



Ethiopian Public Health Institute

Current progress towards 90-90-90 HIV treatment achievement and exploration of challenges faced in Ethiopia

June 2020

Addis Ababa

Abstract

Background: In 2014, the Joint United Nations Program on HIV/AIDS (UNAIDS) and partners set the 90-90-90 target for the year 2020: diagnose 90% of all people living with HIV (PLHIV); treat 90% of people who know their status; and suppress the virus in 90% of people on treatment. The objective of this study is to determine the current status towards the 2020 90-90-90 UNAIDS target and the challenges faced in Ethiopia.

Methodology: The study includes outputs from nationally approved data generated from Spectrum version 8.5 and a shiny 90 tool models to generate the first and second 90s of data since 2014. And Spectrum software version 5.8 software was used to calculate national file or subnational files of viral load program data since 2017. These data provides the following key information ;estimated number of people living with HIV , estimated number of people living with HIV diagnosed as HIV positive; estimated number of people living with HIV receiving ART; and estimated number of people living with HIV with a suppressed or undetectable viral load.

Results: Among all PLHIV in Ethiopia, 87.4% knew their HIV status. Of these, 74.7% were accessing treatment and 91.2% of people accessing treatment had suppressed viral loads. The first and second 90 were achieved by Addis Ababa and Harari out of 11 regions. The third 90 were achieved almost by all regions. Sex and age is significantly associated with the outcomes.

Conclusion: There is a need to increase HIV case-detection capacity through expanding and introducing new testing and counseling methods and strengthening HIV care at facilities to enroll newly diagnosed patients on early initiation to ART treatment and to sustain treatment adherence. The treatment cascade showed that there is a need to invest in community and improving health services to achieve UNAIDS 2020 90-90-90 targets.

Key word: UNAIDS 90-90-90 targets, HIV, HIV testing, antiretroviral therapy, viral load suppression

Foreword

Around 39 million people have died of HIV/AIDS globally over the past few decades. It has been a headache for many families, children, and the economy and health system. The incidence has declined over time; however, it is still significant public health concern.

Sub-Saharan Africa carries the highest burden of 71% of the global total. In Ethiopia an estimated 691,362 people were living in 2019.

The world has committed to achieve the 2020 joint UNAIDS program for the last six years, in 2014, the Joint United Nations Program on HIV and AIDS (UNAIDS) and partners launched three ambitious 90-90-90 targets for 2020 as a commitment to improve access to antiretroviral therapy (ART) as a life-saving treatment

Ethiopia adopted the global 90-90-90 target which is part of the strategies designed to eliminate HIV/AIDS epidemics by 2030 and has been working with many collaborators and stakeholders in improving disease detection, viral load testing and adherence on antiretroviral therapy.

The national HIV policies and plans has been updated over the years including; treatment of all children regardless of age, treatment of all adults regardless of CD4 count, implementation of national policy on viral load monitoring.

This report will provide key information on people living with HIV and their status, their ART prevalence, and viral load status. It will generate reliable data for planning and monitoring, evidence based decision, to understand the gaps and challenges faced.

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Acronyms

AIDS	Acquired immunodeficiency syndrome
ART	Antiretroviral therapy
DHS	Demographic and Health Surveys
DHIS	District Health Information Software
EPHI	Ethiopian public health Institute
FHPCO	Federal HIV AIDS Prevention and Control Office
FMoH	Federal ministry of health(Ethiopia)
HIV	Human immune virus
PLHIV	People living with HIV
WHO	World Health Organizations
UNAIDS	United Nations Program on HIV and AIDS

Acknowledgement

This report has developed through concerted effort of Ethiopian Public health institute; EPHI acknowledges the support and collaboration. It also extends its appreciation for the technical support, and write up and editorial process and provided by the staff with their respective organization.

Name	Role	Organization

Background

HIV/AIDS (acquired immunodeficiency syndrome) has been a public health important disease since its emergence three decades ago (int.j. envi). Even though the pandemic has been declining globally, it remains the leading cause of morbidity and mortality.

Globally, in 2016 it was estimated that there were 36.7 million people living with HIV, 1.8 million new HIV infections, and 1 million AIDS related deaths. Sub-Saharan Africa (SSA) contributed 76% of the total HIV-infected people, 76% of the total new HIV infections, and 75% of the total HIV/AIDS deaths in 2015 (Wang, Wolock et al.)

In 2014, the Joint United Nations Program on HIV and AIDS (UNAIDS) and partners launched three ambitious 90-90-90 targets for 2020 as a commitment to improve access to antiretroviral therapy (ART) as a life-saving treatment(Levi, Raymond et al.). Which aims to ensure that 90% of all people living with HIV will know their status, 90% of all people diagnosed will receive sustained antiretroviral therapy (ART), and 90% of all people receiving ART will have viral suppression, all by 2020. When this three-part target is achieved, at least 73% of all people living with HIV worldwide will be virally suppressed.(HIV/AIDS)

The 90-90-90 target focuses on improving the continuum of HIV care from diagnosis to viral suppression. By specifying the proportion of diagnosis, ART, and viral suppression as important pillars of the HIV response, the target explicitly highlights the importance of providing treatment for nearly everyone and implicitly requires monitoring systems to measure progress(Granich, Gupta et al.).

The global commitment to scaling-up HIV testing and treatment programs has accelerated the pace at which the world is moving to achieve 90–90–90. Despite this progress, it seems unlikely that many regions and countries will meet the 2020 target. As of 2018, approximately one in five PLHIV globally still do not know their HIV status, a further 22% of those who know their status

are not accessing antiretroviral therapy and 14% of people on treatment do not yet have a suppressed viral load(Marsh, Eaton et al.)

The largest reductions in annual HIV infections and AIDS-related deaths have occurred in the region hardest hit by the epidemic: eastern and southern Africa. Since it's accountable for 54% of the world's people living with HIV, 44% decline from 2010 to 2018 is a progress comparing to the west and central Africa which declined by 29 % with in the same duration (HIV/AIDS and UNAIDS)

Ethiopia is one of the countries long been known for having a generalized HIV epidemic fueled by unprotected sexual intercourse like many East African countries. Currently, according to HIV related estimates and projections for Ethiopia, there are 691,362 people living with HIV (PLHIV) with estimated adult HIV prevalence being 1.13% (EPHI, HIV estimation and projection 2019). According to UNAIDS annual report, there has been progress in the number of AIDS-related deaths in Ethiopia since 2010 to 2018, with a 45% decrease, from 20 000 deaths to 11 000 deaths. The number of new HIV infections has also decreased, from 29 000 to 23 000 in the same period. Although, reducing HIV prevalence, incidence AIDS related annual death rates are big successes for the county, currently tracking new infection has presented a challenge and required extra efforts to identify the highest contributors to new HIV infection, groups that carry the highest-burden and infected individuals who otherwise would have been missed with the existing system. To this end, the country has considered HIV/AIDS as one of the immediately notifiable diseases and established a case-based surveillance system integrating it with index case testing under the HIV research team at the Ethiopian Public Health Institute (EPHI).

Ethiopia adopted the global 90-90-90 target which is part of the strategies designed to eliminate HIV/AIDS epidemics by 2030. Achievement this target is highly dependent on the trend of HIV infection in the previous years, the burden of the disease, commitment and capacity of the leaders and implementation of the designed strategies to achieve the target.

Assessing country and regional level progress to 90-90-90 is vital in determining where the country stands. Identifying gaps will help the program to focus on a targeted intervention, overcome the challenges and widen service delivery.

Objective

The main objective of this assessment is to evaluate the current progress towards 90-90-90 HIV treatment achievement and exploration of challenges and opportunities in Ethiopia

Specific Objectives

1. To estimate the current people living with HIV that know their status,
2. To estimate the current people diagnosed with HIV that received antiretroviral therapy,
3. To estimate the current people receiving ART that achieved viral suppression
4. Explore the challenges and opportunities towards achieving of 90-90-90

Methodology

Study design, settings and population

Time series analysis will be conducted using international data bases of health metrics from 1970 to 2019 from UNAIDS AVENIR spectrum, to investigate trends of HIV/AIDS for the last 6 years in Ethiopia and its regions.

Ethiopia is the second most populous country in Africa next to Nigeria, with a population estimated at 98,665, 000 in 2019 of which 83.86% live in rural areas. Ethiopia is a Federal state composed of 9 Regional states and two cities Administrations (C.S.A).

Study variables, sources of data and data collection procedure

The Ethiopian Ministry of Health country-level program data will be collected from DHIS2 databases, and other governmental organizations such as FHAPCO which they compile additional data from Army, Federal Prison and Federal Police and organize for decision making purpose.

The major sources of data for this research is particularly HIV spectrum data which contains data related with HIV incidence, prevalence, test, treatment, prevention and outcomes in regional, sub-regional and national as well as with age and sex sub-classifications.

In addition to these sources of raw data, published form of the Ethiopian ministry of health and health related data for the year 2018/19 data will be used.

The study variables were selected purposively from UNAIDS Global AIDS Monitoring 2017 guide line. The one which are proxy measures of the 90–90-90 goal, which have Public Health importance (widely used) and the one which have available data are selected. Finally, indicators like: Percentage and or number of People living with HIV who know their HIV status, People living with HIV on antiretroviral therapy, percentage of People living with HIV who have suppressed viral load, AIDS mortality, Mother-to-child transmission of HIV, Preventing the

mother-to-child transmission of HIV, HIV incidence and prevalence are used for assessing the trend of HIV and to predict (forecast) the achievement of the 90–90–90 HIV prevention target by 2020 goal.

Data were collected by investigators and their assistants who are experienced in data mining. Preformed document extraction and collection check list was used to collect data. Data regarding initially selected study variables were collected from the identified data bases. Data entry was done using preformed data entry template designed on Microsoft excel. All indicators were defined according to their standard definition given by the source of the indicators (UNAIDS and WHO).

Statistical analysis

After the data was obtained from different sources, it was compiled with excel, each variable was checked for accuracy, completeness and consistency.

Data was cleaned, coded and ingested to shiny 90 calculator tool model from website: <https://shiny.dide.imperial.ac.uk/shiny90/>, to calculate the 1st and 2nd 90s, this tool models calculates the percentage of people living with HIV know their status and people with diagnosed HIV infection will receive sustained antiretroviral therapy. And Spectrum software version 5.8 software were used to calculate national file or subnational files of a 3year viral load program data from 2016 to 2019 including age and sex used to derive the 3rd 90s.

The patterns of each selected indicators and their change were described numerically and graphically with line graphs plotted using points on the X-Y axis, where X is the time in year (mostly from 2016 to 2019) and Y is value of the selected indicator for each year in number or percent. The rates of annual change of the indicators values were also estimated.

To calculate the progress toward 90-90-90, we used the national Ministry of health program data, HIV Related Estimates and Projections for Ethiopia and Ethiopian public Health institute for the most recent official reports provided nationally. These data provides the following key

information; estimated number of people living with HIV, estimated number of people living with HIV diagnosed as HIV positive; estimated number of people living with HIV receiving ART; and estimated number of people living with HIV with a suppressed or undetectable viral load.

Results

The study includes outputs from nationally approved data generated from Spectrum version 8.5 and a shiny 90 tool models to generate the first and second 90s. The progress towards the 90-90-90 UNAIDS target in 2020 is summarized from the year 2014 to 2019, eleven regions and two city administrations) data were included for this survey. However, viral suppression data were calculated from the year 2017 to 2019 due to no data was available or submitted before the year mentioned.

The current progress of Ethiopia toward 90-90-90 target varies among regions, sex, age and across the reporting year’s trend. This report shows summarized data of achieved the three 90s’ and also HIV testing status, incidence and mortality rate among PLHV.

1.1. Proportion of people tested at least once in their life time

As depicted in Figure 1 below shows proportion of people tested at least once in their life time for the year 2019 that nationally 89.9% of people tested at least once in their life time. All regions except Somalia (59.4) recorded above 75 % of people tested for HIV at least once in their life time.

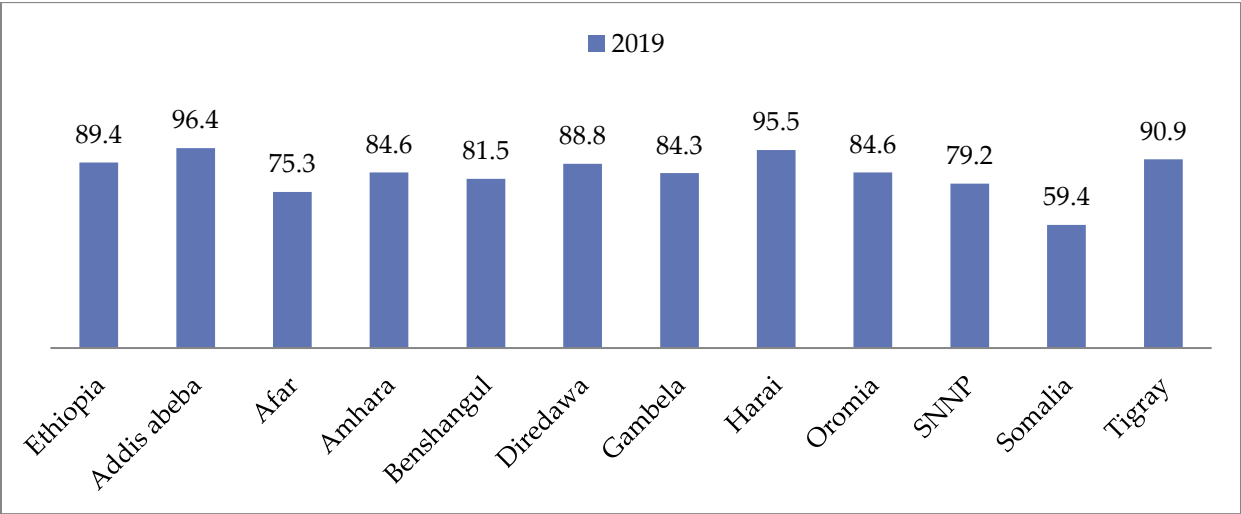


Figure 1 proportion of people tested for HIV, Region, Ethiopia

1.2. REACHING First 90s: 90% of all people living with HIV will know their HIV status

National trend of proportion of people living with HIV who know their status from 2014 to 2019

In 2019, 87.4 % of PLHIV know their status at national level. Comparing it 2014, A sharply increasing the proportion of people living with HIV who know their HIV status from 78.81 in 2014 to 87.4 in 2019 nationally.

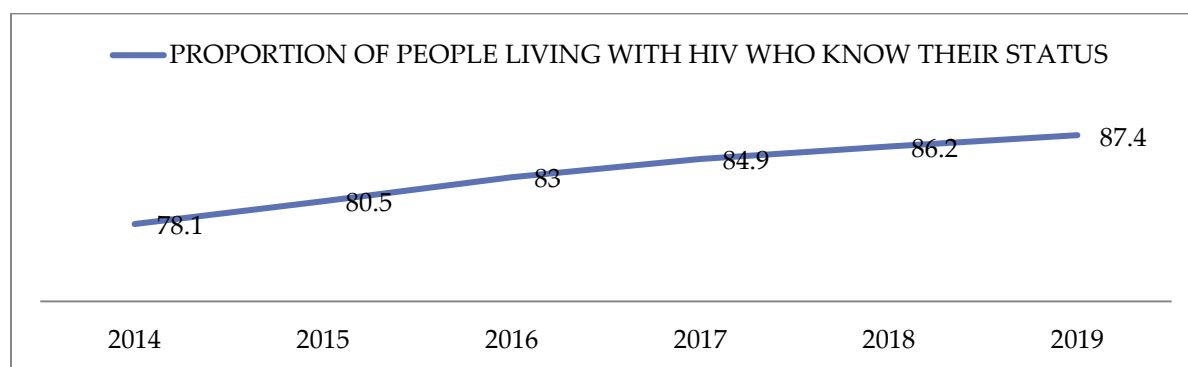


Figure 2 Trend of proportion of people living with HIV who know their status nationally

Two regions (Addis Ababa, and Harari) are striking the distance of having at least 90% of people living with HIV that knows their status, three regions (Direidawa, Oromia, and Tigray) are approaching (scores above 80%) and the five ones (Afar, Amhara, Beninshangul, Gameblla, and SNNP) are scored above 70% , and it is estimated that only about 57% of people living with HIV in Somali know their status (Fig. 3)

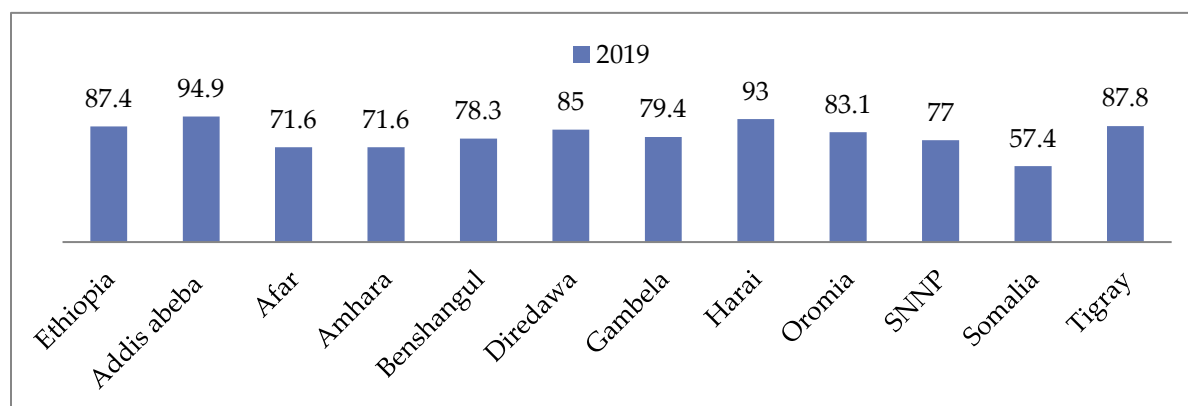


Figure 3 proportion of people living with HIV who know their status, regions, Ethiopia

Proportion of people living with HIV who know their status by Age and sex

PLHV awareness toward their diagnosis also varies with age. The awareness rate was highest among the age group 35-49 from 2014 to 2019. Compared to the 2014, in 2019 the age group of 25-34 had recorded a 6.8 % increment making it 82.2 %, while the 15-24 age group recorded a 8.7 % increase from compared to the 2019 nonetheless it is lowest awareness of their HIV status among PLHV (Figure 4) . Nationally, there a slight difference between male and female; 86.7% of male knows their status and 87.7% of the females are aware of their diagnosis. The range is different in all regions; Tigray, Direedewa, Harari and Addis Ababa shows, female dominance and the rest of the regions shows higher male numbers.

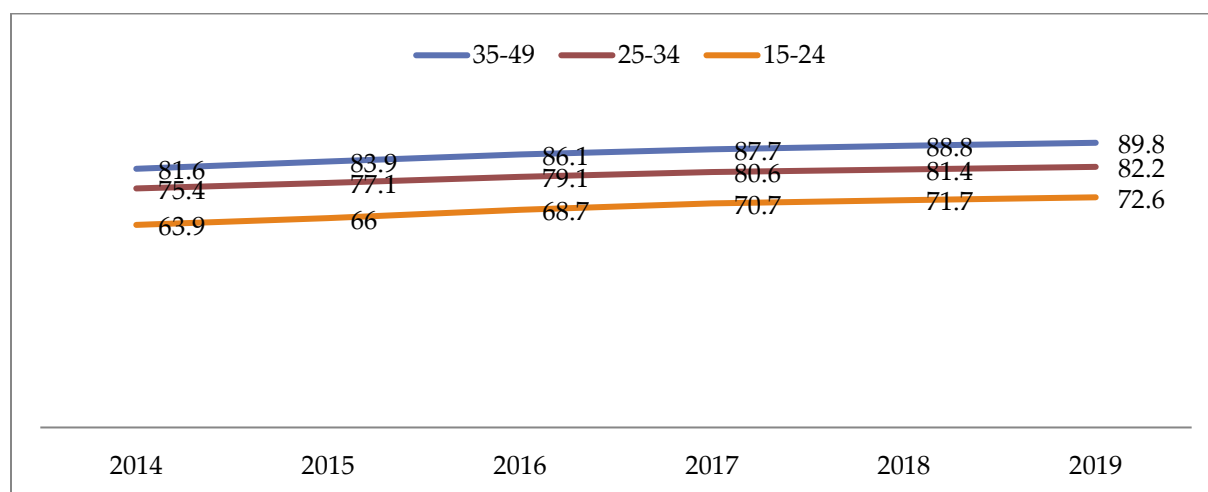


Figure 4 Proportion of people living with HIV who know their status by Age

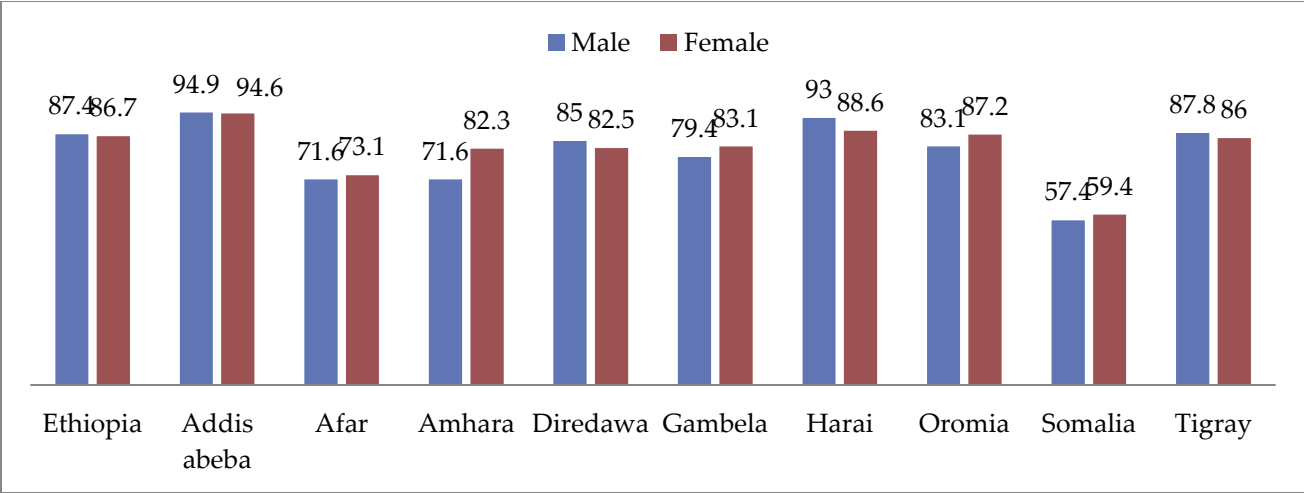


Figure 5 Proportion of people living with HIV who knows their status by sex

1.3. REACHING second 90s: 90% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy (90% on HIV treatment)

Trend of Proportion of PLHIV on ART coverage

High treatment coverage levels have been achieved nationally from 55.8% in 2014 to 75.7% in 2019, putting a 19.8% raise on pace, this achievement shows a good indicator to reach the second point of the 90-90-90 target if progress continues (Figure 5).

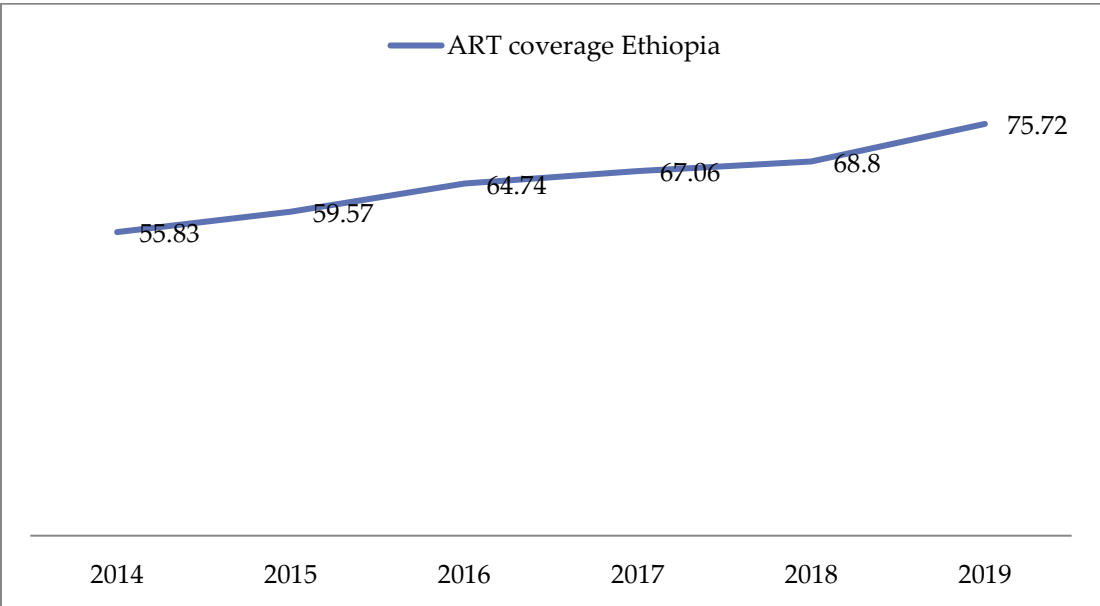


Figure 6 Trend of Proportion of PLHIV on ART coverage

Proportion of PLHIV on ART coverage, regions, Ethiopia

Out of the 11 regions, Addis Ababa is the only region that achieved the target with 94% accessing ART treatment. Harari and Tigray regions also achieved impressive progress with 89.4 % coverage and 82.5% respectively. In regions as Oromia and Amhara above 70% of people diagnosed with HIV infection are currently receiving antiretroviral therapy. Notably, the progress in Afar, Gambella and Somalia 41.9%, 52.2%, 35.5 % respectively were slower. (Fig. 6)

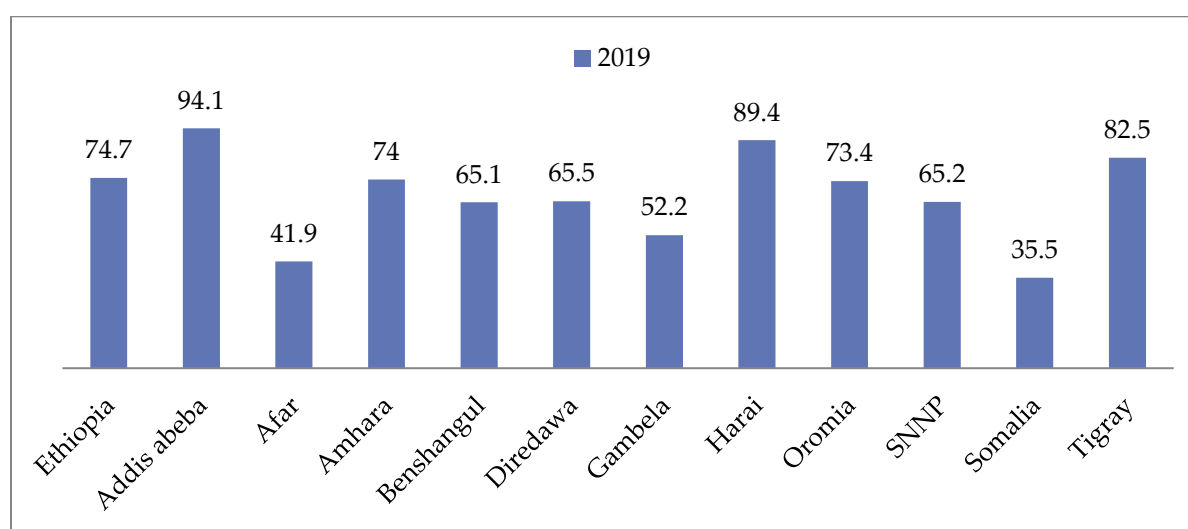


Figure 7 Proportion of PLHIV on ART coverage, regions, Ethiopia

Despite the fact that, HIV/AIDS prevalence is higher among females, there is a high disparity between males and females to access treatment, and care services, across all the years from 2014 to 2019. While in regions Afar, Harari and Somalia there is increment among females, regions like Amhara, Oromia and Amhara there is deviation to male (Table. 1)

An estimated 1,231,176 people needed ART treatment of which 473,261 people gained access to the treatment. An additional 634,055 people needed to access treatment in order to reach the second 90.

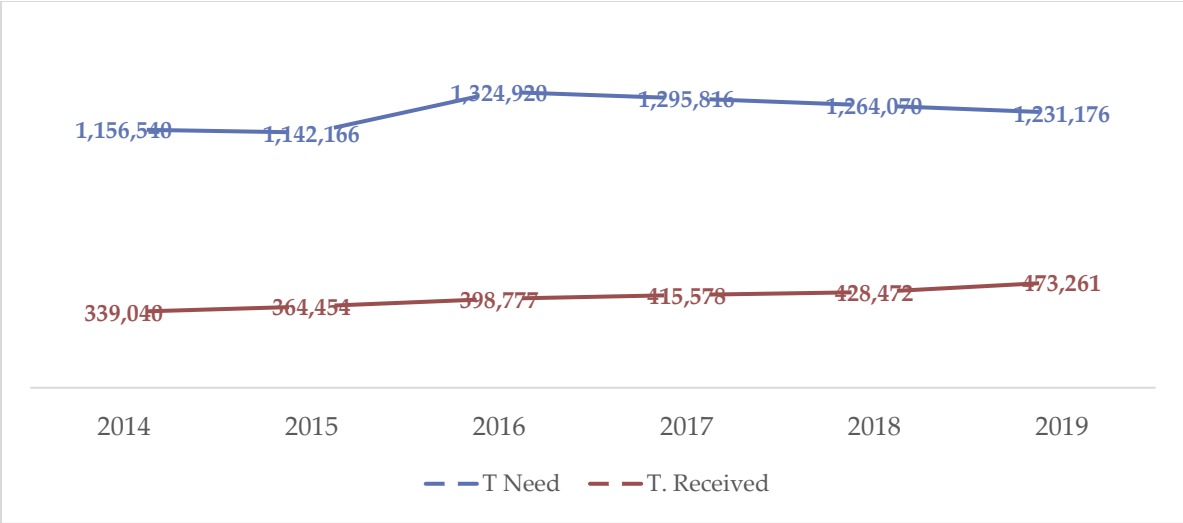


Figure 8 Treatment needed Vs. received among PLHIV

1.4. REACHING third 90s: 90% of all people receiving antiretroviral therapy will have viral suppression (90% suppressed)

Trend of viral load suppression among PLHIV

Even though viral load testing started since 2014, the data available on DHIS 2 started from 2017, regions and programs have also succeeded in achieving high levels of viral suppression, demonstrating the feasibility of a target of 90% viral suppression among all people receiving antiretroviral therapy by 2020. Among people on ART treatment 91.2% of PLHIV have suppressed viral load in 2019.

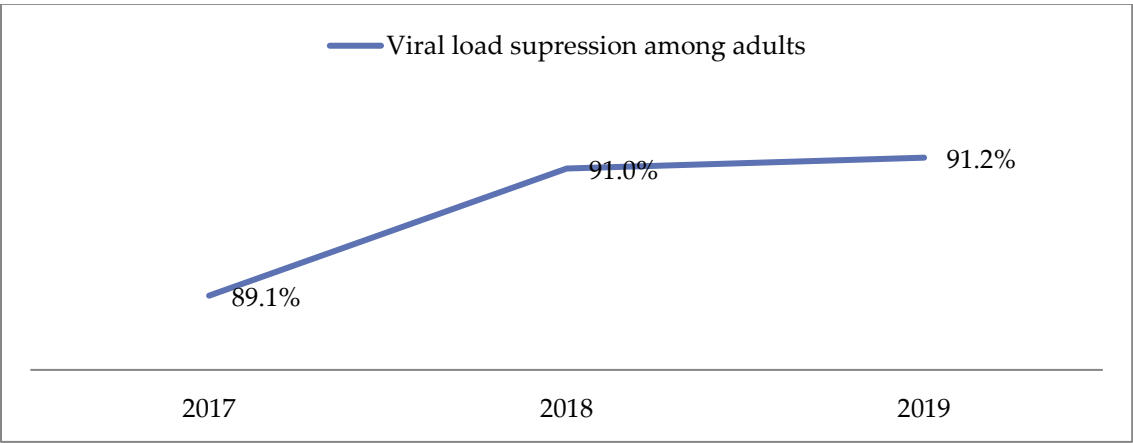


Figure 9 Trend of viral load suppression among PLHIV

Proportion of PLHIV with suppressed viral load, regions, Ethiopia

Unlike the first and second 90s, 90 % of all people in almost all regions receiving antiretroviral therapy were found to be virally suppressed after ARV therapy in 2017-2019. The least number recorded in Tigray region with 86.4%. The discrepancy between sexes was insignificant (Table). According to data from nine regions, the average rate of viral suppression among recipients of HIV treatment is 91.2%. These impressive rates of viral suppression are encouraging.

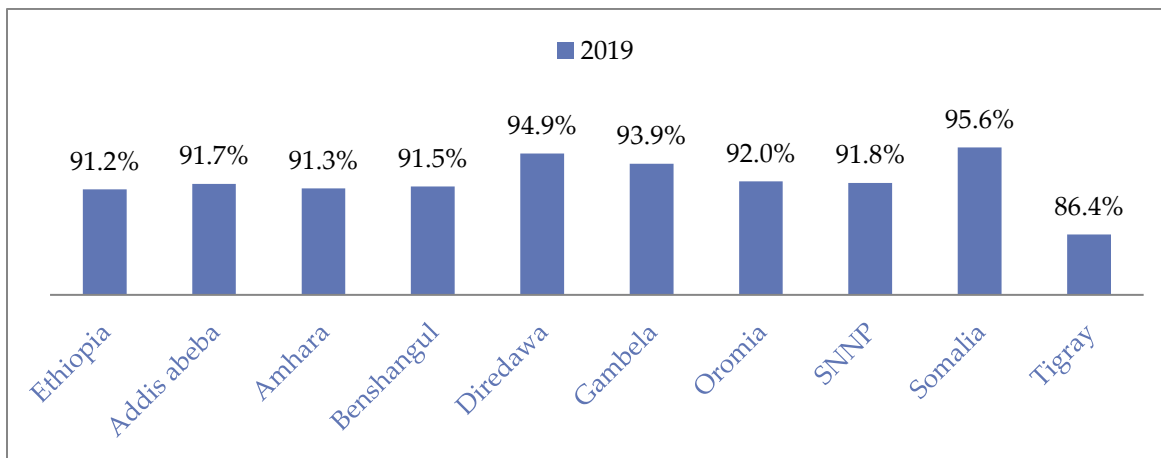


Figure 10 Proportion of PLHIV with suppressed viral load, regions, Ethiopia

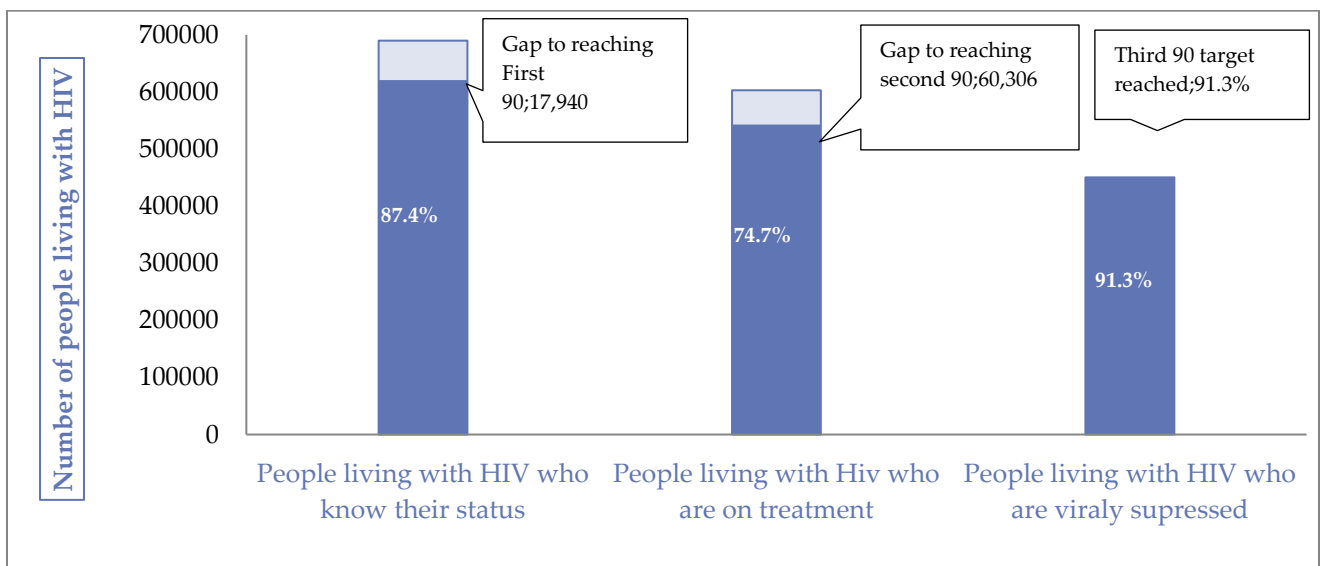


Figure 11 HIV testing and Treatment cascade, Ethiopia, 2019.

HIV incidence and prevalence

The annual incidence of HIV among adults (that aged 15+) in Ethiopia was 0.02 % in 2019. The incidence rate among male and female in close range 0.02% and 0.03% respectively. This corresponds 14,546 new cases of HIV infection per year in Ethiopia in 2019. The annual number of new HIV infections nationally continued to decline gradually since 2014. The number of new infections (all ages) since 2014 has declined from 19,214 to 14,843 in 2019 showing 22% reduction.

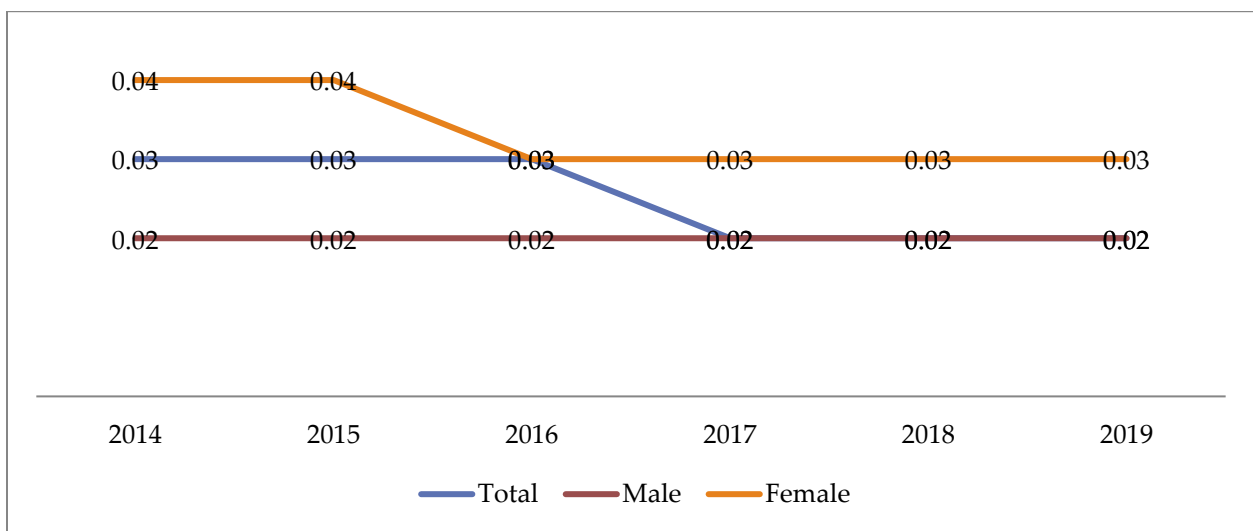


Figure 12 trend of HIV infection incidence, Ethiopia

Prevalence of HIV among adults in Ethiopia was 1.06%: 1.32% among women and 0.8% among men in 2019. The trend shows the prevalence among women is 1.65 times more than men. And it shows women HIV prevalence is constantly higher than men across all the years.

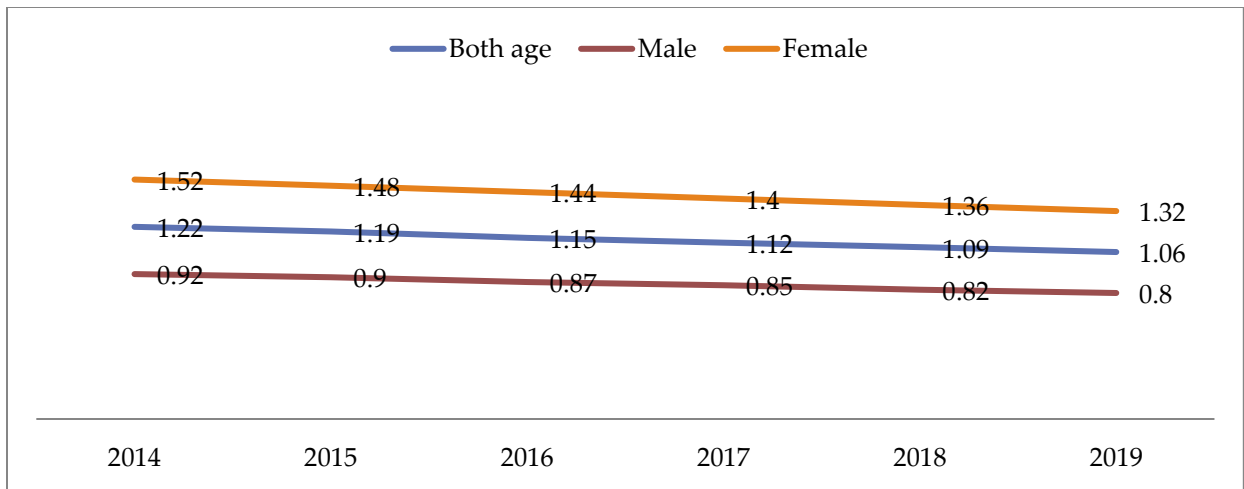


Figure 13 Trend of HIV Prevalence, Ethiopia

Progress in reducing HIV/AIDS related deaths

The annual number of deaths with AIDS related illness among PLHIV has declined throughout the past years. In 2014, 15,422 numbers of people have died from HIV related illness which it fall to 11,546 in 2019.

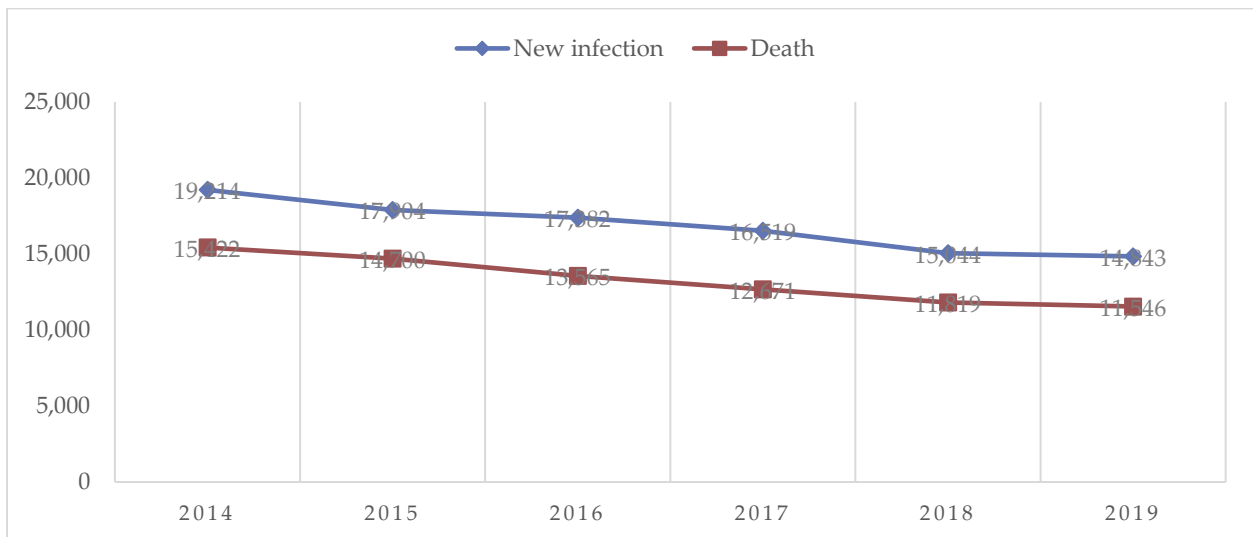


Figure 14 Trend of number of new infection and death, Ethiopia

Progress in reducing HIV/AIDS related deaths in all eleven regions in Ethiopia, recorded a significant decline in HIV/AIDS related mortality between 2014 and 2019.

Ethiopia, have already achieved 75% (15422 to 11546) mortality reduction by the year 2019 (Fig 1).

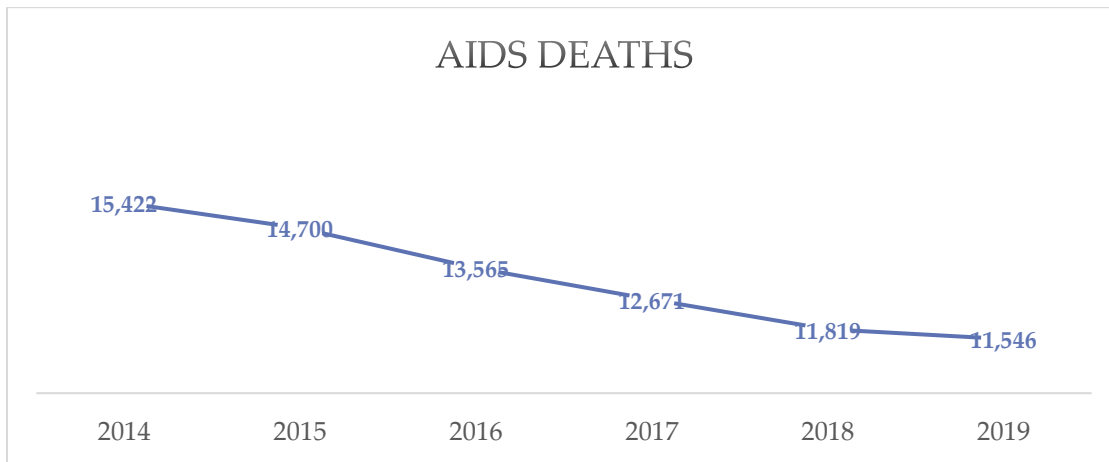


Figure 15 HIV/AIDS related deaths in Adults

Mortality rate among PLHIV trend by age

In 2019, total mortality rate in all age group was 11.73 per 100,000. The highest mortality rate recorded in age group of 40-49 and the lowest number recorded in age group of 5-9 and above 80.

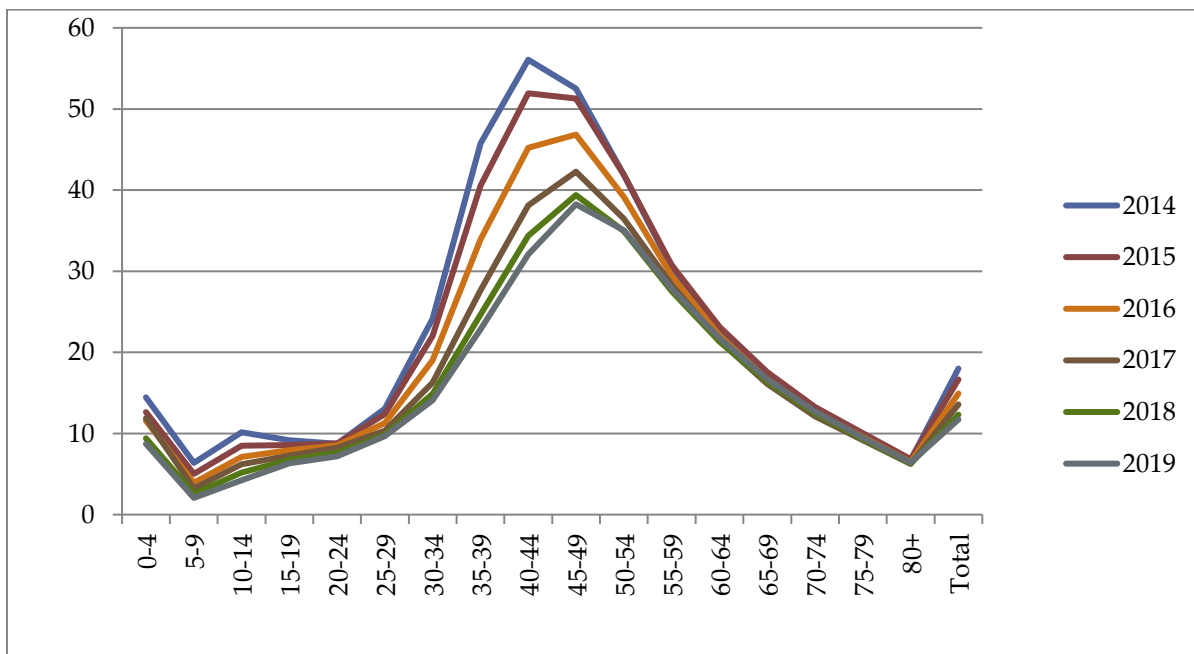


Figure 16 Mortality rate among PLHIV trend by age

	First 90:percentage of people living with HIV who know their HIV status			Second 90:percentage of people living with HIV who know their status and who are on treatment			Third 90:percentage of people living with HIV on treatment who have suppressed viral loads		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Ethiopia	87.4	85.5	65.1	74.7	76.3	73.8	91.2%	91.0%	91.3%
Addis abeba	94.9	94.6	95.1	94.1	94.6	93.7	91.7%	94.2%	90.2%
Afar	71.6	73.1	70.5	41.9	44.9	37.8			
Amhara	71.6	82.3	80.7	74	75.4	71.8	91.3%	89.6%	92.2%
Diredawa	85	82.5	86.7	65.5	58.9	70	94.9%	92.9%	96.0%
Gambela	79.4	83.1	76.9	52.2	48	55.1	93.9%	90.6%	95.6%
Harai	93	88.6	95.7	89.4	82.7	93.6			
Oromia	83.1	87.2	81.3	73.4	87.6	67	92.0%	91.4%	92.4%
Somalia	57.4	59.4	56.2	35.5	37	34.8	95.6%	95.5%	96.0%
Tigray	87.8	86	89	82.5	73.7	88.6	86.4%	82.2%	84.3%

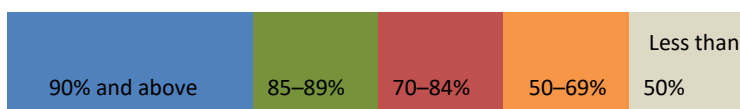


Table 17summary of 90-90-90 regional result

Discussion

The actions towards preventing and combating HIV epidemic in Ethiopia has been going for years. As the world contemplate in achieving a way forward for 2020 with great ambition and goals. Ethiopia was on board on achieving these three-part targets. The 90-90-90 targets refer to a treatment cascade, in which a person is tested, linked and retained in HIV care, and initiates and adheres to antiretroviral drugs to achieve viral suppression(UNAIDS 2014)

The national HIV Prevalence among adults is 1.06%, which was in the similar range for the last few years. Women are disproportionately affected by the HIV epidemic. In 2019, there was an HIV prevalence rate of 1.03% among adult women compared to 0.8% for men of the same age. The annual incidence among Ethiopian population was 0.02% this estimate translates to 14,546 new cases of HIV infection per year in Ethiopia in 2019. Ethiopia, have already achieved 75% (15422 to 11546) mortality reduction by the year 2019.

First 90: The first crucial step in achieving targeted ART coverage and viral suppression among PLHIV is to test for HIV. In 2019, 89.4% adult population got tested for HIV at least once in their life time. The numbers with in the regions vary significantly the highest numbers recorded in the capital city Addis Ababa with 96.4 %, and in close run Harari (95.5%) and Tigray (90.9%) follow with quite high number of HIV testing and the lowest number recorded in Somalia (59.4%). HIV testing is crucial to ascertain people are diagnosed early and start treatment. Even when HIV testing coverage is high, further methods can be made using different approach and strategy to reach different sub-populations that are missed. Increasing HIV testing and counseling is the key route in increasing knowledge of HIV status.

For individuals who are living with HIV to be diagnosed and be made aware of their infection is their first step in the treatment cascade. In Ethiopia, 87.4% of people with

HIV are thought to be diagnosed in 2019. The first country to achieve this target was Sweden back in 2016.(Gisslen, Svedhem et al.) In Africa, countries like Botswana (91%)(Avert 2020), South Africa (90%)(Avert 2020), and Malawi (90%) (Avert 2018)have achieved the first 90 target. Similar to Ethiopia some of the countries like Kenya and Lesotho nearly achieved awareness of PLHIV their diagnosis by 89% and 86%. The country has been showing progress over the last few years. There are wide variations between regions; the two regions with highest and achieved record are Addis Ababa (94.7%), Harari (93%), and the three regions Diredawa, Oromia, and Tigray are above 80% with close run. The lowest record was in Somalia region and the rest of the country scored above 70%. Ethiopia shows there is more awareness in status among women than men nationally with 87.7% and 86.7% respectively; nonetheless the ranges are different in among regions, with places like Addis Ababa, Harari and Diredawa with significant difference in women dominance and in Oromia, Afar and Somalia with male higher number. This figures go along with many African countries like Namibia, Lesotho and Kenya where women are more affected plus more aware of their status.(PHIA 2017; PHIA 2017)

Age is also another factor that plays key role in awareness of their diagnosis. The awareness rate was highest among the age group 35-49 with 89.9% in 2019. Close to this rate the age group of 25-34 had recorded 82.2 %, while the 15-24 age group recorded lowest awareness of their HIV status among PLHV with 72.6%. This indicates the gap on young adults showing knowledge of testing and awareness of their status. On National HIV Prevention Road Map, Ethiopia Put Combination HIV prevention among adolescent girls and young women as the first pillar; this focused initiative emphasis on young people, especially to those who are enrolled in school, working at developmental schemes, or engaged in sex work. this will have an impact in narrowing the gaps between age groups in focusing on the needed population.(FHPCO 2018)

In regions where HIV testing recorded high directly corresponds to higher knowledge of their status. This shows how the testing and counseling play key role in treatment cascade. More invested initiatives involving promotion of key geographic and population group, committing in programs to increase testing services, and applying broader approach of HIV testing and counseling (UNAIDS 2014) An ambitious treatment target to help end the AIDS epidemic. In Zambia few of the methods in increasing number of people testing for HIV testing were Mobile outreach, community-based testing and door-to-door testing initiatives. South Africa has also tried out self-testing on a wider scale and pilot trial showed 88% of those who refuse traditional testing accept the offer of HIV self-testing (Avert 2020).

Second 90: The estimate of the second 90 target is the lowest of the three targets. Among PLHIV aged 15-64 years who knew their HIV status, 75.7% were currently on antiretroviral treatment: Men (76.3 %) living with HIV are significantly high likely to be on treatment than women (73.8%). Out of the 11 regions, Addis Ababa is the only region that achieved the target with 94% accessing ART treatment and Harari nearly achieved it (89.4%). However, the ART coverage in Afar (41.9%), Gambella (52.2%) and Somalia (35.5%) were markedly lower.

Despite achieving or nearly achieving the first 90, Ethiopia faced difficulty towards the second 90; however the progress from 2014 which the coverage was 55.8% to 75.7% in 2019 is impressive. Antiretroviral treatment (ART) programs has been implemented that focused on access and utilization of ART, with coverage and timely initiation of the treatment. In 2017, Ethiopia implemented a strategy, making everyone with a positive diagnosis eligible for treatment regardless of how advanced HIV is in their body.(EFMOH 2017)

As a result, in 2019, estimated 473,261 people were accessing antiretroviral treatment (ART). This equates to 74.7% of adults who are in need of treatment receiving it, an

additional 634,055 people needed to access treatment in order to reach the second 90. Few African countries achieved the second 90 like Botswana (92%), Tanzania (92%) and nearly achieved countries like Uganda (87%) and Malawi (87%)(www.avert.org.com). This shows achieving the 90-90-90 target is possible and Ethiopia is not far behind.

The health care setting has been recognized as the main place for discrimination for PLHIV, as study shows the patients faced fear of handling PLHIV, delay of service, substandard care, and denial of care, impoliteness of health care provider and breach of confidentiality(Wodajo, Thupayagale-Tshweneagae et al.). In another study conducted in In-school adolescents where 44 % of prevalence of stigma and discrimination against hypothetical HIV positive case were recorded. And these issues could be some of many reasons PLHIV don't seek ART treatment after diagnosis.(Gebremedhin, Gebrehawerya et al.)

Third 90s: The final goal on the treatment cascade and objective of HIV treatment is viral suppression. The third 90 is highest 90-90-90 target Ethiopia achieved. In 2019, 91.2% of people living with HIV who were on treatment were virally suppressed. There is less of a discrepancy between men and women in regards to viral suppression (91.3% in male, 91% in female). In all regions with available data, PLHIV on ART are virally suppressed more than 90 %. The least number recorded in Tigray region with nearly achieving it with 86.4%.

A number of African countries have been able to achieve good rates of viral suppression in those who receive treatment. This is the case for 95% in Botswana and 93% in Lesotho.

Observing each step in the treatment cascade and providing quality health services in all regions are needed for HIV treatment programs to be successful. Individuals who are virally suppressed shows that the treatment is responding well.

Conclusion

Ethiopia is long been known for having a generalized HIV epidemic fueled by unprotected sexual intercourse like many countries. Currently, according to HIV related estimates and projections for Ethiopia, there are 691,362 people living with HIV (PLHIV) with estimated adult HIV prevalence being 1.13%.

In 2014, the Joint United Nations Program on HIV and AIDS (UNAIDS) and partners set the '90-90-90 targets'; aiming to diagnose 90% of all HIV positive people, provide antiretroviral therapy (ART) for 90% of those diagnosed and achieve viral suppression for 90% of those treated, by 2020. Ethiopia adopted the global 90-90-90 target which is part of the strategies designed to eliminate HIV/AIDS epidemics by 2030.

The current progress of Ethiopia toward 90-90-90 target varies among regions, sex, age and across the reporting year's trend. Similarly, though not uniform significant progress has been made towards achieving the 90-90-90 global targets by 2019 which is evidenced this by study where 87.4 % of HIV-positive people aged 15+ were aware of their HIV status, there is a light difference between male and female showing 86.7% and 87.7% respectively, highest among the age group 35-49 showing 90%.

Of those all adults aware of their HIV-positive status reported the percentage of current use of ART was 75.7%, Addis Ababa surpassed the target with 94% ART treatment, whereas Gambella and Somalia 41.9%, 52.2%, 35.5 % respectively were the lowest.

Of those 90% reporting current use of ART were virally suppressed programs have surpassed in achieving levels of viral suppression nationally 91.2% and almost all regions have achieved the target of viral suppression for the year 2019.

Hence there is a need to increase HIV case-detection capacity through expanding and introducing new testing and counseling methods and strengthening HIV care at facilities to enroll newly diagnosed patients on early initiation to ART treatment and to sustain treatment adherence and to achieve UNAIDS 2020 90-90-90 targets in 2020s.

Recommendation

- Giving the result of the first 90, increasing testing and counseling giving special attention to regions that recorded lowest number and also focusing on younger population.
- Self-testing showed that it increases desire in wanting to know their status in other countries. Thus, implementing new programs such as self-HIV testing, house-to-house HIV testing should be considered.
- To narrow the gap between current achievements towards ART coverage, engagement of newly diagnosed PLHIV is critical. All PLHIV should be encouraged to enroll in HIV care during their first facility visit following an HIV-positive diagnosis.
- Preventing stigma & discrimination should start and focus in health care providers that can be delivered through training and adequate education. The media is also another key tool in creating awareness among the society
- To sustain retention in care and adherence to treatment; training HIV counselors and treatment adherence support service should be invested in.
- Due to the observed incomplete data in viral suppression, Viral load data were incomplete for two regions, strengthen the surveillance system for further information and decision is vital.
- Even if the third 90 is achieved, viral load testing facilities are inadequate. Frequent viral load testing is a key follow up for PLHIV that are on ART. To widen the service must be considered.

References

1. Avert, G. i. a. e. o. H. a. A. (2018, 2018). "HIV and AIDS in Malawi." from <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/malawi>.
2. Avert, G. i. a. e. o. H. a. A. (2020). "HIV and AIDS Botswana." from <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/botswana>.
3. Avert, G. i. a. e. o. H. a. A. (2020). "HIV and AIDS in South Africa." from <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/south-africa>.
4. EFMOH (2017). "National guidelines for comprehensive HIV prevention ,care and treatment ".
5. FHPCO (2018). "HIV prevention in Ethiopia national road map."
6. Gebremedhin, M., T. Gebrehawerya, et al. "Stigma and Discrimination towards HIV Positive People among In-School Adolescents." Babile Town, Eastern Ethiopia: a Cross Sectional Study. *J HIV AIDS* **3**(3).
7. Gisslen, M., V. Svedhem, et al. "Sweden, the first country to achieve the Joint United Nations Programme on HIV/AIDS (UNAIDS)/World Health Organization (WHO) 90-90-90 continuum of HIV care targets." *HIV medicine* **18**(4): 305-307.
8. Granich, R., S. Gupta, et al. "Status and methodology of publicly available national HIV care continua and 90-90-90 targets: a systematic review." *PLoS medicine* **14**(4).
9. HIV/AIDS, J. U. N. P. o. "90-90-90: an ambitious treatment target to help end the AIDS epidemic." Geneva: Unaid.
10. HIV/AIDS, J. U. N. P. o. and D. UNAIDS "Geneva, Switzerland; 2018." North American, Western and Central Europe: AIDS epidemic update regional summary: 1-16.
11. Levi, J., A. Raymond, et al. "Can the UNAIDS 90-90-90 target be achieved? A systematic analysis of national HIV treatment cascades." *BMJ global health* **1**(2): e000010.
12. Marsh, K., J. W. Eaton, et al. Global, regional and country-level 90-90-90 estimates for 2018: assessing progress towards the 2020 target, LWW.
13. PHIA (2017). Kenya population based HIV impact survey.
14. PHIA (2017). Lesotho population-based HIV impact assessment
15. UNAIDS (2014). "aids JUNPo: 90-90-90: an ambitious treatment target to help end the AIDS epidemic." Geneva: UNAIDS.
16. Wang, H., T. M. Wolock, et al. "Estimates of global, regional, and national incidence, prevalence, and mortality of HIV, 1980-2015: the Global Burden of Disease Study 2015." *The lancet HIV* **3**(8): e361-e387.
17. Wodajo, B. S., G. Thupayagale-Tshweneagae, et al. "Stigma and discrimination within the Ethiopian health care settings: Views of inpatients living with human immunodeficiency virus and acquired immune deficiency

syndrome." African journal of primary health care & family medicine **9**(1): 1-6.
18.www.avert.org.com.

