HIV/AIDS National Strategic Plan for Ethiopia

2021-2025

DRAFT

Federal HIV/AIDS Prevention and Control Office (FHAPCO)

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MINISTRY OF HEALTH - ETHIOPIA

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Acronyms

AGYW	Adolescent girls and young women
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Anti-Retroviral Therapy
ARV	Anti-Retroviral
BCC	Behavioral Change Communication
BSS	Behavioral Surveillance Survey
CBOs	Community-Based Organizations
CCM	Country Coordination Mechanism
CCRDA	Consortium of Christian Relief and Development Association
CDC	Centers for Disease Control
CSOs	Civil Society Organizations
DBS	Dried Blood Spot
DHS	Demographic and Health Survey
DHIS2	District Health Information System
DIC	Drop in center
DTG	Dolutegravir
EDHS	Ethiopian Demographic and Health Survey
EFY	Ethiopian Fiscal Year
EVF	Efavirenz
EID	Early Infant Diagnosis
EmONC	Emergency Obstetric and Newborn Care
e-MTCT	Elimination of Mother-To-Child Transmission of HIV
EPHI	Ethiopian Public Health Institute
EPHIA	Ethiopia Population HIV Impact Assessment
EPP	Estimations and projections Package
EHSP	Essential Health Service Package
ETORRS	Electronic test ordering & result reporting system
FBOs	Faith-Based Organizations
FGM	Female Genital Mutilation

FHAPCO	Federal HIV/AIS Prevention & Control Office
MOH	Federal Ministry of Health
FSW	Female Sex Workers
GBV	Gender based violence
GNI	Gross National Income
GTP	Growth and Transformation Plan
HAPCO	HIV/AIDS Prevention and Control Office
HCD	Human Centered Design
HCT	HIV Counseling and Testing
HDA	Health Development Army
HEI	HIV exposed infants
HEWs	Health Extension Workers
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HIVST	HIV self-testing
HMIS	Health Management Information System
HRD	Human resource development
HSDP	Health Sector Development Program
HSTP	Health Sector Transformation Plan
ICT	Index case testing
IEC	Information Education Communication
IGAs	Income Generating Activities
IPLS	Integrated Pharmaceutical Logistic System
KPP	Key and Priority Population
LIS	Laboratory information system
LWHIV	Living with HIV
MARPs	Most At Risk Populations
MDGs	Millennium Development Goals
M&E	Monitoring and Evaluation
MIS	Management Information System
MMD	Multi-month distribution
MNCH	Maternal, Neonatal, and Child Health

MOE	Ministry Of Education
MOH	Ministry Of Health
MOLSA	Ministry of Labor and Social Affairs
MRIS	Multi-sectoral information system
MSG	Mother Support Group
MTCT	Mother-To-Child Transmission of HIV
MWCYA	Ministry of Women, Children and Youth Affairs
NAC	National AIDS Council
NASA	National AIDS Spending Assessment
NEP+	Network of Networks of HIV Positive in Ethiopia
NHA	National Health Account
NGOs	Nongovernmental Organizations
NNPWE	National Network of Positive Women Ethiopians
NSP	National Strategic Plan
OI	Opportunistic Infections
OOP	Out of pocket
OVC	Orphan and Vulnerable Children
PBFW	Pregnant and breast feeding women
PEP	Post-Exposure Prophylaxis
PEPFAR	President Emergency Plan for AIDS Relief
PFSA	Pharmaceuticals Fund and Supply Agency
PHC	Primary Health Care
PHEM	Public Health Emergency Management
PITC	Provider-Initiated Testing and Counseling
PLHIV	People Living With HIV/AIDS
PMTCT	Prevention of Mother-To-Child Transmission of HIV
PNS	Partner notification service
PSI	Population Service International
PSM	Procurement and Supply Management
PWID	People wiho inject drugs
RAT	Risk screening tool
RHB	Regional Health Bureau

RRF	Requisition and Report Forms
RTK	Rapid Test Kit
SBCC	Social behavioral change communication
SPM	Strategic Plan Management
SRH	Sexual and Reproductive Health
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
THE	Total Health Expenditure
TB	Tuberculosis
TPT	Tuberculosis Preventive Therapy
TWG	Technical Working Group
UN	United Nations
UNAIDS	Joint United Nations Program on AIDS
VCT	Voluntary Counseling and Testing
VfM	Value for Money
WHO	World Health Organization

Executive Summary

This HIV/AIDS National Strategic Plan (NSP) for Ethiopia 2021-2025 provides a unique opportunity to consolidate the steady decline in the HIV burden over the past decade and refocus interventions for maximum public health impact. Enormous gains that Ethiopia has achieved in addressing the HIV epidemic mean that epidemic control lies within reach.

The Epidemic in Perspective

The Ethiopian HIV/AIDS epidemic is characterized as mixed, with wide regional variations and concentrations in urban areas, including some distinct hotspot areas driven by key and priority populations. The National adult (15-49) HIV prevalence is 0.93% in 2019; prevalence in women constitutes 61% of infections (women 1.22%, men 0.64%). There are wide regional variations ranging from a high in Gambella at 4.5%, Addis Ababa at 3.42% with the lowest in Somali region at 0.01%. In 2019, the national HIV incidence rate in the adult population is estimated at 0.02% (0.03% in females and 0.02% in males) with an estimated 15,000 (9,000 females and 6,000 males) new infections, the majority (67%) of these occurring in the age group below 30 years. About 265 out of more than 1000 Woredas (districts) in the country constitute nearly two thirds of all new infections annually. With an estimated 669,000 People living with HIV (PLHIV) of which 39,792 are <15 years of age, HIV remains a heavy burden on the country.

Since the rapid expansion of the ART program in Ethiopia, the number of AIDS deaths has shown dramatic decline from 117.7/100,000 in 2001, to 11.73/100,000 in 2019. At the peak of the death curve, an estimated 70,173 AIDS deaths occurred within one year. Compared to the 2010 level, there is a 52% reduction in AIDS deaths in 2019. With declining mortality rate the number of orphans due to AIDS has also decreased by more than half, from 628,000 in 2010 to 309,000 in 2019. As of December 2019, a total of the 79% of estimated PLHIVs who know their status, 90% were on ART while 91% were virally suppressed.

What is New in this Plan

The thinking and rational behind the prioritized elements of this National Strategic Plan represents a new way of doing business to achieve maximum public health impact within a resource constrained setting:

- It addresses the key drivers of the epidemic in a differentiated manner with evidence-based rationales and geographic prioritization
- It demonstrates a shift from an intervention-focus to a people-centered response
- It identifies the key drivers of the epidemic and prioritizes interventions with the maximum impact, specifically prevention among key and priority populations (KPPs)
- It is optimized to achieve maximum possible impact within a constrained funding environment, and rigorously applies the investment case approach and value for money principles (economy, efficiency, effectiveness, equity and sustainability).
- It sets a clear path to reach HIV epidemic control in all parts of the country by 2030
- Lastly, but not least it engages country leadership at the highest levels and multiple stakeholders

Strategic Framework Vision, Goal, and Guiding Principles

Vision: An AIDS-Free Ethiopia

Goal: The goal of the Ethiopia National Strategic Plan for HIV 2021-2025 (NSP) is to attain HIV epidemic control nationally by 2025, by reducing new HIV infections and AIDS mortality to less than 1 per 10,000 population.

The NSP has set the following impact targets to be achieved by the end of the 5-year period:

- Number of new HIV infections reduced to less than 1 per 10,000 population (Disaggregated by sex, age, region and population group)
- HIV related deaths reduced to less than 1 per 10,000 population
- Incidence Mortality Ratio reduced to minus 1 (Target: From 1.08 to 0.9)
- Percentage of child HIV infections from HIV- positive women delivering in the past 12 months reduced from 13.39% to less than 5% by 2025; and less than 2% by 2030.

The Strategic Objectives, packages of interventions, and coverage levels in the NSP have been designed and modelled to ensure that the above goals can be realistically achieved with the right enablers and levels of funding, whilst leaving no marginalized groups behind.

Guiding Principles: The NSP will be implemented with adherence to the following guiding principles:

a. Multisectoral: A multisectoral approach and partnership that builds on HIV being the responsibility of all sectors and constituencies.
b. Inclusiveness: An inclusive and people-centered approach that recognizes different prevention options that individual may choose at different stages of their lives.
c. Gender Responsiveness:- A gender-sensitive approach that caters for the different needs of women, girls, men and boys in accessing HIV information and related services.
d. Value for Money (VfM): All planning for and execution of activities in this NSP will address the multiple dimensions of VfM, including equity, economy, efficiency, effectiveness and sustainability

Prioritization in the NSP

The NSP was informed by Investment Case modelling produced by Spectrum Goals to prioritize the most cost-effective interventions (those that promise the highest impact at least cost) whilst investing in critical social and program enablers, including rights-based programming to achieve this.

Therefore, the NSP is a rights-based plan that was developed through considering the 5 dimensions of the Value for Money (VfM) lens, that defines how to maximize and sustain equitable and quality health outcomes and impacts in a constrained economic and financial

environment. Progress towards achieving VfM will be tracked against VfM indicators included in the NSP Results Framework.

Geographic Prioritization: While HIV testing and treatment programs are needed everywhere there are PLHIV, the investment case modelling demonstrates that prevention programs will be more cost-effective in the high incidence woredas defined as an incidence >0.03%. These 265 woredas account for about two-thirds of all new infections and thus constitute a geographic core where prevention interventions will be scaled up first to achieve maximum cost-effectiveness. The country has about 1076 woredas. Based on HIV incidence woredas are categorized into three geographic priority areas:

1. **High (265):** Woredas with HIV incidence of ≥0.03% of people aged 15-49;
2. **Medium (326):** Woredas with HIV incidence of 0.01- 0.029% of people aged 15-49;
3. **Low (485):** Woredas with HIV incidence of < 0.01% of people aged 15-49

1. Population Prioritization: The following population groups are defined as Key and Priority Populations taking into consideration local epidemiology, HIV prevalence, high risk behaviors increased morbidity and mortality or higher vulnerabilities.

The NSP has targeted achieving 90% coverage of combination prevention interventions for the Key and Priority Populations in high priority Woredas.

KEY POPULATIONS:

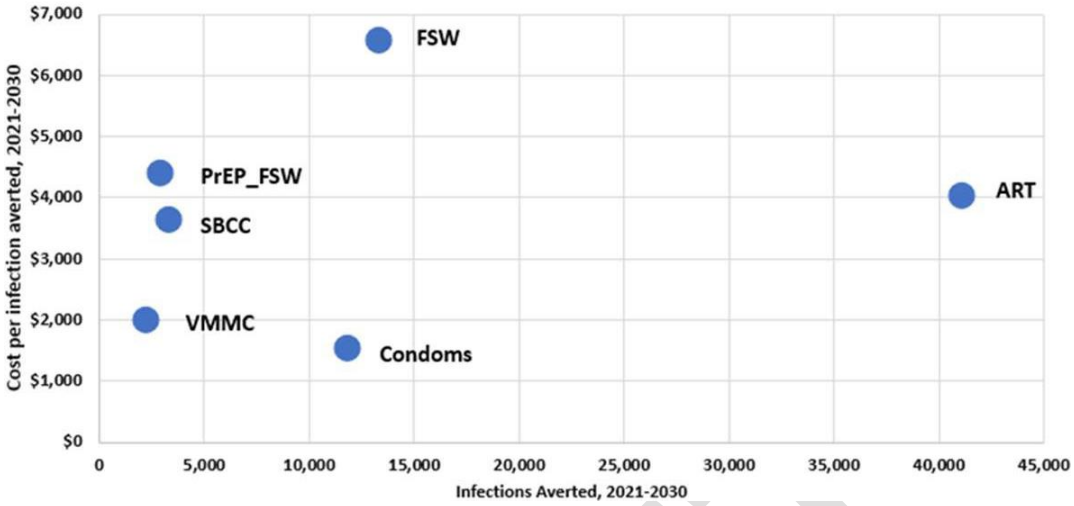
- Female Sex Workers (FSW) and their clients
- Prisoners
- People with injecting drug use (PWID)

PRIORITY POPULATIONS:

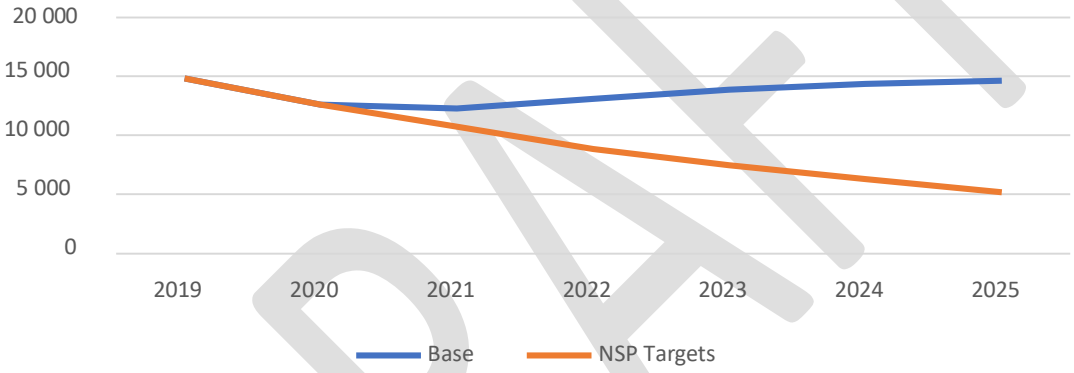
- Widowed and divorced men and women Long distance drivers
- Workers in hot spot areas
- High risk adolescent girls and young women
- PLHIV and their partners

2. Prioritization of Interventions Based on Cost-Effectiveness: Interventions that demonstrated evidence to be most cost effective, using the Spectrum Goals model and other available evidence are prioritized for scale up. These interventions include female sex workers, PrEP, condoms, VMMC, SBCC and differentiated ART. These core programs are shown in the investment case modelling for Ethiopia to avert substantial numbers of new infections and AIDS deaths if an appropriate enabling environment is in place. Modelling of the impact of implementing the NSP 2021-2025 as part of the Ethiopia Investment Case for HIV (2020) demonstrated that it could avert 30,000 new infections (compared to the current baseline interventions and coverage) during the period at a cost per infection averted (undiscounted) of approximately $11,000.

Cost-Effectiveness of Prevention



New HIV infections averted through implementing the NSP 2021-2025



Testing and treatment are the most cost-effective interventions since they are together cost saving over the period 2021-2025. As described above, prevention programs will be more cost-effective in the high incidence woredas defined as an incidence >0.03%.

Strategic Objectives

There are six Strategic Objectives underpinned by critical social and programmatic enablers

Strategic Objective 1: Reach 90% of Key and Priority populations with targeted combination HIV prevention interventions by 2025

During the strategic plan period (2021-2025) 90% of the estimated 3.75 million key and priority populations will be reached with combination prevention (behavioral, bio-medical and structural) interventions.

Result 1: Comprehensive knowledge about HIV and AIDS reached 90% by 2025 for key and priority populations

Result 2: Condom use among key and priority populations engaged in risky sexual behavior reached 90% by 2025

Result 3: 90% for key populations will know their HIV status by 2025

The prevention program will be built on principle of population and geographic prioritization for maximum impact. Client centered, integrated and sustainable service delivery models will be used to deliver combination prevention services and interventions. While the focus of the program is on key and priority populations in 265 high incidence woredas, general population and KPPs in intermediate and low incidence woredas will be reached through integrated and sustainable prevention interventions within strategic sectors and community initiatives. ANC level services will be offered in all geographical areas.

Strategic Objective 2: Enhance HIV case finding to attain 95% of PLHIV knowing their HIV status and linked to care by 2025

Targeted case finding will enable 95% of PLHIV to know their status. High yield case finding modalities include index case testing and partner notification, social network services and PITC using an HIV risk screening tool at both public and private health facilities. HIV self-testing (HIVST) will be expanded through social marketing outlets. Ninety-five per cent of those newly diagnosed with HIV will be linked to care and treatment.

Strategic Objective 3: Attain virtual elimination of Mother to Child Transmission (MTCT) of HIV and Syphilis by 2025

The virtual elimination of mother to child transmission (MTCT) presents significant challenges which will be addressed in this NSP. Strengthened primary prevention, optimized ART regimens, sustained support from mothers support groups, strengthened and scaled up Point of Care testing for HIV exposed infants with enhanced prophylaxis, supported by strengthened health worker capacities are among the interventions to reach expected results.

Strategic Objective 4: Enroll 95% of PLHIV who know their status into HIV care and treatment and attain viral suppression to at least 95% for those on antiretroviral treatment.

Expected result 1 : Mother-to-child transmission of HIV during pregnancy, childbirth and breastfeeding reduced to less than 5% by 2025

Expected Result 2: Percentage of pregnant women who know their HIV status increased from 84% to 95% by 2025

Expected result 3: At least 98% of expectant mothers living with HIV are virally suppressed at labor and delivery

Expected Result 4 : Percentage of infants born to women living with HIV receiving a virological test for HIV within 2 months of birth increased from 64% to 95% by 2025

Ethiopia has made excellent progress towards achieving the 2nd and 3rd 90s among adults. As of December 2019, of the 79% of estimated PLHIVs who know their status, 90% were on ART and 91% were virally suppressed although there remain large regional variations in ART coverage. However special attention is warranted to increase access to treatment for children as only 67% of children <15 years are receiving ART and viral suppression is also suboptimal.

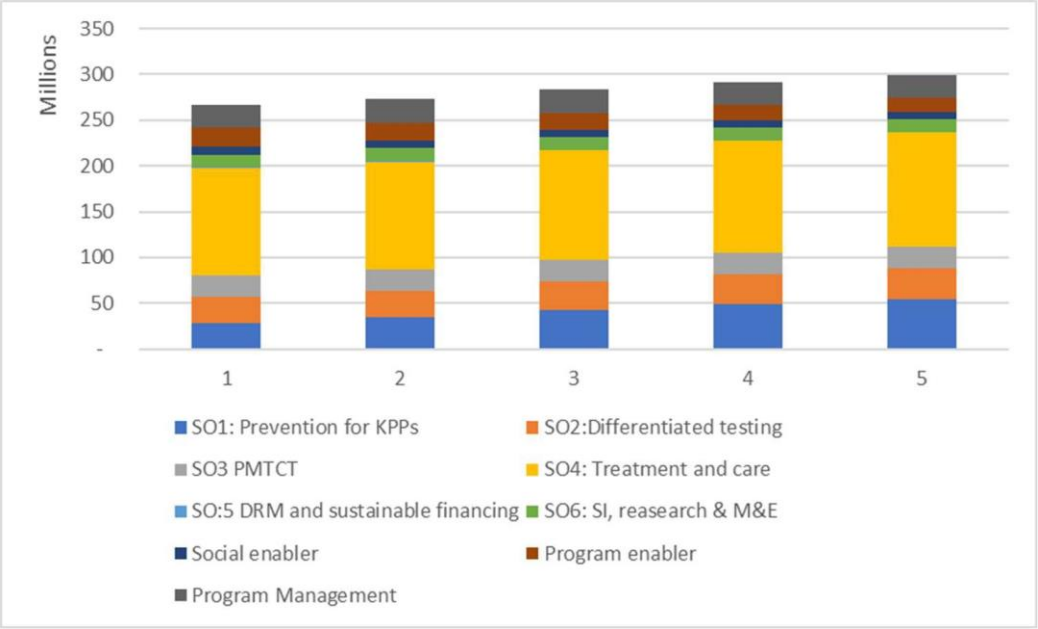
The focus of this NSP will be to reach 95% coverage of ART and viral suppression nationally across all age groups. Differentiated models of service delivery will be expanded. Additionally identifying and treating co-morbidities which critically affect treatment outcomes, especially co-infection with TB, screening and treatment of Hepatitis B and C, cervical cancer screening and treatment are addressed.

Strategic Objective 5: Mobilize resources and maximize efficiencies in allocation and utilization

The Spectrum Resource Needs Model was used as the primary tool to estimate the financial costs of implementing the NSP over the 5-year period. Unit costs were computed from a mix of sources.

The annual resource needs for the NSP increases from $267 million in 2021 to $299 million in 2025 (12% growth). reaching a total of $1.4 billion over the five years. This annual increase is largely driven by scaling up prevention and treatment services to reach more people, so that the NSP goals can be reached. Over the 5-year period, primary prevention interventions will drive 15% of financial resource needs, HIV testing 11%, PMTCT 8% and care and treatment services, 39%.

Annual Resource Needs for HIV 2021-2025 (USD)



A resource mapping exercise was undertaken to determine current sources and levels of funding for the HIV response and to project expected funding for the upcoming period of the NSP. Principal sources of funding for HIV in Ethiopia come from PEPFAR, the Global Fund and domestic resource mobilization. Declining trends in donor funding and the need to develop more sustainable financing options led to the development of a Domestic Resource Mobilization Strategy (DRMS) for Ethiopia. The NSP outlines strategies to meet the challenges of fully funding the NSP. The analysis shows that to achieve the goals of the NSP, both the ambitious domestic resource mobilization targets in the Ethiopia DRMS and the

maintenance of current funding levels from Ethiopia's main development partners would need to be realized during the 5-year period. The analysis also shows that further optimization would be required if targeted funding levels are not achieved and there would be severe disruptions to prevention services and other social and program enablers.

Strategic Objective 6: Enhance generation and utilization of Strategic Information for an accelerated evidence-based response

This NSP will address both the lack of strategic information and gaps in the quality and use of data to provide both an evidence base and information for improved program quality. Interventions include health information system scale up and sustainability plan, extension of e-MRIS and DHIS, integration of LMIS, HRIS and FMIS data into DHIS 2, granular mapping and availing strategic information for key and priority populations, expanded data quality assessments, integrating, individualizing and digitizing data collection tools, evidence generation (through a number of special surveys and mapping of key and priority populations), enhanced data analysis and use for policy and decision-making, enhanced tracking of 95-95-95 and the PMTCT cascades.

Social and Programmatic Enablers to Maximize the Reach and Impact of Ethiopia's HIV/AIDS Response

The multi-sectoral and social nature of the HIV epidemic highlights underlying critical social and programmatic situations and circumstances which, if not addressed, can diminish efforts to maximize the reach and impacts of Ethiopia's HIV/AIDS response. This NSP embraces a human rights approach to the HIV response and includes analysis and interventions addressing gender and gender-based violence and stigma and discrimination.

The successful implementation of programs to address the HIV/AIDS epidemic requires eliciting joint responses from multiple levels of society. Communities are the best way to reach key and priority populations, people living with and affected by HIV. They have the trust of the people they serve, and community-led organizations are the most effective way of reaching people living with HIV and key populations. The NSP outlines an increased role for civil society, faith-based and community- based organizations, the private sector, key and priority populations and PLHIV associations both in the delivery of key interventions as well as in community led program monitoring activities.

Successful delivery of the ambitious targets outlined in this NSP will be underpinned by strengthening key aspects of the health system: key policy reforms, strengthened and trained health workforce, an efficient supply chain and functioning laboratory systems.

The NSP was developed through robust analysis and involved a wide array of stakeholders at all levels. It outlines opportunities to strengthen the governance, coordination and management of the HIV/AIDS response and galvanize strong political leadership at all levels.

This National Strategic Plan 2021-2025 provides the platform for Ethiopia to reach HIV epidemic control.

1. Introduction

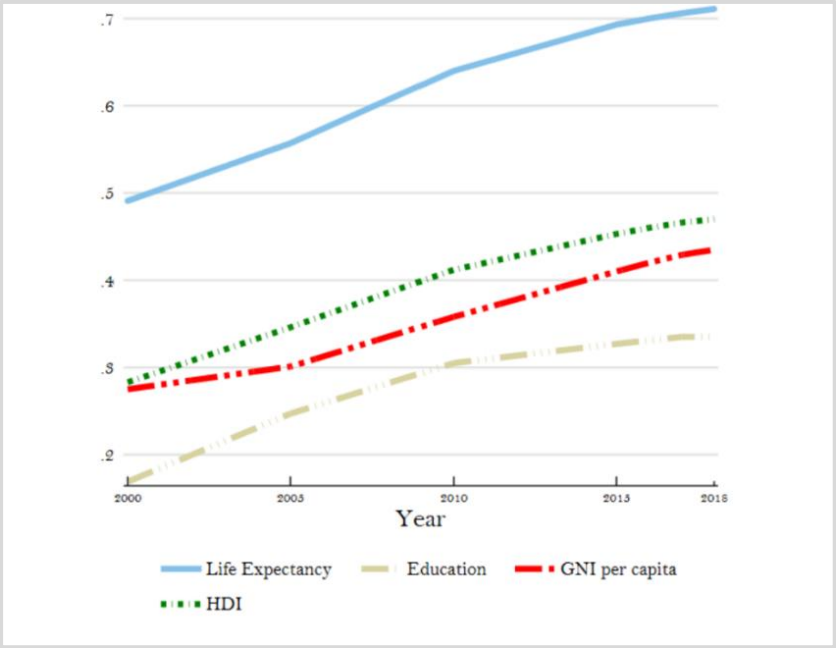
1.1. Country context

Ethiopia is sub-Saharan Africa's second most populous nation with a population of 102[1]million approximately 80 ethnic groups and languages, and a diverse geographic area of1.127 million sq.km. About 79% of the population resides in rural areas. Approximately 65% of Ethiopia's population is under 25 years of age; forty seven per cent are < 15 years of age. Ethiopia hosts one of the largest refugee populations in Africa as a result of conflict and political oppression in surrounding countries. 2020 has been marked by the growing threat from COVID-19, the worst locust infestations in decades, resurgences of polio and guinea worm, and on-going epidemics of cholera and measles in many parts of the country. Eastern Ethiopia has experienced both drought and flooding, particularly in Somali region. The most severe humanitarian threat is COVID-19, with widespread health and economic consequences. The country's fragile health system will likely be overwhelmed as already strained laboratory and treatment facilities deal with those afflicted with the virus.

Although Ethiopia has made substantial economic and social progress over the last 30 years, in 2017, the Gross Domestic Product was US$ 862 per capita, much lower than the average for other sub-Saharan countries of US$1,553. The World Bank Poverty and Equity data indicates that 27% of the population remains below the poverty line of $1.90/ day[2], and the country ranked 173 out of 189 countries in the 2019 Human Development Report. However, between 2000 and 2018, Ethiopia's Human Development Index (HDI) value increased from 0.283 to 0.470, an increase of 65.8 percent. Between 1990 and 2018, Ethiopia's life expectancy at birth increased by 19.1 years to 64.5 years (62.4 for men and 66.6 for women), mean and expected years of schooling increased by 1.3 years and 5.6 years respectively. Ethiopia's Gross National Income (GNI) per capita increased by about 173.7 percent between 1990 and 2018 (see Fig 1).

The country is structured in a federal system comprising 9 regional states and Addis Ababa City and Dire Dawa Administration. This is further sub-divided to more than 1000 woredas (districts) and 17,000 kebeles, the smallest local administrative unit. Regions receive their budgets as block funds from the Ministry of Finance and have considerable autonomy on allocation of their resources to the various sectors.

Fig 1: Trends in Ethiopia's Human Development Index (HDI) component indices 2000-2018[3]



1.1.1. Health Sector Financing

Over the past two decades, Ethiopia has made considerable progress in improving access to and utilization of essential health services. The period has been characterized by huge expansion in health investment, Primary Health Care (PHC) infrastructure, and human resources development (HRD). Potential health service coverage increased from 50% in 2000 to more than 83% in 2019[4]. Although the government has allocated 60-70% of total budget to pro-poor sectors to date, allocations to health fall well short of the Abuja Declaration target or WHO's recommended US$86 per capita spend to deliver UHC[5]. Ninety five per cent of health expenditures is generated from three major sources: government (tax revenue), external donors, and households (out-of-pocket payments)[6]. Although in absolute amounts there have been increasing investments in health, the 7th round National Health Account (NHA), of 2016/17, estimated Ethiopia's total health expenditure at 72 billion ETB (US$3.1 billion) accounting for 4.2% of the country's Gross Domestic Product (GDP) which remains lower than the expected average of 5% for low-income countries, and well below the global average of 9.2%[7]. Direct household payments to health facilities during service use still remains unacceptably high. According to NHA-7, out-of-pocket (OOP) spending on health amounted to 31% of total health expenditure (THE) in 2016/17, considerably higher than the global recommended target of 20%. Household OOP spending remains a major domestic source of financing for the health sector with a significant number of households facing the effects of catastrophic health expenditure (4.2%).[8]

1.1.2 Health Indices

Ethiopia has made considerable health gains since 2000. The 2019 mini-EDHS[9] shows the ANC coverage has increased from 27% in 2000 to 74% in 2019, skilled delivery from 5% to 48%; maternal mortality dropped from 676/100,000 in 2011 to 412/100,000 in 2016 EDHS[10].

Even though first Antenatal Care Visit (ANC1) coverage improved, only 43% of pregnant women had four or more visits and only 20% of women attended antenatal services in a timely manner. However, there are remaining quality of service delivery issues both at antenatal care and labor and delivery services. Only 40% of health facilities had fully functioning Emergency Obstetrics and Newborn Care (EmONC) facilities in 2016 and only 14% of expected deliveries took place in functioning EmONC facilities[11].

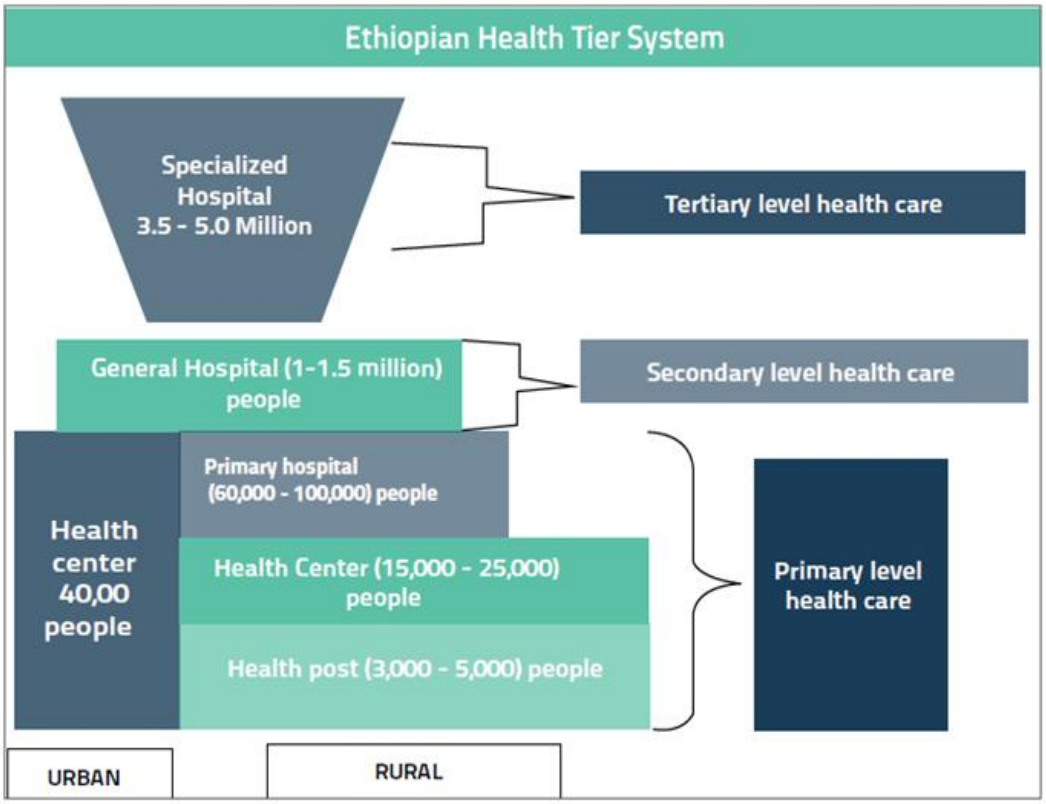
There have been significant declines in neonatal, infant and under five mortality rates which have dropped from 49 to 30 per 1000 live births, 97 to 43 per 1000 live births, and 166 to 55 per live 1000 births respectively over the period 2000 to 2019, although the change in neonatal mortality has not been as significant. There remain large regional differences in under five mortality from a low of 39 per 1000 live births in Addis Ababa to 125 per 1,000 live births in the predominantly pastoralist area of Afar. Although there is overall improvement, the proportion of children receiving three doses of pentavalent vaccine and all basic vaccines only reached 61% and 43%, respectively in 2016. Malnutrition remains a significant problem with Ethiopia having one of the highest rates of malnutrition in Sub-Saharan Africa but there has been considerable improvement. Between 2005 and 2019, the prevalence of stunting decreased from 51% to 37%; underweight declined from 33% to 21%; and wasting decreased from 12% to 7%[12].

The top most causes of premature deaths in Ethiopia are Neonatal disorders, diarrheal diseases, lower respiratory infections, Tuberculosis, and HIV AIDS[13].

1.1.3 The Health Care System

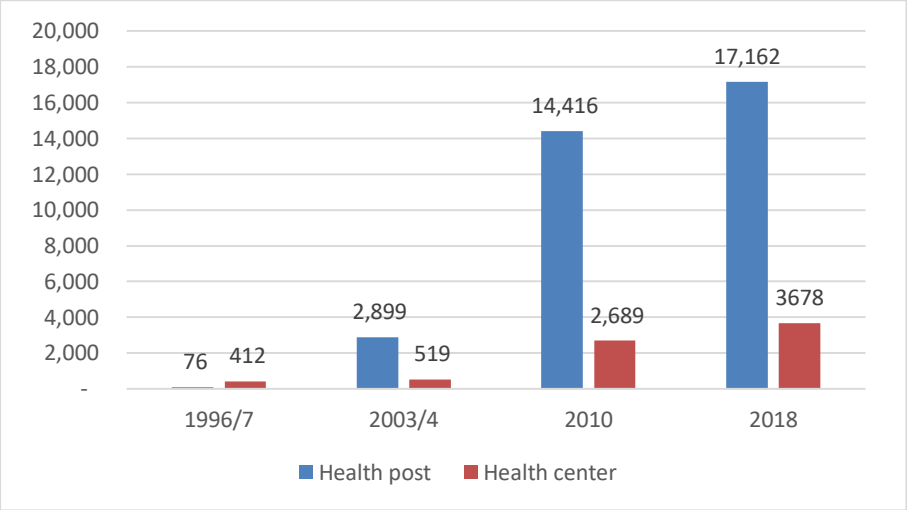
Ethiopia has a three-tiered health system (Fig 2). The primary level care is provided at primary hospitals, health centers and health posts, while secondary and the tertiary level care are provided at general hospitals, and specialized hospitals respectively. The health centers in urban areas serve a catchment population of 40,000 while in rural areas they are intended to serve a catchment population of 15,000 -25,000. In rural areas, primary health units include one health center with five satellite health posts each serving a catchment population of 3000-5000 whereas primary hospitals, general hospitals and specialized hospitals serve catchment populations of 60-100,000, 1-1.5 million and 3.5-5.0 million respectively (see figure 2).

Fig 2: Ethiopian Health Care Tier System



Over the past two decades, the unprecedented expansion of primary healthcare units, made possible through joint efforts of government, donors, and community at large, has created favorable ground for accelerated expansion of HIV prevention, care and treatment services in the country. In 2018/19, there were a total 17,162 health posts, 3678 health centers and 314 hospitals, with a further 425 health posts, 86 HCs and 108 hospitals under construction[14].

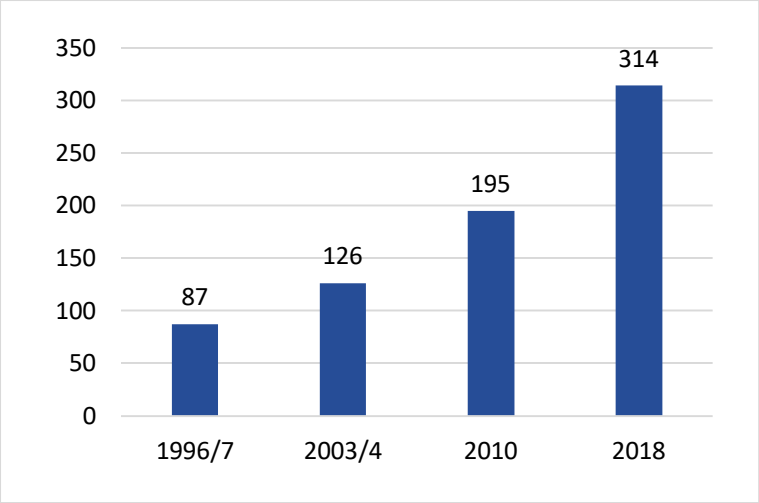
Figure 3: Expansion of Health posts and Health centers, 1996/97-2018



Although there has been considerable expansion in the number of health facilities, many lack basic amenities such as water, electricity and sanitation and internet connectivity

remains limited. Primary health care providers, including district hospitals, health centers and health posts together received more than 61% of total government recurrent expenditure. This is in line with government's health policy, which is focused on preventive and promotive services provided at the primary health care level. The essential health services package (EHSP) which guided the delivery of health services particularly at the level of Primary Health Care (PHC) was defined in 2005. The 2019 revision of the EHSP comprises nine components as outlined in the HSTP II which the government intends to make available at the respective service delivery levels with an adequate level of quality[15].

Fig 4: Expansion of Hospitals, 1996/97-2018



Over the past decade, there have been major inputs into training of health workers. Table 1 dePITCs the health worker/population figures[16]. Of the 39, 878 health extension workers, 5,036 are deployed in urban areas. Despite the increase in absolute numbers, quality of training, equity in deployment throughout the country, and performance remain issues in the health system.

Table 1. Health Workforce number and population ration by category[17]

Category	Absolute number	Population ratio
Physicians	10,194	1: 10,521
Health Officers	10,953	1: 8,820
Nurses (Diploma,degree, specialist)	59,469	1: 1,624
Midwives	16,087	1:6,005
Pharmacists	10,626	1: 9,091
Lab technicians/technologists	9,468	1: 10,773
Health Extension Workers	39,878[18]	1:2,362

1.1.4. Gender

Ethiopia has put in place appropriate and effective legal and policy provisions to promote the rights of women and girls. These rights are enshrined in the Constitution, with the country also ratifying many of the international and continental agreements that promote and protect women's rights. Different sector-level policy or strategy documents have attempted to address the issue in addition to the 1993 National Policy on Ethiopian Women[19] and the National HIV/AIDS Policy. The government developed the National Action Plan for Gender Equality (NAP-GE) 2006-2010 which is considered as its commitment to the Beijing Plan of Action. According to the 2000 revised family law of Ethiopia women are entitled to spousal property rights and gives women the right to access, use and control property, including land[20].

The country has made labor law reforms to ensure the equal participation and benefit of women in the labor force. The Labor Law recognizes special needs of women workers. It prohibits discrimination based on sex, promotes affirmative action, and provides for extended maternity leave. Assurance of health care for all segments of the population is one of the top priorities in the Ethiopia's Health Policy and it states that special attention shall be given to the health needs of women and children among others[21]. Besides, the promotion of women, youth, and other vulnerable segments of the population received significant attention in Ethiopia's Growth and Transformational Plan (GTP) which is a key step towards achieving the state's development goals[22].

Ethiopia has also put the obligatory institutional mechanisms in place at federal and regional levels, such as the Ministry of Women, Children, and Youth Affairs Offices; Child and Women Protection Units within various police units; and a Special Bench that deals with violence against women cases within the federal criminal court[23]. In line with such constitutional orders, the different policies and strategies of the country have adopted the laws even down to the program level. All ministries are expected to mainstream gender in all the policies, laws, development programs and projects they formulate. They should benefit women, children and youth. Each sector is expected to develop its mainstream guidelines. This is further expanded in the recent Gender Assessment.[24]

However, remain a number of areas where either improvement or better implementation is required. According to the 2019 Human Development Report, Ethiopia's gender inequality index (GII) is among the lowest at 0.508 in 2018, ranking 123rd from 162 countries[25]. Women and girls in Ethiopia are strongly disadvantaged compared to boys and men in several areas, including literacy, employment, health, and livelihoods. The minimum legal age of marriage in Ethiopia is 18 years (Family Law 2000). However, 65% of women and 56% of men aged 25-49 were currently in a union with the median age at first marriage of 17.1 for women and 23.7 years for men. About 58% of women and 9% of men were married before their 18th birthday and 13% of women aged 15 to 19 have already begun childbearing. The majority (61%) of ever married women said that their parents had made the decision for

them to get married for the first time, with only 35% stating that they had made the decision to marry by themselves[26].

Gender disparities in health service utilization in Ethiopia are mostly linked to the limited decision-making power of women at the household level. Eighty one per cent of women participated (either as primary decision maker or jointly) in decisions regarding their own healthcare. It was also reported that getting permission to visit a health facility, getting money for treatment, distance to a health facility, and not wanting to go to a health facility alone were important barriers to health service utilization among women; 70% of women reported that at least one of these factors prevented them from accessing health services at times of illness. Financial barriers were the most commonly reported barrier to health service utilization among women[26].

The Penal Code (revised in 2005) criminalizes acts of violence against women, including child marriage and abduction. However, child, early or forced marriages continue to be common practices. In Ethiopia violence against women remains a major challenge. According to EDHS 2016, among women aged 15-49, 23% have ever experienced physical violence and 10% have experienced sexual violence; thirty-four percent of ever-married women age 15-49 have experienced spousal physical, sexual, or emotional violence. Violence against women is 12 % higher among widowed or separated than those who are married or live with a partner.

1.2. Aligning with National and Global Strategies

Ethiopia's Growth and Transformation Plan (GTP) provides an overarching framework for national development across all sectors. The Second *Health Sector Transformational Plan (HSTP II)* provides the framework for the health sector to support Ethiopia's overall growth and transformation. The total estimated cost of the HSTP II for the first five years (2020/21 – 2024/25) is US$ 50.46 billion increasing from US$7.93 billion in 2020/21 to US$ 12.68 billion in 2024/25 with a per capita expenditure in the first year of the strategic plan (2020/21) of US$78.1 increasing yearly to US$ 114.5USD in 2024/25 and to US$100.3 USD in 2029/30[27].

The goal of the HSTP II is ensuring healthy lives and promoting well-being for all at all age groups. The five general objectives which lead to the achievement of the goal are:

i. Improved health status of the population
ii. Improve progress towards Universal Health Coverage
iii. Protect people from health emergencies
iv. Contribute towards household transformation
v. Improve health system responsiveness

To achieve these objectives, the HSTP II outlines a number of strategies. These include progress towards improved health emergency and disaster risk management, delivery of equitable and quality health services, community engagement and ownership, access to pharmaceutical and medical devises, regulatory systems, human resource development and

management, informed decision making and innovations, digital health technology, health financing, governance and leadership, health infrastructure, traditional medicine, health in all policies as well as private engagement in the sector.

The HSTP II includes ambitious targets to reduce AIDS incidence and related deaths and achieving 95-95-95 targets. It emphasizes enhancing community engagement, empowerment and ownership. This includes activities such as the application of human centered design (HCD) as one of the effective tools to understand communities' values and enhance community's acceptance of health care products and services. It also includes expanding major public health interventions, strengthening community structures and accountability of the health system, and generating community based resources[28].

The HIV/AIDS National Strategic Plan aligns and supports the targets outlined in the HTSP II, including focused combination prevention, strengthening PMTCT, case finding through targeted HIV testing, increasing antiretroviral treatment and viral suppression. It also aligns with the UN General Assembly Political Declaration on HIV and AIDS: On the Fast Track to Accelerating the Fight against HIV and to Ending the AIDS Epidemic by 2030[29] and SDG 3 on good health and wellbeing.

1.3 NSP development process

The development of the 2021-2025 National HIV Strategic Plan (NSP) was led by the Federal HIV Prevention and Control Office (FHAPCO). A concept note was developed to guide the process, outlining approaches and timeline for the development of the NSP. Various coordination platforms were established with defined roles and responsibilities, under the overall auspices of the Steering Committee, chaired by the State Minister of Health with membership from development partners, technical working groups, civil society and PLHIV networks. Under the Steering committee, a core technical team consisting of experts, from MOH, FHAPCO, key government sectors, development partners, civil society and PLHIV networks was formed. The technical team had six sub-teams (Prevention, PMTCT and Treatment, Case Finding, Supply chain and Laboratory, Coordination, Leadership, and Resource Mobilization and Strategic Information) to work on specific HIV program areas, as well as crosscutting issues such as HIV related health systems, social and critical enablers. International and local consultants were also recruited. A Core Technical Team, chaired by FHAPCO, comprising the Chairs of all TWGs as well as the team of national and international consultants, consolidated inputs from the six sub-teams. The overall process was built on a review of the performance of the last strategic plan 2015-2020, an analysis of the available epidemiological data and characteristics of the HIV epidemic in Ethiopia, extensive field assessments, focus groups discussions with key and priority populations, young people and PLHIV, key informant interviews with other sectors, donors and civil society, and national multi stakeholder consultations. The process also included development of investment case scenarios to determine the most cost effective public health interventions within available resources as well as to engage political leadership at the highest level.

1.4 Planning within the context of the COVID-19 pandemic and potential effects on implementation

The unprecedented situation presented by the COVID-29 pandemic affected the planning process on this NSP. Initial stakeholder meetings with a wide group of stakeholders occurred prior to limitations imposed on face to face meetings. Subsequent stakeholder consultations continued in a virtual manner ensuring participation of regional health bureaus, other government sectors, donors, civil society including representation from associations of PLHIVs.

The trajectory of the COVID 19 pandemic within the African context remains unknown. However, it remains essential that prevention activities and HIV testing by scaling up innovative approaches like self-testing and offering HIV testing at COVID19 quarantine and isolation sites need to continue and that there be no interruptions in the delivery of antiretroviral treatment, identification and treatment of co-morbidities as well as maintaining high levels of viral suppression. As such differentiated delivery models and multi-month dispensing of ARVs will be promoted as a priority. Peer-led community support groups will have an even more important role in maintaining the gains that Ethiopia has achieved in addressing the HIV epidemic.

1.5 What is new in this Plan

The thinking and rational behind the prioritized elements of this National Strategic Plan represents a new way of doing business to achieve maximum public health impact within a resource constrained setting:

- It addresses the key drivers of the epidemic in a differentiated manner with evidence-based rationales and geographic prioritization
- It demonstrates a shift from an intervention-focus to a people-centred response
- It identifies the key drivers of the epidemic and prioritizes interventions with the maximum impact, specifically prevention among key and priority populations (KPPs)
- It is optimized to achieve maximum possible impact within a constrained funding environment, and rigorously applies the investment case approach and value for money principles (economy, efficiency, effectiveness, equity and sustainability).
- It sets a clear path to reach HIV epidemic control in all parts of the country by 2030
- Lastly, but not least it engages country leadership at the highest levels and multiple stakeholders

2. HIV/AIDS Epidemiology and response analysis[30]

2.1. HIV burden and characterization of the epidemic

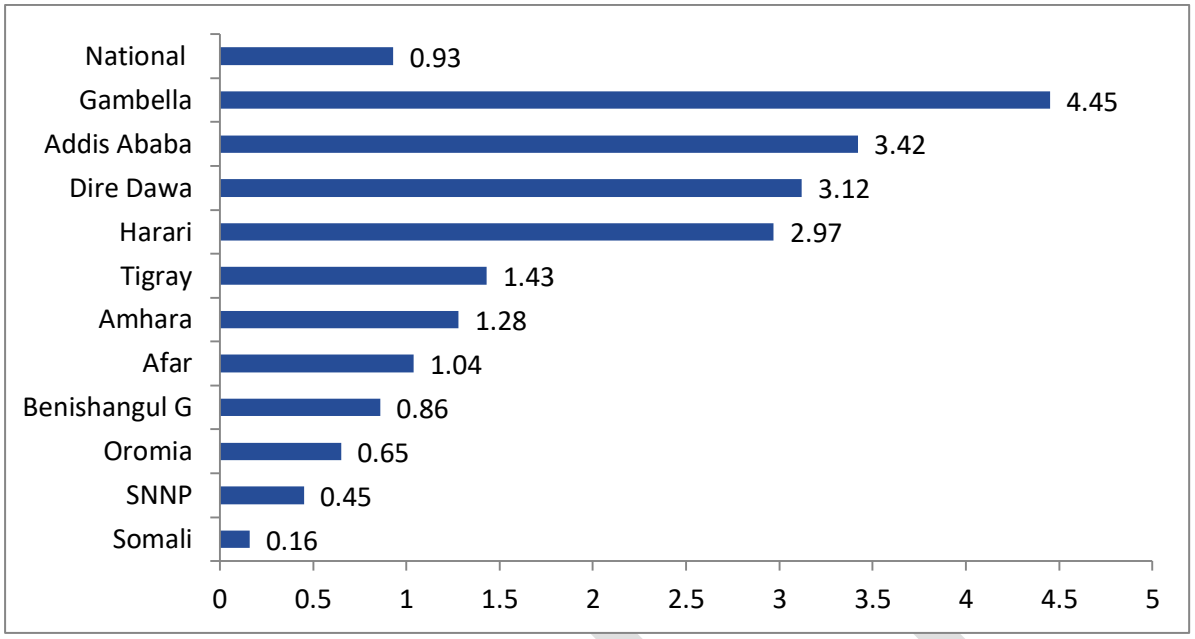
Ethiopia has made significant progress in addressing the HIV epidemic in the last 10 years. The National adult (15-49) HIV prevalence is 0.93%[31] in 2019[32]. The epidemic is characterized as mixed, with wide regional variations (Fig 3) and concentrations in urban areas, including some distinct hotspot areas driven by key and priority populations. However, with an estimated 669,000People living with HIV (PLHIV) of which 39,792 are <15 years of age, HIV is a heavy burden on the country.

Table 2: Summary table for characterizing the HIV epidemic in Ethiopia.

Epidemic Type	Definition	Numerical proxy:	HIV Prevalence in Ethiopia
Concentrated	HIV has spread rapidly in one or more defined subpopulation but is not well established in the general population.	HIV prevalence is consistently over 5% in at least one defined subpopulation	**Yes, prevalence has been >5% in FSW**
		but is less than 1% among pregnant women in urban areas.	**No, HIV prevalence among pregnant women in urban areas is 4.05%**
Generalized	HIV is firmly established in the general population. Most generalized HIV epidemics are mixed in nature, in which certain (key) subpopulations are disproportionately affected.	HIV prevalence consistently exceeding 1% among pregnant women	**No and Yes,** • **Spectrum - Prevalence among pregnant women is 0.4%; though the prevalence for female 15-49 is 1.15% in 2020** • **ANC sentinel report, 2016/17 – HIV prevalence in pregnant women is 1.5%**
Mixed	People are acquiring HIV infection in one or more subpopulations and in the general population.	One or more concentrated epidemics within a generalized epidemic	**Yes, there are several subpopulations; especially in urban areas that have HIV exceeding 1%**
Low-level	Epidemics in which the prevalence of HIV infection has not consistently exceeded 1% in the general population nationally or 5% in any subpopulation.	HIV prevalence of ≤1% in the general population nationally, or	**Yes, 0.93% in 2019**
		HIV prevalence ≤ 5% in any subpopulation.	**No, there are several subpopulations with HIV prevalence exceeding 5% in urban areas**

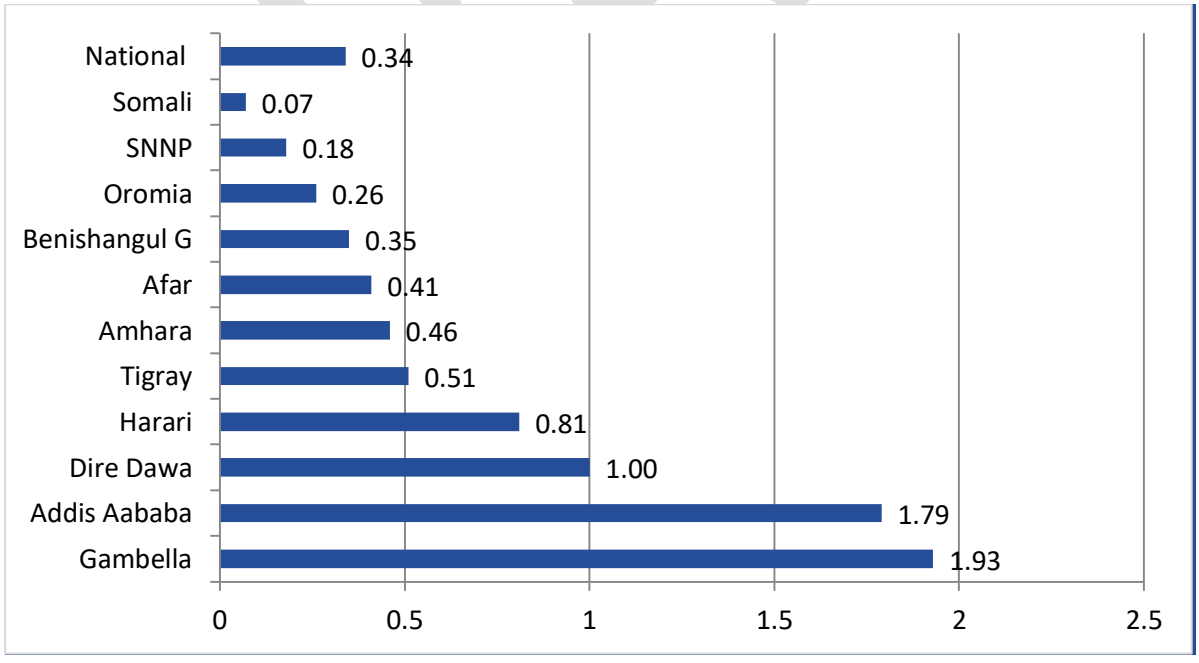
Gambella has the highest adult HIV prevalence (4.45%) followed by Addis Ababa (3.42%), while Somali (0.16%) and SNNP (0.45%) regions have the lowest prevalence (Fig.5).

Fig 5: HIV Prevalence among adults (15-49) regional distribution 2019



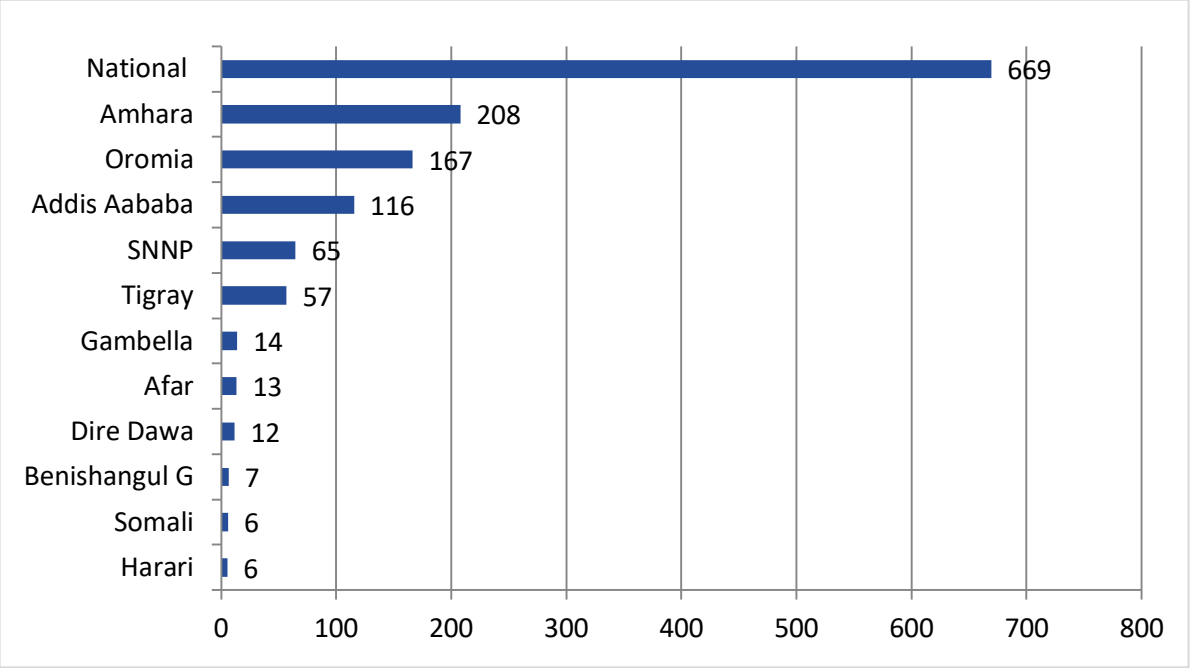
The national HIV infection among young people (15-24) is low (0.34%) as compared with adult prevalence (0.93%). However, in those regions that have a high prevalence, it is also higher among young people: 1.93% in Gambella and 1.79% in Addis Ababa indicating the on-going spread of HIV in the population (Fig. 6).

Figure 6. HIV prevalence among adolescent & young people (15-24), 2019



The highest number of PLHIV (208,000) is in Amhara region followed by Oromia region (167,000) (Fig 7). As reported in the EDHS 2016 and in the Gambella Regional HIV/AIDS Epi-synthesis report, multiple sexual partners, paid sex and a greater mean number of lifetime sexual partners were more common in Gambella compared to the national average[33,34].

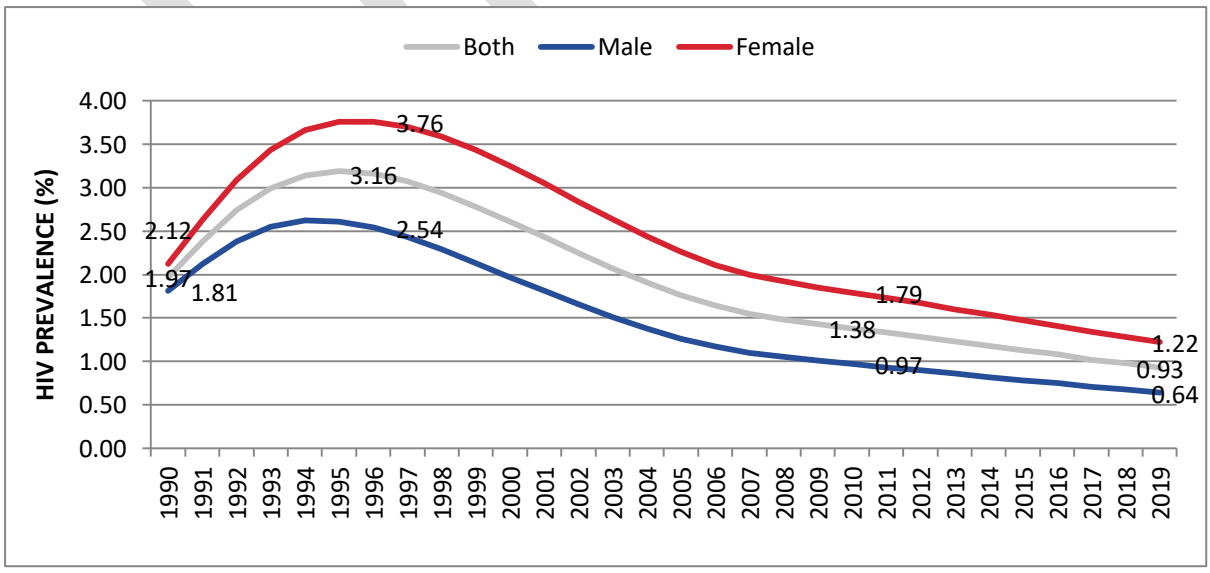
Figure 7. PLHIV population by regional distribution, 2019 (in thousands)



2.2. HIV Epidemic Trends in the General Population (Prevalence)

HIV prevalence in the adult population (15-49) declined steadily over the last decade in both women and men although prevalence in women is higher than in men (women 1.22%, men 0.64%) and constitutes 61% of the HIV population (Fig 8). This trend is also reflected among young people aged 15-24 years. From a peak prevalence among young women of 2.66%, prevalence is now estimated at 0.45% with a similar decline among young men from 0.83% to 0.29% (Fig 9)[35].

Fig 8: Trend of adult (15-49) HIV prevalence by sex and year 1990-2019



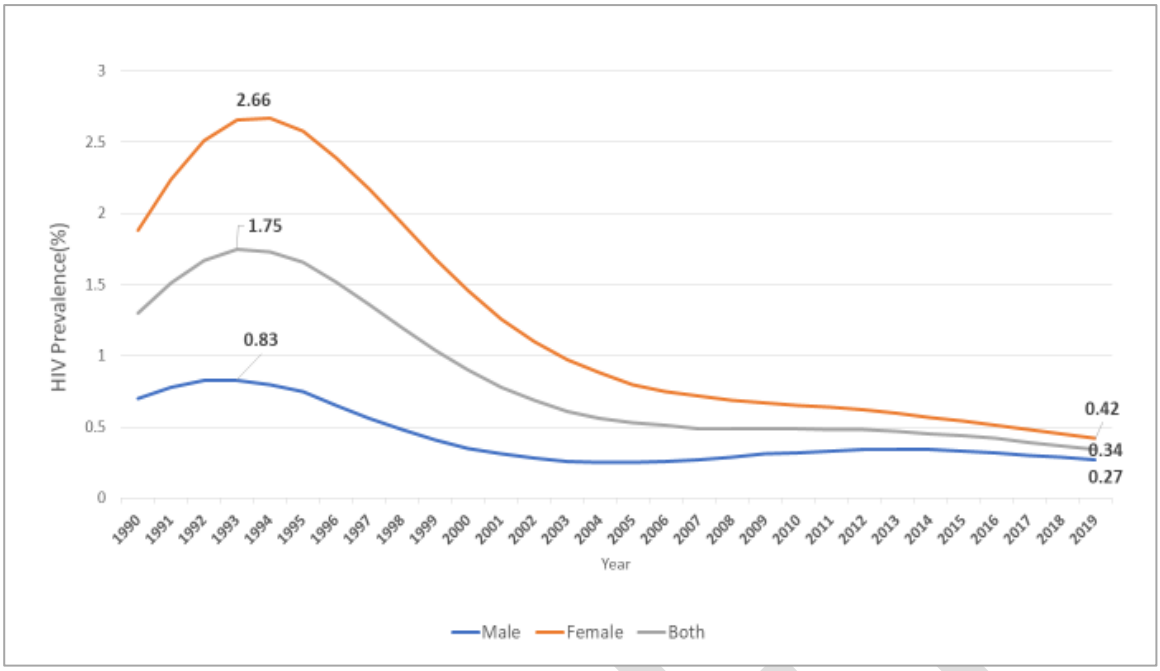
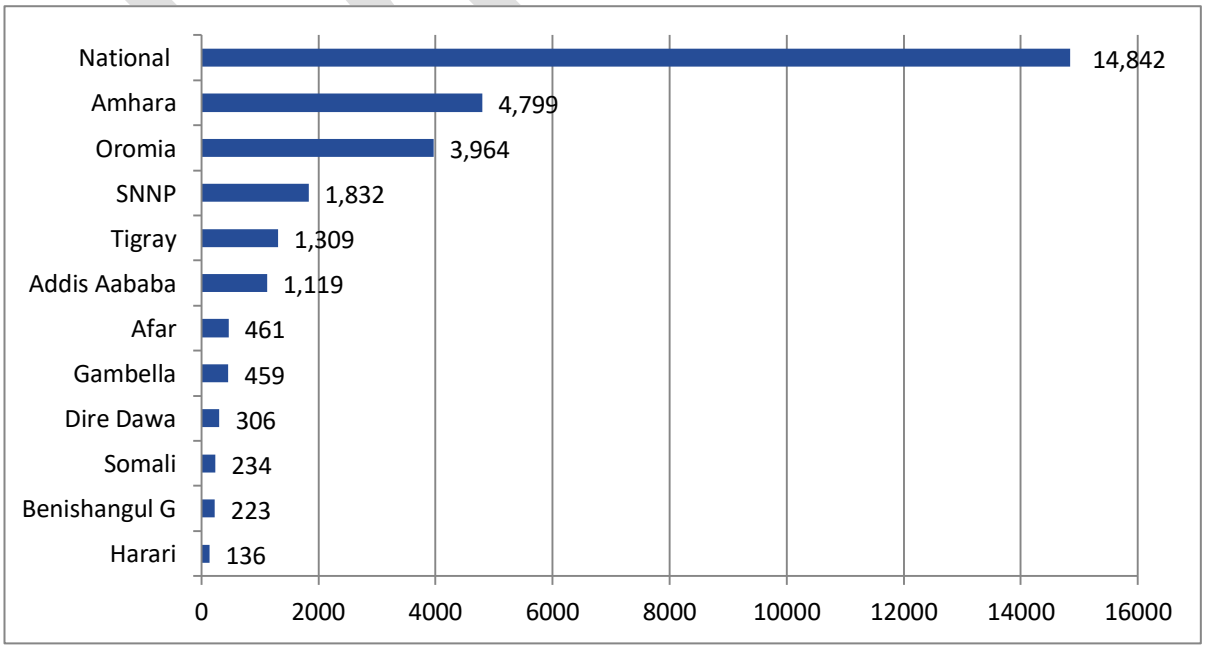


Figure 9. Trend in HIV prevalence among 15-24 age group by sex and year 1990-2019

The recent estimate of 14,842 new infections in Ethiopia in 2019 (Fig 10) indicates that there is on-going spread of HIV infection in the population; more than 60% of the new infections are occurring in Amhara, Oromia, SNNP, and Tigray. The burden of new infections in absolute number in these regions is due to their relatively large population size otherwise other regions such as Gambella and Addis Ababa have higher incidence rates.

Figure 10. New HIV infections by regional distribution, 2019

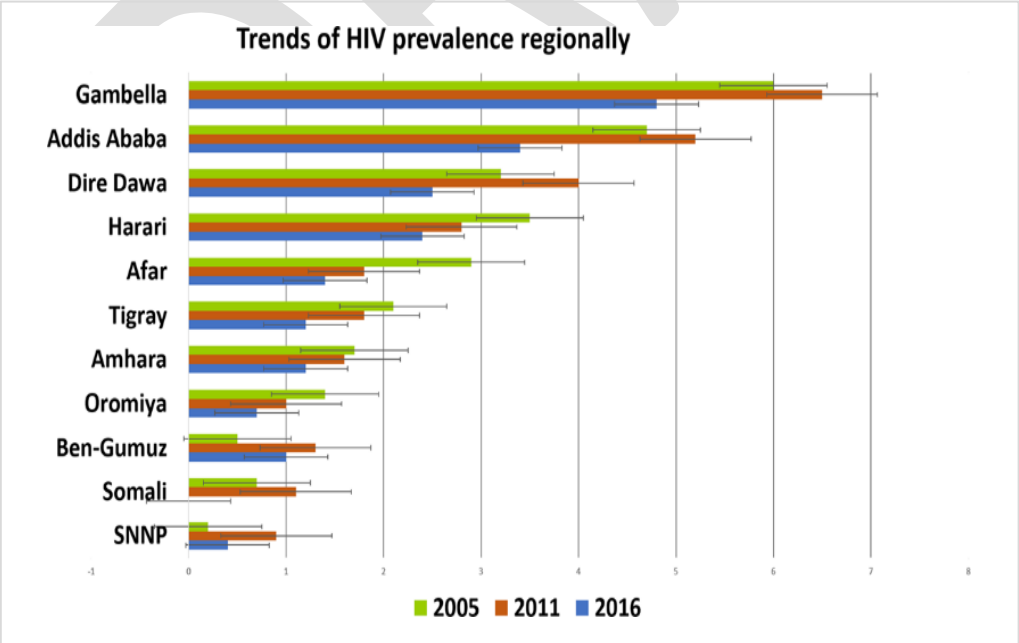


2.3. Spatial (geographical) trends in prevalence and incidence

A 2019 analysis of EDHS data from 2005, 2011, and 2016 concludes that it is essential to revitalize and scale up HIV prevention interventions on the basis of geographic and population priorities[36]. (Fig 11). Rapid urbanization and scale up of megaprojects have tended to attract a mostly young workforce, which results in the emergence of new hotspots and influences HIV transmission trends. The prevalence of HIV decreased from 2005 to 2011 in most of the regions, including Dire Dawa, Addis Ababa, Gambella, South Nations, SNNPR, Benishangul Gumuz, and Somali; over the period 2011-2016, the prevalence decreased in all of the administrative regions but the reduction in rural areas was not as fast as seen in urban areas (P=0.0086).

Spatial distribution of HIV cases in all the three surveys was not random. Some parts of Amhara regional state, a large area of Afar, a few parts of Tigray, Addis Ababa and areas surrounding Addis Ababa continue to show the highest prevalence of HIV. The administrative regions of Gambella and Addis Ababa have continued to have higher than average loads of HIV cases for a long time. Gambella region has a lower coverage of male circumcision which is one of the risk factors for HIV exposure. Addis Ababa's high burden is related to the urban concentration of the epidemic, where towns and cities with over 50,000 people have a higher prevalence than smaller towns and much higher than rural areas. This in part results from the former being home to high risk groups including FSW, long distance lorry drivers (LDTD), and the military. All geographies consistently have women and girls remaining disproportionately affected, while a new group of men at higher risk is emerging.

Figure 11. Trends of HIV by region; data from EDHS 2005, 2011, and 2016



There are common factors likely to influence exposure and transmission of HIV across the geographic areas. These include limited knowledge and/or misconceptions about HIV, multiple and risky sexual behaviors, untreated sexually transmitted infections, transactional and paid sexual practices, gender-based violence and early marriage, population mobility and displacement, rapid urbanization, and low condom utilization[37]. In the age group 15-49 there are low levels of comprehensive HIV knowledge with only 20% of women and 38% of men having comprehensive knowledge about the modes of HIV transmission and prevention respectively; less than 1% of women and 3% of men reported having two or more sexual partners in the past 12 months, while only 20% of women and 51% of men who had a non-cohabiting partner in the past 12 months reported using a condom during last sexual intercourse with such a partner[38]. However, the distribution and the magnitude of these behaviors differ from region to region depending on the level of urbanization, prevailing cultural/traditional practices, the labor market etc.

2.4. HIV Epidemic Trends in the general population (Incidence)

Based on modelling, the HIV incidence (Fig 12.a) and the number of new infections (Fig 12.b) showed steady reduction over the last 10 years though the rate of decline has stalled in recent years. In 2019, the national HIV incidence rate in the adult population is estimated at estimated at 0.02% (0.03% in females and 0.02% in males) with an estimated total of 15,000 (9,000 females and 6,000 males) new infections in 2019. The majority (67%) of the new infections are occurring in the age group below 30 years; in that age group, the highest (20% of all new infections) occur in the age group 20-24, followed (19%) in the 0-4 age group. There is a six fold higher incidence in women aged 15-19 than men; and a twofold greater incidence among women aged 20-24 years. (Fig 12.c).

Figure 12.a. Trends in adult (15-49) HIV incidence (%) by sex and year, 1990-2019 per 1000 (all ages)

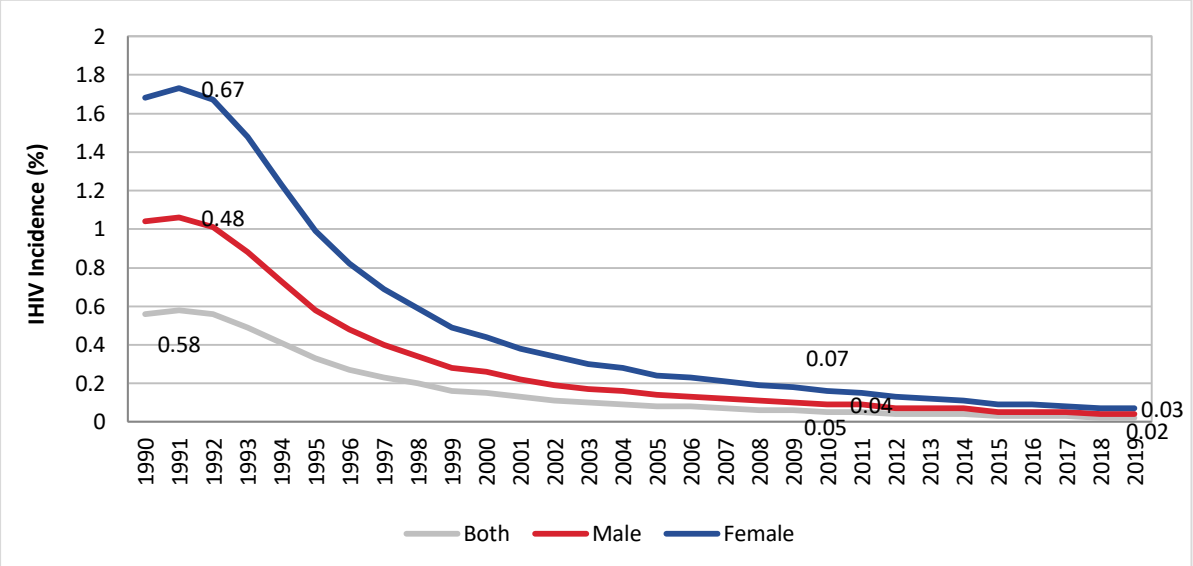


Figure 12.b. Trend of HIV new infection per 100,000 by sex and year, 1990-2020sex and year, 1990-2019

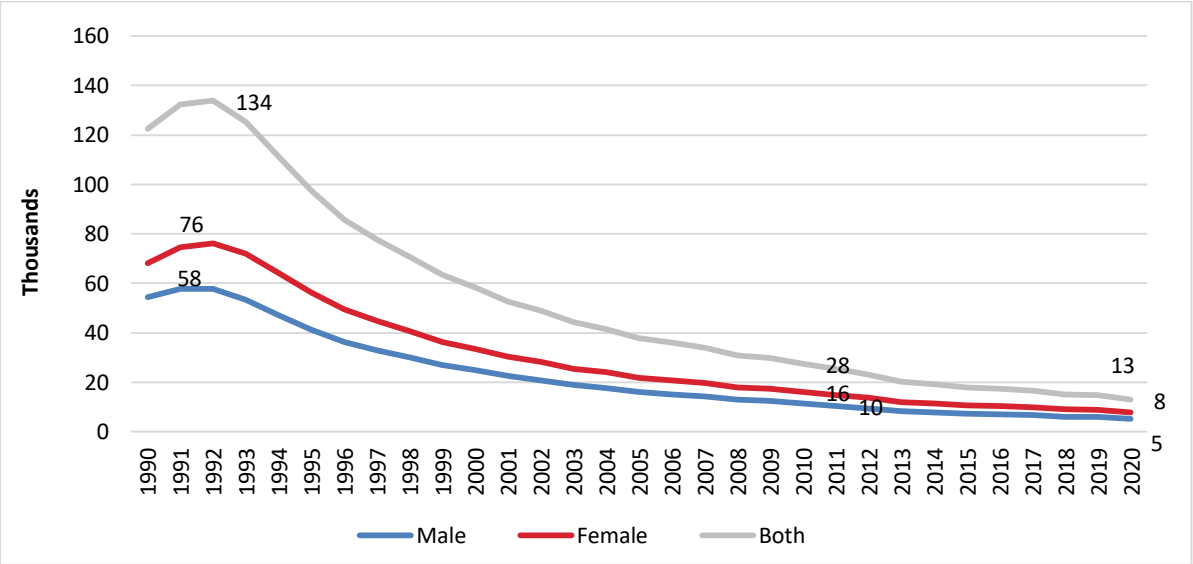
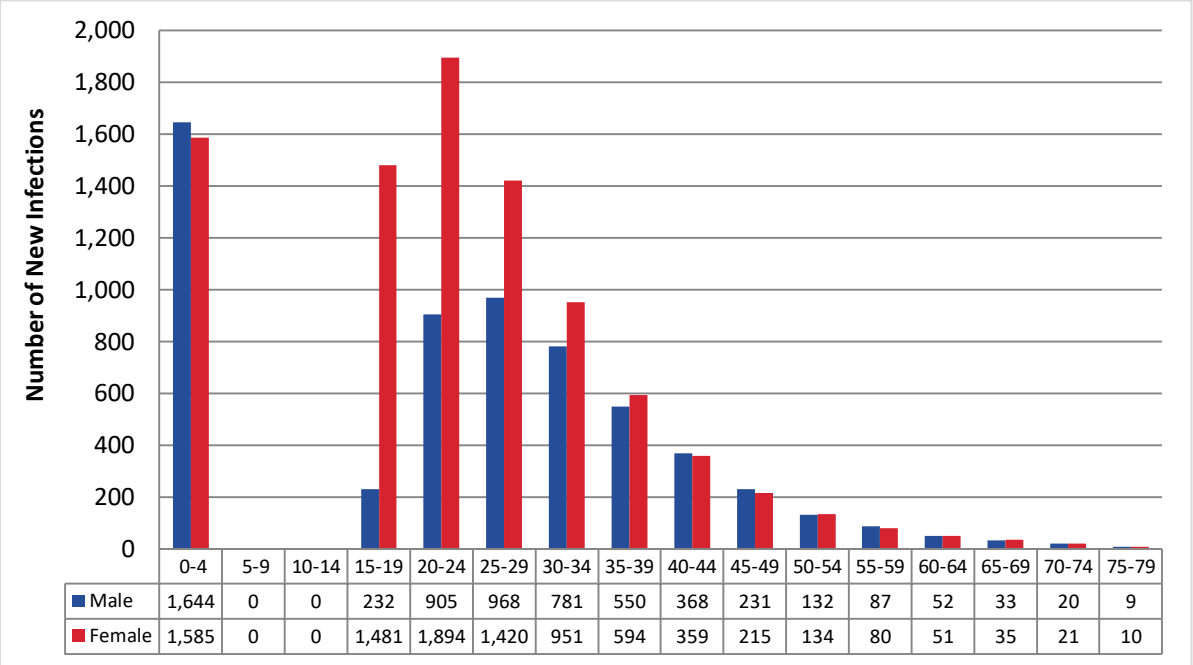


Figure 12.c. HIV new infection distribution by age and sex, 2019

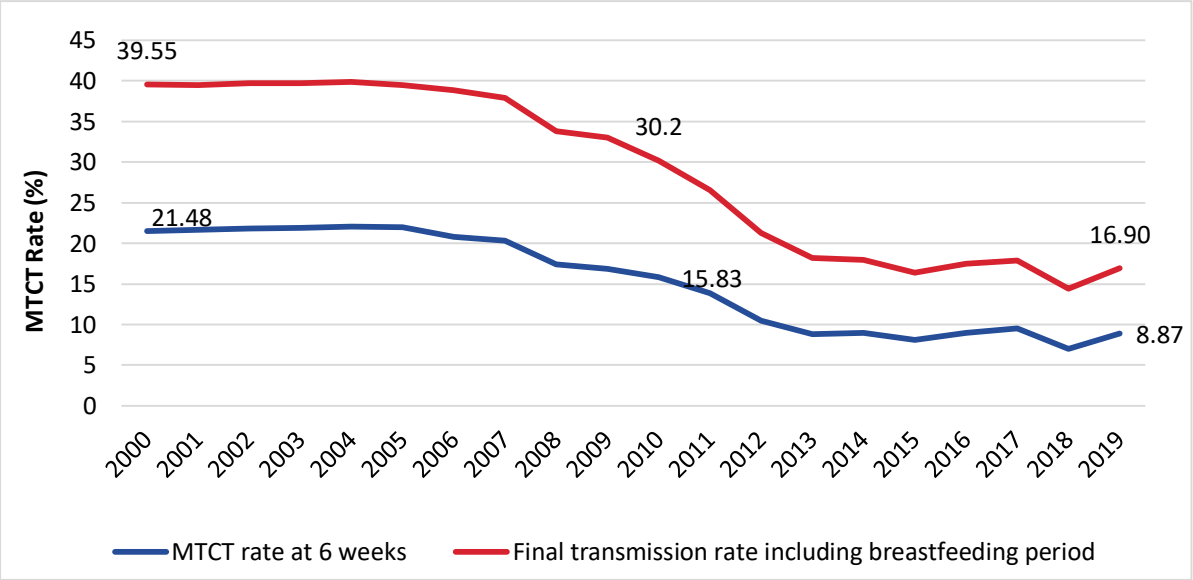


	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
Male	1,644	0	0	232	905	968	781	550	368	231	132	87	52	33	20	9
Female	1,585	0	0	1,481	1,894	1,420	951	594	359	215	134	80	51	35	21	10

2.5 Mother to child transmission

Mother-to-child-transmission has also declined significantly in the last two decades, especially since the introduction of the B+ option in 2013 (Fig 13). However there remain regional variations with HIV prevalence among women attending ANC clinics in urban hotspots in Amhara was 6.4%[39], in urban Tigray was 5%[40], and 7.3% in Gambella.[41] Although Ethiopia also integrated syphilis elimination in its HIV program in 2017, based on current WHO guidelines for dual HIV syphilis and HIV testing to address the gap in syphilis testing (45%) against a much higher HIV testing (92%), this has yet to be put in place.

Figure 13. Mother to child transmission rate at 6 week and final transmission rate including breastfeeding 2000-2019

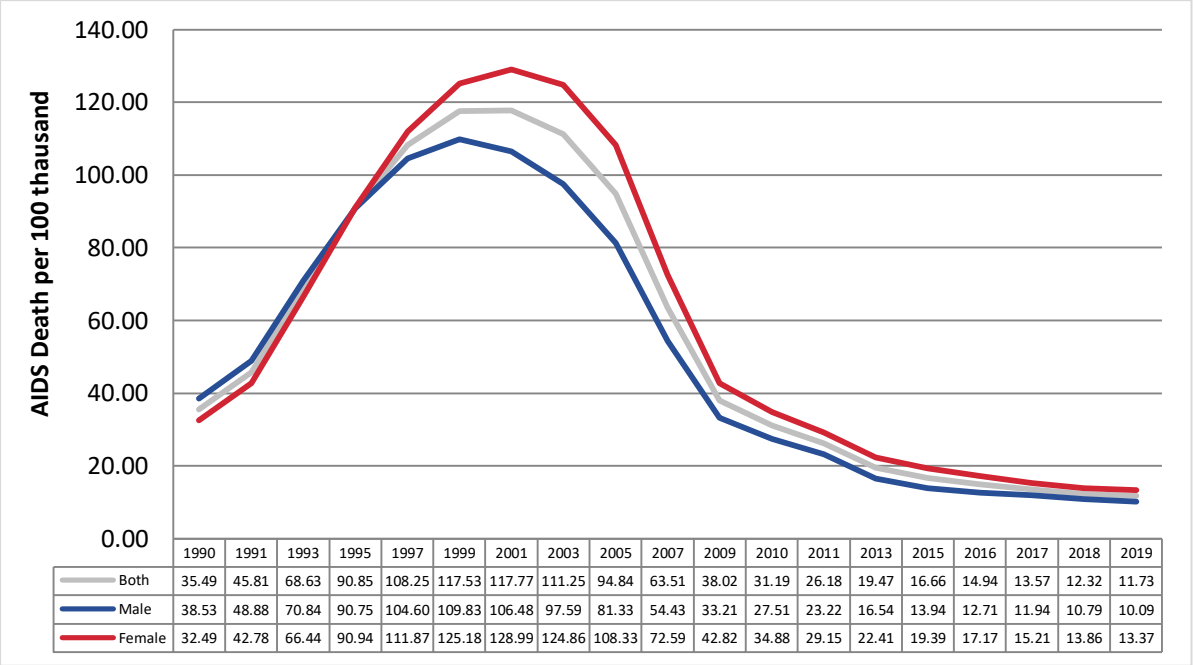


Overall, there has been a 46% reduction in MTCT in 2019 as compared to 2019. Despite this decline in HIV prevalence and the decline in MTCT transmission from 39.55% to 16.90%, (Fig 13), this level of MTCT is still far too high.

2.6 AIDS mortality in the general population

Since the rapid expansion of the ART program in Ethiopia, the number of AIDS deaths has shown dramatic decline from 117.7/100,000 in 2001,to 11.73/100,000 in 2019 (Fig 14). At the peak of the death curve, an estimated 70,173 AIDS deaths occurred within one year. Compared to the 2010 level, there is a 52% reduction in AIDS deaths in 2019. With declining mortality rate the number of orphans due to AIDS has also decreased by more than half, from 628,000 in 2010 to 309,000 in 2019.

Figure 14. Trend on AIDS mortality per 100 thousand by sex and year 1990-2019



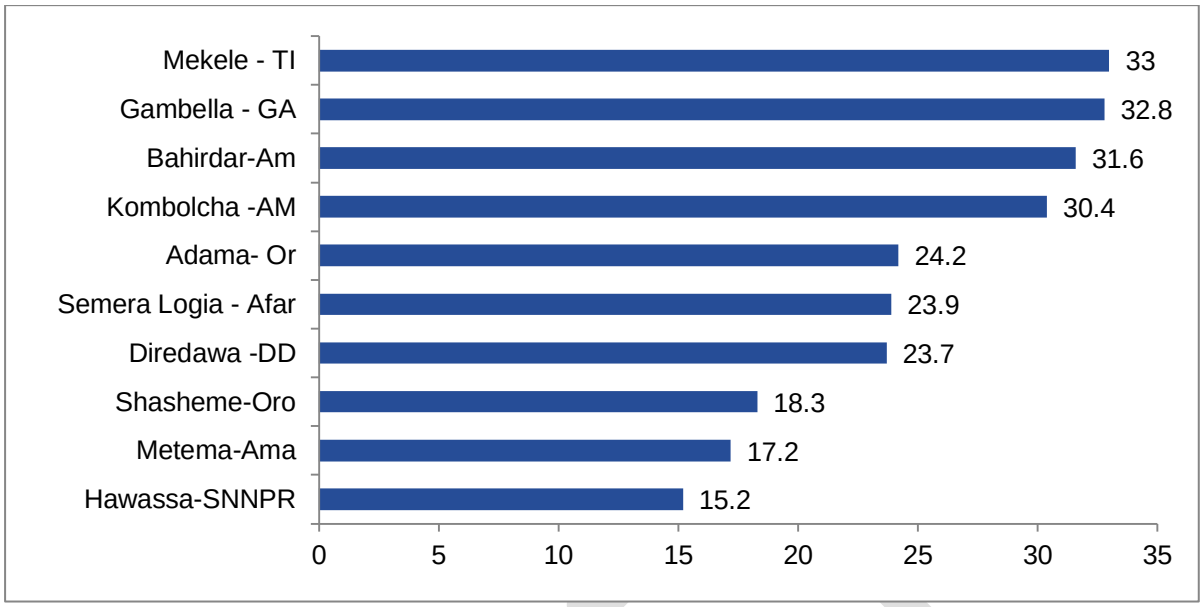
	1990	1991	1993	1995	1997	1999	2001	2003	2005	2007	2009	2010	2011	2013	2015	2016	2017	2018	2019
Both	35.49	45.81	68.63	90.85	108.25	117.53	117.77	111.25	94.84	63.51	38.02	31.19	26.18	19.47	16.66	14.94	13.57	12.32	11.73
Male	38.53	48.88	70.84	90.75	104.60	109.83	106.48	97.59	81.33	54.43	33.21	27.51	23.22	16.54	13.94	12.71	11.94	10.79	10.09
Female	32.49	42.78	66.44	90.94	111.87	125.18	128.99	124.86	108.33	72.59	42.82	34.88	29.15	22.41	19.39	17.17	15.21	13.86	13.37

2.7 HIV in Key and Priority Populations (KPPs)

In Ethiopia, although the prevalence and incidence of HIV steadily declined in the general population, the magnitude in certain population groups who have high risk behaviors remains largely unknown with very limited available data. The list of key and priority populations identified by the National Roadmap for HIV prevention (2018-2020) and the HIV/AIDS Strategic Plan (revised for 2019 and 2020) include: female sex workers, prisoners, widowed, separated and divorced women, long distance drivers, PLHIV and their partners, mobile and resident workers in hotspot areas, adolescent girls and young women due to their sheer size, increased vulnerabilities and the barriers to access services, and HIV negative partners of sero-discordant couples.

Female Sex Workers: Availability of data on the size of FSW population is limited and dated. However, according to a recent extrapolation made based on size estimates conducted by PSI and EPHI, there are about 210,967 FSWs in Ethiopia. Review of few available programmatic sources indicate a range of HIV test yield among female sex workers from 2.8%, as dePITCed in the MOH HMIS routine HIV testing data, to 28% among FSWs tested through index case testing (ICT) and partner services across selected PEPFAR supported woredas. Assuming an average 23% prevalence reported in 2013, the total number of FSWs living with HIV(LWHIV) could be 48,522.

Figure 15[42]. HIV prevalence in Female Sex Workers, by region.



Prisoners: Estimates show that there were about 85,000 prisoners in Ethiopia incarcerated in 106 prisons in 2013. HIV prevalence data is scarce but a national rapid assessment conducted in 2013 among 846 inmates (686 males and 160 females) indicated a prevalence of 4.2%; 4.3% in males and 3.8% in females[43]. Ministry of Health (MOH) 2018/2019 (2011 EFY) data also reveals that out of 22,040 prisoners tested for HIV in 2018/2019 (2011 EFY[44]), 2.2% were positive.

People with Injecting Drug Use (PWID): There is sparse information on this emerging population. In 2017 OSSHD estimated that there were about 4,000 PWID in Addus Ababa and about 448 in Hawassa. From a study conducted in Hawassa and Addis Ababa by the Organization for Social Services, Health and Development (OSSHD) which included 426 PWID of which three quarters were below 35 years of age, high risk sexual practices and syringe and needle sharing were common. Of the 177 who said they had been tested for HIV, 39.5% were HIV+; of the 99 who had been tested for Hepatitis B, 77.4% were positive, and of the 46 who had been tested for Hepatitis C, 28.3% were positive.[45]

Widowed, separated and divorced women: In 2017, there were an estimated 1,522,702 women of reproductive age who were divorced /separated and 555,907 widowed. The HIV Prevention Roadmap identified 200 high burden woredas or areas of geographic priority with an estimated 295,000 divorced, separated and widowed women. According to EDHS 2016, HIV prevalence was 11.5% among women and men who are widowed, and 2.9% among those divorced or separated. According to the Ethiopia Population-based HIV Impact Assessment (EPHIA) 2017-2018, urban HIV prevalence was highest among widowed adults (14.7%). HIV prevalence was twice as high among women who were divorced or separated (8.6%), and almost five times as high (15.1%) among women who were widowed in comparison to married women and women living with a partner, among whom HIV prevalence was 3.1% and 3.4%, respectively. The total number of widowed, divorced and

separated women living with HIV is estimated to range from 100, 000 to 150,000[46]. Some of the reasons that HIV prevalence is high among this group could be that they had been married to an HIV positive partner who has since died, or they are involved in transactional sex as a survival mechanism.

Long Distance Drivers: According to the latest data from the Ministry of Transport in Ethiopia, there are about 30,000 long distance drivers in the country. The only prevalence data from a study in 2013 indicated an HIV prevalence of 4.9%. There is limited information on whether this group accessed outreach or static services.[47]

Migrant, Seasonal and Daily Laborers: In the absence of an actual size estimation, the NSP 2015-2020 estimated a total of 1,000,000 laborers in hotspot areas including over 400,000 seasonal laborers in sesame, sorghum and cotton farms in the northern part of the country and about 600,000 daily laborers in the large development schemes, flower plantations and mining areas. There is no information on daily laborers in construction and other sectors across the country. The formative assessment conducted by FHAPCO, in 2016 shows the population size of workers in major development schemes is 867,000[48]. The burden of HIV in this population group at a national level remained largely unknown. In the regional HIV synthesis carried out in Tigray HIV prevalence was highest in the Western Zone (2.2%) where most seasonal farm workers are found (ANC routine data, E.C. 2010 (G.C. 2018/2019). According to the HIV strategic plan revised for 2019-2020, the sexually transmitted disease prevalence among daily labors in building and construction was 9-12%. The MOH routine service data shows that out of 257,485 mobile/daily laborers tested for HIV, 1.6% were found positive.

Adolescent girls and young women (AGYW): AGYW (10-24 years) constitute an estimated 17% or over 15 million of the total population with 80% living in rural areas. EPHIA reports an overall HIV prevalence of 0.8% (121,144) among urban young women and adolescent girls which accounts for about 18% of the total HIV burden in the country. A recent venue-based study[49] conducted in Addis Ababa and Gambella among out-of- school adolescent girls and young women indicated a higher HIV prevalence of 2.1% (95% CI 1.3-3.4) in Addis Ababa and 3.3% (95% CI 2.2-4.9) in Gambella. The prevalence of any STI (HIV, syphilis, or chlamydia) was 10.0% (95% CI 8.6-11.7%). The study also showed only 17% consistent condom use for vaginal sexual acts in the prior 12 months and 12% reported engagement in transactional sex, increasing from 6% among 15-19 year old girls to 16% among 20-24 year old young women. The 2016 EHDS indicated 24% of women age 15-24 and 39% of men age 15-24 have comprehensive knowledge of HIV. Comprehensive knowledge is still low, but much higher among the urban youth, with 42% among women and 48% among men, compared to 19% and 37% among women and men in rural areas. About 37% of girls and 43% of boys aged 15-19 year consume alcohol. About 57% of boys chew Khat[50].

HIV negative partners of sero-discordant couples: There are no reliable data source/s on the level of discordance. However, more than 60% of adult PLHIV and 80% of sexually active PLHIV are currently married and report relatively little extramarital risk behaviors. Roughly

two-thirds of these have sero-discordant sexual partners[44]. Lifetime remarriage rates exceed 40% regardless of gender or urban-rural residence.

2.8 The Response to HIV/AIDS Epidemic in Ethiopia

2.8.1 Combination HIV Prevention

Combination HIV prevention services included various social behavior change communication (SBCC) activities targeting the general population, condom distribution, voluntary medical male circumcision, PrEP, STI diagnosis and treatment, and PEP. SBCC including public meetings, community dialogue (conversation), print and electronic SBCC materials development and distribution, documentaries, and TV/Radio spot messages have been conducted; condoms were distributed through the public sector, via social marketing channels and private outlets. The free condom distribution was mainly for KPPs distributed through DICs, KPP clinics and peer service providers. There have been multiple distribution and quality problems.

Male circumcision rates are >90% in Ethiopia except in Gambella and some woredas in SNNP. The VMMC program started in Ethiopia in 2009 in Gambella where HIV prevalence was high (6.5% at that time) and there was low male circumcision coverage (<10%) among the indigenous Gambella population, new military recruits and the refugee population. By September 2020, VMMC coverage is expected to reach 64% (101,586 men aged 15 years and above) with a remaining gap of 41,187 to reach 90% coverage in Gambella.[51]

People with disability have greater difficulties in accessing both information and HIV services because of barriers in physical access, problems with understanding the intricacies of lifelong treatment and stigma and discrimination among health workers[52]. In a study undertaken in Addis Ababa, young people with disability were more likely to be illiterate, unemployed and impoverished. Their knowledge and perceptions of risk of acquiring HIV infection was low.[53] There is also evidence that the combination of poverty, gender and disability increases exposure to gender based violence. Girls and young women with disabilities are vulnerable to sexual violence precisely because of the difficulty they face to hear, understand, communicate, see, or defend themselves, possibly increasing their risk to HIV infection.[54]

2.8.2 Prevention in Key and Priority populations

The country has put efforts to cover 90% of key and priority populations with comprehensive behavioral , biomedical and structural interventions during implementation of the 2015-2020 HIV/AIDS strategic plan.

Adolescent girls and young women: The National HIV Prevention Road Map 2018-2020 stipulated combination prevention activities for AGYW to reach 90% of AGYW in 200 high burden woredas by 2020. These included, design and implementation of evidence-based and comprehensive HIV/SRH intervention packages; scaling up of implementation of school health program; improving scope and quality of HIV/SRH services of youth development

centers; implementing interventions that address structural barriers through community structures; and enhanced use of media to reach adolescent girls, young women and their partners. However, HIV prevention services targeting adolescents and youth are generally very limited. A significant number of youth development centers are either not functional or repurposed; efforts to integrate, youth-friendly HIV and reproductive health services, including HIV counseling and testing and STI treatment in universities and colleges and life skills education in primary, secondary and higher learning institutions have essentially faltered.

The school-based HIV prevention program, that addresses specifically the needs of students at high school and college level, includes promotion and distribution of condoms, HIV testing, mini-media, AIDS clubs, curriculum integration and prevention of a risky environment around schools has variable performance across regions and universities. In 2018/19 (2011 EFY), 646,543 out of school youths were reached with small group level HIV SBCC interventions and 2.8 million students received some life skills education. During the same year a total of 2.4 million AGYW aged 15-24 were tested for HIV through routine PITC and VCT constituting 30% of the total HIV tests in the year[55]. Among young women age 15-24 who have had sexual intercourse in the 12 months preceding, 27% were tested for HIV and had received the results of their last test[56]. Similarly, 25.4% of AGYW reported testing and receiving results in the 12 months preceding the EPHIA survey in 2017. EDHS 2016 report shows that only about one-fourth (24%) young women reported using condom at last sex with a non-marital, non-cohabiting partner; this was 55% among young men. According to PEPFAR Strategic Direction Summary, Country Operational Plan 2020 (COP20), there are an estimated 40,747 AGYW living with HIV out of whom 22,226 knew their status and of those 68% were on ART with a viral suppression rate of 83%. Taking into account the risk of HIV infection among young women, it is critical to reinstate HIV/SRH/Gender/Life skill freshman course in higher learning institutions and increase the availability of adolescent friendly services in health facilities.

PrEP: Ethiopia started rolling out PrEP in late 2019 targeting female sex workers and HIV discordant couples. For the initial phase, 15,400 female sex workers and 4,762, couples in discordant relationships were targeted. By December 2019, the number of people screened for PrEP services were 4,128, of which 1589, were found eligible, 971 were initiated while 601 declined. The program is available in public health facilities and community drop-in centers.

Sexually transmitted infections: Information on the prevalence of other STIs is scanty. Although patients with diagnosed STIs are targeted for HIV testing, there are missed opportunities as well as shortages of STI treatment kits and, Diagnosis and treatment for adolescents is even more limited with only a few of the health centers having adolescent and youth friendly services including STIs treatment as part of SRH services. Although most health facilities implement partner notification and treatment services for partners of STI cases, this is problematic with many clients refusing for fear of violence and adverse outcomes.

Female sex workers: From 2017, targeted programs for female sex workers were running in about 80 public health facilities located in various regions. This approach is designed to increase the sustainability of FSW programming by promoting government ownership. Thirty drop-in centers (DICs) in Addis Ababa and Amhara are currently providing FSW targeted comprehensive HIV prevention, care, treatment and SRH services including family planning, GBV, harm reduction counselling for substance abuse on site or through referral. The DICs are a one-stop center, located in strategic hotspots based on a user-centered design, able to attract the hardest-to-reach and most vulnerable key populations. The ability to reach these clients with a menu of services, close to where they live and work, results in a high level of operational efficiency. Yields of above 20% were achieved through index case testing (ICT) and partner notification (PNS), and social networking services with FSWs.[57]. . All services including laboratory tests such as test for hepatitis, which is a pre-requisite for initiation of PrEP are free to clients. DICs and the surrounding community program play a crucial role in epidemic control in Ethiopia. CSOs play important roles in reaching KPPs through strong referral linkages such as peer navigators and use a coupon system to link HIV positives; in the provision of youth friendly services; and SBCC.[58].

Prisoners : HIV prevalence data for prisoners in Ethiopia is scarce. A national rapid assessment conducted among 846 inmates (686 males and 160 females) indicated a prevalence of 4.2%; 4.3% in males and 3.8% in females[59] . The HIV prevalence was higher in federal prisons (4.5%) compared to regional prisons (2.5%) and highest in Gambella region (11.4%).

Seventy-six of the 106 prisons have health services but few of these meet MOH standards for health care. Condoms are provided to prisoners on release from prison and SBCC, using the recently developed standardized prisoners' Social Behavioral Change Communication (SBCC) manual. HIV testing services are provided onsite in all five federal level prisons, but many of the prisons across regions do not provide HTS on site; inmates in prisons which do not provide HTS on site are transported to public health facilities for testing. Only two of the Federal Prisons provide onsite ART with other prisoners requiring HIV and/or TB treatment transported to community health centers. Guards are needed to escort patients off prison sites for testing and treatment but there is a shortage of guard staff. This is particularly problematic for prisoners receiving ART[60].

Widows and divorced women: There are no unique service delivery models designed to reach these priority population groups. Widows expressed, during the field assessment, preference to get HIV service with the general population in health facilities, and be organized in women's groups for economic empowerment where they can receive HIV SBCC to avoid stigma and discrimination.

Daily laborers: Complete data on service access and utilization was not available.

Discordant Couples: A minimum service package comprising condom promotion and distribution, screening and management of STIs using a syndromic management approach, screening and management of intimate partner violence, sexual and reproductive health

services, HIV services, including counseling and testing, ART and adherence support, and Post Exposure Prophylaxis (PEP) following GBV was offered during the last strategic plan period between 2015-2020. PrEP was included in the 2018 National Comprehensive HIV Care Guidelines targeted on FSWs and HIV negative partners of sero-discordant couples.

2.8.3 HIV Case Finding and Testing Strategies

HIV testing services are offered through Index Case Testing and Partner Notification Services (ICT/PNS) , Voluntary Counseling and Testing (VCT) and Provider Initiated Counseling and Testing (PITC) in outpatient departments, TB, family planning, maternal and child health clinics (ANC, delivery, postnatal services), inpatient departments, specialty clinics, KPPs/youth friendly clinics, and other health service delivery points and HIV self-testing (HIVST). The PITC service is designed to be provided using a standardized risk screening tool for better yield and effectiveness of the program but this was used inconsistently. Yields from index case testing among children <14 years was 2.1%, which is 7-fold higher than the national average yield of all other pediatric testing modalities combined. in 2017 and 2018, 9.2 and 8.2 million HIV tests were used respectively, with a test yield of 0.8% (73,981) and 0.6% (51,093). These low yields resulted from overall poor performance of ICT/PNS, limited outreach services, client refusal to disclose or notify sexual partners resulting in general over testing. Unassisted HIV self-testing has recently been approved and will be pursued through social marketing channels. There are few services which make special arrangements for people with disabilities.

HIV Case Reporting and Recency Testing: In 2018, Ethiopia started implementing HIV case-based surveillance (CBS) including HIV-1 recent infection to better target prevention services and accelerate epidemic control. HIV case reporting with recency testing for recent infection (RTRI) is integrated with the existing public health emergency management (PHEM) system. A summary of the findings is shown in Fig 17-19 below. CBS and recency testing provide information on location, occupation as well as age providing critical information on where new infections are occurring (figures 16 and 18). This information has provided a basis for targeting prevention and testing to be undertaken in the next NSP period.

Figure 16. Summary of Recency Surveillance Findings, July 2019-Feb 14, 2020

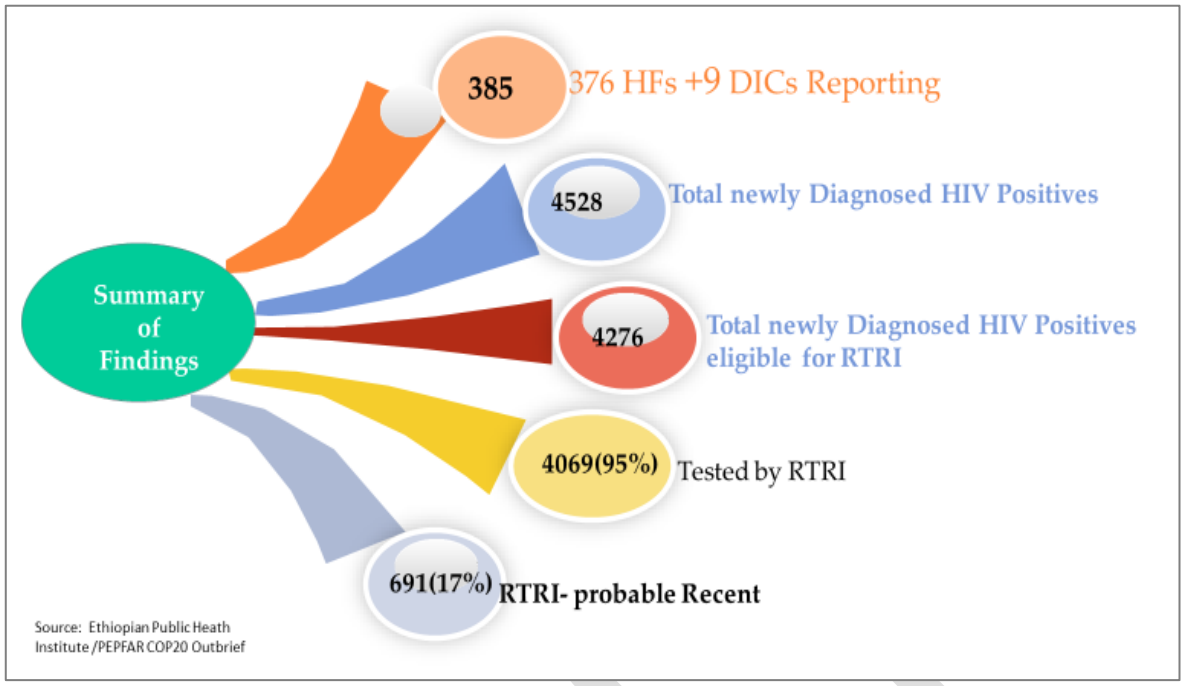


Figure 17. Percent of Probable Recent Infection by Region of Residence, July 2019-Feb 14, 2020

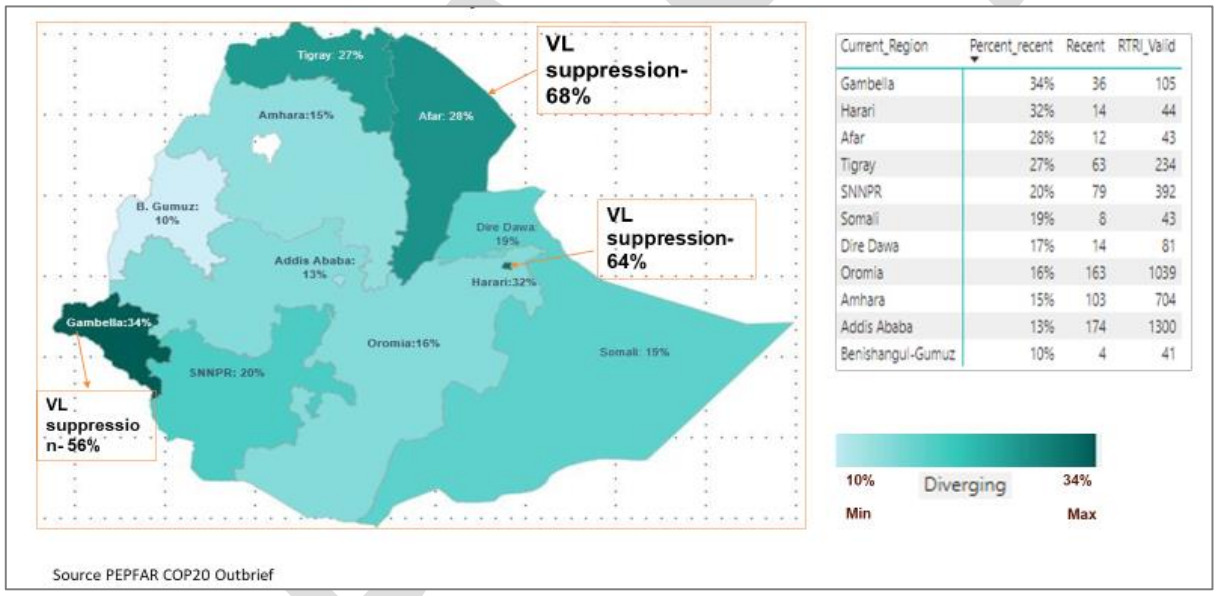
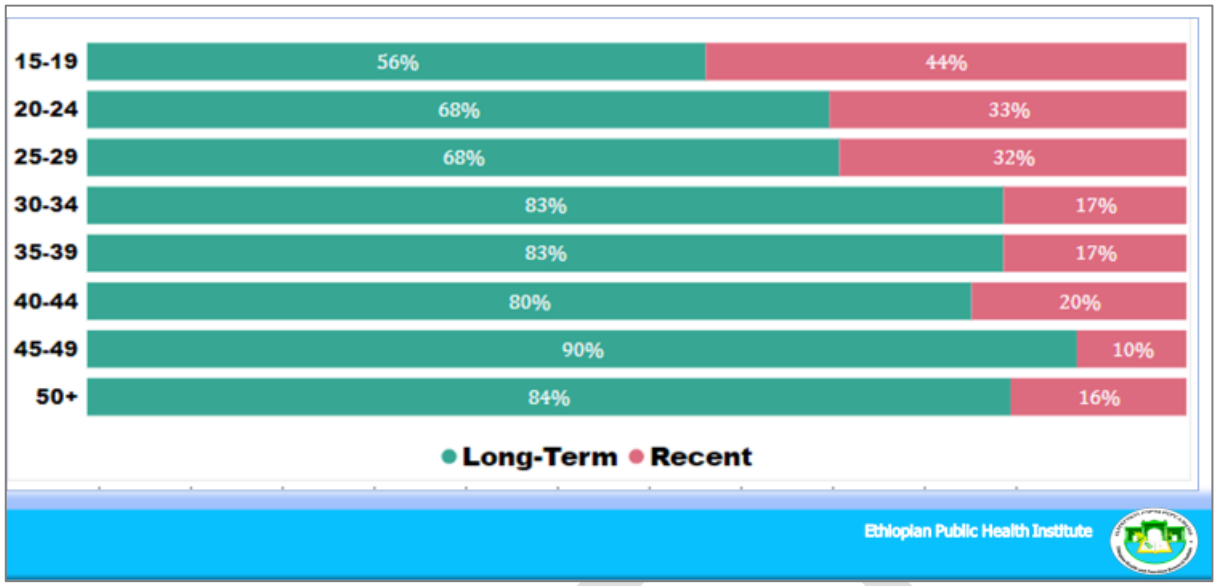


Figure 18. Percentage of Probable Recent Infection by Age Group, June-Sep 2019 (n=409)



Prevention of mother to child transmission: Currently, comprehensive PMTCT services are available in over 2,865 health facilities in an integrated one-stop approach using the MNCH platform. The 2019 updated national comprehensive and integrated PMTCT guideline endorses DTG based regimen as preferred first line ARVs for pregnant and breast feeding women (PBFW) and women of childbearing potential. The country has also adopted provision of enhanced postnatal prophylaxis (NVP+AZT) for the first 6 weeks and NVP alone for the following 6 weeks) for all HIV Exposed Infants. The guideline emphasizes the importance of retaining mothers on treatment and follow up care, recommends frequent routine viral load monitoring (after three months of ART initiation and then every six months for newly diagnosed pregnant women). It also gives a clear direction to improve Early Infant Diagnosis (EID) coverage and to shorten the turnaround time (TAT). Point of Care EID viral load testing using GeneXpert machines and same day results has been piloted in some facilities and should be considered for scale up.

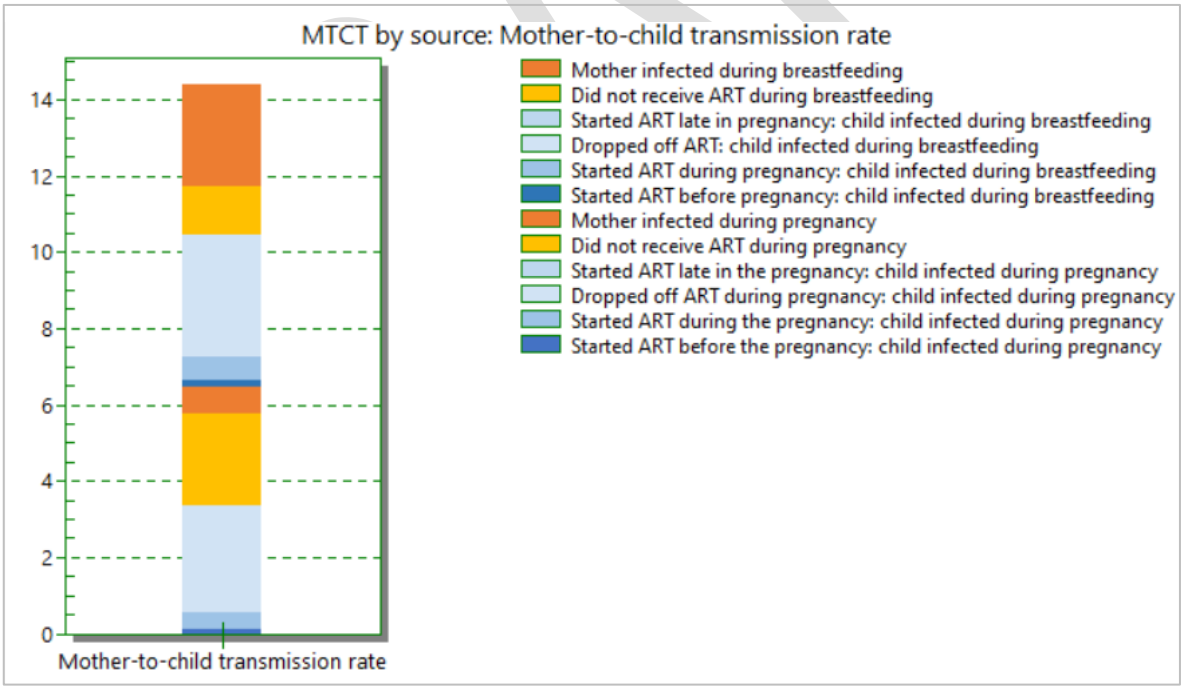
Most health facilities collect and send Dried Blood Sample (DBS) for DNA PCR test but there is an extended turnaround time for results ranging from 2 to 6 months. Point of Care for EID testing using GeneXpert machines and same day results has been implemented in 119 health facilities and should be strengthened and considered for scale up. Mothers Support Groups (MSG) are available in most high volume and donor supported sites ; withdrawal of donor support has challenged their sustainability.

The fact that Ethiopia is a large predominantly rural country with low national prevalence, presents programmatic challenges towards elimination of MTCT. In EFY2011, (2018/2019) from the 3,271,091 expected pregnancies, 84% (2,760,809) pregnant women were tested for PMTCT. From the 21,561of estimated HIV-positive pregnant women, 17,516 (81%) HIV-positive pregnant women received ART for PMTCT[61]. In 2018, 64% (13,799) of HIV exposed infants had a PCR test. but as noted above turnaround time to receive results is prolonged..

In a review of DSHIS2 data over a one year period (2017/2018 EFY 2010/2011) of all the 2,865 PMTCT sites, 57.4% of all sites had no PBFW who started ART.. Out of the 1,242 health facilities who did identify at least 1 HIV+ PW over a 1-yesar period, one third had <2 PW, another third had between 3-5 cases, and only 398 sites had 11 or more pregnant women who received ART for MTCT. These results indicate that efficiencies may be gained if other options of service delivery are considered as not only are there inefficiencies if no PWBF are identified at a PMTCT site but quality of care is also compromised if a health workers only rarely provides ART.

Although there has been a major decline in MTCT transmission from 39.55% to 16.9% in 2019, (Fig 13), this level of MTCT is still far too high. Figure 19 shows the various points where mother-to-child transmission occurs in a set of 14,000 cases indicating both initiation and retention of mothers throughout the risk period is critical. Additionally, a number of other challenges were identified. These include: poor performance in implementing enhanced postnatal prophylaxis, gaps in linking HEI immediately after birth (most are linked when they return for vaccination), failure to implement quality improvement interventions, gaps in maternal and HEI cohort monitoring analysis, shortage of DBS kits and interruption of EID testing, , stock out of cotrimoxazole syrup for HEIs, and lack of trained staff.

Fig 19 Mother-to-Child-Transmission by Source. (Note: This stacked chart explains the reason for the MTCT rate generated from the spectrum based on the 14,000 cases on ART.)



More investment in reproductive age women is required to prevent Mother to Child Transmission (MTCT), new infections among Adolescent Girls and Young Women (AGYW), FSW and their clients, other key and priority populations; with particular attention paid to enabling the program to become more effective against disproportionately affected groups. Over the next strategic plan 2021-2025, it will also be useful to generate evidence through

sensitivity analyses and population-based studies to map out specific reasons for variances in prevalence and incidence for each geographical area. Special attention and evidence-based interventions including HIV/AIDS awareness campaigns, ART services with adherence support and prevention of mother-to-child transmission of HIV should be targeted in areas identified with hotspot clusters.

In order for Ethiopia to move towards elimination of mother to child HIV transmission, programmatic interventions addressing the various points at which transmission can occur is critical. Testing is the entry point for the elimination of MTCT. Based on a 4 country study on whether a universal or more targeted approach should be followed, the study concluded that a universal approach to antenatal HIV testing achieves the best health outcomes and is cost-saving or cost-effective in the long term across the range of HIV prevalence settings. It is further a prerequisite for quality maternal and child healthcare and for the elimination of mother-to-child transmission of HIV[62].

2.8.4 HIV Care and Treatment

Free ART services have evolved from when they started in 2005, from CD4 based eligibility to “Treat All” positives combined with re-testing prior to ART initiation, and then to rapid ART initiation which was started in November 2016. Recently, shift to DTG based regimen has materialized. ART services are provided in more than 1,100 public, private and NGO health facilities and demonstrate a strong program with good referral and registration systems.

Ethiopia has made good progress in linking HIV positive people to treatment and in overall viral suppression. The EPHIA 2018 survey which was conducted in urban areas, indicates that among the HIV positive identified during the survey, 83.3% and 70% of women and men knew their HIV status respectively, indicating diagnosing men is an important, as HIV positive men are lagging in terms of knowing their HIV status step to achieving better outcomes regarding case finding. (Fig 20a).

Figure 20a. Progress to reach 90:90:90 EPHIA 2018

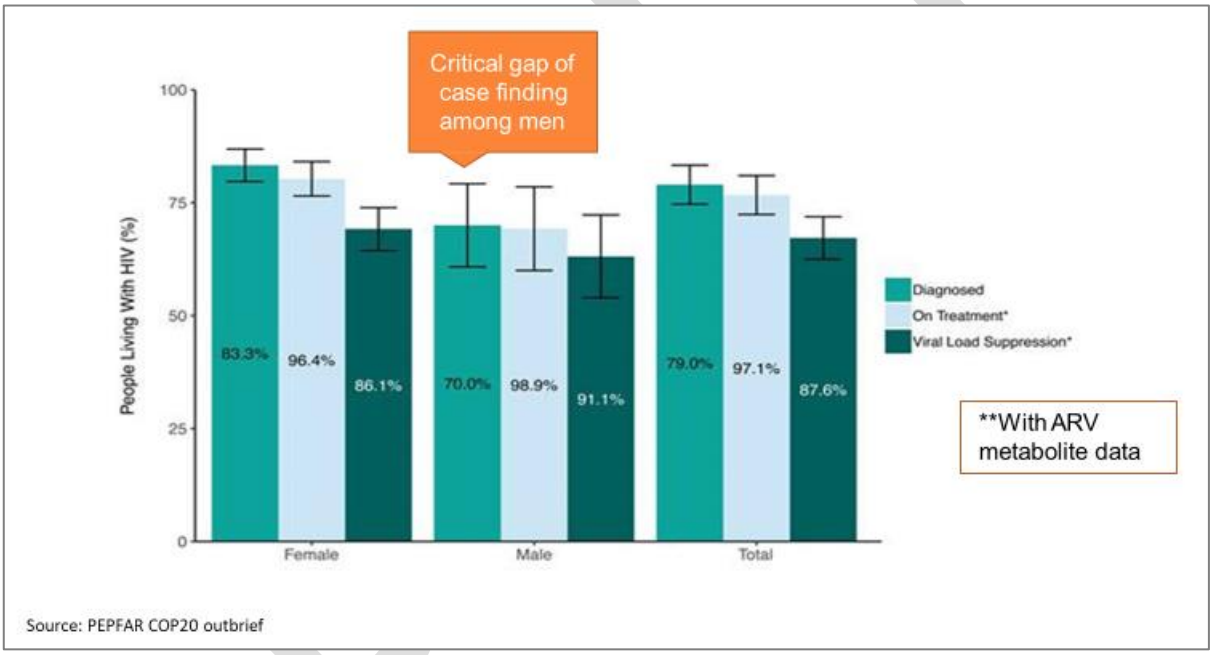


Fig 20b. HIV cascade in Ethiopia as of December 2019

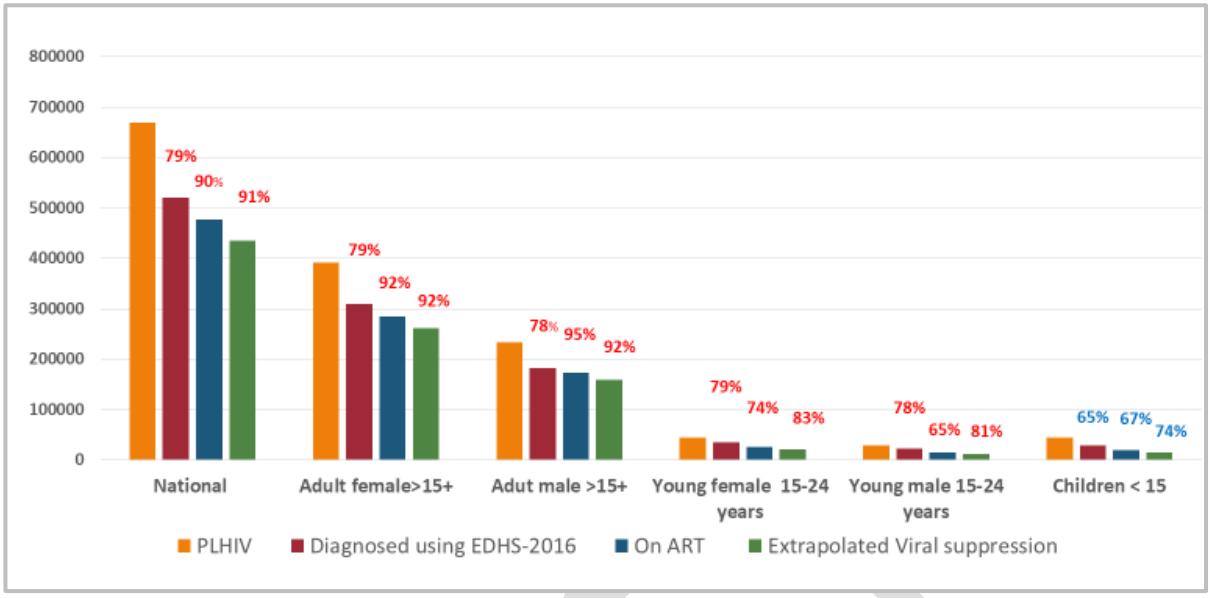
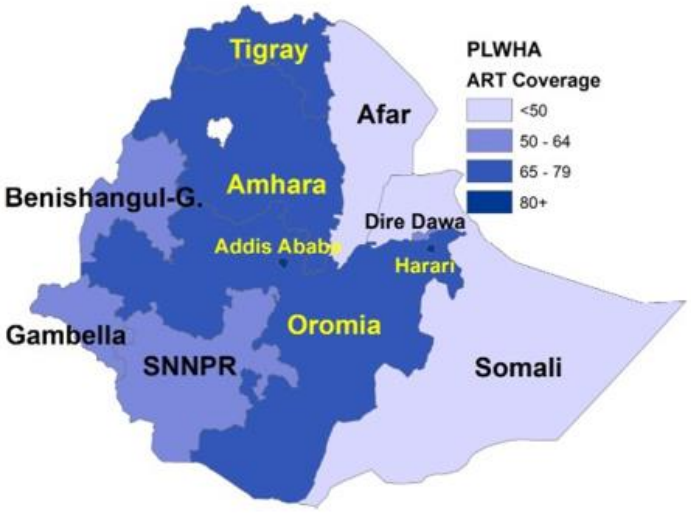


Fig 20b shows the HIV cascade as of December 2019. Of the 79% of estimated PLHIVs who know their status, 90% of them were on ART and 91% were virally suppressed. This indicates that across ll age groups the most pressing gap is in identification of people who are HIV positive. Linkage into treatment and viral suppression among 15-24 year olds are both suboptimal as well. The percentage of children <15 years on ART however is considerably lower; of the 65% of known status, 67% are on ART with an overall viral suppression rate of 74%. Further disaggregated age data among children shows that only 26% for children 0-4 years, 46% for those aged 5-10 years and 58% for those 10-14 years old are on ART. [63] There are large regional variations in ART coverage from 28% in Somali to 81% in Harari.

There is encouraging involvement of private health facilities in the provision of ART services. Private facilities provide the ART drugs and viral load testing through sample referral for free and physician consultation is provided on fee basis. In addition, there is a fairly good two-way referral system as the need arises. However, private health facilities lack adequate number of trained staff, case managers and adherence supporters. They are not getting adequate technical support, commonly lack drugs to manage opportunistic infections, and are not adequately involved in monitoring and review meetings. They also do not have strong system for tracing lost to follow up patients[64]. As Ethiopia increases its ART coverage, identification of new HIV infected individuals, linking them into treatment and ensuring that patients are not lost to follow-up is critical.

Ethiopia has a large refugee and internally displaced population, estimated at 3 million at times. While refugee camps and their services are under the management of the Administration for Refugee Affairs (ARA), recent legislation indicates that refugees will now be incorporated into regular health services within the vicinity of the refugees camps. ARVs for the refugee population have always been incorporated into the national forecasting quantities. The internally displace population has to access health services in the areas where they have been displaced to which poses a greater challenge for those on ART.

Figure 21. PLHIV Map-ART Coverage and PLHIV Burden by Region, Ethiopia, January 2020



Row Labels	Sum of Estimated PLHIV	% Contribution
Amhara	207,872	31.2%
Oromia	165,973	24.9%
Addis Ababa	113,654	17.1%
SNNPR	64,090	9.6%
Gambella	13,986	2.1%
Tigray	57,035	8.6%
Dire Dawa	11,527	1.7%
Afar	13,066	2.0%
Benishangul-Gumuz	6,837	1.0%
Harari	5,658	0.8%
Somali	6,025	0.9%
Grand Total	**665,723**	100.0%

Key challenges in maintaining these gains and striving to reach the UNAIDS Fast Track targets of 95:95:95 are hampered by: lack of funding for adherence supporters, shortage of supplies including cotrimoxazole, and nutritional supplements, failure to provide primary fluconazole prophylaxis due to lack of Cryptococcal antigen test and routine CD4 test for assessing eligibility. One of the major reason why optimization of pediatric regimens is lagging is because of worldwide shortage of pediatric formulations, like lopinavir/ritonavir pellets.

Multiple strategies are needed to improve patient retention on ART. These include peer counseling, appointment reminders, enhanced client-centered services including strengthened pharmacy services and adherence support, full roll-out of -Multi-Month and appointment spacing models. The scaling up of Urban Health Extension Program (UHEP) managed Community Adherence groups (CAG) in selected regions (Addis Ababa and Gambella), rapid pharmacy refills, rapid follow-up for unstable patients with high viral load are also important approaches to improve efficiency of the service. Recent initiatives including community based HIVST and referral of clients with a positive screen result to a health facility for confirmatory tests, Peer Community Adherence Groups that provide community based care and support including individual and group based routine and interventional adherence counseling need also to be implemented in more scale. The peer groups receive line list of clients with high viral load and provide intensive counseling and follow up for the improvement of VL status. Engaging Faith-Based Organizations is also a useful approach being implemented through support by community partners, so that the FBOs contribute based on their comparative advantages, for example in passing consistent messaging to addressing retention challenges, promoting the need for ART adherence and mitigating stigma associated with ART.

Viral load coverage has reached 73% by June of 2019, with a viral suppression rate of 90% (Fig 22). Both the viral load coverage and viral suppression rates vary across regions. Viral suppression is similar among the pregnant, and breast-feeding women, and between male and female ranging from 88- 92%. However, it is low among children of 0-14 years (78.9%) as well as among adolescents and youth (81.8%). (Fig 23)

Figure 22: Trend of viral load test and suppression, 2015/16-018/19 (EFY 2008-2011)

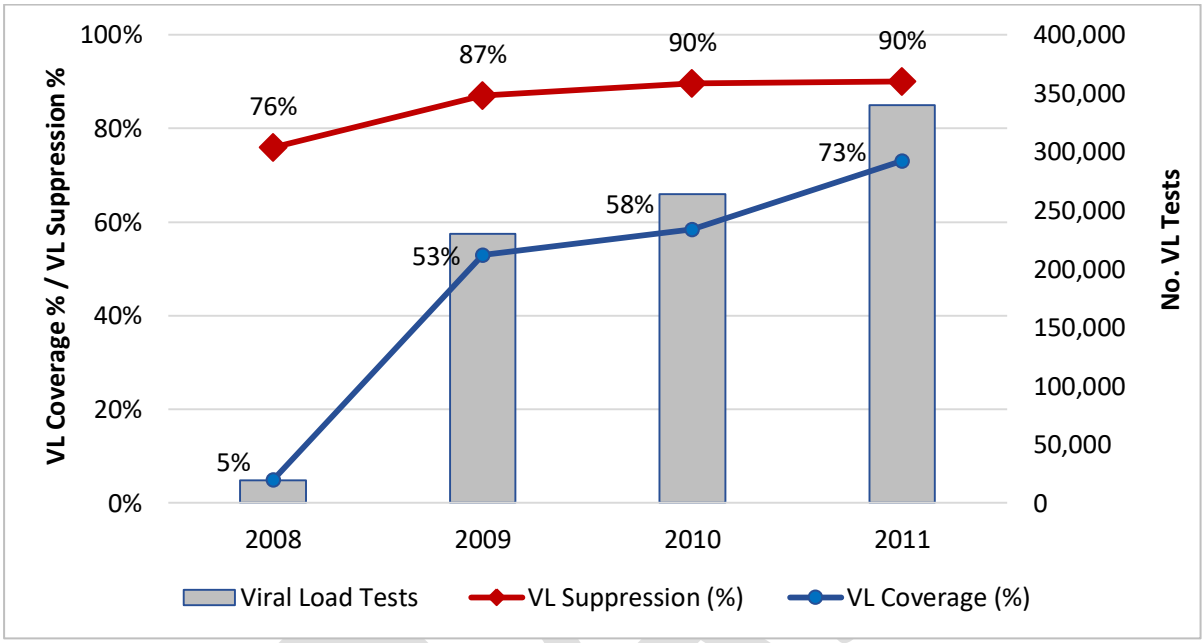
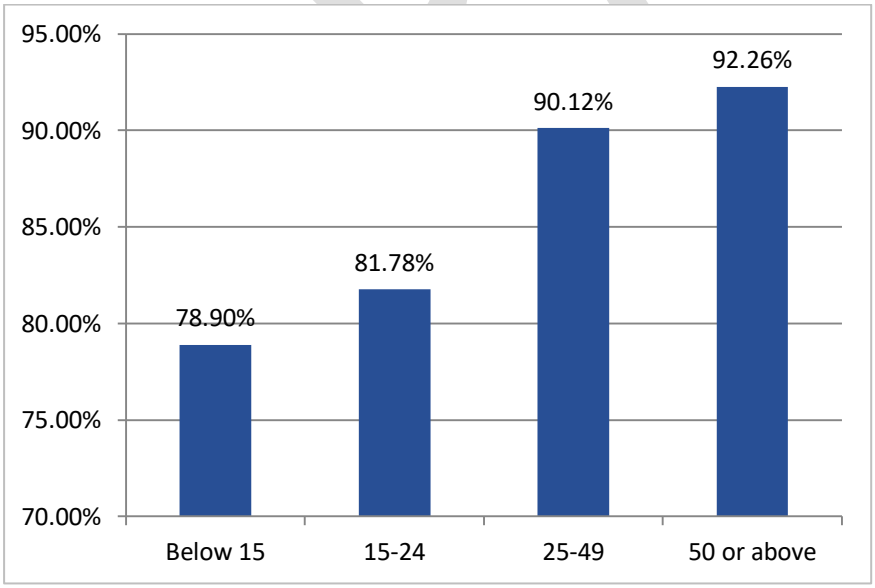


Figure 23: : % viral suppression by age, 2018/19(EFY 2011)



2.8.5 TB/HIV co-infection treatment

Ethiopia is among the 30 high TB, TB/Human Immunodeficiency Virus (TB/HIV) and Multi-Drug Resistant TB (MDR-TB) burden countries, with an estimated 165,000 persons (151/100,000 population) with all forms of TB; 1600 MDR-TB incident cases; and 24,000 (22/100,000 population) TB deaths in 2018[65]. Over the past decade there has been significant decrease in TB incidence on average 8-9% per year, from 421/100,000 in 2000, to 151/ 100,000 population in 2018. Tuberculosis remains the leading cause of hospital admission and mortality among people living with HIV. The prevalence of HIV among TB patients is 7.34% with significant regional variations from 0.7% in Oromia to 14.5% in Afar. The routine information system in Ethiopia does not track patients who continued ART after completion of TB treatment or disaggregated treatment outcome by HIV status. Although TB/HIV mortality has declined from 5.7/100,000 in 2014 to 2/100,000 population, TB remains one of the major causes of deaths among PLHIV. Early and effective case finding, optimized TB/HIV care and TB prevention activities form the foundation required to improve outcome. Poor health care access, proximity to international borders, low wealth index and adult literacy levels were significantly associated with the prevalence of TB/HIV co-infection[66].

Information from a TB patient pathway analysis using secondary health service data showed that 76% of persons with TB initiated care in the public sector, 22% in the formal private sector and the remaining in the informal traditional care settings[67]. Among those who initiated care in public facilities, more than a third initiated with HEWs, who referred those with presumptive TB to health centers for diagnosis. An additional one third initiated care at health centers where around 80% had microscopy services but very few had access to GeneXpert tests. In the private sector, where 22% of patients sought care, availability of TB diagnostics was even more limited. Approximately 22% of private clinics offer smear microscopy, 13% provide Xray, and only 1% had access GeneXpert tests.

Provision of preventive treatment has proven itself an effective intervention to avert the development of active TB disease, with efficacy ranging from 60% to 90%[68]. The likelihood of progression of TB infection to active disease depends on bacterial, host, and environmental factors. HIV infection is the strongest risk factor associated with the development of active TB, with up to 40% of patients progressing to TB disease after exposure. Treatment of Latent TB Infection (LTBI) in PLHIVs reduces the risk of TB disease development by up to 35%[69] and plays a synergistic role in further risk reduction when used with antiretroviral therapy. Early results from the Tuberculosis Preventive Therapy (TPT) acceleration campaign showed an increase in TPT uptake among PLHIV already on treatment. Further gains in TPT uptake among those currently on treatment can be achieved with multi-month prescribing of TPT as many PLHIV are already receiving MMD for ART, and with additional TPT regimen options such as a combination of weekly doses of rifapentine and isoniazid for three months (3HP). Collaboration and integration with the TB program will be strengthened during this NSP, including a joint Global Fund application with HIV and TB.

2.8.6 HIV and Cervical Cancer

Women living with HIV face a fourfold to fivefold greater risk of invasive cervical cancer than women who are not infected with HIV. But the few facility-based studies show, utilization of the cervical cancer screening services is low among HIV positive women. The Ethiopia Population-Based HIV Impact Assessment (EPHIA) 2017-2018, showed that, in urban areas, only 16% of HIV-positive women aged 30-49 years reported being screened for cervical cancer.

2.8.7 HIV and Hepatitis:

In a national sero-survey conducted by MOH and EPHI in 2017, the prevalence of Hepatitis B Surface Antigen (HBsAg) was estimated at 9.4% among the general population aged 15 years and above, with regional variations and a slightly higher prevalence in rural areas.
Globally, viral hepatitis is a growing cause of mortality among people living with HIV. About 2.6 million people living with HIV are co-infected with hepatitis B virus and 2.9 million with hepatitis C virus. The seroprevalence of hepatitis B surface antigen among adults of ages 15-64 years in urban Ethiopia is 4.8%. The prevalence is 3.6% in women and 7.4% in men ages 15-64 years[70]. A more recent survey on Hepatitis B seromarkers among HIV patients on ART emphasized the unmet need of HBV screening prior to ART initiation. The presence of HBsAg was 11.7%; 47.6% were also positive for anti-HBc, of which 58% were on an ART containing tenofovir (TDF). Among those screened for the three seromarkers, 38.1% were negative for all and 21% were positive only for anti-HBc (IAHBc).[71] A meta-analysis published in 2016, indicated a HBsAg in 8% of HIV infected people and an overall prevalence of HCV of 3.1% in the general population, but 5.5% among PLHIVs[72]

In 2016, Ethiopia has taken the first step in responding to the problem of viral hepatitis through the development of National Strategic Plan of Hepatitis (2016-2020) and adopted national viral hepatitis guidelines.Hepatitis Screening options are available throughout the country at all levels of the laboratory system using serological Rapid Diagnostic Tests (RDTs): serological detection of Hepatitis B surface Antigen (HBsAg) for Hepatitis B Virus and the detection of anti-HCV anti-body for Hepatitis C Virus. However, viraemic infections in both cases need to be confirmed by the quantitative or qualitative determinations of the viral nucleic acids or genomes (RNA for HCV and DNA for HBV) for initiation of treatments or monitoring of responses to the same. However, care and treatment services for viral hepatitis are only available at a few specialized sites. Integrated screening and management of HIV and viral hepatitis infection is important for an early diagnosis and treatment of both HIV infection and viral hepatitis infection.

2.9. Cross-Cutting Issues for the HIV/AIDS Response

2.9.1. Information Systems and Data Management Investments

Critical to the HIV response are effective information systems. Monitoring and evaluation is done at different levels of the health system. Transition from HMIS regular program data to the District Health Information System (DHIS22) was started in 2018. There are however

many quality issues around the collection and accuracy of regularly collected data, and gaps in the availability of disaggregated data. Other sources of data include: ANC sentinel surveillance, surveys (EDHS, EPHIA), Spectrum modelling, laboratory information system (LIS), multi-sectoral response information system (MRIS), burial surveillance of AIDS related deaths, integrated biological behavioral surveys, operational research and program evaluations. The recent introduction of a pilot project to use case-based surveillance and recency testing will assist in the identification of new infections.

As the country moves towards epidemic control, better designed and integrated health information systems are increasingly critical. Linking records on the individuals from testing, care and treatment, laboratory services and pharmacy will generate the data set for granular site management across the entire clinical cascade – within and between health facilities. Additionally, through PEPFAR support, the Pharmacy Management Information System (PMIS) and pharmacy information sheets have been re-introduced in at least all ART sites in Addis Ababa with additional trainings in other regions at high volume ART sites wth plans to expand by the end of 2020 up to more than 200 High volume sites in coordination with the Regional Health Bureaus. Currently, over 300 high HIV case load health facilities are using Electronic Medical Record (SmartCare ART) kept at ART clinics to capture patient enrolment and follow up information. The Implementation of the health information systems is challenged by infrastructural gaps such as internet connectivity and the availability of electric power.

An additional challenge to an overall HIV strategic information system has been the lack of integration between DHIS22 (MOH) and the multi-sectoral response information systems (MRIS) collected by FHAPCO, despite the three ones (one plan, one budget, and one report) principle adopted by the country. Indicators collected by the MRIS are different to those in DHIS2, reflecting multi-sectoral and community responses such as HIV primary prevention mainly SBCC activities, school interventions, mainstreaming, community based care and support programs, condom distribution etc. The community HIV information system is not fully functional. The MRIS is a largely paper based system and does not have an effective grassroots structure which is leading to practical problems in the collection, aggregation, completeness and timeliness of reports, a lack of capacity to organize and interpret data for decision making at the lower levels, lack of a HTS register and no data backup system in some facilities. Some facilities run parallel HIV data systems. At lower levels there is a lack of adequately trained and dedicated staff. The functionality and quality of data system in private health facilities and sector offices are generally weak. All of these issues indicate that the information systems at present are not at the level required to effectively guide the current HIV epidemic control efforts. More investments on strategic information are essential to generate the data required for effective and sustained control of the epidemic.

2.9.2 Supply Chain System

A well-functioning health commodities supply chain is critical for effectively delivery of HIV related services. The Ethiopian Pharmaceuticals Supply Agency (EPSA) is an autonomous

government agency responsible for the supply chain management of the public health sector basic health services and those neglected by the private sector. The forecasting of HIV commodities is performed in a participatory process where all stakeholders contribute their share and EPSA takes the lead. The procurement and distribution of HIV commodities is also carried out by the agency. The agency manages its operations through an Integrated Pharmaceuticals Logistics System (IPLS) which stretches from thousands of service delivery points to a central warehouse through 19 branch warehouses situated logistically at strategic locations. Using this platform, EPSA delivers supplies directly to over 1,500 health facilities and indirectly to more than 2,000 additional facilities through woredas offices. There are guidelines and SOPs for managing the IPLS at all levels and mechanism for redistribution of overstocked commodities. However, the online data visibility only goes down to EPSA entral to branch warehouses but not to health facility. All EPSA warehouses or hubs and most of the health facilities/sites served by the hubs have a functional health commodity management information system/HCMIS/. HIV laboratory commodities (VL, CD4, hematology, Chemistry) monitoring is integrated with IPLS system and easily managed by HCMIS dashboard.

A recent national survey indicated that, 21.8% of hospitals and health centers fulfilled more than 80% of the storage conditions. Hospitals demonstrated better fulfillment of the storage conditions as compared to health centers and health posts: 61.1% of tertiary hospitals, 50.0% of general hospitals, and 59.1% of primary hospitals fulfilled more than 80% of storage conditions as compared to only 18.9% of health centers and 4.6% of health posts. Comparison of data between 2015 and 2018 surveys showed that the percentage of hospitals that met at least 80% of the storage conditions increased from 43.0% in 2015 to 71.4% in 2018. However, the percentage of health centers meeting 80% of storage conditions declined from 63.0% to 44.6%[73]. Most ART sites follow good storage practices in terms of cleanliness, ventilation, and temperature. The ART pharmacies have separate space for counseling and dispensing in most cases. A system for monitoring and reporting adverse drug events is in place. All EPSA hubs and most of the health facilities/sites served by the hubs have a functional health commodity management information system/HCMIS. HIV laboratory commodities (VL, CD4, hematology, Chemistry) monitoring is integrated with IPLS system and easily managed by HCMIS dashboard. With respect to adverse drug event (ADE) monitoring and reporting system (pharmacovigilance), it has limitations related to availability of reporting forms in all ART sites, poor awareness, and commitment among providers to report ADEs, and low capacity building efforts in the area.

The challenges in the area of supply chain include lack of structure at lower levels to interface with EPSA structure, lack of practice at the logistics units of regional health bureaus in aggregating requisition and report forms (RRF) from lower levels for use to provide feedback to EPSA and HIV program management, periodic stock outs of HIV commodities partly due to failure to properly request (poor quality and untimeliness of RRF) commodities by health facilities and inadequate supply by EPSA, weak disposal or reverse logistics practices of health commodities congesting stores by expired items, inadequate fleet management, poor HCMIS data quality and visibility, inadequacy in trained staff, and

connectivity difficulties affecting on line data visibility. The ART pharmacies have limitations in properly implementing good dispensing and counseling practices, monitoring and supporting patient adherence, and managing product and patient information for decision making congesting. In the area of patient management, failure to regularly update patient and product information management tools (including Patient information sheet, ARV drugs daily and monthly summary registers, Patient Tracking Chart, ART pharmacy monthly activity reporting forms), and failure to monitor adherence are considered to be important gaps which need to be addressed[74].

2.9.3 Laboratory

Ethiopia has a tiered laboratory system to support the health care delivery under the auspices of the Ethiopian Public Health Institute (EPHI). There has been huge investment on laboratory infrastructure development including construction of state-of the art national and regional reference laboratories and renovation of many hospital laboratories; there are about 4000 labs which include regional referral labs. Other activities undertaken by EPHI are surveillance, research, public health emergencies, nutrition and vaccine production. Within the HIV program, EPHI is responsible for laboratory test and instrumentation evaluations, introduction and oversight of point of care testing, HIV viral load, infant virologic testing, HIV and TB drug resistance testing, and new rapid TB diagnostics and ARV drug resistance studies. A continuous laboratory quality improvement program has been implemented in most of the laboratories and basic laboratory quality management system are in place in all laboratories. Seventeen including five VL labs achieved ISO accreditation, an important milestone in the laboratory services sector of the country.

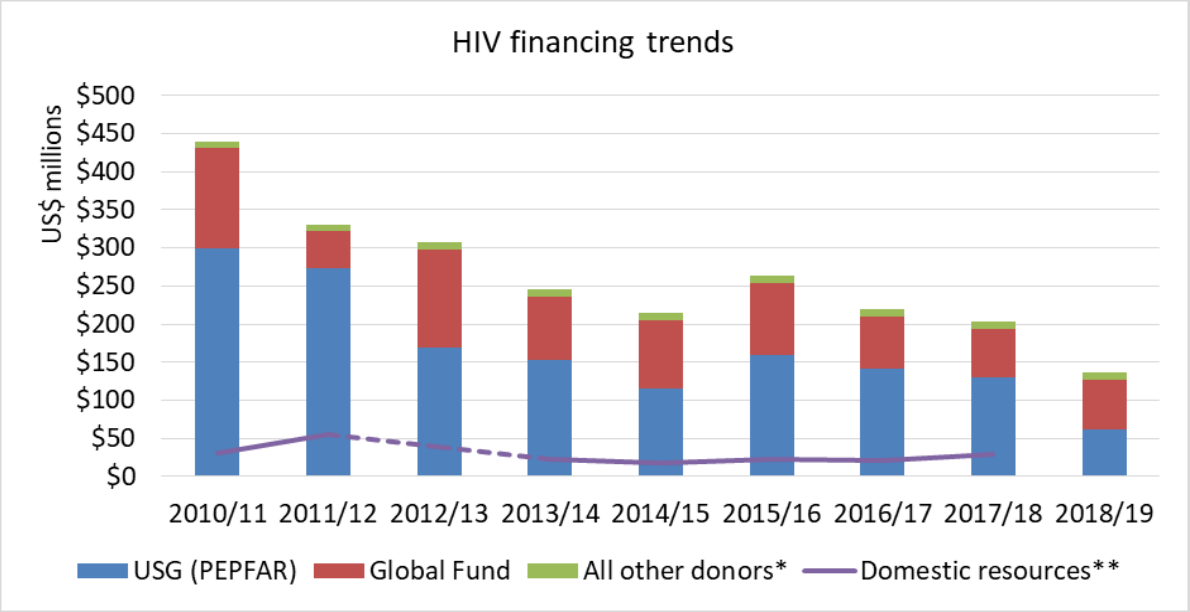
However, the health laboratory system still struggles against a multitude of challenges. These include lack of comprehensive equipment sourcing and management strategies, poorly functioning sample referral system, limited implementation of quality management system and challenges related to accreditation initiatives, inconsistent laboratory commodity supply and absence of regular quality verification practices for laboratory commodities, inadequate technical competency of the laboratory workforce and high staff turnover, weak legislation enforcement systems for the implementation of standards, and inadequate resource allocation.

2.9.4 Resources for HIV

Over the past two decades, financing of Ethiopia's HIV response has been primarily dependent on external resources (Fig 24), accounting for 90% of total funding for HIV between 2011 and 2019. However, donor funding has declined by more than two-thirds (69%) by 2019, compared to the amount in 2011, when the amount of fund from external donors was at its peak. During the same period, U.S. Government funding through PEPFAR has declined by US$237 million (79%). Global Fund resources have declined by US$68 million (51%). Less than US$10 million per year is provided through other donors. Domestic resources for HIV have been low, and their measurement has been subject to different methodologies. [75]

External support has been the sole source of financing for most key components of the HIV response, including all medicines and health commodities for HIV testing and treatment. In 2017, the Global Fund spent $60 million on antiretroviral drugs and rapid test kits, and PEPFAR spent $11 million, primarily on laboratory commodities and reagents (PEPFAR, 2018). With further funding reductions and the growing need for ART, the procurement of these commodities is jeopardized. [64]

Fig 24: HIV Financing Trends, FHAPCO



Modest levels of domestic funding for HIV has been obtained from sources that include public budget allocations for health and HIV, non-health sector HIV mainstreaming budgets, the AIDS Fund and Community Care Coalitions, which together contributed less than 10% during the current strategic plan period 2015-2020.

Table 3: Annual domestic financing estimates (2019)

Funding source	Value
Federal HIV budget (MOH and FHAPCO)	$750,000
Regional HIV budgets	$1 million
Woreda HIV budgets	$5 million***
HIV mainstreaming budget†	Less than $1 million
Innovative financing for HIV	$2–3 million
Community Care Coalitions	> $1.2 million
Corporate and enterprise financing for HIV	Negligible
HIV expenditure from insurance Unknown	Unknown
Out-of-pocket expenditure on HIV	$3 million (2014)

Woreda HIV estimate computed from small sample

The above sources of funding exclude health workers delivering HIV services that are employed by the MOH, funding for capital expenditure as well as other MOH indirect expenses attributable in part to the HIV program.

Allocation of budget for health sector HIV program through HAPCO and MOH was not more than $1 million at Federal and$1 million at regional level. Though estimation is based on small sample data, total woreda allocation for HIV programs could be estimated to reach about $4 million.

The allocation of resources from non-health sectors to HIV programming through HIV mainstreaming—has previously been a central focus of HIV domestic resource mobilization efforts. However, implementation of HIV mainstreaming has its own limitations including lack of legal basis to enforce the implementation of HIV mainstreaming funds, including allocation and utilization of the budget; lack of operational tools to guide utilization, tracking and reporting of the HIV mainstreaming budget, and lack of capacity to in the allocation of the funds in alignment with national initiatives and priorities, to ensure meaningful contribution in the HIV /AIDS multisectoral response of the country.

The AIDS Fund, is another source of domestic funding for HIV. The fund comes through contributions (0.05%-0.5% of their salaries) from government employees., and utilized at the respective sectors to provide care and support services to the needy PLHIV, OVC and their families, e mostly from the employees within the same sector. AIDS funds are under-utilized as some PLHIV do not want to disclose their status to access the benefit and also as a result of poor management due to lack of guidelines and regulations.

Community care coalitions (CCCs) are kebele-level, volunteer-based committees that collect annual community member contributions. It is implemented in some regions including Tigray, SNNP, Amhara, Oromia, Dire Dawa, and Addis Ababa; Tigray and Amhara regions have advanced it at larger scale and quality of implementation. The amount of fund collected is utilized used to support disadvantaged/vulnerable population groups especially people living with disabilities, the elderly, PLHIV and Orphans and vulnerable children.

Lack of institutionalization and high turnover of committee members, lack of leadership support to sustain and scale it up, failure to fully collect the contributions, lack of capacity in the planning, management and accounting of the fund, and the fact that the funds are purposed only to care and support programs, disregarding HIV prevention are among the challenges and limitations of the community care coalition.

Declining donor funding for the HIV program in Ethiopia requires attention to increased domestic resource mobilization. A draft Domestic Resource Mobilization Strategy was developed in January 2019 building on current experiences and best practices and is awaiting ratification by Parliament.

2.9.5 Multi-sectoral aspects of the HIV response

The HIV epidemic negatively impacts the health, social, and economic status of the country, requiring a multi-sectoral response approach but there are multiple structural and coordination challenges. The country has designed an approach of HIV mainstreaming, with the intention to ensure key development and social sectors, both public and private, implement HIV mainstreaming through assessment and understanding of their risks and vulnerabilities, and using their comparative advantages in responding to the HIV epidemic with responsibility and ownership. The HIV mainstreaming guidance stipulates that a sector which mainstreams HIV needs to have plan, should allocate budget, and establish a structure enabling the sector to properly execute its response to HIV. The multisectoral response coordination facilitates harmonization of plans, budget, structure, and responses towards a common goal. Currently, the majority of the sectors have HIV/AIDS mainstreaming plans with budget, as well as structures to implement HIV/AIDS mainstreaming with job descriptions and trained staff. Some sectors also have "good" support from their organizational leadership. Most sectors have good relationships with FHAPCO and are involved in joint planning, review meetings and supportive supervision at various levels. Coordination, and leadership are indispensable to an HIV/AIDS multisectoral response to ensure harmonized, and effective engagement of diverse group of stakeholders.

The HIV multisectoral response in Ethiopia has a structure across federal, regional, zonal and woreda levels. There are also governance structures including HIV /AIDS Prevention and Control Councils, management boards and various forums, which are functional at national level and across some regions and sub-regional levels.

There is a newly revitalized Grants Coordination Committee at the Federal MOH level, which brings together development partners and other relevant stakeholders, is a promising platform for coordination. The Committee is chaired by the State Minister of Health, and it is mainly focused on prioritizing and resolving key grant implementation risks and intends to enhance overall grant performance. MOH also has steering committee, which involves heads of regional health Bureaus, director generals of all the agencies and various experts, which provides feedback and follow up on outstanding key issues to regions.

The current experience of HAPCO in ensuring engagement and management framework with RHBs and civil societies through the development and signing of commitments with annual work plans, quarterly performance targets and budgets to which all implementers are held accountable needs to be taken forward.

However there are also a number of gaps and challenges in the HIV coordination and leadership structures of the country, which vary significantly across regions. These include: inadequate leadership ownership and support, lack of adequate staffing, failure to fully integrate HIV mainstreaming into organizational strategic and annual plans, lack of adequate budget, poor monitoring and evaluation and lack of capacity to undertake risk assessments. In addition to the fact that the coordination structure lacks consideration of the current HIV response coordination needs, there is lack of clarity regarding scope of work

among various coordination and implementation units, inadequate staffing, and high staff turnover across all levels.

The coordination roles between the MOH and FHAPCO at federal level, between the regional health bureaus and HAPCOs, in regions where HAPCO structure exists independently, as well as between the structure which coordinates the non-clinical and clinical responses of HIV in regional health bureaus where the multisectoral response is under the health bureau should be revisited and rearranged for better coordination.

The HIV/AIDS Prevention and Control Council and Management Boards are not functional across most regions and at sub-regional levels. Across some regions which revitalized the HIV/AIDS Prevention and Control Councils, the revitalization has not yet been cascaded to sub regional levels. Partnership platforms including religious, Non-Governmental Organizations (NGO) and government forums are weak and more-often non-functional; and public private partnership is also weak across all levels. Local implementers and NGOs are not coordinated in a harmonized manner at zonal and woreda levels.

At health facility level, the Multidisciplinary Team (MDT), Performance Monitoring Teams (PMT) are functional and conducted regularly, addressing important HIV service delivery agendas. In addition, in catchment area meetings are functional except in some areas. However, participation in Catchment Area Meeting is unsatisfactory and is challenged by shortage of budget and lack of Standard Operation Procedure (SOP). Previously when there were heightened efforts to address the HIV epidemic, there was more robust community engagement among multiple stakeholders through a combination of community led participation as well as donor support for community activities. Now, community level HIV activities are weak. Integration of HIV in health extension program is poor and the performance evaluation of the HEWs does not emphasize HIV related tasks. This results in lack of appropriate community level capacity in the response against HIV/AIDS.

Religious and social organizations are not sufficiently engaged to mobilize communities at grassroots level for HIV prevention activities. PLHIV Associations' functionality is limited by lack of the necessary human resources, and budget. There is also lack of platforms to organize the various key and priority populations to enable them play stronger roles in the fight against the HIV/AIDS epidemic.

Overall, the HIV response seems to be lacking adequate leadership attention and commitment at various levels due probably to complacency attached to reduced rates of new HIV infections, and AIDS deaths which intern resulted from the successes of the HIV response registered to date.

This calls for the need to conduct comprehensive assessment of the current HIV coordination, leadership and governance structure and implementation of the recommendations in order to ensure the country's progress towards sustained HIV epidemic control in the foreseeable future.

2.9.6 Strategic Planning

The strategic planning process involved many stakeholders but responsibilities for implementing strategic activities appear to have not been well understood resulting in low performance. Existence of two operational planning processes for the HIV program through MOH woreda based plan and the FHAPCO multi-sectoral plan creates duplication sometimes with conflicting targets. In absence of a woreda level structure to coordinate the multi-sectoral response, there may be a need for the multi-sectoral response plan to be merged with the woreda based planning process in order to have one plan coordinated at grass root level by the Woreda Health Office.

2.9.7 HIV policy and laws

The HIV policy was issued in 1998. It fails to address the current HIV context in that it does not adequately cover new HIV testing options, new treatment modalities, age of consent for HTS, partner notification, school HIV programs, social network services, work place HIV testing, HIV mainstreaming, and sex workers.

2.9.8 Stigma and Discrimination

According to the stigma index conducted by Networks of Networks of HIV Positives in Ethiopia in 2011, stigma and discrimination occur at community, family, and institution levels. The MARPs study of Ethiopia conducted in 2013 also shows fear of non-confidentiality, stigma (family or others might learn that they do sex work), to be barriers to accessing HIV services. Fear of stigma and discrimination also deter KPPs from using general HIV services. A second Stigma Index is in progress.

The EDHS shows, 48% of women and 35% of men thought, children living with HIV should not be able to attend school with children who are HIV negative; 55% of women and 47% of men would not buy fresh vegetables from a shopkeeper with HIV, indicating stigma and discrimination is an important factor in the transmission of HIV across communities.

The focus group discussions conducted among the female sex workers indicated the level of stigma and discrimination the female sex workers experience by the community. They however indicated they face no significant discrimination in health facilities.

Both self-stigma and stigma and discrimination remain major challenges for PLHIV. Disclosing HIV status even among family members is not easy. Children are not openly told about their status until their late adolescent ages for fear of stigma and discrimination at school and in the community; they take ARVs without fully understanding why they are taking the drugs and lack adequate emotional support. Peer support groups are few.

As high levels of stigma and discrimination act as major disincentives to the uptake of and retention in HIV prevention and treatment, it is important to understand the level of stigma and discrimination against key and priority population groups and among the PLHIVs across

communities and at service delivery places in order to design strategies and interventions addressing stigma and discrimination.

2.9.9 Gender-based violence

The 2015-2020 national HIV Strategic Plan addressed gender equality and equity through addressing gender related barriers to HIV and SRH needs of girls and boys; women and men was identified as one of the four critical enablers that are necessary for the HIV Investment Case to deliver results. Gender mainstreaming is at level of a directorate at FHAPCO. Gender mainstreaming for HIV services, enhanced community mobilization against harmful traditional practices such as early marriage, female genital mutilation and HIV vulnerability reduction among women through strengthening economic interventions were also implemented in the SPM-II period[76]. However, mechanisms for and indicators to track the meaningful participation of women, gender responsive programing and gender responsive budget allocation was limited.

Despite many policy, laws and strategies to close the gender gap, there is still significant gender disparity in HIV prevalence, incidence, and AIDS-related deaths in Ethiopia. More women than men are infected with and die due to HIV/AIDS related illnesses. Fewer women than men have comprehensive knowledge about HIV and use condom with non-regular sexual partners[77]. Gender-based violence is still common in Ethiopia with 1 out of 4 (26 per cent) of women age 15 – 49 experiencing physical and/or sexual violence by an intimate partner or non-partner in their lifetime. Gender norms which are directly or indirectly related to HIV are quite common in Ethiopia. These gender norms include early marriage, harmful traditional practices and cultural norms on sexuality and gender roles that contribute to creating barriers for HIV prevention and contributing to increasing the risk of HIV transmission in women and girls[78].

In all regions, there are trained health workers capable of addressing GBV; health facilities especially hospitals and KP clinics provide comprehensive HIV services for GBV victims including HIV testing, treatment of STIs, emergency family planning and post exposure prophylaxis. Victims are also linked to legal and psychosocial support. FSWs, bar owners and law enforcement officers receive training on GBV prevention and mitigation. Although FSWs are organized in support groups in a few regions; there is no comprehensive strategy to protect FSWs against GBV at grassroots level. GBV prevention requires a budgeted multisectoral response with better coordination among relevant stakeholders.

2.9.10 Stakeholder Analysis of the HIV Response

Stakeholders	What we expect from them	Their needs	Resistance issues	Institutional response
KPPs	Participation in HIV prevention and behavior change	Access to health information and services in user-friendly manner, avoidance of stigma, confidentiality	Dissatisfaction, low uptake of services	Expand KPP friendly service delivery models, organize and build capacity of KPP groups, engage them in planning, service delivery, M&E
PLHIVs	Enrolment and adherence to HIV care and treatment	Access to quality services, uninterrupted supply of ARVs, OIs, & reagents, avoidance of stigma, confidentiality,	Dissatisfaction, low uptake of services, poor adherence, loss to follow up	Improve quality of services, strengthen adherence support systems, empower PLHIVs to engage in comprehensive HIV response, strengthen community systems to reduce stigma & discrimination
Parliament, Office of the President, NAC, Prime Minister's Office, Council of Ministers, Regional Governments	Leadership commitment and ownership of the national response, ratification and enforcement of policy and proclamations, domestic resource mobilization, ensure accountability	Effective implementation of policies, proclamations, and strategies. Achieving goal, ensuring equity and demonstrating efficiency, quality plans and reports	Administrative measures, organizational restructuring, influence on budget allocation	Have compelling business case for attaining and sustaining HIV epidemic control, put in place strong M&E system and efficient capacity building mechanisms
Strategic sectors	Allocate adequate budget to implement HIV prevention programs and address KPPs & surrounding population with targeted prevention intervention in their sectors	Capacity building support for targeted HIV prevention & coordination, legal framework for HIV mainstreaming, HIV commodity support, evidence on epidemic & response	Fragmentation of response, low reach and quality of services, dissatisfaction, considering HIV as low priority	Build institutional capacity for effective response, provide guidelines, support for making social contracts with CSOs for service delivery and linkage with health facilities

Stakeholders	What we expect from them	Their needs	Resistance issues	Institutional response
MoH	Enhance implementation of health sector response, adopt and enforce guidelines based on the national context, support in creating user friendly service to KPPs, advocate for domestic resource mobilization, and leadership commitment to attain and sustain epidemic control, ensure integration of general population based services into HEP and other programs, and effective mainstreaming across the sectors, strengthen interagency and sectoral coordination	Effective coordination of multisectoral response, coordination, resource mobilization for HIV response, efficient allocation and utilization, coordination, engaging in Planning, M&E, quality plan and reports	Inefficiency, weak coordination, less attention by other sectors	Strengthen sectoral ownership and leadership of the response
EPHI	Ensure quality assurance, build laboratory capacity, establish strong laboratory referral system for specimen transportation, testing, result reporting, undertake surveillances and surveys with timely reporting	Financial support, coordination, research idea/agenda, engaging in Planning, M&E	Inefficiency, delays with effects on program planning, service delivery, result monitoring & evaluation	Strengthen engagement at Planning, M&E of HIV response at top leadership and directorate levels (HAPCO-EPHI Forum)

Stakeholders	What we expect from them	Their needs	Resistance issues	Institutional response
EFDA	External quality assurance, swift registration of HIV commodities which are WHO prequalified and registered with SRA, prompt approval of purchase orders, and port clearance authorization, Post Market Surveillance	Financial support, coordination, engaging in Planning, M&E	Inefficiency, delays in registration, procurement, and port clearance.	Strengthen engagement at Planning, M&E levels of HIV response at top leadership and directorate (HAPCO-EFDA Forum)
EPSA	Ensure availability of HIV commodities for prevention, care and treatment by implementing IPLS effectively, make real stock monitoring and enhance procurement, distribution, and avoid stock outs.	Jointly quantifying and sharing targets and needs, financial supports	Inefficiencies, delays in procurement and distribution which could result in stock outs	Build capacity for IPLS including creating visibility of items at down streams of supply chain & on pipeline of procurement, Strengthen engagement at Planning, M&E levels of HIV response at top leadership and directorate (HAPCO-EPSA Forum)
Health professional training and research institutions, professional associations	Produce health professionals with the required Knowledge, skills and ethics incorporating recent developments in HIV prevention, care and treatment, engage in operational research & in-service trainings, support in licensing and accreditation	Policy support and guidance, collaboration in Continuous Professional Development (CPD) research, accreditation & licensing	Curriculum revision	Strengthen collaboration in research, CPD, licensing, accreditation and providing policy support

Stakeholders	What we expect from them	Their needs	Resistance issues	Institutional response
Development partners	Harmonized and aligned support to national priorities & plans, provision of financial and technical support	Efficiency in allocation & utilization of resources, assurance of the proper use of resources, transparency, coordination, involvement in planning, implementation and M&E, reduce dependency	Fragmentation, inefficiency,	Build implementation capacity for targeted response, ensure accountability, transparency & efficient use of resources, build financial management system, increasing domestic resource mobilization
NGOs and CSOs	Harmonize and align to national priorities and plans, engage in provision of HIV prevention, linkage to care, treatment and adherence support	Involvement in planning, implementation & M&E	Dissatisfaction, fragmentation, scale down and withdrawal	Strengthen partnerships, transparency, enhance engagement in social contracting, linkages of community and facility based services
Private for profit entities	Be alternative options for provision of prevention, care and treatment services including social marketing	Receive updates on national policies, guidelines, creation of enabling environment for their engagement	Mistrust, rent seeking	Strengthen public private partnerships in service delivery, create conducive policy environment
Civil servants	Commitment, Participation	Conducive environment Transparency Incentive	Dissatisfaction Unproductive Attrition	Motivation, Involvement

3. Sustained HIV Epidemic Control Framework

There is a growing interest among the global AIDS community to institute appropriate indicators to monitor progress to the HIV epidemic control at country, regional and global levels. It is within this context that a policy decision was made to integrate the definition and sustenance of the HIV epidemic control along with the development of the next cycle of the NSP. A framework has been developed to guide a sustained and accelerated response that aims at expanding and improving the reach and quality of HIV interventions in order to achieve epidemic control targets by 2030 and ensure that those gains are sustained in the long term[79]. This will:

a) Propose a country framework to guide the response to the HIV epidemic control in the next decade
b) Demonstrate the return on investment and the gains in health and other parameters of evidence-based HIV interventions to control the HIV epidemic
c) Showcase the application of HIV epidemic control metrics in the Ethiopian setting and contribute to the global discourse in refining and finalizing the proposed metrics.
d) Introduce metrics to guide the attainment of epidemic control in the Ethiopian context.

Table 4. Ethiopia's Standing in Meeting the Proposed Epidemic Control Metrics, 2020[80]

Proposed Metrics	Milestone for Epidemic Control	Ethiopia's standing
Percentage reduction		
a) Reductions in new infections from 2010 levels	75%	52%
b) Reductions in AIDS related mortality from 2010 levels	75%	53%
Absolute rate		
a) HIV incidence of less than one per 10,000 population	<1	1.29
b) AIDS related mortality of less than one per 10,000 population	<1	1.10
Incidence Mortality Ratio	<1	1.17
Incidence-Prevalence ratio	0.33	0.019

The proposed metrics to track progress in epidemic control are:

a) An HIV incidence of less than 1 per 10,000; as the main metric, complemented by:

    i. An incidence mortality ratio (IMR) of less than 1; and,

ii. The three 95's : 95% of PLHIV know their status, 95 % of PLHIV who know their status are on ART, and 95 % of PLHIV on ART are virally suppressed.

The rationale for the selection of these indicators among those proposed by UNAIDS is discussed in the epidemic control framework document. Progress in epidemic control will be monitored annually at national and subnational levels and population groups. The three 95's are included as supplementary indicators to track progress in program performance and maintain vigilance particularly at subnational levels.

4. The Investment Case Analysis

The NSP was informed by Investment Case modelling produced by Spectrum Goals (Aviner, Ethiopia output, 2020) to prioritize the most cost-effective interventions whilst investing in critical social and program enablers, including rights-based programming to achieve this.

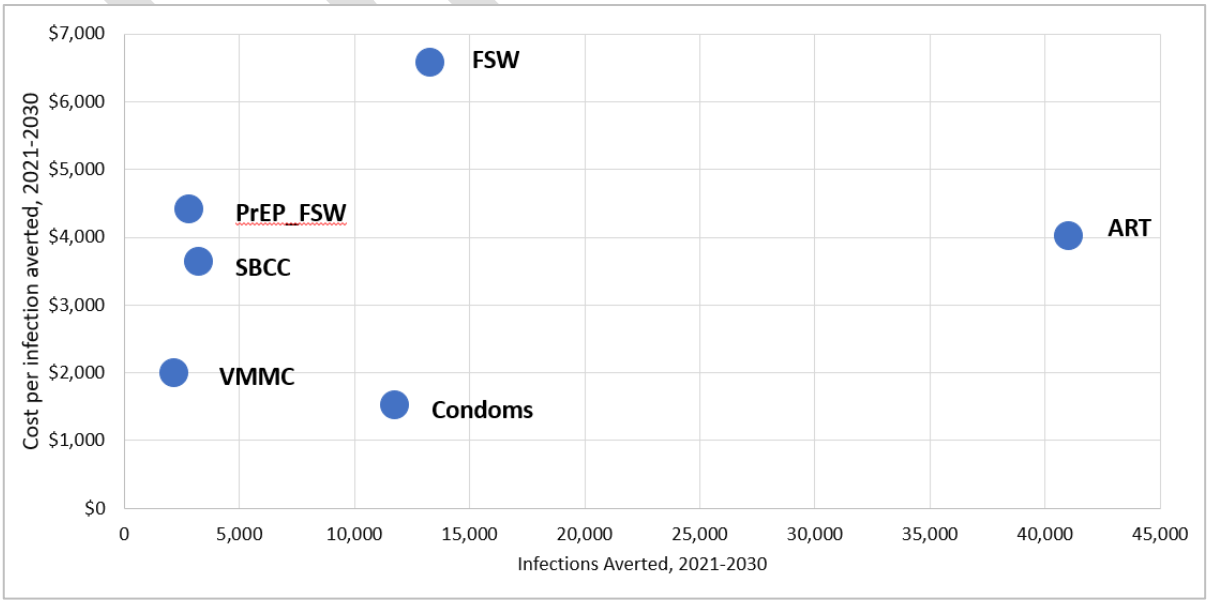
Table 5: Selection of priority interventions and year 5 coverage targets in the NSP

Intervention	Coverage: 2025
Key and priority populations	90%
High risk AGYW	90%
Condoms	254 million
VMMC	95%
PMTCT	95%
Differentiated Testing	7.56 million
Treatment (PLHIV)	90%

The choice of investment strategies in this NSP are built upon evidence based options using the GOALS modeling in Spectrum to estimate the cost, impact and cost-effectiveness of alternative HIV interventions. (Fig 25)

Interventions that demonstrated evidence to be most cost effective, using the Goals model and other available evidence, were prioritized for scale up. These interventions included female sex workers, PrEP, condoms, VMMC, SBCC and differentiated ART.

Fig 25: Cost per infection averted by intervention

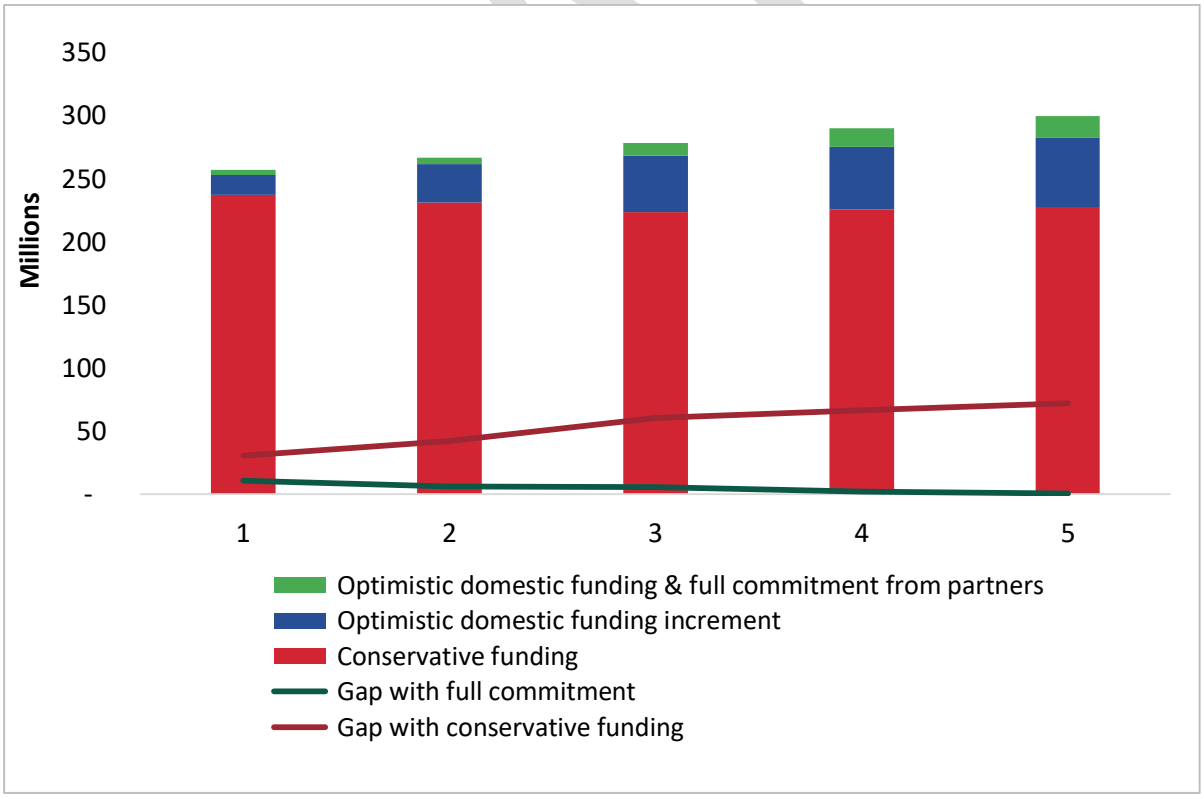


In moving forwards, dependent on available funding, choices will need to be made on the focus on the optimum basket of interventions for maximum public health impact within the available funding envelope. Results are based on the following funding scenarios which have developed by building on a full costing of the NSP and an assessment of the funding landscape (Table 6) and shown graphically in Fig 26.

Table 6. Funding scenarios

Conservative funding	Domestic finance constrained by COVID but increases from 2% pa to 5% growth pa by 2025 PEPFAR 10% decline pa until 2025 and then constant All other partners constant
Optimistic domestic funding	Domestic finance constrained by COVID but increases to 5% growth pa by 2025 PEPFAR 5% decline pa until 2025 and then constant All other partners constant
Optimistic domestic funding & full partner commitment	Domestic finance constrained by COVID but increases to 5% growth pa by 2025 PEPFAR, GF and other development partners constant at 2021 levels

Fig 26: Resource needs, funding and gap by scenario (USD)

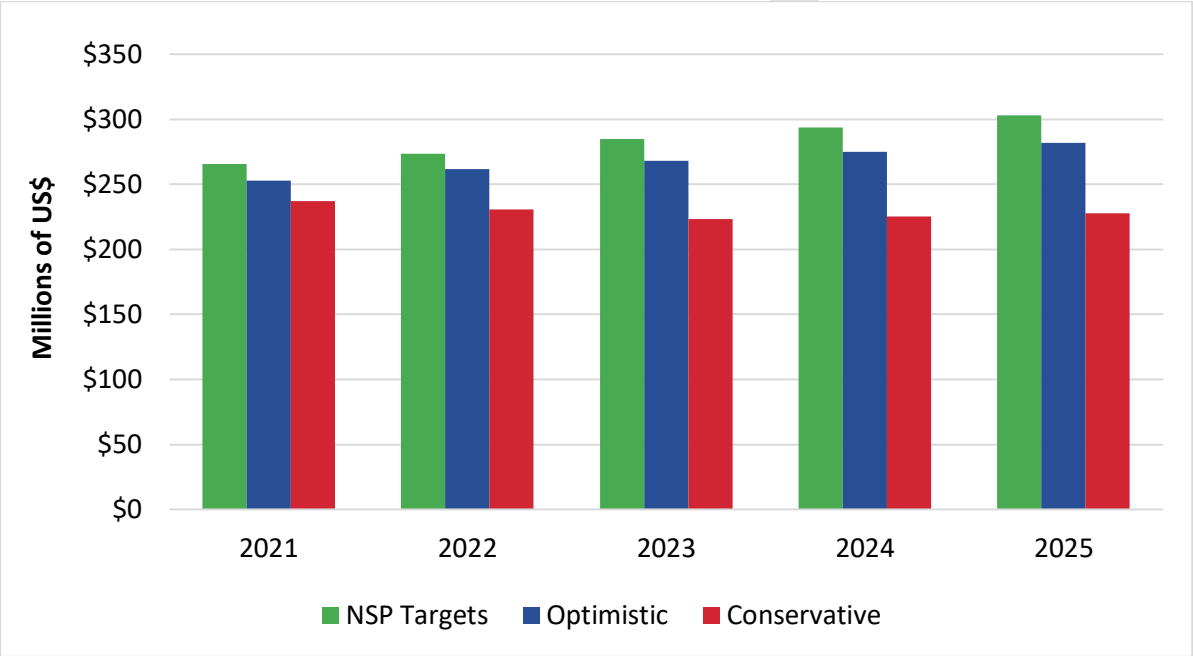


Interestingly, the funding gap is reduced by 72% with the additional funding from the optimistic domestic funding scenario and the NSP is almost fully affordable with optimistic

domestic funding and continued donor support at 2020 levels. If the latter scenario is achieved, 9842 HIV infections may be averted according to Goals modelling.

	2021	2022	2023	2024	2025
Optimistic and full commitment	$253	$273	$285	$294	$303
Optimistic	$253	$262	$268	$275	$282
Conservative	$237	$231	$223	$225	$228

Figure 27. Funding available and required



With Ethiopia so close to reaching epidemic, sustained funding and the targeted focus outlined in this NSP, with bring definitive results as shown in the graphs 28-28 below.

Figure 28. New infections based on funding scenarios

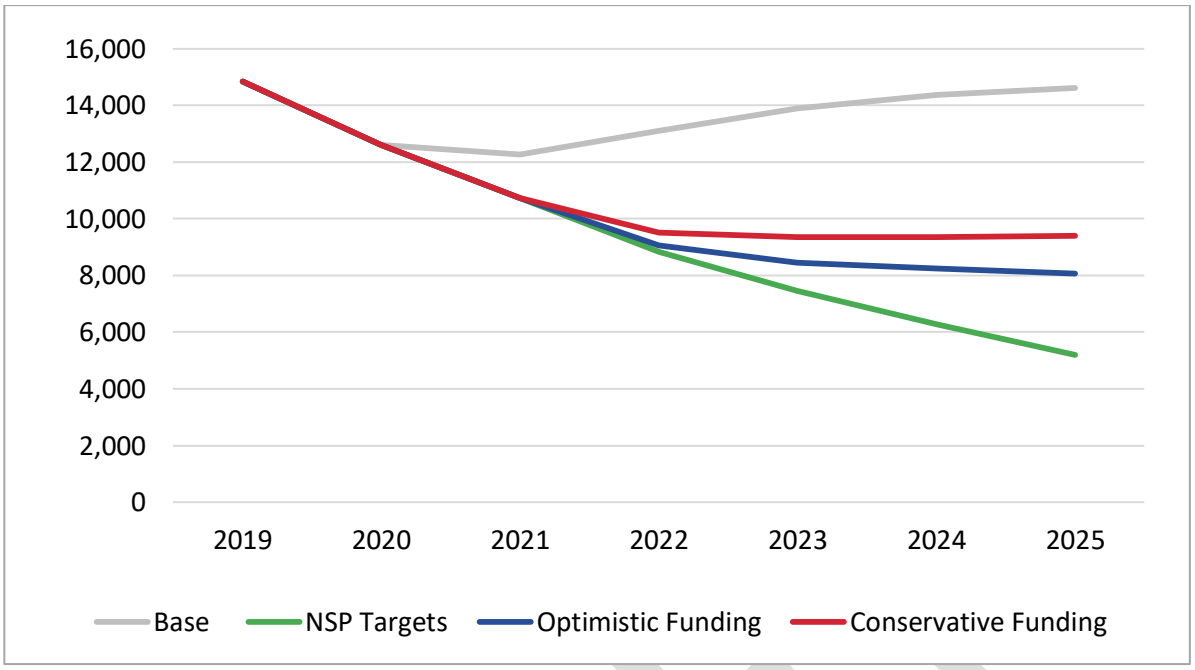
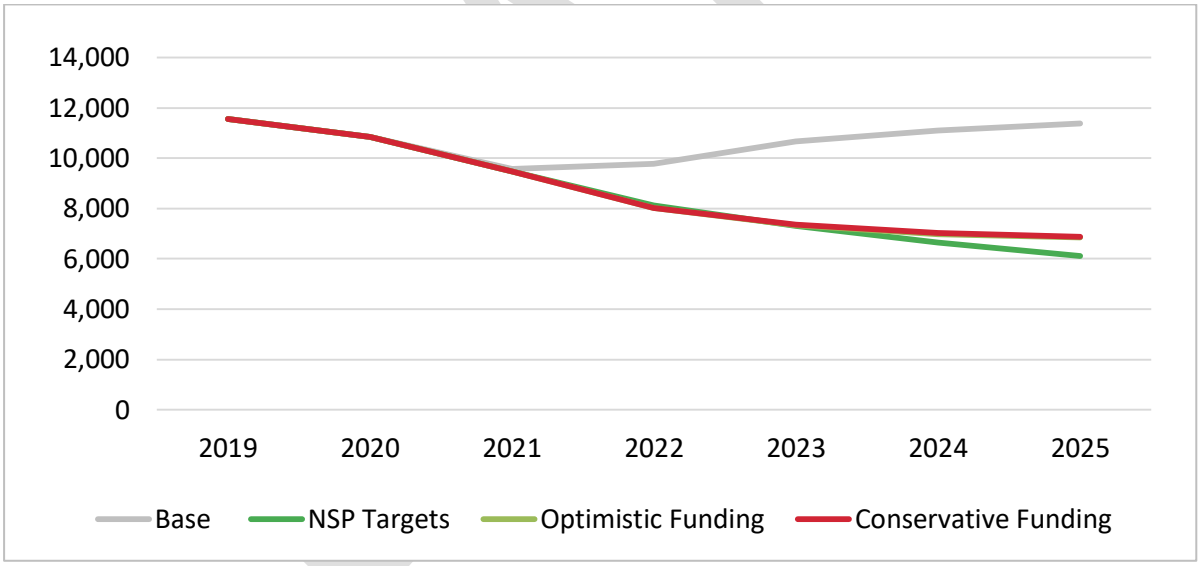


Fig 29: The impact funding scenarios on AIDS deaths based

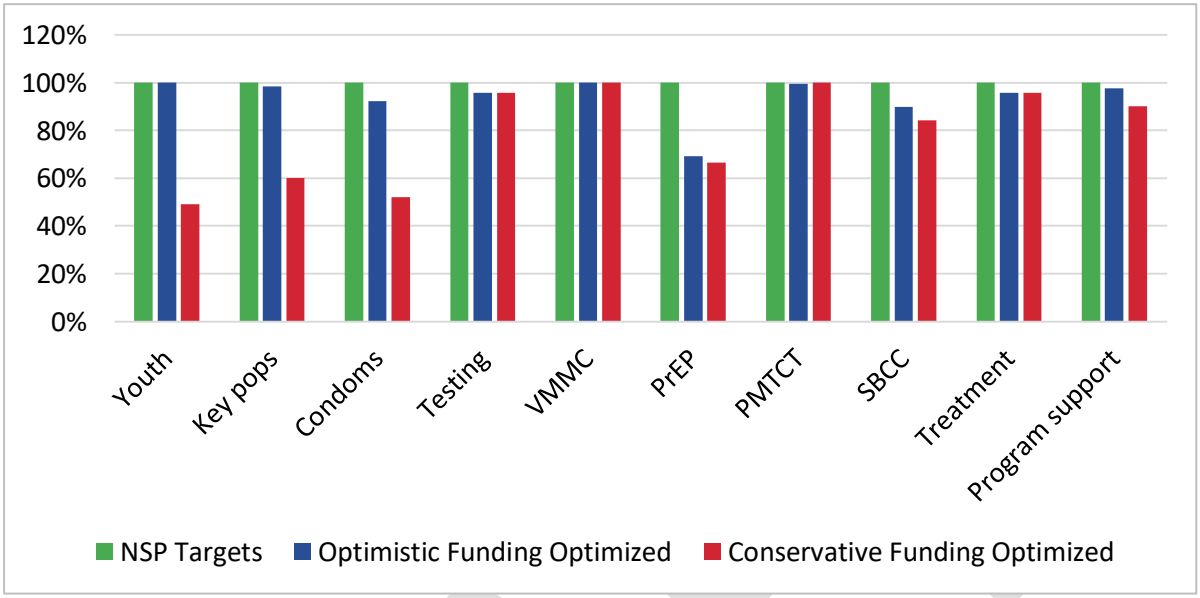


This modelling exercise provides the foundation upon which, on review of performance and funding availability, optimization of interventions has the effect of achieving better results within constrained funding.

If the NSP program had to be optimized further to align with reduced funding, the modelling suggests that in the Optimistic Funding scenario funding for VMMC, PMTCT and youth could be maintained with small reductions in treatment, testing and, condoms and SBCC and a larger reduction in PrEP. For the Conservative Funding scenario, the optimization suggest large decreases in funding for youth, KPPs, condoms, PrEP and SBCC and only moinor

reductions in treatment and testing. Under this scenario, there are slightly more people on ART because there are more new infections and people in need of treatment.(Fig 30)

Fig 30: Ratio of funding 2021-2025 by funding scenario



5. Strategic Framework Vision, Goal and Guiding Principles

Vision: An AIDS free Ethiopia

Mission: Institute effective HIV/AIDS prevention and control programs; coordinate the national HIV/AIDS response, strengthen health systems, programmatic and social enablers to ensure sustained epidemic control in the foreseeable future.

Goal: To attain HIV epidemic control nationally by 2025, by reducing new HIV infections and AIDS mortality to less than 1 per 10,000 population.

Expected impact results :

a) Number of new HIV infections reduced to less than 1 per 10,000 population (Disaggregated by sex, region and population group)

b) HIV related deaths reduced to less than 1 per 10,000 population

c) Incidence Mortality Ratio reduced to minus 1 (Target: From 1.08 to 0.9)

d) Percentage of child HIV infections from HIV- positive women delivering in the past 12 months reduced from 13.39% to less than 5% by 2025; and less than 2% by 2030.

Guiding Principles: The NSP will be implemented with adherence to the following guiding principles:

a) **Multi-sectoral**: A multisectoral approach and partnership that builds on HIV being the responsibility of all sectors and constituencies.

b) **Inclusiveness**: An inclusive and people-centred approach that recognizes different prevention options that individual may choose at different stages of their lives.

c) **Gender Responsiveness**: A gender-sensitive approach that caters for the different needs of women, girls, men and boys in accessing HIV information and related services.

Furthermore, The NSP will be delivered through a Value for Money (VfM) Framework, that defines how to maximize and sustain equitable and quality health outputs, outcomes and impacts in a constrained economic and financial environment[81].The VfM Framework comprises 5 dimensions which will be applied during the design, execution and evaluation of HIV programs included in this NSP.

a) **Equity:** Inequalities in health outcomes will be addressed through rights-based programing and through improving the understanding of, and response to, human rights and gender related barriers to accessing services. The NSP will focus on key and vulnerable populations that frequently face hardship and stigma, and have disproportionately higher risks and burden. At a system level, the HIV response will be gradually integrated into the broader health and development agenda of achieving universal health coverage by 2030 – where all people receive high-quality health services and medicines they need without experiencing financial hardship. [82]

b) **Economy:** The NSP requires that HIV programs strive to minimize costs of inputs for service delivery, whilst attaining acceptable levels of quality.

c) **Effectiveness:** The strategic interventions in the NSP have been designed according to the epidemiological context in Ethiopia, key drivers of the epidemic and patterns of transmission. Interventions were selected and prioritized based on published evidence on relative cost-effectiveness.

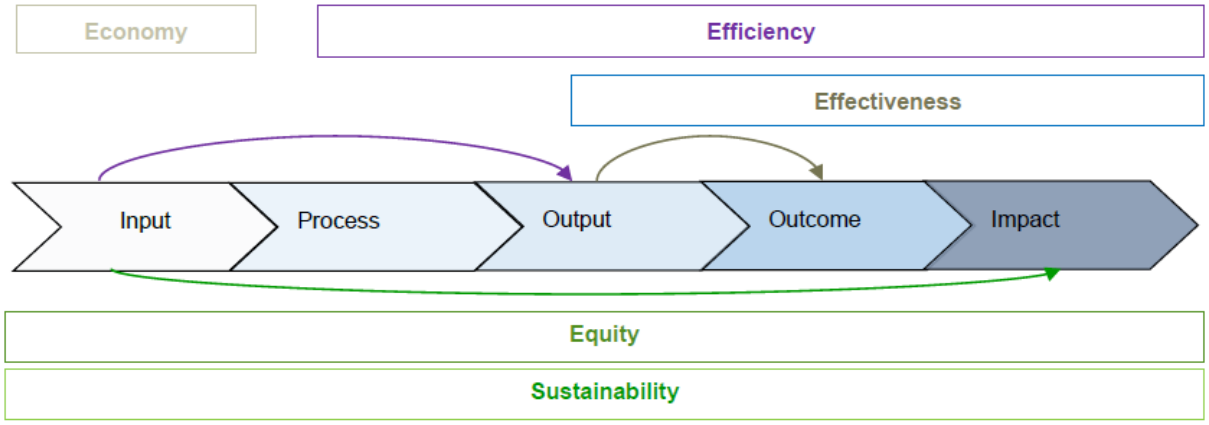
d) **Allocative efficiency** (prioritization across interventions, geographies and population groups): The NSP has applied an investment case approach to determine the optimal mix of prevention and treatment interventions, and which interventions to scale within a constrained funding envelope to maximize impact. In the context of a heterogenous HIV epidemic, a location-population approach prioritizes investments in populations and Woredas with the highest vulnerabilities and burden.

e) **Technical efficiency:** The NSP requires that the HIV program systematically seeks technical efficiencies during the design, execution and evaluation of the HIV program, and reprograms savings from efficiency gains back into priority HIV interventions.

f) **Sustainability:** A sustainable program that includes reliance on domestic resources, increasingly strategic partnerships with external funders, community ownership and leadership commitment.

The monitoring framework for this NSP has introduced VfM indicators to ensure that the above dimensions of VfM are tracked and managed.

Figure 31 : Dimensions of Value for Money[83]



6. Strategic Objectives

6.1 Strategic Objective 1: Reach 90% of Key and Priority populations with targeted combination HIV prevention interventions by 2025

Result 1: Comprehensive knowledge about HIV and AIDS reached 90% by 2025 for key and priority populations

Result 2: Condom use among key and priority populations engaged in risky sexual behavior reached 90% by 2025

Result 3: 90% for key populations will know their HIV status by 2025

6.1.1 Context

During the strategic plan period (2021-2025) 90% of the estimated 3.75 million key and priority populations will be reached with combination prevention (behavioral, bio-medical and structural) interventions. The prevention program will be built on principle of population and geographic prioritization for maximum impact. Client centered, integrated and sustainable service delivery models will be used to deliver combination prevention services and interventions. While the focus of the program is on key and priority populations in 265 high incidence woredas, general population and KPPs in intermediate and low incidence woredas will be reached through integrated and sustainable prevention interventions within strategic sectors and community initiatives. ANC level services will be offered in all geographical areas.

6.1.2 Population and Geographic Prioritization

Geographic Prioritization

The country has about 1076 woredas. Based on HIV incidence ((annex XX), woredas are categorized into three geographic priority areas (Fig 31) :

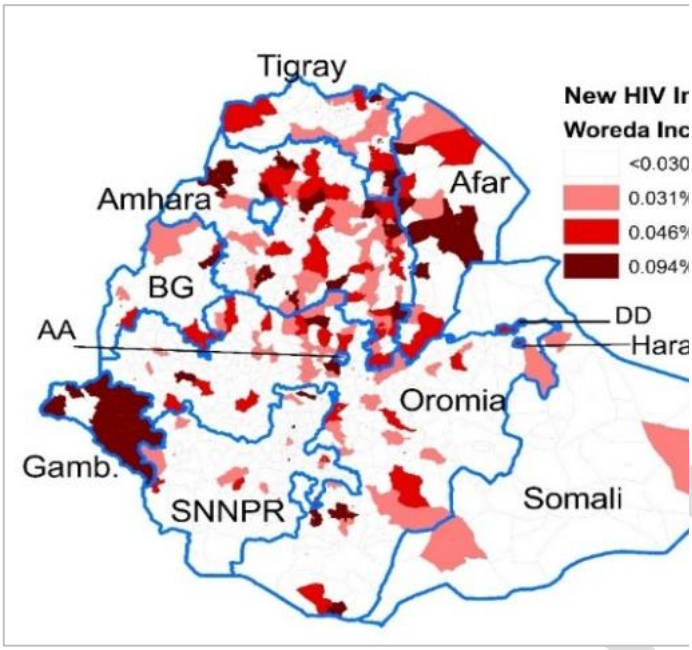
High (265): Woredas with HIV incidence of ≥0.03% of people aged 15-49;

Medium (326): Woredas with HIV incidence of 0.01- 0.029% of people aged 15-49;

Low (485) : Woredas with HIV incidence of < 0.01% of people aged 15-49

High priority woredas will be reached through comprehensive HIV prevention targeting KPPs. The low burden areas will be reached through integrated and sustainable HIV prevention interventions mainstreamed in the health and non-health sector programs, as well as through media and community initiatives. Medium burden woreads, in addition to the services listed for the low burden areas, will also have some of the HIV services for the key and priority population groups integrated into sustainable service delivery models. Based on evidence, woredas may shift from one category to the other, and the response will also be also tailored accordingly.

Fig 32: Woreda level HIV incidence (SPECTRUM estimates 2019)



Population Prioritization

Defining Key and Priority Populations (KPPs)

The following population groups are defined as Key and Priority Populations taking into consideration local epidemiology, HIV prevalence, high risk behaviors increased morbidity and mortality or higher vulnerabilities.

KEY POPULATIONS:

- Female Sex Workers (FSW)
- Prisoners
- People with injecting drug use (PWID)

PRIORITY POPULATIONS:

- Widowed and divorced men and women
- Long distance drivers
- Workers in hot spot areas
- High risk adolescent girls and young women
- PLHIV and their partners

Key Populations (Operational definitions)

Female Sex Workers are defined as women_who regularly or occasionally exchange sex for money in drinking establishments, night clubs, local drink houses, "khat" and "shisha'' houses, "on the street", around military and refugee camps, construction sites, trade routes, red light districts, and at their homes. Their paying and non-paying clients are included within this population. A sex worker can be self-identified or identified by others as sex worker.

They can be further categorized by where they work as:

- *Venue-based:* female sex workers stationed in hotels and bars,
- *Street based:* female sex workers who are mobile or street based
- *Home based:* female sex workers stationed at home, '*areque'* and *'tella'* houses and "khat" and "shisha"houses

- *Phone/SMS/Social Media based:* female sex workers who can be accessed and accept sexual appointment through telephone call and social media[84]

Prisoners are all people detained in a criminal justice and prison facility, including adult and juvenile males and females, during the investigation of a crime, while awaiting trial, after conviction, before sentencing and after sentencing.

People with injection drug use are those men and women, who, because of using illegal injectable substances are at high risk of acquiring HIV infection. They require special arrangements to access HIV services and harm reduction and rehabilitation interventions.

Priority Populations

Long Distance Drivers

Long distance drivers are drivers who are obliged to regularly travel for more than 24 hours on the road that involves overnight stay out of their home. This group includes heavy truck drivers, bus drivers, Isuzu drivers, and tour-car drivers.

Widowed and divorced men and women

Widowed men and women are those whose spouse has died and who have not remarried. Divorced men and women are those who have legally dissolved or terminated a marriage under the rule of law of the country and not remarried.

Workers in hotspot areas

A hotspot area is a work area with 500 or more daily laborers or workers . and HIV prevalence more than 1.6% or defined as hot spot by program people based on other HIV risk behavioral attributes of workers. This mostly includes large construction projects, industrial parks, factories/industries, commercial farms and sugar plantations, dry ports, mega projects (i.e electric dams), mining, other investment and infrastructure development projects. These sites are characterized by the fact that the people working in these sites are likely to be migrant labor away from their homes and have some disposable income. These sites will therefore attract female sex workers, taxi drivers,, Petty traders etc. These conditions result in the potential for risk behaviors associated with the acquisition and spread of HIV.

PLHIV and their HIV negative Partners

- *PLHIV:* People who have got tested for HIV and are found positive.
- *PLHIV Partners:* People who have sexual relationship with PLHIVs that includes spousal and non-spousal partners.
- *Discordant couples* are those in which one spousal partner is HIV positive. Partners of PLHIV are those people who have sexual relationships with PLHIVs, the relationship can be spousal or non-spousal.

High risk adolescent girls and young women (AGYWs)

These are defined as females aged between 10-24 years who are sexually active (defined as having sex at least once in the past 12 months) and who meet one of the following characteristics:

- Have multiple sexual partners
- Are involved in transactional sex or are victims of sexual exploitation (irregular exchange of sex for money or materials)
- Are involved in substance abuse
- Have a history of sexually transmitted disease
- Have been victims of gender based violence
- Have a history of unintended pregnancy or abortion

This group of adolescents and young women are found in higher learning institutions, high schools, or work as waitresses, domestic workers or are out of school including those unemployed. It also includes girls who are working (coffee sellers, petty traders) or living on the streets.

Size Estimation of Key and Priority Populations

There are major data gaps in estimating the size of key and priority populations. Table 7 attempts to estimate the size of the various KPPs using existing scanty data and assumptions[85].

Table 7: Estimated size of Key and Priority Populations

KPP	2020	2025
Female Sex Workers	210, 000	240,000
Prisoners	86,500	86,500
People with Injecting Drug use	11,000	9,000
Widowed divorced men and women	956,475	1,114,931
Distance Drivers	65,000	85,000
Workers in Hot spot areas	840,000	1,050,000
PLHIV and their partners	678,095	813,610
High risk adolescent girls and young women	134,341	147,426
Total KPP size estimation	2,771,411	3,546,667

6.1.3 Strategic interventions

During the period of 2021-2025, combination HIV prevention interventions will be implemented in the three incidence levels of woredas (high, medium and low incidence woredas) as shown in Table 8 (a), (b) and (c).

Reaching high risk adolescent girls and young women, women age 25-34 years and out of school.

High risk adolescent girls and young women including those sexually active in school and out of school, those involved in transactional sex, house maids, those working in hotels and cafeterias, working and living on street will be reached with combination HIV prevention interventions by peer service providers, school intra and extra-curricular sexuality education programs, KPP friendly clinics, outreach services of health facilities, adolescents and youth friendly clinics and other HIV services delivered through general and integrated HIV services. In addition, the disadvantaged segment of adolescent girls and young women will be reached with economic empowerment interventions. Prevention of gender based violence and providing support to survivors of GBV will be integrated with the HIV prevention interventions including establishing safe houses, providing comprehensive medical and legal support.

The majority of key and priority population constitute women aged 25-34 years who contribute towards a significant proportion of new infections among women. Most female sex workers fall in the age group 25-34 years, a significant proportion of workers in hot spot areas and widowed and divorced women are estimated to be females in this age group. Most high risk women in the age group 24-34 will be reached with combination HIV prevention, HIV testing and treatment services through peer service providers, community outreach, drop in centers, KPP friendly clinics and other health facility HIV prevention, testing and treatment services. In addition disadvantaged segment of these women will be provided economic empowerment interventions.

Table 8 (a) For Woredas ≥0.03% HIV incidence:

Prevention interventions	Service Delivery models
• Intensive social behavioral change communication and demand creation • HIV education through Print and electronic mass and social media • Condom promotion and distribution, including lubricants • Pre exposure Prophylaxis (PrEP) • Voluntary medical male circumcision (VMMC) in selected geographic areas of high prevalence and low circumcision rate of the country • Harm reduction: needle and syringe programs through social marketing and CSO channels and opioid substitution therapy • Screening and treatment of sexually transmitted infections • Blood safety and Infection prevention practices at health facilities • Prevention and management of Gender based violence • Economic empowerment of women; especially high risk adolescents and young girls • Empowerment of communities especially KPPs ○ Intra- and extracurricular school HIV education programs	• KPP friendly Clinics • Friendly services at the general HIV services • Peer service Providers • Drop in centers • Integrated HIV prevention services (VMMC, harm reduction, Prison, work place, and higher learning institution clinics) • Integrated into other health services (mental health, TB, Hepatitis, SRH) • Targeted out reach • Social marketing , private sector and CSO service delivery outlets • HIV mainstreaming • Community Care Coalitions • Health extension program

Table 8 (b) For medium HIV burden Woredas with HIV incidence of 0.01-0.03%

Prevention interventions	Service delivery models
• Social Behavioral change communication and demand creation • HIV education through Print and electronic mass and social media • Condom promotion and distribution, targeting KPPs • Pre exposure Prophylaxis (PrEP) at friendly clinics of public health facilities • Screening and treatment of sexually transmitted infections • Blood safety and Infection Prevention Practices at health facilities • Prevention of Gender based violence integrating with other sectors • Intra and extra-curricular HIV education across schools	• Friendly services at the general HIV services • Integrated HIV prevention services (VMMC, Prison, work place, and higher learning institution clinics) • HIV interventions integrated into other health services (mental health, TB, Hepatitis, SRH • Social marketing, private sector and CSO service delivery outlets • HIV mainstreaming • Community care coalition • Health extension program

Table 8(c) For low HIV burden Woredas with HIV incidence <0.01%

Prevention interventions	Service delivery models
• Demand creation SBCC through HEP and CCC • SBCC through mass and social media • Condom promotion and distribution • Screening and treatment of sexually transmitted infections • Blood safety and Infection Prevention Practices at health facilities • Intra-curricular integration of HIV across schools	• Integrated HIV prevention services (Prison, work place, and higher learning institution clinics) • HIV interventions integrated into other health services (mental health, TB, Hepatitis, SRH, • Social marketing, private sector and CSO service delivery outlets • HIV mainstreaming • Community care coalition • Health extension program

Social behavioral change communication and demand creation

Expected Result 1: Proportion of key and priority populations reached with HIV prevention programs with a defined package of services increased to 90%

Expected Result 2: Percentage of key populations who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission increased to 60% by 2025

Expected Result 3: Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15 reduced from 9% for females and 1% males to 5% and 0.5% respectively by 2025.

Intensive behavioral change communication intervention (SBCC) will be implemented targeting key and priority populations in the 265 priority woredas. This will be mostly peer based facilitated small group learning with at least 85% of the intended sessions implemented over two to three months by community level implementers. Demand creation interventions will include any communication targeting KPPs and the general population through mass media (radio and television), mini-media, print media (leaflets, posters, magazines and newspaper), social media and interactive digital applications. Social media and interactive applications will be optimized to reach large group of KPPs and general population (mainly youth) to create demand and raise awareness about HIV prevention, HIV testing, care and treatment, consolidated through integration and strengthening of community level implementers. During the strategic period 90% of KPP in the 265 priority woredas will be reached with intensive tailored behavioral change communication at least once.

Integration of HIV into the school curriculum will be implemented nationally targeting adolescents and youth in school. All schools across the country will implement curricular and extracurricular activities to educate adolescents and youth about HIV and safe sexual practices. Colleges and universities across the country will implement a credited course on HIV, SRH, Life skills and Gender as part of the first semester first year academic program. Schools will have extracurricular HIV prevention education and activities through mini-media and clubs.

Expected Results 1: Percentage of adults aged 15–49 who used condoms during their last high risk sex act in the past 12 months increased from 20% for females and 51% males to 90% by 2025.

Expected Results 2: Percentage of FSW reporting use of a condom with their most recent partner increased from 98% with paying partners and 37% with non-paying partners to 99 % by 2025

Condom promotion and distribution

The condom program will be implemented through a total market approach. Approximately 60% of free condoms will be distributed targeting KPPs in the high (265) and medium (326) burden woredas; the social marketing and private sector will reach the general population and KPPs in all woredas across the country. Condom-compatible lubricants shall be distributed to FSWs through the social marketing and private sectors. The Condom Strategy will be widely disseminated and translated into action.

Condom skill building and Demand creation

Condom demand creation will be central theme of all social behavioral change communication interventions targeting key and priority populations as well as the general population. Over the strategic period 90% of key and priority populations will be reached with peer education. One of the six sessions of peer education will address clearing misconceptions about condom use and skill building on consistent and correct condom use. The Print media (information kits and leaflets) on information and step by step demonstration of correct condom use will be produced and distributed targeting key and priority populations. Correct and consistent condom use is one of the key messages and skill component of curricular and extracurricular activities of schools including higher education training institutions. Correct and consistent condom use will be promoted through discussions and communication of mass media (radio and television) and social media. The digital application that aims to enhance prevention behaviors among key and priority populations, adolescent girls and young women and adolescent boys and young men will have entertainment education on correct and consistent condom use. Free condom distribution to key and priority populations will be conducted through peer service providers door to door distributions at hot spot areas, health workers outreach programs, distribution at hotels and bars as well as hot spot workplaces. In addition, condoms will be distributed through static outlets of health facilities hotels and bars and work places.

Correct and consistent condom use skill building and demand creation efforts targeting female sex workers will emphasize condom use with nonpaying sexual partners where condom use is relatively low (37%).

Expected Result 1: % and number of eligible people who received oral PrEP at least once during the last 12 months increased from 1% (200) of discordant couples and 2% of(800 FSW) currently to 80% of discordant couples and 90% of FSWs respectively.

Expected Result 2: % of PrEP users who continued oral PrEP for 3 consecutive months after having initiated PrEP during the reporting period sustained at 95%

Pre exposure Prophylaxis (PrEP)

Pre-exposure prophylaxis is the use of antiretroviral drugs by HIV-negative people before potential exposure to prevent the acquisition of HIV. Oral PrEP will be provided to people at substantial risk of acquiring HIV which in the Ethiopian context are female sex workers and HIV negative partners of people living with HIV (PLHIV) who are not virally suppressed. Activities to increase PrEP among the sub-group of FSWs who are considered at greater risk of acquiring infection either because of non-consistent condom use or as victims of gender based violence, include increasing awareness and literacy, adherence support led by peers and integration through referrals to and from HIV/STI testing, treatment, and care services. HIV negative partners of non virally suppressed PLHIVs on ART are at substantial risk of infection. Efforts will be made to encourage adherence among the partner on ART or to identify true regimen failure. The starting of PrEP for their HIV negative partner will require full disclosure and measures to prevent potential intimate partner violence. During the strategic period 90% of eligible Female sex workers (about 37,400 by 2025), 80% of eligible HIV negative partners (around 11,000 by 2025) of PLHIV will be reached with PrEP. Additional eligibility criteria and target population for PrEP will be defined in the service delivery guidelines and can be updated as appropriate. Screening for Hepatitis will be provided without charge.

Voluntary medical male circumcision (VMMC)

Expected Result: % of males aged 15-49 circumcised at Gambella and Selected woredas of SNNP region increased from 72% to 90%

Voluntary medical male circumcision will be implemented integrated in primary health care facilities targeting male infants and men 10-49 years in high HIV prevalence and low circumcision prevalence settings (Gambella region and selected woreda in SNNP).

People with Injection and other substance use - Harm reduction:

Expected Result 1: % of PWID benefiting from needle exchange programs increased from 0% to 90% by 2025

Expected Result: % eligible PWID receiving Opioid Substitution Therapy elevated from 0 to 90% by 2025

In the first year of this NSP, a multi-sectoral approach to address policy issues around developing a program for people with injecting drug and iliicit drug use will be undertaken. This will lay the ground-work for the introduction of a needle and syringe exchange programs with opioid substitution therapy. The needle syringe exchange program will be implemented through non-governmental, civil society organizations and private sector. Mental health services are limited in the country but there are new efforts to expand both the capacity of health workers to address mental health as well as the number of facilities who will be in a position to provide services. The opioid substitution therapy will be integrated in these mental health services of government non-governmental and civil society organizations. PWID will also be screened for Hepatitis B and C. Multisectoral collaboration will be used to prevent the expansion, circulation and use of illicit and injection drug use across the country involving the Ministry of Health, regulatory agencies, law enforcement sectors, the transport sector and others.

Screening and treatment of sexually transmitted infections

Expected result 1: Percent of people 15-49 years with STIs treated increased from 32% to 60% by 2025.

Expected result 2: Percent of FSWs with STIS treated increased from 56% to 90% by

Active screening and treatment of STIs using syndrome approach will be provided to KPP particularly FSWs and high risk adolescent girls and young women and their partners integrated through community and health facility level service delivery outlets. Currently, a syndromic approach will be used to screen and treat STIs although consideration for rapid and laboratory STI testing and same day/early treatment especially for women presenting with STIs may be considered in the future. There is a need to build the capacity of HCWs on syndromic management and guidelines and manuals will be distributed to health facilities for all population groups.

Prevention and Management of Gender based violence

Medical, legal and social services will be provided to prevent and mitigate GBV through evoking a multi-sectoral response. Selected health facilities in the 265 priority woredas will provide comprehensive medical services to survivors of GBV with strong referral linkages to sectors and community actors providing legal and social services. Law enforcement and community stakeholder's capacity will be built to provide legal and social services including safe houses for survivors or women escaping GBV. Community dialogue on prevention and management of GBV will be undertaken, also involving the HEP, in collaboration with the Ministry of Women's Affairs to bring about social change for the prevention of GBV. Community scorecards on GBVs will be used to monitor level of GBV. Similarly, community/quality score card activities will be scaled up to the public KP friendly clinic in collaboration with FMOH, FHAPCO and RHBs to ensure confidential and quality of services at the pubic KP friendly services.

In the intermediate and low burden woredas, community elders, including tribal and religious leaders, will be engaged to advocate and create platforms for dialogue, especially through the Community Care Coalitions to address gender issues, preventing GBV and promote change in social norms related to gender.

Economic empowerment of vulnerable women

Economic empowerment interventions (job creation, vocational skills training and income generating schemes) will target disadvantaged women, especially adolescent girls and young women, in the 265 priority woredas as a structural HIV prevention intervention, integrated with economic empowerment initiatives of key sectors.

Table 9: Summary of Implementation of HIV prevention interventions by population and geographic prioritization

Intervention	Target Population	Geographic Focus
Intensive social behavioral change communication (peer education, life skills)	All KPPs	265 high burden woredas, prisoners
Education and demand creation interventions: Print materials, audio visuals, mass-media, mini-media, hotlines, interactive applications, social media	All KPPs	Nation wide
	General Population Uniformed services	All woredas
Intra and extracurricular School HIV programs	Adolescent and youth	All Woredas
Condom Programs: Total market approach for condoms, lubricants	Free condoms targeting KPP	High and medium incidence 265 woredas and medium burden woredas
	Social marketing / private sector to reach all that can afford.	All Woredas
Pre-exposure Prophylaxis (PrEP)	Female sex workers	265 high burden woredas through health facility community approaches; for intermediate incidence woredas through health facilities
	Discordant couples	All woredas
STIs screening and treatment	KPPs	For the high incidence 265 woredas both through health facilities and community outreach
	General population, Uniformed services	All woredas through Health facilities
VMMC Demand creation and services	Infants and uncircumcised males 10-59 years	Gambella Region and selected SNNP woredas

Intervention	Target Population	Geographic Focus
Introduce harm reduction and standard drug rehabilitation therapy with Methadone at Mental health services and Integrate HIV services within the mental health service outlets	People with injection and other illicit drug use	Selected high burden urban areas
Blood safety and infection prevention practices	All people	All health facilities and blood banks
Strengthen GBV prevention and response (legal, social and clinical) at health facility and community level	KPPs	265 high burden woredas
		Medium and low burden woredas prevention and change of norms integrated with other sectors
Economic empowerment: government job creation, micro-financing initiatives, private sector and community level initiatives	Female sex workers, divorced widowed women and high risk adolescent girls and young women	265 high burden woredas

6.1.4. KPPs Service Delivery Models

In order to reach key and priority populations, a mix of client centered service delivery models will be used with strong linkages and coordination among the different models. These include the following:

Key and Priority population friendly clinics:
These are HIV/SRH clinics within public health facilities which provide one stop shopping HIV/SRH services for key and priority populations. There will be at least one KPP friendly clinic in each of the 265 woredas. The KPP clinic will have a trained provider who can provide friendly service to KPPs. The KPP friendly clinics will provide comprehensive services (SBCC, counseling, condom, HIV testing, PrEP, STIs screening and treatment, family planning and referral linkages for treatment and PMTCT). The KPP friendly clinic will serve FSWs, high risk AGYW as well as other KPPs based on their preference. The KPP friendly clinic will be open off working hours and linked with peer service providers and community mobilizers to create demand and mobilize KPP to the friendly clinic services. Bi-directional referrals between communities to facility will be strengthened.

Drop in Centers (DICs): Sustainable and low cost DICs will provide comprehensive behavioral, bio-medical and structural interventions to key and priority populations especially FSWs at selected hot spot towns. The DICs will be implemented with government ownership and in partnership with development partners. DICs will be established in government owned houses, where government will assign staff when appropriate and with referral linkages to KPP friendly health facilities. FHAPCO/MOH/Regional HAPCO/Woreda Health Office will play a leadership and coordination role. DICs will provide comprehensive HIV/SRH services (SBCC, counseling, Condom, HIV testing, PrEP, STIs screening and

treatment, family planning and provision of or referral linkage for treatment and PMTCT). In addition, DICs will provide or link to social services of community and development partners.

Friendly services delivered at the General HIV service delivery outlets of health facilities: The HIV service delivery outlets of health facilities will be made friendly for KPP through training of service providers and flexible working hours to respond for needs of KPP who prefer to use the general HIV service delivery outlets. At least one health facility in the 265 priority woredas as well as across the medium incidence woredas will have friendly services delivered through the general HIV service delivery outlets. Referral linkage with the peer service providers and community level services will be strengthened.

Condom Use among FSWs with non-paying partners: Condom distribution and utilization interventions will emphasize increased condom use by young females, and in particular seek to increase use by female sex workers with their non-paying clients (estimated at 37%, IBBS). Demographic projections on clients of FSW and previous modes of transmission studies show that non-paying clients of FSW, comprising less than 1% of the total male population, are particularly efficient bridges of transmission to the general population, and are often the channel of transmission to other sex workers. Condom distribution will be accompanied by SBCC interventions to increase comprehensive knowledge on HIV prevention tailored to some ages and venues, and at appropriate times and seek to reach more young women and non-paying partners of FSW through partner tracing and other social network strategies. These interventions will be integrated with differentiated HTS services and SGBV prevention services, and will be led by trained FSW peer networks, including lay counselors among them, and groups of male champions to relay critical prevention messages effectively to other males.

Integrated HIV prevention services: Integrated VMMC service: VMMC will be implemented in Gambella and selected woredas in SNNP region targeting men 10-49 years and newborn infants. The medical circumcision will be implemented at primary health care facilities as part of minor procedures within the surgical services. Primary health care facility staff will be trained to undertake routine male circumcision services at the health facilities. The health facilities will be equipped with required equipment and supplies. Regional health bureaus, woreda health offices and health facilities will lead and implement the services in collaboration with development partners. Civil society organizations will support community mobilization and demand creation at community level.

Integrated harm reduction services: Initially, harm reduction programs, which includes needle and syringe exchange and opioid substitution, will use a social marketing approach and engage private facilities in collaboration with NGOs and civil society organizations. The program will subsequently be expanded and included with the planned expansion of mental health services of public and private health facilities in big towns; condoms and HIV testing will be offered at these outlets or through referral to HIV clinics within the health facility.

HIV services for Prisoners: Health facilities in prisons will have HIV prevention services integrated in their general health services. All prisons will provide and coordinate social behavioral change communication including peer education, HIV testing, screening and treatment of STIs and GBV, provision or referral of treatment services. In addition condoms shall be provided on release from the prisons. It will also be important to sensitize and build the capacity of prison staff.

Integrated HIV services at hot spot workplaces: All hot spot workplaces with HIV prevalence >1.5% or more with total of 500 or more staff of all types, shall have at least a clinic that provides integrated health and HIV services (condom, HIV testing, screening and treatment of STIs and GBV, referral for treatment). The work place will coordinate and implement social behavioral change communication interventions and demand creation targeting staff. In addition, there will be outreach HIV services delivered by nearby government health facilities. Workplaces/projects will finance and manage integrated HIV and health services at work places. RHB/Woreda health offices and development partners will support and build capacity of the workplaces HIV programs in hot spot work places.

Targeted outreach Program: Health facilities especially those KPP friendly clinics will have at least quarterly outreach programs to reach KPPs at nearby hotspots. Targeted outreach HIV services will be led by a health worker and supported by peer service providers and community groups. Civil society organizations and development partners will play a significant role to mobilize KPPs to attend the outreach HIV services. KPP targeted outreach programs will be implemented in all the 265 priority woredas.

Peer Service Providers (PSP) Program: There will be 30 trained peer service providers working full time with a monthly standard incentive package per woreda in all the 265 priority woredas. There will be around 8,400 trained full time PSPs selected from KPPs, will deliver a standard package of services (SBBC especially peer education, condom, self-testing, information and referral for PrEP and referral linkage for other HIV prevention and treatment services) to KPPs in 265 woredas. The PSPs will be linked with the KP clinics, DICs and other service delivery models. And will create demand and mobilize KPPs to the different service delivery outlets. The PSPs will support health facilities with adherence support and tracing of lost to follow ups. The PSP program will be managed and led by Regional and Woreda health offices with support of CSOs and development partners.

Social Marketing and private sector services delivery: Condoms will be distributed through social marketing and private sector outlets (pharmacies, shops, hotels and bars, peer service providers) targeting the general population in all woredas. Lubricants will be distributed through pharmacies and private facilities.

HIV mainstreaming: The 10 identified strategic sectors will allocate up to 0.2% of their annual budget to HIV prevention programs and implement HIV prevention interventions targeting KPPs and general population. The HIV prevention interventions include SBCC, condom and HIV testing services and the sectors will assign staff and facilities to implement these HIV prevention interventions. The strategic sectors can collaborate with civil society

organizations and the private sector to implement HIV prevention interventions through social contracting arrangements. The following table summarizes the ten strategic sectors and populations targeted.

Mainstreaming Type	Strategic Sector Office	Key and Priority Populations
Direct mainstreaming	Ministry of Labour and Social Affairs (MOLSA); regional bureaus and woreda offices	Workers in hotspot areas;* people living with HIV
	Ministry of Women, Children, and Youth Affairs; regional bureaus and woreda offices	Adolescent and young girls Female sex workers; widowed and divorced women
	Transport Authority; regional bureaus and woreda offices	Distance drivers
	Federal and regional prison administrations	Prisoners
	Ministry of Education; regional bureaus and woreda offices, Ministry of Science and Higher Education and technical and vocational training agency; colleges	Adolescent girls and young women
	Government Development Enterprises Agency and its entities (Sugar Corporation, Construction Corporation, Design Works and Supervision, Metal and Engineering Corporation)	Workers in hotspot areas and female sex workers in their project catchments
Infrastructure mainstreaming	Ethiopian Roads Authority; regional offices	Workers in hotspot areas and female sex workers in their project catchments
	Ministry of Construction and Urban Development its projects and line offices	Workers in hotspot areas and female sex workers in their project catchments
	Ministry of Mines, Petroleum, and Natural Gas; regional offices	Workers in hotspot areas and female sex workers in their project catchments
	Ministry of Water, Irrigation, and Electricity	Workers in hotspot areas and female sex workers in their project catchments
Sectors with special consideration	Ministry of Defense, Police Commission, Agency for Refuges and Returns Affairs and Federation of People with Disabilities	Uniformed services in camps or confined setups Refuges People with disability

6.1.5 General Population Prevention Interventions and service delivery models

Expected Result: Percentage of women and men aged 15-49 who both correctly identify ways of preventing sexual transmission of HIV and who reject major misconceptions about HIV transmission increased from 20% for females and 38% males currently, to at least 70% for males and 50% for females respectively by 2025

Although the focus of targeted prevention activities in the NSP is mainly on KPPs and the 265 high incidence woredas, targeted HIV prevention services will also be available in the medium incidence woredas, integrated into existing service delivery models (general HIV service outlets in health facilities, through the health extension and community care coalition programs, mass and social media,, as well as school HIV programs). In the low HIV burden woredas, only basic HIV prevention interventions will be implemented targeting the general population. Such interventions will be delivered through health facility and community outlets by health and non-health sectors, community and civil society actors. Uniformed service members, particularly those living in camps away from home will also received these services delivered primarily through the Ethiopian National Defense Force. Ethiopia hosts a large refugee population who will also receive the following interventions through the Administration for Refugee Affairs as well as through UNHCR. These include:

- Social Behavioral change communication and demand creation through mass media (national and local/regional public and private radio and television) as part of social corporate responsibility with technical support from HAPCO and the Health sector;
- Curricular and extracurricular activities of schools (Mini-media, clubs) supported through the Ministry of Education including the use of available school electronic platforms (radio and plasma);
- Use of risk screening tools at higher learning institutions and high schools to identify and provide intensive behavioral change communication and condom as well referral linkage to health facilities
- Revitalize and scale integration of HIV/SRH/gender/life skill course in the higher learning institutions and revise the high schools curricular HIV content to make interactive and skills focused
- Scale-up of Community Care Coalitions and allocation of funds to HIV prevention especially SBCC;
- Material development both print and audio visual as well as the use of social media and interactive digital applications;

- Integrate HIV program into health extension program performance monitoring scorecard.
- Strengthen Targeted HIV mainstreaming in key sectors.
- Use national events to create demand among the general population
- Education through the involvement of religious institutions
- Condoms distribution mainly through social marketing and private sector while free condom is distributed to those who cannot afford to buy

6.2 Strategic Objective 2: Enhance HIV case finding to attain 95% of PLHIV knowing their HIV status and linked to care by 2025

Result: HIV testing, and counselling services scaled up and at least 95% people who know their HIV status by 2025

6.2.1 Context

Case finding will be enhanced to enable 95% of PLHIV to know their status. HIV testing services will be available in public and private facilities as well as community outreach programs. In 2017 and 2018, 9.2 and 8.2 million HIV tests were conducted respectively, with low test yields of 0.8% (73,981) and 0.6% (51,093), respectively. Therefore, it is essential to adopt HIV testing approaches with better yield, which will provide cost savings through technical efficiencies. High yield case finding modalities include index case testing and partner notification, social network services and PITC using an HIV risk screening tool at the health facilities. An adult HIV risk screening tool (HRST) is in place with variable use but there is a need to validate this HRST as well as rolling out a pediatric and adolescent assessment tool. HIV self-testing will be made available through social marketing. The free and targeted HIV testing services will prioritize KPPs, symptomatic children and pregnant women. HIV testing services will also be available to the general public on a fee basis through voluntary counseling and testing service outlets at public and private facilities. This will be implemented by integrating the HIV test kits into revolving drug fund (RDF) modality of the public facilities and allowing private facilities to procure HIV test kits. HIV self-testing (HIVST) will be expanded through social marketing outlets for those testing positive, and through integration with ICT/PNS to reach the hard to reach contacts of index cases, same day linkage to care and treatment will be facilitated.

6.2.2 Population and Geographic Priorities

HIV testing will be optimized using higher yield testing modalities such as index case testing and partner notification, social network strategy (SNS) for KPPs. All pregnant women, patients with TB and STIs and those undergoing VMMC will be tested. The priority for HIV testing will be key and priority populations in the 265 high burden woredas. Vigorous

optimization in the rest of the country will be based on use of a Risk screening tool both for adults and children administered at various entry points within health facilities. VCT will be available on a fee basis and HIVST will be expanded using a social marketing approach.

Expected Result 1: % of women and men aged 15-64 years living with HIV who know their HIV status increased from 78% to 95% by 2025.

Expected Result 2 : Percentage of HIV-positive results among the total HIV tests performed during the reporting period increased from 0.6% to at least 2% by 2025

6.2.3 Case finding strategic interventions and service delivery models

The HIV tests and case finding will use the following interventions and service delivery models. All modalities of case finding will facilitate same day linkage to treatment.

Index case testing and partner notification services (PNS)
Index testing is to be offered to all newly HIV diagnosed clients, those with high viral loads, and all children of HIV+ parents. Counselling is accompanied by screening for intimate partner violence. Case finding also uses data from CBS/Recency testing to enhance PNS among index clients who have recent infection. Providers offer PNS to all clients who have a positive recency test result and follow up until all partners have been tested. Facilities will use community outreach to find index cases. CSOs and peer service providers will support in the implementation of index case testing.

Social Network Strategy (SNS) is a recruitment strategy using social network connections to locate individuals at the highest risk for HIV who are unaware of their HIV status and provide HIV counseling, testing, and referral services. SNS can be particularly useful in finding key and priority populations that have limited access to HIV testing. Initial results from SNS among KPs have provided yields around 20. SNS will be scaled up in the 265 high burden woredas using a peer led approach near KPP hotspots. Peer service providers will ensure linkage to health facilities for those testing positive. Appropriate quality control and auditing for repeat testers will be part of this strategy implementation. CSOs will support implementation of SNS.

Provider initiated testing and counselling (PITC) is offered in all health facilities at various service entry points (e..g.. inpatient, outpatient, TB and STI clinics, malnutrition and postnatal clinics), based on the results of the risk screening tool. The risk screening tool currently on use for adults will be validated and a risk screening tool for children and adolescents will be further developed and validated. Only children <5 years who have a positive risk screening assessment will be tested . Thisis a change from current practice.

HIV testing integrated with MNCH is offered to all pregnant women attending antenatal care those who are laboring and attending postnatal care who are not on ART. In line with

Ethiopia's progress towards the elimination of syphilis, dual testing will be offered to pregnant women. Pregnant women will be tested at least once with subsequent tests at labor and delivery and during the breast feeding period based on using the Risk screening tool. Early Infant Diagnosis (EID) for HIV Exposed Infants will be expanded on both conventional and point of care platforms.

HIV testing integrated with TB/STIs/VMMC: All clients attending these clinics will be tested for HIV.

HIV Self-testing: Self-test will be available through social marketing and private providers to KPPs and the general population on fee basis. HIVST will be scaled up and used by integrating with ICT, so that contacts of index cases who prefer to self-test, in a place where they feel comfortable, can be reached. A secondary distribution approach can be used by index cases, to deliver the test kits and self-test packages to their contacts. HIVST will also be scaled up to all KP friendly public health facilities and provided to reach FSWs that could not otherwise be reached through facilities based HTS. Instructions for those self-testing for HIV will indicate that if a person tests positive they must go for a test to the nearest health facility using the national testing algorithm.

Voluntary counseling and testing (VCT): VCT services, including pre-marital testing will be available on fee basis to general population at the public and private health facilities. As demand creation activities are strengthened and HIVST is scaled up, clients who learn their risk behavior and clients who self-tested and need confirmatory testing may opt to come to the VCT clinics. Separate documentation will be ensured at these clinics for premarital testing against other clients.

in order to implement these targeted testing approaches, health workers will be trained on different HIV testing strategies (ICT, PNS, SNS, self-test etc), the use of risk screening tools for both adults and children, improved counseling techniques and in completing accurately HCT testing registers. Supportive supervision will include review of yields and swift remedial actions where non targeted testing is found. There will be improved community-facility communication and linkages, involving PLHIV Associations and community actors, addressing stigma and discrimination.

Intervention	Target Population	Indicator	Service delivery location/outlet
Index Case Testing and partner notification	PLHIV, their partners and their children	Proportion of Partners and children tested for HIV	Health facility & outreach
Social Network Strategy	KPP	Proportion of KPP tested through SNS and Yield	Health facility and outreach
PITC	All woredas	Disaggregation by population group by age and sex	Heath facilities – multiple entry points (TB, STI. In patient, malnutrition wards)

Intervention	Target Population	Indicator	Service delivery location/outlet
VCT on a fee basis	General population	Disaggregation by population group by age and sex	Public and Private health facilities VCT services
HIV Self Testing	KPP, pre-marital testing Contacts of index cases	# of kits distributed	Public health facility based distribution ,Social marketing and private sector outlets
		# returned for confirmation, positive, initiated	
Testing in	Pregnant mothers	Initial and follow up tests, positive, ART initiation	Health facilities
PMTCT	Uncircumcised males in Gambella and selected areas in SNNP		DIC for PrEP
VMMC PrEP	FSWs and Discordant couple		

6.2.4 Linkage to Care and Treatment

Expected result 1: >95% of all people with newly diagnosed HIV infection will be inked to and initiated on antiretroviral treatment by 2025.

The HIV testing cycle will only be considered complete when there is linkage of HIV positive people to care and treatment immediately or within a maximum of 7 days. The following strategies will be used to ensure linkage to care and treatment: a) escorted referral for linkage; b) written referral; c) coupon systems for community to facility or facility to facility. Peer service providers, CSOs and CBOs have critical role to play in linking those testing positive to care and treatment. Community education and demand creation, including education on minimizing repeat testing and addressing stigma and discrimination is needed. Referral directories should be made available to all testers and there should be active involvement of PLHIV Associations. In order to monitor successful linkage has occurred, a closed loop and auditing system of incoming and outgoing referrals should be in place with a quality assurance mechanism for monitoring and accountability.

6.3 Strategic Objective 3: Attain virtual elimination of MTCT of HIV and Syphilis by 2025

6.3.1 Context

Reaching elimination of mother to child transmission of HIV and Syphilis within the Ethiopian context presents significant challenges outlined in section 2.8.3. above. The 2019 updated national comprehensive and integrated PMTCT guideline endorses Dolutegravir

(DTG) based regimen as the preferred first line ARVs for pregnant and breast feeding women (PBFW) and women of childbearing age. The country has also adopted the provision of enhanced postnatal prophylaxis (NVP+AZT) for the first 6 weeks and NVP alone for the following 6 weeks) for all HIV Exposed Infants.

6.3.2 Strategic Interventions and Service delivery models

Expected result 1 : Mother-to-child transmission of HIV during pregnancy, childbirth and breastfeeding reduced to less than 5% by 2025
Expected Result 2: Percentage of pregnant women who know their HIV status increased from 84% to 95% by 2025

Expected result 3: At least 98% of expectant mothers living with HIV are virally suppressed at labor and delivery

Expected Result : Percentage of infants born to women living with HIV receiving a virological test for HIV within 2 months of birth increased from 64% to 95% by 2025

PMTCT services will be offered in over 3,000 health facilities at MNCH clinics. In order to improve MTCT outcomes, the following strategies will be employed:

- Strengthen primary prevention
- Adoption of dual HIV and syphilis testing (RTK)
- Expand Provision of DTG based ART regimen for PBFW and enhanced postnatal prophylaxis for HEI
- Sustain the experience of Mothers Support Groups (MSG) to support the adherence and retention in care at least at the high burden geographic areas.
- Enhance implementation of continuous quality improvement strategy
- Strengthen and scale-up PoC for EID and viral load testing for pregnant and lactating mothers
- Enhance capacity of health workers on treatment provision – (training, counseling, mentoring)
- Strengthen the referral network between PMTCT and ART sites (linking HIV + mothers to nearby ART clinics after completion of lactation)
- Strengthen PMTCT cohort monitoring system
- Strengthen index testing in the PMTCT setting and self-testing (partner)
- Need based ART/PMTCT service scale-up in private sector
- Strengthen family planning service among HIV positive women in reproductive age group.

Early Infant Diagnosis and Management of HIV exposed Infants

In 2020 there were 190 PCR machines working at about 40% capacity and 340 GenXpert machines with the potential to expand their diagnostic platforms to include EID; 64% (13,799) of HIV exposed infants had a PCR test. But turnaround time to receive results is prolonged which may result in delayed linkage of identified HIV positive infants to care and treatment service. The protocol for enhance postnatal prophylaxis for HEI was not routinely followed in all facilities and for those infants diagnosed HIV positive in 2019, only between 57-80% were linked to ART. Reasons for this include poor documentation and reporting as HEI-POS-ART is not part of HMIS reportable Indicators.

In this NSP period the following will be implemented:

- Both expansion of EID through PCR and increased opportunities for using new POC technologies will result in an EID coverage of 95%. Consideration will be given to other WHO EID diagnostic POC platforms
- Improved sample referral transport and the timely return of results will occur
- HIV exposed infants will receive dual Prophylaxis (AZT+NVP) and cotrimoxazole syrup
- Efforts will be made to better link mother-infant pairs to care and treatment
- Adjustments in DHIS2 to track mother-baby pairs on ART treatment
- The country will apply for validation for path-to-elimination. The already established Validation committee will work to ensure there is timely application and validation. Details on the roll out/expansion for the national EMTCT of HIV and syphilis will be addressed through a separate EMTCT strategic plan.

REGIMEN OPTIMIZATION

Adults:

- Introduction of Dolutegravir, lower dose Efavirenz
- Phase out Niverapine
- 2nd line regimen at health center level
- Increased availability of 3rd line regimens

Pediatrics:

- Introduce lopinavir/ritonavir pellets
- DTG regimens for children when available

Ongoing pharmacovigilance

ART Drug resistance surveillance

6.4 Strategic Objective 4: Enroll 95% of PLHIV who know their status into HIV care and treatment and attain viral suppression to at least 95% for those on antiretroviral treatment

6.4.1 Context

Ethiopia has made excellent progress towards achieving the 2nd and 3rd 90s. Test and start with rapid ART initiation (where clinically indicated) was included in the MOH guidelines

(2018) and has been scaled up across all health facilities providing ART. In line with the latest WHO guidelines, optimization of adult ART includes the introduction of fixed dose combination tenofavir, lamivudine and dolutegravir (TLD), lower dose Efavirenz (EFV), and phasing out of Nevirapine (NVP). As of December 2019, of the 79% of estimated PLHIVs who know their status, 90% were on ART and 91% were virally suppressed.

The percentage of children receiving HIV treatment <14 years however is considerably lower; 26% for children 0-4 years, 46% for those aged 5-10 years and 58% for those 10-14 years old. [86] There are large regional variations in ART coverage from 28% in Somali to 81% in Harari.

Private health facilities also provide HIV services with free ART drugs but they lack an adequate number of trained staff, case managers and adherence supporters, adequate technical support, commonly lack drugs to manage opportunistic infections, and are not adequately involved in monitoring and review meetings; and they do not have strong system for tracing lost to follow up patients. As Ethiopia increases its ART coverage, identification of new HIV infected individuals, linking them into treatment and ensuring that patients are not lost to follow-up is critical.

Refugee populations have been included in quantification of drugs for cre and treatment. Refugee camps are administered through the Administration for Refugee Affairs as well as UNHCR.

Improving adherence and retention in care

Viral suppression among adults on treatment remains high suggesting that adherence to treatment is strong. However further improvements can be achieved by using the following approaches.

a. Maintaining involvement of case managers and adherence supporters under Regional Health Bureaus

b. Differentiated service delivery models such as 6-month multi dispensing, community adherence groups (CAG), rapid pharmacy refills improves adherence and also provides increased technical efficiency

c. Client-centered services: extended working hours, week-end services, relatively permanent health care providers at ART clinic

d. Improved/ complete documentation of patients' address (Client's physical/telephone address & contacts, use of personal identity to avoid wrog name and address as applicable)

e. Enhanced facility-community collaboration to trace LTFU

f. Greater involvement of PLHIV and their associations

6.4.2 Viral Load Coverage and Suppression

Ethiopia has increased viral load testing coverage over time as well as continued high VL suppression rates. The VL monitoring coverage reached over 70% with an overall viral suppression rate of 90% in 2020. Viral load coverage and viral suppression rates vary across regions. During this NSP, viral load coverage will reach 90% with 95% viral load suppression.

Improvement is particularly needed for quicker turnaround time to inform those patients with high viral load and timely management of high VL. Modalities to achieve this a more efficient sample transport system, same-day high viral load result notification to expedite patient notification, increasing access to POC viral load machines (e.g. GenXpert), and expansion of electronic test order and result reporting.

6.4.3 Children and adolescents lagging behind

Expected Results 1: % of children < 15 years who are on ART increased from 67% to 95% by 2025

Expected Result 2: % of all children < 15 years PLHIV who are virologically suppressed increased

Successful care and treatment for children and adolescents lag behind the progress made in adult treatment for HIV. There are multiple factors involved including that children rely on their parents for access to treatment, limited accurate and timely diagnosis, inappropriate community attitudes and knowledge about HIV in children, poor linkage into treatment, low access and optimization of pediatric formulations and regimens, limited capacity among primary health care workers to treat children and lack of adolescent friendly services.

Children on Treatment

In comparison to the success shown among adults on treatment, the percentage of children <15 years on treatment is considerably lower; 26% for children 0-4 years, 46% for those aged 5-10 years and 58% for those 10-14 years old87. Viral suppression among children <15 years is 78.9%.

Based on modelling, 19% of all new infections occur in children <4 years. Early detection for at-risk children and early treatment for those living with the virus are crucial to saving lives. However, cultural, social, and economic stigmas are barriers to pediatric HIV testing. Caregivers face numerous challenges, including HIV disclosure and the child's ability to understand, fear of social rejection and isolation, parental sense of guilt, and concerns of inadvertent disclosure by the child, revealing an HIV diagnosis to others. Additionally, societal norms, such as male decision making roles affect the utilization of healthcare services for women and children.

Human-Centered Design (HCD) is a problem solving framework grounded in empathy and understanding. Applying HCD in the global HIV response, specifically in pediatric HIV testing,

will provide a platform to recognize not only the types of experiences clients want but also how to design the delivery of their desired experience.

Identifying more children will be achieved through information gained through human centered design operational research, as well as the emphasis put on index case finding, increased coverage of early infant diagnosis for HIV exposed infants, and targeted PITC at critical entry points where sick children are seen at health facilities. All positive children will be linked into care and treatment and initiated on optimized pediatric regimens in accordance with the the latest WHO guidelines. Where possible, in facilities with larger patient loads, child friendly clinic areas will be created.

Procurement of pediatric formulations remains challenging with worldwide production constraints supply shortages. The Government of Ethiopia will explore options through the Global Fund such as pooled procurement.

In addition to improved case finding, strategies to improve pediatric outcomes will include:

- Family friendly clinics with harmonized appointment schedules especially when parents are enrolled for DSM
- Optimization of pediatric regimens
- Parent/caretaker adherence education
- Health worker capacity building (through training, mentoring, case conferences, etc) for care and treatment of children and addressing disclosure
- Expanding options for differentiated service delivery models for children.
- Working with community care coalition to reach OVCs and provide HIV services.
- Education through audiovisual media outlets
- Adopting best global experiences

Adolescent Services

Despite improved access to HIV treatment, globally, the adolescent is the only age group with increasing HIV related mortality (up to 50%) while all other age groups (children and adults) combined experienced a decline of 38% in AIDS-related deaths between 2005 and 2013. Mental health is becoming another emerging public health priority. About 50% of the mental health problems start before the age of 14 years (late childhood and early adolescence) with 23% of years lost to disability are due to mental health problems. Most cases go unrecognized and untreated[88]. If an adolescent is HIV positive, there are additional

triggers which can predispose the adolescent to feelings of anxiety, depression and even possible suicide. The training of health workers can facilitate them having an important role in identifying mental illness among adolescents living with HIV.[89]

Although there has been success in decreasing prevalence among 15-24 year olds, once diagnosed as HIV+, adolescents on treatment have sup-optimal viral suppression rates (81.8%). One of the major factors in improving viral suppression and improved adherence is disclosure of HIV status. This has continued to be a major challenge within the program. More often than not, disclosure is best undertaken jointly between the health worker and parent/caretaker. This requires the health worker to have been adequately trained is disclosure to children and adolescents. There are few adolescent friendly health facility services. Adolescents living with HIV do not like being seen with children or adults - they prefer their own clinic. Another key sensitive point is when adolescents are old enough to be transitioned to the adult clinic. The exact time for this transition should be discussed with the patient and not be entirely dictated by age alone.

This NSP provides a number of options for health facilities and other stakeholders to improve outcomes for adolescent HIV care and treatment. These include:

Adolescent HIV Clinic day: Selected health facility ART clinics in urban towns (mostly health centers) will dedicate one of the five working days and Saturday as adolescent HIV clinic day

- Specific day within the general HIV clinic setup on which only ALHIV are offered care and treatment.
- Operates within the same infrastructure as the adult clinic

Adolescent HIV clinic: Health facilities which already have functional adolescent and youth friendly clinics will integrate HIV care and treatment services for HIV positive adolescents and youth

- Separate/Stand-alone clinic setup for only HIV+ve adolescents
- Clinic operates outside the adult clinic infrastructure but mostly inside same health facility

The following will be the minimum package of services delivered at adolescent and youth friendly clinics or adolescent clinic days

- Information on reproductive health issues, body hygiene and environmental hygiene
- Counseling on sexual relations and safe sex
- Life skills education
- Condoms
- Treatment (ART) and adherence counseling
- Pregnancy testing

- Psychosocial support
- Counseling on alcohol and substance abuse
- Counseling on mental health
- Counseling & management of sexual abuse
- Sexual Reproductive health services (e.g. Antenatal care, safe deliveries, post-natal care, STI prevention, screening, and treatment; family planning method and Post abortion care)
- Referral and follow up

In addition to trained health workers, HIV positive adolescents support groups, adolescent peer service providers can play an important role in providing adherence support, promoting positive living, promoting access to services, identifying and reaching key populations of adolescents in their communities and engaging in, community participation and advocacy. The role of the following approaches/groups should also be examined and promising experiences expanded :

- Adolescent and Youth Peer-to-Peer support groups
- Involvement of Adolescent (youth) ambassadors
- Adolescent Adherence supporters
- Greater participation of Associations of ALHIV

6.4.4 Management of co-morbidities

Results from EPHIA showed that 22% of patients were presenting with advanced HIV disease (CD4 <200 cells/mm^3). Important co-morbidities and required treatment include:

- **Cryptococcal disease**: Screening for cryptococcal disease (CrAg) for adults and adolescents with CD4<100 cells/mm^3 with additional consideration for screening for those with CD4 <200 cells/mm^3 and pre-emptive treatment with fluconazole for those with advanced HIV disease; treatment with antifungal regimens and monitoring for Amphotericin drug toxicity[90].

- **Cervical cancer**: In 2015, MOH introduced cervical cancer (CxCa) screening and treatment for all women between 30-49 years irrespective of their HIV status. However national scale up has been hampered by some of the key programmatic challenges. These include lack of up-to-date national guidelines and job aids; weak demand creation at community and HCWs level; stigma; lack of capacity to maintain trained HRH at different level of the health system; lack of capacity for preventive maintenance and troubleshooting resulting in frequent equipment failure; frequent shortage of medical supplies and accessories; lack of capacity to introduce new technologies; poor referral networking; and, lack of system for mentorship, coaching and quality improvement. The Ethiopia Population-Based HIV Impact Assessment (EPHIA) 2017-2018, showed that, in urban areas, only 16% of HIV-positive women

aged 30-49 years reported being screened for cervical cancer.

To increase the uptake and treatment of cervical cancer screening services, PLHIV associations swill promote the use the use of these services and link HIV+ women to the nearest health facility where this services is available. HSTP II aims to increase cervical screening among 30-49 year old women from 5% to 40% by 2024. In this NSP, PLHIV women aged between 25-49 will be screened for cervical cancer and referred for treatment.

- **Mental Health**: General mental health services remain very limited within the country but as much as possible, clients attending ART clinics will be screened for possible mental health conditions and managed or referred for its management.

Result 1: Percentage of people living with HIV newly enrolled in HIV care started on TB preventive therapy increased from x% to 95% by 2025

Result 2: % of PLHIV on ART who completed a course of TB preventive treatment among those who initiated TPT

6.4.5 Tuberculosis Co-infection

Optimized case finding will include:

a. Routine TB screening for PLHIV on ART
b. Strengthen TB and HIV case finding activities at all other service delivery points within facilities
c. Investigate TB contacts for TB and HIV at TB clinics
d. Ensure efficient referral for TB diagnosis

Optimized TB /HIV care includes:

a. Improve access to TB diagnostic tests, integrated sample referral systems, functioning laboratory systems for more sensitive tests (eg urine LAM). Timely diagnosis of TB among PLHIV by improved turnaround time for test results and new POC diagnostic tests (XpertMTB/Rif Ultra, Urine LAM).
b. Adopting models of patient centered care such as anti-TB and ART optimization, cotrimoxazole preventive therapy for TB patients who are also HIV+, integrating TB case finding, TPT follow up, adherence support within DSM}DM service delivery models.
c. For people living with HIV/AIDS, both 3HP and 3RH are safe to give with efavirenz-based ART without any dosing adjustments. In adults, 3HP is safe to give with dolutegravir-based ART without any dosing adjustment. Both 3HP and 3RH reduce lopinavir-ritonavir and nevirapine levels. Thus, dosing adjustments are needed. So, neither can be used together with lopinavir-ritonavir or nevirapine. As a

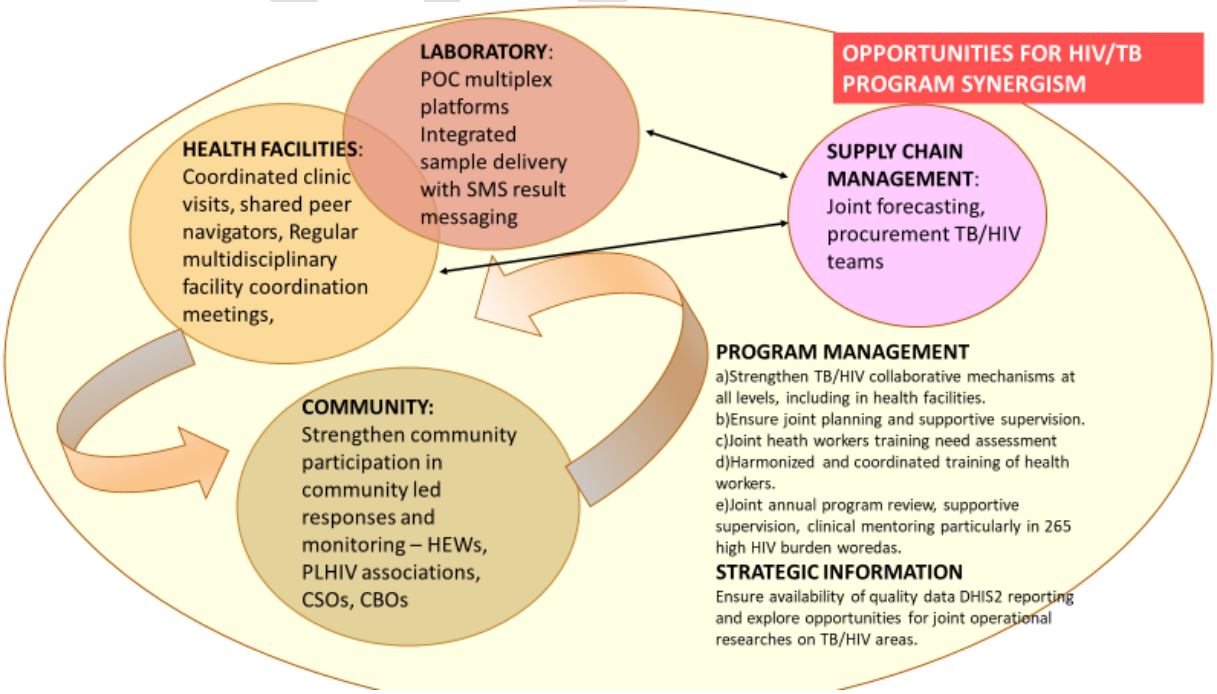
consequence, for HIV-infected children taking lopinavir-ritonavir, nevirapine, or dolutegravir, the preferred TPT regimen is represented by 6H (preferably with the dispersible formulation), which does not require dose adjustment[91].

TB prevention activities include:

a. The Ethiopian national guidelines prioritize PLHIV, children and adolescents for treatment of latent TB infection, using shorter TB preventive treatment (TPT) regimens: 3RH for TPT among HIV negative children <15 years exposed to TB in 2019. In 2020, a combination of weekly doses of rifapentine and isoniazid for 3 months (3HP), for PLHIV, will be introduced as the preferred regimen[92].
b. Strengthening TPT uptake and course completion by demand creation for TPT, strengthening the evaluation and screening for presumptive TB, strengthening TPT adherence, patient follow-up and pharmaco-vigilance, ensuring adequate and uninterrupted supplies of TPT drugs

Building on the concept of Value for Money, synergies between the TB and HIV programs include improved integration at health facility level, improving efficiencies within the laboratory diagnostic platform and integrated sample transport system, efficiencies within the supply chain, synergistic interventions at community level building on the HEP, PLHIV associations and peer supporters and integrated program planning, supervision, monitoring and evaluation. (Fig 33)

Fig 33: Opportunities for TB/HIV program synergism



6.4.6 HIV and Hepatitis B and C Co-infection

Expected Result 1: % people on ART who were screened for Hepatitis C during the reporting period increased to 30% by 2025

Expected Result 2: % people diagnosed with chronic HCV infection who initiated treatment during the reporting period

HIV profoundly impacts on the course of hepatitis B & C virus infection, resulting in higher rates of chronic hepatitis infection, accelerated fibrosis progression with increased risk of cirrhosis and hepatocellular carcinoma, and higher liver-related mortality compared with people who do not have HIV. Integrated management of HIV and viral hepatitis infection should be provided, with early diagnosis and treatment of both HIV infection and viral hepatitis infection.

A comprehensive approach is required in managing HIV and hepatitis B & C co-infection includes:

- Integrate HIV, HBV and HCV infection prevention interventions (SBCC)
- Scaling-up the HBV and HCV screening/testing among PLHIV
- Provision of hepatitis B vaccination for non-immune HIV positive clients
- Ensure provision of tenofovir-based regimen for PLHIV who are co-infected with hepatitis B (provided there is no contraindication to tenofovir)
- Ensure linking PLHIV who are co-infected with hepatitis C to viral hepatitis treatment services
- Strengthen the monitoring of adherence to treatment
- Strengthen the integration/linkages between HIV services and viral hepatitis services
- Integrate the diagnostic platforms and laboratory services used for other diseases (for diagnosis and treatment monitoring)
    - multi-disease serological rapid tests (HIV, Hepatitis, Syphilis)
    - multi-disease platforms for viral load testing (GeneXpert, conventional viral load testing machines)

- Ensure inclusion of key HIV and hepatitis indicators in to DHIS2 and improve data quality and use at all levels

6.4.7 Models of service delivery

ART is currently provided in 1100 public health facilities throughout the country. This will be continued with expansion of differentiated service delivery models to include six monthly refills, peer-led ART refills, community based ART service delivery including LTFU tracing, treatment literacy and adherence and community led HIV service monitoring.

In order to improve pediatric outcomes, family centered service model will be utilized with harmonized appointment schedules with parents and their children and the establishment of adolescent friendly services as outlined above. There will be appropriate networking of PMTCT only sites with ART sites for continuation of treatment and follow up after completion of 2 years follow-up for mothers and children living with HIV. Private health facilities have role to play in providing and complementing HIV care and treatment services, ensuring that they are supported to follow national guidelines and also comply with providing service reports into the health information system.

Coordination for the management of co-infected TB/HIV patients will take into consideration the following service delivery options:

- For those health facilities which have a TB program but no HIV services, co-infected TB patients will be referred to the nearest health facility where ART is available
- For those facilities where there are TB and PMTCT services, options for ART provision linked to the PMTCT service will be considered
- For those facilities where there are both TB and ART clinics, once TB therapy has been started, patients will be referred to the ART clinic for ongoing management of both their HIV disease and continue their TB treatment at the TB clinic. The option of integrating ART services at TB clinics will be explored and decided accordingly.
- The co-infected MDT TB patients will receive both services at the MDR TB Clinic settings and be transferred to ART clinic at completion of the MDR TB treatment

6.5 Strategic Objective 5: Mobilize resources and maximize efficiencies in allocation and utilization

6.5.1 Context

Ethiopia has had an annual economic growth rate of 10% over the past 15 years and growth was projected to remain at around 7-8% for the foreseeable future. However, the country is facing a pronounced economic slowdown owing to the COVID-19 pandemic. The shock is expected to significantly reduce growth this fiscal year and next (IMF Country Report, May 2020), and is most likely to impact on the fiscal space for public expenditure on Health and HIV over the first few years of NSP implementation.

Notwithstanding this economic context, Ethiopia has established ambitious goals for health spending and domestic resource mobilization for health as part of its Health Sector Transformation Plan II that has been formulated for 2020/21 – 2024/25. In recent years Ethiopia has dramatically increased domestic government expenditure on health, primarily through increased allocations at the regional and local levels and a renewed focus on primary healthcare. Total health spending during 2016/17 was $3.1 billion, a 45% increase in nominal terms from $2.5 billion in 2013/14 (FHAPCO 2020).

However, a report on achieving sustainable health finance in Ethiopia prepared by the GoE and the Global Fund[93] , describes how Ethiopia's health sector needs are significant. At current levels of budgetary prioritization, government resources alone will leave a financing gap of as much as US$2.5 billion annually—or more than 50% of the resource need—by 2020 (pre-COVID-19). The report advocates for a focus on increasing the amount of resources allocated to health and on using these investments more efficiently and effectively.

6.5.2 Investment trends for the HIV program

Over half (53.6%) of government spending on Health goes into the areas of infectious and parasitic diseases (up from 46.5% in 2015, World Bank, 2016). According to the 2016/17 NHA (FHAPCO, 2020), HIV accounts for the single largest share of health expenditure (17%).

The vast majority of spending on HIV is sourced from external partners, primarily PEPFAR and the Global Fund. Between 2010 and 2015 external funding comprised 80-90% of funding, although this has been decreasing in recent years due to the international trend of declining donor investments in HIV[94] and increased commitment by the GoE in domestic financing of health programs. Funding from external partners declined by more than half from 2011 to 2017 ($197 million in 2017).

Expenditure analysis for 2018 shows that approximately 80% ($198.8 million out of a total of $236 million), of the national HIV program expenditure was financed through external partners, demonstrating the increasing proportional contribution domestic funding of the national HIV program. Out-of-pocket expenditure accounted for 2% of total HIV spending in 2016/17.

Donor funding primarily supports provision of antiretroviral therapy (ART), which accounted for 60% of total PEPFAR and Global Fund financing for HIV in 2016 (PEPFAR, 2018). The Global Fund procures all antiretroviral drugs and almost all rapid test kits, while PEPFAR support is primarily focused on improving quality of clinical care and treatment, procurement of viral load monitoring pharmaceuticals and early infant diagnostics, community-based care; key populations prevention and support for orphans and vulnerable children.

6.5.3 Available funding for the HIV programs

A resource mapping exercise was undertaken to determine current sources and levels of funding for the HIV response and to project expected funding for the upcoming period of the NSP.

Due to the unpredictability of future domestic and external allocations to HIV, three funding scenarios have been developed, to which the HIV program may have to be further optimised based on funding constraints. (Table 10)

Table 10: Potential funding scenarios for the NSP Period

Conservative funding	Domestic finance constrained by COVID but increases from 2% pa to 5% growth pa by 2025 PEPFAR 10% decline pa until 2025 and then constant All other partners constant

Optimistic domestic funding	Domestic finance constrained by COVID but increases to 5% growth pa by 2025 PEPFAR 5% decline pa until 2025 and then constant All other partners constant
Optimistic domestic funding & full partner commitment	Domestic finance constrained by COVID but increases to 5% growth pa by 2025 PEPFAR, GF and other development partners constant at 2021 levels

In estimating the total available funding for the implementation of the NSP, it is expected that funding from PEPFAR will continue on its long-term trend of declining investments in Ethiopia, by an estimated 10% per annum to approximately $72 million by 2025 in the conservative scenario. In the optimistic funding scenario, it is expected to decline by 5% per annum and in the full commitment scenario, funding will remain stable at 2021 levels.

Over all the scenarios, the Government of Ethiopia expects that funding from the Global Fund will remain stable at approximately $88.5 million per annum (including a contribution of $2.5 million from the HSS grant). A number of other development partners play a significant role in supporting the Ethiopia HIV response, including UNAIDS, and these contributions have been aggregated and estimated at approximately $7 million per annum and expected to remain stable over the NSP period.

Domestic resources for HIV comprise funding from the public sector (health and other sectors) and the private sector. For the conservative funding scenario, domestic funding for HIV is expected to increase by a modest 2-5% over the NSP period to current economic context in Ethiopia. In the optimistic and full commitment scenarios, it is expected that domestic resources will increase according to the Ethiopia Domestic Resource Mobilisation Strategy (DRMS), which outlines a number of tactics that will be implemented to mobilise additional funding for HIV over the next 5 years (described further in the section below). This is expected to contribute an additional $58 million in domestic funding over the 5-year period.

The expected available funding for HIV over the NSP period, under the conservative funding scenario, is shown in table 11 below. Available funding will decrease from $236 million in 2021 to $214 million in 2025. By 2025, domestic funding is expected to comprise 23% of the HIV budget.

Table 11: Projected funding by source, 2021/22 - 2025/26, conservative funding scenario

Source	2021	2022	2023	2024	2025
Domestic sources	43	44	45	47	49
PEPFAR	99	89	80	72	72
Global Fund	88	86	84	86	86
Other external partners	7	7	7	7	7

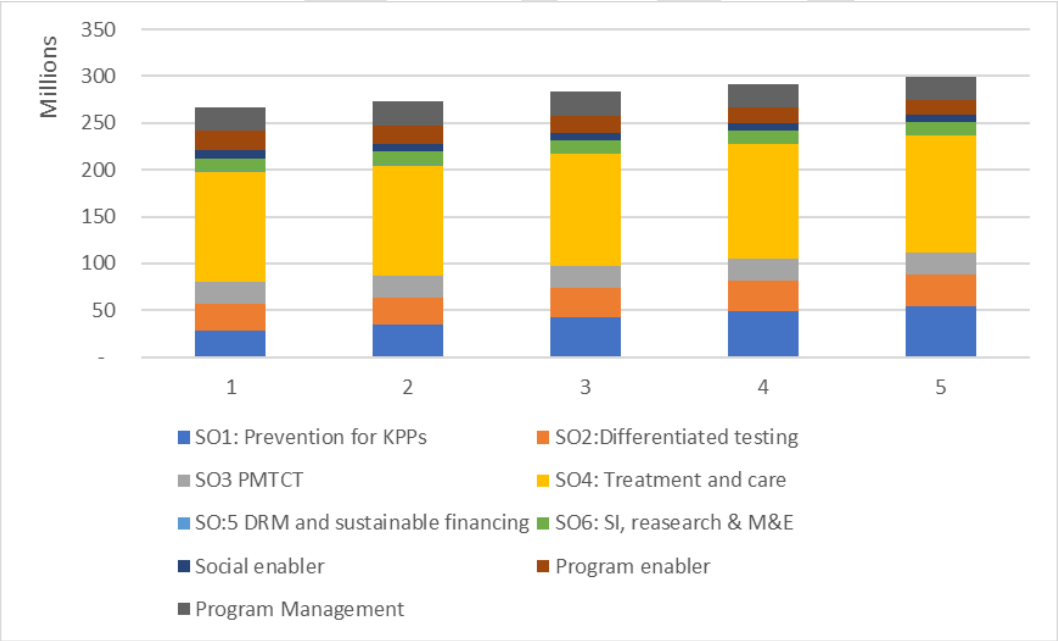
Total	**236**	**226**	**216**	**212**	**214**

6.5.2 Resource needs to implement the NSP

The NSP 2021-2025 reflects a highly prioritized and cost effective response over the NSP period. The resources required to achieve the NSP goals are calibrated to the latest investment case modelling for Ethiopia that used the Goals models to guide a cost effective and allocatively efficient response.

The Resource Needs Model was used as the primary tool to estimate the financial costs of implementing the NSP over the 5-year period. The costs for each intervention are estimated as the population in need of the service multiplied by the coverage (the percentage actually using the service) multiplied by the unit costs. Unit costs were computed from a mix of sources, primarily published studies, HAPCO and development partner budgets, HAPCO procurement and expenditure data and additional ingredients-based costing for some interventions. For some interventions, efficiency savings were factored in to the unit cost computations to reflect planned technical efficiency interventions by government (for instance community led delivery models for key and priority populations and efficiency gains in procurement and distribution of ARVs and condoms). Interventions for most social and program enablers were estimated as annual fixed costs.

Figure 34: Annual resource needs for HIV 2021 – 2025 (USD)



The annual resource needs for the NSP increases from $267 million in 2021 to $299 million in 2025 (12% growth). This annual increase is largely driven by scaling up prevention and treatment services to reach more people, so that the NSP goals can be reached.

Over the 5-year period, primary prevention interventions will drive 15% of financial resource needs, HIV testing 11%, PMTCT 8% and care and treatment services, 39%.

The annual cost of prevention almost doubles over the period (91% increase) as coverage of combination prevention services for key and vulnerable populations is rapidly scaled up. Resource needs for HIV testing also increases, notwithstanding those efficiencies will be sought through more targeted testing strategies to increase testing yields.

The resources required for care and treatment increases by only 8% over the NSP period, even though the number of people on ART increases by 77,000 (16%), due to expected efficiencies in differentiated service delivery.

Additional increases in resource needs would be needed to scale up programs to reduce stigma and address violence against women. The cost of OVC support interventions decline by 22% as the number of AIDS-related orphans is projected to decline.

The NSP calls for greater investment in the 5 pillars of prevention, and in particular combination prevention programs for key and priority populations.

Sex worker interventions comprise 8% of the prevention resources required and other key and vulnerable populations, 14% of the total. Condom programming comprises 32% of the total cost of prevention, notwithstanding expected efficiency savings in the delivery and management of the program (after benchmarking the baseline unit of expenditure to regional averages). PMTCT drives the largest share of the prevention cost, at 36% due to all pregnant women attending ANC who do not know their status receiving the HIV testing service.

Table 12: Costs of Prevention interventions

	2021	2023	2025
PMTCT	24 504 580	24 206 643	23 885 003
Condom promotion	16 402 373	21 825 315	26 312 216
VMMC	997 400	997 400	997 400
STI prevention/ treat	3 248 335	4 598 976	5 947 618
SBCC	1 040 628	1 665 004	1 665 004
FSW PrEP	278 167	1 390 835	2 503 504
FSW services	2 325 633	4 295 962	5 814 084
Key and priority pops	5 336 591	9 778 291	13 371 310
Total	**54 133 707**	**68 758 426**	**80 496 139**

Financial gap

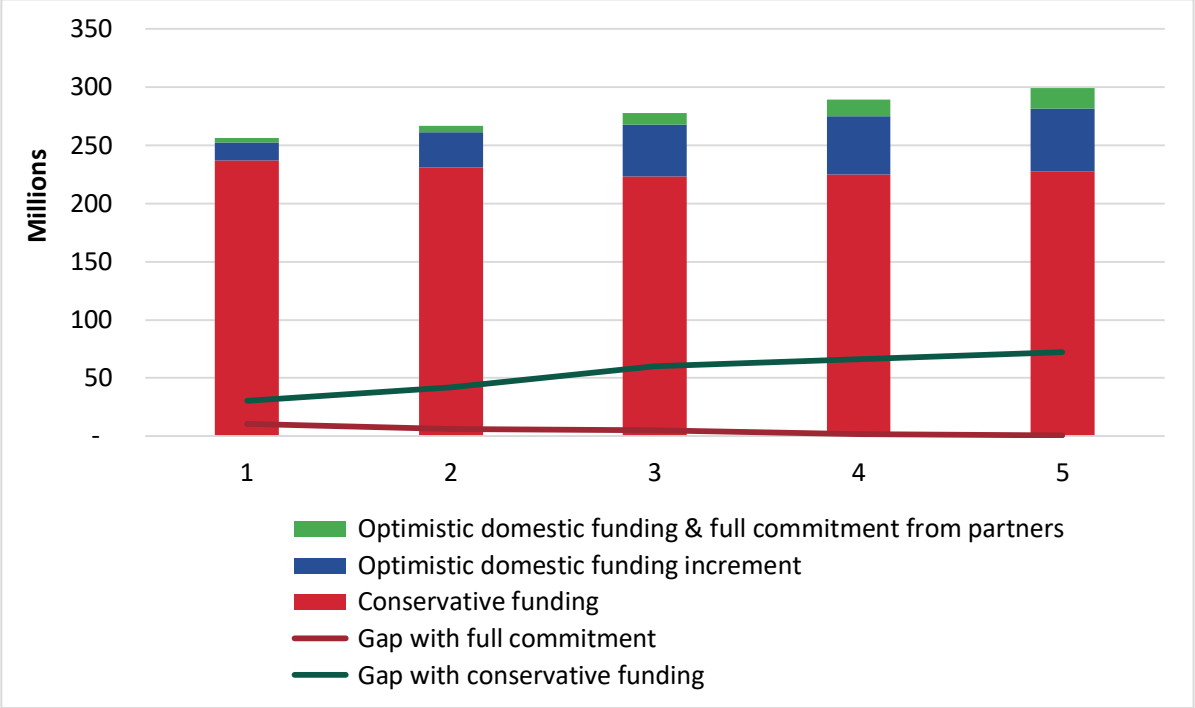
The annual funding gap is calculated by comparing available funding with financial resource needs over the period of the NSP.

The figure 35 below shows that under the conservative funding scenario, the financial gap increases steeply from $30 million in year 1 to $72 million in year 5, as universal coverage of

key and priority populations are reached with services from the 5 pillars of prevention as Ethiopia gets closer to supporting 95% of PLHIV with life-long ART. Significant further optimization of prevention programs would need to be undertaken if this scenario materialize and over 9000 additional new infections may result.

However, if the targets of the DRM strategy are met, then approximately 72% of the funding gap would be reduced. In the full commitment scenario, only a small funding gap would remain by year 5.

Figure 35: Resource needs, funding and gap by scenario (USD $ millions)



6.5.3 Sustainable financing of the response

The financial gap analysis shows that it is critical, for the sustainability of the HIV program, that the GoE successfully achieves, and more ideally, exceeds its domestic resource mobilization targets, whilst its development partners continue to invest strategically and in a well-coordinated manner with GoE.

With economic growth severely impacted by COVID-19 in the short-term, and fiscal space for health under pressure by other sector needs to address, inter alia food security, domestic resource mobilization will need to be well-executed to achieve its goals.

As outlined in the DRMS, meeting the challenge of fully funding the NSP will require a combination of approaches, namely:

1. Mobilizing additional public sector funding for HIV and reprioritizing existing health budgets

2. Leveraging other health financing mechanisms, including community health insurance and private sector financing options
3. Improving allocative and technical efficiencies in service delivery
4. Co-ordinating strategic investments with external partners
5. Investing in financial systems and capacity

These strategic approaches are further elaborated below.

Mobilizing additional public sector funding for HIV and reprioritizing existing health budgets

The following describe the 10 public resource mobilization initiatives (see Table 9):

1. Increase allocation of general government revenue to health, and specifically HIV, at federal and regional levels

FHAPCO, the MOH, regional HAPCOs (RHAPCOs), and regional health bureaus will strengthen advocacy and negotiation efforts, using evidence from the Investment Case approach of the NSP, to secure an increase in budget allocations for the HIV program from the Ministry of Finance (MOF) and regional finance bureaus. Annual budgets should increase progressively over the 5-year period, from US$0.7 million to US$9.1 million at the federal level and US$1.2 million to US$7.3 million at the regional level. The government budget allocation will be negotiated and tracked through evidence based communication targeting key stakeholders.

2. Reprioritize public budgets to spend effectively

The GoE can increase fiscal space for HIV programs through ensuring that public health and sector budget allocations are performance-based and aligned with the priority interventions, populations and geographies described in the NSP. Funding for ineffective or under-performing activities should be reprioritized during the annual public budget cycle.

3. Improve management and targeting of funds mainstreamed for HIV within priority sectors

Government offices in 10 strategic sectors should allocate at least 0.2% of their budgets to HIV, including from the contract value of infrastructure projects. This will generate approximately US$32 million over the 5-year period, which will be used to target the beneficiary key and priority populations of each sector with services, including comprehensive HIV prevention, testing, and linkage to care and treatment. Legal frameworks and guidelines will be developed. Ten strategic sectors' capacity will be built to implement package of HIV prevention interventions targeting key and priority populations within their mandate. In addition sectors might use social contracting arrangements with the civil society organizations and the private sector to deliver packages of HIV services to key and priority populations.

Mainstreaming Type	Strategic Sector Office	Key and Priority Populations
Social sector mainstreaming	Ministry of Labour and Social Affairs (MOLSA); regional bureaus and woreda offices	Workers in hotspot areas;* people living with HIV
	Ministry of Women, Children, and Youth Affairs; regional bureaus and woreda offices	Adolescent girls and young women Female sex workers; widowed and divorced women
	Transport Authority; regional bureaus and woreda offices	Distance drivers
	Federal and regional prison administrations	Prisoners
	Education sector: Ministry of Education; regional bureaus and woreda offices, Ministry of Science and Higher Education and technical and vocational training agency; colleges	Adolescent girls and young women
Infrastructure mainstreaming	Ethiopian Roads Authority; regional offices	Workers in hotspot areas and female sex workers in their project catchments
	Government Development Enterprises Agency and its entities (Sugar Corporation, Construction Corporation, Design Works and Supervision, Metal and Engineering Corporation)	Workers in hotspot areas and female sex workers in their project catchments
	Ministry of Construction and Urban Development its projects and line offices	Workers in hotspot areas and female sex workers in their project catchments
	Ministry of Mines, Petroleum, and Natural Gas; regional offices	Workers in hotspot areas and female sex workers in their project catchments
	Ministry of Water, Irrigation, and Electricity	Workers in hotspot areas and female sex workers in their project catchments

Leveraging other financing mechanisms, in the form of voluntary employee contributions, earmarked taxes and private sector financing options

1. **Increase voluntary contributions of public and private sector employees in the AIDS fund**

In coordination with FHAPCO, voluntary participation of an estimated 65% of employees in the government sector offices and 40% among private employers (40%) will congtribute to

the AIDS Fund. The recommended contribution will be 0.2% of pre-tax salary, generating an estimated US$36 million over 2021–2025. The legal framework and guidelines will be developed and robust communication and advocacy will be conducted to enable government and private institutions to enrol their employees into AIDS fund, deduct payroll contributions monthly and transfer contributions to priority HIV programs of HAPCO and the health sector through Ministry of Revenue and its regional offices.

2. **Implement an earmarked tax on the profits of large public and private enterprises**.

To ensure sufficient domestic financing of HIV, a new tax on large public and private enterprises will be implemented and specifically earmarked for the HIV program. The tax will apply to companies with an annual income of ETB 100 million or more and be equivalent to 0.2 percent of taxable income, mobilizing an estimated US$93 million over the 5-year implementation period. The legal framework and guidelines will be developed and robust communication and advocacy will be conducted targeting public enterprises and private companies. Earmarked tax will be collected through Ministry of Revenue and its regional offices to finance priority HIV Program interventions and commodities.

3. **Strengthen private health sector engagement in the provision of HIV testing, counseling, and treatment services**

Increasing the number of HIV patients able and willing to seek services in the private sector will reduce the saturation of public health facilities and financial burden on the government. Developing mechanisms for private sector facilities and patients to provide at least partial cost sharing for commodities can provide a more sustainable source of commodity financing.

4. **Explore the potential for eventual integration of HIV services into social and community-based health insurance benefits packages**

Expansion of health insurance coverage is a central component of Ethiopia's ongoing health financing reforms and proposed Health Care Financing Strategy. Although only covering approximately 11% of the population in 2018, CBHI and SHI are still seen as a primary conduit for mobilizing new resources and achieving financial protection by the GoE.[95]

Integration of HIV and other exempted services into the benefits packages of prepayment schemes is critical to ensure their long-term financing. However, further investigation into the implications for the scheme's financial sustainability is needed. Therefore, during the strategic period feasibility of integration of the HIV services into the insurance schemes will be explored and consensus will be built on its implementation.

Improve allocative and technical efficiencies in service delivery

Allocative and technical efficiency are two dimensions of the Value for Money Framework adopted by the NSP.

Allocative efficiency

Allocative efficiency refers to allocating investments by intervention, geographic area and population to maximize cost-effectiveness and impact of the HIV program.

The core programs of HIV testing, treatment, VMMC, condoms and prevention services for key populations have shown to avert substantial numbers of new infections and AIDS deaths if an appropriate enabling environment is in place. Modelling of the impact of implementing the NSP 2021-2025 as part of the Ethiopia Investment Case for HIV (2020) demonstrated that it could avert 31,000 new infections during the period at a cost per infection averted (undiscounted) of approximately $11,000.

Testing and treatment are the most cost-effective interventions since they are together cost saving over the period 2021-2025.

While treatment programs are needed everywhere there are PLHIV, prevention programs will be more cost-effective in the high incidence woredas defined as an incidence >0.03%. These 265 woredas account for about one-third of all new infections and thus constitute a geographic core where prevention interventions should be scaled up first to achieve maximum cost-effectiveness

Using surveillance to strategically target high-value, high-impact interventions towards woredas and priority populations where impact will be greatest will increase the allocative efficiency of the response.

Technical efficiencies

Technical efficiency refers to optimizing the delivery of each service to provide quality outputs at the lowest possible cost. Improving the efficiency of the delivery of HIV services will result in improved outcomes and, in some settings, financial savings which can be re-invested into NSP programs.

Strategies that will be prioritized to achieve greater technical efficiencies and thereby improve the return on investments include more targeted testing, expanding differentiated ART, and establishing additional adherence clubs in facilities and communities. Table 13 below summarizes current efforts and opportunities for further technical efficiency gains in the national HIV program.

Table 13: Public resource mobilization initiatives

Population/ Service Area	Economy/ technical efficiency intervention	Explanation

Population/ Service Area	Economy/ technical efficiency intervention	Explanation
Scale up services for key populations	Flexible and efficient CSO led models of delivery in communities	Fixed Drop-In Centres for KPs may be inefficient in some areas that have lower demand. CSOs are better placed for demand creation, linkage to care and adherence support, leading to increased productivity of resources and intervention outcomes. Moving towards universal access for key and priority populations would generate efficiencies through scale.
Scale up services for key and priority populations	Integration of HIV prevention into community activities	Integration of HIV prevention into Community Care Coalition activities, as well as into activities of community associations and religious structures
	Strengthen public sector mainstreaming of HIV through civil society support	Ensure non-health sector interventions for HIV by other public agencies are optimised and more targeted through facilitation from experienced civil society partners
	Community-based adherence	PLHIV associations and networks to increase treatment literacy and support to increase the cost-effectiveness of ART
	Community-led monitoring	Community monitoring should reduce stock-outs, stigma and discrimination and increase targeted investments to improve effectiveness and impact of HIV program
PMTCT	Integrating PMTCT with MNCH services as well as PMTCT+ with ART.	Continue integration of PMTCT with other clinical HIV and MNCH services Universal HIV testing of pregnant mothers ensures a human-rights approach to HIV prevention and care (In 2018, only 43% of facilities had 1 or more HIV+PW. Of those facilities, 65% had <10 cases).
PrEP	Scale up intervention in eligible groups	Efficiencies expected through scale and integration with other clinical prevention services Increase efficiency of program through enrolling those with substantial risk and use peer service providers for recruitment, screening and adherence support.
VMMC	Integration	Transition from vertical program to integration into primary health care service

Population/ Service Area	Economy/ technical efficiency intervention	Explanation
HTS	Index case testing Risk assessment screening tool	Scale up index case testing and Partner Notification Strategy Increase HIV yield through PITC with the rigorous use of a Risk screening tool for all ages
ART	Scale up switch to most cost-effective 1st line regimen (TLD)	Efficiency savings already achieved from unit cost reductions in drugs and commodities through higher volumes and better demand predictability provided by MoH/ HAPCO to suppliers. Continued scale up of switch from TLE to TLD will generate efficiency savings, not only from the lower price of the fixed dose combination regimen, but also due to increased effectiveness of viral suppression and reduction in patient transitions to 2nd line treatments. [96]
ART	Differentiated Service Delivery: Multi-month scripting Community Pick-up Points Appointment Spacing Model	Early experiences in Ethiopia and regional studies show potential for reducing program costs and Out-of-pocket expenditure and improving quality of care.[97]
Health system	Integration of services	Integration of TPT into HIV clinical care package HIV testing integrated with TB/STIs/VMMC A number of studies show increased cost effectiveness and cost savings from integrating HTS, ANC, PMTCT, FP, HIV care etc., although mostly at a pilot level or modelled.[98]
Health system	Procurement and supply chain management	Continue process to integrate pharmaceutical and logistics management, including RDT kits and condoms Refine quantification assumptions and increase forecast accuracy Expand long-term framework contracts for HIV commodities and medicines to prevent supply chain disruptions, reduce emergency procurement and reduce stock expiry

Population/ Service Area	Economy/ technical efficiency intervention	Explanation
Health system	HRH Optimisation and productivity at PHC facility level	Levels of efficiency varies significantly across districts, and a study showed that up to 50% may be inefficient.[99] For instance, absenteeism in the health sector in Ethiopia is around 10%, far lower than other countries in sub-Saharan Africa.[100]
Health system	Improve budget efficiency	Strengthen co-ordination and joint planning with development partners to ensure optimal allocation and utilisation of resources Strengthen PFM to ensure that allocated funds are expended on the intended budget area. Routinize monitoring of VfM across interventions and at a system level and management actions for bottlenecks and inefficiencies identified.

6.5.4 Co-ordinating strategic investments with external partners

Although the GoE is committed to significantly increasing the domestic share of funding for HIV over the NSP period, it's development partners should continue to play a pivotal role in investing in strategic areas of the HIV response to support Ethiopia in attaining and maintaining epidemic control. The Global Fund and PEPFAR are expected to continue playing an important but decreasingly prominent role in financing medicines, health commodities and laboratory reagents, whilst consistently supporting the scale up of prevention programs for KPPs. The partners should, together with the Ministry of Health, ensure that there are no disruptions to HIV programs due to economic shocks or sudden reprioritization decisions.

FHAPCO will play a central role in coordinating planning and investments between GoE and its partners to sure that funding is efficiently allocated and spent.

FHAPCO will ensure the appropriate structure and staffing will be in place, and tasked to mobilize and utilize both domestic and external resources. FHAPCO, through is resource mobilization committee, will lean on a number of tools to achieve sustainable financing of the HIV response, including robust monitoring and reporting systems, capable governance structures and indicators to measure VfM across the dimensions of economy, efficiency, effectiveness, equity and sustainability.

6.5.5 Investing in financial systems and capacity

1. **Strengthen government capacity for financial management and sustainability management**

FHAPCO, in coordination with other key partners, will strengthen capacity at all levels of government and across sectors to implement the domestic resource mobilization strategy and to monitor the sustainability of the response. High-level coordination, including with broader health financing efforts and donors, also will be critical to ensure success of the strategy.

Advocacy and capacity building interventions to implement the domestic resource mobilization strategy will be conducted across the various levels. The follow up and feedback mechanisms will also be standardized and implemented. The interface of HAPCO's HIV resource mobilization structures with the regional and sub-regional level similar structures of health and Ministry of Finance and Economic Development will be designed for more efficient implementation of the strategy.

2. Promote transparency and accountability in financial management and improve resource tracking and monitoring.

In addition to NHA and NASA studies on health and HIV expenditure, FHAPCO and MOH will develop a standardized tool for routine tracking HIV allocations and expenditures. They will also develop an online dashboard and database for HIV financing and programmatic data and reporting, with analytic and data visualization capabilities.

Implementation of the domestic resource mobilization and sustainable financing strategies will be overseen by FHAPCO and its partners, guided by supportive legal framework and an implementation road map, which defines a set of activities and responsible parties to implement each initiative.

The initiatives to be pursued under this sustainability agenda will represent a critical step in achieving self-sufficiency and long-term sustainability for addressing the HIV epidemic in Ethiopia.

Table 14: Public Resource Mobilization Targets, by Strategy and Use (US$ millions)[101]

	Baseline (2020)	Year 1	Year 2	Year 3	Year 4	Year 5	Increase Baseline – Y5
General Government Revenues	$6.9	$7.9	$9.4	$11.8	$15.5	$21.3	$14.4
AIDS Fund(s)	$1.7	$3.0	$4.6	$6.6	$9.2	$12.6	$10.9
Targeted mainstreaming	$4.5	$5.0	$5.6	$6.3	$7.0	$7.9	$3.4
Community Care Coalitions	$1.0	$1.5	$2.0	$2.6	$3.4	$4.4	$3.4
Earmarked Tax		$15.2	$16.8	$18.5	$20.4	$22.5	$22.5
Total	$14.2	$32.6	$38.4	$45.8	$55.5	$68.6	$54.4

6.6 Strategic Objective 6: Enhance generation and utilization of Strategic Information for an accelerated evidence-based response

6.6.1 Context

Strategic Information:

The Federal Ministry of Health, FHAPCO and partners have made major progress in rolling out systems and tools to generate and manage strategic information. These include an upgrade of HMIS through adaptation of the electronic District Health Information System (DHIS 2) and integration of some HIV data (PMTCT and care and treatment) into it. EMRs deployed at higher volume health facilities have been effective in supporting the implementation of HIV prevention, care and treatment programs. Viral Load indicators have also been integrated from EPHI's central electronic database for Viral Load and EID which collects data from the VL testing centers in the country. The patient monitoring system remains a strong data source for monitoring HIV care and treatment service and has been integrated into the national HMIS. Monitoring and evaluation of the non-health sector response falls fully under the mandate of FHAPCO and is implemented via the multi-sectoral information system. In addition, several HIV surveys and surveillance activities have been conducted, while stakeholders have deployed and trained human resources for M&E.
However, the health and HIV AIDS information system still faces a few challenges:
Obtaining reliable and high-quality data for decision-making is still a challenge owing to marked discrepancies between routine and survey data, inadequate human resources and nascent unique patient identification and tracking systems.

- EPI, HIV and TB data systems are yet to be merged, while segmented deployment by the Global Fund and better funded PEPFAR implementers have led to an unbalanced HMIS system. DHIS 2, the community information system, financial and human resources information systems are yet to be merged as recommended globally; while key population; unique patient identification, and social assistance information data is not integrated inDHIS 2 leading to potential duplication and some inefficiencies in program design and implementation. In addition, development partners such as PEPFAR and Global Fund collect intervention data including ART, Key Populations and vulnerable groups through their own systems and process these internally.

- There is still no reliable source for HIV sensitive social protection or social development beyond the health sector, including the agriculture, labour and finance sectors, hence an information system for social assistance is yet to be linked to the HIV and health sector information system.

- Data quality assessments, M&E supervisions and validations need to be standardized and conducted jointly. There still remain issues with data quality; the use of numerous data collection and reporting tools, the continued use of paper-based

reporting; lack of unique identifiers, and inadequate internet connectivity to allow expansion of the DHIS2.0 platform into more facilities and Woredas.

The strategic information system needs to be readied for the changing epidemic in Ethiopia by:

a. Integrating the various data sources

b. Collecting baseline indicator values for Key and Priority Populations

c. Mapping hotspots to enable better segmentation of populations, granularity and differentiation of service delivery

d. Improving compliance in reporting through increased timeliness, accuracy and consistency / standardization of data

Currently, strategic information for HIV is collected, stored, managed and shared through at least eleven disparate systems and surveys, about 75% of which can gradually be integrated into a single information system and fewer surveys for different purposes and stakeholders. These include:

1. Ethiopian Demographic Health Survey (DHS) – conducted every 5 years

2. SPECTRUM modelling - used since 1999 to generate national HIV estimates using EDHS and other data

3. ART & PMTCT routine program data - for monitoring the HIV care and treatment program, and patient monitoring, aspects of which have been integrated into HMIS since 1999

4. District health information system DHIS 2 - recently introduced to provide program level HIV information

5. Laboratory information system - established by the Ethiopian Public Health Institute (EPHI) to monitor viral load coverage and suppression for both adults and children. A similar central database has been put in place for early infant diagnosis (EID).

6. Electronic Medical Record (EMR) is deployed in high HIV case load health facilities and is used for recording patients ever enrolled on treatment, individual patient care tracking and generation of aggregate reports.

7. Electronic multi-sectoral information system- developed in 2014 to monitor and measure the community level HIV responses including for key and priority populations, and interventions such as SBCC, condom distribution, workplace interventions, HIV mainstreaming activities across sectors and care and support for PLHIV and OVCs

8. National program evaluations through surveys such as the ART effectiveness study in Ethiopia in 2009 and 2013, the midterm PMTCT program evaluation in 2014 and the national HIV testing and evaluation in 2016.
9. National and regional Epidemiological Synthesis
10. HIV Impact Assessment (HIA)
11. Burial sentinel surveillance
12. Integrated biological behavior surveys in key populations (MARPs survey)
13. HIV Case Reporting and Recency Testing

Data Quality and Gaps

There is a scarcity of data particularly for key and priority populations. The most recent nationally representative data available is limited to a bio behavioral survey of female sex workers and long-distance truck drivers conducted in 2013, a rapid assessment of HIV prevalence and behavior among prison inmates in 2013 and a survey among PWID in Addis Ababa in 2015.

Data quality of routine program data is also an issue. Data collected via HMIS including EID and sex, age and viral load suppression are not readily disaggregated for use in monitoring progress toward NSP targets including analysis of HIV care and treatment cascades. Data quality improvement activities are underway in EMR sites using standardized approach In addition, the case base surveillance is at its infancy stage and the data quality needs to improve. Delays in the implementation, publishing and dissemination of relevant HIV survey and surveillance activities including IBBS for key populations and the 2016 round of the PMTCT based surveillance has meant data has not been availed in a timely manner to inform decision making.

Data on value for money indicators, useful to the program, is sparse and not routinely collected.

6.6.2 Strategic Interventions

Health Information System scale up and sustainability plan: Stakeholders will collaborate to develop a Health Information System scale up and sustainability plan (M&E Plan). Besides integration of data and patient tracking systems (using unique identifiers or blockchain technology[102] for patient tracking, or both), computerization of the HMIS system will be expanded to all health facilities, and private facilities with a large volume of patients also linked to feed into DHIS 2. This will entail a nationwide capacity building process. Data and information sharing systems will be created at Woreda, district and national levels based on the NSP Program Results coordination framework. An automated dashboard updating key indicators on a quarterly basis will be shared with all stakeholders through the ubiquitous DHIS 2, available on mobile phones, tablets and computers.

Extension of e-MRIS and DHIS; and integration LMIS, HRIS and FMIS data into DHIS 2

Using the HIS scale up and sustainability plan, an extension of the eMRIS to communities through FHAPCO, will be simultaneously performed in collaboration with FMOH and partners. This will include:

1. Availability of the necessary internet connectivity and equipment, including computers to strengthen systems
2. Standardized data collection and reporting tools
3. Training and maintaining M&E personnel including at Woreda level
4. Putting in place a mentorship plan for the about 20% of health facilities that are not incompliance
5. CBOs to contribute to the national information systems.

Linking records on the individuals from testing, care and treatment, laboratory services and pharmacy will generate the data set for granular site management across the entire clinical cascade – within and between facilities. Currently, 395 high HIV case load health facilities are using Electronic Medical Record (SmartCare ART) kept at ART clinics to capture patient enrolment and follow up information. The SmartCare ART records are regularly updated at ART clinics. As Ethiopia reaches HIV Epidemic Control, using accurate, de-duplicated, and de-identified patient level information becomes paramount for monitoring the performance of the clinical cascade, and supporting longitudinal case-based surveillance.

Granular Mapping and Availing Strategic Information for Key and Priority Populations

FMoH and EPHI will revise the HIV surveillance road-map and follow the WHO recommendations to match with the current epidemic situation of Ethiopia, focusing surveys and surveillance activities on key populations and identify if there are other at-risk groups, while ensuring that bio-behavioral surveys to be conducted include size estimations.

Expanded Data Quality Assessments

FMOH and FHAPCO will develop and implement data quality assessment, monitoring, and feedback strategies, and ensure capacity at various levels to improve the quality and use of data.

Integrating, individualizing and digitizing data collection tools

A standard set of data collection tools will gradually be expanded to be used by all stakeholders for routine monitoring purposes; the system will gradually be evolved and transitioned into an electronic system. Data will increasingly be individualized through expansion of EMR, DHIS II and eMRIS to enable more accurate information collection, analysis for use in decision-making and program improvement.

Evidence generation: Special Surveys and Mapping of Key and Priority Populations

Currently unavailable baselines such as those for Key Priority Populations, Test and Treat Cascade, and other data will be collected through special surveys, as indicated in the Results Framework. The LMIS will be extended to cover at least 80% of health facilities by 2025.

Enhanced Data Analysis and Use for Policy and Decision-making

A vast amount of data or evidence will continue to be generated through the system. This will be analyzed and applied in several ways to enhance policy and decision-making, and enable planners to fine-tune the program periodically based on emerging evidence, especially on quarterly results and value for money, among others. In order to assess the effectiveness of interventions and linkages between services along the continuum of care, analysis of the data collected through DHISII, EMRs and from other points of service will help program and health facility managers assess the effectiveness. Such information is essential to detect and respond to bottlenecks or gaps in program performance and to adequately characterize and respond to patient attrition. Patient monitoring systems are also important to support people receiving treatment over time to ensure retention in care as they move between clinics and districts.

Emphasis will be placed on data quality, analysis and use at all levels.

The regular monitoring information system will be complemented by targeted periodic performance reviews, supportive supervisions, and mid-term and end term program reviews. Reports will be analyzed and summarized monthly and quarterly using the DHIS 2, Global Fund and other dashboards for policy and decision making. Policymakers including the Ethiopia CCM have been trained on data analysis and use for oversight and decision-making, and this training will be extended to the Regional Health Bureaus, FHAPCO, FMOH and senior management at all levels.

Enhanced Tracking of 95-95-95

a. FMOH and EPHI will expand case-based surveillance linked to the patient monitoring system to enable tracking of the first 90 target as well as enable longitudinal follow up of patient outcomes through the HIV treatment and care cascade: and into communities. EMR data primarily used at the facility-level to guide clinical management of patients will be used at the above site level to establish a case surveillance system.

b. EPHI, FMoH and FHAPCO will ensure timely dissemination of HIV survey and surveillance data to inform decision-making; more stakeholders at decision-making level will be trained on data analysis for decision-making; and, a recommendation tracker included in both DHIS 2 and Global Fund dashboards

c. Reducing TAT for VL testing through integration of mobile based reporting

d. Availing of individualized and disaggregated data to enable efficient expansion of POC Technology

Results Framework and Indicator Reference Sheet: A Results Framework outlining baselines, annual targets and standardizing indicators to be collected is annexed to this plan.

Monitoring and Evaluation Plan (Annex XX) An M&E Plan accompanying this NSP Outlines Indicator Definitions, Reference Sheets and Measurement, a description of data collection, analysis and management processes, as well as the systems strengthening and resources required to monitor, evaluate and report on the NSP.

7. Social and programmatic enablers to maximize the reach and impact of Ethiopia's HIV/AIDS response

The multi-sectoral and social nature of the HIV epidemic highlights underlying critical social and programmatic situations and circumstances which, if not addressed, can diminish efforts to maximize the reach and impacts of Ethiopia's HIV/AIDS response.

7.1 Gender and Gender based Violence

Gender inequalities and gender based violence place girls and women particularly at increased risk of HIV infection as described in relevant sections throughout this NSP. Young women with disabilities face even higher risks.

The span and scope of addressing gender inequalities and gender-based violence is broader than just within the health sector. It requires multi-sectoral responses and investments and should include gender responsive programing and gender responsive budgeting in the HIV response. This includes training of program people on gender-responsive and gender-transformative HIV programming and implementation.

The following interventions will be addressed over the NSP period:

Within the health sector:

- Training of health workers on comprehensive management of GBV
- Build capacity of health facilities to provide comprehensive GBV services
- Empowerment of women in health sector management including assignment to such decision making positions
- Provide comprehensive services in health facilities for survivors of GBV that includes but not limited to medico legal examination, HIV, STIs and Pregnancy testing, PrEP, Emergency contraception, treatment for STIs, counseling, referral for social and legal services.
- Strengthen school girls clubs, make youth centers and health clinics gender sensitive and girls' friendly and provide integrated services including psychosocial support, HIV, SRH and GBV related services.
- Undertake community dialogue on promoting gender equality and avoiding GBV integrated into health extension program /women to create consensus in the community at large on severity of the problem, its causes, and possible solutions with concrete actions to be implemented, such as issuing community bylaws to promote gender equality and avoid GBV in collaboration with other strategic sectors.

Community scorecards will measure the level of GBV interventions in their community.

- Ensure that there are clear gender disaggregated indicators to track progress in programing and budgeting, service access, new infection and AIDS related mortality.

Through a multi-sectoral response:

- Review gaps in fully enforcing current laws and policies to inform ways of effective implementation and/or legal and policy reforms
- Implement interventions that address the underlying/structural (social, cultural and economic) causes of gender inequality including addressing harmful traditional practices and social norms, increased risks because of disabilities, and empowering women and girls through inter-sector collaboration
- Provide gender awareness training for decision makers, health service providers, law enforcement bodies and media personal about the exiting national policy and legal instruments to ensure gender equality and women empowerment, and to protect the rights of women and girls and men and boys.
- Training and engagement of law enforcement bodies and Bar/Hotel owners on GBV prevention and mitigation (schools, universities, workplaces)
- Build institutional capacity of women networks and organizations of women living with HIV, woman most affected by HIV to ensure women's and girls' voices are heard and define meaningful participation of women and girls living with and affected by HIV.
- Strengthen linkage between health, legal and social services for GBV survivors
- Build capacity of program managers (training) to identify, analyze root cause and act on gender disparities in service access and HIV burden
- Empower women to reduce vulnerability and increase service access
- Protection or safe houses for GBV victims or vulnerable women
- Carry out a Violence Against Children (VACS) Survey
- Undertake assessment on gender towards the end of the NSP period to assess progress

7.2 Stigma and discrimination

Despite more than a decade on interventions and the successful treatment for HIV/AIDS, levels of stigma and discrimination both internalized and externalized at all levels remain high.

Interventions to address decreasing sigma and discrimination will:

- Educate, advocate and communicate with the public through religious and community leaders
- Empower and engage PLHIV and their associations in advocacy and communication to address both internalized and externalize stigma
- Engage media in communication and advocacy
- Assess health workers attitudes towards PLHIV and KPPs and train them to influence their attitudes
- Monitor and enforce anti-discriminatory laws and regulations
- Conduct a Stigma Index Review
- Conduct community dialogue on reducing stigma & discrimination integrated into regular programs of HEP, health/women development army and CCC.

7.3 The role of civil society, communities, PLHIVs and the private sector

The successful implementation of programs to address the HIV/AIDS epidemic requires eliciting joint responses from multiple levels of society. These include civil society organizations, key and priority population groups, PLHIV themselves and their associations, communities and the private sector.

Communities are the best way to reach key and priority populations, people living with and affected by HIV. They have the trust of the people they serve, and community-led organizations are the most effective way of reaching people living with HIV and key populations. Organizations led by the PLHIV and key and priority populations, including youth groups, are partners in the implementation of HIV prevention services, HIV treatment and care services, community-based monitoring of HIV service quality, barriers, ARV procurement, advocacy campaigns, human rights monitoring, and decriminalization initiatives.

To support the implementation of the response:

- PLHIVs and PLHIV Networks of Associations will be involved in supporting program interventions (e.g. through peer support groups, adherence supporters) advocacy and communication activities, monitoring program results through community led monitoring, economic empowerment.
- Civil society organizations will play a role in supporting key and priority populations and vulnerable groups such as orphans and KPP groups with a basket of targeted interventions through building the capacity for possible social contracting arrangements.

- CBOs, FBOs, and communities partake in awareness creation campaigns to reduce stigma and discrimination, gender based violence, and promote use of HIV services and provision of care and support to vulnerable population groups- OVCs, PLHIVs, and destitute women, disabled, and elderly.
- Key and priority populations will be empowered and supported to be organized through clubs, saving groups, and peer groups based on the country's legal context so that they can be meaningfully engaged in the response and they contribute to the response.
- Professional Associations will support the technical aspects of the response
- The private healthcare providers engage in the provision of HIV prevention, care, and treatment services
- Private for profit companies create an enabling environment to mainstream HIV prevention and control interventions in their workplaces.
- The private sector, depending on capacity and comparative advantage, will play roles in the delivery of HIV services through different modalities, in creating enabling environment for implementing HIV/AIDS mainstreaming and partaking in resource mobilization. Specifically, the private sector will:
    - ✓ involve in promotion & distribution of condoms and lubricants through social marketing, retail outlets, bars and shops
    - ✓ Engage in harm reduction for PWID through provision of needle and syringe exchange services through social marketing
    - ✓ Serve as alternative option for provision of HTS to general population on fee basis
    - ✓ Provide HTS and STIs service to KPPs, PMTCT and ART services, and TB diagnosis and treatment through public private partnership arrangement.
    - ✓ Support the provision of care and support to needy OVCs and PLHIVs,
    - ✓ Engage in initiatives for reduction of stigma and gender based violence
    - ✓ Take part in domestic resource mobilization through voluntary contribution of 0.2% from employees salary to AIDS fund, and earmarked tax of 0.2% on large companies taxable income,
    - ✓ Creating opportunities for economic empowerment of vulnerable population groups as structural HIV prevention intervention,

- ✓ Take part in planning, implementation, monitoring, and evaluation of the health systems

7.4 Embracing a Human rights approach to the HIV response

In partnership with other government sectors (e.g. Ministry of Women's Affairs, Human Rights Commission), the following interventions will be implemented to ensure human rights are respected and protected in HIV service provision and reduce barriers to HIV services:

Human rights and medical ethics related to HIV for health care providers

- Training of health care providers, including facility and non-facility based, health care administrators and health care regulators on non-discrimination, duty to treat, informed consent and confidentiality, violence prevention and treatment;
- Development of institutional policies and accountability mechanisms for health care facilities to respect and protect human rights

Advocacy and policy dialogue on human rights and to address policy and regulatory barriers to HIV services

- Assessment of policy and regulatory challenges to address human rights in HIV services and service barriers
- Advocacy and dialogue on policy and regulatory frameworks that hinder Human rights in HIV services provision and access
- Revision of policies and legal frameworks for better address human rights in HIV service provision and access

Sensitization of law-makers and law-enforcement agents

- Training, information and sensitization programs for parliamentarians, the General Attorney Office, judges, prosecutors, police and traditional and religious leaders on legal, health and human rights aspects of HIV and KPP including gender-and age-based discrimination and inequity and on violence prevention as well as their relation to HIV;
- Facilitation of discussions and referral linkages among service providers and law enforcement officers to gain police support for health programs;
- Training of prison personnel (both in prisons for women and men) on public health, human rights and HIV and HIV/TB responses;
- Assessing impact of policies/practices on informed consent and confidentiality on access to services;

- Legal Environment Assessments, and community-based monitoring of laws and their implementation in terms of their impact on health and access to services;
- Advocacy and mobilization for law and policy reform to increase KPP access to services.

Legal Literacy (“Know Your Rights")

- Legal/patients’ rights literacy trainings and education programs for key and priority populations through mass media, social media and digital platforms as well as integrated in the peer learning;
- Mobilization of key and priority populations and empowerment to ensure their voices are heard that includes supporting them to form clubs, support groups, saving and credit associations and contribute to educate, monitor and enforce human rights principle in programs and HIV services.
- Establishment of crisis response mechanisms to prevent abuse, including gender-based violence at work places, bars and hotels as well as through women groups in the communities

HIV related legal services

- Legal information, referrals, advice and representation related to HIV including through peer paralegal community support systems and institutional support mechanisms of lawyers associations, PLHIV associations and KPP support groups and clubs;
- Legal services and counseling for women and girls and KPP through institutional and community arbitration, dispute settlement mechanisms;
- Support to community forms of dispute resolution, including engagement of traditional leaders and customary law in support of people affected by HIV and KPP

Reducing HIV- related gender discrimination, harmful gender norms and violence against women and girls in all their diversity

- Development and reform of laws and law enforcement practices on age of consent, domestic violence, sexual consent, early child marriage;
- Reform of family law, property, inheritance and custody laws;
- Gender assessment in HIV;
- Community consultations to identify specific gender-related barriers to accessing HIV services;

- Ensure HIV service providers have the orientation to human rights
- Development of age-appropriate curriculum for sexuality and life-skills education including gender equality;
- Address harmful gender norms and traditional practices, and gender-based violence.

Community mobilization and advocacy

- Community-led outreach campaigns to address harmful gender norms and stereotypes and other program related barriers;
- Monitoring suspects of HIV service delivery quality, including stigma, discrimination, confidentiality and privacy and informed consent;
    - ✓ Improve the legal and KPP group mobilization
    - ✓ Human rights related literacy of HIV service providers
    - ✓ Strengthen community structures of the KPPs , PLHIVs with orientation to advance their rights
    - ✓ Establish a system whereby community groups have strong and building transparent monitoring of the HIV services
    - ✓ Establish community capacity/supporting community-led advocacy efforts. in the monitoring , auditing , and reporting of HIV services

7.5 Health Systems

The six building blocks of health systems underpin the health system's efforts to address the HIV epidemic.

7.5.1 Supply Chain System

The importance of a well-functioning supply chain is essential in the HIV/AIDS response. Although much has been achieved, Table 15 outlines some key challenges with solutions to be implemented during this NSP period.

Table 15: Issues , challenges and strategic interventions in supply chain management

Issues/ Challenges/Gaps	Strategic interventions
FORECASTING & PROCUREMENT	
i. Lack of proper data for quantification: poor Forecasting accuracy ii. Long process of procurement : long	a. Conduct operational studies to refine quantification assumptions and increase forecast accuracy b. Improve procurement lead time through strengthening framework contract, suppliers'

Issues/ Challenges/Gaps	Strategic interventions
lead time, products with low volume & sole supplier iii. Procurement of lab reagent is not in bundles	performance management, market intelligence and product bundling c. Pool procurement for low volume product and bundling lab reagents d. Redefining governing laws to allow long term contracts with reliable suppliers and enforce access to maintenance and after sales services in-country for any capital medical devices
DISTRIBUTION	
i. Distribution disparity different parts of the country in access to HIV/AIDS medicines and related health technologies in public health facilities ii. Regimen and other program data not availed to EPSA hubs: inadequate cross checking of stock consumption with service-related data iii. Upstream supply chain data not visible at facility level iv. Lack of trust by facilities on the supply system v. Logistics units at RHB level do not aggregate Requisition and Report Forms (RRF) from lower levels and use them to provide feedback to health facilities, EPSA and HIV Programs vi. Poor and inadequate fleet management which cause delays in deliveries vii. Limited access to HIV/AIDS medicines and related health technologies in the private sector	a. Ensure data visibility at all levels across the supply chain b. Expand and strengthen a web based interface between health facility and EPSA c. Create interface between DAGU2and HCMIS d. Revitalize /strengthen performance monitoring team e. Strengthen the technical assistance provision to facility warehouse managers and dispensing units f. Strengthen paper based IPLS for quality essential logistics data and ensure regular reporting g. Strengthen supply chain data ownership and use at all levels including at points of generation. h. Establish a vigilant stock monitoring system i. Redesign the inventory management parameters and distribution system already in place considering the case load/needs of facilities j. Device client cantered product redistribution system k. Support cross docking of bulk HIV commodities l. Ensure the distribution of supplies to address the need of the targeted population at downstream supply chain levels. m. Strengthen a system for implementing of reverse logistics n. Revision of LMIS tools o. Decentralized ARV drugs distribution to community pharmacies p. Open the market of HIV/AIDS medicines and related health technologies to the private sector

Issues/ Challenges/Gaps	Strategic interventions
ART PHARMACY	
i. Pharmacy professionals in the ART pharmacy do not monitor patients' adherence to medications using pharmacy record and pill count ii. Poor recording and reporting at ART pharmacy iii. Absence of timely recording and reporting for regimen data (both paper and electronic) iv. Data quality issue in terms of timeliness, accuracy, and completeness v. Weak system in place for pharmacovigilance Weak structure from federal to RHBs that supports ART pharmacies and link with the program	a. Enforce ART pharmacies to ensure rational drug use is in place including good dispensing and counseling, and adherence monitoring and support. b. Integrate ART pharmacy regimen data recording and reporting system including drug safety monitoring with the overall information system such as e-APTS c. Address human resource gaps: i. Train and provide mentorship to ART Pharmacy staff ii. Ensure all ART pharmacies have full time pharmacy professional d. Strengthen Pharmacy service supportive supervision e. Engage Pharmacies in different program platforms (catchment area meeting, program performance reviews…) f. Support EFDA in addressing existing gaps related to adverse drug events monitoring and reporting g. Enforce ART pharmacies to implement strategies in prevention, management and reporting of medication errors and adverse drug reactions h. Ensure all RHBs have ART pharmacy services focal person in in the supply /pharmaceutical management core process/team
OTHER HIV RELATED COMMODITIES	
i. Problem of defining clear budget source for HIV health commodities (OI, STI and haematology, chemistry, CD4, Nutrition, hepatitis, etc..)	a. Design sustainable financing model for such commodities in collaboration with partners
RTKs	
i. Not properly integrated in to IPLS ii. Facilities are not using RRF that integrated service and logistics data iii. Poor data quality of RRF: timeliness, accuracy, and completeness iv. Pack size for RTK: Existing pack size of RTKs not suitable for decentralized distribution to all	a. Enforce and follow the implementation of RTK integration in to IPLS b. Rationalize distribution channels c. Establish a standard regulatory capacity to conduct or evaluate test kits quality at national level d. Consider supply chain implication of test kit pack size in the algorithm development

Issues/ Challenges/Gaps	Strategic interventions
testing units v. Shortage of RTKs due to poor targeting (Risk screening tool is not used fully and/or consistently) vi. Lack of guidance and implementation modalities for fee based RTK access for general population	process e. Align RTK pack size with the number of testing sites f. Ensure implementation of targeted testing through regular use of Risk screening tool g. Engage the private sector: Establish system for fee based access of RTK and HTS for general population
CONDOMS	
i. National Condom strategy not yet implemented ii. Existing procurement and distribution system not addressing condom shortage issues (the public source) iii. Repeated product quality problems within public source procurement affecting also utilization of allocated budget from government sources	a. Speed up implementation of national condom strategy i. Develop implementation guide ii. Ensure private sector engagement and total market approach b. Install proactive condom market authorization Improve procurement and distribution of public sector condoms

Other proposed measures include:

- Streamline procurement procedures that EPSA has to follow
- Effective coordination between EPSA, EFDA, FHAPCO and partners to expedite procurement
- EFDA's quality assurance laboratory, advocate for improvement and ? accreditation
- Supply Chain Policy: There is a need to draft clear guidance on supply chain functions of private sector engagement
- Streamline and increase capacity of EFDA's quality assurance procedures which currently result in lengthy delays in market authorization for HIV testing commodities. Developing policy to cost value of supply chain functions of private sector with ultimate goal of offloading public pharmacies by engaging private sector in the distribution of ARVs.
- Implementing fast track market authorization for priority commodities
- Design and implement community led monitoring of supply chain need of ART clients

7.5.2 Laboratory System

The Ethiopian Pubic Health Institute is an autonomous institution overseeing laboratory systems, surveillance, research, public health emergencies, nutrition and vaccine production. Key functions in support of the HIV/AIDS response include HIV research, developing/validating the national testing algorithm at regular intervals, EID, viral load, biochemistry, and hematology tests associated with HIV treatment, quality assurance and ARV drug resistance surveillance. ARV drug resistance surveillance is part of a regular program implemented in 13 sites and linked with VL testing labs.

There are 26 labs currently measuring VL. Machines are purchased through long term framework service agreements. VL samples are collected as plasma and require cold chain transportation which is undertaken by the post office. Once VL tests done, the results are transferred back to these ART sites via the Electronic Test Ordering and Result Reporting System (ETORRS).

Strategic Interventions:

- Rationalize placement of multiplex platforms and consider alternate POC technologies for low volume health facilities with limited laboratory staff. here are 340 GeneXpert machines which can be used for EID and VL. There are 190 PCR machines for EID with a 40% utilization rate.
- Viral load and EID reagents are procured through PEPFAR and Global Fund. HIV RTKs are procured exclusively by the Global Fund whereas CD4, hematology, and chemistry reagents are purchased by MOH through SDG pooled fund.
- **ARV drug resistance surveillance** is part of a regular program including early warning indicators (EWI) of HIV drug resistance is implemented in 13 sites and linked with VL testing labs.
- **Integrated Sample Transport System**: There is an integrated specimen collection and transport system for specimens for HIV and TB laboratory including VL, CD4, DBS, hematology, chemistry, specimen for culture tests. Transport is based on the Ethiopian Postal system with specimens transferred to the nearest referral laboratory using a trans-regional approach; a referral laboratory may service facilities in one or more regions. Test results sent back to health facilities.

  There are delays and inefficiencies at different points of this system.

  1. At the site of collection, those health facilities with high volume have pre-scheduled sample collection twice per week by postal service while samples from low volume health facilities use call based specimen collection by postal services.

  2. The postal service uses public transport system which not only experiences delays but may affect the safety and integrity of the specimen as it gets transported with passenger goods.

3. At the referral laboratory level there are delays by waiting until the specimen reach batch size to run the test, frequent power supply interruptions and shortage of fuel to put on the generators, shortage of reagents, delayed maintenance of laboratory equipment and lack of back up equipment, high turnover of trained staff, and engaging the laboratory staff in training and other assignments can result in delay in carrying out the tests.

4. There is delay in communicating the test results to the health facilities due to poor communication infrastructure including internet connectivity.

A well-functioning sample referral system is important especially for EID, VL and TB diagnosis. The ways to reduce the delays is by optimizing the transport system, enhancing testing activities at referral laboratories including working at off office hours and weekends and expanding the Electronic Test Ordering and Result Reporting System (ETORRS).

The following specific measures that improve HIVAIDS outcomes will be considered in this NSP but other inputs also need to be addressed through the HSTP II:

1. Strengthening the framework contracts with suppliers specifically for PCR and GeneXpert machines as well as strategically purchasing more laboratory equipment where it can eb demonstrated that there is a need.

2. Strengthen IPLS for lab commodities with end to end visibility of stocks for lab supplies and reagents from EPSA to hubs and health facilities with dashboards to EPHI, regional health bureaus, and referral laboratories.

3. Alternatives to the sample transport system by the postal service need to be explored, specifically engaging the private sector.

4. Strengthen performance monitoring of laboratory referral system by using scorecard at each level

5. Training of laboratory staff and postal service workers on maintaining sample safety and quality as well as reviewing staff deployment based on workload, including extending workhours; Install a staff motivation mechanism

6. Expand electronic test ordering and result reporting system by building (ETORRS).

    - Establish a proper monitoring mechanism for decentralized laboratory services

    - Engaging more facilities for HIV laboratory accreditation

    - Develop laboratory test menu and train supply chain cadres at all levels

- ✓ Enforce bundled procurement of laboratory commodities
- ✓ Design and implement bundled storage and distribution

- Review and enforce relevant inventory management model for lab commodities
- Strengthen the laboratory quality control system
- ARV Drug resistance study

7.6 Human resources for health/ HIV response

7.6.1 Context

The HIV governance structure is inadequate, varies across regions and lacks human resources jeopardizing the HIV response leading to weak coordination at federal and regional levels This is especially evident at zonal and woreda levels. Additionally staffing does not take into consideration the HIV burden across woredas. There is no clear documentation regarding the optimal structure and staffing at various levels.

Trainings are provided to HIV experts at program management and service delivery areas, but there is no proper documentation which enables tracking and use of trained staff as well as the planning and implementation of trainings and capacity building efforts.

7.6.2 Strategic interventions

- Conduct a study to understand the current HIV related HR capacity at program management and service delivery levels
- Develop and implement an HR strategy, tailored to current strategic directions and HIV burden, aligning with the HR development strategy of MOH and in line with the country's goal of attaining sustained HIV epidemic control
- Design strategies for Human resource capacity building efforts including in-service trainings
- Design and Scale up cost efficient training approaches including modular on line trainings, and on job trainings

7.7 Governance, leadership, coordination and accountability

Ethiopia's success over the past fifteen years in addressing the HIV/AIDS epidemic has paradoxically resulted in decreased attention by political leadership as other priorities are raised higher on the political agenda. However, the progress made to date remains fragile and gains can be easily reversed.

During the strategic period the HIV governance, policy and coordination structure will be strengthened to ensure effective multisectoral and community HIV response.

The National AIDS Council (NAC), chaired by the President, has a multi-sectoral membership and is the highest national body overseeing the country's response to HIV/AIDS. The mandate and oversight function of the NAC will be revised to not only engage leadership but also to ensure accountability at all levels. Within a federalized system, Regional AIDS Councils will be reactivated to galvanize local efforts, engage communities and also oversee accountability at regional level.

Federal HIV Prevention and Control Office will continue to lead the multi-sectoral response. Federal and Regional HAPCOS structure and mandate will be revised to effectively respond for the epidemic. FHAPCO will be strengthened with human resources and its capacity will be built to implement the strategy and realize sustained epidemic control..

Required human resources will be deployed within the Federal Ministry of Health, Regional and Woreda Health Offices to effectively lead and coordinate the HIV response. The Woreda Health Offices will assign at least one full time HIV Program Coordinator and two additional experts (one for KPP program and one for Planning, M&E) to effectively coordinate the HIV response in the woreda. The Woreda HIV Program coordinator based in the woreda health office will be responsible to coordinate the sectors and community HIV response including peer service providers program, DIC and outreach programs. The Health Extension Workers role in HIV response will be strengthened with revision of the HIV module and strengthened accountability mechanisms.

Strategic sectors will revise the structure, staffing and budget for HIV mainstreaming to effectively implement HIV programs targeting KPP within their mandates.

MOH/RHBs and FHAPCO/RHAPCOs will have regular meetings to coordinate the HIV response between health and non-health sector actors. The clinical and non-clinical teams, including the pharmacy sector, under RHBs will have at least a monthly meeting to ensure communication and coordination of the HIV response. The woreda based and multi sectoral planning and review process will be integrated to ensure on plan and monitoring framework.

The National Prevention Advisory Group and Technical Working Groups established for different components of the HIV programs will be strengthened to ensure optimizing the quality of programing and coordination among the government, CSOs and development partners.

Partnership forums for government, CSOs, NGOs, Media and other actors will be strengthened to ensure coordination and synergy among different actors at all levels.

Policy directives with accountability frameworks need to be developed to clearly define sectoral involvement in the AIDS response.

At community levels, civil society, KPPs, community based organizations; PLHIV Associations will be involved in the monitoring of the HIV/AIDS response.

7.8 Policy

7.8.1 Context

Ethiopia's apparent success in mitigating the impact of HIV is made possible by a political commitment of the highest level. Such commitments were expressed, among others, by way of issuing an AIDS policy, establishing a national organ to coordinate the response to the epidemic and setting up governance and coordination mechanisms at national, subnational and community levels. However, despite changes in the dynamics of the epidemic and the periodic introduction of a variety of arsenals for HIV prevention, care and treatment, there is very little or no progress to appropriately tailor the policy and governance arrangements. Many are of the opinion that this may be have resulted from the program's heavy dependence on external funding and the fact that ART has transformed the face of AIDS.

Some Relevant Policies and Guidelines

- National HIV/AIDS Policy 1998
- Health Sector Transformation Plan (HSTP II) draft 2020
- Policy on Ethiopian Women 1993
- Condom Strategy 2019
- Domestic Resource Mobilization Strategy 2020 – to be endorsed and legal framework established by Parliament
- Multisectoral Policy on Illicit Drig Use (to be developed)
- Supply Chain Policy (to be developed)
- There are multiple guidelines reflecting the various components of HIV testing care and treatment

The national polices and guidelines for HIV care and treatment encompass a broad range of protocols that include HIV testing services, linkage to treatment and care, the initiation, monitoring and follow up of patients on ART, and management of opportunistic infections affecting PLHIV and the guidance for service delivery.

Ethiopia issued its AIDS Policy in 1998, nearly 12 years after the first case of AIDS was reported in the country. Whereas relevant policies and laws have direct impact on the lives of, PLHIV including stigma and discrimination, social and legal protection, efforts to address such challenges are fragmented.

One singular example that demonstrates the gaps in HIV policies and laws is the disproportionate burden of HIV among women. The government of Ethiopia has issued the national policy on women (1993), revised the family law (2000) and the penal code (2006) as part of measures to address gender inequities, provide legal protection and enhance women's access to services. The current family law (revised in 2000) raised girls' minimum age of marriage to 18 years, while the Penal Code (revised in 2005) criminalizes acts of violence against women, including child marriage and abduction.

Although advocates for women's rights raise a number of arguments to prove that these polices and laws are incomplete, changes in the laws alone could only improve women's lives when they are fully enforced. Violence against women abound in family circles, in the streets, schools and workplaces. Few women are able to access the legal system. Gender disparity in education, employment and income levels compound to disadvantage women in every aspect of life, including exposure to HIV, STI and other health conditions and health care seeking behavior.

A number of other issues related with HIV services that may require a policy framework include, discrimination in employment and workplaces, age at consent for HIV test and disclosure of status, parental refusal to disclose children's HIV status and initiate treatment, and a regulation on assignment of university entrant youth on ART.

7.8.2 Strategic Interventions

- The AIDS Policy was developed twenty years ago and does not currently reflect the nature of the HIV/AIDS epidemic. Policy updates related to KPP groups, human rights, gender and stigma and discrimination, drug policy, public private partnership, age of consent for testing, HIV mainstreaming, domestic and external resource mobilization, roles of communities, are among the areas to be addressed at the revision of the policy. Revision of the AIDS Policy should include a gender perspective and be in line with international conventions.
- Undertake HIV policy analyses to address policy related barriers to HIV services and inform corrective measures
- Examine gaps in enforcement of relevant laws affecting gender and advocate for improved enforcement and legal reform as deemed fit.

7.9 Partnership, Multisectoral Collaboration, Civil society and the Private Sector

7.9.1 Multisectoral Collaboration

In line with the current nature of the epidemic and with the focus of this NSP to address the key drivers of the epidemic, it is essential that key sectors and their regional counterparts are involved in the response. The priority sectors will be:

- Ministry of Education and Regional Bureau of Education
- Ministry of Science and higher education
- Ministry of Women, Children and Youth Affairs and Regional counterparts.
- Uniformed forces
- Ministry of Water, irrigation and and Energy and regional counterparts
- Sugar Corporation

- Ministry of Mining and regional counter parts
- Ministry of Transport and regional counter parts.
- Ministry of urban, housing and construction
- Prison administration
- Jobs Creation Commission
- Ministry of Finance and Economic Cooperation
- Ministry of Labor and Social Affairs
- Ministry of Agriculture and regional counterparts
- Privatization and public enterprises supervising Agency
- National and Regional media

The key sectors Ethiopia are selected by the comparative advantages they have to address HIV prevention interventions across segments of the general population or key and priority population groups. They can be divided into four groups:

1. Sectors which primarily serve populations considered priorities for the HIV response e.g.,., Ministry of education, Ministry of science and higher education, Ministry of Women, children and youth, Ministry of Defense, the media sector

2. Sectors which by design have the access to routinely reach populations e.g. the media sector, Job Creation Commission

3. Sectors which by virtue of doing development activities deploy workers in various hot spot areas. Ministry of mining, transport, road authority, sugar corporation, Ministry of Water Resources and Energy, Ministry of urban, housing and construction, Ministry of Agriculture

4. Sectors which coordinate and oversight key sectors e.g. Privatization and public enterprises supervising Agency, MoFEC

Sectors which have mainstreamed HIV are required to include meaningful planning on HIV, allocate budget for execution of the HIV plan, assign structure and staffing to carry out the HIV plan, conduct risk assessment, and monitor and evaluate implementation of their HIV response.

Lack of ownership and commitment by the leadership, poor planning, monitoring and evaluation, investment of the allocated budget for interventions limited only to the permanent staff of the sectors, leaving out the populations which they deploy for development activities are among the gaps of implementation of HIV mainstreaming.

Key strategies and interventions

- Reposition HIV mainstreaming to ensure strong ownership by the highest leadership as well as by the leadership of respective sectors

- Build capacity of Key sectors in the planning, implementation and monitoring and evaluation of their HIV interventions
- Enhance HIV mainstreaming across key sectors aiming to reach key and priority populations
- Integrate HIV indicators in the routing information systems of key sector

7.9.2 CSOs, FBOs and CBOs

Civil society and community based organizations, including PLHIV Associations have an essential role to play in the response at all levels: involvement in planning at all levels, implementation of programs among various populations, supporting linkage and adherence to treatment, resource mobilization and monitoring of the response.

There is also a specific and important role for faith based organizations to support evidence based interventions outlined in the NSP and work in partnership with the health sector to ensure that their congregations adhere to treatment.

Through this NSP, civil society organizations will play a role in supporting key and priority populations and vulnerable groups such as orphans and KPP groups with a basket of targeted interventions through building the capacity for possible social contracting arrangements.

Key and priority populations will be empowered and supported to be organized through clubs, saving groups, and peer groups based on the country's legal context so that they can be meaningfully engaged in the response and they contribute to the response. KPPs will engage in peer education, life skills, risk reduction, reduction of stigma & discrimination, use and promote use of HIV services by their peers, undertake community led monitoring, partake in design, monitoring & evaluation of the response.

7.9.3 Strategic interventions

- Build capacity of CSOs across high burden geographic areas
- Standardize a set of activities which CBO. CSO, FBOs can undertake which include: demand creation, linkage to health facilities, support adherence and trace LTFU
- Link the CSOs HIV response activities for KPPs with the health program management and general population
- Engage in stigma reduction campaigns
- Undertake community led monitoring (service access, quality, stock outs, user friendliness of services)

- Engage in creating community support system for care & support of needy OVCs
- Engage CSOs, CBOs and FBOs in the planning, implementation, monitoring and evaluation of the HIV response
- Strengthen coordination platform for community based response

7.9.4 Community-Led Monitoring (CLM)

Community-led monitoring describes a technique initiated and implemented by community-based organizations and other civil society groups; networks of key populations, people living with HIV and other affected groups; or other entities that gathers quantitative and qualitative data and observations about components of HIV services, with a focus on getting input from recipients of treatment services.

This NSP will support community level groups to undertake CLM that will diagnose and pinpoint persistent problems, challenges, and barriers to effective service and client outcomes at the site level. Most importantly this collaboration can identify workable solutions that overcome barriers and ensure beneficiaries have access to optimal HIV/AIDS services.

Specifically:

CSOs:

- Will play key roles in supporting KPPs to be organized either as formal or informal groups
- Engage in training members of KPPs on SBCC such as peer education, life skills
- Mobilize KPPs to utilize HIV services
- Enhance linkage between community and facility based services
- Support in case finding processes through targeted testing approaches,
- Support in building capacities for community care coalition
- Support in undertaking community led monitoring by KPPs
- Engage in creating community support for care & support of needy OVCs and PLHIVs

PLHIV associations

- PLHIVs and PLHIV Networks of Associations will be involved in supporting program interventions (e.g. through peer support groups, adherence supporters).
- As case managers and adherence supporters engage in adherence counseling and tracing of LTFU;

- Advocate and communicate on treatment literacy and viral suppression;
- Engage in stigma reduction campaigns and lead study on stigma index;
- Address gender based violence and the promotion of human rights;
- Take part in awareness creation campaigns for KPPs and general population;
- Promote use of PrEP by KPPs and discordant couples;
- Engage in creating community support system for care & support of needy OVCs and PLHIVs and economic empowerment
- Take part in joint planning and M&E of the HIV response, engage in program management and governance.

Faith Based Organizations (FBOs):

- FBOs will work with CSOs and HIV implementing partners to be engaged in the combating misconceptions around treatment adherence and retention to care that undermines impact of HIV response and viral load suppression
- FBOs will work with and PLHIV associations and peer groups to pass standardized and consistent messaging to combat misconceptions around faith and treatment adherence and support the gains for improved viral load suppression.
- FBOs will engage in and contribute positively in fighting stigma reduction, ART adherence and retention.
- Religious groups and FBOs use appropriate media outlets, provide psychosocial support and create awareness for clients who are fighting self-stigma and discrimination, have discontinued ART to attend religious cure services and help them to re-engage on ART
- Integrate HIV program into health extension program performance monitoring scorecard.
- Sensitize leadership on strengthening community systems for improved HIV response.
- Create digital platform to enhance community led monitoring by PLHIVs and KPPs.

Professional Associations will support the technical aspects of the response

- Creating opportunities for economic empowerment of vulnerable population groups as structural HIV prevention intervention,
- Take part in planning, implementation, monitoring, and evaluation of the health systems

7.10 Private for Profit Sector Strategic Interventions

To gain a better understanding of increased roles for the private sector and identify potential contributions that can be made.

- Assess and map the private sectors which have the potential to meaningfully contribute to the HIV response
- Strengthen the coordination platforms of private sectors for more effective involvement of private for profit organizations

Private health facilities are involved in the prevention and delivery of HIV care and treatment services and can serve as alternative option for provision of HTS to general population on fee basis. They will also provide HTS and STIs service to KPPs, PMTCT and ART services, and TB diagnosis and treatment through public private partnership arrangements.

Other private companies in key sectors should be actively involved in protecting their workforce as well as the KPPs around the project areas. These sectors include: construction, flower farms, textile and other factories, companies operating in emerging industrial zones etc. The Privatization and Public Enterprises Supervising Agency will be involved for any policy setting in the implementation of HIV mainstreaming across key private sectors.

Social marketing programs will be involved in the promotion and distribution of condoms and lubricants through retail outlets, bars and shops. They will engage in harm reduction for PWID through provision of needle and syringe exchange services through social marketing.

All private entities can engage in initiatives for reduction of stigma and gender based violence and be involved in domestic resource mobilization.

8. Monitoring and Evaluation Framework

National HIV Strategy M&E Plan 2021 -2025 accompanies this plan. It includes the following:

- The Results Framework
- Description of data management processes through the routine data reporting system
- Outlines purposes, strategies and plans for the collection, management, analysis and use of non-routine information from the joint AIDS/TB Program Reviews; Evaluations, Surveys such as EPHIA and DHS; IBBS and Size Estimation of FSW, LDTD and other key and priority populations; HIV Recency Testing, community participatory reviews at federal, regional and Woreda level, and partner reviews, among others.
- Guides on Data Quality Assurance Mechanisms and Related Supportive Supervision and Mentoring
- Outlines how M&E systems will be coordinated, within each strategic objective, accountability for results at each level and data flow
- Outlines which and how monthly, quarterly, semi-annual, annual and multi-year information products (reports, newsletters; dashboards, and other) / newsletters and reports will be disseminated, and their intended purpose and use at community, Woreda and national level to improve the HIV and other health Program Performance.
- Describes the multisectoral review mechanisms at each level of the health system, that will assess sector and program performance against coverage and outcomes annually, and impact at the end of the strategy period
- Outlines how progress and performance will be assessed and how information will be used to improve policies and future implementation
- Describes processes to identify corrective measures and feed back to communities, facilities, Woredas, sectors and funders
- Describes and costs a framework for strengthening Ethiopia's M&E / Strategic Information System
- Estimates a budget for M&E and outlines how it will be funded.

Annexes

Annex 1: Results Matrix: Indicators and annual targets

Annex 2: Resource Needs Estimation Model

Annex 3: References

Annex 1: Results Matrix: Indicators and annual targets

ETHIOPIA HIV NSP 2021-2025 RESULTS FRAMEWORK

Key	
	Represents absolute number
	Represents strategic objective
	Core indicator (Global)
	Priority indicator (Global)

Results Level	Indicators	Disaggregation	Baseline	Data Source	Target 2021	Target 2022	Target 2023	Target 2024	Target 2025
Impact	Number of new HIV infections	**(Further disaggregation by Woreda - see incidence Mapping)**	14,843 0.016%	Spectrum Estimates (2019) baselines	11132	9462	8043	6837	5811
		Female	0.019% (8830)	Spectrum	0.0136	0.0124	0.0112	0.009	0.008
		Male	0.013% (6013)		0.009	0.008	0.007	0.006	0.005
		Children (0-14)	3,230	Spectrum (0-4)	2746	2496	2246	1747	1248
		Incidence by Region (adults)		"					
		Amhara	5023	"	3767	3202	2722	2313	1966
		Oromiya	3970	"	2977	2531	2151	1829	1554
		SNNP	1662	"	1247	1060	901	766	651
		Tigray	1308	"	981	834	709	603	512
		Addis Abeba	950	"	713	606	515	438	372
		Affar	499	"	374	318	270	230	195
		Gambela	491	"	368	313	266	226	192
		Dire Dawa	327	"	245	208	177	151	128
		Somali	240	"	180	153	130	110	94
		Benis Gumz	221	"	166	141	120	102	87
		Harari	152	"	114	97	82	70	60
	Percentage of people living with HIV (Prevalence)	Disaggregated by age, gender, location and KPs (FSW, PWID)	0.93 (2019) Adults 15-49	Spectrum Estimates	0.83	0.78	0.74	0.7	0.66
			669,236	Spectrum Estimates	664,926	662,958	660,678	657,971	654,712
		FSW	23%	IBBS 2013, EPHI	21%	19%	18%	17%	16%
	TB/HIV mortality rate per 100,000 population	All	22	WHO Global TB Report 2018	17	15	13	11	7

	Number of AIDS-related deaths	All	11,546	Spectrum Estimates	8,974	8,003	7,545	7,157	6,843
		Male	4,976	Spectrum Estimates	3868	3449	3252	3084	2949
		Female Children (0-14)	6,570 2055	Spectrum Estimates	5106 1845	4554 1636	4293 1426	4073 1217	3894 1007
	Incidence Mortality Ratio (IMR)	All	1.286	Spectrum Estimates	1.241	1.182	1.066	0.955	0.849
	% of people living with HIV in the reporting period with suppressed viral loads (≤1000 copies/mL)	Adults (15-64)	71.70%	EPHIA Population survey 2018 (Urban)	75%	80%	85%	90%	90%
	Percentage of people living with HIV and on ART who are virologically suppressed	All	91%	Program Data/ surveys	90%	91%	93%	95%	95%
		Adolescents 15-24	81.80%	Program Data/ surveys	84%	87%	90%	93%	95%
		Children 0-14	74.00%	Program Data/ surveys	79%	85%	90%	93%	95%
	Percent MTCT past 12 months	All	13.39%	Spectrum Estimates	10%	9%	7%	7%	5%
Strategic Objective 1: Reach 90% of Key and Priority populations with targeted combination HIV prevention interventions by 2025									
SBCC Result: Comprehensive knowledge about HIV and AIDS reached at least 50% by 2025									
Outcome	Percentage of women and men aged 15-49 who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission	Adults (15 – 49):Male	38%	DHS 2016	40%	45%	50%	55%	60%
		Adults (15 – 49): Female	20%	DHS 2016	25%	30%	35%	40%	60%
		Young People (15 – 24): Male	39%	DHS 2016	45%	50%	55%	65%	70%
		Young People (15 – 24): Female	24%	DHS 2016	35%	45%	55%	65%	70%
Outcome	Percentage of 15-24 who have sex before age 15	Males	1%	DHS 2016	0.95%	0.85%	0.75%	0.65%	0.50%
		Females	9%	DHS 2016	8.50%	8%	7%	6%	5%
Coverage	% 15 – 24 reached with HIV prevention programmes during the last 12 months (e.g. school and out of school Peer or life skills education)	Sex	31%	FHAPCO Annual Report 2018	35%	42%	50%	60%	70%

	Adolescents and youth reached with school and out of school prevention programmes (Millions)				7.57M	9.27M	11.2M	13.7M	16.3M
Coverage	% 10-14 reached with prevention programmes during the last 12 months (In school programmes)	Sex	35%	FHAPCO Annual Report 2018	40%	45%	57%	64%	70%
Voluntary Medical Male Circumcision (VMMC)									
Result: Quality Male Medical Circumcision Scaled Up and 50% of medically males circumcised by 2025									
Coverage	% of males aged 15-49 circumcised at Gambella and Selected woredas of SNNP region	Young men 15 - 29	72%	DHS	75%	78%	80%	85%	90%
		Adult men 15-49 (-21% medically, rest traditionally)	72%	DHS	75%	78%	80%	85%	90%
Coverage	Number of VMMCs per annum	Infants (90% circumcised and 50% medically [2])	72% circumcised of these 21% medically circumcized-898	DHS	75% (4511) circumcised of these 30% , 1353	78%	(80%) of which 50 medically circ. 2469	85%	90% (5662) of which 60% medically circ. 3397
	Number of medically circumcised Men 10+ years	10+ Years	23,776 (2019)	COP 18 APR/ MRIS	20,000	6,000	6,000	6,000	6,000
	Number and % of circumcised males experiencing adverse events		0.36%	PEPFAR Program data	0.30%	0.25%	0.20%	0.15%	0.10%
Condoms and Lubricants- Utilization and distribution									
Result: Condom use at last sex with non-regular sexual partner among general population reached at 90% % by 2025									
Outcome	% of people who used condoms during their last high-risk sex act the last 12 months[3]	Adults (15-49): Females	20%	DHS 2016 Population Survey	30%	35%	40%	45%	55%
		Adults (15-49): Male -Av both sexes 41%	51%		55%	60%	65%	70%	70%
Coverage	Number of male and female condoms distributed annually	Male Condoms	164.1 M	DHIS2 Baseline from MRIS + Female Condom Use and preference / need study	186.3 M	220.5 M	248 M	278 M	299 M
		Female Condoms			2M	2M	2M	2M	2M
Pre-exposure prophylaxis (PrEP) **Percent of eligible people on PrEP by 2025**									

Coverage	% of eligible people who initiated oral PrEP during the reporting period	All	1%	ART Program Data	10%	20%	40%	65%	80%
Coverage	% and Number of eligible people who received oral PrEP at least once during the last 12 months	Discordant couple (%)	1%		10%	20%	40%	65%	80%
		Discordant couple (number)	200	DHIS2	1,380	2,760	5,521	8,972	11,043
		FSWs (%)	2%	Program Data	10%	30%	50%	70%	90%
		FSWs (number)	800	DHIS2	4,158	12,474	20,790	29,106	37,422
Coverage	% of PrEP users who continued oral PrEP for 3 consecutive months after having initiated PrEP during the reporting period	New core indicator to measure loss to follow up			80%	85%	90%	95%	95%
Key and priority populations Results									
Result 1: Comprehensive knowledge about HIV and AIDS reached 90% by 2025 for key and priority populations									
Result 2: Condom use among key and priority populations engaged in risky sexual behavior reached 90% by 2025									
Result 3: 90% for key populations will know their HIV status by 2025									
Outcome	% KPP Members reached with a defined packages of HIV prevention services	FSW ([Denominators: 216,000 in 2020 and 240,000 in 2025])	70	IBBS 2013	70%	80%	85%	90%	90%
					151,200	177,600	193,800	210,600	216,000
		Prisoners *(Prison Administration)	58%	Prison Survey	70%	80%	90%	90%	90%
					60550	69200	77850	77850	77850
		PWID [Denominators is 11000 in 2020 and 9200 in 2025, 0.13% of adults in Spectrum pop projection]	N/A		40%	50%	70%	80%	90%
					4,320	5,200	7,000	7,680	8,280
		Long distance drivers [Denominators: 65000 in 2020; 85,000 in 2025]	55%	IBBS	60%	70%	80%	85%	90%
			35750		41,400	51,100	61,600	68,850	76,500
		Widowed and divorced men and women [Denominators: 956475 in 2020 and 1111493 by 2025)	28%	DHS 15-49 both sexes	30%	50%	70%	80%	90%
					295,800	508,000	732,200	860,800	1,003,438
		Workers in hot spot areas [Estimated at 840,000 in 2020 and 1,050,000 in 2025]	N/A		50%	60%	70%	80%	90%
					441,000	553,200	673,400	801,600	945,000
		High risk adolescent girls and young women	24%	DHS 2016	50%	60%	70%	80%	90%
		[Denominators: 134341 in 2020 and 147426 by 2025)			68479	83745	99534	115847	132683

Outcome	Percentage of key populations reporting use of a condom with their most recent partner	FSW condom use at last sex with Paying and nonpaying clients	Paying 98%	IBBS	99%	99%	99%	99%	99%
			Non Paying 37%	IBBS	45%	50%	55%	70%	90%
		LDD condom use at last sex with non-regular partner	84%	IBBS	88%	90%	93%	95%	95%
		Widowed and divorced men and women condom use at last sex (15-49)	31%	DHS	40%	55%	70%	80%	90%
		Workers at hot spot areas condom use at last sex with non-regular partner (15-24 men and women)	41%	DHS	55%	70%	75%	80%	90%
		High risk adolescents and young women condom use at last sex with non-regular partner	24%	DHS	35%	45%	60%	75%	90%
Coverage	% of PWID benefiting from needle exchange programs	PWID	NA	Program Data	0	25%	50%	75%	90%
	Number of PWID benefiting from needle exchange programs	PWID	NA	Program Data	0	2,600	5,000	7,200	8,280
	% PWID receiving OPIOID Substitution Therapy	PWID	0%	Program Data		25%	50%	75%	90%
	Number of PWID receiving OPIOID Substitution Therapy				0	2600	5000	7200	8280
Coverage	Percentage of key and Priority populations reached with Social Behaviour Change Communication or peer education sessions (non-cumulative)	KPP	NA	MRIS	40%	55%	75%	85%	90%
	% of AGYW seeking contraception/ family planning who received an HIV test	New indicator monitoring integration of AGYW services	N/A		60%	65%	75%	85%	90%
Coverage	Percent of people 15-49 years with STIs treated	Adults 15-49	32%	DHS 2016	40%	45%	50%	55%	60%

	Percent of FSWs with STIS treated	Female sex workers	56%	IBBS 2013	65%	70%	75%	80%	90%
Strategic Objective 2: Enhance HIV case finding to attain 95% of PLHIV knowing their HIV status and linked to care by 2025									
DIFFERENTIATED HTS									
HTS Result: HIV testing, and counselling services scaled up and at least 95% people who know their HIV status by 2025									
Coverage	Number of women and men who received an HIV test in the last 12 months and who know their results	Number	8,024,936	Program Report	7.08 M	7.04 M	7.36 M	7.46 M	7.57 M
Coverage	% of women and men aged 15-59 years living with HIV who know their HIV status	Adults (15-59)	79%	EPHIA, Spectrum	87%	90%	93%	95%	95%
		Young People (15 – 24):	79%		87%	90%	93%	95%	95%
Coverage	Percentage and Number of key populations who received an HIV test in the last 12 months and who know the results	FSW	70%	IBBS for baselines	70%	80%	85%	90%	90%
			-		151,200	177,600	193,800	210,600	216,000
		Prisoners	58%	Prison Survey	70%	80%	90%	90%	90%
					60550	69200	77850	77850	77850
		PWID	N/A	IBBS	40%	50%	70%	80%	90%
					4,320	5,200	7,000	7,680	8,280
		Long distance drivers	55%	IBBS 2013	50%	60%	80%	90%	90%
					34,500	43,800	61,600	72,900	76,500
		Widowed divorced men and women	24%	DHS 2016	30%	50%	70%	80%	90%
					295,800	508,000	732,200	860,800	1,003,438
		Workers in hot spot areas	20%	DHS 2016	50%	60%	70%	80%	90%
					441,000	553,200	673,400	801,600	945,000
		High risk adolescents and young women	18%	DHS 2016	50%	60%	70%	80%	90%
					68479	83745	99534	115847	132683
Coverage	Percentage of HIV-positive results among the total HIV tests performed during the reporting period	Age (U15, 15+); Gender, Community testing (mobile testing, community VCT) Facility testing (ANC clinics, FP clinics, TB clinics, VCT centers, other)	<0.6% (48,781 / 8024936)	2019 / Annual Report DHIS 2	0.80%	1.20%	1.50%	1.80%	2%
Coverage	Percentage of people newly diagnosed with HIV initiated on ART	Age group, Gender, FSW, PWIDs, prisoners, AGYW, ABYM,		DHIS2/ Program Data	90%	95%	95%	99%	99%
Strategic Objective 3: Attain virtual elimination of MTCT of HIV and Syphilis by 2025									
Elimination of Mother to Child Transmission (eMTCT)									
Result 1: Mother-to-child transmission of HIV during pregnancy, childbirth and breastfeeding reduced to less than 5% by 2025									

Result 2: Access to lifesaving treatment for HIV+ pregnant women increased to 100% by 2025 and AIDS-related maternal deaths substantially reduced									
Coverage	Percentage of infants born to women living with HIV receiving a virological test for HIV within 2 months (and 12 months) of birth	All	64%	DHIS2	79%	83%	87%	91%	95%
Coverage	Percentage of HIV+ pregnant women who received antiretroviral therapy to reduce the risk of mother to child transmission	All	71%	DHIS2 & Spectrum Estimates 2019	84%	87%	89%	92%	95%
	% of expectant mothers living with HIV who are virally suppressed at labour, delivery and postpartum		NA		90%	93%	95%	95%	98%
Coverage	Percentage of pregnant women who know their HIV status	Disaggregated by Woreda	84%	Spectrum	86%	89%	92%	94%	95%
Coverage	Percentage of women accessing antenatal care services who were tested for syphilis			Program Data	67%	74%	81%	88%	95%
Coverage	% of HIV+ women aged 15-49 years who have their need for family planning satisfied with modern methods	All modern methods	41%	Mini DHS (2019)	45%	50%	57%	65%	75%
	% of HEI receiving enhanced postnatal (dual) prophylaxis		61%		65%	70%	75%	85%	95%
Strategic Objective 4: Enroll 95% of PLHIV who know their status into HIV care and treatment and attain viral suppression to at least 95% for those on antiretroviral treatment.									
Result 1: At least 95% of Adult and Children living with HIV who know their status receiving antiretroviral treatment by 2025									
Outcome	**95-95-95**	All	79-90-91	Spectrum Estimates and EDHS Triangulation	87-91-92	90-95-95	93-95-95	94-95-95	95-95-95
	% of all people living with HIV who know their HIV status, % of all people with diagnosed HIV	Adults (15-64): Female	79-92-92		87-95-95	90-95-95	90-95-95	94-95-95	95-95-95
		Male	78-95-92		87-95-95	90-95-95	90-95-95	94-95-95	95-95-95
		Children <15	65-67-74		75-80-85	80-85-88	80-90-90	94-95-95	95-95-95

	infection who received antiretroviral therapy and % of all people receiving antiretroviral therapy who have viral suppression	26% for children 0-4			35-91-90	65-92-93	75-95-95	90-95-95	95-95-95
		46% for those aged 5-10 years			60-91-90	70-92-93	80-95-95	94-95-95	95-95-95
		58% for those 11-14			70-91-90	80-92-93	90-95-95	94-95-95	95-95-95
Outcome	Percentage of adults and children living with HIV infection receiving antiretroviral therapy at the end of the reporting period (To disaggregate by region)	All	86%	Spectrum Estimates	90%	91%	93%	95%	95%
	Number on treatment	**Numbers on ART (All ages)**	**476746**	DHIS 2; Treatment Data	**549,265**	**560,041**	**570,817**	**587,635**	**590,878**
					91%	92%	93%	95%	95%
		Adults (15+)	**452909**		**526,226**	**536,550**	**546,874**	**564,552**	**577,101**
		26% for children 0-4	26%		30%	40%	55%	75%	90%
		Numbers, 1-4			3,428	2,528	1,880	1,183	986
		46% for those aged 5-10 years	46%		55%	65%	75%	85%	95%
		Numbers, 0-14			23,039	23,491	23,943	23,083	23,000
		58% for those 11-14	58%		65%	70%	75%	85%	95%
Outcome	% and number of ART patients (who were on ART at the beginning of the quarterly reporting period) and then had no clinical contact since their last expected contact)	New Indicator (Disaggregate by age)		ART Registers	<15%	<13%	<10%	<7%	<5%
Outcome	Percentage PLHIV on ART who are virologically suppressed	Gender, Age	89%	Treatment Reports	90%	91%	93%	95%	95%
					492,368	505,139	534,585	558,253	569,602
Outcome	% of all PLHIV who are virologically suppressed	Gender, Age (Including not VL tested)	68%		75%	80%	85%	90%	90%
	% VL tests		70% (2019)		75%	80%	85%	90%	90%
	Number VL tests				410,307	449,013	488,600	528,872	539,623
Tuberculosis and Hepatitis									

TB deaths in people living with HIV reduced by 75% by 2025									
Outcome	Percentage of HIV-positive new and relapse TB patients on ARV therapy during TB treatment	Adults (15+): Male and Female	91%	(DHIS2)	95%	95%	95%	98%	98%
Coverage	Percentage of estimated HIV-positive incident TB cases that received treatment for both TB and HIV	All	97%	TB Program	98%	99%	99%	99%	100%
Coverage	Percentage of people living with HIV newly enrolled in HIV care started on TB preventive therapy	Adults (15+): Male and Female; Children under 15		(DHIS2)					95%
Coverage	Percentage of people living with HIV who are screened for TB in HIV settings	All People		(DHIS2)					100%
	% of PLHIV on ART who completed a course of TB preventive treatment among those who initiated TPT	All	N/A	Program Reports; DHIS2	98%	98%	98%	98%	98%
	% people on ART who were screened for Hepatitis C during the reporting period	All		Program Reports	5%	10%	20%	25%	30%
	% people diagnosed with chronic HCV infection who initiated treatment during the reporting period	All		Program Reports; DHIS2	90%	92%	95%	97%	98%
Strategic Objective 5: Mobilize resources and maximize efficiencies in allocation and utilization									
Coverage	% of HIV Program (NSP) Budget funded by domestic sources	ALL	11%	NASA / NHA Annual National Budget	12%	14%	16%	19%	22%

Coverage	Proportion of population with large household expenditure (over 20%) on health as a share of total household expenditure or income (catastrophic spending on health)	All	>20%	NHA/ NASA	18%	17%	<15%	12%	<10%
Outcome	Percentage in-country utilization of disbursed funds (i.e. in-country disbursement utilization)	Disaggregated by source of funding and implementer type (public or community)	70	NHA/ Program Expenditure Report	90%	90%	90%	90%	90%
Strategic Objective 6: Enhance generation and utilization of Strategic Information for an accelerated evidence based response									
Coverage	Completeness of facility reporting: Percentage of expected facility monthly reports (for the reporting period) that are actually received	All		DHIS2	75%	80%	85%	90%	90%
Coverage	Percentage of health facilities timely submitting reports within DHIS2	All		(DHIS2)	95%	95%	95%	95%	95%
Coverage	Percentage of planned surveys and surveillances conducted, and reports released on time (within 3 months of finalization)	All	<80%	Program report (HAPCO/ EPHI)	80%	85%	90%	95%	100%
Coverage	Percentage of Woredas that produce periodic analytical report(s) as per nationally agreed plan and reporting format during the reporting period	High Burden, Medium Burden, Low Burden		Program Reports; DHIS2	75%	80%	85%	90%	90%

Coverage	Percentage of facilities which record and submit data using the electronic information system	All	89%	DHIS2	90%	95%	95%	98%	98%
Social and programmatic enablers to maximize the reach and impact of Ethiopia's HIV/AIDS response									
Structural Barriers (Gender and Human Rights Related Barriers to service delivery, accessibility and utilization removed by 2025									
Outcome	% of key and priority population members who avoid health care because of stigma and discrimination	Disaggregated for FSW, PWID and AGYM	>30%	EDHS; Stigma Index	30%	20%	15%	10%	<5%
Outcome	% of women and men aged 15-49 with accepting attitudes to PLHIV	Adults (15- 49): Male	65%	EDHS 2016	70%	75%	80%	85%	90%
		Adults (15-49): Female	52%	EDHS 2016	60%	70%	80%	85%	90%
Outcome	Proportion of women aged 15-49 who reported experiencing physical or sexual violence from a male intimate partner in the past 12 months	Adults Females (15-49)	34%	Gender link GBV Indicator - DHS 2016	---	---	26%	---	20%
Outcome	Ethiopia Gender Inequality index (value)		0.508	Human Development Report 2019			0.3985		0.289 [5]
75% of PLHIV, at risk of and affected by HIV and in need benefit from HIV-sensitive social protection by 2025									
Outcome	% Orphans and vulnerable children 0-17 years in need who received basic external support	Target is Double Orphans; Denominator is Total AIDS Orphans		Spectrum Modeling	13%	20%	29%	39%	43%
					32,733	47,408	61,413	74,960	73,536
Coverage	% PLHIV on nutrition support that are malnourished / undernourished	Nutrition Status (Severely) malnourished children and adults - at risk of morbidity or mortality; medically defined as 'Wasted'. Targets are PLHIV on ART	26%	BMC (2020) Alebel et al. FMOH/ UNICEF	15%	20%	25%	30%	35%
			123954		21,421	28,562	35,702	42,843	49,983

Coverage	AGYW economic and other empowerment programs	High Risk AGYW		Program Reports	5%	10%	15%	20%	25%
					6717	13434	20151	26868	36857
Strategic Objective 7 : RSSH - Community Systems Strengthening: At least 80% of Community Care Coalitions supported to deliver services and linked to health facilities by 2025									
	Number of community indicators that can be integrated into DHIS2	---	---	(DHIS2)/ CHIS/ FHAPCO/ PEPFAR	90%	90%	90%	95%	95%
Coverage	Percentage of HIV and TB funding channeled through community-based organizations/ CCCs	All		NASA resource mapping and expenditure tracking	---	---	20%	---	25%
	Percentage of community care coalitions that integrated a package of prevention interventions in their service		0		40%	50%	65%	80%	90%
Coverage	Number of community-based organizations that received a pre-defined package of training	Woreda (At least 1 per highest incidence Woreda)			50	100	150	200	265
Coverage	% of NSP budget funded by communities (including prevention, OVC and PLHIV care)	All			5%	6%	7%	9%	10%
	Number of community based organizations engaged in community led monitoring in high burden woredas	Woreda (At least 1 per highest incidence Woreda)		CCME Oversight Reports	50	100	150	200	265
Strategic Objective 8 : Resilient and Sustainable Systems for Health support program acceleration and attainment of at least 90% of targets									

Outcome	Active health workers per 10,000 population (Occupation group (Physicians, Nurses and Midwives, Laboratory technicians, Pharmacists and CHWs)	Differentiated by cadre	10.6 per 10,000 population (does not count	MOH	12	14	18	20	23 skilled health workers per 10000 population
	% of women giving birth at health facilities, or (ANC 4)	All	48%	EDHS 2016 - MOH/ ANC	65	70	75	80	85
Outcome	Percentage of antenatal clients with 1st visit before 12 weeks	---		MOH / UNICEF	---	---	80%	----	90%
Coverage	Proportion of community health workers who received at least one supportive supervision during the reporting period			Program Data/ HAPCO SRs.	25%	45%	60%	75%	95%
	Proportion of community health workers who are trained on predefined package of on HIV prevention and treatment		50% of 70000 (HEW, CHW,…)	MOH Health Extension Programme	50%	60%	70%	90%	
Coverage	% Percentage of health facilities with tracer medicines for the three diseases available on the day of the visit or day of reporting	Main ARV regimens, AL, TB, and Azithromycin, COVID-19 Test Kits HIV Test Kits		Global Health Supply Chain monitoring report. Health facility, Hospital	99%	100%	100%	100%	100%
					97%	99%	100%	100%	100%
		Viral Load Reagents			80%	85%	96%	100%	100%

Annex 2: Resource Needs Estimation Model

Introduction

We have used the Goals model in Spectrum to estimate the cost, impact and cost-effectiveness of alternative HIV investment strategies in Ethiopia. This document describes the methods, data, assumptions and results. The scenarios analyzed were defined through discussions with stakeholders.

Methods

This analysis uses the Goals model, a module implemented in the Spectrum modeling system that estimates the impact of future prevention and treatment interventions. The model has been set up for Ethiopia using all available data sources to specify the distribution of the population by age and risk group and the behaviors by age and risk group.

The Goals model also has an impact matrix that summarizes the impact literature to describe changes in behavior by risk group as a result of exposure to behavior change interventions[1].

The model calculates new HIV infections by sex and risk group as a function of behaviors and epidemiological factors such as prevalence among partners and stage of infection. The risk of transmission is determined by behaviors (number of partners, contacts per partners, condom use) and biomedical factors (ART use, male circumcision, prevalence of other sexually transmitted infections). Interventions can change any of these factors and, thus, affect the future course of the epidemic.

The Goals model is linked to the AIM module in Spectrum that calculates the effects on children (0-14) and those above the age of 49. The AIM module also includes the effects of programs to prevent mother-to-child transmission on pediatric infections. Additional details on the Goals and AIM models are available from several publications.[2,3]

Data and assumptions

Epidemiological data are from the EDHS (2005, 2010, 2016), the EPHIA (2018) and the 2020 Spectrum/AIM file. This AIM estimate is based on surveillance, survey and routine ANC testing data on HIV prevalence as well as program data on coverage of PMTCT and ART programs.

[1] Bollinger LA, How can we calculate the "E" in "CEA" *AIDS* 2008, 22(suppl 1): S51-S57.
[2] Stover J, Hallett TB, Wu Z, Warren M, Gopalappa C, Pretorius, et al. How Can We Get Close to Zero? The Potential Contribution of Biomedical Prevention and the Investment Framework towards an Effective Response to HIV PLoS One 9(11):e111956. doi:10.1371/journal.pone.0111956.
[3] Stover J, Andreev K, Slaymaker E, Gopalappa C, Sabin K, Velasquez C et al. Updates to the Spectrum model to estimate key HIV indicators for adults and children AIDS 2014 28 (Suppl 4):S427-S434.

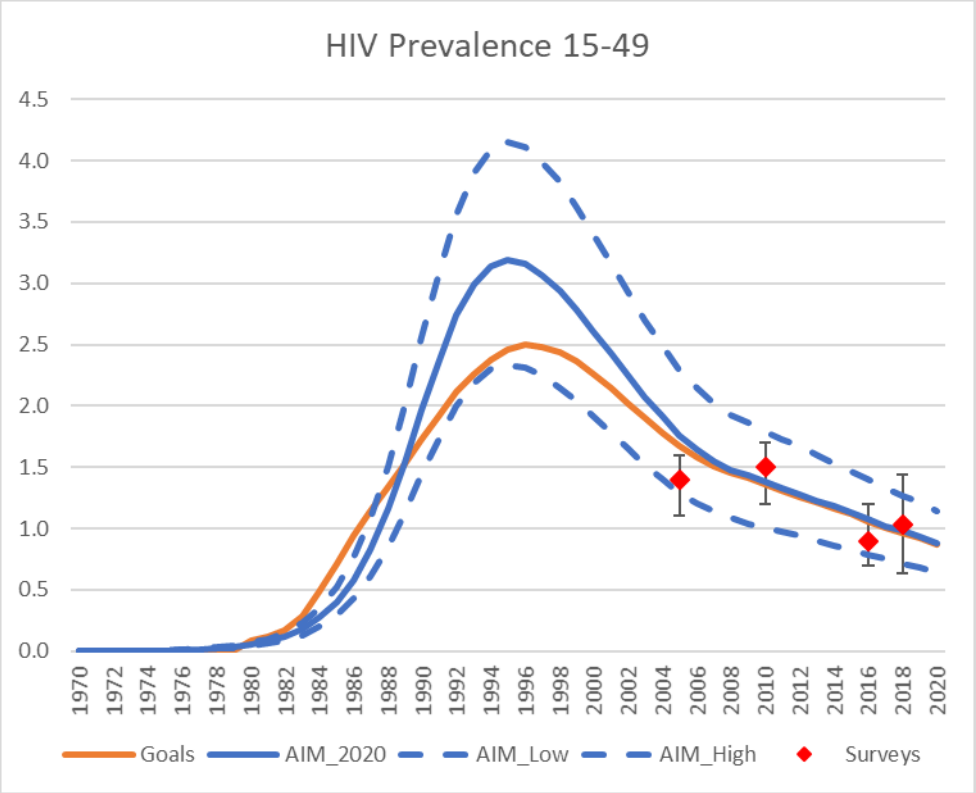
Behavioral data are drawn primarily from the EDHS and EPHIA. Size and prevalence estimates for female sex workers are based on the National Road Map[4].

International studies are used to set values of the epidemiological parameters such as the risk of HIV transmission per act and the variation in the risk of transmission by stage of infection, type of sex act, presence of other STIs, use of condoms, etc[5].

Estimates of the current coverage of interventions were compiled by the NSP costing consultant (Elias Asfaw) based on a variety of sources, relying mainly on program statistics (DHIS-2), project data from PSI-Ethiopia, FHAPCO annual reports and the PEPFAR Country Operational Plan, 2019.

The model is fit to the historical pattern of prevalence in order to replicate the epidemic dynamics (Figure 1).

Figure 1. Model fit to survey data and AIM trends



Unit costs for key interventions (also collected by Elias Asfaw) are FHAPCO, PSI, Project Hope, EPHI, Federal Ministry of Health, FPSA Medical Supplies, National AIDS Spending

[4] FHAPCO, HIV Prevention in Ethiopia: National Road Map, 2018-2020, November 2018.
[5] Marie-Claude Boily, Rebecca F Baggaley, Lei Wang, Benoit Masse, Richard G White, Richard J Hayes, Michel Alary Heterosexual risk of HIV-1 infection per sexual act: Lancet Infect Dis 2009; 9: 118–29.

Assessment of 2011 (to be updated with the new NASA at the end of March) and PEPFAR Expenditure Analysis and rely on regional estimates when national figures are not available.

We assume that unit costs remain constant for most interventions except treatment. Since treatment accounts for the largest share of expenditures, it is important to consider the costs of the treatment program in detail. Our current assumptions for unit costs are:

Table 1. ART unit costs

Component	**Cost per patient per year**
First line ARVs: TDF+3TC+EFV	$86
First line ARVs: TDF+3TC+DTG	$84
Second line ARVs	$266
Third line ARVs	$838
Service delivery (current model)	$50
Service delivery (DSD)	$50
Laboratory	$37
Percent of patients on second line	6.8%

Transition to TLD

According to FHAPCO the prices of TLE and TLD are quite similar in Ethiopia. So, there may not be much savings once the switch to TLD is complete.

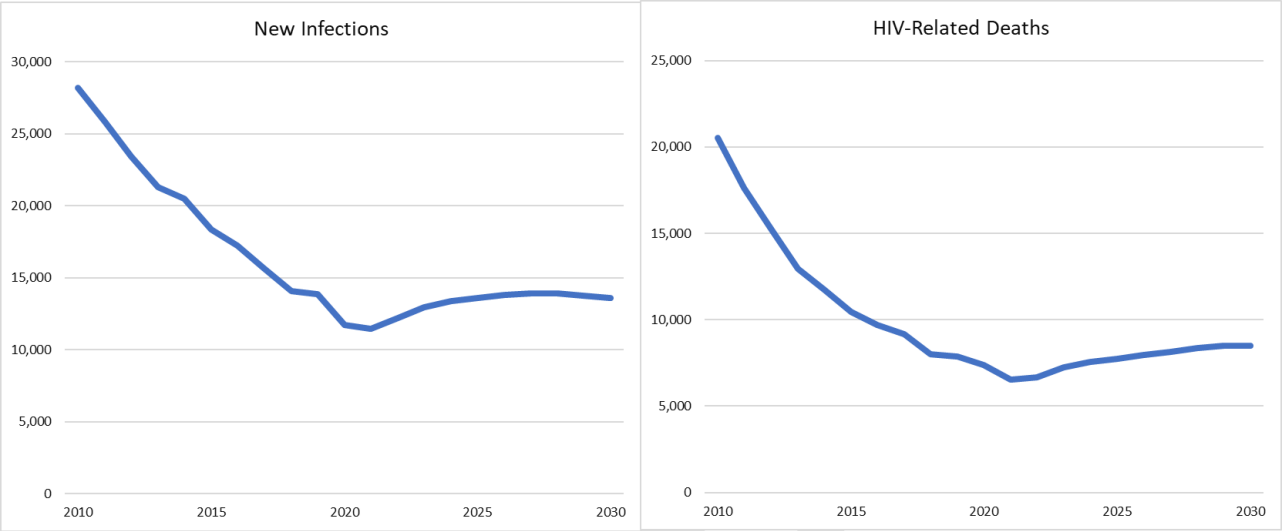
Differentiated service delivery

PEPFAR is scaling up differentiated service delivery models (DSD) including Appointment spacing model (ASM), fast-track pharmacy refill and health worker managed community refill groups. Cost savings could arise if DSD is less expensive than the full visit model. However, at this time it appears that the costs of DSD may not be much different.

Constant Coverage

The number of new HIV infections and AIDS deaths have declined substantially since 2010. However, that decline will slow considerably If the current program effort remains constant (constant coverage of ART, VMMC, condoms, etc.). Figure 2 shows the estimated trend from 2010 to 2019 and the projected future trend to 2030 under the assumption of constant coverage of all interventions.

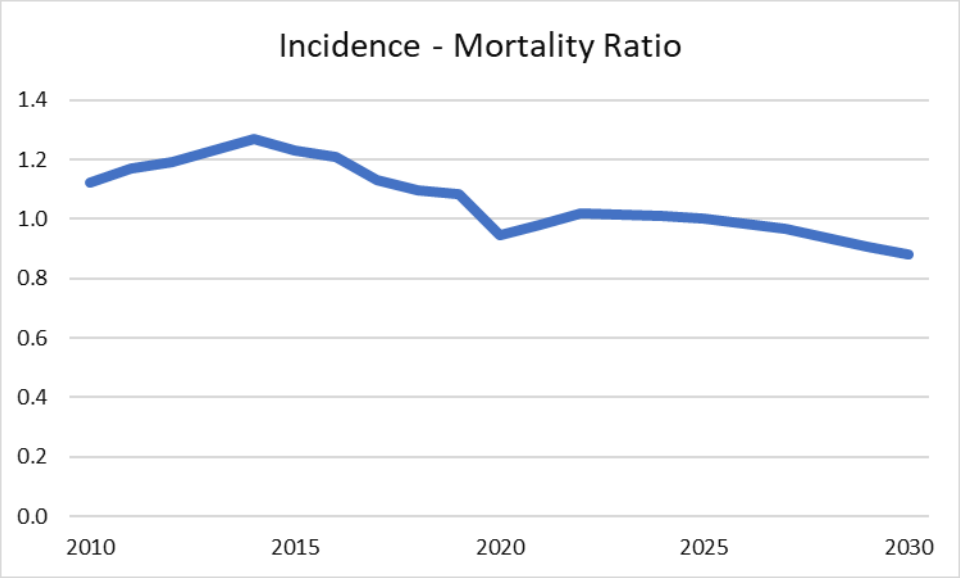
Figure 2. New infections and AIDS deaths with constant intervention coverage



Under this scenario new infections decline by 58% from 2010-2020 (less than the global target of 75% decline) and by 52% from 2010-2030 (less than the global target of 90%. HIV-related deaths decline by 64% by 2020 and by 59% by 2030.

Another measure of progress is the incidence – mortality ratio. This is the number of new HIV infections divided by the number of deaths to PLHIV. When the indicator crosses 1.0 it means that a tipping point has been reached, after which the number of PLHIV will decline. This ratio has dropped to just below one in 2020 but, as Figure 3 shows the, it would remain at about one through 2030 with constant coverage.

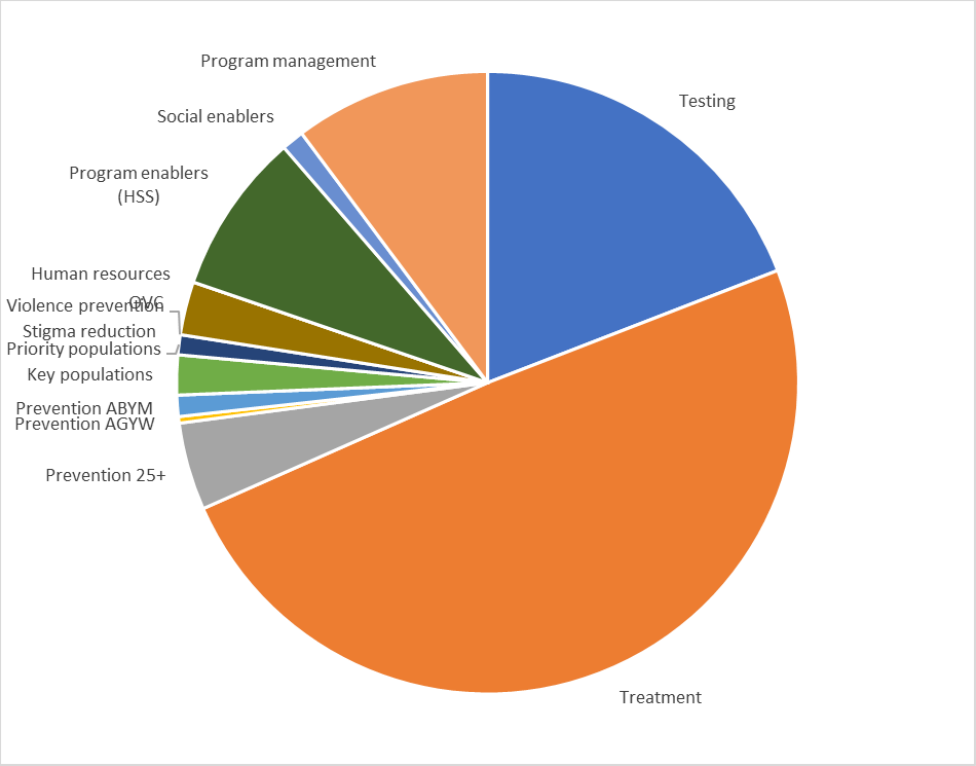
Figure 3. Incidence – prevalence ratio



Funding Scenarios

Ethiopia current spends about $240 million on the HIV program. The estimated distribution of expenditures is shown in Figure 4. Treatment accounts for about 50% of total expenditures.

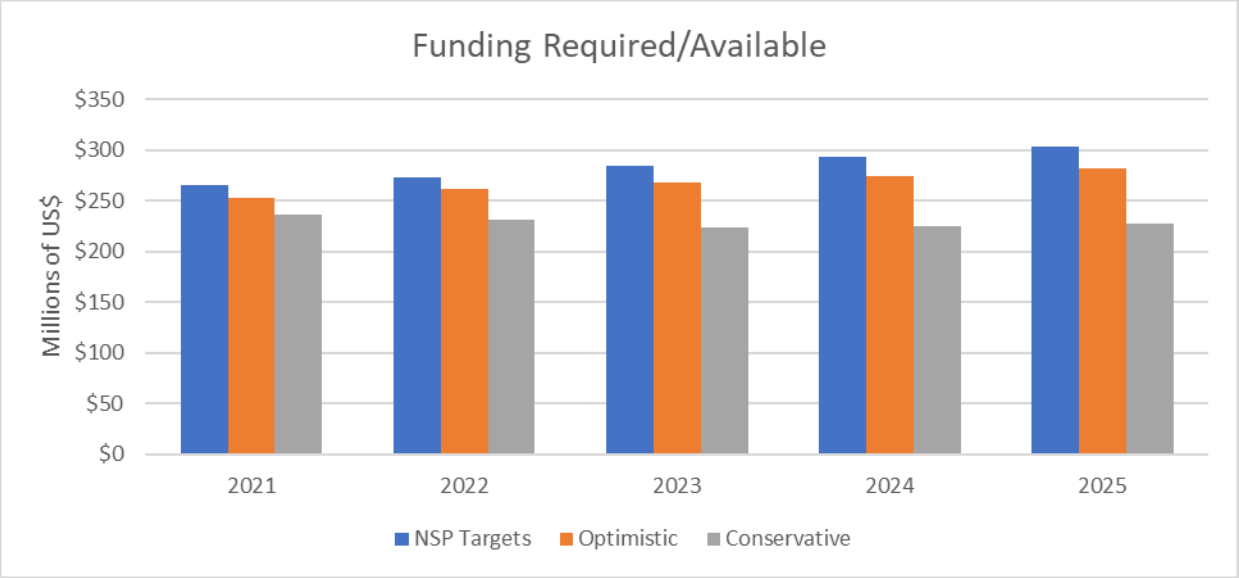
Figure 4. Estimated distribution of expenditures in 2019



To continue progress in reducing new infections and AIDS deaths key prevention and treatment services will need to be scaled-up to reach more people. The ability of the program to do that will depend, to a large extent, on the financing available. We constructed four funding scenarios, Figure 5, to examine the impact of funding on impact.

- Base: Coverage of all interventions remains constant
- NSP: Funding from the Global Fund and PEPFAR remains constant through 2030. Domestic government resources increase according to the draft National Resource Mobilization Plan.
- Optimistic: Funding from the Global Fund remains constant but PEPFAR funding falls by about 20% by 2030. Domestic government resources increase according to the draft National Resource Mobilization Plan.
- Pessimistic: Similar to the Optimistic scenario but Government of Ethiopia funding remains constant through 2025.

Figure 5. Available Funding by Scenario



Coverage Targets for 2025

These funding levels are not enough to achieve full coverage of all interventions (which requires about $330 million per year by 2025). Even the Optimistic scenarios falls short of needs under full coverage. We have constructed coverage targets for 2025 to match the funding available. These are shown in Table 2.

Table 2. Coverage targets by scenario (percent of target population reached with services)

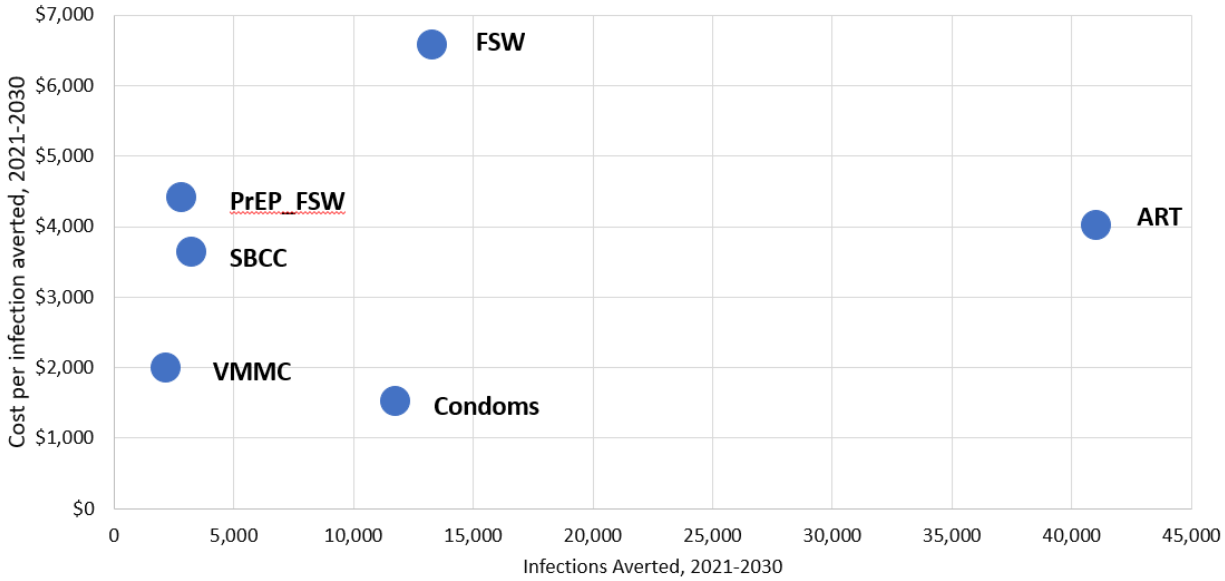
Intervention	**2019**	**2025**
Testing	13	12
Adult ART	75	90
Pediatric ART	48	89
PMTCT	74	95
Condoms	53	90
SBCC Campaigns	8	12
STI treatment	34	60
Sex workers	50	90
Priority populations	28	90
AGYW	0	45-90
VMMC	89	90

To develop these targets, we first estimated the cost-effectiveness of each intervention separately. The results are shown in Figure 6. ART clearly has the largest impact and also prevents deaths, while VMMC and condom programs have the lowest cost per infection averted. Not shown in Figure 3 are programs for priority populations (cost-effectiveness varies by population) and mass media and programs for adolescent girls and young women (AGYW) which more costly than the upper limit of the chart.

In constructing the targets, we first scaled-up treatment as much as possible and then, if there were remaining resources, scaled-up VMMC, condoms and sex worker programs. The model also includes programs to reduce stigma and prevent violence against women, but those programs were too costly if implemented solely as HIV programs. We recognize that progress on stigma and violence prevention may be necessary to reach the target coverage levels for other interventions.

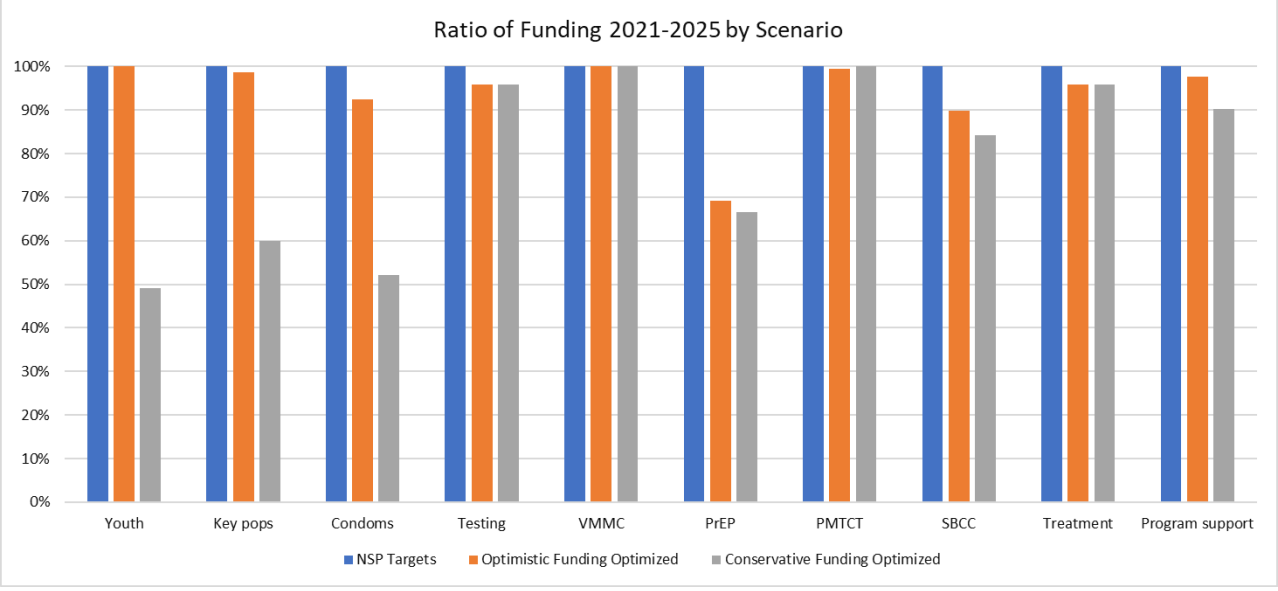
The testing coverage declines slightly as we have assumed the testing services transition from the current situation with about 8 million tests per year (mostly provider-initiated (PITC) and VCT) with a yield of about 0.3% to one with targeted testing based on index case testing and expansion of self-tests to replace VCT. Even though PITC will still be required (for pregnant women, TB patients, etc.) the higher yields of index case testing mean that 95% knowledge of status can be achieved with a 70% reduction in the number of tests.

Figure 6. Cost per infection averted by intervention



For the Optimistic and Pessimistic scenarios, we used the Goals model to optimize available funding. The optimization involves allocating funds first to the most cost-effective interventions and removing funding from those that are least cost-effective in order to match the total funding available. Changes in the coverage of key interventions due to the optimization are shown in Figure 7.

Figure 7. Relative changes in coverage by scenario



Impact

Projections of new infections and AIDS deaths shown in Figures 8 and 9. New infections decline substantially (65%) from 2019-2025 in NSP, dropping to 5200 new infections in 2025. This scenario averts 30,000 new infections from 2020-2025 compared to the Base scenario.

In the Optimistic funding scenario, new infections drop 46% from 2019-2025, averting 24,000 new infections. In the Conservative Funding scenario new infections decline only 37% and 20,000 new infections are averted compared to the Base scenario.

In the NSP scenario the number of people on ART increases to 2.8 million by 2025 and annual deaths decline to 6100. This averts almost 15,000 AIDS-related deaths. In the Optimistic and Conservative Funding scenarios ART still expands, since ART is prioritized for funding, but fewer AIDS deaths are averted.

Figure 8. New HIV infections by scenario, 2019-2025

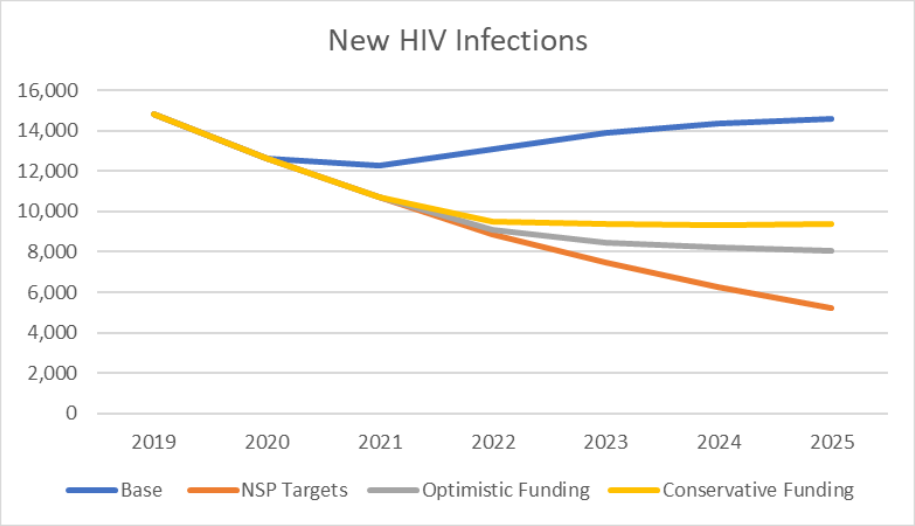
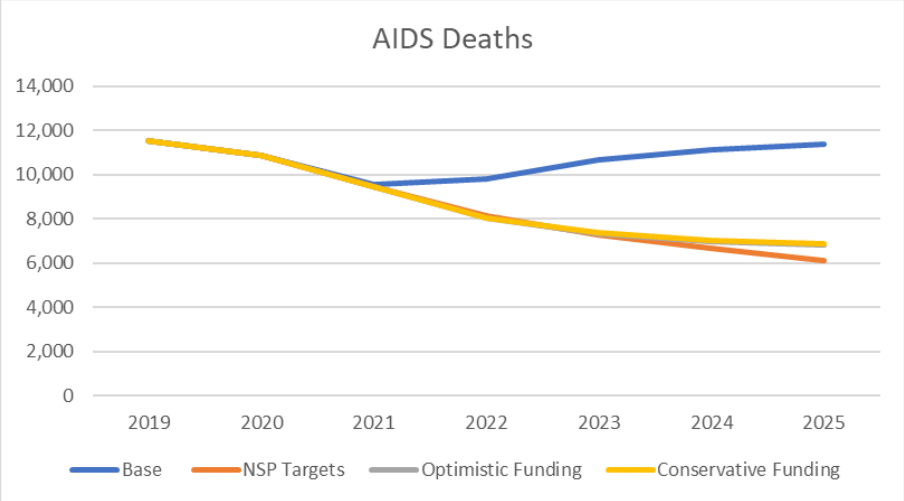


Figure 9. HIV-related deaths by scenario, 2019-2025



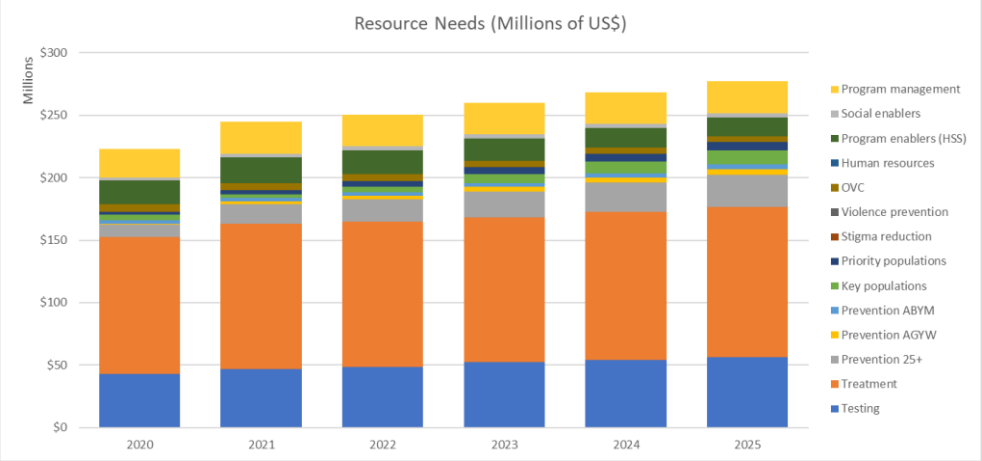
Costs

The costs for each intervention are estimated as the population in need of the service multiplied by the coverage (the percentage actually using the service) multiplied by the unit costs. We assume that the unit costs of most interventions remain constant

Total funding required for the NSP scenario is shown in Figure 10. Total funding needs to reach the NSP targets increase from about $225 million in 2020 to $277 million in 2025. The largest amounts are needed for ART (46%), testing, (20%), condoms (5%) and health system strengthening (7%).

Significant additional resources would be needed to scale up programs to reduce stigma ($64 million in 2025) and address violence against women ($18 million) so scaling-up these programs is not included in any of the scenarios.

Figure 10. Total Resources Required under the NSP Scenario



Cost-effectiveness

Since the core programs (testing, treatment, VMMC, condoms, services for key populations) can avert substantial numbers of new infections and AIDS deaths, they are clearly cost-effective. However, it may not be possible to reach those ambitious targets without also addressing the social enablers.

For the period 2021-2025 the incremental cost of the NSP scenario is $185 million, and it averts 47,000 new infections during that period. The cost per infection averted (undiscounted) is about $400.

Testing and treatment are the most cost-effective interventions since they are cost savings over the period 2021-2025.

Figure 9 shows the distribution of woredas by HIV incidence in the population aged 15-49. While treatment programs are needed everywhere there are PLHIV, prevention programs will be more cost-effective in the high incidence zones. At the national level incidence among the population 15-49 is estimated at 0.029%. Incidence is more than three times as high in 14% of woredas. These woredas account for about one-third of all new infections and thus constitute a geographic core where prevention interventions might be scaled up first to achieve maximum cost-effectiveness.

PEPFAR assistance in provide in 5 priority regions (Addis Ababa, Oromiya, Amhara, Gambella and SNNP) that together account for 85% of all new infections. Targeting interventions to the highest incidence woredas in these and other regions can ensure that resources are used in the most cost-effective manner possible.

Productivity gains and return on investment

When people are sick with HIV, they may miss work or perform at reduced productivity. The productivity gains from scaling-up treatment can be estimated from the number of people living with HIV who are not on ART and have CD4 counts below 200 cell/ml[6]. Applying these calculations to the NSP scenario indicates a cumulative productivity gain of $87 million from 2021-2025.

The NSP scenario costs more than the Base scenario. Is it worth the extra cost? To answer this question, economists have developed the full-income approach which estimates a value on changes in income and mortality.[7] Using a 3 percent annual discount rate the cumulative incremental cost of the NSP scenario for 2020-2025 is $167 million. The cumulative discounted benefits are $1.4 billion[8]. Thus, the return on investment for the Optimistic scenario is 8. This high return clearly demonstrates the value of the additional investment.

Figure 8. Distribution of Woredas by Incidence among 15-49

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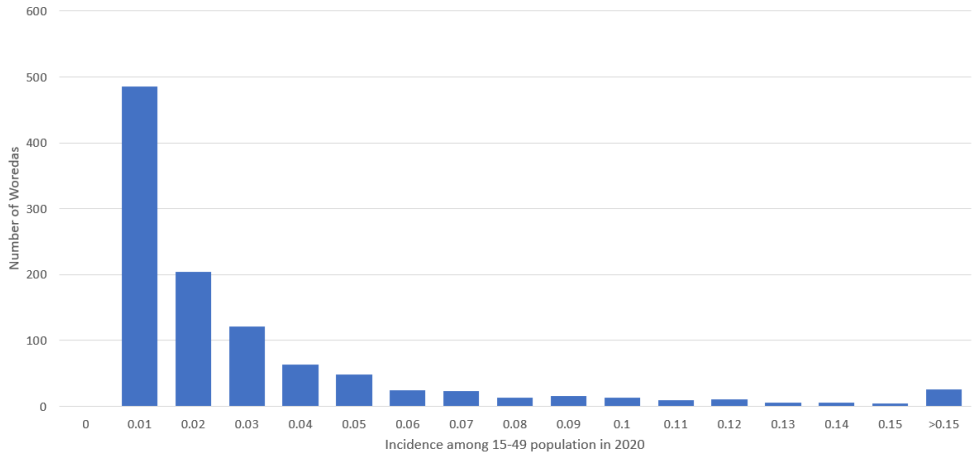

Summary

This analysis shows clearly that efforts to control the epidemic in Ethiopia will depend on some increase in funding. Substantial decreases in available funding would eliminate most prevention services and provide no opportunity to achieve the 90-90-90 and 95-95-95 treatment targets.

The draft national resource mobilization plan envisions an increase in domestic resources of $59 million annually by 2025. Cost savings from efficiency improvements in testing and treatment could reduce testing and treatment costs while still increasing the number on treatment by 77,000. If the domestic resource mobilization and improved efficiencies can be achieved and resources from PEPFAR and the Global Fund do not decline, there will be sufficient resources to reach the treatment targets and scale up primary prevention activities.

If the government resources do not increase or PEPFAR and Global Fund resources decrease then the targets could not be achieved resulting in a stagnant or a worsening of the epidemic. Ethiopia has shown that it can implement a cost-effective program. The new NSP can use this information to develop a cost-effective plan and make the case to government and international donors to support the program financially.

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