

Availability of HIV/AIDS & related commodities:

What is really available?

2019

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LIST OF ACRONYMS

3TC	Lamivudine
ABC	Abacavir
AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-retroviral therapy
ARV	Anti-retroviral drug
AZT	Zidovudine
CTC	Care and Treatment Centre
DANIDA	Danish International Development Agency
DBS	Dried Blood Spot
DED	District Executive Director
EFZ	Efavirenz
EID	Early Infant Diagnosis
FDC	Fixed Dose Combination
FTC	Emtricitabine
HIV	Human Immunodeficiency Virus
LPV/r	Lopinavir/Ritonavir
MoHCDGEC	Ministry of Health, Community Development, Gender, Elderly and Children
MSD	Medical Store Department
NACP	National AIDS Control Program
NVP	Nevirapine
PLHIV	People Living with HIV
PORALG	President's Office Region and Local Government
SOP	Standard Operating Procedures
TDF	Tenofovir
WHO	World Health Organization

DEFINITIONS

EID Early infant diagnosis refers to diagnosis of HIV infection among children of less than 18 months by using molecular techniques.

DBS Dried Blood Spot is a sample of blood collected from the heel of a child and dried for transportation to the laboratory for diagnosis of HIV infection.

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EXECUTIVE SUMMARY

Introduction:

The Government of Tanzania and development partners have taken efforts to ensure availability of and access to HIV/AIDS services at all levels of health care delivery in the country. Despite this, there have been a few challenges including occasional antiretroviral shortages and stock-outs. In 2014, the country experienced shortages and stock-outs of antiretrovirals. Following the reports of ARV stock-outs in the media, Sikika carried out a survey to analyse the situation including interviewing key people in the management and supply chains. A report was produced to inform stakeholders of the situation and suggest a way forward to prevent the problem from recurring.

Following a previous assessment of shortages/stock-outs done by Sikika in 2014, it was the aim of the organisation to assess the progress that has been made and find out about the availability of different commodities that are necessary for the implementation of the HIV/AIDS care and treatment program. To this end, Sikika conducted another assessment in 2018 to assess the availability of ARVs and related commodities for HIV/AIDS care and treatment at the health facility level. The overall objective was to assess the management of HIV and AIDS related commodities in selected health facilities within 21 districts in mainland Tanzania.

Methodology:

The study was cross sectional in nature targeting PLHIV, pharmacists, facility in-charges and district medical officers in 106 health facilities which provide health care and treatment services to people living with HIV/AIDS within the selected 21 districts. The health facilities included 52 dispensaries, 40 health centres and 14 hospitals. At each facility, field interviewers assessed the availability of HIV/AIDS commodities, i.e. ARVs, rapid diagnostic kits, male and female condoms and medicines for prophylaxis and treatment of opportunistic infections.

Key informant interviews were held with District medical officers, facility in-charges, pharmacists and district HIV/AIDS coordinators depending on their availability. Five PLHIV from each health facility, who were already on ART, were interviewed. Structured questionnaires were used during these interviews with the data captured directly on tablets.

Selection criteria

All selected 106 health facilities within the 21 districts in mainland Tanzania are providing care and treatment services for HIV/AIDS.

Key findings:

Availability of ARV drugs

Most of the ARVs in the assessment list were reported to be available in all the health facilities except for a fixed dose combination of Abacavir 60mg and Lamivudine 30mg which were available in 41 (38.68%) facilities and Lopinavir boosted with Ritonavir syrup which was also available in 41 (38.68%). The first line ARV recommended in Tanzania in 2018, i.e. Tenofovir, Lamivudine and Emtricitabine (TLE), was available in 105 health facilities out of the 106 (99.06%) health facilities.

Diagnostic kits

Bio-line and Uni-Gold were available in 105 (99.1%) health facilities while DBS kits for early infant diagnosis were available in 101 (95.3%) out of the 106 assessed health facilities.

Availability of drugs for opportunistic infections

Drugs for prophylaxis and management of opportunistic infections, i.e. co-trimoxazole, was available at 83.02% of the facilities assessed while Fluconazole was available in 45 (42.45%) health facilities.

Dispensaries led in the availability of Fluconazole (51.92%), followed by health centres (35%) and it was observed to be scarcely available at hospitals (28.57%).

Availability of condoms

Male condoms were more available (77.36%) compared to female condoms which were least available (46.23%) in the health facilities assessed.

Stock-out of condoms in the last 12 months.

Few stock-outs were experienced by the health facilities between 5% - 20% for any HIV commodities. There were reports of stock-out episodes for male and female latex condoms. For instance, male condom supply was depleted completely in 11 (13.41%) health facilities. On the other hand, out of the facilities that reported having female latex condoms on site, 42 (85.71%) facilities had experienced complete stock-out in the past 12 months.

Challenges in managing ARVs

An inadequate number of health care providers was reported to be the major challenge (44.34%) contributing to difficulties in managing ARV drugs in terms of initiating the supply and maintaining the stock. Other challenges included delays in ARV delivery from MSD (33.02%), expiry of ARV drugs (32.08%) and poor infrastructure, e.g. roads, pharmacy or storage space (28.3%).

Conclusion:

Overall, the availability of HIV/AIDS commodities for prevention, diagnosis, treatment of opportunistic infection and ART at health facilities was satisfactory. The recommended first line treatment regimen for HIV/AIDS (TLE) in 2018 was available in over 95% of healthcare facilities; this is commendable and is indicative of the high level of commitment by the Government and implementing partners in ensuring the HIV/AIDS commodities and services are available and accessible to patients. However, there seem to be challenges in managing some of the HIV/AIDS commodities, relating to female condoms, EID test kits, children ART formulations and opportunistic infection medicines like fluconazole, especially in lower-level health care facilities.

Although the episodes of ARV stock-outs has been reduced, when they do happen, they significantly affect clients whose survival depends on these medicines and thus, more efforts are needed to ensure that stock-outs of HIV/AIDS commodities do not occur.

1. Introduction

Tanzania is characterised by a mature HIV epidemic with significant heterogeneity across age, gender, socio-economic status and geographical location underlying different risks of HIV transmission (source). The country estimates that about 1.6 million people are living with HIV with a notable decrease in HIV prevalence reported by an HIV indicator survey, a declining trend from 7% (THIS, 2003-2004) to 5.7% (THMIS, 2011-2012), to the most recent 4.7% among adults (THIS, 2016-2017). Likewise, the number of new HIV infections has been declining steadily over the years, briefly from 95,000 in 2005 to 84,000 in 2010 and now lately to 65,000 in 2017 according to estimates from UNAIDS (UNAIDS, 2018).

The National care and treatment programs together with various implementing partners have significantly reduced the overall morbidity and mortality related to HIV/AIDS (UNAIDS, 2018). The country has seen an increase in the number of facilities providing care and treatment from 1,176 in 2012 to 6,155 by December 2016. To ensure universal access to HIV/AIDS care and treatment services, these facilities provide care, treatment and support services through Care and Treatment Centres (CTCs), Reproductive and Child Health (RCH) clinics that provide Option B+ for pregnant women as well as other interventions such as Voluntary Male Medical Circumcision. Through the new Health Sector HIV and AIDS Strategic Plan 2017-2022, the country has increased Antiretroviral therapy (ART) services through increased enrolment based on the new "Treat All" approach while keeping an eye on monitoring adherence and retention in care and viral suppression. The main goal is to realise the ambitious 90-90-90 global goal. Briefly, the Joint United Nations Programme on HIV/AIDS (UNAIDS) had set the ambitious post-2015 goal to end the AIDS epidemic by 2030; the goal is famously known as 90-90-90. By 2020, 90% of all people living with HIV (PLHIV) should know their status; 90% of PLHIV should receive sustained ART; and 90% of all people on ART should have viral suppression (UNAIDS, 2014).

The principal aim of ART is to prevent morbidity and mortality amongst people with HIV/AIDS by suppressing virus production and thereby restoring and maintaining immune capacity. ART limits progression towards AIDS for as long as possible and decreases morbidity.

The first line ARVs currently used in Tanzania are Zidovudine (AZT), Lamivudine (3TC), Tenofovir (TDF), Emtricitabine (FTC), Nevirapine (NVP) and Efavirenz (EFV). Tanzania has also adopted Option B+ for Prevention of Mother to Child Transmission (PMTCT) in which all pregnant women living with HIV are offered life-long ART, regardless of their cluster of differentiation (CD4) count. This option includes provision of NVP or AZT daily doses to the infants from birth to six weeks, regardless of the feeding method, as prophylaxis, and those confirmed as being HIV infected are put onto life-long treatment.

In 2014, the World Health Organization (WHO) recommended the use of a fixed dose combination (FDC), containing Tenofovir, Lamivudine and Emtricitabine (TLE), regimen as the first line treatment option for eligible patients (WHO, Policy brief, 2014). This is because regimens containing tenofovir have been found to have fewer side effects and a better compliance than regimens that were being used before (e.g. regimens containing stavudine) (Bygrave et al., 2011). Unfortunately, Tanzania, at times, has faced shortages/stock-

outs of ARVs at health facilities (Sikika, 2015). Numerous efforts have been made to strengthen the ARV supply-chain mechanisms linking the Medical Stores Department and the health facilities (Mikkelsen-Lopez et al., 2014; Mwencha et al., 2017).

Sikika set out to find if there is still an existence of this unfortunate problem, and if it is recurring at some health facilities, and to understand the reasons underlying such episodes of ARV shortages/stock-outs and other HIV-related commodities such as rapid diagnostic tools, condoms etc. (2014). Interruptions in the supply of ARVs may lead to treatment interruptions and drug resistance that creates demand for newer, more potent ARVs and more resources for HIV/AIDS treatment in the long term.

Following a previous assessment of shortages/stock-outs done by Sikika in 2014, it was the aim of the organisation to assess the progress that has been made and find out about the availability of different commodities that are necessary for the implementation of the HIV/AIDS care and treatment program.

Sikika's overall goal is to ensure that there is enhanced availability of quality health services, including HIV/AIDS care and treatment services, for all Tanzanians in need at all times. One of its objectives is to monitor the availability and accessibility of health commodities at all levels of health care delivery in the country.

This report documents and discusses the observed stock status of HIV/AIDS related commodities (ARVs, diagnostic kits, condoms etc.,) at health facilities from the 21 districts in Tanzania. The report also documents the reasons for and challenges of managing ARVs and other related commodities as explained by key stakeholders interviewed at the health facilities and feedback from the beneficiaries of HIV/AIDS services. It is hoped that the highlighted conclusions and recommendations will be taken up and used to inform improvements in care and the treatment of HIV/AIDS in the country.

2.0 Objectives of the assessment

The overall objective of this study was to assess the management of HIV and AIDS commodities in 106 public health facilities within 21 districts in mainland Tanzania.

2.1 Specific objectives

Specifically, the assessment aimed to:

1. Determine the availability of HIV and AIDS commodities at selected health facilities in 21 districts
2. Identify challenges faced by clients in accessing HIV and AIDS commodities
3. Identify challenges faced by service providers in managing HIV and AIDS commodities
4. Propose recommendations to proper management of HIV and AIDS commodities

3.0 Methodology

3.1 Study design

The study was cross-sectional in nature targeting PLHIV, pharmacists, facility in-charges and district medical officers at health facilities assessed within the selected 21 districts. Stratified sampling was done whereby 7 regions were randomly selected across the 7 zones; in each region, 3 districts were randomly selected to make 21 districts.; The regions were: Arusha, Dar es Salaam, Dodoma, Mtwara, Mwanza, Songwe and Tabora. The districts visited were: Arumeru, Arusha, Bahi, Igunga, Ilala, Ilemela, Kaliua, Kinondoni, Kondo, Masasi, Mbozi, Momba, Monduli, Mpwapwa, Mtwara, Newala, Nyamagana, Songwe, Temeke, Ukerewe, and Urambo (Figure 1).

3.2 Assessment population

Four to 6 facilities were randomly selected that provide HIV/AIDS care and treatment services from each of the 21 districts. At each facility, field interviewers assessed for availability of HIV/AIDS commodities, i.e. ARVs, rapid diagnostic kits, male and female condoms and medicines for treating opportunistic infections. Structured questionnaires were used during interviews and the data were captured directly on tablets. The following were interviewed:

- District medical officers, health facility in-charges, pharmacists and district HIV/AIDS coordinators depending on their availability.
- Service beneficiaries – five PLHIV who were already on ART at each health facility.

3.3 Study procedures

Data were collected during the two weeks of field activities from five health care facilities from each district (hospitals, health centres and dispensaries), which provide care to people living with HIV/AIDS (PLHIVs). Field interviewers were trained on the assessment protocol and on how to use the data collection tools. The questionnaires were thoroughly piloted and modified to suit the local context (see Appendix 1).

The assessment involved inquiring about the availability of ARV medicines, HIV rapid test kits, condoms and medicines for prophylaxis and the treatment of opportunistic infections (Table 1). This was followed by an on-site verification of those commodities at the facility pharmacy/dispensing area. For each commodity reported to be available, field workers verified for its availability on site.

3.4 Data collection and management

Data were directly captured on tablets using the Open Data Kit (ODK) (<https://opendatakit.org/>) application and were uploaded onto the server in real time. Data was then monitored in real time using the eManagement tool "odk _planner". Upon completion of field activities (data collection), data were then exported for cleaning, consistent checks and completion using Stata. Data were then analysed where descriptive statistics were used to describe the availability of different HIV/AIDS related commodities at facilities. All analyses were done using Stata Version 15.1. Lastly, we also generated a map of all health facilities that were visited during the assessment, with mapping done using qGIS software version 2.18.25.

Table 1. List of HIV/AIDS commodities assessed in the health care facilities

Commodity
ARV medicine
Efavirenz 600mg tablets
Zidovudine 300mg/Lamivudine150mg tablets
Lamivudine 150mg/Zidovudine 300mg/Nevirapine 200mg tablets
Tenofovir 300mg/Emtricitabine 200mg/Efavirens 600mg tablets (TLE)
Tenofovir 300mg/Emtricitabine 200mg tablets
Lopinavir/ritonavir 200mg/50mg tablets
Tenofovir/Lamivudine /Efavirens (300mg/300mg/600mg) tablets
Atazanavir/Ritonavir (300mg/100mg) tablets
Abacavir/Lamivudine (600mg/300mg) tablets
Abacavir/Lamivudine (60mg/30mg) tablets
Abacavir/Lamivudine (120mg/60mg) (new formulation)
Efavirenz 200mg tablets
Nevirapine Syrup 50mg/5ml
Lopinavir/Ritonavir Syrup
Lopinavir/ritonavir 100mg/25mg Tabs
Lamivudine/Zidovudine/Nevirapine (30mg/60mg/50mg) tablets
Medicines for opportunistic infections
Co-trimoxazole tablets
Fluconazole tablets
Rapid Test Kits (RTK)
SD Bioline For H. I. V ½
Uni-Gold H. I. V ½
HIV Early Infant Diagnosis (HEID)
Dried Blood Spot kits for HEID, K/20
Condoms
Male latex condoms
Female latex condoms

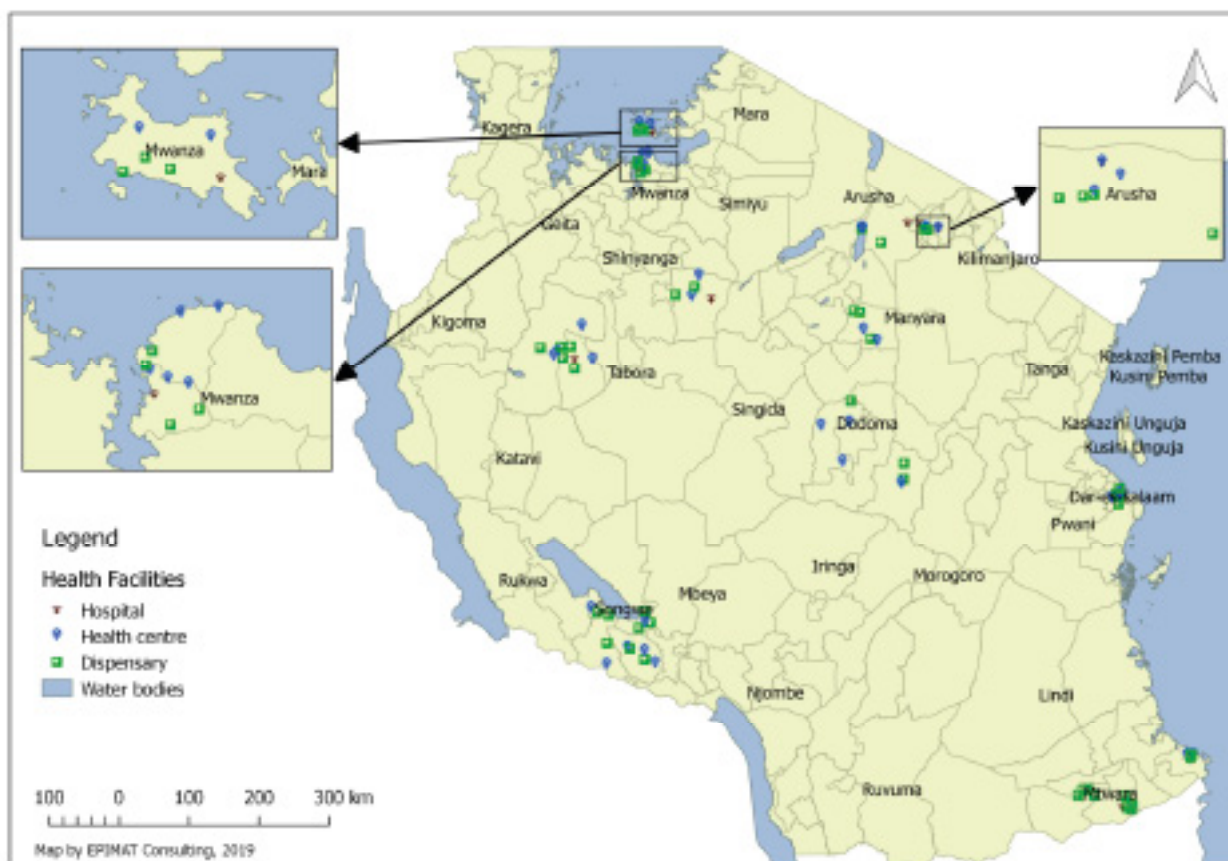


Figure 1. Map of Tanzania showing regions that were involved in the assessment of the availability of HIV/AIDS commodities including all health care facilities.

4.0 Results and discussion

A total of 106 health care facilities within 21 districts were visited and assessed for the availability of ARVs and HIV/AIDS related commodities. The health care facilities included 52 dispensaries, 40 health centres and 14 hospitals all providing care and treatment services for HIV/AIDS (see Appendix 2).

4.1 Availability of ARV medicines

The availability of ARV medicines varied across the three levels of health facilities, i.e. hospitals, health centres and dispensaries. Most of the ARV drugs inquired about in the list of commodities assessed were reported to be available in all the health care facilities. The first line ARV recommended in 2018, i.e. TLE, was reported to be available in 105 (99.06%) health facilities out of the 106 health care facilities. The fixed dose combination of Abacavir 60mg and Lamivudine 30mg was reported to be available in 41 (38.68%) health care facilities. Lopinavir boosted with Ritonavir syrup was reported to be available in 41 health care facilities (38.68%). The availability of ABC 60mg and 3TC 30mg drug combinations as well as LPV/r syrup was reported to be scarce at dispensary and health centre levels, but their availability was reported to be high at hospital level (Table 2).

Table 2. HIV/AIDS commodities reported to be available in the health care facilities

Available commodities	All (n=106)	Dispensary (n=52)	Health centre (n=40)	Hospital (n=14)
EFZ 600mg, n (%)	93 (87.74)	41 (78.85)	38 (95.0)	14 (100.0)
AZT 300mg/3TC 150mg, n (%)	88 (84.71)	36 (69.23)	38 (95.0)	14 (100.0)
AZT 300mg/3TC 150mg/NVP 200mg	95 (89.62)	43 (82.69)	39 (97.50)	13 (92.86)
TDF 300mg/FTC 200mg/EFZ600mg	84 (79.25)	36 (69.23)	34 (85.0)	14 (100.0)
TDF 300mg/FTC 200mg	59 (55.66)	22 (42.31)	23 (57.5)	14 (100.0)
LPV/r 200mg/50mg	62 (58.49)	19 (39.54)	29 (72.5)	14 (100.0)
TDF 300mg/FTC 300mg/ EFZ 600mg	105 (99.06)	51 (98.08)	40 (100.0)	14 (100.0)
Atazanavir/r 300mg/100mg	59 (55.66)	21 (40.38)	24 (60.0)	14 (100.0)
ABC 600mg/3TC 300mg	60 (56.6)	21 (40.38)	25 (62.5)	14 (100.0)
ABC 60mg/3TC 30mg	41 (38.68)	18 (34.62)	17 (42.5)	6 (42.86)
ABC 120mg/3TC 60mg	65 (61.32)	24 (46.15)	28 (70.0)	13 (92.86)
EFZ 200mg	66 (62.26)	26 (50.0)	27 (67.5)	13 (92.86)
NVP syrup 50mg/5ml	98 (92.45)	46 (88.46)	38 (95.0)	14 (100.0)
LPV/r syrup	41 (38.68)	12 (23.08)	18 (45.0)	11 (78.57)
LPV/r 100mg/25mg	54 (50.94)	20 (38.46)	22 (55.0)	12 (85.71)
3TC 30mg/AZT 60mg/NVP 50mg	80 (75.47)	33 (63.46)	34 (85.0)	13 (92.86)
Co-trimoxazole tabs	88 (83.02)	44 (84.62)	33 (82.5)	11 (78.57)
Fluconazole tabs	45 (42.45)	27 (51.92)	14 (35.0)	4 (28.57)
SD Bioline for HIV ½ kits	105 (99.1)	52 (100.0)	39 (97.5)	14 (100.0)
Uni-Gold for HIV ½ kits	105 (99.1)	52 (100.0)	40 (100.0)	13 (92.86)
DBS Kits for HEID, K/20	101 (95.3)	48 (92.31)	39 (97.5)	14 (100.0)
Male latex condom	82 (77.36)	40 (76.92)	31 (77.5)	11 (78.57)
Female latex condom	49 (46.23)	23 (44.23)	20 (50.0)	6 (42.86)

4.2 Availability of drugs for opportunistic infections

Drugs for prophylaxis and management of opportunistic infections were Co-trimoxazole and Fluconazole. Co-trimoxazole was reported to be available in 88 (83.02%) of the health facilities assessed while fluconazole was reported to be available in 45 (42.45%) health facilities only. Dispensaries led in reporting availability of fluconazole (51.92%), followed by health centres (35%) and it was least available at hospitals (28.57%) (Table 2).

4.3 Availability of HIV diagnostic kits

Diagnostic kits for HIV diagnosis were reported to be available sufficiently at the facilities assessed. Bio-line and Uni-Gold were reported to be available in 105 (99.1%) of the health care facilities assessed while DBS kits for early infant diagnosis were reported to be available in 101 (95.3%) out of 106 health care facilities assessed (Table 2).

4.4 Availability of condoms

There were differences in the availability of male and female latex condoms. Male condoms were reported to be available in 82 (77.36%) health care facilities compared to female condoms which were reported to be available in 49 (46.23%) of the facilities that were visited (Table 2).

Table 3. Number of stock-out episodes reported in the past 12 months in the health care facilities

Commodities	All	Dispensary	Health centre	Hospital
EFZ 600mg, n (%)				
Never	84 (90.32)	35 (85.37)	36 (94.74)	13 (92.86)
Once	6 (6.45)	4 (9.76)	1 (2.63)	1 (7.14)
Thrice and more	3 (3.23)	2 (4.88)	1 (2.63)	0 (0.0)
AZT 300mg/3TC 150mg, n (%)				
Never	84 (95.45)	33 (91.67)	37 (97.37)	14 (100.0)
Once	2 (2.27)	1 (2.78)	1 (2.63)	0 (0.0)
Twice	2 (2.27)	2 (5.56)	0 (0.0)	0 (0.0)
AZT 300mg/3TC 150mg/NVP 200mg				
Never	92 (96.84)	40 (93.02)	39 (100.0)	13 (100.0)
Once	2 (2.11)	2 (4.65)	0 (0.0)	0 (0.0)
Twice	1 (1.05)	1 (2.33)	0 (0.0)	0 (0.0)
TDF 300mg/FTC 200mg/EFZ600mg				
Never	78 (92.86)	33 (91.67)	32 (94.12)	13 (92.86)
Once	4 (4.76)	2 (5.56)	1 (2.94)	1 (7.14)
Twice	1 (1.19)	0 (0.0)	1 (2.94)	0 (0.0)
Thrice and more	1 (1.19)	1 (2.78)	0 (0.0)	0 (0.0)
TDF 300mg/FTC 200mg				
Never	56 (94.92)	22 (100.0)	21 (91.3)	13 (92.86)
Once	2 (3.39)	0 (0.0)	2 (8.7)	0 (0.0)
Twice	1 (1.69)	0 (0.0)	0 (0.0)	1 (7.14)
LPV/r 200mg/50mg				
Never	56 (90.32)	18 (94.74)	25 (86.21)	13 (92.86)
Once	3 (4.84)	1 (5.26)	2 (6.9)	0 (0.0)

Commodities	All	Dispensary	Health centre	Hospital
Twice	1 (1.61)	0 (0.0)	0 (0.0)	1 (7.14)
Thrice and more	2 (3.23)	0 (0.0)	2 (6.9)	0 (0.0)
TDF 300mg/FTC 300mg/EFZ600mg				
Never	96 (91.43)	45 (88.24)	38 (95.0)	13 (92.86)
Once	5 (4.76)	4 (7.84)	1 (2.5)	0 (0.0)
Twice	3 (2.86)	2 (3.92)	1 (2.5)	0 (0.0)
Thrice and more	1 (0.95)	0 (0.0)	0 (0.0)	1 (7.14)
Atazanavir/r 300mg/100mg				
Never	55 (93.22)	20 (95.24)	23 (95.83)	12 (85.71)
Once	2 (3.39)	1 (4.76)	0 (0.0)	1 (7.14)
Twice	1 (1.69)	0 (0.0)	1 (4.17)	0 (0.0)
Thrice and more	1 (1.69)	0 (0.0)	0 (0.0)	1 (7.14)
ABC 600mg/3TC 300mg				
Never	53 (88.33)	20 (95.24)	23 (92.0)	10 (71.43)
Once	4 (6.67)	0 (0.0)	1 (4.0)	3 (21.43)
Twice	2 (3.33)	0 (0.0)	1 (4.0)	1 (7.14)
Thrice and more	1 (1.67)	1 (4.76)	0 (0.0)	0 (0.0)
ABC 60mg/3TC 30mg				
Never	37 (90.24)	17 (94.44)	16 (94.12)	4 (66.67)
Once	1 (2.44)	0 (0.0)	0 (0.0)	1 (16.67)
Thrice and more	3 (7.32)	1 (5.56)	1 (5.88)	1 (16.67)
ABC 120mg/3TC 60mg				
Never	56 (86.15)	23 (95.83)	23 (82.14)	10 (76.92)
Once	7 (10.77)	1 (4.17)	4 (14.29)	2 (15.38)
Twice	1 (1.54)	0 (0.0)	0 (0.0)	1 (7.69)
Thrice and more	1 (1.54)	0 (0.0)	1 (3.57)	0 (0.0)
EFZ 200mg				
Never	59 (89.39)	23 (88.46)	24 (88.89)	12 (92.31)
Once	5 (7.58)	2 (7.69)	2 (7.41)	1 (7.69)
Twice	2 (3.03)	1 (3.85)	1 (3.7)	0 (0.0)
NVP syrup 50mg/5ml				
Never	94 (95.92)	43 (93.48)	37 (97.37)	14 (100.0)
Once	3 (3.06)	2 (4.35)	1 (2.63)	0 (0.0)
Twice	1 (1.02)	1 (2.17)	0 (0.0)	0 (0.0)
LPV/r syrup				
Never	39 (95.12)	12 (100.0)	18 (100.0)	9 (81.82)
Once	1 (2.44)	0 (0.0)	0 (0.0)	1 (9.09)
Thrice and more	1 (2.44)	0 (0.0)	0 (0.0)	1 (9.09)
LPV/r 100mg/25mg				
Never	53 (98.15)	20 (100.0)	22 (100.0)	11 (91.67)
Twice	1 (1.85)	0 (0.0)	0 (0.0)	1 (8.33)
3TC 30mg/AZT 60mg/NVP 50mg				
Never	77 (96.25)	31 (93.94)	33 (97.06)	13 (100.0)
Once	1 (1.25)	0 (0.0)	1 (2.94)	0 (0.0)

Commodities	All	Dispensary	Health centre	Hospital
Twice	1 (1.25)	1 (3.03)	0 (0.0)	0 (0.0)
Thrice and more	1 (1.25)	1 (3.03)	0 (0.0)	0 (0.0)
Co-trimoxazole tabs				
Never	73 (82.95)	36 (81.82)	27 (81.82)	10 (90.91)
Once	6 (8.82)	4 (9.09)	2 (6.06)	0 (0.0)
Twice	5 (5.68)	2 (4.55)	3 (9.09)	0 (0.0)
Thrice and more	4 (4.55)	2 (4.55)	1 (3.03)	1 (9.09)
Fluconazole tabs				
Never	38 (84.44)	24 (88.89)	11 (78.57)	3 (75.0)
Once	5 (11.11)	2 (7.41)	3 (21.43)	0 (0.0)
Thrice and more	2 (4.44)	1 (3.7)	0 (0.0)	1 (25.0)
SD Bioline for HIV ½ kits				
Never	104 (99.1)	52 (100.0)	39 (100.0)	13 (92.86)
Once	1 (0.95)	0 (0.0)	0 (0.0)	1 (7.14)
Uni-Gold for HIV ½ kits				
Never	103 (98.1)	51 (98.08)	39 (97.5)	13 (100.0)
Once	2 (1.9)	1 (1.92)	1 (2.5)	0 (0.0)
DBS Kits for HEID, K/20				
Never	93 (92.08)	45 (93.75)	35 (89.74)	13 (92.86)
Once	5 (4.95)	1 (2.08)	3 (7.69)	1 (7.14)
Twice	2 (1.98)	2 (4.17)	0 (0.0)	0 (0.0)
Thrice and more	1 (0.99)	0 (0.0)	1 (2.56)	0 (0.0)
Male latex condom				
Never	67 (81.71)	35 (87.5)	24 (77.42)	8 (72.73)
Once	11 (13.41)	3 (7.5)	6 (19.35)	2 (18.18)
Twice	2 (2.44)	1 (2.5)	0 (0.0)	1 (9.09)
Thrice and more	2 (2.44)	1 (2.5)	1 (3.23)	0 (0.0)
Female latex condom				
Never	42 (85.71)	22 (95.65)	16 (80.0)	4 (66.67)
Once	5 (10.2)	1 (4.35)	2 (10.0)	2 (33.33)
Twice	1 (2.04)	0 (0.0)	1 (5.0)	0 (0.0)
Thrice and more	1 (2.04)	0 (0.0)	1 (5.0)	0 (0.0)

4.5 Stock-outs of ARV medicines

The study inquired about the number of episodes when the facilities had experienced ARV medicine stock-outs in the past 12 months prior to the assessment. Most of the health care facilities had not experienced ARV stock-outs in past 12 months. Only a few facilities reported ARV stock-outs at least once or twice in the past 12 months (Table 3). For instance, the recommended first line regimen TLE was reported to be out of stock once by 5 health facilities (4.76%), and twice by 3 facilities (2.86%). The treatment regimen with the most episodes of stock-out was the combination drug containing Abacavir 120mg and lamivudine 60mg, where 7 (10.77%) health facilities reported to have had at least one episode of stock-out of this regimen in the past 12 months (Table 3).

4.6 Stock-outs of medicines for opportunistic infections

The health care providers interviewed reported few stock-out episodes of co-trimoxazole drugs which are used for prophylaxis and treatment of opportunistic infections such as pneumocystis carinii, pneumonia etc. Co-trimoxazole drugs were reported to be available in 73 (82.95%) health facilities in the past 12 months. The remaining health facilities reported few episodes of co-trimoxazole stock-outs (Table 3). Of the health facilities which reported having fluconazole, 38 (84.44%) facilities did not have any episodes of stock-outs, while 7 facilities reported one or two episodes of stock-outs of fluconazole tablets (Table 3).

4.7 Stock-outs of HIV diagnostic kits

One hospital reported one stock-out of SD Bioline, while one dispensary and one health centre had one episode of stock-out for Uni-Gold kits for HIV diagnosis. For kits used for early infant diagnosis, DBS kits for EID were available throughout the 12 months prior to the assessment in 93 (92.08%) facilities which had previously reported having these kits available on site (Table 3).

4.8 Stock-outs of latex condoms

There were reports of stock-out episodes for male and female latex condoms. For instance, male condom supply was depleted completely once leaving 11 (13.41%) facilities without male condoms in the 12 months prior to the assessment. On the other hand, 42 (85.71%) health facilities had received a continuous supply of female latex condoms for the past 12 months. Five (10.2%) health facilities reported one stock-out episode of female condoms (Table 3).

Table 4. HIV/AIDS related commodities verified at health care facilities

Verified commodities	All	Dispensary	Health centre	Hospital
EFZ 600mg, n (%)	89 (95.7)	38 (92.68)	37 (97.37)	14 (100.0)
AZT 300mg/3TC 150mg, n (%)	88 (100.0)	36 (100.0)	38 (100.0)	14 (100.0)
AZT 300mg/3TC 150mg/NVP 200mg	94 (98.95)	42 (97.67)	39 (100.0)	13 (100.0)
TDF 300mg/FTC 200mg/EFZ600mg	81 (96.43)	34 (94.44)	33 (97.06)	14 (100.0)
TDF 300mg/FTC 200mg	59 (100.0)	22 (100.0)	23 (100.0)	14 (100.0)
LPV/r 200mg/50mg	58 (93.55)	17 (89.47)	27 (93.1)	14 (100.0)
TDF 300mg/FTC 300mg/EFZ 600mg	104 (99.1)	50 (98.04)	40 (100.0)	14 (100.0)
Atazanavir/r 300mg/100mg	59 (100.0)	21 (100.0)	24 (100.0)	14 (100.0)
ABC 600mg/3TC 300mg	56 (93.33)	20 (95.24)	22 (88.0)	14 (100.0)
ABC 60mg/3TC 30mg	36 (87.8)	16 (88.89)	15 (88.24)	5 (83.3)
ABC 120mg/3TC 60mg	61 (93.85)	22 (91.67)	27 (96.43)	12 (92.31)
EFZ 200mg	62 (93.94)	25 (96.15)	25 (92.59)	12 (92.31)
NVP syrup 50mg/5ml	97 (98.98)	46 (100.0)	37 (97.37)	14 (100.0)
LPV/r syrup	38 (92.68)	12 (100.0)	15 (83.33)	11 (100.0)
LPV/r 100mg/25mg	53 (98.15)	20 (100.0)	21 (95.45)	12 (100.0)
3TC 30mg/AZT 60mg/NVP 50mg	79 (98.75)	32 (96.97)	34 (100.0)	13 (100.0)
Co-trimoxazole tabs	83 (94.32)	42 (95.45)	31 (93.94)	10 (90.91)
Fluconazole tabs	43 (95.56)	27 (100.0)	13 (92.86)	3 (75.0)
SD Bioline for HIV ½ kits	104 (99.1)	52 (100.0)	39 (100.0)	13 (92.86)
Uni-Gold for HIV ½ kits	105 (100.0)	52 (100.0)	40 (100.0)	13 (100.0)

DBS Kits for HEID, K/20	100 (99.01)	48 (100.0)	39 (100.0)	13 (92.86)
Male latex condom	78 (95.12)	39 (97.5)	28 (90.32)	11 (100.0)
Female latex condom	46 (93.88)	23 (100.0)	17 (85.0)	6 (100.0)
Presence of expired drugs	39 (36.79)	14 (26.92)	16 (40.0)	9 (64.29)

4.9 ARV medicines observed at health care facilities

Nearly all the ARV medicines reported to be available in the 106 health care facilities were confirmed to be available in 93% of the health care facilities. The first line ARV recommended by government in 2018 was TDF 300mg/FTC 300mg /EFV 600mg (TLE). The TLE regimen was available in 104 (99%) of the health care facilities (Table 4).

4.10 Presence of expired drugs at health care facilities

Sikika assessed for the presence of expired drugs in all the 106 health care facilities. It was revealed that 39 (36.79%) facilities had expired drugs on site. The presence of expired drugs was higher in hospitals (64.29%) compared to other levels of health care delivery. This was followed by health centers 16 (40%). Of all the dispensaries assessed, 14 (26.92%) were found to have expired drugs on site (Table 4). There was no predominant type of expired ARV medicine in the health care facilities.

The presence of expired drugs at health facilities should be interpreted with care. Although we only reported the presence of expired drugs and not the expiry rates (i.e., proportion of expired drugs to un-expired drugs) this is still an important finding as the Government and implementing partners are aspiring for more cost-effective means of managing HIV/AIDS commodities. The presence of expired drugs predominantly in hospitals rather than the lower levels of service provision could be due to the still existing request and report forms that are used by hospitals only.

Table 5. Challenges identified in managing HIV/AIDS related commodities

	All	Dispensary	Health centre	Hospital
Challenges				
Managing ART drugs				
Lack of staff	47 (44.34)	23 (44.23)	15 (37.5)	9 (64.29)
Delayed drug supply	35 (33.02)	14 (26.92)	16 (40.0)	5 (35.71)
Expired drugs	34 (32.08)	11 (21.15)	18 (45.0)	5 (35.71)
Poor infrastructure	30 (28.3)	19 (36.54)	10 (25.0)	1 (7.14)
Drug stock-out	44 (41.51)	22 (42.31)	15 (37.5)	7 (50.0)
Managing rapid test kits				
Lack of staff	18 (16.98)	6 (11.54)	10 (25.0)	2 (14.29)
Delayed supply	11 (10.38)	6 (11.54)	3 (7.5)	2 (14.29)
Expired kits	6 (5.66)	2 (3.85)	2 (5.0)	2 (14.29)
Poor infrastructure	10 (9.43)	3 (5.77)	6 (15.0)	1 (7.14)
Stock-out of kits	16 (15.09)	10 (19.23)	5 (12.5)	1 (7.14)
Managing EID kits				
Lack of staff	11 (10.38)	5 (9.62)	4 (10.0)	2 (14.29)
Delayed supply	9 (8.49)	3 (5.77)	5 (12.5)	1 (7.14)

Expired kits	4 (3.77)	1 (1.92)	2 (5.0)	1 (7.14)
Poor infrastructure	8 (7.55)	3 (5.77)	4 (10.0)	1 (7.14)
Stock-out of kits	19 (17.92)	8 (15.38)	9 (22.5)	2 (14.29)
Managing condoms				
Lack of staff	7 (6.6)	2 (3.85)	2 (5.0)	3 (21.43)
Delayed supply	14 (13.21)	6 (11.54)	6 (15.0)	2 (14.29)
Expired condoms	4 (3.77)	1 (1.92)	2 (5.0)	1 (7.14)
Poor infrastructure	3 (2.83)	0 (0.0)	2 (5.0)	1 (7.14)
Stock-out of condoms	48 (45.28)	24 (46.15)	19 (47.50)	5 (35.71)

4.11 Challenges in managing HIV/AIDS commodities

4.11.1 Challenges in managing ARV drugs

Several challenges were reported in managing ARV medicines. The main challenge was the insufficient number of health care providers (44.34%). This was reported to be the major challenge contributing to the difficulties in managing ARV medicines in terms of initiating the supply and maintaining the stock. Stock-outs for ARVs was the second most reported challenge by health care workers. Of all the 106 health care facilities assessed, 44 (41.51%) reported drug stock-out as the most important challenge when it comes to managing ARV drugs (Table 5). Other challenges included delays in ARV delivery from MSD (33.02%), expiry of ARV drugs (32.08%) and poor infrastructure, e.g. roads, pharmacy or storage space (28.3%).

4.11.2 Challenges in managing HIV rapid test kits

The main challenge reported in managing HIV rapid test/diagnostic kits was inadequate staff (16.98%) and stock-outs of diagnostic kits (15.09%). Other challenges included delayed supply of kits which was reported by 11 (10.38%) health facilities, presence of poor infrastructure as reported by 10 (9.43%) health facilities and lastly expiry of diagnostic kits reported by 6 (5.66). Poor infrastructure was mostly reported at dispensaries and health centres to be the major challenge in managing rapid HIV diagnostic kits. Poor infrastructure was also reported by the health facilities as a challenge for managing early infant diagnostic kits (Table 5).

4.11.3 Challenges in managing latex condoms

Male and female latex condoms are provided to PLHIV for protection against sexually transmitted infections and for family planning. Condom stock-outs was the most challenging issue in the supply and management of HIV/AIDS commodities. Out of 106 health facilities, 48 (45.28%) identified stock-outs as a challenge in managing latex condoms. This challenge was experienced more in health centres (47.5%) and dispensaries (46.15%) and not so much in hospitals (35.71%).

4.11.4 Other challenges and recommendations from health care providers

Health care providers reported other challenges which hamper delivery of health care and availability of HIV/AIDS related commodities. These included poor roads, lack of adequate storage space, complete absence or presence of very small CTC buildings while caring for many clients, lack of training or access to the database system, which simplifies the planning process for requesting new stocks, lack of regular training and limited numbers of staff dedicated to care and treatment services.

To address some of the changes mentioned above, the health care providers recommended the following:

- The current “pull” system which requires the individual facility to manage, report and request HIV/AIDS commodities directly from the Medical Stores Department. Health care providers at dispensaries would benefit from close supportive supervision from the district level officials, e.g. district pharmacists.
- The government and other stakeholders should take measures to improve the quality and quantity of human resources for health.
- The government and other stakeholders should improve the infrastructure to ensure timely delivery of

commodities at health facilities.

- The current “pull” system which utilises the electronic logistic management information system (eL-MIS) has improved management of HIV/AIDS commodities at lower levels of service delivery (i.e. dispensary and health centre).
- Health care workers interviewed emphasised the need for training especially before introducing a new ARV medicine/regimen.
- Training on health facility data collection tools.

Table 6. Feedback from clients interviewed at the 106 health facilities

Characteristic	All	Dispensary	Health centre	Hospital
Total beneficiaries, n (%)	471 (100)	195 (41.4)	203 (43.1)	73 (15.5)
Time on ART in months, median (IQR)	48 (24-96)	48 (24-96)	48 (24-96)	60 (18-108)
Drug supply time in months, median (IQR)	1 (1-3)	1 (1-2)	1 (1-2)	2 (1-3)
Received drugs less than regular supply interval, n (%)	80 (16.99)	31 (15.9)	32 (15.76)	17 (23.29)
Change of ART, n (%)				
Yes	157 (33.33)	72 (36.92)	63 (31.03)	22 (30.14)
Not sure	31 (6.58)	15 (7.69)	11 (5.42)	5 (6.85)
No	283 (60.08)	108 (55.38)	129 (63.55)	46 (63.01)
Reason for change of ART, n (%)				
Not known by client	17 (10.83)	7 (9.72)	8 (12.7)	2 (9.09)
Side effects	103 (65.61)	41 (56.94)	47 (74.6)	15 (68.18)
Stock-out	21 (13.38)	16 (22.22)	3 (4.76)	2 (9.09)
Treatment failure	16 (10.19)	8 (11.11)	5 (7.94)	3 (13.64)
Missed ART due to stock-out, n (%)	33 (7.01)	19 (9.74)	10 (4.93)	4 (5.48)
Lack of HIV tests for adults, n (%)	10 (2.12)	4 (2.05)	5 (2.46)	1 (1.37)
Lack of HIV tests for EID, n (%)	13 (2.76)	4 (2.05)	7 (3.45)	2 (2.74)
Regularly receive condoms, n (%)	293 (62.21)	124 (63.59)	129 (63.55)	40 (54.79)
Lack of condom supply due to stock-out, n (%)	62 (21.16)	31 (25.0)	25 (19.38)	6 (15.0)

4.12 Feedback from clients on ART

The study interviewed 471 clients (beneficiaries) who were receiving anti retro viral therapy from the 106 health facilities. Overall, the clients had a median time on ART of 48 months, an interquartile range (IQR) of 24-96 months. Clients interviewed at hospitals were likely to be on ARV for a longer duration than those seen at lower levels of service provision (Table 6). Clients receiving care and treatment at dispensaries were given a one-month supply of ARVs while those being treated at hospitals were more likely to receive an ARV drug supply for two months.

Approximately one third of the clients interviewed reported having been changed from their initial ARV regimen to another regimen. A total of 103 (65.61%) out of all clients on ARV drugs interviewed knew that their initial treatment regimen had been changed (Table 6). Surprisingly, 31 (6.58%) clients were not sure if the health care providers had ever changed their ARV medication. Side effects were reported to be the leading reason for changing ARV drugs. Unfortunately, 21 (13.38%) clients had to change their treatment regimen

because of drug stock-outs. This practice was more common at dispensaries 22.22%, followed by for clients who are cared for at hospitals (9.09%) and least for those whose were receiving treatment services at health centres (4.76%) (Table 6).

The health facilities reported that condoms were provided to clients for the prevention of sexually transmitted diseases (STIs), new HIV infection and for family planning. A total of 293 (62.21%) clients out of 471 clients interviewed reported receiving condoms regularly from the health facilities they were attending. Approximately one-fifth of clients (21.16%) had, at least once in the last 12 months, missed receiving condoms from the health facilities due to condom stock-outs.

5.0 Conclusion

Overall, the availability of HIV/AIDS commodities for the prevention, diagnosis, treatment of opportunity infection and ART at health facilities was satisfactory. The recommended first line treatment regimen for HIV/AIDS (TLE) was available in over 95% of healthcare facilities. Such a finding demonstrates the level of commitment of the Government of Tanzania and implementing partners in ensuring the HIV /AIDS commodities are available at health facilities and for patients in need of such services. However, there seem to be challenges in managing some of the HIV/AIDS commodities including female condoms, EID test kits, children's ART formulations and opportunistic infection medicines like fluconazole commodities especially in lower-level health care facilities.

Although the episodes of ARV stock-outs has been reduced, when they do happen, they significantly affect clients whose survival depends on these medicines and thus, more efforts are needed to ensure that stock-outs of HIV/AIDS commodities do not occur.

The use of mobile phones (IL Gateway) has resulted in improved management of HIV/AIDS commodities. Still more work is needed to link the lowest levels of service provision directly to the Health Management Information System to help health care providers in estimating the commodity demand easily for their facilities.

6.0 Recommendations

The following are general recommendations to improve the availability and management of HIV/AIDS commodities:

District level

- Enforce the protocols and standard operating procedures which will harmonise the stock checking, managing and stock requesting at facilities, i.e. points of service delivery.
- Assess and quantify the remaining levels of stock-out of the HIV/AIDS commodities in the respective districts to ascertain and find mechanisms to prevent stock-outs.
- Encourage sharing of good practices in managing HIV/AIDS commodities between health facilities.
- Strengthen supportive supervision/coaching/mentoring visits to health facilities in managing HIV/AIDS commodities.
- Conduct training when needed with health care workers in managing HIV/AIDS commodities.

Health facility level

- Enforce the protocols and standard operating procedures which will harmonise the stock checking, managing and stock requesting at facilities, i.e. points of service delivery.
- Explore the reasons why a health facility has stock-outs of certain HIV commodities.
- Improve the availability of the HIV/AIDS commodities that are essential at the health facilities such as pediatric formulations and HIV test kits.
- Consider on the job training in how to manage HIV commodities.
- The government and other stakeholders should improve the human resources for health and improve the existing infrastructure to ensure timely delivery of commodities at facilities which have adequate storage space.
- More efforts should be put in place to scale up the distribution of female condoms to improve the availability of these condoms at health care facilities.

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