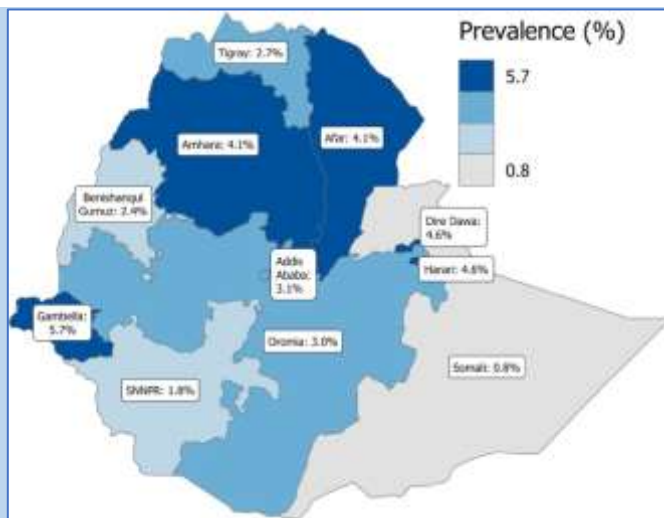


HIV/AIDS in Ethiopia

Aynalem Adugna, January 2021



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HIV/AIDS in Ethiopia: Introduction

The human immune deficiency syndrome (HIV) and acquired immune deficiency (AIDS) disease is said to have started spreading rapidly in the 1980s and 1990s — primarily by commercial sex workers, truck drivers, and soldiers along major transportation routes [1]. It is estimated that over 76 million people have been infected with HIV, and HIV infection has contributed more than 35 million deaths since its emergence. By the end of 2018, about 37.9 million people were living with HIV globally [2]. Sub-Saharan Africa is the the hardest hit regions by far, with nearly one 25 adults (4.2%) with HIV or nearly two-thirds of the global total HIV [2].

The yearly total of Ethiopian living with HIV decreased considerably from its peak in 1998 (Figure 1). Figure 1 shows an estimated 430,000 for 1990 which rose to a peak of 880,000 in 1998 and decreased to 670,000 in 2017 and 2018 [3]. However, these are just point estimates. The lower and higher estimates are typically about a third (30%) higher or lower than the point estimates (see Table 1). Another source puts the estimate for 2017 at 613,000 people living with HIV (PLHIV), of whom 62 percent were female and three fourths (74%) were from three geographies - Amhara, Oromia and Addis Ababa [4]. Overall prevalence decreased from 3.3% in 2000 to 0.9% in 2017 [2], and AIDS-related deaths declined from 68 000 deaths in 2000 to 12 600 in 2018 [3] (Figure 1). Between 2000 and 2017 Ethiopia registered a marked reduction in HIV/AIDS morbidity and mortality with new infections down by 90 percent and AIDS-related mortality among adults reduced by more than 50 percent [4].

Ethiopia’s Health Sector Transformation Plan II (SHTP-II) 2015-2020 envisages ending AIDS as a public health threat by 2030 and reduction of HIV incidence rate from 0.03 percent to 0.01 percent [4]. “The country has observed remarkable progress over the past two decades in reducing HIV prevalence rate from 3.3 percent in 2000 to 0.9 percent in 2017, and AIDS-related deaths from 83,000 deaths in 2000 to 15,600 in 2017 [but] gains made so far seem to be challenged by complacency regarding primary HIV prevention” [4]. “There is also a disproportionately high HIV burden among population groups such as female sex workers and truck drivers” [4]. It is feared that growing urbanization and widespread megaprojects (including industrial parks) attracting huge work force composed mostly of youth could result in emergent new hotspots and influence the dynamics of HIV transmission in the country. Figure 1 shows absent year over year decrease for the first time in a long time.

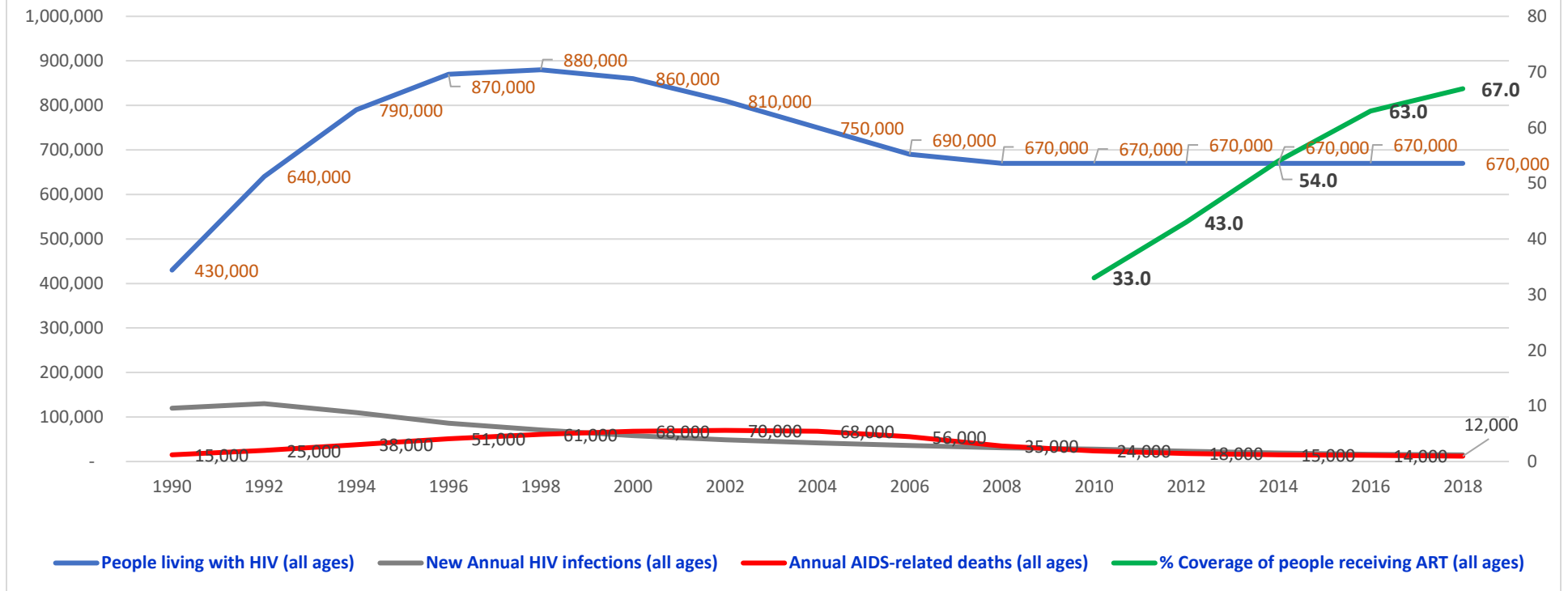
Ethiopia has adopted the global goal to attain the 90-90-90 targets which is 90% PLHIV knowing their status, 90% percent of PLHIV who know their status being enrolled in antiretroviral treatment (ART) and 90% of PLHIV on treatment attaining viral suppression [4]. This is part of the National HIV Prevention 2020 Road Map which served as framework for the prevention response during the years 2018-2020 [4]. The Road Map aimed to provide:

1. Guidance for geographical and population prioritizations of prevention interventions
2. Milestones and targets to draw annual plans of action, guided by the Road Map
3. Guidance for scaling up and implementation of primary and combination prevention measures targeting adolescent girls and young women as key priority populations
4. Provide monitoring, guidance, and tracking for measuring progress in HIV prevention

The Road Map is built around what are called prevention pillars. Six such pillars were identified [4]:

- Combination prevention packages for adolescent girls, young women, and their male partners residing in high-prevalence neighborhoods
- Community empowerment, peer outreach and condom distribution
- Use of social marketing, private sector sales and other channels for an expanded and sustainable male and female condom procurement, promotion, demand creation
- Increased voluntary medical male circumcision (VMMC) in areas of high HIV prevalence and low level of male circumcision

Figure 1. Ethiopia: Point Estimates of People Living with HIV/AIDS, New Annual Infections and death and Coverage of Antiretroviral Treatment (ART) - 1990 to 2018*



Source: based on [1]. * These estimates have lower and upper limits. For example, the lower bound of the ear 2000 estimate of people living with HIV (all ages) is 660,000 and the upper limit is 1,100,000. The lower limit of new annual infections that same year was 58,000 and the upper limit was 100,000.

- Pre-exposure prophylaxis (PreP) for those at substantively risk and, particularly discordant couples and female sex workers
- Prevention and control of sexually transmitted infections (STIs)

Priority Population Groups: The key priority population groups have been defined by taking local epidemiology into consideration (numbers in parenthesis show estimated population of persons in the risk group) [4]:

- Female sex workers (160,000 in 2014, prevalence 23%)
- Prisoners (85,000, in 2014, prevalence 4.2%).
- Urban women with divorced, widowed, and separated marital status (296,000 in 2016; prevalence widowed 10.9%, divorced 3.5%)
- Distance drivers (15,000 in 2014; prevalence 4.9%)
- PLHIV and partners (adult PLV partners 551,630 in 2016; prevalence among adult partners - 28%)

Prevention and control of sexually transmitted infections (STIs)

STIs prevention and control has been part of the national HIV/AIDS prevention and control strategies and prevention activities have been integrated with the HIV prevention services of health facilities. National service delivery manuals and guidelines are providing necessary informational tools for prevention practitioners to follow. STI surveillance based on individual cases was started as a pilot in 2013. There are currently a total of 20 sentinel surveillance sites nationally in the case-based STI surveillance, which is a very small number but hopefully will grow larger over time [4]. The general understanding among responsible parties tasked with prevention is that there is high prevalence of STIs in the Ethiopia with approximately 4 per cent of women and men aged 15-49 reporting having STI symptoms in the past 12 months during Ethiopia's 2016 Demographic and Survey [5]. Unfortunately, while early diagnosis and treatment of STIs is an essential part of combination prevention interventions, less than one in three women and men (32 percent for each) with STI symptoms sought advice or treatment [4]

Ethiopia's HIV/AIDS epidemiology is complex, with significant differences across regions and population groups. For instance, the urban prevalence rate is seven times higher than the rural rate. Regionally, HIV prevalence ranges from 4.8 percent in Gambella to below 0.1 percent in Somali [4]. For this reason, we will base all of the forthcoming analyses on results of a recent study that focused on HIV/AIDS in urban areas by classifying them into two as small urban centers (population < 50,000) and large urban areas (population 50,000 +) [6]. The study is known as EPHIA - the Ethiopia Population-based HIV Impact Assessment - and was led by the Government of Ethiopia through the Ethiopian Public Health Institute (EPHI) with technical assistance from the United States Centers for Disease Control and Prevention (CDC). EPHIA was implemented by ICAP at Columbia University in collaboration with local partners, including Federal HIV/AIDS Prevention and Control Office (FHAPCO), the Central Statistical Agency, and the Ethiopian Public Health Association (EPHA) [6].

All of the excerpts in the below paragraphs as well as the data used in the creation of maps, graphs and other forms of visualizations are from this source [6].

Table 1. Ethiopia HIV/ADS Factsheet 2019

Category

<https://www.unaids.org/en/regionscountries/countries/ethiopia>

	Estimate	Lower bound	Upper bound
<i>HIV and AIDS Estimates</i>			
<i>Adults and children living with HIV</i>	670 000	510 000	860 000
<i>Adults aged 15 and over living with HIV</i>	630 000	480 000	790 000
<i>Women aged 15 and over living with HIV</i>	390 000	300 000	500 000
<i>Men aged 15 and over living with HIV</i>	230 000	180 000	300 000
<i>Children aged 0 to 14 living with HIV</i>	44 000	28 000	66 000
<i>Adult aged 15 to 49 HIV prevalence rate</i>	0.9	0.7	1.2
<i>Women aged 15 to 49 HIV prevalence rate</i>	1.2	0.9	1.6
<i>Men aged 15 to 49 HIV prevalence rate</i>	0.6	0.4	0.8
<i>HIV prevalence among young women</i>	0.4	0.2	0.7
<i>HIV prevalence among young men</i>	0.3	0.2	0.4
<i>Adults and children newly infected with HIV</i>	15 000	8100	26 000
<i>Adults aged 15 and over newly infected with HIV</i>	12 000	6300	20 000
<i>Women aged 15 and over newly infected with HIV</i>	7200	4000	13 000
<i>Men aged 15 and over newly infected with HIV</i>	4400	2300	7800
<i>Children aged 0 to 14 newly infected with HIV</i>	3200	1600	5700
<i>HIV incidence per 1000 population (adults 15-49)</i>	0.23		
<i>HIV incidence per 1000 population (all ages)</i>	0.16	0.08	0.27
<i>Adult and child deaths due to AIDS</i>	12 000	7000	20 000
<i>Deaths due to AIDS among adults aged 15 and over</i>	9500	5900	16 000
<i>Deaths due to AIDS among women aged 15 and over</i>	5600	3300	10 000
<i>Deaths due to AIDS among men aged 15 and over</i>	3900	2500	6500
<i>Deaths due to AIDS among children aged 0 to 14</i>	2100	<1000	3800
<i>Orphans due to AIDS aged 0 to 17</i>	310 000	180 000	510 000
<i>Epidemic transition metrics</i>			
<i>Percent change in new HIV infections since 2010</i>	-46		
<i>Percent change in AIDS-related deaths since 2010</i>	-52		
<i>Incidence: prevalence ratio</i>	2.22		
<i>Incidence : mortality ratio</i>	0.93		

Part 1 HIV Incidence in Adults

Incidence rates are optimal for measuring acute changes in infectious epidemics including changes in HIV transmission, as opposed to prevalence which is a measure of the relative burden of disease in a population. In the EPHIA study, HIV incidence is expressed as the cumulative incidence or risk of new infections in a 12-month period, which is a close approximation to the instantaneous incidence rate. Using the LAg avidity assay and VL algorithm, estimated HIV incidence was 0.06% (95% CI: 0.00-0.12) among adults aged 15-64 years, corresponding to approximately 7,000 new cases annually in 2017/18 among adults living in urban Ethiopia. However, HIV incidence estimates that use the LAg avidity, VL, and ARV detection algorithm, produce a slightly

lower incidence of 0.05% (95% CI: 0.00-0.10) among adults corresponding to approximately 6,000 new HIV cases annually in 2017/18 among adults living in urban Ethiopia. The rates vary by age with the highest rate in the 50-64 age group (Table 2).

Table 2. Knowledge of HIV status and ART Use

<i>Category</i>	Estimate	Lower bound	Upper bound
<i>People living with HIV who know their status</i>	550 000		
<i>Percent of people living with HIV who know their status</i>	82	63	>95
<i>People living with HIV who are on ART</i>	490 000		
<i>Percent of people living with HIV who are on ART</i>	74	57	95
<i>People living with HIV who have suppressed viral loads</i>	440 000		
<i>Percent of people living with HIV who have suppressed viral loads</i>	66	51	85
<i>Antiretroviral therapy (ART)</i>			
<i>Coverage of adults and children receiving ART (%)</i>	74	57	95
<i>Adults aged 15 and over receiving ART</i>	76	59	>95
<i>Women aged 15 and over receiving ART</i>	75	58	>95
<i>Men aged 15 and over receiving ART</i>	77	60	>95
<i>Children aged 0 to 14 receiving ART</i>	48	30	72
<i>Number of adults and children receiving ART (#)</i>	494 571		
<i>Adults aged 15 and over receiving ART</i>	473 261		
<i>Women aged 15 and over receiving ART</i>	293 864		
<i>Men aged 15 and over receiving ART</i>	179 397		
<i>Children aged 0 to 14 receiving ART</i>	21 310		

Data source: [3]

Table 3. Annual Incidence of HIV Among Adults aged 15-49 and 15-64 Using Two Algorithms

Age	LAg+VL		LAg+VL+ARV		Annual infections	People living with HIV/AIDS
	Incidence rate	96% C.I.	Incidence rate	96% C.I.		
15-24	0.05	0.00-0.13	0.01	0.00-0.06	652	18,593
25-34	0.05	0.00-0.15	0.05	0.00-0.15	1,977	32,236
35-49	0.06	0.00-0.19	0.06	0.00-0.19	1,801	100,093
15-49	0.05	0.00-0.11	0.04	0.00-0.09	4,430	196,113
50-64	0.12	0.00-0.39	0.12	0.00-0.39	1,493	328,442
15-64	0.06	0.00-0.12	0.05	0.00-0.10	5,924	55,569
Total	0.06	0.00-0.12	0.05	0.00-0.10	6,000	384,011

Source: [6]

Part 2

HIV Prevalence in Adults

EPHIA's urban study showed HIV prevalence in women to be more than twice (4.1%) than that of men (1.9%). The differences in prevalence between men and women were statistically significant with non-overlapping 95% CIs in 5-year age groups of 25-29 years, 30-34 years, and 35-39 years. Additionally, HIV prevalence among persons in the 25-29 age group was more than three times higher in women (2.8%) than men (0.8%). This is consistent with approximately 384,000 adults living with HIV in the urban areas. Prevalence among women was significantly higher than among men in ages 25-29, 30-34, and 35-39 years. It was the highest (14.7%) among widowed adults and lowest (1.0%) among never married persons — primarily young males and females you have yet to marry. The HIV/AIDS burden varied regionally ranging from 0.8% in Somali to 5.7% in Gambella, as well as from one urban location to the other.

Education status and pregnancy status were also found to be important correlates. Prevalence was higher among adults with no education or primary education (5.2%, 4.2%, respectively) compared to those with secondary (2.4%) or more than secondary school education (1.0%). When segregated by sex, HIV prevalence in women with no education or primary education was higher (6.2%, 5.1%, respectively) than for women with secondary or more than secondary education (3.2%, 1.1%, respectively). Interestingly, however, HIV prevalence in men did not differ by education status. Additionally, prevalence among women of childbearing age (ages 15-49 years) who were pregnant at the time of the EPHIA survey was estimated to be 2.2%, compared to 4.2% among women of childbearing age who were not pregnant most likely because those who were non pregnant included a higher proportion of high-risk group women such as commercial sex workers.

Part 3

Self-reported HIV Testing

Based up individual self-reporting, nearly 70 percent (69.8%) of adult urban residents between the ages of 15 and 64 had ever tested for HIV and received their results (73.0% of women and 66.5% of men) [6]. Nearly a quarter (23.4%) reported having HIV testing and receiving results in the 12 months preceding the EPHIA survey (26.7% of women and 20.0% of men). “Among adults who tested positive in EPHIA, 90.6% reported ever testing for HIV and receiving their results (84.8% among men and 93.2% among women), while only 19.0% were tested and received their results in 12 months preceding the survey” [6]. Conversely, only 28.9% of adolescent boys and 36% of adolescent girls (15-19 years of age) reported ever testing for HIV and having received results.

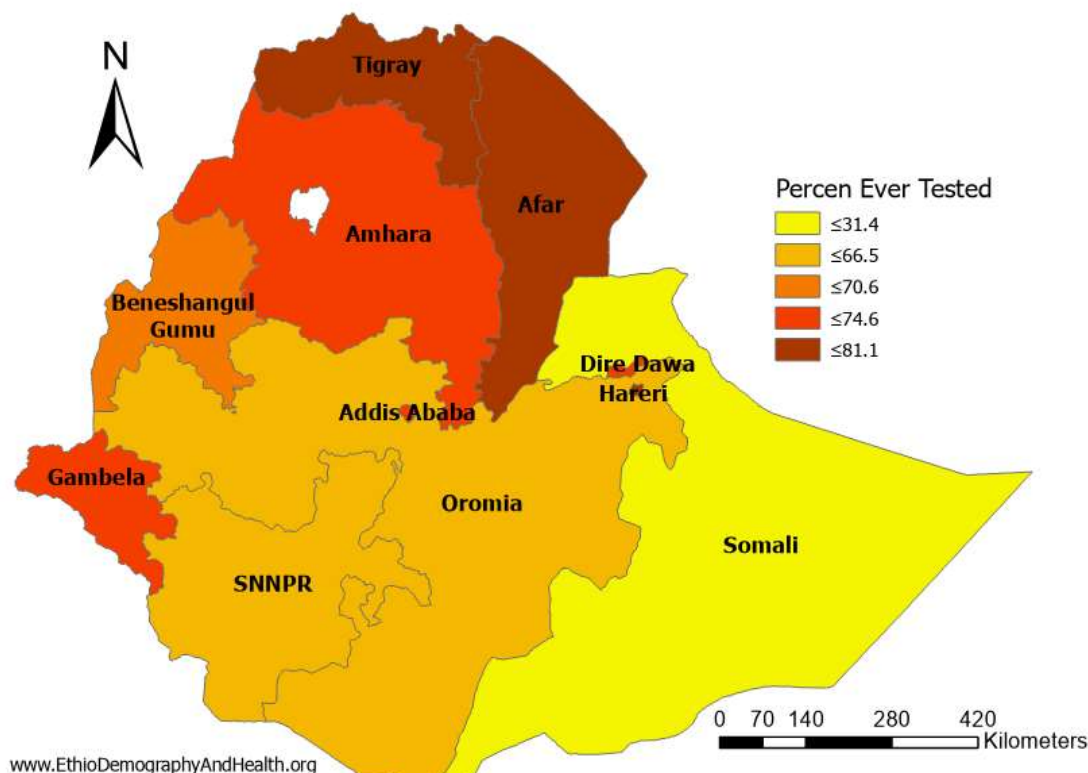
There were variations in percentages ever tested and those who tested within 12 months of the survey by educational level. Less than two thirds (65.7%) of those with no education have ever tested and received results and 19.9% tested in the year preceding the survey, while 79.1% of those with secondary education and above reported ever testing and 28.6% reported testing in the year preceding the survey. Among men with secondary plus education, 77.5% reported having ever tested for HIV and receiving results, compared to 62.4% of men with no education. Women with secondary plus education reported the highest percentage of having ever been tested, and testing for HIV in the year preceding the survey, (81.6% and 33.1%, respectively).

Marital status was also important as roughly three-quarters married, cohabitating, or divorced or separated men (78.7%, 74.8% and 78.5%, respectively) reported ever testing for HIV. Even higher percentages of married, cohabitating, or divorced

or separated women (86.4%, 81.5%, and 80.0%) reported ever testing for HIV. “Among both men and women, less than half of those who were never married had ever been tested (50.6% and 48.1%, respectively). Regionally, the proportion of adults who reported ever testing for HIV and receiving results ranged from 31.4% in the Somali region to 66.0% in SNNPR to 81.1% in Harari. Similarly, the proportion tested in the 12 months preceding the survey ranged from 11.2% in Somali to 20.2% in SNNPR, to 32.5% in Harari and 32.8% in Afar [6].

The urban size class was also relevant as the proportion of adults in large urban areas who had ever tested and received results (72.6%) was slightly higher than the proportion among adults in smaller towns (66.8%). “Similarly, 25.6% of adults in large urban areas had tested within the 12 months preceding the survey compared to 21.0% in the small urban areas” [6] (Table 7.3.C).

Figure 2. Percentage of persons aged 15-64 who ever took an HIV test and received their test results



Source: Based on [6]

Part 4

HIV Diagnosis and Treatment

In 2016, following extensive review of evidence at both the clinical and population-levels, of the benefits of expanding ART, WHO changed its recommendation to support a policy of "treatment for all," regardless of CD4 count. This policy was adopted in Ethiopia in May 2016. By November 2017, almost all countries in sub-Saharan Africa had adopted this policy, despite the challenges of implementation and ensuring uptake [6].

Based on self-reported data, 27.2% of urban resident adults in the 15-64 age group were unaware that they were HIV-positive (37.1% of men and 22.3% of women). More than two thirds (69.0%) of HIV-positive adults reported ART use, far below the recommendation of 90% of HIV persons enrolling in ART use. ART use was detected in 73.5% of HIV positive adults (65.5% of men and 77.4% of women) who reported current use. The percentage of HIV-positive urban resident men

reporting ART use ranged from 55.1% among 15-49-year-old persons to 82.9% among those between the ages of 50 and 64. Meanwhile the percentage of HIV-positive women who reported being on ART ranged from 66.1% for those aged 25-29 years to 82.0% among those aged 30-34 years [6]. Regionally, Overall, the percentage of those unaware of their status varied from 11.5% in Tigray to 41.6% in Gambella.

Part 5

Viral Load Suppression (VLS)

“Viral load suppression is a key indicator of treatment success in HIV-positive individuals. For the purposes of EPHIA, VLS was defined as a VL less than 1,000 HIV RNA copies/mL of plasma” [6]. Among HIV-positive urban adults aged 15-49, the overall proportion with VLS was 68.2% (66.8% among men and 71.7% among women), far show of WHO’s recommended 90%. Distribution by age showed that VLS ranged from 48.2% for the 15 - 24 age group to 80.2% for the 45-54 age group. Regionally, the percentage ranged from 56.7% in Gambella and 58.2% in Addis Ababa to 79.6% in Amhara [6]. In sum, approximately a third of urban adults living with HIV do not have VLS, and VLS among young people is low (48.2%). Overall, the highest prevalence of VLS is among people living with HIV who report that they know their HIV status and are taking ART, and very low among those who did not know their HIV status, suggesting the need to strengthen diagnosis and expedient initiation of enrollment in ART through effective HIV testing strategies.

Part 6

Progress Towards 90-90-90 Targets

UNAIDS has set an ambitious target referred to as 90-90-90. This supposes that, by 2020, 90% of all people living with HIV will know their HIV status; 90% of all persons with diagnosed HIV infection will receive sustained ART; and 90% of all persons receiving ART will have VLS.

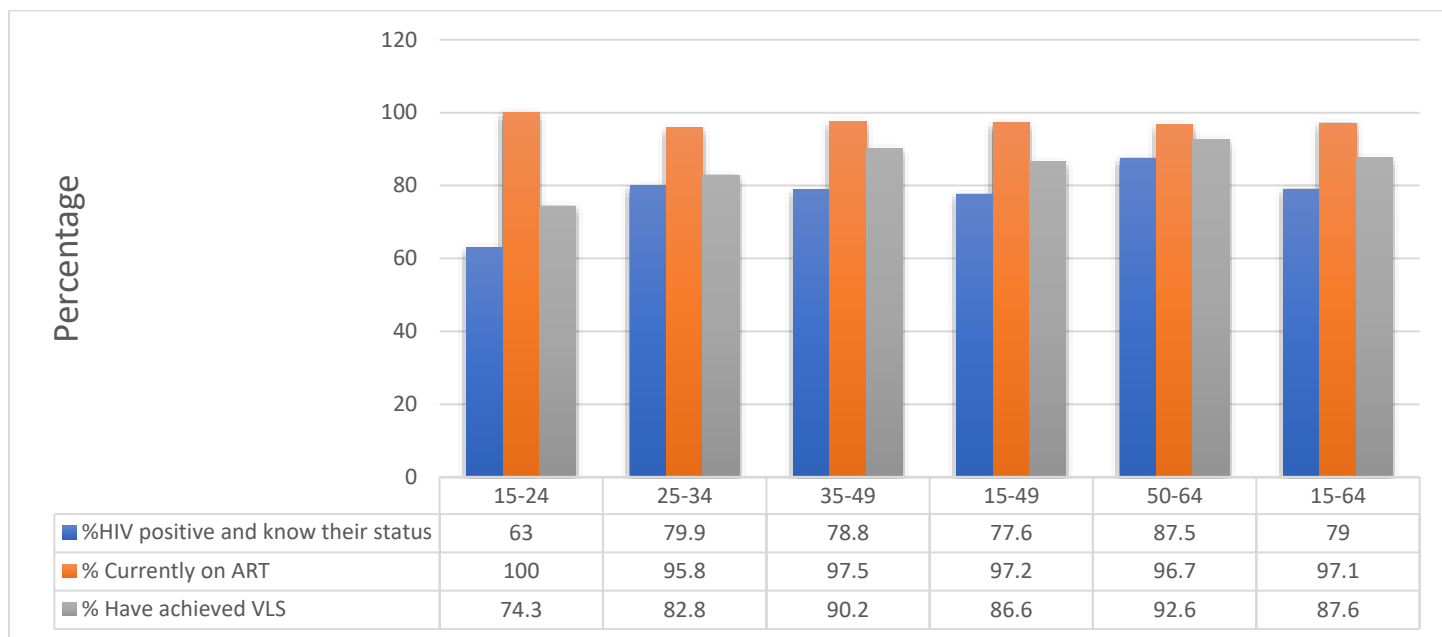
Estimates based on self-reporting show that 79.0% of HIV positive urban resident adults aged 15-64 know their HIV status (83.3% women and 70.0% men). Based on the same source, it is estimated that among urban resident adults living with HIV who know their HIV status, 97.1% were receiving ART (96.4% of women and 98.9% men). The same data source shows that among urban resident adults living with HIV who reported ARV use or had detectable ARVs, 87.6% had VLS (86.1% of women and 91.1% of men). Further, EPHIA data, provided estimates of approximately 384,000 adults living with HIV in urban Ethiopia; UNAIDS [2] gave a national estimate of 670,000 (urban and rural areas combined) (see Figure 1). Among the 384,000 in the EPHIA data, approximately 303,000 people were thought to be aware of their HIV positive status, 295,000 were on treatment, and 258,000 had VLS on treatment.

Awareness of HIV-positive status and enrollment in treatment by those who are aware of such a status are important indicators of access to services. Measuring VLS among those who are aware of their HIV status and on treatment not only provides confirmation of access to and retention in care, but also provides a measure of program success. A VLS of 73% among all HIV-positive individuals (the product of 90% x 90% x 90%) or greater, which varied appreciably by age (Figure 3, next page) is an indication of successes in testing and treatment services [6].

Regionally, for urban resident HIV positive adults aged 15-64, awareness of ARV status ranged from 66.6% in Gambella to 89.5% in Tigray and the percentage of all HIV-positive adults with detectable ARVs or self-

reported current ART usage ranged from 61.2% in Gambella, to 89.5% in Tigray. The percentage of all HIV-positive adults who achieved VLS ranged from 54.1% in Gambella to 78.5% in Amhara (Note: Some of these estimates were based on a small number of observations [a denominator of 25 to 49], and should be interpreted with caution.) [6].

Figure 3. Adult 90-90-90 (self-reported antiretroviral [ARV] therapy [ART] status and laboratory ARV data; conditional percentages)



Data source: [6]

Part 7

Clinical Perspectives on People Living with HIV

CD4+ T-Cells: CD4+ T-cells (CD4) often referred to as T-helper cells, are white blood cells (lymphocytes) and an essential part of the human immune system. HIV invades and destroys CD4 cells, leaving the body vulnerable to a wide range of infections. CD4 counts are used to determine damages suffered by the immune system from HIV infection. CD4 count at diagnosis and during lifelong ART use can provide evidence of program coverage, successes in reaching vulnerable populations, and quality of care [6]. As persons with severe immunosuppression tend to have frequent opportunistic infections, hospitalizations, and a higher likelihood of severe illnesses and death, the distribution of CD4 counts is viewed as reflective of population health, and the potential impact of HIV on mortality and healthcare costs. Ethiopia has committed itself to HIV epidemic control under a program called Fast-Track strategy [6]. The higher the median CD4 count, the healthier the population is and the better the HIV treatment outcome. Hence, measurements of acquired and transmitted drug resistance allow optimization of national ART guidelines including second- and third-line therapies [6]. EPHIA provided opportunities for evaluating progress in expansion of clinical services, as well as identifying gaps and challenges. This is the first time data on transmitted drug resistance has been collected at a population level by performing CD4 enumeration using POC diagnostics [6].

Among urban HIV positive adults aged 15-64, 35.8% (45.6% of men and 31.1% of women) had immunosuppression with CD4 count below 350 cells per microliter (μL). The median CD4 count among all HIV-positive adults was 432 (IQR 277-594) cells/ μL . “The median CD4 count among adults who tested HIV positive in EPHIA but reported that they had not been previously diagnosed was 352 (IQR 217- 480) cells/ μL . Among urban resident adults who reported that they were unaware of their HIV-positive status, 22.0% had severe immunosuppression—a CD4 count less than 200 cells/ μL (16.9% of men and 26.5% of women)” [6].

Part 8

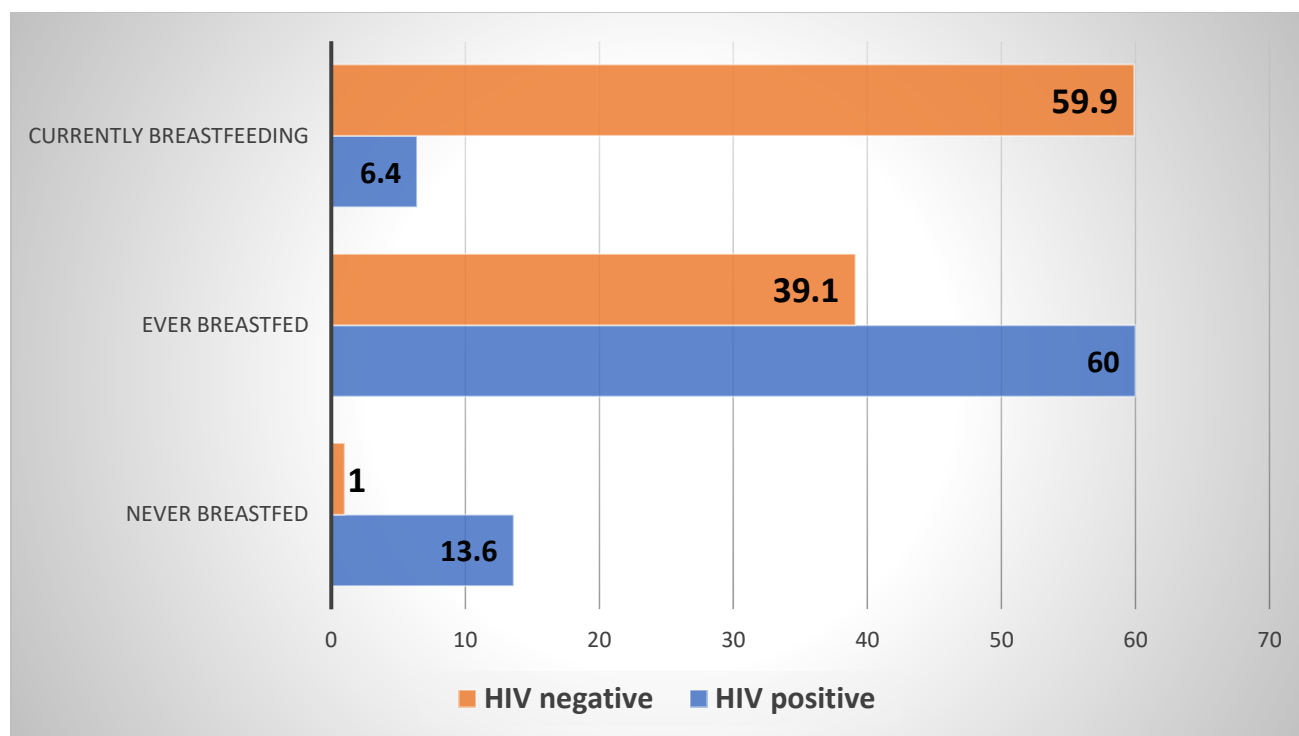
Prevention of Mother-To-Child Transmission

HIV positive pregnant women are at high risk of transmitting the disease to their infants during pregnancy, during birth, or through breastfeeding. Over 90% of new infections among infants and young children occur through mother-to-child transmission (MTCT). In the absence of any interventions, 20% to 45% of infants “... may become infected, with an estimated risk of 5-10% during pregnancy, 10-20% during labor and delivery, and 5-20% through breastfeeding” [7 quoted in 6].

Global targets were set in the year 2010 to reduce new HIV infections in children and decrease mortality among HIV-positive mothers, “...including a 90% reduction in child HIV infections, a 50% reduction in AIDS-related maternal deaths, and virtual elimination of MTCT” [7 quoted in 6]. The World Health Organization (WHO) recommended “...a comprehensive four-pronged approach including: (1) primary prevention of HIV infection among women of childbearing age; (2) preventing unintended pregnancies among women living with HIV; (3) preventing HIV transmission from women living with HIV to their infants; and (4) providing appropriate treatment, care and support to mothers living with HIV and their children and families” [7 quoted in 6]

Of urban women in the childbearing age group (15-49), 95.3% who reported having delivered in the three years preceding the survey attended at least one antenatal care (ANC) visit for their most recent birth. Among women who gave birth during the 12 months preceding the EPHIA survey, 91.6% knew their HIV status and 99.3% attended at least one ANC visit. Among HIV-positive urban women who reported giving birth within the three years preceding the survey, “...13.6% never breastfed, 60.0% ever breastfed but not currently, and 26.4% were breastfeeding at the time of the survey” [6].

Figure 4. Percent distribution of last-born children born to women aged 15-49 years in the three years preceding the survey by breastfeeding status, by child's age and mother's HIV status, EPHIA 2017-18*



Source: [6] * The denominators for HIV positive are small and should be interpreted with caution.

Part 9

Adolescents and Young Adults

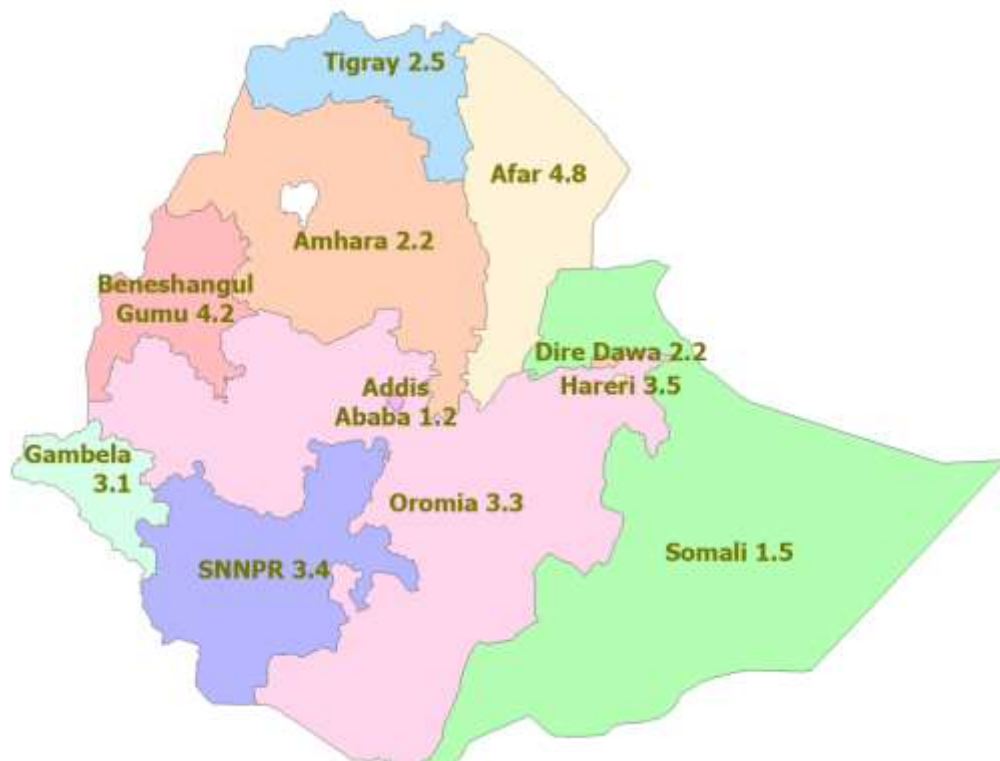
One-third (33.7%) of Ethiopia's population, is between the ages of 10 to 24 years; a phenomenon often referred to as the youth bulge. The likelihood of risky sexual behavior is high among young adults in this age group while at the same time, they have less frequent contact with the healthcare system. While monitoring of HIV spread in this demographic group is critical for long-term epidemic control, it remains particularly challenging [6].

This section focusses on the prevalence of early sexual debut before age 15 among young adults by sex, region of residence, and socio-demographic background. Describes of knowledge of HIV prevention among younger adolescents' boys and girls aged 12-14 years is also provided. These data were obtained "...by asking participants to agree or disagree with both accurate and inaccurate statements about HIV prevention". Attitudes towards HIV-positive people among young adolescents aged 12-14 years is also presented and implications for HIV the 90-90-90 cascade assessed.

Sex Before the Age Of 15 Years: A low percentage (2.7%) urban youngsters aged 15-19 20-24 reported themselves as having had sex before the age of 15 years (2.2% among boys and young men and 3.3% among older adolescent girls and young women). Overall, sexual activity before the age of 15 ranged from 1.2% in Addis Ababa to 4.8% in Afar. "Based on self-reported and ARV-adjusted data, 63.0% of young people living with HIV were aware of

their HIV-positive status, and among those who had been previously diagnosed, 100% were on ART. Among those on treatment, 74.3% had suppressed VLs” [6]. A majority (51.5%) reported that they had ever tested for HIV and received their results. “Based on self-report and detection of ARVs in blood, it is estimated that 63.0% of young people living with HIV had been diagnosed and that among those who had been previously diagnosed, 100% were on ART. Among those on treatment, 74.3% had VLS

Figure 5. Percentage of young people aged 15–24 who have had sexual intercourse before the age of 15 years; by region



Discriminatory Attitudes Towards People Living with HIV Over a third (37.3%) of young urban adolescents aged 12 to 14 who had heard of HIV “said they would not share food with someone who has HIV, 35.6% said that they would not be friends with HIV-positive children, 40.5% said they will not be comfortable to have a teacher who has HIV, and 53.3% said they did not have any discriminatory attitudes” [6]. More than half (56.1%) of those in small urban centers thought they held no discriminatory attitudes, compared to 49.9% of those in large urban areas who had the same convictions. Additionally, stratification by income quintiles has shown that two-

Part 10

Children

thirds (66.9%) of those in the lowest wealth quintile thought they held no discriminatory attitudes, in comparison to 46.1% of those in the highest wealth quintile [6].

It is estimated that 0.3% of children (those aged 0-14) live with HIV. This amounts to approximately 19,000 urban children living with HIV. “Among children EPHIA identified as living with HIV, the sample size was inadequate to generate reliable estimates (Table 14.5.B). Since the number of observations was very small (less than 25 unweighted cases), the point estimates for the proportion of the children on treatment and with VLS were not reported” [6]. A WHO report puts the total number of HIV-positive children at 62,000 [8].

The estimated HIV prevalence was 6.8% (7.6% for women and 2.6% for males) among adults (ages 15-64 years) who reported sexual debut before the age of 15 years. Additionally, “15.9% (18.5% of men and 13.0% of women) reported having sex with a nonmarital or non-cohabitating partner in the 12 months preceding the survey, of whom 37.6% reported using a condom during their last sexual intercourse with such a non-marital or non-cohabitating partner” [6]. Further, 36.6% (57.2% of older adolescent boys and young men and 23.0% of older adolescent girls and young women aged 15-24 years who are sexually active, reported having sex with a nonmarital, non-cohabitating partner as compared to 4.5% (4.4% of men and 4.6% of women) of adults aged 50-64 years.

The EPHIA study has also showed the prevalence of HIV infection to be higher for women whose sexual debut was between ages 15-19 or 20-24 years than for men with the same age at onset of sexual activity (5.5% vs. 2.5% and 3.7% vs. 2.0%) [6]. In addition, HIV prevalence was much higher among women (11.2% compared to men 0.7%) among those who reported having two or more sexual partners in the 12 months preceding the survey, and higher among women (17.7%) than men (5.3%) for adults who reported using a condom during the last sexual intercourse [6]. The study also found educational level of respondents to be very important as “the percentage of sexually active persons reporting sexual intercourse with a non-marital, non-cohabitating partner ranged from 9.7% among those with no education to 20.3% among those with secondary education. The percentage reporting condom use at last sexual intercourse with a non-marital, non-cohabitating partner, ranged from 18.2% among those with no education to 46.6% among those with secondary education” [6]. Figures 5a and 5b show regional variations non-marital, non-cohabiting sex and condom usage during those acts.

Figure 6a. Among persons who reported having sex in the 12 months before the survey, percentage who reported having sex with a non-marital, non-cohabitating partner in the 12 months before the survey

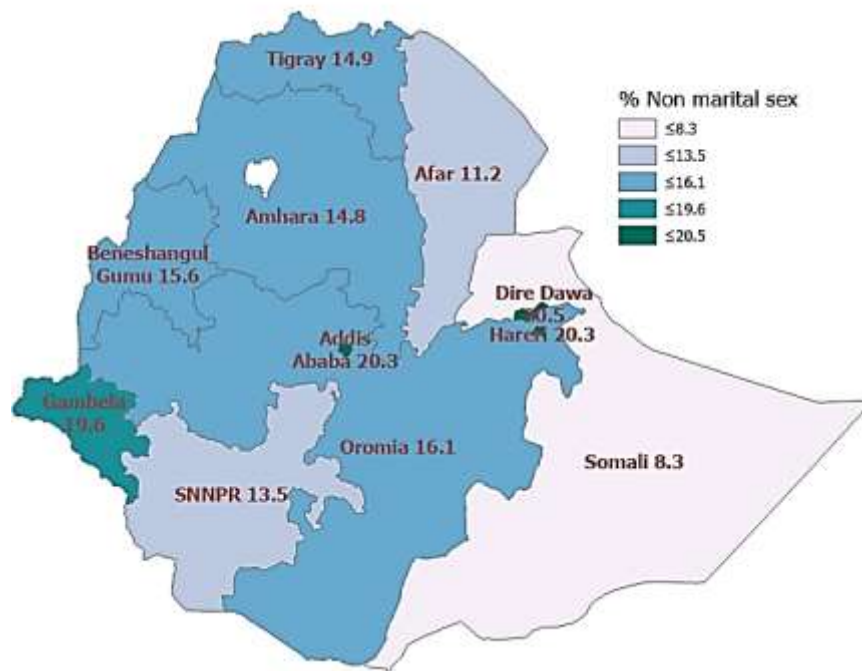
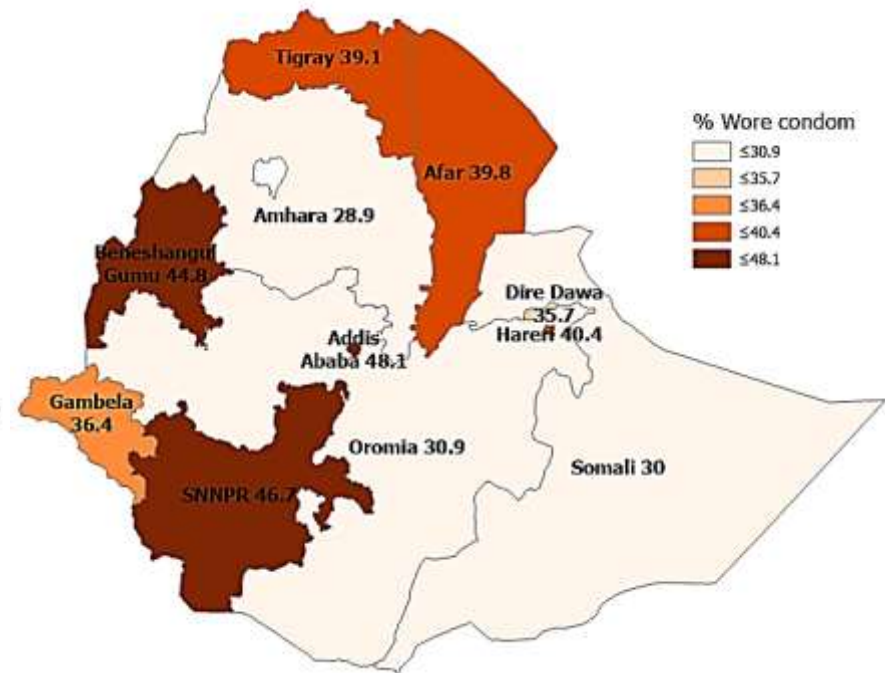


Figure 6b. Among persons who reported having sex with a non-marital, non-cohabitating partner in the 12 months before the survey, percentage who reported using a condom the last time they had sex with a non-marital, non-cohabitating partner

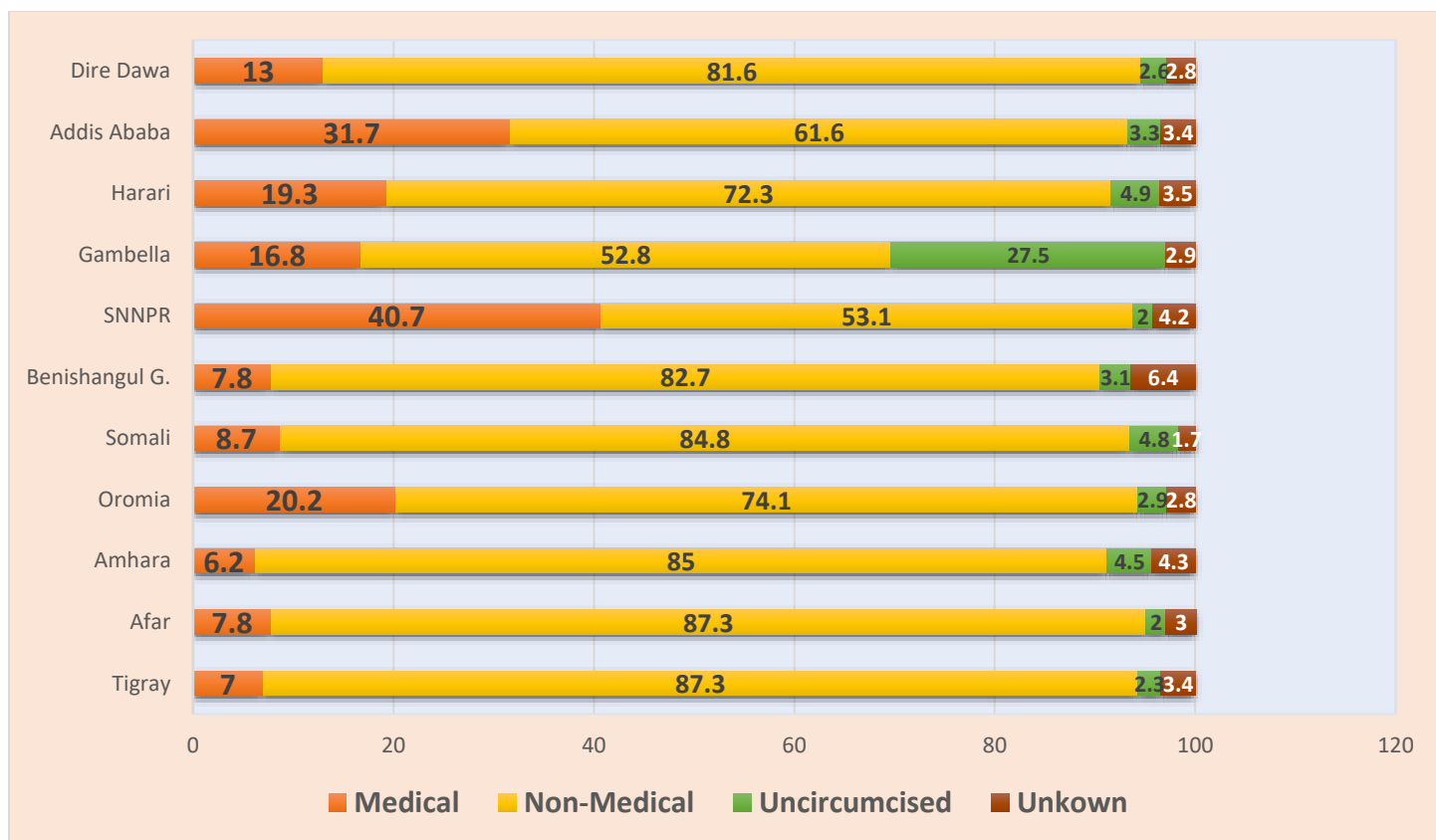


Data source: Based on [6]

Male Circumcision: Non-circumcision among males is relatively rare. Only 3.3% of urban resident males reported

and 71.5% were non-medical circumcised [6]. It was also reported that “medical circumcision was higher at younger ages, ranging from 35.0% among older adolescent boys to 5.2% among men aged 60-64 years” [6] and varied by education with 7.0% of males with no education reporting medical circumcision compared to 25.4% of those with secondary education or higher. The study also analyzed variations by wealth quintile which revealed that medical circumcision varied from 12.0% for those in the lowest wealth quintile to 30.2% for those in the highest wealth quintile [6]. Medical circumcision coverage was higher in large urban areas (27.2%) than in the small ones (16.5%). Regionally, medical circumcision coverage ranged from 6.2% in Amhara to 40.7% in SNNPR while the percentage of uncircumcised men ranged from 2.0% in Afar and SNNPR to 27.5% in Gambella [6] (Figure 6).

Figure 6. Percent distribution of men aged 15-64 years by self-reported circumcision status at the time of the EPHIA survey and by region



HIV positive persons are at higher risks for contracting other diseases, including TB, syphilis, hepatitis B (HBV), and other sexually transmitted infections (STIs). For Sub Saharan Africa, TB is the leading cause of death among people living with HIV. A 2017 UNAIDS model has put the estimate of TB-related deaths among people living with HIV in Ethiopia at 3,600 [6]. Syphilis is a somewhat common STI in Ethiopia. Untreated, it can cause severe morbidity and death in both adults and children. In addition, HIV and HBV are known to have nearly identical routes. Concurrent infection with both “often results in more rapid progression of HBV disease to cirrhosis and higher liver disease-related mortality”. It is also known that HIV positive women are at greater risk for developing cervical cancer as their weakened immune system is not able to overpower the human papilloma virus (HPV) which is the causative agent [6].

The overall, the rate of ever having been infected with syphilis was 13.4% among HIV-positive adults aged 15-64 years (17.4% among men and 11.5% among women). The EPHIA puts the prevalence of hepatitis B at 4.8% among HIV-positive adults (7.4% among men and 3.6% among women). It also reported a rate of 16.0% for HIV-positive women being screened for cervical cancer. The percentage was higher in large urban areas (18.5%) than in small urban areas (12.9%).

New developments and Partnerships

In 2001, the U.S. Centers for Disease Control and Prevention (U.S. CDC) established an office in Ethiopia. It has been working closely with the Government of Ethiopia through the Federal Ministry of Health (FMOH) and other partners ever since. Initial and current goals center around saving lives “...by strengthening HIV and Tuberculosis prevention and control efforts through support from the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR)” [9]. “The U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) program has invested nearly \$3 billion to help Ethiopia combat HIV and AIDS over the past 15 years” [10]. UC CDC collaborated with FMOH, EPHI, and ICAP Columbia University to implement a survey in urban Ethiopia to evaluate the national HIV response to date. This generated the data used in writing the above 12 sections of the www.EthioDemographyAnyHealth.org chapter HIV/AIDS. In 2018 over 1,036,200 pregnant women learned their HIV status and 14,809 HIV-positive pregnant or breastfeeding women received ART to prevent HIV transmission to their children, while 83,000+ female sex workers were reached with a package of HIV prevention services including pre-exposure prophylaxis, all through US CDS funding and coordination with its Ethiopian partners. In the same year, 20,257 voluntary medical male circumcisions took place to avert new female to male heterosexual HIV infections. In that same year, HIV testing among TB patients was 98%, ART coverage among HIV-positive clients was 96% in CDC Ethiopia supported clinics, and almost 35,000 PLHIV newly enrolled on ART received TB prevention treatment (TBT). “CDC Ethiopia supports the scale-up of HIV viral load testing and has improved coverage from 5% of eligible clients in FY 2016 to 62% in FY 2018.” [9].

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