. Many of these children are served by organizations that target OVC to meet their nutritional, educational, medical, and psychosocial needs (PEPFAR, Office of the Global AIDS Coordinator. 2006. Orphans and Other Vulnerable Children: Programming Guidance for United States Government In-Country Staff and Implementing Partners. Washington, DC).

community home-based care providers (CHBCP). Since 2006 the MOHSS has offered a four-day course called "Nutrition Management of HIV/AIDS: Practical Tools for Health Workers," developed with the assistance of the International Training and Education Centre on HIV/AIDS (I-TECH). Over 250 clinical staff have participated in the course, which includes anthropometric measurement and nutrition counselling, and 100 more are scheduled to be trained in 2008 (the MOHSS plans to train all nurses). However, there is little support or supervision for implementation after the training. From 2008 to date, more than 370 health workers have been trained.

Health care providers weigh women at every PMTCT or antenatal care (ANC) visit but do not measure mid-upper-arm circumference (MUAC). None of the sites has MUAC tapes, and patient cards have no provision for recording MUAC measurements. Nutrition information is restricted to counselling on breastfeeding and infant feeding options. Maternal, young child and sick child nutrition are not generally discussed.

Equipment for weighing patients and measuring weight and height or length is available in some care and treatment sites. Normally, all ART patients are weighed at each clinic visit. Rarely is height measured, BMI calculated for adults, or weight for height (WFH) calculated for children. No BMI or WFH charts are available at the sites. The patient cards have a space for recording weight (used to calculate ART dosage and monitor drug effectiveness) but not height (except for children), BMI, or WFH. These parameters are neither required for reporting nor included as indicators in the national database.

Multivitamin tablets for adults and syrup for children are included in the package of nutrition services for PLHIV. Little information is given to patients through nutrition education and counselling, few nutrition-related posters are displayed, and no nutrition counselling cards are available. Several public and mission hospitals have television sets and DVD equipment to show films on HIV topics in the waiting rooms as clients wait for services, but this equipment is not always in use.

The National Tuberculosis Control Programme provides the country's only food supplementation for PLHIV. Patients normally receive multivitamins during Directly Observed Therapy-Short Course (DOTS), and several NGOs offering DOTS also provide meals to patients on each visit. The Directorate of Special Programs (DSP) of the MOHSS has procured food supplements for TB patients since November 2007 with funding from the Global Fund. The overall goal is "to improve the nutritional status of TB patients and those co-infected with both TB and HIV/AIDS who are identified as having nutrition needs warranting an intervention" (National TB Control Program Implementation Guidance Document 2007). Because the MOHSS does not allow distribution of food supplements by health facilities, NGOs including the Namibian Red Cross Society (NRCS) are responsible for regional and district storage and distribution. The supplement is an instant porridge made of enriched maize meal (Diva) and fortified with micronutrients that must be reconstituted with hot water. It is purchased from South Africa and costs about US$2.3 per kilo (about US$0.23 per client per day based on a 100 gram-per-day ration). In most cases, patients receive vouchers to collect a month's supply of the supplement from the cooperating NGO office. As in ART clinics, health care providers take weight but do not measure and record height or calculate and record WFH and BMI (although BMI was originally included in the eligibility and exit criteria). In reality, all patients receive the nutrition supplement for the duration of their treatment. Nurses explain how to prepare the supplement. The Guidance Document explains the monitoring and evaluation (M&E), but this is not generally implemented. Regional and district personnel provide little support or supervision, and reporting has not yet started.

The Primary Health Care (PHC) Directorate has a partnership with the Clinton HIV/AIDS Initiative (CHAI) to provide therapeutic foods for malnourished paediatric AIDS patients until 2010. U.S. President's Emergency Plan for AIDS Relief (PEPFAR) partners also may fund therapeutic and/or supplementary food for PLHIV.

II. Key Issues for Nutrition Care and Support of PLHIV in Namibia

This section highlights gaps and opportunities for a NACS Programme for PLHIV.

A. Existing Policy and Capacity

Most GRN food supplementation programmes have offered food to mitigate household food insecurity, not to treat undernutrition. As noted earlier, there is concern in Namibia, especially among senior MOHSS officials, that food assistance creates dependency and is not sustainable, and efforts to introduce food supplements in clinical settings are often discouraged. There are no policy guidelines on handling food supplementation at health facility level. Mechanisms for collecting and reporting nutrition related data need to be strengthened.

The only nutritionist in the MOHSS is the Chief Health Programme Administrator (CHPA) of the Food and Nutrition Sub-Division of the Family Health Division in the PHC Directorate. She is responsible for providing leadership and technical support for all nutrition interventions offered through the public and private health sectors, including PMTCT and infant feeding, the national micronutrient programme, non-communicable diseases related to nutrition, nutrition surveillance, growth monitoring, maternal and child nutrition, and nutrition and HIV. No nutrition focal persons are in place at regional, district, or health facility levels. Nor do NGOs or the private sector have nutrition capacity that can be tapped to support the government. This capacity constraint is a challenge for the development and operationalization of national guidelines and materials, training, supervision, and data management for a NACS Programme for PLHIV.

There is no **national-level** coordination of the activities of different departments in the GRN and of the different donors supporting existing nutrition activities. Such coordination is needed to harmonize and standardize guidelines, reporting tools, counselling materials, entry-exit criteria, and the quality and quantity of food provided.

No specific GRN cadre is mandated to provide nutrition support at the **regional level** in Namibia's 13 regions. The Chief Primary Health Administrator and District Primary Health Supervisor provide administrative and technical support to all programmes under the PHC Division at regional and district levels. Nutrition rarely receives the attention given to other programmes, and there is no demand from supervisors for nutrition services. Regional structures and mechanisms are needed to organize and conduct training, provide supportive supervision, and ensure efficient data flow and reporting. Tools are needed to facilitate supervision and to monitor quality control of all nutrition-related activities in general, not only in HIV care and treatment services.

No health care staff are delegated to provide nutrition care and support at **health facility level**. Nutrition care and support is seen as a separate (parallel) service rather than an integral part of care and treatment. Staff working with the National TB Programme are accustomed to the provision of food to encourage compliance with treatment or participation in income generation projects rather than to treat severe or moderate malnutrition. Such programmes use clinical and social criteria rather than measurement of nutritional status to target beneficiaries. Training and intensive follow-up will be needed to change these perceptions.

Few information, education, and communication (IEC) materials to facilitate nutrition care and support are found in health facilities. A poster on positive living in three languages (English, Afrikaans, and Oshivambo) is displayed in some ART sites, and

UNICEF posters on taking weight and height of children are available in some clinics. With the assistance of the FANTA-2 Project, the MOHSS is producing brochures and posters on nutrition management of HIV-related symptoms and food, water, and personal hygiene for PLHIV, as well as a counselling tool for health care providers and a client register to assist in nutrition assessment and counselling.

B. Demand for a Nutrition Programme

Although the number of severely malnourished PLHIV in Namibia appears to be lower than in other countries in sub-Saharan Africa, there is a need for specialised food products for this population. Table 1 shows the number of clients requiring nutrition supplements. An estimated 40 MT of ready-to-use therapeutic food (RUTF) and 570 metric tons (MT) of enriched cereal porridge are needed to meet the therapeutic and supplementary food needs of all severely and moderately malnourished PLHIV in the country. Although the total quantities are relatively small, the cost is high. All enriched cereal porridge in Namibia is expensive and imported from South Africa. If the same type of flour used by the TB Programme were imported for a nutrition programme for PLHIV, the total annual cost to treat malnourished PLHIV would be approximately US$1.5 million. The cost per client would be between US$0.26 and US$0.43 per day.

Table 1: Estimated need for nutrition supplements for PLHIV in Namibia as of May 2008

Group	Estimated population (end 2007)	Estimated % with severe/moderate malnutrition	Estimated number of people needing nutrition supplements
Adults (non- pregnant and non-post-partum)	44,000 ART 11,000 pre-ART	19% 24%	13,340
Pregnant and post-partum women < 6 months post-partum	15,500	14%	4,120
Orphans and vulnerable children, including those infected with or exposed to HIV	94,000	11% (Paediatric HIV 22%)	13,200
Total	**164,500**		**30,660**

In addition to therapeutic and supplementary food, nutrition education and counselling should be provided as part of care and treatment of PLHIV. Nutrition assessment is required to diagnose under- or over-nutrition, inform counselling, and determine food supplementation regimens. Adult PLHIV require counselling on healthy diets and lifestyles, food and water hygiene, and prevention and management of undernutrition and obesity. Alcoholism and obesity require special messages and support.

The remaining sections of these guidelines are built on the need for a nutrition programme for PLHIV in Namibia. Successful implementation of this programme urgently requires addressing key gaps in the country's nutrition systems and capacity. Strengthening basic nutrition services, including nutrition assessment, education, and counselling and management of severe acute malnutrition among young children, will be necessary to address these gaps.

III. Strengthening Support for a Nutrition Assessment, Counselling and Support Programme for PLHIV

Several key support functions must be strengthened to enable Namibia to implement high-quality nutrition interventions for PLHIV at health facility and community levels. These functions include decision-making, management, service delivery, and coordination.

A. Awareness among Decision-Makers

Meetings of key decision-makers in the MOHSS should be organized to create awareness of the difference between food supplementation to treat undernutrition and food assistance to address food insecurity. The purpose of the meetings is to garner MOHSS support for the following:

1. Allowing health facilities to dispense food supplements to treat moderate and severe acute malnutrition among PLHIV in the same way as they dispense other therapeutic supplies
2. Allocating cadres of regional and clinic personnel to support nutrition services
3. Integrating nutrition indicators in the national HIV/AIDS M&E framework

B. National and Regional Implementation Capacity

Both short- and long-term strategies are needed to build capacity to implement the NACS Programme. Short-term strategies include the following:

1. Immediately filling vacant positions in the Food and Nutrition Sub-Division
2. Exposing nutrition leaders to nutrition and HIV programming in neighbouring countries
3. Accelerating in-service training of health care providers at service delivery points for nutrition care and support of PLHIV.

The long-term strategy is to include clinical nutrition and HIV modules in the University of Namibia training courses for nurses.

The PHC Directorate should prioritize and fast track recruitment for three key positions in the Food and Nutrition Sub-division that have been vacant for several years. It has been difficult to identify qualified local nutritionists to fill these positions. The alternative is to recruit less technically or programmatically qualified people with other strengths such as training who can improve their nutrition skills on the job. The following practical skills strengthening could be arranged through I-TECH and/or FANTA-2:

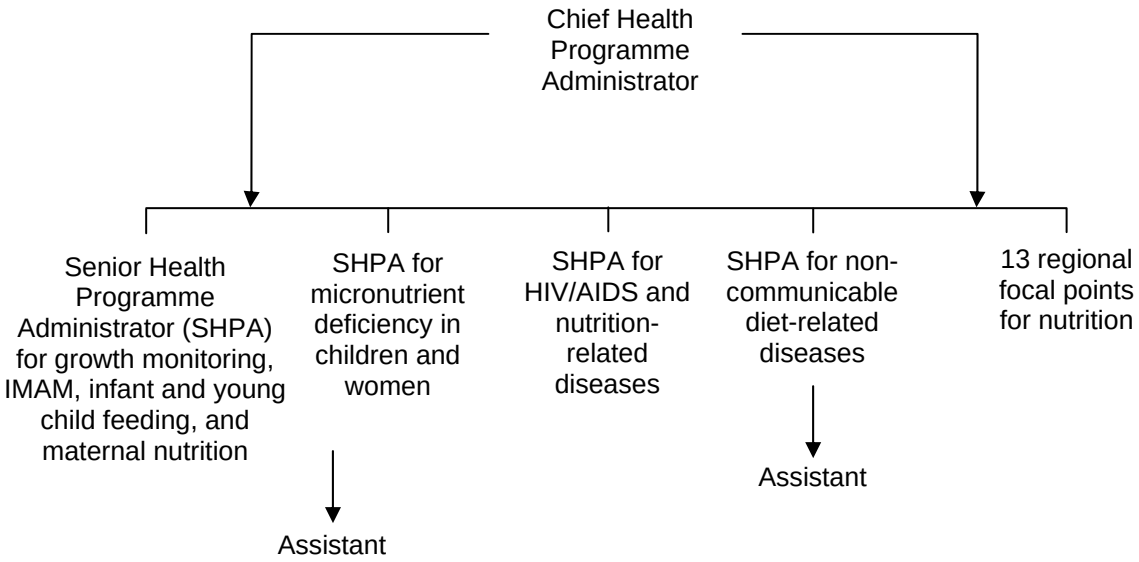
1. Exposure to national nutrition and HIV programmes in other countries. Namibia does not have a recent history of implementing public nutrition interventions such as treating severe acute malnutrition in children. One-week visits to nutrition supplementation programmes in Kenya and Malawi have exposed key MOHSS staff to implementation experience. Specialists with a background in nutrition and HIV accompanied the staff to provide insights into considerations and challenges for local application.

2. In-country orientation in nutrition and HIV. Visits to ART sites and IMAM pilot sites can give key MOHSS staff an overview of therapeutic food distribution, associated health care, and the opportunities and challenges faced by health

facility staff. These visits can highlight the link between HIV referral and testing and increased nutritional needs of PLHIV.

3. Mentoring of Food and Nutrition Sub-division staff in nutrition and HIV. Two technical advisors provided by I-TECH and FANTA-2 could be placed in the Food and Nutrition Sub-division for a period of 18–24 months to provide technical support to establish the NACS Programme for PLHIV, develop guidelines, train health care providers at regional and health facility levels in the national nutrition and HIV course and the proposed nutrition module in the pre-service nursing curriculum at the University of Namibia, and generally strengthen local expertise in nutrition programming. Figure 2 shows the proposed relationship among staff and advisors in the Food and Nutrition Sub-division.

Figure 2: Proposed structure of Food and Nutrition Sub-division



Based on the proposed activity plan, a minimum of six full-time staff are needed at the national level and 13 focal points at the regional level. The existing regional programme administrators under the Primary Health Care Directorate already have significant responsibilities and workloads. Ideally, there should be one staff member responsible for nutrition, one for Integrated Management of Childhood Illness (IMCI), one for training, and one for community outreach and clinic-community linkages. Supervision and mentoring should be prominent in their task descriptions. An additional regional staff member is recommended to share the work of the regional programme administrators.

The immediate option to strengthen regional capacity for a NACS Programme for PLHIV is to assign one MOHSS or I-TECH trainer in each of the five Regional Training Centres to be a nutrition focal person to support the activities of the Food and Nutrition Sub-division. Nutrition would be integrated into the other support services for which the trainers are responsible. The trainers could be trained in the national nutrition and HIV course and national course on management of severe acute malnutrition (which includes 5 days on outpatient treatment and 6 days on inpatient management of complications) and be supported by the Food and Nutrition Sub-division to implement public nutrition programmes including food supplementation for PLHIV. They could support but not undertake the supervision and monitoring needs of trained health care providers in the implementation phase.

A longer-term strategy is to base two trainers in Regional Training Centres (one trainer in each centre) to support 1) training of health care providers in nutrition and HIV, 2) PMTCT and infant feeding, 3) nutrition care and support of paediatric HIV patients, and 4) nutrition assessment and counselling of ART and home-based care (HBC) clients. The Food and Nutrition Sub-division has drafted job descriptions for these two positions, which have been discussed with I-TECH.

The Senior Medical Officer for HIV Case Management and Nursing and Palliative Care, ART, Pharmacy, and Training Coordinators in the Directorate of Special Programmes also will be involved in setting parameters for mentoring and supervision of health care providers trained in nutrition and HIV. Other stakeholders including UNICEF and I-TECH can be consulted for technical advice and support.

C. Skills Training and Support

Each **health facility** should have one focal person for nutrition and HIV services. This person should be a nurse who has been trained in the national nutrition and HIV course and 5-day training on outpatient treatment of acute malnutrition. Although 250 health staff have been trained in nutrition and HIV, few are implementers based in departments where they can practice the skills they have been taught. In 2010 the training is targeting 100 service providers in clinical and community care and treatment (ART, PMTCT, paediatric AIDS, and HBC) sites. The national course on nutrition and HIV needs to be updated with more practical, skills-based content and a module on the use of therapeutic and supplementary food to treat severe and moderate acute malnutrition among PLHIV. The following components should be strengthened in the course:

- Anthropometric measurement and classification of nutritional status, including identification of nutritional bilateral oedema (especially among children)
- Prescription and monitoring of adherence to and impact of therapeutic and supplementary feeding
- Communication of key nutrition and HIV messages using counselling and IEC materials
- Logistical management and prescription of therapeutic and supplementary food for PLHIV
- Practice of skills in health facilities
- Data recording and reporting
- Monitoring and evaluation

Other service providers will need sensitisation or training in basic nutrition and HIV to support the NACS Programme for PLHIV. A 2-day skills-based training module developed with FANTA-2 technical assistance in 2008 will reinforce service provider skills in nutrition assessment and counselling, the use of counselling job aids and IEC materials, and data collection.

All managers, clinicians, pharmacists, and community counsellors at health facilities approved to prescribe specialised food products for PLHIV should receive a 1-day orientation on the following topics:

- The purpose of food supplementation for PLHIV
- Target groups and entry and exit criteria
- Counselling messages
- Food prescription (forms, quantities, referral for collection at designated points)

- Demonstration of the preparation and use of the food (including home handling, quantities per day, and storage)
- Roles of different staff at the site
- Data management, reporting, and monitoring and evaluation

Table 2 summarizes the nutrition and HIV skills that need strengthening and the training suggested for each target group.

Table 2: Needed nutrition and HIV skills training in Namibia

Target group	Role	Knowledge and skills	Training
Chief Health Programme Administrator (CHPA) of Food and Nutrition Sub-division Senior Health Programme Administrators	Policy, guidelines, and materials development Programme design Technical support to MOHSS and partners Programme monitoring (coverage, quality, effectiveness) Advocacy and resource mobilisation	Practical exposure to nutrition programme operations Participation in developing materials and preparing government documents Exposure to the nutrition programme in MOHSS and community services	Visits to programmes in other countries Mentoring by CHPA and Technical Advisors (see figure 2) Visits to clinic sites in Namibia with a nutrition and HIV specialist
Regional trainers	Training in community-based care of PLHIV Training of clinical service providers in the national nutrition and HIV course Training of clinical service providers in the 5-day training on outpatient management of severe acute malnutrition (SAM) Support to clinical service providers	Training methods Technical nutrition issues Use of support and supervisory tools	National nutrition and HIV course including skills-based module on assessment and counselling and module on food by prescription (FBP) 5-day training on outpatient management of SAM Mentoring by national team
Paediatric ward physicians and nurses	Treatment of SAM with complications or no appetite	National IMAM guidelines for all target groups	6-day training on managing SAM with complications
Physicians	Nutrition management of metabolic symptoms and drug side effects	Nutrition-related side effects of drugs	½-day orientation on nutrition and drug side effects in Continuing Medical Education or professional meetings

Table 2: Needed nutrition and HIV skills training in Namibia (*continued*)

Target group	Role	Knowledge and skills	Training
Nurses at facility level	Nutrition assessment and classification Assessment of nutritional bilateral oedema Counselling Prescription of therapeutic and supplementary foods Follow-up of patients with severe or moderate acute malnutrition	Nutrition assessment Counselling skills Management and prescription of therapeutic and supplementary foods National IMAM guidelines for all target groups	National nutrition and HIV course including skills-based module on nutrition assessment and counselling and module on FBP 5-day training on outpatient management of acute malnutrition
Community counsellors	Nutrition education and demonstrations Group and individual counselling Screening in community for acute malnutrition	Anthropometric measurement Basic nutrition for PLHIV Preparation and use of nutritious foods Counselling skills PMTCT and infant feeding	
Supplementary food distribution partner (in sites where health facilities do not store or distribute food)	Referral for nutrition assessment and counselling Food distribution and education on use Food handling and storage Record keeping and reporting	Food storage and handling Quality and pest control Requisition of food	1-day orientation
Pharmacy or other lead food partner	Ordering of specialised food products once on the Essential Medication List (NemList) Specialised food product delivery to and storage in distribution sites Stock management (district, regional, and national) Reporting to donors and MOHSS	Use of the specialised food products Stock management Reporting	Sessions on use, stock management, and reporting on specialised food products in 5-day IMAM outpatient and 6 day inpatient courses

D. HIV Care and Treatment Systems

Nutrition care and support for PLHIV should be integrated into other HIV care and treatment, logistics, and monitoring systems and offered as a package. Current nutrition and HIV training materials should incorporate nutrition assessment for prevention and control of malnutrition; prescription, distribution, and handling of food supplements; and management of data and information related to food supplements.

Both the current MOHSS nutrition and HIV training curricula and the counselling materials being developed by the Food and Nutrition Sub-division should include information on provision of therapeutic and supplementary food as a component of care and treatment for PLHIV. Each implementing health facility needs BMI and WFH conversion charts (examples are found in annexes 1 and 2). An algorithm is needed for nutrition management of PLHIV that incorporates the food supplements component (an example is found in annex 3). Nutrition assessment forms, forms for collecting client information and forms for facility supervision are also needed.

National guidelines on treatment of severe acute malnutrition among adults and children and eligibility criteria for use of nutrition supplements for PLHIV, and use of nutrition supplements for PLHIV need to be drafted, agreed on by various care and treatment programmes, and synchronized with current guidelines on PMTCT, infant feeding, TB and ART.

E. National Coordination Mechanisms

Current nutrition programmes, especially those of NGOs and the private sector, are fragmented. The MOHSS or Food and Nutrition Sub-division often does not have control over the quality of services provide and their compliance with national guidelines. NGOs, training institutions, and the private sector will be increasingly involved in national and regional training in nutrition and HIV and in review and development of policy and guidelines. As the number of partners offering different nutrition interventions increases, formal coordination will be needed.

A forum or working group to coordinate and monitor nutrition and HIV programmes provided by these partners could include representatives of UN agencies (UNICEF, WFP, Food and Agriculture Organization of the United Nations, WHO), PEPFAR partners (Centers for Disease Control and Prevention, USAID, U.S. Department of Defence), bilateral and NGO partners (I-TECH, FANTA-2, Pact, NRCS) and institutions of higher learning (University of Namibia School of Nursing).

IV. Programme Parameters and Components

The following objectives are suggested for the NACS Programme for PLHIV:

- Prevent and manage undernutrition and obesity among adult PLHIV and HIV-affected and -infected children.
- Improve the quality of life and productivity of PLHIV.
- Promote and improve adherence to ART and TB treatment and care.
- Improve ART and TB treatment efficacy.
- Provide continuity of care for PLHIV in PMTCT, ART, and child health programmes.

Stakeholders including policy makers, collaborating ministries, regional and district health teams, site managers, donors, and implementing agencies should meet to refine and agree on these objectives and the suggested approaches and activities listed below. The working group mentioned above may serve as a forum for this function.

A. Roles of Key Partners

The NACS Programme will be implemented primarily by the MOHSS at all levels (regional and district), a food partner, and implementing sites. The roles of these partners are described below.

1. MOHSS

Because the quantities of therapeutic and supplementary food to be handled in each health care facility will be small, it is proposed that the MOHSS build its capacity to manage the services. Most nutrition services for PLHIV in Namibia are provided through public facilities, and the government provides training in nutrition and HIV and materials and equipment for nutrition services. The suggested roles of the MOHSS in the NACS Programme are listed below:

- Coordinate partners and programmes providing nutrition services for PLHIV.
- Coordinate the development of implementation guidelines and materials for training, nutrition education and counselling, data collection, and reporting.
- Compile and report national data on nutrition and HIV.
- Train health care providers in each site to assess nutrition status, prescribe therapeutic and supplementary food, store food, maintain food quality, monitor nutrition indicators, and report according to national guidelines.
- Ensure that sites have adequate anthropometric equipment and materials for effective implementation of the programme.
- Work with regional and district teams to support site compliance with implementation guidelines and reporting formats.

2. Lead Food Partner

One food partner should be selected to help procure and distribute the therapeutic and supplementary food to care and treatment sites. This partner will need to demonstrate that the imported food products meet standards set by international bodies (WHO/UNICEF and WFP) and the Namibia Bureau of Standards. The following criteria are suggested for selection of the lead food partner:

- Ability to conduct competitive procurement to ensure best value for donors and adequate quantities of food with a shelf-life of more than 9 months

- Proven systems to warehouse needed quantities of food and control expiry
- Capacity to establish and carry out quality assurance systems for the composition, nutrient content, and safety of the food products.
- Systems to ensure clean delivery trucks, timely delivery, safe offloading, and distribution of food to all health facilities and community sites with ART services
- Capacity to handle additional quantities and sites in case of scale-up
- Capacity to monitor food outlets to ensure proper reporting, stock log maintenance (to avoid stock-outs), and storage conditions (temperature, lighting, cleanliness, expiration dates)
- Capacity to train all staff responsible for distribution points in product specifications, handling, display, hygiene and sanitation, and pest control
- Capacity to help delivery sites establish inventory targets and reordering cycles according to demand forecasts

For sustainability, the pharmacy or CMS should be a primary partner in the NACS Programme and play a role in logistics around therapeutic and supplementary food.

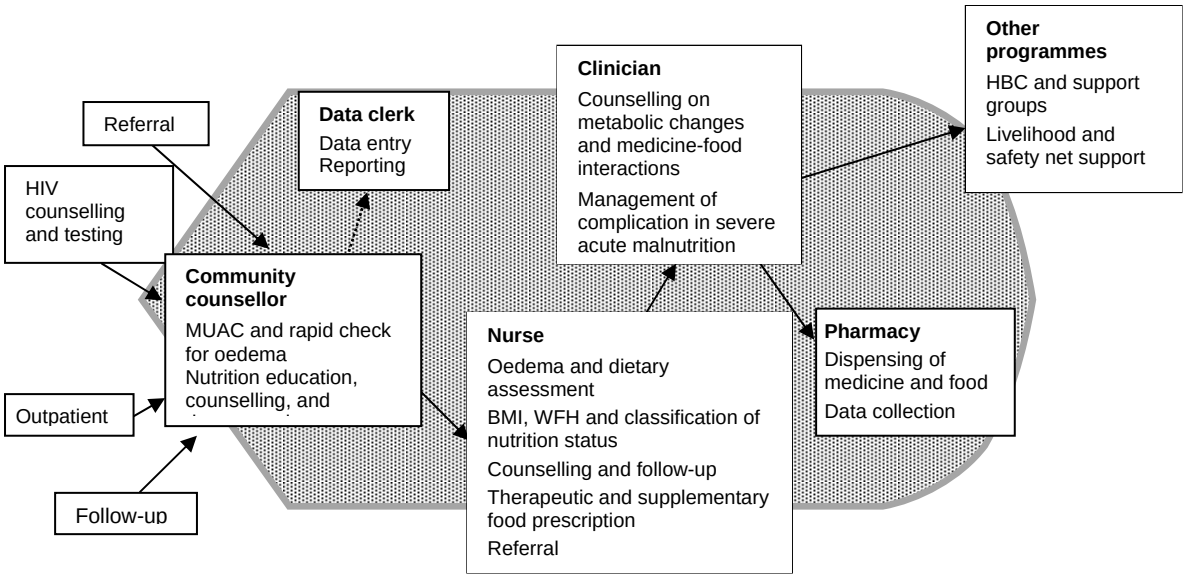
3. Implementing Sites

The roles of the care and treatment sites for PLHIV in the NACS Programme are listed below.

- Designate one staff member as the focal person for nutrition.
- Designate staff for nutrition assessment and counselling, prescription of therapeutic and supplementary food, food storage, food distribution, and food monitoring.
- Support training of assigned staff in nutrition and HIV.
- Assess and classify PLHIV nutritional status.
- Prescribe food to eligible PLHIV.
- Designate areas for food storage and distribution.
- Distribute food according to national guidelines and criteria.
- Follow up clients and review their nutritional status.
- Link or refer clients to needed services (e.g., ART, livelihood support, food security programmes, PMTCT, family planning).
- Supervise management of client baseline and follow-up data on client nutritional status and food stocks and distribution.
- Ensure that key nutrition data is reported along with other HIV data.
- Make or support needed changes in client or information flow (figure 3) to facilitate nutrition care and support.
- Provide regular supportive supervision of nutrition services.

Staff at the care and treatment site will have different roles as presented in Figure 3

Figure 3: Proposed staff roles to integrate nutrition into HIV care and treatment sites



B. Resources Needed

Specialised food commodities should be sent directly from the CMS to district hospitals and stored there for distribution to the ART clinics and other health care facilities. HIV care and treatment sites that provide therapeutic and supplementary food for PLHIV will need the following minimum resources:

1. Space

- Space in or near the waiting room for anthropometric equipment, nutrition counselling and education tools and materials, counselling, food demonstrations, and record-keeping
- Food storage space that is accessible most of the year, dry, well lit, ventilated, pest free, secured against theft, empty of other products that could affect the colour, flavour, taste, smell or safety of food supplements, and large enough to accommodate enough food for 2 months for each registered client group. One box of Plumpy'Nut measures 38.5 cm x 29 cm x 20 cm and weighs 14.4 kg; only six boxes can be stacked.
- Space to store other supplies such as water purification tablets, combined vitamins and minerals (CMV), F-75 and F-100 therapeutic milk.

2. Materials

- The most recent version of "Nutrition Management for People Living with HIV/AIDS: Resource Guidelines for Clinical Health Workers" (MOHSS)
- At least two sets of nutrition and HIV counselling cards
- Appropriate forms to record client nutrition information and report monthly
- BMI and WFH charts posted in the weighing area
- Nutrition education materials including posters, brochures, and DVDs on nutrition and HIV

3. Equipment

- Functional scales for weighing adults and children (for children under 5, scales should measure to the nearest 100 grams)

- Length measure in cm for children under 24 months old
- Height measure in cm for older children and adults
- MUAC tapes for adults and for children (the most common MUAC tapes are the ones with colours—red, yellow, green—meant for children under 5)
- Utensils (pans, bowls or cups, serving spoons) to demonstrate food preparation and feeding
- Adequate storage pallets (if food is distributed in the facility)

4. Staff

- A national nutrition focal person who has been trained in the national nutrition and HIV course to ensure that equipment and materials are available and functioning, all clients are assessed according to national guidelines, records are completed, and food is prescribed according to eligibility criteria
- Staff assigned to provide nutrition care and support, including anthropometric measurement and recording, group counselling, education, and demonstration (a community counsellor trained in the 5-day FBP training course could take this role)
- Staff assigned to counsel individual PLHIV and prescribe food (a nurse trained in the national nutrition and HIV course could take this role)
- Staff assigned to distribute the food (pharmacy staff or community counsellors could take this role)

C. Package of Nutrition Services

The NACS Programme for PLHIV will provide a package that includes nutrition assessment and monitoring, nutrition education and counselling, distribution of nutrition supplements (multiple micronutrients, therapeutic and supplementary food) and means for point-of-use water purification, and linkages with livelihood and food security (safety net) programmes. The content and combination of services may vary with the nutritional status of the client. The services will be integrated with other HIV care and treatment services.

1. Nutrition Assessment

Nutrition assessment is critical to support optimal nutrition care and practices and help PLHIV prevent and manage symptoms. A negative change in nutritional status is a warning of disease progression, effectiveness of or adherence to treatment, and treatment side-effects (e.g., drug resistance, metabolic changes).

Health care providers should accurately measure the height of adult PLHIV on their first visit to the care and treatment site. They should weigh them and calculate their BMI on each visit and record the weight and BMI on their patient cards. Health care providers should measure the weight and height of all children on each visit and compute and record their WFH. If they cannot compute BMI for adults or WFH for children accurately because they cannot measure weight or height accurately (e.g., the client is pregnant or unable to stand), they should measure and record MUAC. They should also assess all children for oedema on both feet and measure the weight and MUAC of all pregnant women and women up to 6 months post-partum on each visit.

Health care providers should carry out a dietary assessment of clients with moderate or severe acute malnutrition. They should ask clients whether they have symptoms likely to affect food intake or nutritional status, such as appetite loss, nausea, vomiting, sores/oral thrush or difficulty swallowing, bloated stomach or constipation,

and diarrhoea. Haemoglobin, triglyceride, and cholesterol levels and fasting glucose should be measured at least every 6 months, especially for clients taking medicine that are likely to predispose them to risky levels of these parameters.

2. Nutrition Education and Counselling

Continual nutrition education and counselling on key messages are important to help change eating patterns. Health care providers should educate and counsel PLHIV on how to

- Improve dietary quality and diversity.
- Increase energy intake using balanced diets.
- Manage medicine-food interactions.
- Maintain hygiene and food/water safety.
- Make drinking water safe.
- Use safe, clean water to wash and prepare food.

Health care providers should counsel ART clients on dealing with metabolic syndrome side effects (lipodystrophy, insulin resistance/ diabetes, osteoporosis, and associated wasting syndrome). Box 1 lists key counselling messages for PLHIV. Posters, pamphlets/brochures, and DVDs produced by the MOHSS should be used for nutrition and HIV education.

Box 1. Key messages for PLHIV

- Get weighed frequently to monitor HIV progression and the effectiveness of treatment. Report unintentional rapid weight loss to a health care provider.
- PLHIV need more energy than people without HIV, including one or more snacks a day in addition to normal meals. Enrich foods with locally available energy- and nutrient-dense foods such as marula nuts, mopani worms, dried fish, baobab fruit, eggs, and milk.
- Always keep a high standard of hygiene and sanitation. Drink only safe, clean water.
- Avoid unhealthy foods (chips, fast foods, soft drinks) and alcohol.
- Get physical exercise and seek care from a counselor in case of depression.
- Seek medical care immediately if you have an infection. Modify your diet to eat enough food and manage symptoms to reduce the severity of the illness.
- HIV, some ARVs, and medicine to treat HIV-related conditions may cause dry mouth, which can contribute to tooth decay. Seek dental care at an early stage of HIV to treat decay and avoid abscesses. For oral thrush, clean your mouth after each meal with lightly salted warm water.
- Stick to the medicine-food plan the health care provider recommends.

Demonstrations of food preparation and handling also should be done at the ART sites. Counselling cards and wall charts produced by the MOHSS should be used for nutrition counselling.

3. Nutrition Supplements

Three kinds of nutrition supplements are used to treat or prevent undernutrition among PLHIV: multiple micronutrients, therapeutic foods, and supplementary foods. None of these are currently produced in Namibia.

Micronutrient supplements. In Namibia all PLHIV on care and treatment receive multivitamins. Multivitamin specifications will soon be revised to include minerals (selenium, iron, and zinc). Supplements are available without iron for severely malnourished people for whom iron supplementation is not appropriate. Multiple micronutrients should be targeted to PLHIV who are *not* on fortified food supplements to avoid over-supplementation.

Therapeutic foods. RUTF is used mainly to treat SAM in children and adults and meets the requirement of equivalence to F-100 therapeutic milk. The MOHSS will use RUTF to treat severe malnutrition in children and adults, along with supplementary food to treat moderate malnutrition.

Therapeutic and supplementary foods should meet the following specifications:

- WHO/UNICEF-acceptable standards for daily energy, micronutrients, and protein content required for the target population as well as for microbiological safety.
- Low fibre and anti-nutrient content (e.g., tannins that affect iron absorption)
- High digestibility
- Compactness and ease of transport and storage
- Precooked form (if possible in the form of pastes) so they can be eaten without preparation or cooking
- Safety for all age groups over 6 months
- Palatability, cultural appropriateness

The following therapeutic foods could be used in Namibia, following acceptability trials:[4]

- F-100 and F-75 therapeutic milks and modified formats for (phased) inpatient treatment of severe acute malnutrition in children under 5 and ReSoMal for management of dehydration.
- Groundnut-based Plumpy'Nut (imported from France by CHAI) or another UNICEF-certified therapeutic food produced in the region. Plumpy'Nut is packaged in 92-g sachets that provide 500 kilocalories (kcal) each and has a shelf life of 2 years.. The RUTF used should be obtained from a manufacturer certified by UNICEF's Supply Division.

Local production of RUTF in Namibia may not be cost effective, as the quantities needed would be too small to be viable and most ingredients would still need to be imported.

Supplementary foods. Supplementary foods, or fortified blended foods (FBF), are generally used to treat moderate malnutrition and prevent nutrition deterioration among both adults and children. Namibia should procure a supplementary food that is energy dense and where possible fortified with at least the UNICEF/WFP micronutrient premix. Prescribed amounts should provide at least 50 percent of the daily energy requirements of the target population, with approximately 10–12 percent of energy coming from protein. Like RUTF, the supplementary food should meet high safety standards and national and international quality assurance standards.

[4] For sustainability, designated therapeutic and supplementary foods should be included in the Namibia Essential Medicines (NEM) list of the MOHSS.

Box 2 describes the optimal packaging of food supplements.

Box 2. Packaging of food supplements

- Food supplements should be packed in amounts that allow recipients to consume the required dose and prevent sharing the food with household members.
- Therapeutic foods should come in approximately 100 g portions that can be eaten directly from the container without preparation and refrigeration. Packaging should allow a shelf life of at least 12 months.
- Supplementary foods should be packaged in approximately 100-g and 200-g high-density, hermetically sealed polyethylene sachets designed to use as a daily ration. The packaging should give the product a shelf life of 9 months or more. Supplementary foods are precooked and require minimal preparation with clean water.
- Product labels should minimize stigma and promote adherence. In addition to standard information, the funding agency's logo (using its branding guidelines), preparation instructions emphasizing the use of clean and safe water, the expiration date, the words "Not for Sale," and a statement to indicate that the food is not for children under 6 months old and that exclusive breastfeeding is recommended for children up to 6 months old should be printed legibly on the label or embossed on the package.

The NACS Programme for PLHIV could integrate the procurement and distribution of food supplements with the procurement and distribution of other related commodities such as food supplements for TB patients or through the MOHSS Central Medical Stores (CMS).

Important: Neither therapeutic nor supplementary foods are appropriate for infants under 6 months old. These foods should not be used as infant formula or packaged to look like infant formula. They should be labelled clearly to indicate that they are not for children under 6 months old. Severely malnourished children of this age should be treated in health facilities (mainly paediatric wards) with therapeutic milk appropriate for their condition and their mode of infant feeding. Service providers should give and reinforce messages to promote and support exclusive breastfeeding for up to 6 months in line with the National infant and young child feeding guidelines (IYCF).

Follow-up and links to livelihood programmes. PLHIV are discharged from food supplementation when they attain the exit criteria, but they need continual counselling and support at the site or at home until their nutritional status stabilises. While on treatment, severely malnourished PLHIV should be followed up weekly. Moderately malnourished PLHIV should be followed up every 2 weeks. After graduation from the food supplementation, PLHIV should be followed up monthly.

Sites should monitor the number of discharged clients who return to the programme with deteriorated nutritional status.

The MOHSS will support sites in linking PLHIV to other care services to ensure that clients continue to receive needed ART, PMTCT, family planning, OVC, or child health services. Clients who cannot grow or buy enough food to support their optimal nutritional status should be referred for social grant assessment and transitioned to community support, including community-based food security and livelihood support.

Community-based programmes or HBC services should use MUAC to screen clients for undernutrition and refer PLHIV with undernutrition for nutrition care and support.

D. Target Groups for Nutrition Supplements

The following groups should be provided with nutrition supplements:

1. All children 6–23 months old, including children born to HIV-positive women and other HIV-affected children regardless of their nutritional status

2. All malnourished children 6 months–17 years old with severe or moderate acute malnutrition as measured by WFH or MUAC, regardless of their HIV status. Children and adolescents may face barriers to HIV testing (e.g., non-consenting caregivers) and should not be ineligible for nutrition supplements for this reason.

3. HIV-positive pregnant and post-partum women with MUAC < 22 cm. Such clients are eligible for nutrition supplements for up to 6 months post-partum. In addition to the nutritional benefits to women and their infants, food supplements provided to pregnant and post-partum women can be an incentive to return for counselling and for ANC and other maternal and child health services.

4. Clinically malnourished HIV-positive adolescents and adults (men and non-pregnant or -post-partum women) over 17 years old with BMI < 18.5 kg/m^2 or MUAC < 19 cm if BMI cannot be computed accurately for any reason.

E. Entry and Exit Criteria for Therapeutic and Supplementary Food

Not every PLHIV in Namibia needs food supplements, but most need to know how to use available resources to eat healthily and manage nutrition concerns related to HIV-related symptoms and ART side effects (nausea, anorexia, diarrhoea, drug-food interactions, lipodystrophy, insulin resistance/diabetes, osteoporosis, and associated wasting syndrome). Therapeutic and supplementary food will be provided through the health system based on predefined entry and exit criteria. Food insecurity will not be addressed through the health care system. The health care system's role in addressing household food insecurity will be to foster linkages with community and civil society organizations that provide income generation or livelihood support.

1. Children

Every child who visits a health facility should have his/her nutritional status assessed. Caregivers of children of all age groups should be counselled on the need for regular weighing and informed about the availability of services to treat severe and moderate acute malnutrition.

i. All children 6–23 months old, including HIV-exposed children, will be registered in the NACS Programme immediately on arrival at the health facility or community site, whether or not they are malnourished. If they are malnourished, they will be treated according to the guidelines for treatment of severe or moderate malnutrition (annex 4).

   Children in this age group who are not malnourished will receive food supplements regardless of their HIV status until they are 24 months old. Their nutritional status will be assessed every month. At the age of 24 months,

malnourished children will be assessed and discharged if their WFH is ≥ –2 z-scores.

ii. All children under 5 with severe acute malnutrition, regardless of HIV status, with appetite and no complications will be treated as outpatients at facility level using the 2008 national guidelines for the Integrated Management of Acute Malnutrition (IMAM), and be followed up weekly to monitor progress. Children living in remote areas without access to weekly follow-up at health facilities will be treated in the paediatric ward for the full length of treatment. Children will be discharged from treatment of severe acute malnutrition when WFH is ≥ −2 z-scores for two consecutive visits and will continue treatment in a supplementary feeding program along with children with moderate acute malnutrition to prevent relapse. If no supplementary feeding programme is available, SAM children should be discharged when WFH is ≥ −1 z-scores for two consecutive visits.

iii. All children under 5 with severe acute malnutrition with no appetite or with complications will be treated in the paediatric ward using WHO IMCI guidelines adapted to the Namibian context, as described in the 2008 IMAM guidelines. If the children have access to a facility where they can get weekly follow-up, treatment will begin in the paediatric ward with F-75 therapeutic milk. When complications are stabilised, usually after approximately 3 days, RUTF (Plumpy'Nut) will be introduced gradually until appetite returns. Treatment then can be finished at home with weekly follow-up visits to the nearest health facility for 30–60 days. Children without weekly access to health care in a facility will complete their treatment in the paediatric ward with F-75 and F-100 (according to health and nutritional status) until they reach the discharge criteria defined in the national guidelines for IMAM (40–60 days). Children with SAM who receive the complete treatment in the paediatric ward will be discharged when WFH is ≥ −2 z-scores for two consecutive visits and will continue treatment in a supplementary feeding program with children with MAM to prevent relapse of malnutrition. If no supplementary feeding programme is available, SAM children should be discharged when WFH is ≥ −1 z-scores for two consecutive visits.

iv. Children over 5 years old with SAM with appetite and no complications are eligible for food supplements if they are malnourished, regardless of their HIV status or exposure. They will be treated as outpatients at facility level, in the same way as children under 5, as described in ii above.

v. Children over 5 years old with no appetite or with complications will be treated as inpatients in paediatric wards, in the same way as children under 5, as described in iii above.

vi. All children with moderate acute malnutrition will be eligible for a daily ration of FBF until they are discharged. The children will be assessed every 2 weeks and discharged when WFH is ≥–2 z-scores for two consecutive visits.

vii. All children who are ineligible for food supplements will receive multivitamins or multiple micronutrients at no more than 1 RDA level. Children on food supplements will not receive multivitamins or multiple micronutrients.

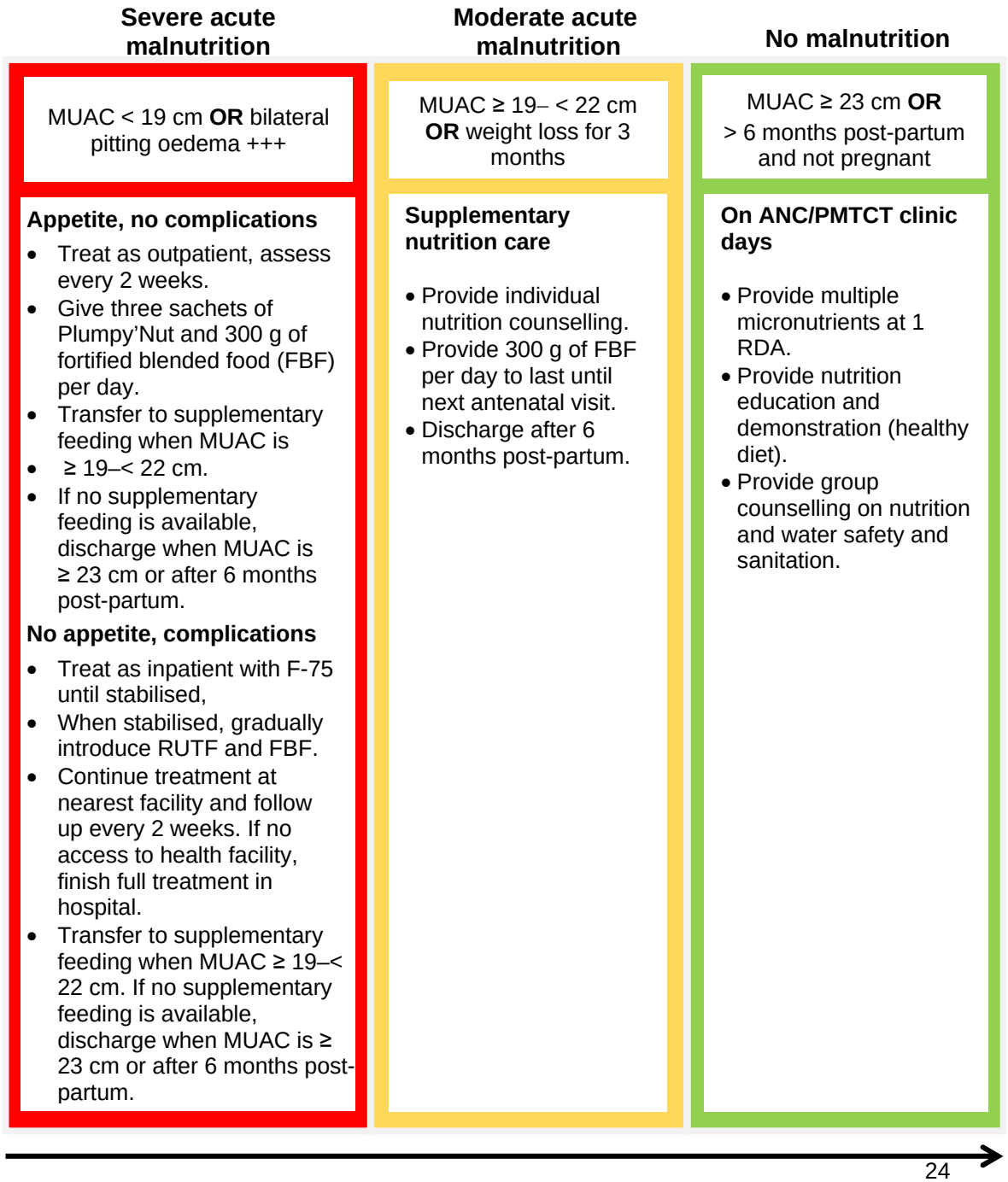
viii. Adolescents 15–17 years old will be treated as adults with appropriate BMI and MUAC admission and discharge criteria.

Annex 5 contains detailed guidelines on nutrition assessment, counselling, and supplementation for young children.

2. Pregnant and Post-partum Women

Pregnant and post-partum women have higher energy and nutrient needs than non-pregnant and non-post-partum women, and HIV infection further increases energy needs. All women in PMTCT programs will be assessed nutritionally. Women who are pregnant or within 6 months post-partum will be eligible for therapeutic feeding when MUAC is < 19 or supplementary feeding when MUAC is ≧ 19 and < 22 cm. After 6 months post-partum, eligibility for food will be the same as for other adults described below. Figure 4 outlines nutrition care for pregnant and post-partum women according to entry and exit criteria.

Figure 4: Admission and discharge criteria and nutrition care for pregnant and post-partum women in PMTCT programmes



Pregnant or post-partum women with MUAC < 19 cm should be assessed for complications related to SAM. If they do not have critical illnesses, they should be managed on an outpatient basis and receive a medical assessment and appetite test (annex 6) at a health facility every 2 weeks for the first month and every month thereafter if nurses judges their situation to be stable.

Severely malnourished pregnant and post-partum women: Give three sachets of Plumpy'Nut and 300 g of FBF per day providing approximately 3,000 kcal/day until MUAC is ≥ 19 cm. Where no FBF is available, follow national IMAM guidelines and give six sachets of Plumpy'Nut/day.

Moderately malnourished pregnant and post-partum women: When MUAC is ≥ 19, give 300 g of FBF per day. If no FBF is available, reduce the quantity of Plumpy'Nut to three sachets. Give pregnant and post-partum women who enter with MUAC ≥ 19 to < 22 cm and pregnant women who have been losing weight for 3 consecutive months 300 g of FBF per day or, if no FBF is available, three sachets of Plumpy'Nut/day to provide an additional 1,500 kcal/day for the duration of the pregnancy and/or until 6 months post-partum. Women who attain MUAC ≥ 23.0 cm for two consecutive visits should be discharged with appropriate nutrition counselling for the mothers and infant feeding counselling for the infants. Admit women with medical complications to the hospital for feeding with F-75 until complications stabilise and appetite returns so that they can eat Plumpy'Nut.

Women who are still malnourished (BMI < 18.5 kg/m^2) after their infants reach the age of 6 months can be recruited as "adults > 18 years old, non-pregnant or post-partum" and should be referred for further clinical investigation in case of emerging complications. Women who do not receive food should be given multiple micronutrient supplements at approximately 1 RDA levels.

3. Adult and Adolescent PLHIV

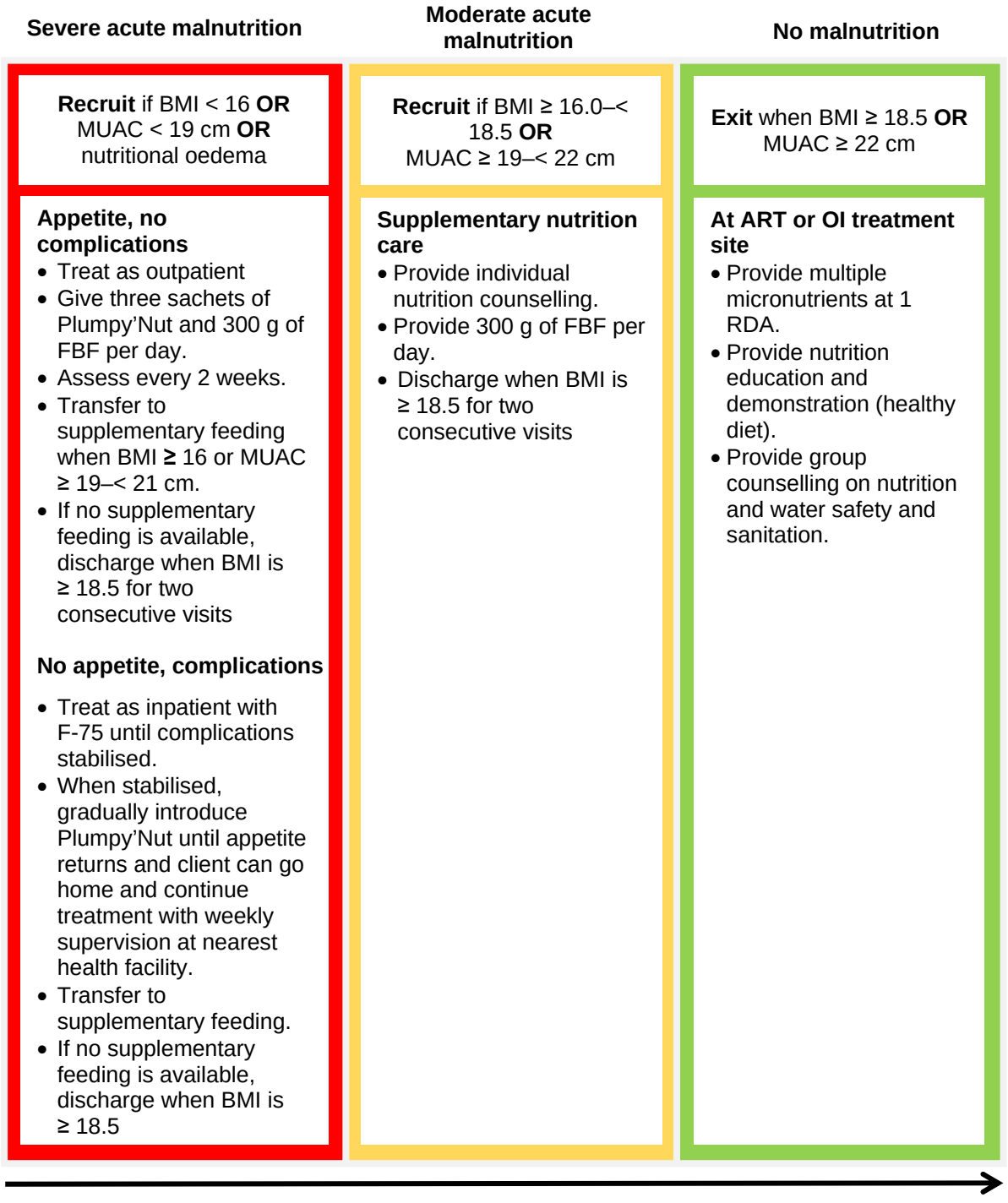
Severely malnourished HIV-positive adults (BMI < 16 kg/m^2 or MUAC < 19 cm will be treated on an inpatient basis if they have complications or no appetite and on an outpatient basis if they have appetite and no complication. Inpatient adults with SAM should receive F-75 until complications are resolved and appetite returns. Once clients are stabilised and their infections are being treated, they will continue to receive nutrition management on an outpatient basis, receiving a daily ration of three sachets of Plumpy'Nut and 300 g of FBF per day until they reach the discharge criterion of BMI ≥ 16 kg/m^2. Where no FBF is available, follow national IMAM guidelines and give six sachets of Plumpy'Nut/day.

Moderately malnourished HIV-positive adolescents and adults (men and non-pregnant and non-post-partum women) over 17 years old will receive supplementary food if they have BMI ≥ 16.0–< 18.5 kg/m^2 or MUAC ≥ 19 cm–< 22 cm since the last visit. They should receive a daily ration of 300 g of FBF and be discharged when BMI is ≥ 18.5 kg/m^2. Where no FBF is available, follow national IMAM guidelines and give three sachets of Plumpy'Nut/day.

All clients who do not receive food supplements will continue to receive other nutrition care including assessment, counselling, and multiple micronutrients.

Figure 5 outlines nutrition care for adult ART and pre-ART clients (non-pregnant and non-post-partum) according to admission and discharge criteria.

Figure 5: Admission and discharge criteria and nutrition care for adult ART and pre-ART clients (non-pregnant and non-post-partum)



* Clients with severe malnutrition should be treated on an inpatient basis unless they live close enough to the health facility to be able to pick up the specialised food regularly.

Annex 7 describes nutrition care of adult PLHIV in detail.

F. Logistics

This section explores logistics considerations for food procurement, handling, storage, and distribution.

Initially distribution delivery points will estimate the amount and kind of nutrition supplements needed for the sites based on the number of eligible clients (non-pregnant and non-post-partum adults, PMTCT women, HIV-infected and -affected children) who are moderately or severely malnourished. They will use the estimated number of clients in the facility, calculate quantities to last for 3 months, and add about 10 percent for wastage. Within 3 months of programme inception, delivery points should be able to make projections based on the amount of food dispensed per month.

Quantities of food and other supplies ordered should not exceed what can be stored in the space available. Sites should maintain enough food stocks to last for at least 2 months (or 1 month if storage space is limited). Other materials such as nutrition and food registers, prescription forms, client nutrition cards, and recording forms may be ordered together with the nutrition supplements.

2. Food Handling

When the food supplies are delivered to the distribution sites, the focal person or site manager should ensure the following:

- The supplements are off-loaded and arranged in the stores (there should be enough people to support the off-loading).
- The supplements are delivered to the sites in good condition and on time.
- The amount delivered matches the delivery note quantities.
- The delivery note is signed and returned to the food partner.

Distribution sites should maintain stock logs to monitor and avoid stock-outs, monitor storage conditions (temperature, cleanliness, control of expiration dates), and ensure the safety of the food supplements. They should dispense the supplements in the stores on a first in-first out basis to avoid expiration of the commodities while in the stores.

3. Quality Assurance

Each food supplement distribution site will have a protocol for ensuring food quality and safety while in the stores. This protocol will cover the following:

- A system to keep the store dry at all times through adequate drainage and repair of leaking roofs or walls
- Adequate lighting and ventilation
- Control and prevention of spillage and documentation of any instances of spillage
- Control of pests (rodents, birds, bats, snakes)
- Cleaning and periodic supervised fumigation
- Documentation of the shelf-life of remaining supplies
- Compliance with government food safety and quality standards
- A mechanism for regular inspection of quality, safety, and hygiene

Box 3 shows a simple checklist for quality assurance. The site in-charge or nutrition focal person should visit the distribution site to check the quality of the products at least every 2 weeks.

Box 3. Quality control checklist

- Enough lighting [__]
- Adequate ventilation [__]
- No spillage [__]
- Clean floors and shelves [__]
- Date for fumigation not passed [__]
- Mechanism for pest control [__]
- Stock cards completed [__]
- Food supplements not past shelf life expiry date [__]

4. Security

Each distribution site should have a system to guard the food commodities from theft and vandalism and a documented protocol on the use of food supplements for personal (private) reasons by site staff. To the extent possible, this protocol should follow similar guidelines for medicines and other supplies.

Annex 8 is a checklist for assessing the capacity and implementation of food by prescription sites.

V. Learning Sites

The NACS Programme will be implemented in phases to accommodate the development of nutrition capacity in the country. The initial sites selected to prescribe and distribute nutrition supplements for PLHIV should be able to show impact that can be used to advocate for scale-up. These learning sites will monitor and document improvements in the nutritional status of PLHIV resulting from the nutrition care and support package. The sites also can be used for training and for pre-testing nutrition and HIV tools and materials. The learning sites should operate for 6–9 months before the activities are scaled up to other sites after formal evaluation. The sites must be willing to support the NACS Programme by allocating staff time, equipment, space, supervision, and quality control; modifying systems as needed; and integrating nutrition and HIV with other services. Implementation of the NACS Programme in the learning sites will include the steps outlined below.

A. Advocacy

The Food and Nutrition Sub-division will need to inform other sections in the MOHSS of the implementation and components of the NACS Programme for PLHIV and its links with other HIV care and treatment interventions such as the National TB Programme. Some guidelines, training materials, and M&E tools may need to be reviewed and synchronized before the learning sites are inaugurated or during their operation.

B. Recruitment and Training of Key National Staff

The CHPA of the Food and Nutrition Sub-division, who will lead the implementation of the learning sites, will visit similar programmes in the region as a learning process. Before the learning sites are established, at least two of the three vacant positions in the Food and Nutrition Sub-division should be filled, and the staff should be trained in nutrition and HIV.

C. Advisory Group

A small advisory group of 5–9 program managers, nutrition experts, ART and PMTCT experts, M&E (or HIS) staff, and policy makers should review the progress of the learning sites and advise on programme improvements. This role may be taken by an existing advisory group if the members have roles similar to those specified above.

D. Guidelines

By mid-2009 IMAM guidelines were being implemented in seven pilot districts in Namibia (Engela, Oshakati, Oshikuku, Onandjokwe, Rundu, Katima, and Okahandja). Guidelines on nutrition management of SAM and MAM in PLHIV and eligibility criteria for therapeutic and supplementary food need to be finalised and agreed among the technical teams in the different HIV care and treatment programmes in the country.

E. Training Materials and Tools

Current nutrition and HIV training materials will need to include nutrition assessment and classification for prevention and control of undernutrition and over-nutrition; prescription, distribution, and handling of food supplements; and management of

data and information relating to food supplements. The following tools may need to be developed or reviewed to ensure they capture data needed in the NACS Programme:

- BMI and WFH conversion charts (see annexes 1 and 2)
- An algorithm for nutrition management of PLHIV that includes therapeutic and supplementary food (see annex 3)
- Nutrition assessment forms
- Forms for collection of client information

F. Selection of Learning Sites

The MOHSS and funders[5] of the NACS Programme will jointly select three or four learning sites. These can be public, private, and faith-based health facilities that support MOHSS HIV care and treatment goals. The following criteria should be used for site selection:

- Location in regions with high HIV prevalence and high rates of undernutrition (e.g., as reported in the DHS)[6]
- Large number of PLHIV in care and treatment or PMTCT programmes
- Willingness to implement the programme and make necessary modifications such as creation of space, deployment of staff, and adjustment of client flow
- Proximity to other sites that offer food and nutrition supplements, such as National TB Programme or CHAI sites
- Ability to partner with NGOs and community-based organizations (CBOs) that provide safety net support or HBC for PLHIV

NGOs or CBOs that provide HBC or OVC services or partner with local organisations that provide such services can be chosen as learning sites if they meet the following criteria:

- Willingness and ability and willingness to provide staff time, equipment, space, supervision, quality control, systems modification, and service integration
- Links with health facilities that can prescribe therapeutic and supplementary food for PLHIV and TB patients
- Space to store food safely or willingness to make alterations to provide such space
- Community outreach staff who can provide reliable client follow-up
- Commitment to follow MOHSS nutrition supplement guidelines

A sample site assessment checklist is found in annex 8.

The MOHSS should make an initial visit to each learning site with the regional focal person to discuss the objectives and components of the NACS Programme for PLHIV with site manager and reach agreement on the need for a nutrition focal person and staff designated for nutrition assessment, education, and counselling, food prescription, and food distribution. The team also should reach agreement with the site on allocation of storage space for food supplements in the facility or, if this is not possible, within 10 minutes' walk on the hospital site. The team should then assess the facility's strengths and weakness for implementing the NACS Programme for PLHIV.

[5] Possible funders include PEPFAR (CDC or USAID), CHAI, GRN, or the Global Fund, and other bilateral donors.
[6] The first learning sites may need to be in or near Windhoek for close monitoring and support.

G. Training and Equipment

The nutrition focal persons from each learning site should be trained in the national nutrition and HIV course and the 2-day skills-based module. During the training the participants should practice skills using the tools and materials used in the NACS Programme and develop action plans to be followed up by the national and regional teams.

H. Monitoring and Documentation

The following aspects of the NACS Programme for PLHIV will be monitored using registers to be agreed by the MOHSS:

- Quality of nutrition assessment, education, counselling, and demonstrations
- Completeness of data recording
- Adherence to eligibility criteria for food prescription
- Storage and product use and wastage
- Reporting
- Referral and linkages with other services

ANNEX 1. BMI Conversion Chart

Red shows severe malnutrition (BMI < 16.0 kg/m^2).
Yellow shows moderate and mild malnutrition (BMI 16.0–18.4 kg/m^2).
Green shows healthy weight for height (BMI 18.5–24.9 kg/m^2).
Brown shows overweight (BMI 25.0–29.9 kg/m^2).
Purple shows obesity (BMI > 30 kg/m^2).

1. Find the client's height in the left-hand column or y axis (1 metre=100cm)
2. Find the client's weight in the bottom row or x axis
3. Find the point where the two lines meet. This is the BMI. To find out if BMI<18.5kg/m^2, see the orange columns

Height (cm)

200	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	25	26	26	27	27	28	28	29	29	30	30
198	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31
196	9	10	10	11	11	12	12	13	14	14	15	15	16	16	17	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31	31
194	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	18	18	19	19	20	20	21	21	22	22	23	23	24	24	25	26	26	27	27	28	28	29	29	30	30	31	31	32
192	10	10	11	11	12	12	13	14	14	15	15	16	16	17	17	18	18	19	20	20	21	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	30	31	31	32	33
190	10	11	11	12	12	13	13	14	14	15	16	16	17	17	18	18	19	19	20	20	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	30	30	30	31	32	32	33	33
188	10	11	11	12	12	13	14	14	15	15	16	16	17	18	18	19	19	20	20	21	22	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	31	31	32	32	33	33	34
186	10	11	12	12	13	13	14	14	15	16	16	17	17	18	18	19	20	20	21	21	22	23	23	24	24	25	25	26	27	27	28	28	29	29	30	31	31	32	32	33	34	34	35
184	11	11	12	12	13	14	14	15	15	16	16	17	17	17	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30	30	31	31	32	32	33	34	35	35
182	11	11	12	13	13	14	14	15	16	16	17	18	18	19	19	20	21	21	22	22	23	24	24	25	25	26	27	27	28	28	29	30	30	31	31	32	33	33	34	34	35	36	36
180	11	12	12	13	14	14	15	15	16	17	17	18	19	19	20	20	21	22	22	23	23	24	25	25	26	27	27	28	28	29	30	30		31	32	33	33	34	35	35	36	36	37
178	11	12	13	13	14	15	15	16	16	17	18	18	19	20	20	21	21	22	22	23	24	25	25	26	27	27	28	28	29	30	30	31	32	32	33	33	34	35	35	36	37	37	38
176	12	12	13	14	14	15	15	16	17	17	18	19	19	20	21	21	22	23	23	24	25	25	26	26	27	28	28	29	30	30	31	32	32	33	34	34	35	36	36	37	37	38	39
174	12	13	13	14	15	15	16	17	17	18	18	19	20	20	21	22	22	23	24	24	25	26	26	27	28	28	29	30	30	31	32	32	33	34	34	35	36	36	37	38	38	39	40
172	12	13	14	14	15	16	16	17	18	18	19	20	20	21	22	22	23	24	24	25	26	26	27	28	28	29	30	30	30	31	32	32	33	34	34	35	36	37	38	39	39	40	41
170	12	13	14	15	15	16	17	17	18	19	19	20	21	21	22	23	24	24	25	26	26	27	28	28	29	30	30	31	32	33	33	34	35	35	36	37	37	38	39	39	40	41	42
168	13	13	14	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	26	26	27	28	28	29	30	30	31	32	33	33	34	35	35	36	37	38	38	39	40	40	41	42	43
166	13	14	15	15	16	17	17	18	19	20	20	21	22	22	23	24	25	25	26	27	28	28	29	30	30	31	32	33	33	34	35	36	36	37	38	38	39	40	41	41	42	43	44
164	13	14	15	16	16	17	18	19	19	20	21	22	22	23	24	25	25	26	27	28	28	29	30	30	31	32	33	33	34	35	36	36	37	38	38	39	40	41	42	42	43	44	45
162	14	14	15	16	17	18	18	19	20	21	21	22	23	24	24	25	26	27	27	28	29	30	30	31	32	33	34	34	35	36	37	37	38	39	39	40	41	42	43	43	44	45	46
160	14	15	16	16	17	18	19	20	20	21	22	23	23	24	25	26	27	27	28	29	30	30	31	32	33	34	34	35	36	37	38	38	39	40	41	41	42	43	44	45	45	46	47
158	14	15	16	17	18	18	19	20	21	22	22	23	24	25	26	26	27	28	29	30	30	31	32	33	34	34	35	36	37	38	38	39	40	41	42	42	43	44	45	46	46	47	48
156	15	16	16	17	18	19	20	21	21	22	23	24	25	25	26	27	28	29	30	30	31	32	33	34	35	35	36	37	38	39	39	40	41	42	43	44	44	45	46	47	48	48	49
154	15	16	17	18	19	19	20	21	22	23	24	24	25	26	27	28	29	30	30	31	32	33	34	35	35	36	37	38	39	40	40	41	42	43	44	45	46	46	47	48	49	50	51
152	16	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	42	43	44	45	46	47	48	48	49	50	51	52
150	16	17	18	18	19	20	21	22	23	24	25	26	27	27	28	29	30	31	31	32	33	34	36	36	37	38	39	40	41	41	42	43	44	45	45	46	47	48	49	50	51	52	53
148	16	17	18	19	20	21	22	23	23	24	25	26	27	28	29	30	31	32	33	33	34	35	36	37	38	39	40	41	42	42	43	44	44	45	46	47	48	49	50	51	52	53	54
146	17	18	19	20	21	22	23	23	24	25	26	27	28	29	31	32	33	34	35	35	35	36	37	38	39	40	41	42	43	43	44	45	46	46	47	48	49	50	51	52	53	54	55
144	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	36	37	38	39	40	41	42	43	43	44	45	46	46	47	48	49	50	51	52	53	54	55	56
Weight	36	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	118	120

Annex 2. Weight-for-Height/Length Chart

Boys weight (kg)						Girls weight (kg)				
-4SD	-3SD	-2SD	-1SD	Median	Length (cm)[a]	Median	-1SD	-2SD	-3SD	-4SD
1,7	1,9	2,0	2,2	2,4	**45,0**	2,5	2,3	2,1	1,9	1,7
1,8	1,9	2,1	2,3	2,5	**45,5**	2,5	2,3	2,1	2,0	1,8
1,8	2,0	2,2	2,4	2,6	**46,0**	2,6	2,4	2,2	2,0	1,9
1,9	2,1	2,3	2,5	2,7	**46,5**	2,7	2,5	2,3	2,1	1,9
2,0	2,1	2,3	2,5	2,8	**47,0**	2,8	2,6	2,4	2,2	2,0
2,0	2,2	2,4	2,6	2,9	**47,5**	2,9	2,6	2,4	2,2	2,0
2,1	2,3	2,5	2,7	2,9	**48,0**	3,0	2,7	2,5	2,3	2,1
2,1	2,3	2,6	2,8	3,0	**48,5**	3,1	2,8	2,6	2,4	2,2
2,2	2,4	2,6	2,9	3,1	**49,0**	3,2	2,9	2,6	2,4	2,2
2,3	2,5	2,7	3,0	3,2	**49,5**	3,3	3,0	2,7	2,5	2,3
2,4	2,6	2,8	3,0	3,3	**50,0**	3,4	3,1	2,8	2,6	2,4
2,4	2,7	2,9	3,1	3,4	**50,5**	3,5	3,2	2,9	2,7	2,4
2,5	2,7	3,0	3,2	3,5	**51,0**	3,6	3,3	3,0	2,8	2,5
2,6	2,8	3,1	3,3	3,6	**51,5**	3,7	3,4	3,1	2,8	2,6
2,7	2,9	3,2	3,5	3,8	**52,0**	3,8	3,5	3,2	2,9	2,7
2,8	3,0	3,3	3,6	3,9	**52,5**	3,9	3,6	3,3	3,0	2,8
2,9	3,1	3,4	3,7	4,0	**53,0**	4,0	3,7	3,4	3,1	2,8
3,0	3,2	3,5	3,8	4,1	**53,5**	4,2	3,8	3,5	3,2	2,9
3,1	3,3	3,6	3,9	4,3	**54,0**	4,3	3,9	3,6	3,3	3,0
3,2	3,4	3,7	4,0	4,4	**54,5**	4,4	4,0	3,7	3,4	3,1
3,3	3,6	3,8	4,2	4,5	**55,0**	4,6	4,2	3,8	3,5	3,2
3,4	3,7	4,0	4,3	4,7	**55,5**	4,7	4,3	3,9	3,6	3,3
3,5	3,8	4,1	4,4	4,8	**56,0**	4,8	4,4	4,0	3,7	3,4
3,6	3,9	4,2	4,6	5,0	**56,5**	5,0	4,5	4,2	3,8	3,5
3,7	4,0	4,3	4,7	5,1	**57,0**	5,1	4,6	4,3	3,9	3,6
3,8	4,1	4,5	4,9	5,3	**57,5**	5,2	4,8	4,4	4,0	3,7
3,9	4,3	4,6	5,0	5,4	**58,0**	5,4	4,9	4,5	4,1	3,8
4,0	4,4	4,7	5,1	5,6	**58,5**	5,5	5,0	4,6	4,2	3,9
4,1	4,5	4,8	5,3	5,7	**59,0**	5,6	5,1	4,7	4,3	3,9
4,2	4,6	5,0	5,4	5,9	**59,5**	5,7	5,3	4,8	4,4	4,0
4,3	4,7	5,1	5,5	6,0	**60,0**	5,9	5,4	4,9	4,5	4,1
4,4	4,8	5,2	5,6	6,1	**60,5**	6,0	5,5	5,0	4,6	4,2
4,5	4,9	5,3	5,8	6,3	**61,0**	6,1	5,6	5,1	4,7	4,3
4,6	5,0	5,4	5,9	6,4	**61,5**	6,3	5,7	5,2	4,8	4,4
4,7	5,1	5,6	6,0	6,5	**62,0**	6,4	5,8	5,3	4,9	4,5
4,8	5,2	5,7	6,1	6,7	**62,5**	6,5	5,9	5,4	5,0	4,6
4,9	5,3	5,8	6,2	6,8	**63,0**	6,6	6,0	5,5	5,1	4,7
5,0	5,4	5,9	6,4	6,9	**63,5**	6,7	6,2	5,6	5,2	4,7
5,1	5,5	6,0	6,5	7,0	**64,0**	6,9	6,3	5,7	5,3	4,8
5,2	5,6	6,1	6,6	7,1	**64,5**	7,0	6,4	5,8	5,4	4,9
5,3	5,7	6,2	6,7	7,3	**65,0**	7,1	6,5	5,9	5,5	5,0
5,4	5,8	6,3	6,8	7,4	**65,5**	7,2	6,6	6,0	5,5	5,1
5,5	5,9	6,4	6,9	7,5	**66,0**	7,3	6,7	6,1	5,6	5,1
5,5	6,0	6,5	7,0	7,6	**66,5**	7,4	6,8	6,2	5,7	5,2
5,6	6,1	6,6	7,1	7,7	**67,0**	7,5	6,9	6,3	5,8	5,3
5,7	6,2	6,7	7,2	7,9	**67,5**	7,6	7,0	6,4	5,9	5,4
5,8	6,3	6,8	7,3	8,0	**68,0**	7,7	7,1	6,5	6,0	5,5
5,9	6,4	6,9	7,5	8,1	**68,5**	7,9	7,2	6,6	6,1	5,5
6,0	6,5	7,0	7,6	8,2	**69,0**	8,0	7,3	6,7	6,1	5,6
6,0	6,6	7,1	7,7	8,3	**69,5**	8,1	7,4	6,8	6,2	5,7
6,1	6,6	7,2	7,8	8,4	**70,0**	8,2	7,5	6,9	6,3	5,8
6,2	6,7	7,3	7,9	8,5	**70,5**	8,3	7,6	6,9	6,4	5,8
6,3	6,8	7,4	8,0	8,6	**71,0**	8,4	7,7	7,0	6,5	5,9
6,4	6,9	7,5	8,1	8,8	**71,5**	8,5	7,7	7,1	6,5	6,0
6,4	7,0	7,6	8,2	8,9	**72,0**	8,6	7,8	7,2	6,6	6,0
6,5	7,1	7,6	8,3	9,0	**72,5**	8,7	7,9	7,3	6,7	6,1
6,6	7,2	7,7	8,4	9,1	**73,0**	8,8	8,0	7,4	6,8	6,2
6,7	7,2	7,8	8,5	9,2	**73,5**	8,9	8,1	7,4	6,9	6,3
6,7	7,3	7,9	8,6	9,3	**74,0**	9,0	8,2	7,5	6,9	6,3
6,8	7,4	8,0	8,7	9,4	**74,5**	9,1	8,3	7,6	7,0	6,4
6,9	7,5	8,1	8,8	9,5	**75,0**	9,1	8,4	7,7	7,1	6,5
7,0	7,6	8,2	8,9	9,6	**75,5**	9,2	8,5	7,8	7,1	6,5
7,0	7,6	8,3	8,9	9,7	**76,0**	9,3	8,5	7,8	7,2	6,6
7,1	7,7	8,3	9,0	9,8	**76,5**	9,4	8,6	7,9	7,3	6,7
7,2	7,8	8,4	9,1	9,9	**77,0**	9,5	8,7	8,0	7,4	6,7
7,2	7,9	8,5	9,2	10,0	**77,5**	9,6	8,8	8,1	7,4	6,8
7,3	7,9	8,6	9,3	10,1	**78,0**	9,7	8,9	8,2	7,5	6,9
7,4	8,0	8,7	9,4	10,2	**78,5**	9,8	9,0	8,2	7,6	6,9
7,4	8,1	8,7	9,5	10,3	**79,0**	9,9	9,1	8,3	7,7	7,0
7,5	8,2	8,8	9,5	10,4	**79,5**	10,0	9,1	8,4	7,7	7,1
7,6	8,2	8,9	9,6	10,4	**80,0**	10,1	9,2	8,5	7,8	7,1
7,6	8,3	9,0	9,7	10,5	**80,5**	10,2	9,3	8,6	7,9	7,2
7,7	8,4	9,1	9,8	10,6	**81,0**	10,3	9,4	8,7	8,0	7,3
7,8	8,5	9,1	9,9	10,7	**81,5**	10,4	9,5	8,8	8,1	7,4
7,9	8,5	9,2	10,0	10,8	**82,0**	10,5	9,6	8,8	8,2	7,5
7,9	8,6	9,3	10,1	10,9	**82,5**	10,6	9,7	8,9	8,2	7,5
8,0	8,7	9,4	10,2	11,0	**83,0**	10,7	9,8	9,0	8,3	7,6
8,1	8,8	9,5	10,3	11,2	**83,5**	10,9	9,9	9,1	8,4	7,7
8,2	8,9	9,6	10,4	11,3	**84,0**	11,0	10,1	9,2	8,5	7,8
8,3	9,0	9,7	10,5	11,4	**84,5**	11,1	10,2	9,3	8,6	7,9

Boys weight (kg)						Girls weight (kg)				
-4SD	-3SD	-2SD	-1SD	Median	Height (cm)[a]	Median	-1SD	-2SD	-3SD	-4SD
8,4	9,1	9,8	10,6	11,5	**85,0**	11,2	10,3	9,4	8,7	8,0
8,5	9,2	9,9	10,7	11,6	**85,5**	11,3	10,4	9,6	8,8	8,0
8,6	9,3	10,0	10,8	11,7	**86,0**	11,5	10,5	9,7	8,9	8,1
8,7	9,4	10,1	11,0	11,9	**86,5**	11,6	10,6	9,8	9,0	8,2
8,9	9,6	10,4	11,2	12,2	**87,0**	11,9	10,9	10,0	9,2	8,4
9,0	9,7	10,5	11,3	12,3	**87,5**	12,0	11,0	10,1	9,3	8,5
9,1	9,8	10,6	11,5	12,4	**88,0**	12,1	11,1	10,2	9,4	8,6
9,2	9,9	10,7	11,6	12,5	**88,5**	12,3	11,2	10,3	9,5	8,7
9,3	10,0	10,8	11,7	12,7	**89,0**	12,4	11,4	10,4	9,6	8,8
9,3	10,1	10,9	11,8	12,8	**89,5**	12,5	11,5	10,5	9,7	8,9
9,4	10,2	11,0	11,9	12,9	**90,0**	12,6	11,6	10,6	9,8	9,0
9,5	10,3	11,1	12,0	13,0	**90,5**	12,8	11,7	10,7	9,9	9,1
9,6	10,4	11,2	12,1	13,1	**91,0**	12,9	11,8	10,9	10,0	9,1
9,7	10,5	11,3	12,2	13,2	**91,5**	13,0	11,9	11,0	10,1	9,2
9,8	10,6	11,4	12,3	13,4	**92,0**	13,1	12,0	11,1	10,2	9,3
9,9	10,7	11,5	12,4	13,5	**92,5**	13,3	12,1	11,2	10,3	9,4
9,9	10,8	11,6	12,6	13,6	**93,0**	13,4	12,3	11,3	10,4	9,5
10,0	10,9	11,7	12,7	13,7	**93,5**	13,5	12,4	11,4	10,5	9,6
10,1	11,0	11,8	12,8	13,8	**94,0**	13,6	12,5	11,5	10,6	9,7
10,2	11,1	11,9	12,9	13,9	**94,5**	13,8	12,6	11,6	10,7	9,7
10,3	11,1	12,0	13,0	14,1	**95,0**	13,9	12,7	11,7	10,8	9,8
10,4	11,2	12,1	13,1	14,2	**95,5**	14,0	12,8	11,8	10,8	9,9
10,4	11,3	12,2	13,2	14,3	**96,0**	14,1	12,9	11,9	10,9	10,0
10,5	11,4	12,3	13,3	14,4	**96,5**	14,3	13,1	12,0	11,0	10,1
10,6	11,5	12,4	13,4	14,6	**97,0**	14,4	13,2	12,1	11,1	10,2
10,7	11,6	12,5	13,6	14,7	**97,5**	14,5	13,3	12,2	11,2	10,3
10,8	11,7	12,6	13,7	14,8	**98,0**	14,7	13,4	12,3	11,3	10,4
10,9	11,8	12,8	13,8	14,9	**98,5**	14,8	13,5	12,4	11,4	10,4
11,0	11,9	12,9	13,9	15,1	**99,0**	14,9	13,7	12,5	11,5	10,5
11,1	12,0	13,0	14,0	15,2	**99,5**	15,1	13,8	12,7	11,6	10,6
11,2	12,1	13,1	14,2	15,4	**100,0**	15,2	13,9	12,8	11,7	10,7
11,2	12,2	13,2	14,3	15,5	**100,5**	15,4	14,1	12,9	11,9	10,8
11,3	12,3	13,3	14,4	15,6	**101,0**	15,5	14,2	13,0	12,0	10,9
11,4	12,4	13,4	14,5	15,8	**101,5**	15,7	14,3	13,1	12,1	11,0
11,5	12,5	13,6	14,7	15,9	**102,0**	15,8	14,5	13,3	12,2	11,1
11,6	12,6	13,7	14,8	16,1	**102,5**	16,0	14,6	13,4	12,3	11,2
11,7	12,8	13,8	14,9	16,2	**103,0**	16,1	14,7	13,5	12,4	11,3
11,8	12,9	13,9	15,1	16,4	**103,5**	16,3	14,9	13,6	12,5	11,4
11,9	13,0	14,0	15,2	16,5	**104,0**	16,4	15,0	13,8	12,7	11,5
12,0	13,1	14,2	15,4	16,7	**104,5**	16,6	15,2	13,9	12,8	11,6
12,1	13,2	14,3	15,5	16,8	**105,0**	16,8	15,3	14,0	12,9	11,8
12,2	13,3	14,4	15,6	17,0	**105,5**	17,0	15,5	14,2	13,0	11,9
12,3	13,4	14,5	15,8	17,2	**106,0**	17,1	15,6	14,3	13,1	12,0
12,4	13,5	14,7	15,9	17,3	**106,5**	17,3	15,8	14,5	13,3	12,1
12,5	13,7	14,8	16,1	17,5	**107,0**	17,5	15,9	14,6	13,4	12,2
12,6	13,8	14,9	16,2	17,7	**107,5**	17,7	16,1	14,7	13,5	12,3
12,7	13,9	15,1	16,4	17,8	**108,0**	17,8	16,3	14,9	13,7	12,4
12,8	14,0	15,2	16,5	18,0	**108,5**	18,0	16,4	15,0	13,8	12,6
12,9	14,1	15,3	16,7	18,2	**109,0**	18,2	16,6	15,2	13,9	12,7
13,1	14,3	15,5	16,8	18,3	**109,5**	18,4	16,8	15,4	14,1	12,8
13,2	14,4	15,6	17,0	18,5	**110,0**	18,6	17,0	15,5	14,2	12,9
13,3	14,5	15,8	17,1	18,7	**110,5**	18,8	17,1	15,7	14,4	13,1
13,4	14,6	15,9	17,3	18,9	**111,0**	19,0	17,3	15,8	14,5	13,2
13,5	14,8	16,0	17,5	19,1	**111,5**	19,2	17,5	16,0	14,7	13,3
13,6	14,9	16,2	17,6	19,2	**112,0**	19,4	17,7	16,2	14,8	13,5
13,7	15,0	16,3	17,8	19,4	**112,5**	19,6	17,9	16,3	15,0	13,6
13,8	15,2	16,5	18,0	19,6	**113,0**	19,8	18,0	16,5	15,1	13,7
14,0	15,3	16,6	18,1	19,8	**113,5**	20,0	18,2	16,7	15,3	13,9
14,1	15,4	16,8	18,3	20,0	**114,0**	20,2	18,4	16,8	15,4	14,0
14,2	15,6	16,9	18,5	20,2	**114,5**	20,5	18,6	17,0	15,6	14,1
14,3	15,7	17,1	18,6	20,4	**115,0**	20,7	18,8	17,2	15,7	14,3
14,4	15,8	17,2	18,8	20,6	**115,5**	20,9	19,0	17,3	15,9	14,4
14,6	16,0	17,4	19,0	20,8	**116,0**	21,1	19,2	17,5	16,0	14,5
14,7	16,1	17,5	19,2	21,0	**116,5**	21,3	19,4	17,7	16,2	14,7
14,8	16,2	17,7	19,3	21,2	**117,0**	21,5	19,6	17,8	16,3	14,8
14,9	16,4	17,9	19,5	21,4	**117,5**	21,7	19,8	18,0	16,5	15,0
15,0	16,5	18,0	19,7	21,6	**118,0**	22,0	20,0	18,2	16,6	15,1
15,2	16,7	18,2	19,9	21,8	**118,5**	22,2	20,1	18,4	16,8	15,2
15,3	16,8	18,3	20,0	22,0	**119,0**	22,4	20,3	18,5	16,9	15,4
15,4	16,9	18,5	20,2	22,2	**119,5**	22,6	20,5	18,7	17,1	15,5
15,5	17,1	18,6	20,4	22,4	**120,0**	22,8	20,7	18,9	17,3	15,6

[a] Using this table, length should be measured from 45 to 86,9 cm and height should be measured from 87 to 120 cm.

Annex 3. Algorithm for Managing Malnutrition in Adults

<table>
<tr><th colspan="2">ASSESS</th><th rowspan="2">CRITERIA</th><th rowspan="2">CLASSIFICATION</th><th rowspan="2">TREATMENT/CARE</th></tr>
<tr><th>HISTORY</th><th>LOOK AND FEEL</th></tr>
<tr>
<td rowspan="4">Ask the client or refer to records:
1. Has the client lost weight in the past month/since the last visit?
2. Has the client had:
– Active TB (on treatment)?
– Another chronic opportunistic infection (OI) or malignancy (e.g., oesophageal infections)?
– Mouth sores/oral thrush?
3. Has the client's body composition/fat distribution changed noticeably?
– Thinning of limbs and face?
– Fat distribution on limbs, breasts, stomach, back?
4. Has the client had:
– Nausea and vomiting?
– Persistent fatigue?
– Poor appetite?</td>
<td rowspan="4">1. If the client has oedema on both legs or base of the spine:
– Rule out pre-eclampsia, kidney problems, elephantiasis, heart failure, and wet beriberi (vitamin B1 deficiency with oedema).
2. Measure the client's weight (kg) and height (cm).
3. Compute body mass index (BMI).
4. Measure mid-upper arm circumference (MUAC) for all pregnant women, all women up to 6 months post-partum, and adults who cannot stand straight.
5. Examine the client for conditions that cause secondary malnutrition (e.g., injuries, burns, surgical procedures, pregnancy, diarrhoea, or disease of the gastrointestinal tract, thyroid, kidney, liver, or pancreas).
6. Look for medical complications and danger signs (e.g., anaemia, severe dehydration, active TB, severe bilateral oedema).
7. If the client has no medical complications, give an appetite test using ready-to-use therapeutic food (RUTF).</td>
<td>Adults (non-pregnant and non-post-partum)
BMI < 16 kg/m^2 (If can't measure BMI, MUAC < 19 cm)
OR
Bilateral pitting oedema (both feet or legs are swollen, and the skin remains indented when pressed with a finger)

Pregnant women and women up to 6 months post-partum
MUAC < 19 cm</td>
<td>Severe acute malnutrition (SAM) with complication (fever, hypothermia, severe anaemia or dehydration, vomiting, bilateral oedema +++) or no appetite</td>
<td>Inpatient treatment
Follow Nutrition Care Plan C1 (red).</td>
</tr>
<tr>
<td></td>
<td>SAM with appetite and no complication</td>
<td>Outpatient treatment
Follow Nutrition Care Plan C2 (red).</td>
</tr>
<tr>
<td>Adults (non-pregnant and non-post-partum)
BMI ≥ 16.0–< 18.5 kg/m^2
(If can't measure BMI, MUAC ≥ 19–< 22 cm)
Pregnant women and women up to 6 months post-partum
Weight loss or no weight gain
MUAC ≥ 19–< 22 cm</td>
<td>Moderate/mild malnutrition
Significant weight loss</td>
<td rowspan="2">Follow Nutrition Care Plan B (yellow).</td>
</tr>
<tr>
<td>Severe lung disease
Active TB (first 3 months of treatment)
Chronic diarrhoea
Difficulty swallowing</td>
<td>Signs of symptomatic disease</td>
</tr>
<tr>
<td>Adults (non-pregnant and non-post-partum)
BMI ≥ 18.5 kg/m^2
(If can't measure BMI, MUAC ≥ 22 cm)
Pregnant and post-partum women
MUAC ≥ 23 cm</td>
<td>Normal</td>
<td>Follow Nutrition Care Plan A (green).</td>
</tr>
</table>

Nutrition Care Plan C1: Inpatient Care of Adults with SAM and Complications or No Appetite

1. **Admit**

   - Treat all medical complications following national guidelines.
   - If client is not on ART, provide **Cotrimoxazole prophylaxis** following MOHSS protocol for HIV-positive clients with CD4 < 350 or at WHO stage 3 or 4 regardless of CD4 level.

2. **Stabilisation (1–2 days)**

   - Give client 70–80 ml/kg/day of F-75 or F-100), especially if client has **bilateral pitting oedema** +++.
   - If client has confirmed lactose intolerance, give high-energy porridge or alternative F-75 recipes made of fermented milk. *Expect slower recovery but no increase in mortality*.
   - Demonstrate sip feeding for patients who are too ill to eat by themselves.
   - If client has appetite, give hospital diet plus three high-energy nutritious snacks a day.

3. **Transition and rehabilitation**

   - Gradually introduce RUTF in small amounts until client can eat 3 sachets per day, plus enough fortified blended flour (FBF) to provide 2,850 kcal/day as tolerated, plus hospital diet.
   - Give client **Cotrimoxazole prophylaxis** following MOHSS protocol for HIV-positive clients with CD4 < 350 or at WHO stage 3 or 4 regardless of CD4 level.
   - On discharge, provide 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (total of 42 sachets of RUTF and 4,500 g of FBF). For pregnant and post-partum women, give 42 sachets of RUTF and 4,500 g of FBF for 2 weeks.
   - Make an appointment for review after 2 weeks.

4. **Transition to Nutrition Care Plan C2 when client**

   - Has had no oedema +++ for 2 consecutive days
   - Has appetite for RUTF
   - Can return for review and supplementary food after 14 days

Nutrition Care Plan C2: Outpatient Care of Adults with SAM, Appetite, and No Complications

1. **First visit**

   - Treat all medical complications following national and WHO guidelines.
   - **If client is on ART and losing weight**, refer as needed for counselling on ART adherence, management of ART-related side-effects, opportunistic infections, immune reconstitution syndrome, treatment failure if on ART for more than 6 months (check CD4).
   - Do an appetite test by offering one sachet of RUTF. The client should eat at least half of the sachet.
   - **If client has appetite and health and social conditions allow home managemen**t, give 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (total of 42 sachets of RUTF and 4,500 g of FBF).
   - Encourage client to eat home foods after finishing the daily ration of RUTF. If client has appetite for RUTF but not for other foods, counsel on how to modify home foods to improve appetite. If client has no appetite, try giving smaller amounts of family food more frequently or sip feeding. If this is not successful, admit the client for IN-PATIENT management of SAM.
   - Counsel on 1) weight monitoring at least once a month, 2) increasing energy density of foods, 3) managing HIV-related symptoms through diet, 4) managing medicine-food interactions, 5) sanitation and hygiene, safe drinking water, and 6) exercise.
   - Make an appointment for review after 2 weeks.

2. **FOLLOW-UP management**

   - If client is not on ART, refer for **Cotrimoxazole prophylaxis** following MOHSS protocol and ART assessment.
   - Give 3 sachets of RUTF and 300 g of FBF per day to last for 2 weeks (total of 42 sachets of RUTF and 4,500 g of FBF).
   - Give ferrous sulphate tablets if client has clinical signs of anaemia (generalised pallor, fatigue, low blood Hb, decreased iron).
   - Weigh after 2 weeks to monitor weight gain.

3. **Transition to Nutrition Care Plan B when client**

   - Has been treated for SAM for at least 2 months **AND** has BMI ≥ 16 kg/m^2 OR MUAC > 19 for pregnant women **AN**D appetite **AND** some mobility **AND** can eat home foods

4. **If client is not gaining weight or has lost weight for 3 months or has worsening oedema**, refer client to a medical or clinical officer immediately.

Nutrition Care Plan B for Adults with MAM

1. **First visit**
   - Check for medical conditions and refer client for treatment when indicated.
   - **If client is not on ART**, refer for ART assessment.
   - **If client is on ART and losing weight**, refer as needed for counselling on ART adherence, ART-related side effects, opportunistic infections, immune reconstitution syndrome, treatment failure if on ART for more than> 6 months (check CD4), and lipodystrophy.
   - Assess client for **anaemia**. If client is anaemic, provide iron supplementation according to national guidelines on anaemia.
   - Assess food intake, energy density of the food, and food access and provide appropriate support if client has problems.
   - Counsel client to consume 20%–30% more energy from home foods, based on current weight (see table below).

Age (years)	Energy (kcal) needed per day + 20–30% because of HIV	Food equivalent (give as snacks in addition to meals and other snacks)
15–17	2,800 + 700 because of HIV	2 mugs (250 ml) porridge 5 medium sweet potatoes 2 large coffee cups of boiled milk 5 small serving spoons of boiled pumpkin or 4 medium potatoes 3 small serving spoons of meat sauce + 1 small ladle of vegetables
18+	2,170–2,430 + 525–600 because of HIV	2 mugs (250 ml) of porridge 4 medium sweet potatoes 5–6 large coffee cups of boiled milk 4 small serving spoons of boiled pumpkin or 4 medium potatoes 2 small serving spoons of meat sauce + 1 small ladle of vegetables 4 eggs
Pregnant and post-partum women	2,455–2,670 + 525–600 because of HIV	2 mugs (250 ml) of porridge 4 medium sweet potatoes 5–6 large coffee cups of boiled milk 4 small serving spoon of boiled pumpkin or 4 medium potatoes 2 small serving spoons of meat sauce + 1 small serving spoon of vegetables 4 eggs

   - Give client 300 g of FBF per day to last until the next visit to collect medication (e.g., 9,000 g to last for 1 month). If client is pregnant, give 300 of FBF per day to last until the next antenatal visit.

- Make an appointment for review after 1 month (or at next visit to collect medication).

2. <u>FOLLOW-UP management</u>

- Monitor weight and changes in eating patterns on each visit.
- Counsel client to **increase energy intake** (eat more food more often, including snacks between meals; add groundnut paste, eggs, or milk to enrich food and spices or lemon juice to improve flavour) to meet extra food requirements.
- Give client a **daily micronutrient supplement** that provides 1 RDA of a wide range of vitamins and minerals, unless FBF provides sufficient micronutrients.
- **Counsel client on** 1) the need for monthly weighing, 2) increasing energy density of the diet at home, 3) managing HIV-related symptoms through diet, 4) medicine-food interactions, 5) maintaining good sanitation and hygiene, especially safe drinking water, and 6) exercising to strengthen muscles and improve appetite.

3. <u>Transition to Nutrition Care Plan A when client</u> has BMI ≥ 18.5 kg/m^2 or MUAC ≥ 19 cm for two consecutive measurements, no weight loss, and no clinical signs of symptomatic disease. For pregnant or post-partum women, transition to Nutrition Care Plan A when client is 6 months post-partum.

4. <u>If client has not gained weight for 4 months</u>, refer for medical examination or nutrition assessment.

Nutrition Care Plan A for Adults with Normal Nutritional Status

- **If client is on ART**, find out whether (s)he is adhering to treatment and managing diet-related symptoms. If not, **counsel** client as needed.
- **If client is HIV positive but not on ART,** give **Cotrimoxazole prophylaxis** following MOHSS protocol for HIV-positive clients with CD4 < 350 or at WHO stage 3 or 4 regardless of CD4 level.
- Counsel client to eat enough food to meet the 10% increase in energy and nutrient needs caused by HIV (see table below).

Age (years)	Energy (kcal) needed per day + 10% because of HIV	Food equivalent for extra energy (give as snacks in addition to meals and other snacks)
15–17	2,800 + 280 because of HIV	1 mug (250 ml) porridge 2 medium sweet potatoes 4 large coffee cups of boiled milk 3 coffee cups of spinach cooked in oil 1½ small serving spoon of boiled pumpkin or potatoes 1½ small serving spoon of meat sauce + ½ small serving spoon of vegetables 1½ eggs 4 ripe mangos 1 baobab fruit ½ an adult handful of *oofukwa*
18+	2,170–2,430 + 225 because of HIV	1 mug (250 ml) of porridge 1½ medium sweet potatoes 3½ large cups of milk 1 small serving spoon of boiled pumpkin or potatoes 1 small serving spoon of meat sauce + ½ small ladle of vegetables 200 g of fish 3 ripe mangos ¾ of a baobab fruit 1 adult handful of mopani worms

Age (years)	Energy (kcal) needed per day + 10% because of HIV	Food equivalent for extra energy (give as snacks in addition to meals and other snacks)
Pregnant and post-partum women	2,455–2,670 + 225 because of HIV	1–2 mugs (250 ml) of porridge 1 small serving spoon of boiled pumpkin or potatoes 1 small serving spoon of meat sauce + ½ small ladle of vegetables 200 g. fish 3 ripe mangos ¾ of a baobab fruit 1 adult handful of mopani worms

- **Counsel client to eat a variety of foods**. If this is not possible, give a daily micronutrient supplement that provides 1 RDA of a wide range of vitamins and minerals. Anaemic clients may need iron supplementation.
- Advise client and caregiver of the need for periodic weighing.
- Counsel on 1) periodic weight monitoring, 2) increasing the energy density of the diet at home, 3) managing HIV-related symptoms (e.g., nausea, vomiting, poor appetite, diarrhoea, mouth sores/thrush) through diet, 4) managing possible drug-food interactions, 5) maintaining good sanitation and hygiene, especially safe drinking water, and 6) exercising to strengthen muscles and improve appetite.
- Link client to programs that provide food security or livelihood support.
- **Review client's progress** in 2–3 months (or earlier if problems arise).

Annex 4. Algorithm for Managing Malnutrition in Children 6 months–14 years old

<table>
<tr><th>ASK</th><th>LOOK AND FEEL</th><th>CRITERIA</th><th>CLASSIFICATION</th><th>TREATMENT/CARE</th></tr>
<tr>
<td rowspan="5">Ask mother or caregiver or refer to records:
1. Has the child lost weight in the past month/since the last visit?
2. Has the child had:
a. A cough for more than 21 days? (This may be a result of HIV-related chronic lung disease such as lymphocytic interstitial pneumonia [LIP] or bronchiectasis.)
b. Active tuberculosis (TB) (on treatment)?
c. Diarrhoea for more than 14 days?
d. Another chronic opportunistic infection (OI) or malignancy?</td>
<td rowspan="5">1. Look for severe visible wasting:
– Loss of muscle bulk on arms, shoulders, buttocks, and thighs, with visible rib outlines
– Sagging skin on buttocks
2. Check for oedema (swelling) in both feet or base of spine.
3. Measure child’s weight (kg) and height (cm) and find weight for height (WFH) using 2006 WHO child growth standards.
4. Measure mid-upper arm circumference (MUAC).
5. Look at the shape of the curve on the growth chart.
– Has the child lost weight since the last visit? (Measure again to confirm current weight.)
– Is the growth curve flattening?
– Is the child gaining weight?
Weight loss 
Growth curve flattening 
Weight gain  </td>
<td>Bilateral pitting oedema +++ (both feet and/or legs are swollen, and the skin remains indented when pressed with the thumb)
OR
WFH < –3 z-scores (WHO 2006)
OR
BMI for age
10–14 years: ≤ –3 z-score
OR
MUAC
6–59 months: < 11.5 cm
5–9 years: < 13.5 cm
10–14 years: < 16.0 cm
AND
Does not pass an appetite test</td>
<td>Severe acute malnutrition (SAM)</td>
<td></td>
</tr>
<tr>
<td>With medical complication (WFH < –4 z-scores, shock, anorexia, intractable vomiting, convulsions, lethargy, lower respiratory tract infection, high fever, severe anaemia or dehydration, hypoglycaemia, hypothermia, pneumonia, TB) or no appetite</td>
<td><u>Inpatient treatment</u>
Follow Nutrition Care Plan C1 (red).</td>
</tr>
<tr>
<td>Without medical complication and with appetite
Clinical wellness
Alertness
Caregiver able/willing to manage SAM at home and return to clinic every 14 days</td>
<td><u>Outpatient treatment</u>
Follow Nutrition Care Plan C2 (red).</td>
</tr>
<tr>
<td>6–59 months: WFH or BMI for age between –3 and –2 z-scores
OR
MUAC
6–59 months: ≥ 11.5–< 12.5 cm
5–9 years: ≥ 13.5–< 14.5 cm
10–14 years: ≥ 16.0–< 18.5 cm</td>
<td>Moderate/mild malnutrition (MAM)
Poor weight gain</td>
<td>Follow Nutrition Care Plan B (yellow).</td>
</tr>
<tr>
<td>Weight gain parallel to or higher than median growth curve
WFH ≥ –2 z-score
OR
MUAC ≥ 12.5 cm</td>
<td>Normal
Growing appropriately</td>
<td>Follow Nutrition Care Plan A (green).</td>
</tr>
<tr>
<td>Chronic lung disease, TB, persistent diarrhoea, or other chronic opportunistic infection or malignancy</td>
<td>Condition with increased nutritional needs</td>
<td>Follow Nutrition Care Plan B (yellow).</td>
</tr>
</table>

Nutrition Care Plan C1: Inpatient Care of Children with SAM and Medical Complications

1. **Stabilisation phase (4–7 days)**
   - Admit and treat all complications according to WHO and Integrated Management of Childhood Illness (IMCI) protocol.
   - Provide all medications as recommended in the national Integrated Management of Acute Malnutrition (IMAM) Guidelines.
   - Counsel caregiver on **HIV testing** and refer child for testing if status is unknown) and ART assessment.
   - If child is **on ART and losing weight**, refer as needed for counselling on ART adherence, drug-related side effects (e.g., vomiting, abdominal pain, diarrhoea, poor appetite, taste changes), opportunistic infections (e.g., diarrhoea, TB), immune reconstitution syndrome, late ART-related side effects (lactic acidosis signs such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART > 6 months (check CD4), and lipodystrophy.
   - Encourage mother to continue breastfeeding a child still on the breast, between and before every meal and on demand.
   - Begin phased feeding of **F-75** therapeutic milk based on weight according to Annex 20 of the national IMAM Guidelines. Begin feeding at 2-hour intervals ONLY BY CUP (no bottle feeding). Then decrease to 10 and then 8 feeds per day.
   - If child is dehydrated, use **ReSoMal** to rehydrate according to national IMAM guidelines.
   - Give a first dose of vitamin A according to age if child has not received a dose in the past month.
   - Test and treat for malaria following IMCI protocol.
   - Check Child Health Passport for immunizations and complete if necessary (especially for measles).

2. **Transition phase**
   - If child has no serious medical complications and bilateral pitting oedema is subsiding, give an appetite test on day 2–3 of treatment by offering ready-to-use therapeutic food (RUTF) by weight according to the table below. Most children with good appetite will eat the required amount in less than 15 minutes.

Child's weight (kg)	3.0–4.0	4.0—6.9	7.0–9.9	10.0–14.9	15.0–29.0
Amount of 92 g sachet	⅛–⅛	⅛–⅛	⅛–½	½–⅓	1

- If child passes the appetite test, transition to RUTF and/or F-100 therapeutic milk. Continue number, timing, and volume of feeding as in the stabilisation phase. Give child drinking water with RUTF and between feeds.

Weight (kg)	3.5–3.9	4.0–5.4	5.5–6.9	7.0–8.4	8.5–9.4	9.5–10.4	10.5–11.9	12.0–13.5	> 13.5
Sachets/day	1.5	2	2.5	3	3.5	4	4.5	5	Based on 200 kcal/kg/day

- If child cannot eat the food, continue with F-75 as in the stabilisation phase, fed by nasogastric tube if necessary. When the child finishes 50% of the RUTF, gradually reduce and then stop the F-75 and give RUTF and safe water only.
- Monitor weight gain (child should gain approximately 5 g/kg/day).
- If child develops complications, return to stabilisation phase and provide appropriate medical care.
- If child is not eating RUTF, give ferrous sulphate tablets following MOHSS protocol.
- Deworm with Albendazole (200 mg: children 12–23 months and 400 mg for children>24 months) if not done in the past 6 months.
- If child is HIV positive or born to an HIV-positive mother, provide Cotrimoxazole according to national ART guidelines.

5. Transition to Nutrition Care Plan C2 (Outpatient)

When:

- All medical complications are treated and stabilised.
- Oedema subsides from +++ to ++ or + or none.
- Child has **appetite** and can eat at least 75% of RUTF at each meal in a day.
- Child continues to gain weight (> 5 g/kg/day).
- Caregiver is willing and able to provide home management and bring the child to the clinic for review every 2 weeks.
- **Clinic has enough RUTF in stock to give caregiver for 2 weeks** (see table below).

Number of sachets for 2 weeks, by child's weight

Weight (kg)	3.5–3.9	4.0–5.4	5.5–6.9	7.0–8.4	8.5–9.4	9.5–10.4	10.5–11.9	12.0–13.5	> 13.5
# of sachets	22	28	36	42	50	56	64	70	Based on 200kcal/kg/day

Then:

- Refer child to an outpatient therapeutic program (OTP) for weekly follow-up.
- If the child does not have access to an OTP for weekly follow-up, finish inpatient treatment (2–6 weeks) until WFH is –1 z-score or 15 percent of the admission weight if admitted using MUAC.

Nutrition Care Plan C2: Outpatient Care of Children with SAM and No Complications

1. First visit

- Take a medical history and do a physical examination.
- Give child an appetite test by offering RUTF by weight according to the table below. Most children with good appetite will eat the required amount in less than 15 minutes.

Child's weight (kg)	3.0–4.0	4.0—6.9	7.0–9.9	10.0–14.9	15.0–29.0
Amount of 92-g sachet	⅛–⅛	⅛–⅛	⅛–½	½–⅓	1

- Supply **RUTF** for 2 weeks according to child's weight (see table below).

Number of sachets for 2 weeks, by child's weight

Weight (kg)	3.5–3.9	4.0–5.4	5.5–6.9	7.0–8.4	8.5–9.4	9.5–10.4	10.5–11.9	12.0–13.5	> 13.5
# of sachets/day	1.5	2	2.5	3	3.5	4	4.5	5	Based on 200kcal/kg/ day
# of sachets for 2 weeks	22	28	36	42	50	56	64	70	

- Advise caregiver to let child finish the daily ration each day before giving any other food. If mother is breastfeeding, advise her to give RUTF after breastmilk. Advise caregiver to give child safe drinking water after the RUTF and not to mix RUTF with liquids, which can help bacteria growth. Stress that RUTF is a medicine vital for the child's recovery and should not be shared.
- Treat with Amoxicillin according to IMCI guidelines.
- Counsel caregiver on HIV testing and refer for testing if the child' status is unknown and ART assessment.
- Make appointment for child to return in 2 weeks for a medical check-up, appetite test, and supply of RUTF.

2. Second visit

- On second week of treatment, **deworm** child with Albendazole (oral) (200 mg for children 12–23 months old and 400 mg for children > 24 months old) if not done in the past 6 months.
- Treat any medical complications according to MOHSS recommendations
- If child has not received vitamin A in the past 6 months, give a dose of **vitamin A** according to the child's age. (50,000 IU for children < 6 months old, 100,000 IU for children 6–<12 months old, and 200,000 IU for children 1–5 years old).
- Check Child Health Passport for immunizations and complete if necessary (especially for measles).
- If child was not treated for malaria during inpatient management of SAM, test and treat for malaria according to national treatment protocol.
- Counsel caregiver on HIV testing and refer for testing if child's status is unknown and ART assessment.
- If child is on ART and losing weight, refer as needed for counselling on ART adherence, drug-related side effects, opportunistic infections, immune reconstitution syndrome, late ART-related side effects (late acidosis signs such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART > 6 months (check CD4), and lipodystrophy.
- Supply **RUTF** for 2 weeks according to the child's weight.
- Instruct caregiver to return in 2 weeks, bringing back the empty RUTF packets so they can be counted to assess how much the child has eaten.
- Counsel caregiver to encourage the child to eat home foods, but only after the child finishes the entire day's RUTF ration.

3. Transition to Nutrition Care Plan B when child

- Has WFH or BMI for age < –2 z-scores **AND** no oedema for 2 consecutive visits **AND** appetite **AND** sustained growth **AND** can eat home foods **AND** is clinically well and alert

4. Refer child to a medical or clinical officer immediately if child

- Is not gaining weight (≥ 5 kg/kg/day) or has lost weight for more than 2 consecutive weighings

  OR
- Has worsening oedema

  OR
- Has a deteriorating medical condition

Nutrition Care Plan B: Outpatient Care of Children with MAM

1. Clinical management

- Take a **medical history and** do a **physical examination**. Check for treatable conditions and/or refer child for treatment or inpatient care when indicated.
- Counsel caregiver on **HIV testing** and refer for testing if child's status is unknown and ART assessment.
- If child is **on ART and losing weight**, refer as needed for counselling on ART adherence, drug-related side effects (e.g., vomiting, abdominal pain, diarrhoea, poor appetite, taste changes), opportunistic infections (e.g., diarrhoea, TB), immune reconstitution syndrome, late ART-related side effects (late acidosis signs such as abdominal pain, vomiting, or fast breathing), treatment failure if on ART > 6 months (check CD4), and lipodystrophy.
- **Deworm** child with Albendazole (200 mg for children 12–23 months old and 400 mg for children > 24 months old) if not done in the past 6 months.
- If child has not had **vitamin A** in the past 6 months, give 50,000 IU if child is < 6 months old, 100,000 IU if child is 6–12 months old, or 200,000 IU if child is > 12 months old.
- **Assess for anaemia** (palm pallor) and refer cases of severe anaemia for treatment as per IMCI guidelines.

2. Nutrition management

- Assess the adequacy and quantity of the child's food intake, the energy density of the food, and food access. Counsel caregiver appropriately. Counsel caregiver to give child 20%–30% more energy from home foods, based on age (see table below).

Age (years)	ADDITIONAL energy needed	Examples of foods to give IN ADDITION to meals and snacks appropriate for the child's age
6–11 months	120–150 kcal/day	2 tsp. margarine or oil and 1–2 tsp. sugar added to porridge 3 times a day
12–23 months	160–190 kcal/day	1 extra cup of milk plus 2 coffee cups of *mahangu*/maize porridge 1 slice of bread with peanut paste
2–5 years	200–280 kcal/day	1 extra cup of milk plus 2 coffee cups of *mahangu*/maize porridge 1 slice of bread with peanut paste
6–9 years	260–380 kcal/day	2 extra cups of milk plus 2 coffee cups of *mahangu*/maize porridge

Age (years)	ADDITIONAL energy needed	Examples of foods to give IN ADDITION to meals and snacks appropriate for the child's age
		½ child's handful of *ofukwa* or other nuts 1 slice of bread with peanut paste
10–14 years	340–400 kcal/day	1 adult handful of *mahangu*/maize paste 1 adult handful of *ofukwa* or other nuts 6 slices of bread with peanut paste

- Provide **fortified blended flour (FBF)** rations of 100–200 g/day to last for 1 month, according to the table below. Demonstrate to the caregiver how to use the FBF at home.

Age	g of FBF/day	g of FBF/month
6–59 months	100	3,000
6–9 years	150	4,500
10–14 years	200	6,000

- If child is symptomatic and losing weight, counsel caregiver to feed enough to provide 50%–100% additional energy (60–200 kcal/day), depending on the child's age, and most essential micronutrients. These meals should be small, contain fruits and vegetables, and be distributed throughout the day. Examples of foods providing 60–200 kcal/day are 1 cup of milk or 1 mug of porridge (*okatete*) with groundnut paste, eggs or mopani worms *in addition to* regular meals and snacks.

4. FOLLOW-ON management

- Assess child's appetite, eating patterns, and weight after 2 weeks.
- Educate caregiver on how to **improve the child's diet from household food**.
- Give child a **daily micronutrient supplement** with 1 RDA of vitamins and minerals according to doctor's prescription, unless FBF provides sufficient micronutrients.
- Counsel caregiver to 1) get the child weighed every month, 2) feed the child three meals a day plus snacks, 3) improve the home diet by preparing a variety of local foods, increasing energy density of porridge by adding nuts, mopani worms, sugar, eggs or milk, and giving favourite foods, 4) manage HIV-related symptoms such as oral thrush, loss of appetite, nausea,

anaemia, and diarrhoea through diet, 5) manage possible drug-food interactions, and 5) maintain good sanitation and hygiene, especially safe drinking water.

- Complete immunizations if necessary (especially for measles).
- Refer child for assessment if child has not gained weight for 3 or more months **OR** continues to lose weight for 2 or more months.
- Make appointment for review after 1 month to monitor changes in appetite, eating patterns, and weight.

5. <u>Transition to Nutrition Care Plan A when child</u>

- Has WFH ≥ – 2 z-scores for two consecutive weighings

  AND

- Has gained 10% of weight

  AND

- Has no clinical signs of symptomatic disease

  AND

- Is clinically well and alert

Nutrition Care Plan A for Children

- Refer child for HIV testing if status is unknown.
- Check mother's health (and need for ART) and care of other children.
- **If child is HIV positive**, find out whether he/she is on ART, adhering to treatment, and managing diet-related symptoms well. If not, **counsel** caregiver as needed. Counsel caregiver to feed the child enough to provide most essential micronutrients and 10% additional energy to meet the additional energy requirements caused by HIV infection (see table below). The food should be given in small meals distributed throughout the day as shown in the table below.
- Counsel caregiver to 1) feed child a variety of foods from all the food groups, 2) get the child weighed monthly, 3) increase the energy density of the home diet, 6) manage symptoms and medicine-related side effects through diet, and 7) maintain good sanitation and hygiene, especially safe drinking water.
- Counsel caregiver on continued breastfeeding and complementary feeding according to national IYCF guidelines and age of child.
- If child has not received **vitamin A** within the past 6 months, give supplements every 6 months (50,000 IU for children < 6 months old, 100,000 IU for children 6–<12 months old, and 200,000 IU for children 1–5 years old).
- **Deworm** child with Albendazole (oral) (200 mg for children 12–23 months old and 400 mg for children > 24 months old) if not done in the past 6 months and repeat every 6 months thereafter.
- Make sure child has received all immunizations following MOHSS protocols.
- **Review child's progress every month**. Tell caregiver to return earlier if problems arise.

Age	**Regular meals and snacks**		**Foods to give IN ADDITION to meals and snacks appropriate for the child's age to provide 10% more energy**
6–11 months	Continue to breastfeed	**6 months:** Breast milk plus soft porridge or well-mashed food 2 times per day **7–8 months:** Breast milk plus at least 2/3 cup (250 ml) of mashed food 3 times per day **9–11 months:** Breast milk (plus finely chopped or mashed food 3 times per day plus 1 snack	1 mug of porridge or snack per day 2 tsp. margarine or oil and 1–2 tsp. sugar added to porridge to increase energy density

Age	**Regular meals and snacks**		**Foods to give IN ADDITION to meals and snacks appropriate for the child's age to provide 10% more energy**
12–23 months	Continue to breastfeed	3 meals (at least 1 full cup) of chopped or mashed family foods plus 2 snacks per day	1 mug of porridge or snack per day 2 tsp. margarine or oil and 1–2 tsp. sugar added to porridge to increase energy density
2–5 years	3 meals plus 2 snacks per day		1 mug of porridge or snack a day 1 cup of full cream milk or *oshikandela*, *omaere*, or *oshikundu*
6–9 years	3 meals plus 2 snacks per day		1 mug of porridge or snack a day 1 cup of full cream milk or *oshikandela* or *omaere*, or *oshikundu* 1 mashed average-size sweet potato
10–14 years	3 meals plus 2 snacks per day		1 mug of porridge or snack a day 1 cup of *oshikandela*, *omarere*, or *oshikundu*

Annex 5. Nutrition Assessment, Counselling, and Food Supplementation for Young Children in the Context of HIV

Health care providers should classify the nutritional status of all children arriving for care at maternal and child health clinics or HIV care and treatment sites. They should measure the children's height at the first contact and weigh and measure their mid-upper arm circumference (MUAC).

1. **Weight**. Weighing scales must be correctly calibrated. Children should be weighed with no clothing or ornaments. Weight should be recorded in kilograms to the nearest 0.1 kg.

2. **Height/length**. Health care providers should ask parents or caregivers to remove children's shoes and headgear. They should make sure the child's head, shoulders, buttocks, and heels are aligned, read the stadiometer or other height measure accurately, and record the height in meters to the nearest 0.1 centimetres. WFH should be computed using the chart in annex 2.

3. **Mid-upper arm circumference (MUAC)**. Health care providers should measure MUAC in centimetres for all children. When the tape is in the correct position with the correct tension, they should read and call out the measurement to the nearest 0.1 centimetre.

4. **Assessment of oedema**. A child with pitting oedema in both feet may have kwashiorkor. Children with kwashiorkor +++ or marasmic kwashiorkor should be treated on an inpatient basis. Nutritional oedema normally starts from the feet and extends upward to the arms and then the face. Oedema is classified as in table 1 below.

Table 1: Classification of oedema

Observation	Classification
No oedema	(0)
Oedema in both feet (below the ankles)	+
Oedema in both feet and legs (below the knees)	++
Oedema observed on both feet, legs, arms, face	+++

5. **Classification of nutritional status.** The health care provider should classify the child's nutritional status based on the preceding assessments. Nutritional status is classified as in table 2.

Table 2: Classification of nutritional status in children under 5

Severity of undernutrition	Classification
Weight-for-height (WFH) < –3 z-scores (2006 WHO WFH standards) **OR** oedema (kwashiorkor cases) **OR** MUAC < 11.5 cm (red colour)	Severe acute malnutrition
WFH ≥ –3 and < –2 z-scores **OR** MUAC ≥ 11.5–< 12.5 cm (yellow colour)	Moderate acute malnutrition
Weight gain parallel to or higher than median growth curve WFH –2 z-scores for 2 consecutive weighings **OR** MUAC > 12.5 cm (green colour)	Well nourished

6. Management of severe malnutrition.
<u>See Nutrition Care Plan C.1 and C.2.</u>

The health care provider also should do a complete nutrition assessment of the mother or caregiver and other children in the household.

The health care provider should counsel the mother or caregiver on home sanitation and hygiene, food handling, management of HIV-related symptoms (e.g., oral thrush, loss of appetite, nausea, anaemia, diarrhoea), and use and preparation of local foods to meet the child's nutrition needs.

If safe water support (e.g., chlorine drops) is available, the health care provider should give this to the mother or caregiver to treat water for the child to drink.
The health care provider should explain the outpatient routine to the mother or caregiver and refer her/him to the place where (s)he can continue to collect therapeutic food. The health care provider should give the mother or caregiver a return/review date in 1 week if the child is severely malnourished or 2 weeks if the child is moderately malnourished and ask her/him to repeat this date before leaving.

On the return/review date, the health care provider should do the following:

- Take anthropometric measurements to determine whether the child has gained weight.
- Check the mother's health and need for ART.
- Counsel and support the mother or caregiver to care for other children in the household.
- When the child graduates, ask the caregiver to return every 6 months for vitamin A supplementation and deworming for the child and every month for growth monitoring.

The child can transition to the care plan for management of <u>moderate malnutrition</u> at WFH ≥ –2 z-scores (or MUAC > 11.5 cm) if there is no oedema for two consecutive weighing sessions, normally after 6–8 weeks.

If no supplementary feeding is available, the child should be treated until WFH reaches >-1 z-score for two consecutive visits.

7. **Management of moderate malnutrition.** If the child can eat and the mother's or caregiver's health and condition are conducive for outpatient care, the health care provider should provide nutrition education and counselling on the following:

    - Home management of HIV-related symptoms (e.g., oral thrush, loss of appetite, nausea, anaemia, diarrhoea)
    - Clean water and personal hygiene and sanitation
    - Preparation of a variety of local foods to meet the child's nutrition needs
    - Feeding frequency, amounts, and food modification to improve flavour/taste and digestibility

The health care provider should demonstrate the preparation and use of supplementary foods to the mother or caregiver, including the following:

- Washing hands using flowing water and soap or ash
- Cooking the food according to instructions
- Feeding the food to the child
- Preparing local foods (fruits, vegetables, insects, cereals) for young children, including foods that have been fermented and germinated to improve flavour and nutrient bioavailability, soaked to reduce cooking time, and de-hulled to remove anti-nutrients
- Feeding a sick child (active feeding, patience, use of cup and spoon)

The health care provider should then prescribe enough of the supplementary food to last until the return/review date and explain where to pick up the food. The mother or caregiver should be given a return/review date in 1 month and asked to repeat the date. The health care provider also should refer the mother or caregiver for counselling and HIV testing if her/his status is not known.

On the return/review date, the health care provider should do the following:

- Take anthropometric measurements of the child.
- Classify the child's nutritional status.
- Counsel and support the mother or caregiver to care for other children in the household.
- Ensure the child takes vitamin A supplements and is dewormed every 6 months (if the child is > 12 months old and has not been dewormed in the past 6 months).
- Provide the mother or caregiver with means to keep drinking water safe.

The child can exit from supplementary foods at WFH ≥ –1 z-score.

Annex 6. Appetite Test

Appetite is essential for severely malnourished people to eat ready-to-use therapeutic food (RUTF). People with no appetite will not be able to eat RUTF at home and therefore need referral for specialized inpatient care for the management of severe acute malnutrition (SAM) with medical complications. An appetite test is given to children 6 months old and older and adults on admission to determine whether they have appetite, accept the taste and consistency of the RUTF, can swallow the RUTF (e.g., are old enough to swallow solids and have no lesions that prevent eating). Anorexia, or lack of appetite, is considered to reflect a severe disturbance of metabolism.

Clients with SAM who pass the test and have no medical complications are treated in outpatient care. Those who do not pass are referred to inpatient care. The appetite test should be repeated at every outpatient care follow-up session. If the client is used to the RUTF, the repeat test can be done with supervision in a group or during the waiting period. Clients who have other medical complications that require referral to inpatient care do not need to take the appetite test at the outpatient site.

Procedure

1. Conduct the appetite test in a quiet, separate area.

2. Explain the purpose of the test and outline the steps.

3. Advise the client or caregiver to wash hands before eating or giving the RUTF.

4. Give the client a sachet or pot of RUTF to eat (or give the caregiver the RUTF to give to the child). Caregivers should sit with the children in their laps and gently offer the RUTF, encouraging them to eat without forcing them.

5. Offer plenty of clean water to drink when the client is eating the RUTF.

6. An adult client should eat at least one-third of a sachet or 3 teaspoons from a pot of RUTF to pass the test. The minimum amounts that children must eat to pass the appetite test are listed below by weight. Many children will eat the RUTF enthusiastically right away, while other may refuse at first. If a child refuses at first, the caregiver should sit with her/him in a secluded place and give them time to get used to the RUTF.

Weight (kg)	Quantity of 92 g sachet of RUTF
3.0–4.0 kg	1/8–1/4
4.0–6.9 kg	1/4–1/3
7.0–9.9 kg	1/3–1/2
10.0–14.9 kg	1/2–3/4
15.0–29.0 kg	3/4–1

7. Observe the client eating the RUTF and decide whether (s)he passes or fails. If the client passes, (s)he can be sent home and continue treatment in outpatient care. If not, referral procedures to inpatient care should be started.

8. Note on the outpatient care treatment card whether the client passed or “failed” the appetite test.

Annex 7. Nutrition Assessment, Counselling, and Food Supplementation for Adolescents and Adults with HIV, including Pregnant and Post-partum Women

Health care providers at HIV care and treatment sites should do anthropometric assessment of all clients on each visit.

1. **Height**. They should measure height in metres to the nearest 10 centimetres (cm) on the first visit and record the height. All headgear and footwear should be removed, and height should be measured at the highest point on the client's forehead.

2. **Weight.** They should weigh adult non-pregnant and non-post-partum PLHIV on each visit (with minimum clothing) in kilograms to the nearest 100 grams (g) and record the weight.

3. **Mid-upper arm circumference (MUAC).** If weight or height cannot be measured, e.g., if the client is unable to stand, the health care provider should measure the client's MUAC. MUAC should always be used to assess the nutritional status of pregnant women and during the first 6 months post-partum.

4. **Body mass index (BMI).** The health care provider should then calculate the client's BMI.

5. **Classification of nutritional status.** The health care provider should classify the client's nutritional status based on the preceding assessments. Nutritional status is classified as in table 1.

Table 1: Classification of nutritional status in adults

Anthropometry range for non-pregnant and non-post-partum adults	Anthropometry range for pregnant and post-partum women	Classification
BMI < 16 kg/m^2 **OR** Bilateral oedema **OR** MUAC < 19 cm	MUAC < 19 cm	Severe acute malnutrition
BMI ≥ 16.0–<18.5 kg/m^2 MUAC ≥ 19–< 22 cm	MUAC ≥ 19–22 cm	Moderate or mild acute malnutrition
BMI ≥ 18.5 kg/m^2 MUAC > 22 cm	MUAC > 22 cm	Not malnourished

6. **Management of severe malnutrition in adult antiretroviral treatment (ART) or pre-ART clients (non-pregnant or –post-partum).** If the client is severely malnourished (BMI < 16 kg/m^2) and has no appetite or presents with medical complications, the health care provider should admit her/him for inpatient care and make sure all illnesses are treated. The client's weight should be reviewed every day. The health care provider also should assess the client for micronutrient deficiencies (anaemia, vitamin A deficiency, pellagra) and start treatment as appropriate. If the client presents with oedema, micronutrient treatment should be delayed until near the time of discharge.

A combination of hospital food and porridge made of FBF (to provide 2,500–3,000 kcal/day) may be given for the duration of hospitalization (a combination of foods is recommended because experience indicates that adults may not be able to consume their entire daily nutrition requirements from therapeutic food alone). RUTF may be included in the diet if the patient is not eating well or cannot tolerate hospital food. RUTF is energy dense and highly digestible, and the bioavailability of most nutrients is high. Clients should be put on hospital food, if available, as soon as they can tolerate it. A combination of hospital food and a snack made of the supplementary food should provide most energy and micronutrient needs.

Adult clients should be transitioned to management of MAM when they reach BMI > 16 kg/m^2 (or 18.5 kg/m^2 if no supplementary feeding is available), their weight is increasing, any oedema has subsided, and they are able to eat home foods. On discharge, the health care provider should counsel the client on the following messages:

- Get weighed frequently to monitor the progression of HIV and the effectiveness of treatment. Report rapid and unintentional weight loss to a health care provider.
- You need more energy than people without HIV, including one or more snacks a day in addition to normal meals. You can enrich foods with energy- and nutrient-dense foods such as marula nuts, mopani worms, dried fish, baobab fruit, eggs, and milk.
- Keep a high standard of hygiene and sanitation at all times. Drink only safe, clean water.
- Avoid unhealthy foods (chips, fast foods, soft drinks) and alcohol.
- Get physical exercise and seek care from a counsellor in case of depression.
- Seek medical care immediately if you have an infection. If you are ill, modify your diet to maintain adequate food intake and reduce the severity of the illness.
- Stick to the drug-food plan the health care provider recommends.

The health care provider should give the client 2 weeks' supply of the supplementary food and a return/review date in 2 weeks.

7. **Management of moderate malnutrition in ART and pre-ART adults (non-pregnant or –post-partum).** The health care provider should counsel the moderately malnourished adult client on the same key messages listed above for severely malnourished adults and give her/him a prescription for supplementary food. The ration for moderately malnourished adults should provide approximately 1,500 kcal/day, which amounts to between 40–50 percent of the energy requirements of symptomatic HIV-infected adults. Clients should pick up their prescribed supplementary food monthly at the pharmacy or other designated food distribution point for at least 3 months until they attain BMI ≥ 19 kg/m^2 for two consecutive weighings. If monthly weight monitoring does not show the client reaching the desired weight within 3 months of starting supplementary food, the health care provider should assess adherence to the food prescription and drugs, tolerance, and adequacy of dietary intake (using home foods). Clients who do not reach the exit criteria after 4 months should be referred to a clinician for further review.

8. **Management of malnourished pregnant or post-partum women in prevention of mother-to-child transmission of HIV (PMTCT) sites.** Community counsellors or nurses at triage in PMTCT sites should weigh all pregnant and post-partum women and measure their MUAC. They should then classify their nutrition status according to their MUAC and counsel them on the key messages listed above.

If the pregnant or post-partum women is severely malnourished (BMI < 18.5 kg/m^2) and present complications or has no appetite, she should be admitted for inpatient care and treatment of all illnesses. The client's weight should be reviewed every day. The health care provider also should assess the client for micronutrient deficiencies (anaemia, vitamin A deficiency, pellagra) and start treatment as appropriate. If the client presents with oedema, micronutrient treatment should be delayed until near the time of discharge. RUTF can be offered gradually when appetite is back and complications stabilised. The treatment can then be completed at home only if the women can go to the health facility every 2 weeks.

HIV-positive pregnant and post-partum women qualify for RUTF when they have appetite and no complications. They should receive RUTF every 2 weeks in the first month and then every month until their MUAC is ≥19 cm if supplementary feeding is available or until ≥ 23 cm if it is not available.

HIV-positive pregnant or post-partum women qualify for supplementary foods if they have MUAC ≥ 19 cm. If they have MUAC < 19 cm, they should be admitted and managed for severe malnutrition. Moderate malnutrition should be treated on an outpatient basis. The health care provider should give eligible clients a prescription to collect the food at the designated distribution point. The prescribed ration should be enough to last until the next appointment at the ART, antenatal care, or maternal and child health clinic.

PMTCT clients should exit the nutrition supplements programme when their MUAC is ≥ 23 cm or at 6 months post-partum (whichever is earlier). If monthly weight monitoring does not show the client reaching the desired weight within 3–4 months, the health care provider should assess adherence to the food prescription and drugs, tolerance, and adequacy of dietary intake. Clients who have not reached the exit criteria after 4 months should be referred to a clinician for further review. .

Annex 8. Site Assessment Survey Form

Place a check mark in the right-hand column if the statement is true for the site.		
Human resource capacity (one staff member can provide capacity in multiple areas)		
1.	At least one health care provider can take anthropometric measurements of HIV-positive clients.	
2.	At least one provider can provide nutrition counselling for HIV-positive clients.	
3.	At least one provider can prescribe specialised food products for HIV-positive clients.	
4.	At least two health care providers are trained in nutrition care and support for people living with HIV (PLHIV) in a training course approved by the National AIDS Control Programme.	
Equipment and materials		
5.	The site has at least one functioning scale for adults and one functioning scale for children that measure weight in kilograms to the nearest 100 grams.	
6.	The site has at least one height board and one length board that measure in centimetres to the nearest centimetre.	
7.	The site has mid-upper arm circumference (MUAC) tapes that measure to the nearest millimetre for pregnant and post-partum women and adults whose height cannot be measured.	
8.	The site has three- or four-color MUAC tapes for children.	
9.	The site has utensils (e.g., bowls, serving spoons, pan, cooker) to demonstrate the use and preparation of specialised food products for PLHIV.	
10.	The site has copies of algorithms for managing malnutrition in 1) HIV-infected children and 2) HIV-affected adults.	
11.	The site has at least one set of nutrition and HIV counselling cards, if these exist	
12.	The site has data entry forms and a compilation system that includes nutrition data.	
13.	The site has charts with body mass index (BMI) cut-offs and weight for height (WFH) z-score cut-offs using the 2006 WHO child growth standards.	
Nutrition assessment and classification		
14.	Every adult PLHIV or HIV-affected child coming to the site for the first time is weighed to the nearest 100 grams and measured to the nearest centimetre.	
15.	MUAC is measured for pregnant women, women up to 6 months post-partum, and clients whose weight or height cannot be measured.	
16.	BMI is calculated for non-pregnant and non-post-partum adults.	
17.	WFH is calculated for children.	
18.	Every client is assessed on each visit for symptoms that may affect nutritional status (e.g., severe dehydration, severe anaemia, diarrhoea, vomiting, mouth sores or thrush, anorexia, tuberculosis, or other opportunistic infections).	
Nutrition care plan		
19.	Every PLHIV receives a nutrition care plan developed for his/her nutritional status and health condition.	
20.	Every client is counselled on the need to a) be weighed periodically, b) eat more energy-rich foods, c) maintain healthy sanitation and hygiene, d) drink plenty of clean and safe	

Place a check mark in the right-hand column if the statement is true for the site.		
	water, e) maintain a healthy lifestyle to prevent stress and depression f) get physical activity, g) manage diet-related symptoms, and h) manage drug-food interactions.	
Food by prescription (FBP)		
21.	Every PLHIV or caregiver of a client who qualifies for specialised foods is told why (s)he is eligible, the purpose of the food, how to prepare and eat the food, and at what weight (s)he is expected to exit the program.	
22.	Eligibility (entry and exit) criteria for therapeutic and supplementary food are posted where health care providers and clients can see them clearly.	
23.	Every PLHIV and caregiver of a client who qualifies for specialised foods is weighed on each visit, and the weight is recorded on the client record form.	
24.	Every severely malnourished PLHIV is given an appetite test before being put on outpatient management of severe malnutrition.	
25.	Every PLHIV who qualifies for specialised food products is prescribed enough therapeutic and/or supplementary food following national guidelines to last until the next return date.	
26.	Health care providers inform clients that the specialised food products are not suitable as food for infants < 6 months old (except when given in inpatient care to treat severe acute malnutrition).	
27.	Health care providers give clients the message that infants should be breastfed exclusively for 6 months.	
28.	The site has enough ready-to-use therapeutic food (RUTF), fortified blended food (FBF), and micronutrient supplements for HIV-positive clients to last for 3 months.	
29.	The site orders specialised foods and other supplies 3 months in advance to avoid stock outs.	
30.	The site has enough FBF for HIV-positive clients to last for 3 months.	
31.	The site has enough micronutrient supplements for HIV-positive clients to last for 3 months.	
32.	The site has access to adequate space to store specialised food products, nutrition supplements, and related commodities.	
33.	The person in charge of the site pharmacy stores uses “first to expire, first out” procedures and stock management for food and other commodities.	
Record keeping		
34.	BMI, WFH, and MUAC are recorded on client record sheets every month for children < 5 and symptomatic adults and at least every 3 months for asymptomatic adults.	
35.	The site correctly maintains stock records of specialised foods and other commodities.	
36.	The FBP register is correctly filled out for each client receiving the nutrition care and support.	
37.	The site compiles all agreed nutrition and food data to send to the national MOH according to the agreed schedule.	
38.	The person in charge of the site pharmacy stores uses “first to expire, first out” procedures and stock management for food and other commodities.	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