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Nutrition in the HIV response of Homa Bay County, Kenya between 2014 and 2018

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ABSTRACT

Introduction
Nutrition therapy is now strongly advocated to be integrated into Antiretroviral Therapy (ART). Nutrition interventions aim to prevent malnutrition and restore nutritional status to maintain PLHIV's productivity. In Kenya, the Food by Prescription (FBP) program provides nutritional support to malnourished PLHIV. Homa Bay County has been implementing nutrition support services for PLHIV since the advent of devolution of counties.

Purpose
The purpose of this study was to assess selected nutrition indicators in the HIV response of Homa Bay County, Kenya between 2014 and 2018.

Materials and methods
Data were extracted from the Kenya Health Information System (KHIS), using a data sheet, analysed, and studied. The indicators selected for this study included: number of clients assessed for malnutrition, eligibility for food support, treatment outcomes for PLHIV on food support, reporting rates, and nutrition commodities stockouts. Data obtained from the survey were analysed using descriptive statistics. Some of the results were also presented in tables as frequencies or frequencies and percentages.

Results
Results of the study indicated that 15% to 65% of adults attending the HIV/ AIDS clinics in public health facilities were malnourished, while 30% of children attending the clinic were also malnourished. The number of patients assessed for malnutrition increased from 1,742 in 2014 to 133,880 in 2018 while those who received food support increased from 2,702 to 17,116. Reporting rates for nutrition services and nutrition commodities increased from 12% and 16.3% respectively to 99% for both. Nutrition commodity stock out days reduced from 349 days and 200 days for therapeutic and supplementary foods respectively to 40 days and 20 days. Cure rates were still found to be low at 20% against the recommended 75%.

Conclusion
The county needs to strengthen the systems, including the channels through which they receive nutrition commodities.

INTRODUCTION

The British Association of Parenteral and Enteral Nutrition (BAPEN) defines nutrition assessment as: "The systematic process of collecting and interpreting information to make decisions about the nature and cause of nutrition-related health issues that affect an individual." (BAPEN, 2016). Nutritional assessment is vital for People Living with Human Immunodeficiency Virus (PLHIV) and since nutritional deficiency is a common manifestation of HIV, identifying them early enough for linkage to appropriate nutritional support services is paramount and paying

attention to nutrition status may be useful in the reduction of disease burden as well as enhancing quality of life of PLHIV (Walsek et al.; Gerrior & Neff, 2005).

Malnutrition is a challenge among PLHIV to achieving the full impact of interventions aimed at improving their quality of life, productivity, and survival. Optimal nutrition supports overall health and helps preserve and strengthen the immune system. Proper nutrition is also useful in helping people with HIV maintain healthy and ideal body weight and in absorbing antiretroviral drugs well. Malnutrition and micronutrient deficiencies contribute to immune degradation in adults as well as impaired growth in children (Anabwani & Navario, 2005). A malnourished pregnant woman will have low stores of some nutrients for the unborn baby, and this will result in impaired immune function and reduced fetal growth. Due to the previous exposure to little fetal stores, the infant will be more vulnerable to HIV (Piwoz & Bentley, 2019). As such, fetal malnutrition has undesirable effects on immune system development (Farhadi & Ovchinnikov, 2018). In a study, Hicks et al. (2014) concluded that malnutrition proved to be an independent predictor of unfavorable treatment outcomes and mortality. Early in the epidemic, weight loss and muscle wasting were unique identifiers of HIV infection, also referred to as the 'slim' disease (Ma Mhiri et al., 1992). Malnutrition, therefore, has adverse effects on PLHIV.

There has been a significant development in HIV management, including HIV prevention, management of opportunistic infection, antiretroviral drugs, and psychosocial support. Despite the advancement, malnutrition remains a challenge just as it was in the early years of the HIV epidemic (Salomon et al., 2002; Benzekri et al., 2018). As it stands, wasting is one of the significant clinical problems even in the modern era of potent ART (Wanke et al., 2000). In a global health case study, Ashley Mastandrea explains that even with the increasing availability of ART, treatment can fail if clients are nutritionally compromised. When a client is on medication, and there is hunger, they may fail to take medicine, and this contributes to treatment failure and drug resistance (Baker et al., 2009).

Treating malnutrition, for instance, wasting in HIV-infected people, requires more than just ensuring access to appropriate foods that supply needed nutrients. There is a need to include other approaches like nutrition education, counseling, and psychosocial support (Pee & Semba, 2010). There is considerable evidence that medical nutrition therapy reduces morbidity, saves lives, reduces costs, improves health outcomes, and shortens hospital stays. Therefore, nutrition support is of utmost importance as adjunct to ART (Young, 1997).

Homa Bay County has a nutrition department that implements several nutrition programs, including Nutrition in Tuberculosis (TB), Nutrition in HIV/AIDS, Maternal Infant and Young Child Nutrition, Integrated Management of Acute Malnutrition, Nutrition for Non-Communicable Diseases, among others ("Field Observation", n. d.).

Homa Bay County uses the Kenya national guidelines and protocols for nutrition in HIV/AIDS in the implementation of the Nutrition in HIV program. According to the national guidance on nutrition requirements given in 2015, an adult living with HIV/AIDS should do the following: Have adequate nutrition - which is achievable by consuming a varied healthy diet; increase energy requirement based on HIV disease stage i.e. 10% during the asymptomatic phase, and by 20-30% during symptomatic HIV infection to maintain body weight (Kenya Ministry of Health [MOH], 2016).

In 2006, Kenya introduced a Food by Prescription Program (FBP), which targeted PLHIV. The eligible PLHIV (based on an assessment of their nutritional status) got specialized food products to treat severe and moderate acute malnutrition. The public-private partnership program, between the Ministry of Health Kenya, the USAID program, and a private company in Kenya known as Insta Products Limited, was piloted in a few districts before being scaled up nationally (Food and Nutrition Technical Assistance II Project [FNTAP], 2009). This program is not only limited to food products; it encompasses other aspects such as nutrition assessment, counseling and education, and psychosocial support. Homa Bay County has been implementing this program and has been doing monthly reports on the same. Some of the indicators monitored in this program are: the number of clients assessed; the number of clients severely and moderately malnourished; the number of clients given food support; treatment outcomes including the number of clients gaining weight, losing weight, with static weight,

the number cured and discharged; and the number of clients who have declined food supplements.

This study assessed the performance of Nutrition in the HIV/AIDS Program in Homa Bay County from 2014 to 2018. The assessment is important to assist the department gauge its performance and it will be useful in decision making in program implementation.

MATERIALS AND METHODS

Research Design

A retrospective survey research design was adopted for this study.

Description of the Study Area

The study area was Homa Bay County of Kenya. Homa Bay County is a county in Kenya. Its capital and largest town is Homa Bay. The county has a population of 1,131,950 of which 539,560 are males, 592,367 females, and 23 intersex persons (2019 census) and an area of 3,154.7 km2. Lake Victoria is a major source of livelihood for Homa Bay County. There are a total of 206 health facilities across the county of which 144 are public and 62 are private (Homa-Bay County, 2020; Scibd, 2020).

Ethical clearance

Ethical clearance for this work was obtained from the Department of Health, Homa Bay County, Kenya

Data Collection

In each Homa Bay FBP site, nutrition assessment is conducted, and documentation in a standardized form is done for all newly enrolled HIV clients. The assessment includes the anthropometric assessments, biochemical assessment if applicable, dietary assessment, and also gauges the food security of a client using the Household Food Insecurity Access Scale. Anthropometric assessments involve using weighing scales, height boards, and Mid Upper Arm Circumference (MUAC), which have defined cut-offs to determine nutrition status. For food insecurity, just as in the Academic Model Providing Access to Healthcare (AMPATH) program in Kenya, the judgment of a client who is food insecure rests with the nutritionist (Mamlin et al., 2019). The filled-in standardized forms remain in clients' files, and their details are entered in nutrition service registers. The nutrition service registers have a column for new and continuing clients, and this ensures that each time a client visits the clinic, healthcare workers capture their details. Therefore, screening for malnutrition and nutrition assessment is done to all clients who attend the HIV clinic.

In this study, nutrition assessment data were extracted from the Kenya Health Information System (KHIS), using a data sheet that was specifically developed for the study, analysed, and studied.

Selected indicators

The indicators selected for this study included: number of clients assessed for malnutrition, eligibility for food support, treatment outcomes for PLHIV on food support, reporting rates, and nutrition commodities stockouts.

Data Analysis

Data obtained from the survey were analysed using descriptive statistics. Some of the results were also presented in tables as frequencies or frequencies and percentages.

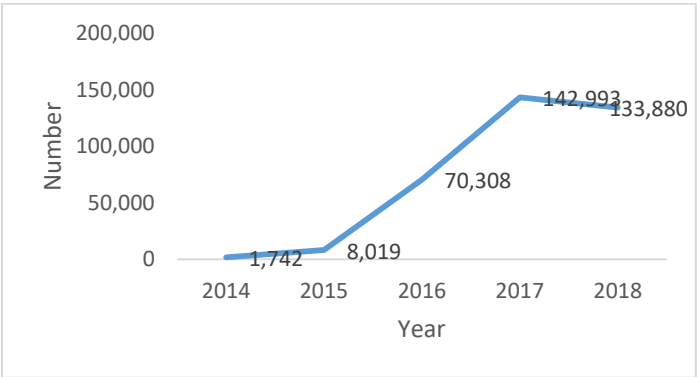
RESULTS

The results of this study indicated that there was a tremendous increase in the number of clients (Table 1). The number of patients assessed for malnutrition increased from 1,742 in 2014 to 133,880 in 2018 while those who received food support increased from 2,702 to 17,116. (Table 1 & Figure 1).

Table 1
Summary of selected indicators

Period /Data	Number of clients assessed for malnutrition	Eligible for food support	Given Food Support	Cured	Cure Rate
2014	1,742	1,411	2,702	285	20.19
2015	8,019	7,363	6,701	399	5.42
2016	70,308	23,672	22,051	2,923	12.35
2017	142,993	24,425	23,020	3,218	13.18
2018	133,880	23,448	17,116	2,542	10.84

Figure 1
Number of clients assessed for malnutrition



The results further indicated that 15% to 65% of adults that attended the HIV/ AIDS clinics in public health facilities were malnourished, while 30% of the children that attended the clinic were also malnourished. Cure rates were still found to be low at 20% against the recommended 75%. (Figures 2 & 3).

Figure 2
Number of eligible patients, given food support and cured of malnutrition

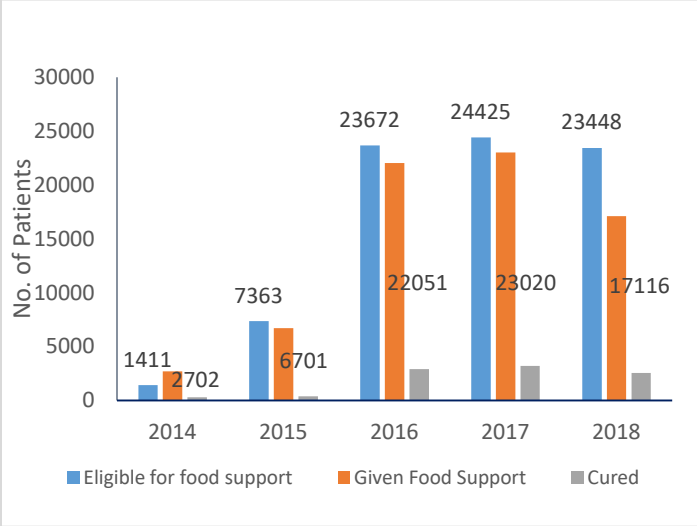
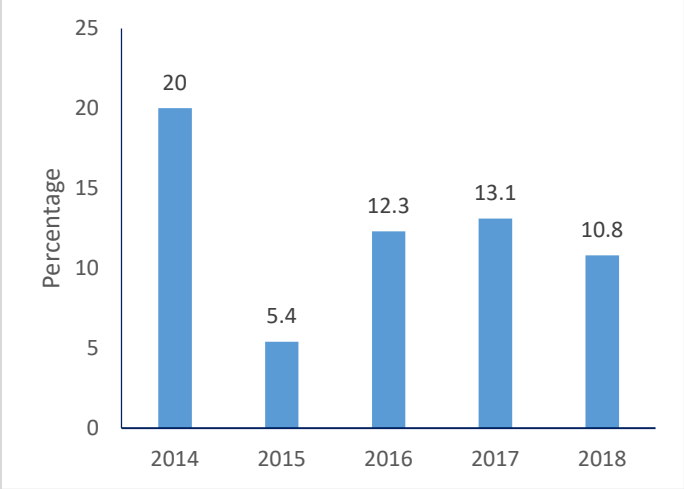


Figure 3
The proportion of patients on food support cured of malnutrition

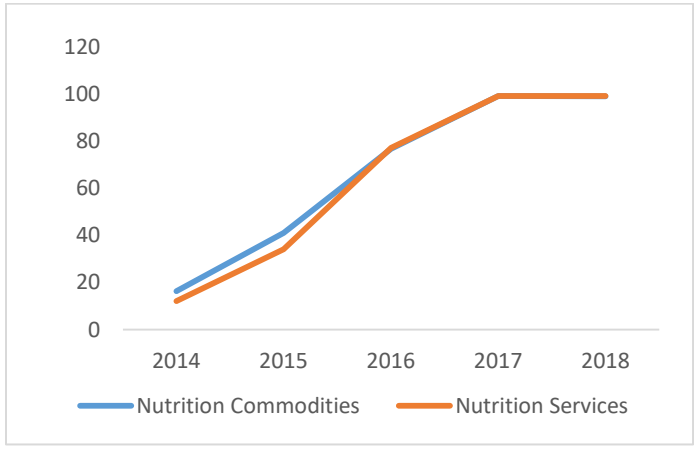


Additionally, the resuts also suggested that reporting rates for nutrition services and nutrition commodities increased from 12% and 16.3% respectively to 99% for both (Table 2 & Figure 4).

Table 2
Reporting Rates

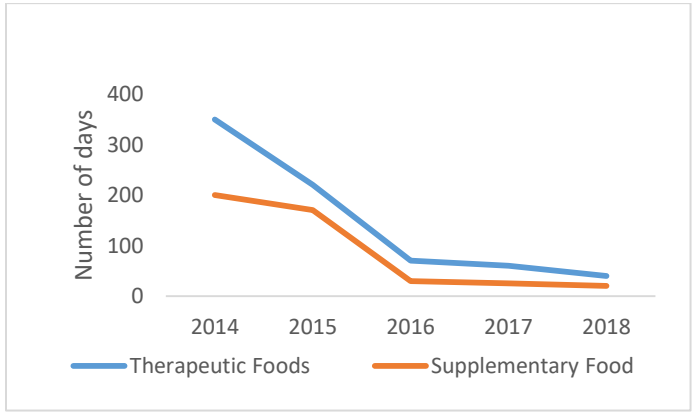
Period	Nutrition Commodities Reporting Rate (%)	Nutrition Services Reporting Rate (%)
2014	16.3	12
2015	41	34
2016	76.7	77
2017	99	99
2018	98.9	99

Figure 4
Trends in Reporting



Finally, nutrition commodity stock out days reduced from 349 days and 200 days for therapeutic and supplementary foods respectively to 40 days and 20 days (Figure 5).

Figure 5
Days out of stock



DISCUSSION

We found that there was a tremendous increase in the number of clients from 1, 742 in 2014 to 133,880 in 2018. The upward trend could be attributed to several factors. The county employed additional nutritionists in 2015, and the partners also hired more nutritionists. There was an increase from just six nutritionists in the entire county to

fifty-five even though this number was still way below the minimum requirement according to the Kenya Ministry of Health's Human Resources for Health Norms and Standards (KMoH, 2014). All the staff underwent training in Nutrition in HIV/AIDS and the facilities that did not have nutritionists appointed nutrition focal persons who also underwent the training. All the facilities made work plans with targets of the number of clients to be assessed based on the number of clients enrolled in the HIV program. There were also protocols and guidelines in the facilities, and the staff got sensitized about them (Homa Bay County, 2017).

The eligibility for food supplements depends on standard cutoff points for malnutrition, which are set to be body mass index of < 18.5 kg/m^2 for adult PLHIV, MUAC < 21 cm for pregnant and lactating women, and weight-for-height Z-score of less than -2 standard deviation for children (Food and Nutrition Technical Assistance II Project, 2009). Based on the above criteria, the clients are put on food support. It is not only food supplements that the clients get, nutrition counseling and education are also done and, in some instances, referral to a food security program depending on their availability in the region where patients come from. In their findings, Bacelo and colleagues infer that nutritional supplementation is essential and compliments dietary counseling (Bacelo et al., 2015). A case study in Mexico indicated that children who received nutritional support had a 12% lower incidence of illness than children not given food supplements (Levine, 2004).

According to the present study, the number of clients who were eligible for nutrition support, that is, those who were undernourished also increased because of the increased number of clients undergoing nutrition assessment. Not all the clients eligible for food support got the food supplements except for 2014, where the number of clients who got food support surpassed the number of malnourished clients. This higher number is a data entry error, or it could be that some well-nourished clients got food support. For the number eligible who did not get food, chances are that there were stockouts during that period (Table 4), or there could have been clients who declined food supplements. Inadequate documentation of all the clients who received food support could have also contributed to the low numbers.

Treatment outcome indicators in the program include gaining weight, losing weight, non-recovered, cured, and death. The ultimate goal of enrolling clients in food support is to get cured of malnutrition. The study of Ahoua, et al. (2011) indicated a 50% cure of the patients recruited for nutrition treatment (Figure 4).

The cure rates in this study are low, the highest ever recorded was 20%. The threshold for the cure rate is more than 75% (KMoH, 2014). Clients put on food support may be sharing the food supplements with other family members, or they could be collecting the supplements just because they do not want to be seen as rude to the nutritionists but do not use the food at home because of stigma hence the low figures. Inadequate capture of all the events done in the facility could have also contributed to the reporting of low cure rates.

There are two registers for daily program use: the nutrition services register, which captures the clients' details including nutrition status, any opportunistic infections, and treatment outcomes; and the commodities register which captures the type and quantity of commodities given to a client. Aggregation is done monthly for both registers and reports keyed into the KHIS.

We found that the reporting rates from both reports moved from 12% and 16%, respectively, to 99%. The trend is attributed to the number of staff and the training on data analytics while adhering to deadlines by the Ministry of Health that all reports should be ready by the 5th of every month. Monthly monitoring of the reporting trends and provision of feedback to the sub-counties also played a crucial role in ensuring that reports were submitted in good time.

The program monitors nutrition commodities through delivery notes and bin cards. The nutrition commodity report records the beginning balance, quantity received, quantity dispensed, the stock with short expiry, negative and positive adjustments, stockouts, and the amount required for resupply. The number of days that the commodities are not available also determines if the clients receive supplements or not.

This study also showed that the commodity stockouts were rampant in 2014 and 2015 but improved in the last three years of the period under review. This was attributed

to timely reporting which made it possible to make timely decisions and the close collaboration that the county had with partners supporting the food by the prescription program. However, the therapeutic foods had more stockouts than the supplementary food because of the availability of two distribution pipelines for supplemental feeds as opposed to the therapeutic feeds which only had one supply pipeline.

CONCLUSIONS

The county has shown tremendous progress in the provision of nutrition services for PLHIV since the advent of devolution of counties. However, there is a weak structure to deliver nutrition in HIV/AIDS services within the county. All the clients eligible for food support should get food support, and the cure rates need to get to at least 75%. The county needs to strengthen the systems, including the channels through which they receive commodities.

The trends show improvement in the program performance with the various interventions put in place such as employing additional staff, capacity building, and monitoring. However, for the gains to be sustained there needs to be more investment in human capacity both in terms of quantity and quality. The county government needs to employ more staff and deploy them to lower-level facilities to enhance nutrition services uptake at those levels and reach out to many more patients who are in need and cannot access the nutrition services. Resource mobilization still needs to be enhanced through continuous collaboration with various stakeholders in the health sector and beyond.

The low cure rates revealed from the assessment need to be investigated and homegrown solutions found to make the program more beneficial to the patients receiving nutrition support from these health facilities.

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Ethics Approval: Ethical clearance for this work was obtained from the Department of Health, Homa Bay County, Kenya.

Conflict of Interest: The authors declare no conflict of interest.

OrCID iDs: Nil identified.

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