Ministry of Health and Social Services

Review of Nutrition Assessment, Counselling and Support (NACS) Service Implementation in Namibia

2013

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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 (MDGs). Undernutrition plays a huge role in the global burden of disease. Malnutrition is cited as one of the major causes of death in children under 5 years old. Malnutrition is not only a manifestation of poverty. It is the 'non-income face of poverty' and it perpetuates poverty. Malnourished children are more likely to drop out of school, less likely to benefit from schooling, and more likely to earn less income as adults. Therefore, reducing malnutrition among children alone can put Namibia on track to achieving all of the MDGs. The existing range of cost-effective health sector interventions to improve nutrition makes nutrition interventions one of the best approaches to improving health service efficiency and quality.

In 2008 the Ministry of Health and Social Services (MOHSS), with support from USAID/Namibia through the Food and Nutrition Technical Assistance III Project (FANTA), managed by FHI 360, conducted an assessment of the food and nutrition needs of people living with HIV in Namibia, the support needed by health care providers to provide quality nutrition assessment and counselling, and opportunities to integrate nutrition into HIV services. This culminated in Namibia's adoption of the nutrition assessment, counselling and support (NACS) approach to managing malnutrition in children, pregnant and post-partum women, and adults and adolescents with HIV and TB.

In 2012, with support from multiple stakeholders, the MOHSS conducted a review of the quality of NACS services in six health districts to highlight gaps in implementation, serve as a basis for a quality improvement process, and provide the MOHSS with recommendations for scale-up to additional health facilities. This report of the results of the review details positive findings as well as challenges and includes recommendations for improving NACS implementation. Among the recommendations is a quality improvement process for institutionalizing NACS as a routine standard of quality care in health services throughout the country.

The Ministry of Health and Social Services would like to express its sincere gratitude to the U.S. Agency for International Development through its implementing mechanism the Food and Nutrition Technical Assistance III (FANTA) project for funding the NACS review. Special appreciation also goes to the U.S. Centers for Disease Control, the Global Fund to Prevent AIDS, Tuberculosis and Malaria, International Training & Education Center for Health, and Management Sciences for Health for their participation and technical support during the NACS review process.

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The Food and Nutrition Sub-division of the Ministry of Health and Social Services (MOHSS) would like to express its appreciation for the financial support of the U.S. Agency for International Development (USAID)/Namibia and the technical support of FHI 360, including the Food and Nutrition Technical Assistance III Project (FANTA); the International Training & Education Center for Health (I-TECH); UNICEF; the World Food Programme (WFP); and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) in establishing nutrition assessment, counselling and support (NACS) in Namibia.

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Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANC	antenatal care
ART	antiretroviral therapy
BMI	body mass index
CBO	Community-based organization
CDC	U.S. Centers for Disease Control and Prevention
CHPA	chief health programme administrator
CMS	Central Medical Stores
CSB	corn-soy blend
DVC	digital video conferencing
EPI	Expanded Programme of Immunization
ES/L/FS	economic strengthening, livelihood or food security
FANTA	Food and Nutrition Technical Assistance III Project
FAO	Food and Agriculture Organization of the United Nations
FBF	fortified-blended food
Global Fund	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	human immunodeficiency virus
I-TECH	International Training & Education Center for Health
LIFT	Livelihoods and Food Security Technical Assistance Project
MAM	moderate acute malnutrition
MOHSS	Ministry of Health and Social Services
MSH	Management Sciences for Health
MUAC	mid-upper arm circumference
NACS	nutrition assessment, counselling and support
NAFIN	National Alliance for Improved Nutrition
NGO	Nongovernmental organization
NHTC	National Health Training Centre
ORT	oral rehydration therapy
PHC	primary health care
PLHIV	people living with HIV
PMTCT	prevention of mother-to-child transmission of HIV
RACOC	Regional AIDS Coordinating Committee
RHTC	Regional Health Training Centre
RUTF	ready-to-use therapeutic food
SAM	severe acute malnutrition
SHPA	senior health programme administrator
SOP	standard operating procedure
SPSS	Statistical Packages for Social Science

TB	tuberculosis
TCE	Total Control of the Epidemic
TOT	training of trainers
U.S.	United States
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	U.S. Agency for International Development
WASH	water, sanitation and hygiene
WFP	World Food Programme
WHZ	weight-for-height z-score

Executive Summary

In 2009 Namibia ranked 89 out of 136 countries in a global ranking of stunting.[1] In 2011 the country's adult HIV prevalence was recorded as 13.4 percent, one of the highest in the world.[2] Nutrition is important for people with special health and nutritional needs, such as pregnant and lactating women, children under 2 and people with chronic diseases. For example, for people living with HIV (PLHIV), malnutrition can hasten the progression of the disease and worsen its impact by weakening the immune system. In 2010 the Namibia Ministry of Health and Social Services (MOHSS) developed *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*. By 2012 training materials based on these guidelines had been used to train more than 340 health care providers in 13 regions, and 32 of the country's 34 health districts were implementing nutrition assessment, counselling and support (NACS). After about 1 year of implementation, in November 2012 the MOHSS led a review of the quality of these services to inform a quality improvement process and make recommendations for institutionalizing NACS as a routine standard of care in health services throughout the country. The review assessed structures, processes and outcomes of NACS implementation in antiretroviral therapy (ART) clinics, health centres, primary health care centres and clinics with health care providers trained in NACs in six health districts. A descriptive cross-sectional methodology was used, with mixed quantitative and qualitative data collection that included interviews with health facility in-charges, NACS providers and NACS clients; an inventory of areas used to store specialized food products to treat malnutrition; observation of nutrition assessment and counselling; and a review of NACS registers.

Findings

Results were categorized according to Donabedian's quality of care framework,[3] focusing on health system structures (human and material resources), processes (implementation of NACS and adherence to national guidelines) and outcomes (client satisfaction with NACS services). Purposive sampling and the small sample size do not allow generalization across all facilities implementing NACS in Namibia.

Health system structures. Most of the facility in-charges interviewed had been trained in NACS and had trained other staff on the job but were frequently required to travel away from the facilities. For this reason, most health care providers interviewed felt that additional staff in each facility should be trained in the NACS course. Most providers interviewed had received supportive supervision, usually from the national level, but indicated the need for closer mentoring and supervision from the district level. No facility visited had all the items on a 16-item checklist recommended for NACS implementation, but most facilities were well equipped for nutrition assessment. Storage conditions for specialized food products

[1] UNICEF. 2009. *Tracking Progress on Child and Maternal Nutrition: A Survival and Development Priority*. New York: UNICEF.

[2] UNAIDS. 2011. 'HIV and AIDS Estimates (2011)'. http://www.unaids.org/en/regionscountries/countries/namibia/.

[3] Donabedian, A. 1980. *Explorations in Quality Assessment and Monitoring, Volume I. The Definition of Quality and Approaches to Its Assessment.* pp. 1–164. Ann Arbor, MI: Health Administration Press.

were inadequate in most of the facilities, and more than one-half of staff interviewed reported stock-outs and late delivery, although no facility had expired or damaged commodities.

Processes. NACS had been integrated more fully in the clinics, which provided a range of services than in the ART clinics visited. Health care providers demonstrated the skills and had the resources to do nutrition assessment, but did not do it systematically. Most said that they assessed only clients who looked malnourished because they were too busy to assess each client on each visit. Across all three types of health facilities, most providers measured weight correctly and recorded weight, height and mid-upper arm circumference (MUAC), but bilateral pitting oedema and target weight were rarely recorded and appetite tests were rarely done. Providers observed during the review greeted clients and treated them with respect, but only one-half communicated the results of nutrition assessment, checked whether clients understood the information provided or made follow-up appointments. The providers interviewed were aware of key nutrition counselling messages, but only one-third said that they counselled all clients on nutrition, citing lack of time and lack of counselling materials. Most NACS providers observed correctly prescribed specialized food products and explained to clients how to prepare and store them. In general, providers recorded nutrition data in the NACS registers. One-half of the respondents, however, found the NACS Monthly Consumption Report difficult to complete and noted that it was often submitted late because of lack of transport.

Outcomes. Of the clients assessed during provider-client observations, 6.2 percent were severely malnourished and about 25 percent were moderately malnourished (the review did not assess improvement in nutritional status of individual clients). Responses of both clients and providers indicated that specialized food products were prominent in the public perception of nutrition care and support. About 50 percent of clients interviewed said that they shared specialized food products with others in their households, indicating a need for clearer counselling on the therapeutic/medicinal purpose of these commodities.

Recommendations

Health System Structures

1. Improve and expand NACS capacity building through on-the-job training and possibly digital video conferencing (DVC) sessions for all regions.
2. Improve Regional and district capacity to provide regular supportive supervision of NACS providers.
3. Fast-track the adoption of the new MOHSS structure, which recommends nutritionists at Regional level.
4. Advocate for human resource capacity development in nutrition at the pre-service training level.

Quality of NACS Service Implementation

1. Modify/simplify NACS guidelines, defining minimum standards for prioritization of clients for nutrition assessment and essential counselling messages.
2. Pilot a quality improvement process in one or two sites, training coaches at central and Regional levels and forming quality improvement teams. These teams will help providers identify barriers

to better practice and find solutions to ensure clients receive optimal NACS services. They will then participate in learning platforms with teams from different facilities to exchange ideas.
3. Improve the availability and management of resources needed to implement NACS.
4. Improve NACS data management by developing standard operating procedures (SOPs) for reporting, simplifying reporting forms and considering electronic rather than paper reporting.

Client Uptake of NACS Services and Adherence to Nutrition Treatment

1. Establish a referral system for NACS clients who graduate from treatment of malnutrition and need economic strengthening, livelihood or food security (ES/L/FS) support to prevent relapse.
2. Raise awareness of NACS through radio spots.
3. Advocate for NACS with line ministries.
4. Develop fliers in local languages on nutrition.
5. Train health extension workers in nutrition screening, referral and client follow-up.
6. Liaise with nongovernmental organizations (NGOs) and local community-based organizations (CBOs) to support training of their community-based volunteers in nutrition screening, referral and client follow-up.

1 Introduction

Namibia has one of the world's highest levels of income disparity and is vulnerable to the effects of climate change on food production. In 2009 Namibia ranked 89 out of 136 countries in a global ranking of stunting.[4] The same year, the prevalence of stunting among children under 5 was reported at 29 percent.[5] Nineteen percent of households are food insecure, and many more households may lack access to diverse diets throughout the year.[6] Partly in response to these data, the Government of Namibia established the National Alliance for Improved Nutrition (NAFIN) in 2010 to tackle Namibia's high level of stunting. NAFIN is a multi-sector platform for nutrition that brings together line ministries and stakeholders in the field of nutrition.

Nutrition is important for people with special health and nutritional needs, such as pregnant and lactating women; children under 2; and people with chronic diseases such as HIV, tuberculosis (TB) and diabetes. Nutrition care and support can help ensure adequate food intake, improve nutritional status, boost immune response, promote response to treatment and enhance quality of life. People whose malnutrition is not treated early have longer hospital stays, slower recovery from infection and complications and higher morbidity and mortality.[7] The Namibia Ministry of Health and Social Services (MOHSS) implements national nutrition programs, including vitamin A and iron/folic acid supplementation, deworming, zinc treatment for diarrhoea and nutrition assessment, counselling and support (NACS).

In 2011 Namibia had an estimated adult HIV prevalence rate of 13.4 percent, one of the highest in the world.[8] The 2012 National HIV Sentinel Sero-Prevalence Survey reported that 18.2 percent of pregnant women attending antenatal care (ANC) were HIV positive. The high rate of HIV infection affects the nutritional status, quality of life, productivity and longevity of a significant proportion of the population. HIV increases energy needs at the same time that it reduces appetite and nutrient absorption. Malnutrition can hasten the progression of HIV and worsen its impact by weakening the immune system, increasing susceptibility to opportunistic infections and reducing the effectiveness of treatment. More than half of people living with HIV (PLHIV) are receiving antiretroviral therapy (ART).

[4] UNICEF. 2009. *Tracking Progress on Child and Maternal Nutrition: A Survival and Development Priority.* New York: UNICEF.

[5] UNICEF. 2009. *State of the World's Children*. New York: UNICEF.

[6] Food and Agriculture Organization of the United Nations (FAO). 2009. *The State of Food Insecurity in the World: Economic Crises, Impacts and Lessons Learned*. Rome: FAO.

[7] Barker, L et al. 2011. 'Hospital Malnutrition: Prevalence, Identification and Impact on Patients and the Healthcare System'. *International Journal of Environmental Research and Public Health* 8(2): 514–27.

[8] UNAIDS. 2011. 'HIV and AIDS Estimates (2011)'. http://www.unaids.org/en/CountryResponses/Countries/namibia.asp.

1.1 NACS Implementation in Namibia

In 2010 the MOHSS, with technical assistance from the Food and Nutrition Technical Assistance III Project (FANTA), the International Training & Education Center for Health (I-TECH), UNICEF/Namibia and the World Food Programme (WFP), developed *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*. Training materials and job aids based on these guidelines have been used to train more than 340 health care providers in 13 regions, and 32 of the country's 34 health districts are now implementing NACS.

Specialized food products, including the ready-to-use therapeutic food (RUTF) Plumpy'nut®, imported from France, and the fortified-blended food (FBF) corn-soy blend (CSB) Plus, imported from South Africa, have been procured for malnourished PLHIV and TB patients through a private company with funding from the U.S. Centers for Disease Control and Prevention (CDC)/Namibia and the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund)/Namibia. This system is separate from the Central Medical Stores (CMS) system for other health commodities. The MOHSS plans to construct a larger storage health facility for pharmaceutical products that will also accommodate specialized food products, possibly in 2013.

1.2 Review Goal and Objectives

After about 1 year of NACS implementation, in November 2012 the MOHSS led a review of the quality of NACS services. The goal of the review was highlight gaps in implementation, serve as a basis for a quality improvement process, inform scale-up to additional health facilities and institutionalize NACS as a routine standard of care in the country.

The objectives of the review are listed below:

1. Assess the **availability of resources** (equipment, guidelines, job aids, specialized food products and registers) needed to implement NACS services.
2. Assess the **NACS knowledge and skills of trained health care providers** and determine what additional support they need to implement NACS effectively.
3. Assess the **quality of NACS service implementation** (nutrition assessment, nutrition counselling based on assessment results, prescription of therapeutic and/or supplementary foods for malnourished clients, monitoring of adherence to nutrition care plans, NACS data recording and reporting and management of NACS commodities).
4. Identify the **barriers** that health care providers face in implementing routine, quality NACS interventions and integrating NACS into routine HIV, prevention of mother-to-child transmission of HIV (PMTCT) and maternal and child health services.
5. Assess **client awareness and uptake of and satisfaction** with NACS services, as well as acceptability of and adherence to specialized food products.

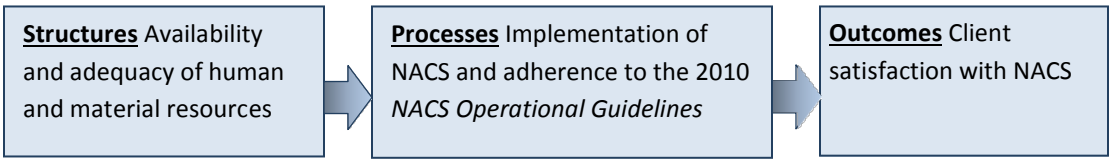
2 Methodology

This section describes the design and implementation of the review.

2.1 Questionnaire Design and Pilot Testing

With technical assistance from FHI 360, CDC/Namibia, Global Fund/Namibia, I-TECH/Namibia and Management Sciences for Health (MSH)/Namibia, the MOHSS developed a protocol and data collection tools for the review according to standards in the 2010 *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*. These guidelines describe the package of services, target groups, entry and exit criteria, resources required and specific interventions for NACS. The review was designed according to Donabedian's quality of care framework,[9] which recommends the assessment of structures (human resources, buildings and supplies), processes (health care provision) and outcomes (client satisfaction and health outcomes). Figure 1 shows how the review applied this framework to assess the quality of NACS services.

Figure 1. Quality of care framework for NACS services



The review used a descriptive cross-sectional survey methodology with mixed quantitative and qualitative data collection and included six components:

1. Interviews with health facility in-charges
2. Interviews with NACS providers
3. Interviews with NACS clients
4. An inventory of storage areas for specialized food products, including interviews with staff responsible for managing stocks
5. Observation of nutrition assessment and counselling
6. A review of health facility NACS registers

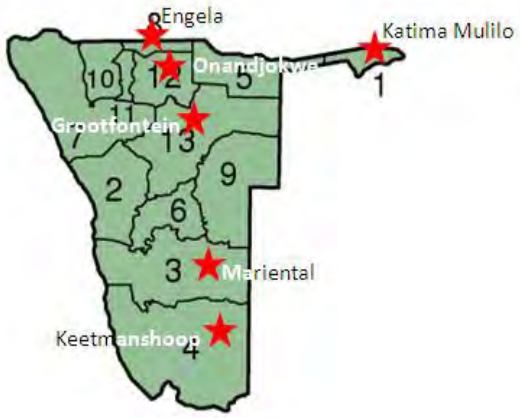
Separate data collection tools for each of these six components were developed, pre-tested in three health facilities in Windhoek in June 2012 and modified based on the results. Data were collected for the review in November 2012.

[9] Donabedian, A. 1980. *Explorations in Quality Assessment and Monitoring, Volume I. The Definition of Quality and Approaches to Its Assessment.* pp. 1–164. Ann Arbor, MI: Health Administration Press.

2.2 Sampling

The MOHSS purposively selected six health districts—Engela, Grootfontein, Katima Mulilo, Keetmanshoop, Mariental and Onandjokwe (Figure 2) based on the number of health care providers trained in NACS (drawn from the database of providers trained), the length of NACS implementation, high prevalence of HIV and regional variation in population and geographical area. Four health facilities were selected in each health district—1 ART clinic, 1 health centre/primary health care centre and 2 clinics—for a total of 24 (6 ART clinics, 5 health centres and 13 clinics).[10] Sampling in each health facility visited is described below.

Figure 2. Selected health districts



In-charge interviews. Health facility in-charges or their designees on the day of the review were selected for interview.

Health care provider interviews. A maximum of three health care providers who were implementing NACS at a given site were selected for an interview. If three or fewer health care providers were present in the health facility at the time of the review, the team interviewed all of them. When possible, health care providers implementing services such as ART, antenatal care (ANC) and growth monitoring were approached for participation. If more than three providers were available, the data collector selected three providers who were willing and available to be interviewed.

Client interviews. A 'NACS client' was defined as a client who had been prescribed specialized food products to treat malnutrition. A maximum of three NACS clients were selected in each facility. If three or fewer NACS clients were present during the review, all were interviewed. If more than three clients were available, the data collector selected the first three clients willing to be interviewed.

Client observations. Three NACS clients were approached in each health facility visited. If fewer than three NACS clients were present at the time of the visit, the data collector approached any other clients to ask whether they were willing to receive nutrition assessment and counselling.[11]

NACS register review. One member of each data collection team reviewed anthropometric, treatment and discharge data in the NACS registers for 1) children 6–59 months old, 2) children 5–14 years old and 3) adolescents and adults 15 years and older. Different anthropometric measurements and indices are used for the different age groups. For each client group, systematic sampling was applied to the list of clients in the NACS register using the formula:

[10] Three clinics were sampled in Mariental, where there is no health centre.

[11] According to national guidelines, every client should receive nutrition assessment and counselling.

$$SI = A \div B$$

where:

SI = sampling interval
A = total client group population size at the site
B = number of individuals to be sampled in each client group

In sites where data collectors found three or fewer records for a specific client group, they reviewed all client records. Table 1 summarizes the methodologies and data collection tools used, the primary respondents and calculated and final sample size. Each tool is matched to the corresponding review objective.

Table 1. NACS review methodologies, tools and objectives

Method	Data collection tool	Respondent	Respondents per health facility	Final calculated sample	Final achieved sample	Review objective*
Key informant interviews	In-charge questionnaire	Health facility in-charge	1	24	24	1, 4
	Health facility checklist and questionnaire	Pharmacist or other person responsible for NACS commodities	1	24	24	1, 4
	Health care provider questionnaire	Health care provider implementing NACS services	3	72	54	1, 2, 3, 4, 5
	Client questionnaire	NACS client	3	72	23	3, 5
Checklist	Health facility checklist and questionnaire	Health facility in-charge	1	24	24	1, 4
Observation	Client-provider observation checklist	Health care provider and NACS client	3	72	66	3
Document review	Audit of NACS registers	Register record	9	216	169	2, 3

* See Section 1.2 for a list of the review objectives.

2.3 Data Collection and Management

Six data collection teams of three or four people (one team per health district) were trained by the MOHSS and FANTA in the use of the data collection tools before travelling to the sites. Each team included at least one MOHSS representative. Other members included staff from I-TECH/Namibia, FANTA, Global Fund/Namibia, MSH/Namibia and CDC/Namibia. Each team included data collectors

with experience in some aspect of NACS, including training, anthropometric measurement, audit or supervision, health management information systems (HMIS) and supply chain management.

After the data collection was completed, two local consultants entered the results using EpiData. Data quality control was employed at the point of data entry using data validation rules built into the data entry template, double data entry and checking data entry against completed data collection tools. Data were cleaned, coded and analysed using Statistical Packages for Social Science (SPSS). Simple frequencies were used for descriptive analysis, and thematic analysis was done for open-ended questions.

2.4 Ethical Considerations

The MOHSS and the FHI 360 Office of International Research Ethics reviewed and approved the protocol for the NACS review. Before the review, FANTA trained all data collectors in research ethics. Informed consent was sought from all participants. Health facility in-charges provided consent to conduct the health facility reviews and NACS register audits. The data collectors sought verbal informed consent from all health care providers and clients who participated in the interviews and observations. All interviews were conducted with adults 18 years or older. The data collectors observed provider-client interaction with both adults and minors. When the clients were minors, the data collectors obtained verbal informed consent from the parents or guardians. Minimal identifiable information was collected during the review, and reporting was conducted by type of health facility to further protect the identity of review participants.

3 Results

This section summarizes the results of the November 2012 review of the quality of implementation of NACS services in six health districts in Namibia. Results are presented following the quality of care framework discussed in Section 2. The source of the findings (the specific review component) is indicated in each section.

3.1 Sample Characteristics

Minimal demographic information was collected for this review to protect the identity of participants, especially the health care providers. No demographic information was collected for the health facility in-charges.

Most (84.6 percent) of the 54 NACS providers interviewed were female. One-quarter (26.4 percent) of the health care providers interviewed were in-charges, 50.9 percent were nurses, 15.1 percent were community counsellors and another 7.5 percent held other positions in the health facilities (Table 2).

Table 2. Characteristics of NACS providers

Characteristic	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Sex*				
Female	91.7	100.0	78.1	84.6
Male	8.3	0.0	21.9	15.4
Position**				
In-charge	25.0	37.5	24.2	26.4
Nurse	50.0	50.0	51.5	50.9
Community counsellor	16.7	0.0	18.2	15.1
Other	8.3	12.5	6.1	7.5

Source: Health care provider interviews
* Data are missing for two clinics.
** Data are missing for one clinic.

About one-quarter (23.1 percent) of clients who participated in the provider-client observations were NACS clients (Table 3). Two-thirds (61.5 percent) of participating clients were female. About one-half (47.7 percent) of all clients interviewed were non-pregnant adolescents or adults who had not given birth in the previous 6 months (non-pregnant/non-postpartum adults), about one-quarter (26.2 percent) were

children 6−59 months old and the rest were pregnant/postpartum women (15.4 percent) or children/adolescents 5−14 years old (10.8 percent).

Table 3. Characteristics of facility clients observed

Characteristic	Type of health facility (%)			Total (%) (n=65)
	ART clinic (n=18)	Health centre (n=13)	Clinic (n=34)	
NACS client	22.2	23.1	23.5	23.1
Sex				
Female	50.0	69.2	64.7	61.5
Male	50.0	30.8	35.3	38.5
Age				
6–59 months	5.6	30.8	35.3	26.2
5–14 years	11.1	15.4	8.8	10.8
15 years or older (pregnant/postpartum)	5.6	23.1	17.6	15.4
15 years or older (non-pregnant/postpartum)	77.8	30.8	38.2	47.7

Source: Provider-client observations

About one-half (43.5 percent) of the NACS clients (or guardians of NACS clients who were minors) interviewed had also participated in the provider-client observations (Table 4). Of the clients interviewed, 26.1 percent were guardians of children 6–59 months old, 21.7 percent were guardians of children/adolescents 5–14 years old and the rest (52.2 percent) were guardians of adolescents 15–17 years old or were themselves 18 years and older.

Table 4. Characteristics of NACS clients

Characteristic	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Participated in the provider-client observation	33.3	33.3	54.5	43.5
Age				
6–59 months	33.3	33.3	27.3	26.1
5–14 years	0.0	16.7	36.4	21.7
15 years or older*	66.7	50.0	36.3	52.2

Source: Client interviews

* In client interviews, clients were not asked whether they were pregnant/postpartum.

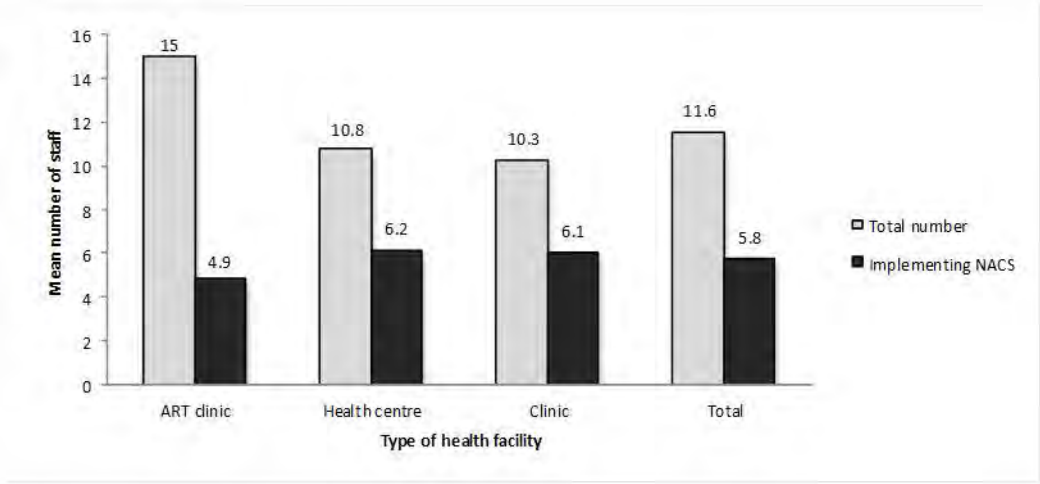
3.2 Human Resources

Human resources include the number of staff in the facilities, the number of staff trained in and knowledgeable about NACS and support for staff to implement quality NACS services.

3.2.1 Health Facility Staffing and NACS Training

According to information provided by health facility in-charges, more than one-half of staff in the health centres and clinics were implementing NACS, compared with one-third of staff in the ART clinics (Figure 3). On average, one in-charge, three nurses and one community counsellor in each facility were implementing NACS (data not shown).

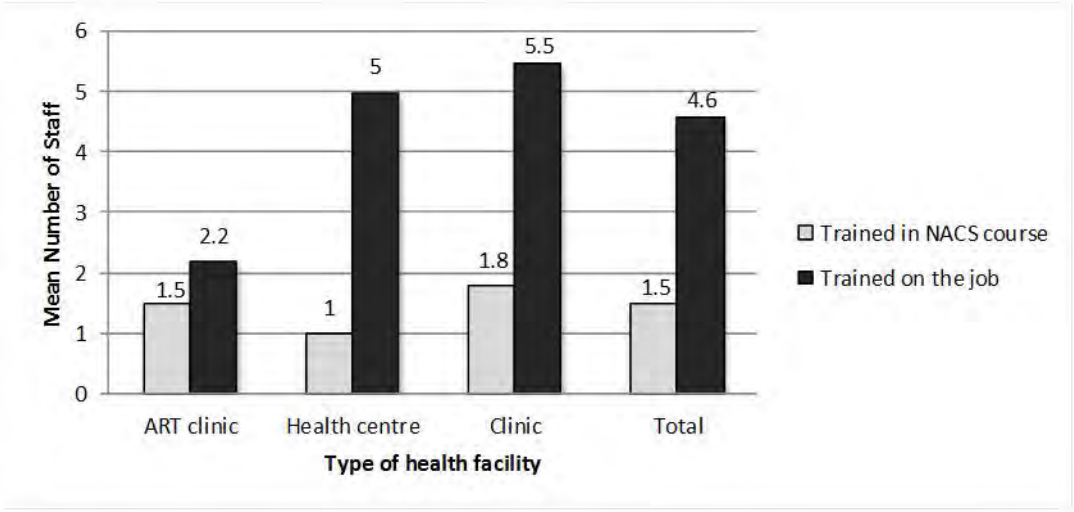
Figure 3. Proportion of health facility staff implementing NACS at the time of the review visit



Source: In-charge interviews

Health facility in-charges were asked about the NACS training staff had received. Figure 4 shows that more staff had been trained in NACS on the job than in the MOHSS NACS course. The mean number of staff trained in the NACS course was one or two across all health facility types. On average, 3–5 times more staff in health centres and clinics had been trained in NACS on the job than in the MOHSS NACS course.

Figure 4. Training of staff currently implementing NACS



Source: In-charge interviews

NACS providers (including some in-charges) were asked about the type of training they had received (Table 5). Across all health facility types, more providers interviewed (50.0 percent) said that they had received on-the-job-NACS training than formal training (37.0 percent). Only a small proportion of providers (7.4 percent) said that they had received on-the-job mentoring in NACS by the MOHSS. Health care providers who said that they had received no formal NACS training or no on-the-job NACS training or mentoring said that they had read 'a folder of NACS materials left by a nurse who left for another post', 'read books and manuals', gotten 'feedback from other staff' or gotten no NACS information (data not shown).

NACS providers were asked to recall topics that they had learned about in their NACS training (Table 5). Almost three-quarters (72.2 percent) spontaneously mentioned nutrition assessment, 46.3 percent mentioned classification of nutritional status, 24.1 percent mentioned counselling clients on nutrition and 53.7 percent mentioned prescription of specialized food products. Other topics mentioned included nutrition screening/assessment of special groups (TB clients, pregnant women), HIV, infant and young child feeding and immunizations (data not shown).

Table 5. Health care provider training in NACS

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Type of NACS training				
NACS course	41.7	25.0	38.2	37.0
On-the-job training	50.0	75.0	44.1	50.0
Mentoring by the MOHSS	8.3	12.5	5.9	7.4
Topics learned in NACS training				
How to do nutrition assessment	91.7	75.0	64.7	72.2
How to classify nutritional status	33.0	50.0	50.0	46.3
How to counsel clients on nutrition	8.3	12.5	32.4	24.1
How to prescribe specialized food products	41.7	62.5	55.9	53.7

Source: Health care provider interviews

About one-third (38.9 percent) of NACS providers across all facilities (50.0 percent of health centre providers, 41.2 percent of clinic providers and 25.0 percent of ART clinic providers) thought that their health facilities had enough staff to implement NACS (Table 6). Of those who did not think their health facilities had enough staff to implement NACS, most (69.7 percent, including 85.0 percent in the clinics) said that too few staff had been trained in NACS. Among ART clinic and health centre providers, reasons given were equally distributed between 'not enough staff' and 'a general shortage of staff in the health facilities'.

The most common challenges in implementing NACS reported by the health care providers interviewed were a heavy workload (38.9 percent) and loss of clients to follow-up (29.6 percent). Some health care providers in clinics also reported lack of counselling materials (17.6 percent) and lack of support (14.7 percent), among other challenges.

Table 6. Adequacy of staffing to implement NACS

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Thought their facilities had enough staff to provide NACS	25.0	50.0	41.2	38.9
Of those who did not, reasons				
Staff trained in NACS rotated to other duties	0.0	0.0	25.0	15.2
Not enough staff trained in NACS	44.4	50.0	85.0	69.7
General shortage of staff	44.4	50.0	25.0	33.3
Challenges faced in implementing NACS				
Staff too busy with other duties	33.3	50.0	38.2	38.9
Many clients lost to follow-ups	25.0	12.5	35.3	29.6
Lack of counselling materials	0.0	0.0	17.6	11.1
Lack of support	8.3	0.0	14.7	11.1
Language barrier	8.3	12.5	2.9	5.6
Space to implement NACS	16.7	0.0	0.0	3.7
Stock-outs/delivery delays of specialized food products	16.7	0.0	8.8	9.3

Source: Health care provider interviews

3.2.2 Supportive Supervision

About three-quarters (74.1 percent) of NACS providers interviewed reported that they had received supportive supervision in NACS (Table 7). Supportive supervision varied by health facility type. ART clinic staff said that they usually received supervision from the national level (44.4 percent), followed by the district level (22.2 percent). Health centre NACS providers reported receiving supportive supervision from the MOHSS at either the Regional or district level (42.9 percent each), followed by the health facility in-charges or their supervisors (33.3 percent). Clinic NACS providers reported receiving supportive supervision from the district- (41.7 percent) or national-level MOHSS (37.5 percent). Some staff seemed to have received supportive supervision from multiple sources.

Table 7. Supportive supervision in NACS

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Received supportive supervision for NACS	75.0	87.5	70.6	74.1
Person who provided supportive supervision				
In-charge/supervisor	16.7	33.3	5.9	11.1
District MOHSS	22.2	42.9	41.7	37.5
Regional MOHSS	11.1	42.9	20.8	22.5
National MOHSS	44.4	14.3	37.5	35.0
Frequency of supportive supervision*				
Every 3 months	22.2	57.1	45.8	42.5
Every 6 months	33.3	0.0	16.7	17.5
Every year	11.1	14.3	16.7	15.0
Suggestions for improving supportive supervision				
Increase the frequency of visits	25.0	33.3	23.5	24.1
Incorporate observation/on-the-job training/mentoring	16.7	16.7	8.8	11.1

Source: Health care provider interviews
* Values shown do not equal 100 percent, as n=10 did not respond.

Almost one-half (42.5 percent) of all providers interviewed, including 57.1 percent of health centre providers and 45.8 percent of clinic providers, said that they had received supportive supervision quarterly. ART clinic providers reported receiving supportive supervision semi-annually (33.3 percent). Fewer providers (15.0 percent) said that they had received supportive supervision for NACS only once a year. When asked for suggestions for improving supportive supervision, 24.1 percent of the NACS providers interviewed said that they needed more frequent supportive supervision, and 11.1 percent said that supportive supervision visits should include observations, on-the-job training and mentoring.

3.3 Material Resources

Material resources include guidelines, tools and registers; functioning anthropometric equipment; availability of nutrition education materials for counselling and adequate stock of specialized food products to treat malnutrition. Information on all of these aspects was collected using the health facility checklist and questionnaire.

3.3.1 Supporting Documents and Counselling Materials

Each health facility visited was assessed using a 16-item checklist for the availability of the national *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*, the *Nutrition Management for PLHIV: Resource Guidelines for Clinical Health Workers*, MOHSS NACS job aids, NACS data collection and reporting forms and client nutrition education and counselling materials. None of the facilities visited had all 16 items on the checklist, but all of them had at

least 9 of the 16 items. The minimum NACS documents that all facilities should have are the *Nutrition Assessment, Counselling and Support for PLHIV: Operational Guidelines*, the body mass index (BMI) chart, the weight-for-height z-score (WHZ) table, the NACS Register, the NACS Monthly Report, the NACS Monthly Consumption Report, and the NACS Admission, Specialized Food Product Prescription and Discharge Form. All seven of these documents were available in 33.3 percent of ART clinics, 40.0 percent of health centres, and 76.9 percent of clinics at the time of review (Table 8).

One person in each data collection team checked each facility for nutrition education or counselling materials on the following 10 topics: general nutrition, nutrition for PLHIV, vitamin A deficiency, anaemia/iron deficiency, iodine deficiency, breastfeeding, complementary feeding, child immunization, oral rehydration therapy (ORT) and water, sanitation and hygiene (WASH). About one-half of all the facilities had materials on breastfeeding, child immunization, general nutrition and WASH.

No facilities had materials on vitamin A deficiency or anaemia (data not shown). Only 8.3 percent had materials on 6 of the 10 topics. Nutrition education and counselling materials on fewer than 3 of the 10 topics were available in almost one-half (41.7 percent) of all the facilities.

Table 8. NACS documents and client nutrition education and counselling materials

Variable	Type of health facility (mean/%)			Total (mean/%) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
16-item NACS checklist (guidelines, algorithms, forms, education and counselling materials)				
Mean number*	11.7	12.6	12.8	12.5
At least 14 of 16	16.7	0.0	46.2	29.2
12–13 of 16	33.4	100.0	38.5	50.0
9–11 of 16	50.1	0.0	15.5	20.8
Minimum standard NACS documents				
Nutrition Assessment, Counselling and Support for PLHIV: Operational Guidelines	83.3	60.0	84.6	79.2
BMI chart	100.0	100.0	100.0	100.0
WHZ table	83.3	100.0	92.3	91.7
NACS Register	100.0	100.0	100.0	100.0
NACS Monthly Report	100.0	100.0	92.3	95.8
NACS Monthly Consumption Report	83.3	100.0	100.0	95.8
NACS Admission, Specialized Food Product Prescription and Discharge Form	50.0	80.0	92.3	79.2
All 7 minimum standard NACS documents	33.3	40.0	76.9	58.3
Client nutrition education and counselling materials				
Mean number*	1.5	4.2	3.2	3.0
6 of 10	0.0	20.0	7.7	8.3
3–5 of 10	33.3	80.0	46.2	50.0
Fewer than 3 of 10	66.6	0.0	46.2	41.7

Source: Health facility reviews

* Mean value, not percent. All other values in table are percentages.

3.3.2 Equipment

The review teams assessed the availability and functioning of equipment needed for nutrition assessment, including weighing scales, height/length boards and mid-upper arm circumference (MUAC) tapes or tape measures using the health facility checklist. The results are shown in Figure 5.

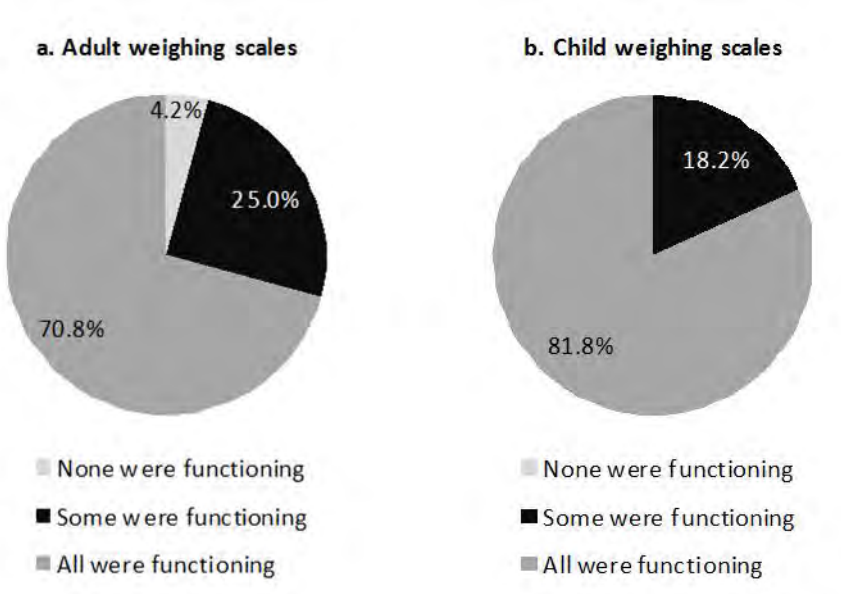
Adult weighing scales. All 24 facilities had at least one adult scale, with the mean number of scales ranging from 2.2 in the ART clinics to 3.4 in the health centres (data not shown). In 70.8 percent of the facilities visited, all of the adult scales were functioning. In 25.0 percent of facilities, at least one adult scale but not all were functioning. One clinic had no functioning scale.

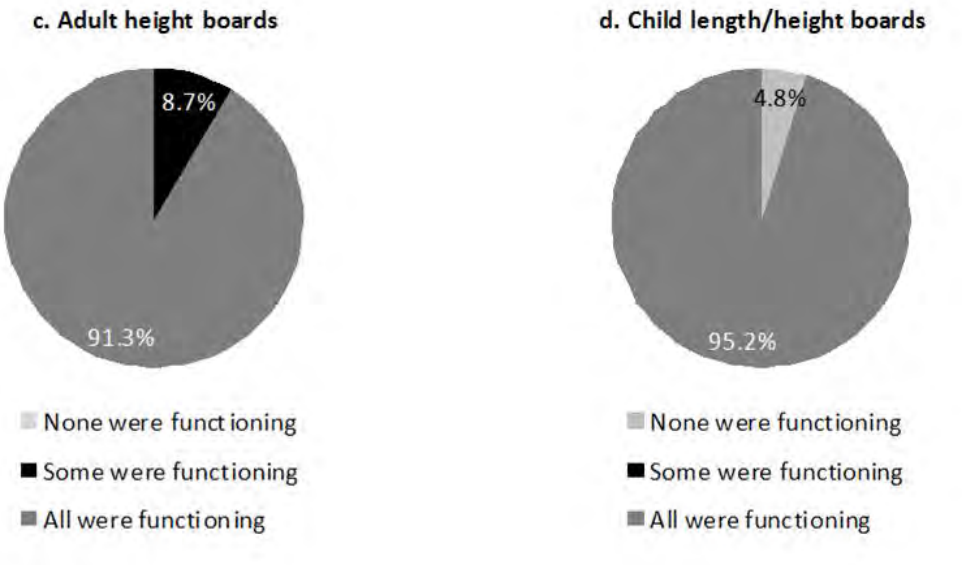
Child weighing scales. Two facilities (one ART clinic and one clinic) had no child weighing scales. The mean number of scales in facilities with child scales was 2.4, ranging from 1.2 in ART clinics to 3.4 in health centres (data not shown). Every health facility with a scale had at least one functioning scale. The two facilities that did not have child scales had functioning adult scales (data not shown).

Adult height boards. Only one of the facilities visited had no adult height boards. The mean number of adult height boards was 2.0 across all facilities with height boards (data not shown). Most facilities (91.3 percent) had functioning adult height boards.

Child length/height boards. Two ART clinics and one clinic had no child length/height boards. The mean number of child length/height boards in facilities with this equipment was 1.4, ranging from 1.3 in ART clinics to 1.6 in health centres (data not shown). Child length/height boards were functioning in 95.2 percent of the facilities, and 4.8 percent had no functioning child length/height boards. The three facilities with no child length/height board and one facility with a non-functioning child length/height board had both functioning adult height boards and tape measures.

Figure 5. Functionality of weighing scales and length/height boards across all facilities





Source: Health facility reviews

MUAC tapes. All but one of the clinics visited had MUAC tapes for adults, and that one clinic had both a tape measure (which can be used to measure MUAC in the absence of a MUAC tape) and a child MUAC tape. The number of adult MUAC tapes in the health facilities ranged from 1 to 15, with a median number of 4 per health facility. All health facilities had at least one child MUAC tape, with quantities ranging from 1 to 99. The median number of child MUAC tapes was 4.5, indicating wide variation across health facilities and within health facility types (Table 9).

Table 9. Availability of MUAC tapes

Variable	Type of health Facility			Total (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
Adult MUAC tapes				
Number of facilities with no adult MUAC tapes	0	0	1	1
Median number of adult MUAC tapes*	4.0	4.0	3.5	4.0
Child MUAC tapes				
Number of facilities with no child MUAC tapes	0	0	0	0
Median number of child MUAC tapes	7.5	17.0	4.0	4.5

Source: Health facility reviews
* Data are presented as a subset of facilities that had the equipment.

3.3.3 Specialized Food Products

Specialized food products used to treat malnutrition in Namibia include an RUTF for severe malnutrition and an FBF to increase energy density and palatability for moderate malnutrition. These commodities are kept in a central warehouse in Windhoek, and regions and districts send vehicles to collect the quantities they need.

Storage and stocks of specialized food products

One member of each data collection team assessed the area(s) in each health facility where specialized food products were stored using an 11-item checklist[12] that followed specifications in the 2010 *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*. Only two facilities, both ART clinics, met all 11 conditions for proper storage of specialized food products (Table 10). Almost two-thirds of the facilities (60.9 percent) met at least 8, 9 or 10 of the 11 conditions and 8.7 percent met fewer than 5 of the 11 conditions.

The most common deficiencies were insect or rodent contamination (in 73.8 percent of facilities), inadequate ventilation (69.6 percent) and storage close to walls or floors (53.5 percent) (data not shown). Specialized food products were not recorded on stock cards in 43.5 percent of facilities (data not shown).

None of the facilities had expired or damaged packets or cartons of RUTF. Two facilities (8.7 percent) had expired packets/cartons of FBF, and one health facility (4.3 percent) had damaged packets (Table 10).

Table 10. Storage and stocking of specialized food products

Variable	Type of Health Facility (%)			Total (mean/%) (n=24)
	ART clinic (n=5)*	Health centre (n=5)	Clinic (n=13)	
Proper storage of specialized food products				
Mean number of conditions met	8.2	7.2	8.1	7.9
11 of 11 conditions met	40.0	0.0	0.0	8.7
8–10 of 11 conditions met	20.0	60.0	76.9	60.9
5–7 of 11 conditions met	20.0	20.0	23.1	21.7
Fewer than 5 of 11 conditions met	20.0	20.0	0.0	8.7
Stock of RUTF				
Expired RUTF packets/cartons	0.0	0.0	0.0	0.0
Damaged RUTF packets/cartons	0.0	0.0	0.0	0.0
Stock of FBF				
Expired FBF packets/cartons	20.0	20.0	0.0	8.7
Damaged FBF packets/cartons	20.0	0.0	0.0	4.3

Source: Health facility reviews

** Data shown do not include one ART clinic where the nurse with the key to the locked storage area was not present.*

Ordering and receiving specialized food products

Only about one-half (47.8 percent) of the staff responsible for ordering specialized food products interviewed (mostly at ART clinics) said that they determined the amount of specialized food products needed by using the recommended formula of maximum stock quantity minus stock on hand (Table 11).

[12] Storage area is clean and dry (1), free of insects and rodents (2), adequately ventilated (3), adequate for current stock (4) and secured with lock and key (5); specialized food products are protected from sunlight (6), stored away from floors and walls (7) and stored according to first expired/first out procedures (8); damaged or expired products are stored separately from usable stocks (9); and stock cards are used to account for the products in storage (10) and updated at the time of the visit (11).

While there was variation by health facility type, the remaining facilities either relied on their judgement or compared the number of clients with the stock on hand.

Two-thirds (65.2 percent) of staff interviewed (83.3 percent of ART clinic staff, 60.0 percent of health centre staff and 58.3 percent of clinic staff) said that they used the Internal Requisition Form for ordering specialized food products (data not shown). All health centre staff and 66.7 percent of clinic staff said that they sent the forms to the district level, and 33.3 percent of clinic staff said that they gave the forms to their supervisors to submit. Among ART clinic staff interviewed, 33.3 percent said that they placed the orders with their supervisors and 16.7 percent said that they ordered specialized food products from the Regional level.

Of all staff interviewed, 52.2 percent reported placing orders monthly, and 81.8 percent said that they received their orders within 2 weeks. Almost one-half (43.5 percent) of staff reported no challenges in ordering and receiving specialized food products, whereas 17.4 percent (accounting for 40.0 percent of health facilities, 16.7 percent of ART clinics and 8.3 percent of clinics) cited delays in delivery (data not shown).

Table 11. Ordering specialized food products

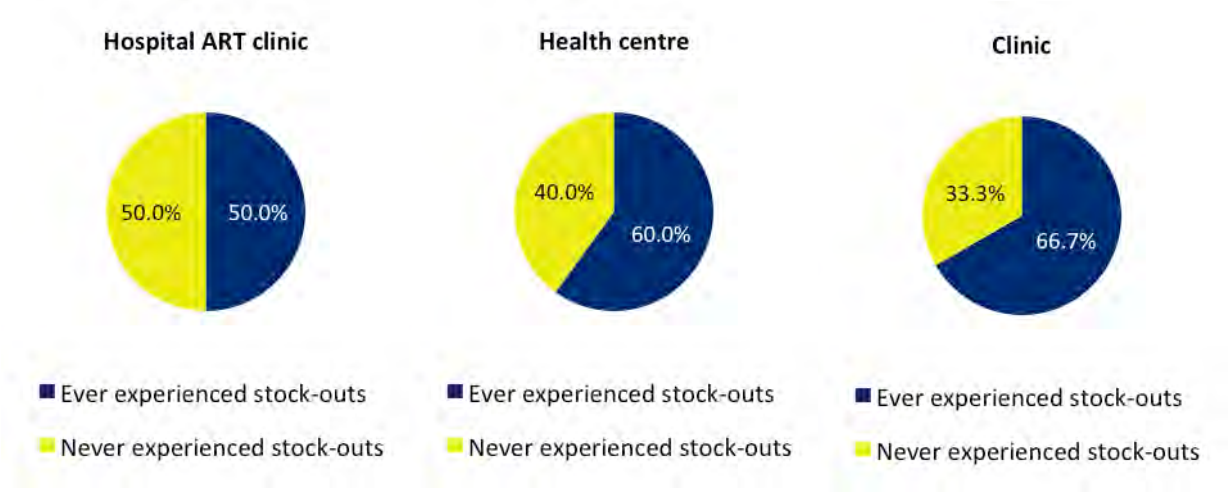
Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=12)	
Method used to determine needed quantities of specialized food products				
Calculate (maximum stock quantity minus stock on hand)	66.7	40.0	41.7	47.8
Compare the number of clients with stock on hand	0.0	40.0	33.3	26.1
Use experience/judgement	16.7	20.0	25.0	21.7
Don't know	16.7	0.0	0.0	4.3
Tool usually used for ordering				
Internal Requisition Form	83.3	60.0	58.3	65.2
Telephone	16.7	0.0	16.7	13.0
Other	0.0	40.0	25.0	21.7
Level to which the Internal Requisition Form or NACS Monthly Consumption Report was sent				
Supervisor	33.3	0.0	33.3	26.1
District	0.0	100.0	66.7	56.5
Regional	16.7	0.0	0.0	4.3
Other	50.0	0.0	0.0	13.0
Frequency of orders				
Every 2 weeks	33.3	0.0	0.0	8.7
Every month	50.0	60.0	50.0	52.2
Every 2 months	0.0	20.0	16.7	13.0
Quarterly	0.0	0.0	8.3	4.3
Other	16.7	20.0	25.0	21.7
Length of time from ordering to receiving				
Less than 2 weeks	100.0	60.0	83.3	81.8
2 weeks–1 month	0.0	40.0	16.7	18.2

Source: Health facility review and interviews

Supply of specialized food products

When staff responsible for managing specialized food products were asked whether their health facilities had ever experienced stock-outs of these products, 50.0 percent of ART clinic staff, 60.0 percent of health centre staff and 66.7 percent of clinic staff, said 'yes' (Figure 6).

Figure 6. Ever stock-outs of specialized food products*



Source: Health facility review and interviews
* Data shown represent information from staff that were knowledgeable about specialized food product ordering (n=23).

At the time of the review, 13.0 percent of all facilities (one ART clinic, one health centre and one clinic) had current stock-outs of RUTF (Table 12). Three facilities (13 percent: two ART clinics and one health centre) had stock-outs of FBF at the time of the review. The ART clinic and health centre with no RUTF in stock also had no FBF in stock.

Table 12. Current stock-outs of specialized food products

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=5)*	Health centre (n=5)	Clinic (n=13)	
Stock-out of RUTF	20.0	20.0	7.7	13.0
Stock-out of FBF	40.0	20.0	0.0	13.0

Source: Health facility reviews
* Data shown do not include one ART clinic where the nurse with the key to the locked storage area was not present.

Completion of NACS Monthly Consumption Reports

The Monthly Consumption Reports are used to record quantities of specialized food products in stock at the beginning of each month, distributed to clients during the month and needed for the following month. In the facilities visited, 83.3 percent of the staff responsible for completing the Monthly Consumption Reports were nurses (Table 13). While 81.0 percent of facilities visited reported submitting the reports during the past month, there was variation by type of health facility (100.0 percent of clinics, 60.0 percent of health centres and 50.0 percent of ART clinics). Reports had been submitted 3 months or earlier by 25.0 percent of ART clinics and 20.0 percent of health centres visited.

No challenges in filling out the Monthly Consumption Reports were reported by 52.4 percent of staff interviewed; 9.5 percent said the forms were too complicated, 4.8 percent said that they were too time

consuming and 28.6 percent identified other challenges (inaccurate or incomplete register data, a heavy workload, insufficiently trained nurses and clients who said 'I already have so much at home').

Table 13. Monthly Consumption Reports

Variable	Type of health facility (%)			Total (%) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
Staff responsible for filling out the Monthly Consumption Report				
Nurse	66.7	100.0	84.6	83.3
Nurse and community counsellor	0.0	0.0	7.7	4.2
In-charge	16.7	0.0	7.7	8.3
Don't know	16.7	0.0	0.0	4.2
Of those responsible for completing and submitting the Monthly Consumption Report	(n=4)	(n=5)	(n=12)	(n=21)
Time the latest Monthly Consumption Report was submitted				
Past month	50.0	60.0	100.0	81.0
More than 1 month but less than 2 months ago	25.0	20.0	0.0	9.5
More than 2 months but less than 3 months ago	0.0	0.0	0.0	0.0
3 months ago or more	25.0	20.0	0.0	9.5
Challenges in completing the Monthly Consumption Report*				
None	50.0	60.0	50.0	52.4
Forms too complicated	25.0	0.0	8.3	9.5
Reports too time consuming	25.0	0.0	0.0	4.8
Other	25.0	40.0	25.0	28.6

Source: Health facility review and interviews
* Multiple responses were possible. ART clinic n=4, health centre n=5, clinic n=12.

3.4 NACS Implementation

NACS implementation processes include integration of NACS into routine health services, nutrition case management (assessment and classification, counselling, support, referral and follow-up), provider-client interaction and reporting. Interviews with health facility in-charges and NACS providers and observation of nutrition assessment and counselling captured information on NACS implementation during the review.

3.4.1 Integration of NACS into Routine Health Services

NACS had been implemented for a little more than a year (mean of 13.0 months) in all the facilities reviewed (Table 14). According to the in-charges, NACS services were provided in the ART clinics and health centres on most days and every day the clinics were open.

Table 14. Provision of NACS services

Variable	Type of health facility			Total (mean) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
Mean number of months the health facility had provided NACS services	13.2	12.4	13.2	13.0
Mean number of days a week the health facility was open	5.0	6.6	5.2	5.4
Mean number of days a week NACS services were provided	4.8	5.8	5.2	5.2

Source: In-charge interviews

According to information from the health facility in-charges, NACS was most fully integrated into routine health services in the clinics and health centres (Table 15).

Table 15. Integration of NACS into health service areas

Health Service Area	Type of health facility (%)			Total (%) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
ART	100.0	100.0	84.6	91.7
General clinic services	16.7	100.0	100.0	79.2
TB care and treatment	66.7	80.0	100.0	87.5
ANC	16.7	80.0	100.0	75.0
Paediatric services/growth monitoring	16.7	100.0	100.0	79.2
Expanded Programme of Immunization (EPI)	16.7	100.0	100.0	79.2
Community outreach	16.7	20.0	23.1	20.8
Screening	0.0	0.0	7.7	4.2

Source: In-charge interviews

Health care providers in each site visited were asked for suggestions on how to better integrate NACS into routine health services. Training more staff in NACS was suggested by 40.7 percent of health care providers (Table 16).

Table 16. Suggestions for how to better integrate NACS into routine health service areas

Suggestions for Better Integration of NACS	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Include nutrition data in every register	0.0	0.0	5.9	3.7
Train more staff in NACS	50.0	50.0	35.3	40.7
Integrate nutrition assessment into triage	16.7	0.0	0.0	3.7
Do nutrition assessment for every client	25.0	0.0	8.8	11.1

Source: Health care provider interviews

3.4.2 Nutrition Case Management

The data collection teams used several methods to assess the quality of nutrition case management. These included health care provider interviews, direct observation of NACS service provision, client interviews and NACS register reviews, to allow for triangulation of data.

Nutrition assessment and classification

NACS providers were asked how they determined which clients should receive nutrition assessment. Fewer than half (42.6 percent) across all facilities (from 35.3 percent of clinic staff to 62.5 percent of health centre staff) said they assessed all clients as recommended in the 2010 *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines* (Table 17). About one-third (31.5 percent) of all providers said that they assessed only clients who looked malnourished. A number of clinic-based providers said that they assessed TB, HIV-positive, ANC and underweight clients, as well as children in growth monitoring sessions (Table 17).

Table 17. Adherence to nutrition assessment operational guidelines

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Selection of clients for nutrition assessment				
All clients	50.0	62.5	35.3	42.6
Clients who look malnourished	25.0	25.0	35.3	31.5
TB clients	16.7	0.0	17.6	14.8
HIV clients	0.0	0.0	14.7	9.3
ANC clients	0.0	0.0	14.7	9.3
Growth monitoring/children under 5 years old	0.0	0.0	14.7	9.3
Underweight clients	0.0	0.0	14.7	9.3
Frequency of nutrition assessment				
Every visit	83.8	100.0	79.4	83.3
Once	0.0	0.0	2.9	1.9
Other	16.7	0.0	17.6	14.8
Reason for not assessing clients on every visit*				
Too busy	0.0	0.0	40.0	33.3

Source: Health care provider interviews
* Data shown as a subset (n=6, where ART clinic n=1 and clinic n=5).

NACS providers were asked how often they did nutrition assessment for individual clients. All health centre providers interviewed (100.0 percent), 83.8 percent of ART clinic providers and 79.4 percent of clinic providers said that they assessed individual clients on every visit. One clinic provider said she assessed clients only on the first visit unless they 'looked malnourished', but other providers from the same health facility said that they assessed clients on every visit (data not shown). Other responses included every 2 weeks (one ART clinic provider), monthly (one clinic provider) and weekly (one clinic provider) (data not shown). When probed for why they did not do nutrition assessment on every visit, 28.6 percent of clinic providers responded that they were too busy.

One member of each data collection team observed nutrition assessment to assess how closely health care providers followed the national guidelines in practice.

Weight-for-height z-score and body mass index

Calculation of WHZ and BMI rely on correct measurement of weight and height. Of all the NACS providers observed during the review, 73.7 percent (ranging from 60.0 percent of ART clinic providers to 100 percent of health centre providers) correctly measured clients' weight using the appropriate equipment, 17.5 percent partially followed protocol (e.g., used the wrong scale or weighed appropriately but did not record the weight in the register) and 8.8 percent did not weigh their clients at all (Table 18). Only 36.9 percent of NACS providers correctly measured clients' height using the appropriate equipment; 41.5 percent did not measure height at all, although the clients may have been adults whose height only needs to be measured on the first visit.

Fewer than one-half (41.7 percent) of clinic providers observed doing nutrition assessment of children 6–59 months old correctly calculated and recorded the children's WHZ (Table 18). Another 41.7 percent of providers did not calculate or record the children's WHZ at all. The majority (80.0 percent) of all providers observed doing nutrition assessment of children 5–14 years old did not calculate or record the children's BMI-for-age. BMI was correctly calculated and recorded for non-pregnant/non-postpartum adolescents and adults by 57.1 percent of ART clinic providers, but it was not calculated or recorded at all by 75.0 percent of health centre providers and 69.2 percent of clinic providers. In general, clinic providers measured and calculated BMI more often than other providers.

Table 18. Calculation of WHZ, BMI and BMI-for-age

Variable	Type of health facility (%)			Total (%)
	ART clinic	Health centre	Clinic	
The provider measured weight correctly using the appropriate equipment	**(n=15)**	**(n=10)**	**(n=32)**	**(n=57)**
Completely	60.0	100.0	71.9	73.7
Partially	13.3	0.0	25.0	17.5
Not at all	26.7	0.0	3.1	8.8
The provider measured height correctly using the appropriate equipment	**(n=18)**	**(n=13)**	**(n=34)**	**(n=65)**
Completely	33.3	23.1	44.1	36.9
Partially	27.8	7.7	5.9	12.3
Not at all	22.2	61.5	44.1	41.5
The provider computed and recorded WHZ correctly for children 6–59 months old (n=17)				
Completely	0.0	0.0	41.7	29.4
Partially	0.0	0.0	16.7	11.8
Not at all	100.0	100.0	41.7	58.8

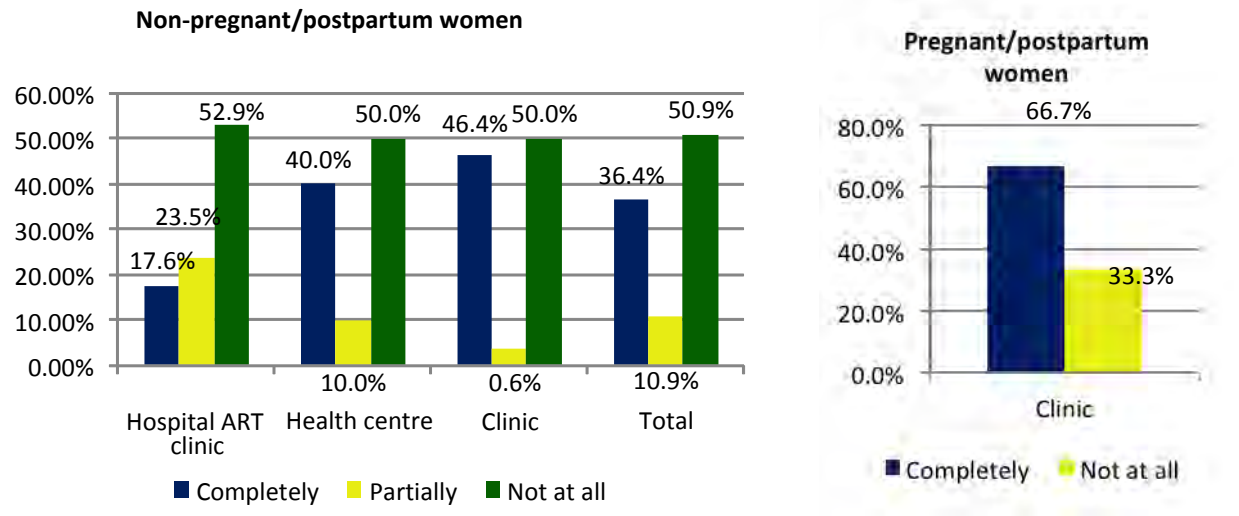
Variable	Type of health facility (%)			Total (%)
	ART clinic	Health centre	Clinic	
The provider computed and recorded BMI-for-age correctly for children and adolescents 5–14 years old	**(n=1)**	**(n=1)**	**(n=3)**	**(n=5)**
Completely	0.0	0.0	33.3	20.0
Partially	0.0	0.0	0.0	0.0
Not at all	100.0	100.0	66.7	80.0
The provider computed and recorded BMI correctly for non-pregnant/non-postpartum adolescents and adults 15 years and older (n=31)				
Completely	57.1	25.0	30.8	41.9
Partially	7.1	0.0	0.0	3.2
Not at all	28.6	75.0	69.2	51.6

Source: Provider-client observations

MUAC

MUAC was correctly measured for children and adults who were not pregnant/up to 6 months postpartum by 36.4 percent of all NACS providers observed and for pregnant/postpartum women by 66.7 percent of providers observed (Figure 7).

Figure 7. Measurement of MUAC



Source: Provider-client observations

Additional nutrition assessment findings

Almost all clients interviewed[13] reported that their weight (95.7 percent), height (82.6 percent) and MUAC (86.9 percent) had been measured during their nutrition assessment (Table 19).

[13] About one-half (52.2 percent) of clients interviewed had participated in the provider-client observations. By definition, a 'NACS client' was a client who was receiving specialized food products. However, the data collectors observed both NACS and non-NACS clients.

Table 19. Client recall of nutrition assessment

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Client's weight was measured	100.0	100.0	90.9	95.7
Client's height was measured	83.3	100.0	72.7	82.6
Client's MUAC was measured	66.7	100.0	90.9	86.9

Source: Client interviews

None of the ART clinic or health centre providers and only 5 clinic providers (14.7 percent) observed during the review assessed clients for bilateral pitting oedema. Only 28.1 percent of providers asked their clients about appetite, diarrhoea or vomiting, 57.8 percent did not ask at all and 14.1 percent asked clients about some but not all of these (Table 20).

Table 20. Assessment of oedema, appetite, diarrhoea and vomiting

Variable	Type of health facility (%)			Total (%) (n=64)
	ART clinic (n=18)	Health centre (n=13)	Clinic (n=33)	
The provider assessed and recorded the presence of bilateral pitting oedema				
Completely	0.0	0.0	15.2	7.8
Partially	0.0	0.0	3.0	1.6
Not at all	100.0	100.0	81.8	90.6
The provider asked the client about appetite, diarrhoea and vomiting				
Completely	5.6	46.2	33.3	28.1
Partially	16.7	7.7	15.2	14.1
Not at all	77.8	46.2	51.5	57.8

Source: Provider-client observations

One person in each data collection team looked at the facility NACS registers to find information on clients 6–59 months old, 5–14 years old and 15 and older. Clients' sex was recorded in 95.9 percent of the registers, age in 98.8 percent, date of enrolment in 100.0 percent, MUAC in 87.6 percent, weight in 84.6 percent and height in 78.1 percent. Target weight was recorded in 57.4 percent of the registers and the presence of bilateral pitting oedema in 67.5 percent (Table 21).

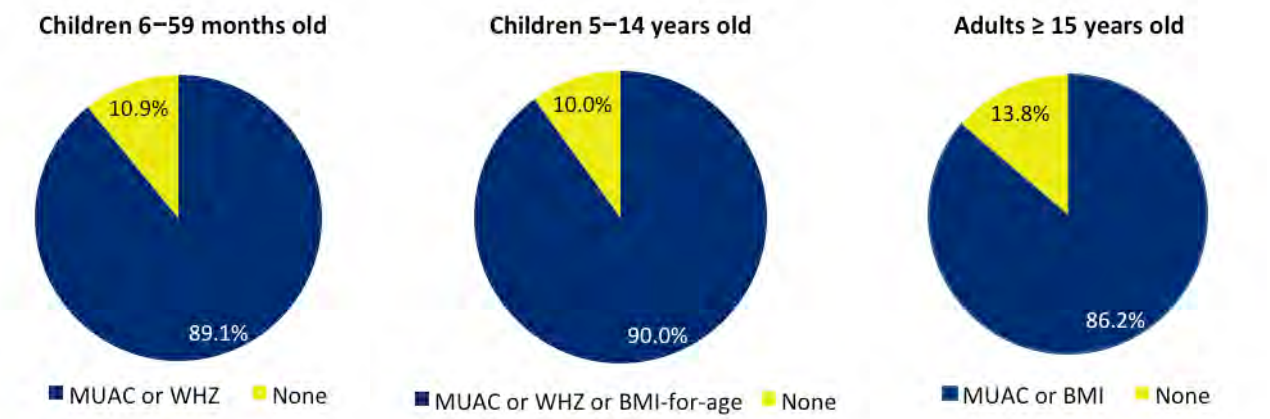
Table 21. Client data recorded in NACS registers

Variable	6–59 Months (n=64)	5–14 Years (n=40)	≥ 15 Years (n=65)	Total (%) (n=169)
Sex	62	38	62	95.9
Age	62	40	65	98.8
Date of enrolment	64	40	65	100.0
Target weight	41	20	36	57.4
Presence of bilateral pitting oedema	44	26	44	67.5
MUAC	58	36	54	87.6
Weight	64	39	60	84.6
Height	59	37	36	78.1

Source: Register audits

Anthropometric measurements help providers classify client nutritional status. Of the client records reviewed, 88.4 percent had either MUAC or other age-appropriate anthropometric measurement recorded (Figure 8). WHZ was recorded for children 6−59 months old in 70.3 percent of the records and (incorrectly) for children 5−14 years old in 20.0 percent of the records. BMI-for-age was recorded for children 5−14 years old in 25.0 percent of the records, and BMI was recorded for clients 15 years and older in 58.5 percent (data not shown). In general, the appropriate measurement was used for the appropriate age group, although BMI was recorded inappropriately for 20.0 percent (n=8) of children 5−14 years old.

Figure 8. Documentation of MUAC, WHZ, BMI-for-age and/or BMI



Source: Register audits

Nutrition counselling

The data collection teams asked NACS providers how they determined which clients to counsel on nutrition. Overall, 31.5 percent of providers (75.0 percent of health centre providers, 25.0 percent of ART clinic providers, and 23.5 percent of clinic providers) said that they counselled all clients on nutrition; 27.8 percent said that they counselled only malnourished clients on nutrition; and 20.4 percent said that they counselled clients based on the results of nutrition assessment. Clinic providers in particular said that they counselled TB clients (5.9 percent), HIV-positive clients (2.9 percent), ANC clients (11.8 percent) and caregivers of children under 5 years old or in growth monitoring (17.6 percent) on nutrition. Asked how often they counselled clients on nutrition, 81.5 percent said on every visit. Other responses included 'if weight does not improve', 'when we give [clients] supplements' and 'if I see they have problems, I ask them to come back' (data not shown). Of clinic providers who said that they did not provide nutrition counselling on every client visit, 50.0 percent said that they were too busy (Table 22). One clinic provider said that lack of RUTF, FBF or transport prevented him from providing nutrition counselling (data not shown).

Table 22. Adherence to nutrition counselling guidelines

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
How providers determined which clients to counsel on nutrition				
Counsel all clients	25.0	75.0	23.5	31.5
Counsel only malnourished clients	41.7	12.5	26.5	27.8
Counsel based on nutrition assessment	25.0	16.7	20.6	20.4
Counsel TB clients	0.0	0.0	5.9	3.7
Counsel HIV-positive clients	8.3	0.0	2.9	3.7
Counsel ANC clients	0.0	0.0	11.8	7.4
Counsel caregivers of children under 5 years old or in growth monitoring	8.3	0.0	17.6	13.0
Frequency of nutrition counselling				
Every visit	91.7	87.5	76.5	81.5
Once	0.0	0.0	5.9	3.7
Other	8.3	12.5	17.6	14.8
Reasons for not counselling clients on nutrition on every visit*				
Too busy	0.0	0.0	50.0	40.0
Counselling messages given to clients				
Get weighed regularly	25.0	50.0	11.8	20.4
Increase energy intake	16.7	25.0	11.8	14.8
Eat a variety of foods/balanced diet	58.3	62.5	70.6	66.7
Drink safe water	16.7	37.5	20.6	22.2
Avoid sugary drinks	0.0	12.5	0.0	1.9
Avoid alcohol consumption	16.7	12.5	0.0	5.6
Practise good hygiene/sanitation	33.3	25.0	52.9	44.4
Exercise	8.3	0.0	5.9	5.6
Seek treatment for infections	8.3	12.5	8.8	9.3
Manage drug side effects through diet	0.0	12.5	0.0	1.9
Manage symptoms through diet	16.7	0.0	17.6	14.8
Prepare RUTF/FBF correctly	25.0	0.0	20.6	18.5
Practise critical nutrition actions for people with HIV	16.7	0.0	8.8	9.3
Breastfeed	0.0	33.3	5.9	7.4
Improve food security	16.7	33.3	11.8	14.8
Tools used for counselling clients				
Algorithms	25.0	12.5	11.8	14.8
Guidelines	8.3	25.0	2.9	7.4
Brochures	8.3	50.0	14.7	18.5
Posters	25.0	37.5	26.5	27.8
Demonstrations	16.7	0.0	2.9	5.6
Charts/models/counselling cards	25.0	0.0	11.8	13.0
None	25.0	12.5	44.1	35.2
Felt comfortable counselling clients	75.0	75.0	85.3	81.5

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Reasons for not feeling comfortable counselling clients on nutrition**				
Lack of knowledge or training	33.3	100.0	75.0	66.7
Lack of tools or materials	0.0	0.0	50.0	22.2

Source: Health care provider interviews
* Data shown as a subset (n=6).
** Data shown as a subset (n=9).

The most common nutrition counselling topics NACS providers mentioned were eating a variety of foods (66.7 percent); practising good hygiene and sanitation (44.4 percent); drinking safe water (22.2 percent); getting weighed regularly (20.4 percent); preparing or consuming RUFT or FBF correctly (18.5 percent) and increasing energy intake, managing symptoms through diet (14.8 percent) and improving food security/gardening (data not shown). Most providers said that they used at least one tool or job aid for counselling, but 35.2 percent said that they did not use anything.

Most NACS providers (81.5 percent, ranging from 85.3 percent of clinic providers to 75.0 percent each of ART clinic and health centre providers) said that they felt comfortable counselling clients on nutrition. Of those who did not feel comfortable, 66.7 percent said that they did not have enough knowledge or training and 22.2 percent said that they lacked tools or materials to support counselling (Table 22). Other reasons given were 'when you start counselling on what to eat, clients expect food' and it was 'difficult to counsel on nutrition when people are food insecure' (data not shown).

During provider-client observations, most NACS providers did not adhere to guidelines in explaining to clients how to prepare a balanced meal (72.3 percent), explaining how to manage symptoms through diet (86.2 percent) or developing a nutrition care plan with the client (76.9 percent) (Table 23).

Table 23. Demonstration of nutrition counselling

Variable	Type of health facility (%)			Total (%) (n=65)
	ART clinic (n=18)	Health centre (n=13)	Clinic (n=34)	
Provider explained how to prepare a balanced meal				
Completely	0.0	38.5	23.5	20.0
Partially	11.1	23.1	0.0	7.7
Not at all	88.9	38.5	76.5	72.3
Provider explained how to manage symptoms through diet				
Completely	0.0	15.4	5.9	6.2
Partially	11.1	7.7	2.9	6.2
Not at all	88.9	76.9	88.2	86.2
Provider developed a nutrition care plan with the client				
Completely	0.0	0.0	8.8	4.6
Partially	16.7	30.8	14.7	18.5
Not at all	83.3	69.2	76.5	76.9

Source: Provider-client observations

Two-thirds of clients interviewed (65.2 percent) said that they had received nutrition information the day of the visit. Of those who said that they had not received nutrition information the day of the visit, 75.0 percent said that they had ever received advice about food. Most (72.7 percent) of clients in all facility types said that the nurses gave them nutrition information (Table 24). None of the clients interviewed had ever received brochures or booklets about nutrition from a health care provider at the health facility (data not shown).

Table 24. Client recall of nutrition counselling

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
The client was given advice on nutrition	66.7	83.3	54.5	65.2
If not given advice on nutrition the day of the review, the client was ever given advice about food*	50.0	100.0	80.0	75.0
Staff who provided the nutrition information**				
Doctor	0.0	16.7	10.0	9.1
Nurse	83.3	66.7	70.0	72.7
Community counsellor	16.7	0.0	20.0	13.6
Field promoter	0.0	16.7	0.0	4.5

Source: Client interviews

* Data shown as a subset of those who were not given advice about nutrition on the day of the review.

** Data shown exclude one non-response by a clinic client.

Nutrition support

During the provider-client observations, the NACS providers classified 6.2 percent of clients as severely malnourished and 23.1 percent as moderately malnourished; 47.7 percent of clients did not have their nutritional status classified. Of the four providers who classified their clients as severely malnourished, one clinic provider completely adhered to guidelines in giving an appetite test, one hospital ART clinic provider partially adhered to guidelines and two clinic providers did not give an appetite test. The single client who failed the appetite test was not referred for inpatient treatment.

Among providers with malnourished clients, 78.9 percent completely adhered to guidelines in prescribing specialized food products (ranging from 100.0 percent of health centre providers to 57.1 percent of hospital ART clinic providers), and 84.2 percent explained to the clients how to prepare, eat or feed a child specialized food products (Table 25).

Table 25. Classification of nutritional status

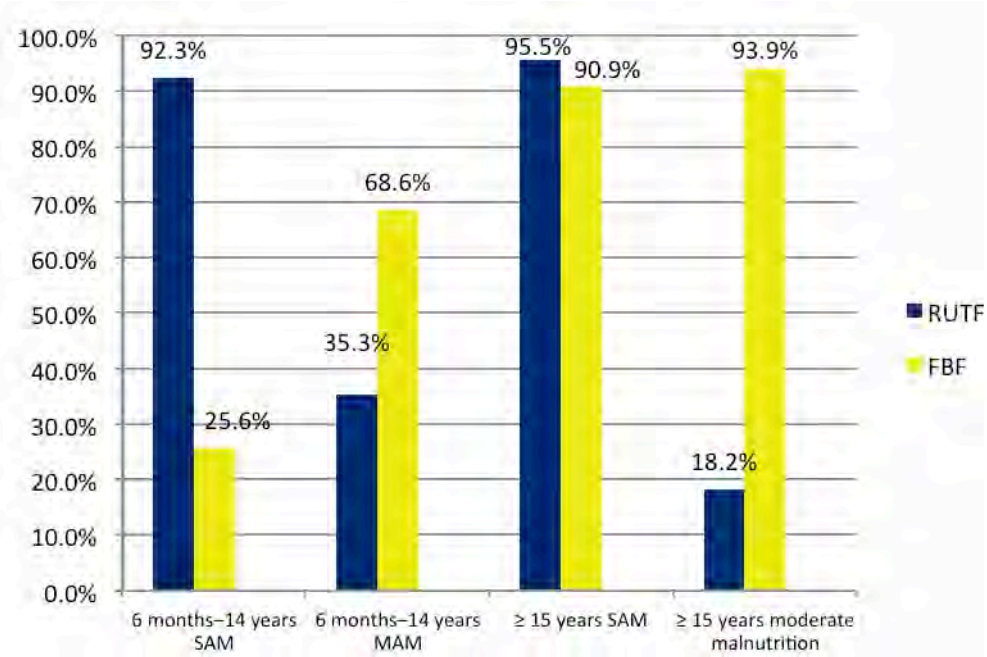
Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Nutritional status of clients				
Severe malnutrition	5.6	0.0	8.8	6.2
Moderate malnutrition	33.3	23.1	17.6	23.1

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Normal nutritional status	27.8	15.4	23.5	23.1
No classification	33.3	61.5	50.0	47.7
Provider gave clients classified as severely malnourished an appetite test (n=4)				
Completely	0.0	–	33.3	25.0
Partially	100.0	–	0.0	25.0
Not at all	0.0	–	66.7	50.0
Provider referred severely malnourished clients with no appetite and/or medical complications for inpatient treatment (n=4)				
Not at all	100.0	–	0.0	25.0
Provider prescribed specialized food products for malnourished clients (n=19)				
Completely	57.1	100.0	88.9	78.9
Partially	14.3	0.0	0.0	5.3
Not at all	28.6	0.0	11.1	15.8
Provider explained how to prepare, eat or feed a child specialized food products				
Completely	71.4	100.0	88.9	84.2
Partially	14.3	0.0	0.0	5.3
Not at all	14.3	0.0	11.1	10.5

Source: Provider-client observations

The *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines* recommend prescription of RUTF and FBF for severely malnourished clients and FBF for moderately malnourished clients. In the client records reviewed, 92.3 percent of children 6 months–14 years old with severe acute malnutrition (SAM) had been prescribed RUTF correctly and 25.6 percent had been prescribed FBF incorrectly. Two-thirds (68.6 percent) of children 6 months–14 years old with moderate acute malnutrition (MAM) had been prescribed FBF correctly and one-third (35.3 percent) had been prescribed RUTF incorrectly. Most clients 15 years or older with SAM had been prescribed RUTF (95.5 percent) and FBF (90.9 percent) correctly. Most clients 15 years or older with moderate malnutrition (93.9 percent) had been prescribed FBF correctly, but 18.2 percent with moderate malnutrition had incorrectly been prescribed RUTF incorrectly (Figure 9). (It is worth noting that when FBF was out of stock in some facilities in the past, they were advised to prescribe RUTF instead.)

Figure 9. Prescription of specialized food products for malnourished clients



Source: Register audits

Almost all NACS providers across all health facility types (including 100.0 percent of health centre providers) said that they explained how to eat and store Plumpy'nut® RUTF (94.4 percent) and how to prepare and store FBF (96.3 percent) (Table 26).

Table 26. Explaining how to prepare and eat specialized food products

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
How to eat and store RUTF	91.7	100.0	94.1	94.4
How to prepare (demonstration) and store FBF	91.7	100.0	97.1	96.3

Client follow-up and referral

When the data collection team members asked NACS clients whether they had ever missed a NACS follow-up appointment, 22.7 percent said that they had (Table 27). When probed for the reason for the missed visits, one client said s/he was 'not informed when to go back for special food products', one 'didn't like the FBF', one had 'nobody to help me carry the children to the clinic' and two had conflicting personal activities (data not shown).

Table 27. Loss to follow-up

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Had ever missed a follow-up visit	33.3	33.3	9.1	22.7

Source: Client interviews

On the other hand, most of the NACS providers (87.0 percent) reported having clients who did not return for follow-up visits. The reason given by 63.8 percent of health care providers across all facilities was lack of transportation and/or distance to the health facility. Most of the health centre providers (83.3 percent), 25.0 percent of the ART clinic providers and 27.6 percent of the clinic providers believed loss to follow-up was the result of client negligence. Dislike of specialized food products was given as a reason for client defaulting by 50.0 percent of ART clinic providers, 16.7 percent of health centre providers and 20.7 percent of clinic providers (Table 28). Two providers attributed loss to follow-up to stigma, with one saying, 'they think all NACS [clients] have TB or HIV'. Another provider said that 'specialized food products gave clients appetite but there is no food at home' (data not shown).

Table 28. Health care provider perceptions about loss to follow-up

Variable	Type of Health Facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Had clients who did not return for follow-up	100.0	75.0	85.3	87.0
In facilities with clients lost to follow-up, reasons clients did not return*				
Dislike of specialized food products	50.0	16.7	20.7	27.7
Clients' negligence	25.0	83.3	27.6	34.0
Transportation/distance to health facility	58.3	66.7	65.5	63.8
Clients felt better	8.3	0.0	10.3	8.5
No follow-up mechanism	8.3	0.0	3.4	4.3
Health facility had a mechanism to ensure follow-up of clients	41.7	87.5	70.6	66.7
Ways to follow up clients				
Telephone	80.0	14.3	50.0	47.2
Outreach/home visit	40.0	85.7	50.0	55.6
Schedule joint appointments	20.0	0.0	4.2	5.6
Other mechanisms for community engagement	0.0	0.0	16.7	11.1
Referred clients to other organizations for food or financial support	41.7	25.0	47.1	42.6
Reasons for not making referrals**				
Didn't know about such support	42.9	40.0	50.0	48.3
Not their job	0.0	20.0	0.0	3.4
No such support in this areas	42.9	80.0	22.2	37.9

Source: Health care provider interviews.
* Data shown as a subset (n=47).
** Data shown as a subset (n=28).

3.4.3 Provider-Client Interaction

In almost all provider-client observations, providers greeted the clients (89.2 percent) and treated the clients with respect (95.4 percent). About one-half of the providers (41.5 percent) completely and clearly communicated the results of the nutrition assessment to the clients, and 46.2 percent checked whether the clients understood the important information. Two-thirds (64.6 percent) allowed the clients to respond or ask questions, and 63.9 percent made follow-up appointments (Table 29).

Table 29. Provider-client interaction

Variable	Type of health facility (%)			Total (%) (n=65)
	ART clinic (n=18)	Health centre (n=13)	Clinic (n=34)	
The provider greeted the client				
Completely	77.8	76.9	100.0	89.2
Partially	22.2	23.1	0.0	10.8
Not at all	0.0	0.0	0.0	0.0
The provider clearly communicated the results of the nutrition assessment to the client				
Completely	33.3	30.8	50.0	41.5
Partially	27.8	7.7	5.9	12.3
Not at all	38.9	61.5	44.1	46.2
The provider treated the client with respect				
Completely	94.4	100.0	94.1	95.4
Partially	5.6	0.0	5.9	4.6
Not at all	0.0	0.0	0.0	0.0
The provider allowed the client to respond or ask questions				
Completely	55.6	76.9	64.7	64.6
Partially	27.8	23.1	20.6	23.1
Not at all	16.7	0.0	14.7	12.3
The provider checked whether the client understood the important information				
Completely	33.3	53.8	50.0	46.2
Partially	38.9	38.5	29.4	33.8
Not at all	27.8	7.7	20.6	20.0
The provider made a follow-up appointment according to the national guidelines				
Completely	50.0	38.5	73.5	63.9
Partially	11.1	0.0	2.9	4.9
Not at all	38.9	38.5	20.6	31.1

Source: Provider-client observations

3.4.4 Reporting

The following data collection forms are used in NACS services in Namibia:

1. NACS Client Register
2. NACS Monthly Consumption Report (for specialized food products)
3. NACS Monthly Report Form
4. Daily Consumption Record (for specialized food products)
5. NACS Admission Form (for children under 5 years old)
6. NACS Follow-up Form (for children under 5 years old)

Of the NACS providers interviewed who were responsible for completing NACS client registers, 23.3 percent reported having difficulty recording NACS information (Table 30). Reasons given included 'numbering of clients', 'if clients default, we get confused about how we should continue in the register with follow-up', 'hard to diagnose with the +/', 'need a register in each department' and 'don't know how to find the proper measurement'. Suggestions for improving the NACS registers included 'have a file number for the ART file number in the NACS register', 'insert a contact number to be able to trace defaulters', 'need for numbering of clients', 'space/columns too small', 'the statistics are difficult' and 'train all staff how to do it' (data not shown).

Table 30. Provider experience using NACS registers

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Responsible for completing NACS registers	83.3	75.0	82.4	81.5
Of those who completed NACS registers, had difficulty completing them	10.0	33.3	25.0	23.3

Source: Health care provider interviews

Of the in-charges interviewed, 58.3 percent said that they were fully or partly responsible for filling out the NACS Monthly Report. Of these, 42.9 percent (n=24) said that they found it difficult to fill out the report (Table 31). Another three in-charges who said that they were not responsible for filling out the report said that their staff found it difficult to complete. The most common reason given for the form being difficult to complete was 'unclear statistics/complicated form', followed by 'work overload' and 'incomplete registers' (data not shown). Suggestions for overcoming these difficulties included 'training', 'training additional staff' and 'simplifying the forms'.

Table 31. Experience completing the NACS Monthly Report

Staff responsible	Type of health facility (%)			Total (%) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
In-charge	50.0	40.0	38.5	41.7
Nurse	33.3	60.0	38.5	41.7
In-charge and nurse	16.7	0.0	7.7	8.3
In-charge and community counsellor	0.0	0.0	15.4	8.3
Of those who were responsible for completing the report, had difficulty completing it	25.0	100.0	37.5	42.9

Source: In-charge interviews

Of the NACS providers interviewed, 68.5 percent said that they were responsible for completing the NACS Monthly Report. Of these, 29.7 percent said that they had difficulty completing the report (Table 32). Three providers (27.2 percent) said it was difficult to complete the report when data were incomplete, and four (36.4 percent) said that the calculations were complicated/unclear. One suggestion was to include 'a tally sheet for clients enrolled by age group' (data not shown).

Table 32. NACS provider experience completing the NACS Monthly Report

Variable	Type of health facility (%)			Total (%) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
Responsible for completing the NACS Monthly Report*	83.3	37.5	70.6	68.5
Of those who completed the NACS Monthly Report, had difficulty completing it*	30.0	33.3	29.2	29.7

Source: Health care provider interviews
* Data shown include in-charges reported in Table 31.

Of the in-charges interviewed, 62.5 percent said that they were responsible for submitting the NACS Monthly Report. Of those who had some responsibility for submitting the report, 66.7 percent of hospital ART clinic in-charges and 46.2 percent of clinic in-charges said that they had difficulty submitting it on time. Of those who had difficulty submitting the reports on time, 75.0 percent of ART clinic in-charges and 33.3 percent of clinic in-charges gave 'high workload' as the reason, and 67.6 percent of clinic in-charges cited challenges in transporting the report to the district level (Table 33). One health centre in-charge who was not responsible for submitting the NACS Monthly Report also cited transport as an issue (data not shown).

Table 33. Submission of NACS Monthly Reports

Variable	Type of health facility (%)			Total (%) (n=24)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=13)	
Staff responsible for submitting NACS Monthly Reports				
In-charge	50.0	60.0	69.2	62.5
Nurse	16.7	40.0	15.4	20.8
Pharmacist	16.7	0.0	0.0	4.2
In-charge and nurse	16.7	0.0	7.7	8.3
In-charge and community counsellor	0.0	0.0	7.7	4.2
Of those responsible for submitting the form, had difficulty submitting the form on time	66.7	0.0	46.2	41.7
Challenges identified in submitting NACS Monthly Reports				
High workload	75.0	0.0	33.3	50.0
Transport of forms	0.0	0.0	67.6	40.0
Coordination	25.0	0.0	0.0	10.0

Source: In-charge interviews

Of the NACS providers interviewed, 53.7 percent said that they were responsible for submitting the NACS Monthly Report and 37.9 percent of these said that they had difficulty completing the form (Table 34). Two providers (18.2 percent) said that their 'workload hampers submission', two providers (18.2 percent) said reports were submitted late because of staff shortages and five (45.4 percent) said that transport was an issue (data not shown).

Table 34. NACS provider experience submitting the NACS Monthly Reports

Variable	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Responsible for submitting the NACS Monthly Report	58.3	25.0	58.8	53.7
Of those who submitted NACS Monthly Reports, had difficulty in filling it out	42.9	50.0	35.0	37.9

Source: Health care provider interviews

3.4.5 Suggestions for Improvement

The data collection teams asked NACS providers their opinions about how to improve the quality of NACS services in their facilities. The most frequent response (from 64.8 percent of the NACS providers) was to train more staff in NACS. Other suggestions were providing more training in nutrition counselling (16.7 percent); having a nutrition centre or space dedicated to NACS in the facilities (16.7 percent) and providing more guidelines, algorithms, tools and brochures (11.1 percent) (Table 35).

Table 35. Provider suggestions for improving the quality of NACS services

Suggestion	Type of health facility (%)			Total (%) (n=54)
	ART clinic (n=12)	Health centre (n=8)	Clinic (n=34)	
Train more staff	66.7	75.0	61.8	64.8
Provide counselling materials	0.0	12.5	14.7	11.1
Provide more supervision	0.0	0.0	8.8	5.6
Improve the taste of the specialized food products	25.0	0.0	5.9	9.3
Provide more training in nutrition counselling	25.0	25.0	11.8	16.7
Have a nutrition centre/dedicated NACS space	25.0	16.7	14.7	16.7
Improve ordering/receiving of specialized food products	8.3	0.0	2.9	3.7
Improve follow-up mechanisms	0.0	0.0	5.9	3.7

Source: Health care provider interviews

3.5 Client Uptake of and Satisfaction with NACS Services

Client uptake and satisfaction are important indicators of the effectiveness of NACS services. This section covers the acceptability of specialized food products prescribed to treat malnutrition and general client perceptions of the nutrition services provided in the facilities reviewed.

3.5.1 Acceptability and Uptake of Specialized Food Products

One-half of health centre clients (50.0 percent), nearly one-half of clinic clients (45.5 percent) and all (100.0 percent) of hospital ART clients had been prescribed both RUTF and FBF; 33.3 percent of health centre clients and 36.4 percent of clinic clients had been prescribed FBF only. Almost all clinic clients interviewed (90.9 percent) reported that they had been shown how to prepare specialized food products, compared with 50.0 percent of hospital ART and health centre clients. One-third of all clients interviewed (34.8 percent, including 54.5 percent of clinic clients) had shared their prescribed specialized food product with someone else (Table 36).

Table 36. Prescription of specialized food products

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Had been shown how to prepare specialized food products	50.0	50.0	90.9	69.6
Type of specialized food product prescribed				
RUTF (Plumpy'nut®) only	0.0	16.7	18.2	13.0
FBF only	0.0	33.3	36.4	26.1
Both RUTF (Plumpy'nut®) and FBF	100.0	50.0	45.5	60.9
Had ever shared prescribed specialized food products with someone else	0.0	33.3	54.5	34.8

Source: Client interviews

Almost all (94.1 percent) of the NACS clients who had been prescribed RUTF liked it. Two clients had problems eating RUTF. One of those two had experienced nausea, and the other had experienced vomiting (Table 37).

Table 37. Acceptability of RUTF

Variable	Type of health facility (%)			Total (%) (n=17)
	ART clinic (n=6)	Health centre (n=4)	Clinic (n=7)	
Of those who had been prescribed RUTF (Plumpy'nut®)				
Liked it	100.0	100.0	85.7	94.1
Had problems eating it	0.0	25.0	14.3	11.8
Of those who had problems, type of problem				
Nausea	0.0	100.0	0.0	50.0
Vomiting	0.0	0.0	100.0	50.0

Source: Client interviews

Sixty-five percent of the clients who had ever been prescribed FBF said that they liked it. Among those who did not like it, 50.0 percent said that they didn't like the taste and 50.0 percent said that they didn't like the texture. Of the 20.0 percent of clients who reported having problems eating the FBF, 50.0 percent reported vomiting and 25.0 percent each reported nausea, constipation and itchy throat. Most clients (90.0 percent) thought FBF was easy to prepare, and most (90.0 percent) prepared it by mixing it with clean, boiled water before cooking it (Table 38).

Table 38. Acceptability of fortified-blended food

Variable	Type of health facility (%)			Total (%) (n=20)
	ART clinic (n=6)	Health centre (n=5)	Clinic (n=9)	
Of those who had been prescribed FBF, liked it	50.0	80.0	66.7	65.0
Of those who did not like FBF, reason				
Taste	100.0	100.0	0.0	50.0
Texture	50.0	0.0	66.7	50.0
Smell	0.0	0.0	33.3	16.7
Side effects	50.0	0.0	33.3	33.3
Other	50.0	0.0	33.3	33.3
Had problems eating FBF	16.7	0.0	33.3	20.0
Of those who had problems, type of problem				
Nausea	0.0	0.0	33.3	25.0
Vomiting	0.0	0.0	33.3	50.0
Constipation	0.0	0.0	33.3	25.0
Itchy throat	100.0	0.0	0.0	25.0
Thought the FBF was easy to prepare	83.3	100.0	88.9	90.0
Prepared the FBF by mixing it with clean/boiled water before cooking*	83.3	100.0	88.9	90.0

Source: Client interviews
* Data shown exclude two client non-responses.

3.5.2 General Feedback on NACS

When asked how they would prefer receiving nutrition information, 33.3 percent of hospital ART clinic clients said that they would prefer receiving information from television or from health care providers, and 50.0 percent of health centre clients said that they would prefer receiving brochures or booklets. Clinic clients said that they would prefer to receive information from the radio (27.3 percent), from health care providers (18.2 percent) or from public events (18.2 percent) (Table 39).

Table 39. Delivery of nutrition information

Preferred way to receive nutrition information	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Television	33.3	0.0	0.0	8.7
Radio	0.0	16.7	27.3	17.4
Brochures/booklets	16.7	50.0	9.1	30.4
Health care providers at a health facility	33.3	33.3	18.2	21.8
Public event	0.0	0.0	18.2	8.7

Source: Client interviews

Most clients (65.2 percent) said that picking up specialized food products from a health facility was the most convenient way to fill their prescriptions (Table 40).

Table 40. Most convenient way to get specialized food products

Most convenient way to get specialized food products	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Distribution during outreach	0.0	0.0	9.1	4.3
Distribution by community-based health care providers	0.0	0.0	9.1	4.3
TB caravan	33.3	0.0	0.0	8.7
Provision at a health care facility	50.0	83.3	63.6	65.2

Source: Client interviews

Most clients interviewed (87.0 percent, including 100.0 percent of ART clinic clients, 83.3 percent of health centre clients and 81.8 percent of clinic clients) said that they were happy with the NACS services they had received at the health facilities. Suggestions for improving services included ensuring the availability of specialized food products (17.4 percent) and prescribing more specialized food products at a time (13.0 percent) (Table 41).

Table 41. Client satisfaction with NACS services

Variable	Type of health facility (%)			Total (%) (n=23)
	ART clinic (n=6)	Health centre (n=6)	Clinic (n=11)	
Were happy with the NACS services received at the health facility	100.0	83.3	81.8	87.0
Suggestions for improvement of NACS services				
Prescribe more specialized food products at a time	33.3	16.7	0.0	13.0
Increase community awareness and sensitization	16.7	16.7	0.0	8.7
Incorporate home garden projects	16.7	0.0	0.0	4.3
Ensure availability of specialized food products	0.0	16.7	27.3	17.4
Distribute other foods (fruits/vegetables)/ partner with a soup kitchen	0.0	33.3	18.2	17.4

Source: Client interviews

4 Discussion

This section discusses the results of the November 2012 NACS review following the quality improvement framework, from health system structures (human and material resources) to processes (implementation of NACS and adherence to national guidelines) to outcomes (client satisfaction with NACS services).

4.1 Adequacy and Availability of Resources

Adequate resources to provide quality NACS services include adequate numbers of trained health care providers with adequate knowledge and skills, support, supplies and materials.

4.1.1 Health Facility Staffing and NACS Training

According to the *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*, every health facility should have a focal point for nutrition services. The fact that about one-half of the staff in the health facilities reviewed were involved in NACS implementation, one-third had received formal training in NACS and the remainder had been trained in NACS on the job suggests that NACS is perceived as a priority service in all types of health facilities. Although more than one staff member had been formally trained in NACS in each health facility, at least three times as many staff need NACS training.

Most of the staff implementing NACS services were nurses, and training this cadre is probably the right strategy. Almost all in-charges had been trained in NACS (50 percent formally and 50 percent on the job), and all in-charges interviewed said that they provided NACS services. However, in practice in-charges have substantial administrative duties and are sometimes called away from their workplaces, so that they may not be available to implement NACS as consistently as other providers. About 8 percent of providers interviewed said that they had learned about NACS during mentoring visits by the MOHSS, but the MOHSS cannot visit all facilities often enough to train all staff in NACS on the job.

Health care providers interviewed during the review said that more providers should be trained in NACS. Only 38.9 percent of NACS providers across all facilities and 25.0 percent of ART clinic providers thought their facilities had enough staff to provide NACS services, and 69.7 percent said that the reason was that not enough staff had been trained. Training more providers from each facility in either the formal NACS course or on the job can increase coverage or NACS service provision. However, because there is no certified on-the-job training curriculum or certification process, quality assurance mechanisms would be needed.

Asked which topics they had learned about in NACS training, about 75 percent of the providers interviewed mentioned nutrition assessment and about 50 percent mentioned classification of nutritional

status and prescription of specialized food products. Nutrition assessment and classification require guidelines and job aids, and prescription of specialized food products requires adequate stocks of these commodities. Only 24 percent of providers mentioned learning about nutrition counselling during training, possibly because they lacked counselling tools or time to counsel clients.

4.1.2 Supportive Supervision

Supportive supervision is important to ensure compliance with national guidelines and reporting formats, correct errors in practice and address barriers at the system level. On a positive note, 74 percent of NACS providers interviewed reported that they had received supportive supervision from either the national or (more rarely) district MOHSS. Since districts are closer to the facilities and can make more frequent supportive supervision visits, district health authorities should be more equipped for and involved in supportive supervision of NACS.

4.1.3 Materials and Supplies

Although no health facility visited during the review had all the guidelines, algorithms and data collection forms on the 16-item checklist used by the data collection teams, about two-thirds (40.0 percent of health centres and 76.9 percent of clinics) had all seven of the documents recommended for NACS implementation. Most were lacking nutrition counselling tools. Access to these nutrition counselling tools in all health care facilities is important for quality services, particularly because NACS providers are trained on the job. District health authorities could use the checklists to assess the availability of materials and supplies for supportive supervision.

4.1.4 Equipment

In general, the facilities visited were well equipped for nutrition assessment. Almost all had one or more functioning scales, adult height boards and MUAC tapes or tape measures; 18 had child length/height boards, 22 had child weighing scales and 23 had adult height boards. However, some facilities lacked the required equipment, compromising the quality of nutrition assessment and classification of nutritional status.

4.1.5 Specialized Food Products

Only two ART clinics met all conditions for adequate storage of specialized food products. Fewer than 30 percent of the health facilities visited had adequate ventilation, storage areas free from insects and rodents or food stored away from floors and walls. One-half of the facilities tended not to use the MOHSS stock cards to account for the specialized food products in storage. During pre-testing of the NACS review data collection tools, staff said stock cards were not necessary. During the review, 66.7 percent of clinic staff, 50.0 percent of ART clinic staff and 60.0 percent of health centre staff reported stock-outs of specialized food products. Measures to prevent stock-outs include more rigorous use of stock cards, additional training on or other support for filling in registers and report forms (discussed further below) and on-time delivery of specialized food products. On a positive note, none of the facilities had expired or damaged RUTF.

4.1.6 Completion of NACS Monthly Reports

The NACS Monthly Report contains client nutrition data compiled from daily NACS registers by in-charges and nurses. Most of the in-charges and nurses who said they filled out the NACS Monthly Report found statistics challenging, suggesting that data collection and reporting should receive more attention during NACS training and supportive supervision. Respondents also suggested adding a tally sheet for NACS clients by age group. Late submission of NACS Monthly Reports was attributed partly to lack of transport to send completed reports to the district level, suggesting a need to investigate other submission methods.

4.1.7 Completion of NACS Monthly Consumption Reports

The NACS Monthly Consumption Report is critical for supply chain management. It indicates the quantities of specialized food products in stock, consumed and needed for the next period based on consumption. The report is used to measure the viability of the supply system as well as to quantify and plan at each level. The review found that the NACS Monthly Consumption Report was submitted more often by the clinics than by the health centres and ART clinics visited. Almost half (42.9 percent) of the respondents had experienced challenges filling out the report, indicating a need for guidelines, training and continuous supportive supervision in this area. The fact that more than one-half of all facilities had experienced stock-outs of specialized food products confirms this need.

4.2 Implementation of NACS and Compliance with Operational Guidelines

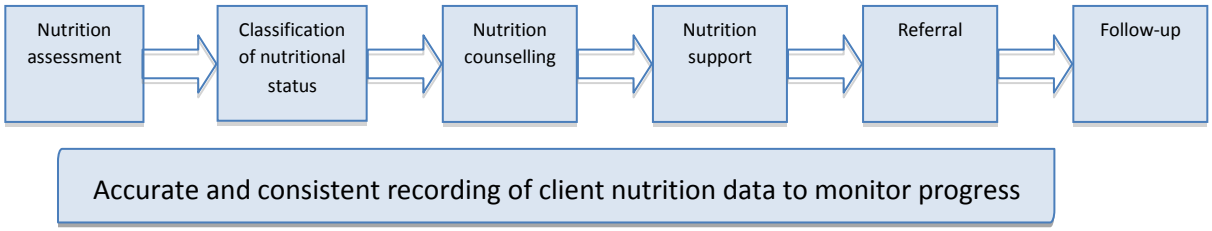
This section discusses how well NACS providers followed the *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*.

4.2.1 Integration of NACS into Routine Health Services

The facilities visited during the review had been implementing NACS an average of 13 months. Client flow varied in different health facilities and different services (i.e., general clinic services, ART, TB care and treatment, ANC, child growth monitoring). According to information from in-charges interviewed, NACS was integrated more fully in the clinics visited than in the health centres. Both these types of facilities provide a wide range of services. Providers interviewed said that NACS was integrated particularly well into ART, TB care and treatment, child growth monitoring, the Expanded Programme of Immunization (EPI), general services and ANC. However, the interviews with NACS providers and provider-client observations did not always bear this out.

4.2.2 Provider Adherence to NACS Guidelines

The NACS process consists of a series of steps shown in the illustration below. This section describes the findings of the review for each step in the process.



1. *Nutrition assessment of all clients and classification of nutritional status according to assessment results*

According to the *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*, NACS providers should measure height for adults on the first visit and measure weight and calculate BMI or measure MUAC on each visit. Children should have weight and height measured on each visit. Assessing only clients who look malnourished can miss moderately malnourished, overweight and obese clients who need treatment or counselling. Only 14 percent of NACS providers in clinics said that they assessed the nutritional status of HIV-positive clients, and 17 percent of providers in clinics and ART clinics of district hospitals said that they assessed the nutritional status of TB patients (possibly related to the fact that TB patients may be entitled to food support). Only 14.7 percent of clinic providers said that they assessed the nutritional status of children under 5 years old during growth monitoring. These data show missed opportunities to identify and treat malnourished clients.

About 80 percent of NACS providers interviewed said that they assessed clients' nutritional status on every visit. The rest said that they did nutrition assessment only on the first visit, every 2 weeks or every month. The variation may indicate lack of clear guidance on the frequency of nutrition assessment. When asked why they did not do nutrition assessment on every client visit, about one-third answered that they were too busy. Unsystematic nutrition assessment compromises health care providers' ability to monitor and manage clients' nutritional status.

Observation of provider-client interaction was an opportunity to assess whether NACS was implemented according to the *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines*. Across all three types of health facilities, 64 percent of providers who did nutrition assessment measured weight correctly, but 22 percent in ART clinics did not weigh their HIV-positive clients at all (the guidelines specify that PLHIV should be weighed on each clinic visit). Measurement of height was even more inconsistent, although some of the clients whose height was not measured may not have been new.

In the NACS registers, weight, height and MUAC were recorded by 80 percent of providers, while target weight was recorded by only 60 percent. Only 15 percent of providers, and only in clinics, assessed and recorded the presence of bilateral pitting oedema, which is an indicator of SAM regardless of anthropometric measurements. Less than 50 percent of the health centre and clinic providers and none of the ART clinic providers asked clients about appetite or did an appetite test, an essential step to determine whether clients need inpatient or outpatient treatment of SAM. These findings demonstrate that the providers have the skills and resources to do nutrition assessment but did not do it systematically. Provider-client observations and NACS register audits indicated that training and supportive supervision should emphasize checking for and recording bilateral pitting oedema, finding WHZ and BMI and giving an appetite test to determine whether clients with SAM should be treated as inpatients or outpatients.

2. Classification of nutritional status based on the results of nutrition assessment

Of the clients assessed, 6.2 percent were classified as severely malnourished and about one-quarter were moderately malnourished. Only one-half of the clients whose nutritional status was assessed were informed of their nutritional status.

3. Nutrition counselling based on nutritional status

Counselling requires willingness, time and competence. About one-third of the providers interviewed in all three types of facilities said that they counselled all clients on nutrition. Within this cohort, one-third said that they counselled clients who looked malnourished and one-fifth said that they counselled based on assessment results; 81 percent of providers from all three types of facilities said that they counselled clients on nutrition on every visit, and the providers who did not counsel clients said that they were too busy. However, only two-thirds of NACS clients interviewed said that they had been counselled on nutrition the day of the visit.

Consensus is growing among researchers that health care providers' expression of warmth and empathy has a significant positive influence on adherence to medical advice and treatment.[14] All the NACS providers observed during the review greeted clients and treated them with respect. However, less than one-half clearly communicated the results of nutrition assessment. In the clinics where NACS services were provided mainly by community counsellors, 50 percent of providers communicated the results of nutrition assessment, compared with 30 percent of providers in other types of health facilities. Only one-half of the NACS providers observed across all types of health facilities checked whether clients understood important counselling information, and on average only 64 percent made follow-up appointments. On a positive note, almost 90 percent of clients interviewed said that they were happy with the nutrition services that they received at the health facilities. Only 65 percent were given advice on nutrition, 73 percent of them by nurses, 9 percent by doctors and 20 percent by community counsellors.

The NACS providers interviewed during the review said that they gave clients the following key nutrition counselling messages: get weighed regularly, eat a variety of food, drink safe water, practise good hygiene and prepare and use specialized food products correctly. Algorithms, brochures, posters and counselling cards were mentioned as the materials used to counsel clients (no client interviewed had received any nutrition brochures). More than three-quarters of all providers said that they felt comfortable counselling, but 16.7 percent said that they would like training in nutrition counselling. In provider-client observations, most providers did not explain how to prepare a balanced meal (72.3 percent) or manage symptoms through diet (86.2 percent) or develop a nutrition care plan with the clients (76.9 percent). Lack of time and lack of counselling tools explain some of the inconsistency in nutrition counselling tools; these constraints can be addressed through a quality improvement process.

4. Nutrition support

Of the NACS providers who identified malnourished clients during the review, 80 percent completely adhered to the *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines* in prescribing specialized food products (some providers incorrectly prescribed

[14] Adapted from Bateman, WB, EJ Kramer and KS Glassman. 1999. *Patient and Family Education in Managed Care and Beyond*. p. 22. New York: Springer Publishing Co.

RUTF for children with MAM or FBF for children with SAM). Almost all providers across all health facility types said that they explained to clients how to use Plumpy'nut® and how to prepare and store CSB Plus. The availability of clear algorithms for management of malnutrition and stocks of RUTF and FBF partially account for this good practice in prescribing specialized food products. The fact that about one-half of clients interviewed said that they shared specialized food products with others in their households indicates that clearer counselling is needed on the therapeutic/medicinal purpose of the therapeutic and supplementary foods.

5. Client referral and follow-up

Only one-half of the NACS providers interviewed who were aware of economic strengthening, livelihood or food security (ES/L/FS) support in the surrounding community said that they referred clients to those programs.

Regular client follow-up is critical for comprehensive nutrition care and recovery from malnutrition. In published studies, one of the most common ways to measure client retention is the number of appointments missed.[15] Almost 90 percent of NACS providers interviewed during the review reported having clients who had missed appointments, and one-quarter of clients reported that they had missed at least one NACS follow-up appointment. Most providers said clients defaulted because they lacked transport or were negligent, while clients who missed follow-up appointments said that they had not known when they were scheduled, did not want to go back for FBF because they didn't like it or had conflicting personal activities. More than one-half of NACS providers said that they tried to trace defaulted clients by phone or other outreach.

6. Accurate and consistent recording of client nutrition data to monitor progress

In general, providers were able to complete NACS registers. Some made useful suggestions about how to improve them. These included matching clients' file numbers in the NACS register with ART file numbers, including contact information to trace defaulters, numbering clients and training all staff in filling out the NACS register.

In summary, the review provided a comprehensive picture of NACS implementation from a system perspective. The checklists, tools and questionnaires helped reveal both what is working well and what gaps need to be addressed from the viewpoint of both health care providers and clients. With the exception of minor structural barriers, almost all the facilities visited during the review appeared to have sufficient resources to implement NACS. There is room for improvement, however, in systematic nutrition assessment, correct classification of nutritional status, counselling based on nutritional status and tracking of clients to assess whether their nutritional status improves or remains stable. There was no significant difference in the quality of NACS implementation across the three types of facilities. This review focused on client satisfaction and uptake of services rather than individual nutrition outcomes, although both might be improved by addressing gaps at the service delivery level.

[15] Horstmann, E, J Brown, F Islam, J Buck, and BD Agins. 2010. 'Retaining HIV-Infected Patients in Care: Where Are We? Where Do We Go from Here?' *Clinical Infectious Diseases* 1; 50(5):752−61.

7. Other quality improvement considerations

Clients' suggestions for improving NACS services included making more specialized food products available and prescribing more specialized food products at each visit. These responses indicate the prominence of specialized food products in the public perception of nutrition care and support, lack of client awareness of the eligibility criteria and protocols for prescription of these products and occasional stock-outs of specialized food products. Most clients were satisfied with obtaining specialized food products from health care facilities, although a couple suggested that they be distributed during health outreach visits or by community-based health care providers. Client uptake of NACS services is influenced by factors ranging from the quality of counselling to the availability of specialized food products and to personal factors. A quality improvement process should address the factors under the control of health facilities.

5 Limitations

The purposive sampling design and small sample size, especially for health facility type breakdowns for ART clinics and health centres, do not allow generalization of the conclusions of the review. Furthermore, the final achieved sample size was less than the calculated sample size.

6 Recommendations

Health System Structures

1. Improve and expand NACS training.

- Review the current NACS training module to ensure clear and simple presentation of content.
- In collaboration with the National Health Training Centre (NHTC), include more counselling role-play in the NACS training module.
- In collaboration with the NHTC, train enough staff in each NACS site to ensure coverage of NACS services.
- In collaboration with the NHTC, develop an abbreviated NACS training module for on-the-job training.
- Mandate district primary health care (PHC) supervisors to ensure that health care providers trained in NACS provide adequate on-the-job training to colleagues.
- Develop a NACS training of trainers (TOT) module and train Regional and district managers and mentors as NACS trainers.
- Consider making NACS training available through e-learning or digital video conferencing (DVC) sessions, with regions and districts coordinating selection of participants for DVC sessions.
- In collaboration with the Human Resource Development Department, sensitize training institutions on the importance of NACS training and advocate for its integration into the pre-service nurse training curricula of the University of Namibia, Polytechnic and NHTC.

2. Improve Regional and district capacity to provide regular supportive supervision of NACS providers.

- Develop a supportive supervision checklist (the observation checklist and audit forms developed for this review could be used) with a section for feedback and action steps for improvement until the next visit.
- Schedule routine supervisory visits that include observation and on-the-job training.
- Develop tools for NACS supportive supervision and train chief health programme administrators (CHPAs), senior health programme administrators (SHPAs) and PHC supervisors in their use.
- Require district supervisors to ensure that all facilities receive missing NACS equipment and have adequate supplies and stocks of specialized food products and conditions for their storage.
- Advocate for nutritionist positions at the Regional level to provide NACS mentoring, supervision, data quality assurance, leadership and coordination.

Quality of NACS Service Implementation

1. Modify/simplify NACS guidelines.

- Define minimum standards for integrating NACS into routine health services (which clients to prioritize for nutrition assessment, how often to assess clients' nutritional status and which essential counselling messages to give) and make these standards known to health managers and health care providers in all facilities.

2. Pilot a quality improvement process to improve NACS care and treatment practices.

- Train quality improvement coaches at central, district and health facility levels.
- Help selected facilities form quality improvement teams, setting up measurable aims and self-measurement mechanisms to encourage providers to identify barriers to better practice and find solutions to ensure clients receive optimal NACS services.
- Establish learning platforms with teams from different facilities to exchange ideas in order to scale up improvements rapidly.
- Target prioritizing clients for nutrition assessment, improving client flow, optimal use of staff, monitoring and reporting, client tracking and follow-up and integration of NACS into health facility services.
- Identify and document best practices and scale these up to other facilities.

3. Improve the availability and management of resources needed to implement NACS.

- Ensure all facilities with health care providers trained in NACS have functioning anthropometric equipment and supplies.
- Print enough copies of the *Nutrition Assessment, Counselling and Support for People Living with HIV (PLHIV): Operational Guidelines* to disseminate to all facilities implementing NACS.
- Develop NACS counselling job aids and distribute them to all facilities implementing NACS.
- With partner support, begin integrating NACS commodities into the CMS supply chain management system.
- Develop standard operating procedures (SOPs) for ordering, storage, distribution and inventory control of specialized food products, and train health care managers and providers in their use.
- With support from partners, implement containerized storage of NACS commodities at Regional sites at reasonable gravity to facilitate distribution.
- Improve ordering and distribution of specialized food products to avoid stock-outs.
- Consider appointing and training NACS focal persons in health care facilities.

4. Improve NACS data management.

- Develop SOPs for NACS reporting.
- Revise/simplify the NACS register and NACS reporting forms.
- Consider electronic rather than paper reporting of NACS data.

Client Uptake of NACS Services and Adherence to Nutrition Treatment

1. Finalize a NACS training manual to train community-based health care providers from NGOs and local CBOs.

- Train TB promoters, community volunteers, social workers and agricultural extension workers in community NACS.
- Include nutrition screening, counselling on the importance of nutrition, referral of malnourished people to NACS services and follow-up and tracking of NACS clients in the training manual.

2. Strengthen linkages between NACS clinic sites and communities.

- Work with the Livelihoods and Food Security Technical Assistance 2 Project (LIFT II) to establish a referral system for NACS clients who graduate from treatment of malnutrition and need ES/L/FS support to prevent relapse.
- Orient social workers in all regions on NACS to strengthen referrals.
- Disseminate information on ES/L/FS support available in the regions and districts.
- Support civil society organizations in developing clear sustainability plans (training).

3. Raise awareness of NACS through media, advocacy and community mobilization.

- Advocate for NACS with line ministries (e.g., Ministry of Gender Equality and Child Welfare and Ministry of Youth, National Service, Sport and Culture).
- Develop radio spots on NACS for broadcast on national and community radio.
- With partner support, develop fliers for clients in local languages on general nutrition, nutrition for PLHIV, vitamin A deficiency, anaemia, iodine deficiency, breastfeeding, complementary feeding, immunization, ORT and WASH and supply them to all NACS sites.
- Disseminate information on NACS during commemorative events.
- Disseminate information on NACS during meetings of social welfare committees, health committees and health and temperance forums through churches.
- Orient community volunteers and Total Control of the Epidemic (TCE), lifestyle and TB field promoters on NACS.
- Support Regional and district authorities to sensitize members of Regional AIDS Coordinating Committees (RACOCs), village development committees and church leaders in NACS during community meetings.
- Utilize outreach teams to increase awareness of NACS, screen and refer clients and distribute specialized food products.

Annex 1

The following people contributed to and/or participated in the 2012 review of the quality of implementation of NACS services:

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