

DISEASE PREVENTION AND CONTROL  
DEPARTMENT, MINISTRY OF HEALTH



# AIDS IN ETHIOPIA

FOURTH EDITION, OCTOBER 2002

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## List Of Acronyms

AAU/MF	Addis Ababa University Medical Faculty
AIDS	Acquired Immune Deficiency Syndrome
AIM	AIDS Impact Model
ANC	Antenatal Care
CDC	Centers for Disease Control
CSA	Central Statistics Authority
DCH/AAU	Department of Community Health (Addis Ababa University)
EHNRI	Ethiopian Health and Nutrition Research Institute
ENARP	Ethio-Netherlands AIDS Research Project
ERCS	Ethiopian Red Cross Society
HAART	Highly Active Anti-Retroviral Therapy
HAPCO	HIV/AIDS Prevention and Control Office
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
MOD	Ministry of Defense
MOH	Ministry of Health
MTCT	Mother-to-Child Transmission
NAC	National AIDS Council
NGO	Non Governmental Organization
NOP	National Office of Population
OHB	Oromia Health Bureau
ORACS	Oromia Regional AIDS Council Secretariats
PLWHA	People Living with HIV/AIDS
STI	Sexually Transmitted Infection
TB	Tuberculosis
UNAIDS	Joint United Nations Program on HIV/AIDS
USAID	United States Agency for International Development
WHO	World Health Organization



## Foreword

The rapid expansion of the HIV/AIDS pandemic in sub-Saharan Africa has rendered efforts in bringing about significant improvements in economic and social conditions extremely complex. Because of HIV/AIDS, gains that have been achieved in the areas of improved health and better access to education and training are being eroded. According to UNAIDS's latest report (July 2002), approximately 70 percent of the world's 40 million HIV-positive population lives in sub-Saharan Africa. UNAIDS also reports that out of the 5 million newly infected persons in 2001, 3.5 million live in sub-Saharan Africa.

Ethiopia is one of the most seriously affected countries in the world. As would be expected, HIV/AIDS is more wide spread in urban rather than rural areas. The Government of the Federal Democratic Republic of Ethiopia continues to spearhead the fight against the epidemic with increased vigor. A National AIDS Policy has been adopted by the government which guides activities in the areas of prevention and control as well as facilitating care and support services to those already infected. AIDS Councils have been established at the National, Regional and Sub-regional levels with secretariats supporting them. A relatively substantial amount of resources have been allocated to combat the epidemic in a diversified manner.

The Federal Ministry of Health has been playing a leading role over the years in creating an enabling environment under which prevention and control work can be undertaken in a multidisciplinary framework. Among the key contributions of the MOH in this respect is its involvement over the years in mobilizing empirical data on the extent and scope of the disease in Ethiopia. Since 1996 a national report entitled "AIDS in Ethiopia" has been published every two years. The present report is the latest in this series and we believe that it contains the latest data and analysis on the state of HIV/AIDS in Ethiopia. I take this opportunity to thank all those organizations that collaborated in this work, particularly USAID for assisting with the finances. We are also indebted to all the health institutions, individuals, and organizations that made unreserved efforts in collecting the data and to the POLICY Project for collaborating in the collation, analysis, and presentation of the final report.

Demissie Tadesse, MD  
Vice Minister

October, 2002

## Executive Summary

The Fourth Edition of "AIDS in Ethiopia", is an update on the current information available on the HIV/AIDS situation in Ethiopia. The database upon which this edition is based has doubled in the past year. The third edition of "AIDS in Ethiopia (2000) used 15 surveillance sites. The current version is based on data from 34 sites, of which 28 are urban sites and 6 are rural sites.

A special national level expert group meeting was convened to arrive at the national prevalence rate using the sentinel surveillance data. As a result of discussions of the expert group, Estie, a site formerly presumed to be a rural site, with an HIV prevalence rate of 10.7 percent in 2001, was reclassified as an urban site. This reclassification of Estie led to a 2001 estimate of HIV prevalence of 6.6 percent. The national adult HIV prevalence of 6.6 percent is less than the prevalence of 7.3 percent presented in the third edition. It is to be noted that this change in national HIV prevalence does not imply that the HIV epidemic in Ethiopia is declining. The current estimate is merely a result of more extensive surveillance data and the reclassification of Estie as an urban site.

Urban HIV prevalence rates continue to be high at 13.7 percent while the HIV prevalence rate for rural areas remains relatively low at 3.7 percent. HIV prevalence for Addis Ababa is estimated to be 15.6 percent. The number of persons living with HIV/AIDS in 2001 is estimated at 2.2 million, including 2 million adults and 200,000 children. Approximately 10 percent of these or 219,400 are full blown AIDS cases.

The highest prevalence of HIV is seen in the group 15 to 24 years of age, representing "recent infections". The age and sex distribution of reported AIDS cases shows that about 91 percent of infections occur among adults between 15 and 49 years. Given that the age range encompasses the most economically productive segment of the population, the epidemic impacts negatively on labor productivity. Work time is lost through frequent absenteeism, and decreased capacity to do normal work as the disease advances. There are also social consequences of the epidemic as caregivers and income generating members of the family die leaving behind orphans and other dependents. These events lead to an aggravation of the problems of poverty and social instability. The data also show that the number of females infected between 15 and 19 years is much higher than the number of males in the same age group. This discrepancy is attributable to earlier sexual activity among young females with older male partners.

Although the government has made progress in the areas of education, access to health care and economic development, the AIDS epidemic is eroding those gains. The limited empirical data that is available shows that hospital bed occupancy rates for HIV/AIDS cases are increasing. The health care sector, military and the mobile work force are likely to be significantly affected.

In view of the above issues, several measures need to be taken. Data from more rural sites needs to be included to represent rural areas more effectively. Attention to be focused on preventing the new generation from acquiring the infection, as they represent a "window of hope". More empirical research on the economic and social impact of HIV/AIDS needs to be conducted. There is a need to mobilize the efforts of the government, non-governmental organizations, community based organizations and other civil society organizations in providing care and support to people infected and affected by HIV/AIDS.



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# Part One

## Introduction

### 1. Political, Demographic and Socioeconomic Characteristics of Ethiopia

#### 1.1 Populations and Livelihood System

In terms of population, Ethiopia is one of the most populous countries in Africa ranking third after Nigeria and Egypt. It is a multi-ethnic society with approximately 100 nations, nationalities and peoples contributing their own culture and language. The constitution of the Federal Democratic Republic of Ethiopia established a federal system of government with nine regional states and two city administrative councils. The role of the federal government is limited to directing the country's fiscal, defense, and foreign affairs and articulating economic and social policies. State governments are empowered to design and operate region-specific programs and policies in the management of natural resources, primary and secondary education, health services and the maintenance of internal law and order.

The country is divided into three major ecological zones, Kolla (arid lowlands below 1,000 meters above sea level), Weina Dega (between 1000 meters and 1500 meters above sea level ) and the Dega (between 1500 and 3000 meters above sea level). The Awash Valley is the most highly developed of the great river valleys in Ethiopia hosting several large-scale commercial enterprises. There are many other river basins (the Blue Nile, the Baro- Akobo and the Tekezie) which are in the process of being pressed into service for irrigation and power generation.

#### 1.2 The Economy

The Ethiopian economy is classified into three categories: the agricultural sector dominated by peasant agriculture, the livestock sector dominated by nomadic pastoralism and the modern sector which is in the process of coming into its own. Over 85 percent of the labor force is engaged in the first two sectors.

With rapid population growth and the consequent rise in the population/land ratio, farm size per household has been declining over the years and indeed over the decades. Thus landlessness, particularly among the youth is becoming a serious problem.



In fact, landlessness, which is a function of demographic and environmental factors, is the major determinant of rural poverty. Among the consequences of landlessness is increased migration of landless youth into nearby cities, placing considerable pressure on urban social and economic services.

The Ethiopian government has adopted an Agricultural Development Led Industrialization (ADLI) policy and programs that recognize the interdependent relationship between agricultural and industrial development. The policy is directed to addressing the dual need for bringing about a relatively rapid structural differentiation of the economy and for dealing with the problem of food insecurity at both the household and societal levels. The problem of food insecurity represents a serious developmental challenge. While efforts in agricultural development are paying dividends in areas with abundant rainfall, Ethiopia has seen little progress in rain deficient areas. The strategy adopted for achieving a breakthrough in these difficult areas is to reduce dependence on rainfall and expand acreage under irrigation, and to engage in agricultural diversification.

*The strategy adopted in achieving a breakthrough in these difficult areas is to reduce dependence on rainfall and expand acreage under irrigation and agricultural diversification.*

The private sector still suffers from the liability of its recent emergence and, apart from a lack of capacity, seems to be reluctant to embark on a strategy of corporate management of resources and the production of goods and services. The transition from “thinking small” to “thinking big” is proving to be challenging.

### 1.3 The Social Sector

From a development perspective, the social sector is still weak. National health service coverage is at 51 percent up from about 30 percent a decade ago. The accelerated training of health professionals has yielded encouraging signs of deployment to rural areas. The system’s major weakness lies primarily in its failure to bringing about behavioural change in the attitude of Ethiopians toward personal and environmental hygiene.



The education sector is undergoing rehabilitation. During most of the last decade of the 20th century, enrollment remained practically at a standstill but it has begun to increase since the turn of the current century. The new educational policy is geared to producing an educated workforce that will forge a dynamic economy. Ethiopia's educational reorientation has led to a greater emphasis on technical and vocational education at the secondary level.

With relatively high birth rates and high but declining mortality rates, Ethiopia is still in the early stages of demographic transition. Life expectancy at birth is among the lowest in the world (51 years for males, 53 for females, and 52 years for both sexes).

The latest estimates of the economic, social and demographic indicators are summarized in Table 1.

**Table 1: Demographic and socioeconomic characteristics**

Indicators	Estimate
Total population (in 2002)	67 million
Births per 1,000 population	44
Deaths per 1,000 population	15
Rate of natural increase (percent)	2.9
Infant mortality rate (per 1,000 births)	97
Total fertility rate	5.9
Percent of population below age 15	44
Percent of population over age 65	3
Life expectancy at birth	52
Percent urban	15
Adult literacy rates (circa 2000)	39.1%
Percent of combined 1st, 2nd and 3rd level gross enrollment ('99)	27.0
Gross National Product in US\$	\$102
Percent of population not using clean water sources	76.0
Percent of children under five who are underweight	47.0
Percent of population living under \$1 a day	31.2
Percent of annual population growth between 2000 and 2005	2.4
Percent of population with health coverage	51
Percent of population with access to essential drugs	50-79

Sources: MOH- Health Indicators -2001

#### 1.4 The History of the HIV/AIDS Epidemic in Ethiopia

The earliest evidence of HIV infection in Ethiopia was found in 1984, with the first case reported in 1986. Since 1984, a cumulative total of 107,575 AIDS cases were reported to the Ministry of Health. The prevalence of HIV was low in 1980' s but increased rapidly in the 1990's.

The major avenue of transmission of HIV infection in Ethiopia is heterosexual intercourse and the practice of multiple sexual partnerships, particularly in urban areas. Illegal medical practices and harmful traditional practices are also potential routes of transmission. It is believed that 30 to 40 percent of babies born to HIV-positive mothers are likely to contract the virus.

*An HIV/AIDS Prevention and Control Office (HAPCO) was established to mobilize multi-sectoral and grassroots efforts in the fight against the HIV/AIDS epidemic.*

The federal government vested responsibility for the planning and implementation of preventive and control programs in the Department of Disease Prevention and Control of the Ministry of Health. Similar units operate at the regional and subregional levels. The federal structure is replicated at the regional and subregional levels.

An HIV/AIDS Prevention and Control Office (HAPCO) was established to mobilize multi-sectoral and grassroots efforts in the fight against the HIV/AIDS epidemic. The office's major tasks call for reviewing and updating existing policies and guidelines to ensure consistency with new scientific insights and methods of dealing with the epidemic. Now, advocacy and coordination are also part of the HAPCO's responsibilities. The composition of the HAPCO reflects the type of focus it should bring to the battle against AIDS, i.e., creating a policy environment that would facilitate the involvement of relevant government sectors of non-governmental organizations, and civil society institutions.



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# Part Two

## Methodology

### 2. Sources of Data for HIV Surveillance

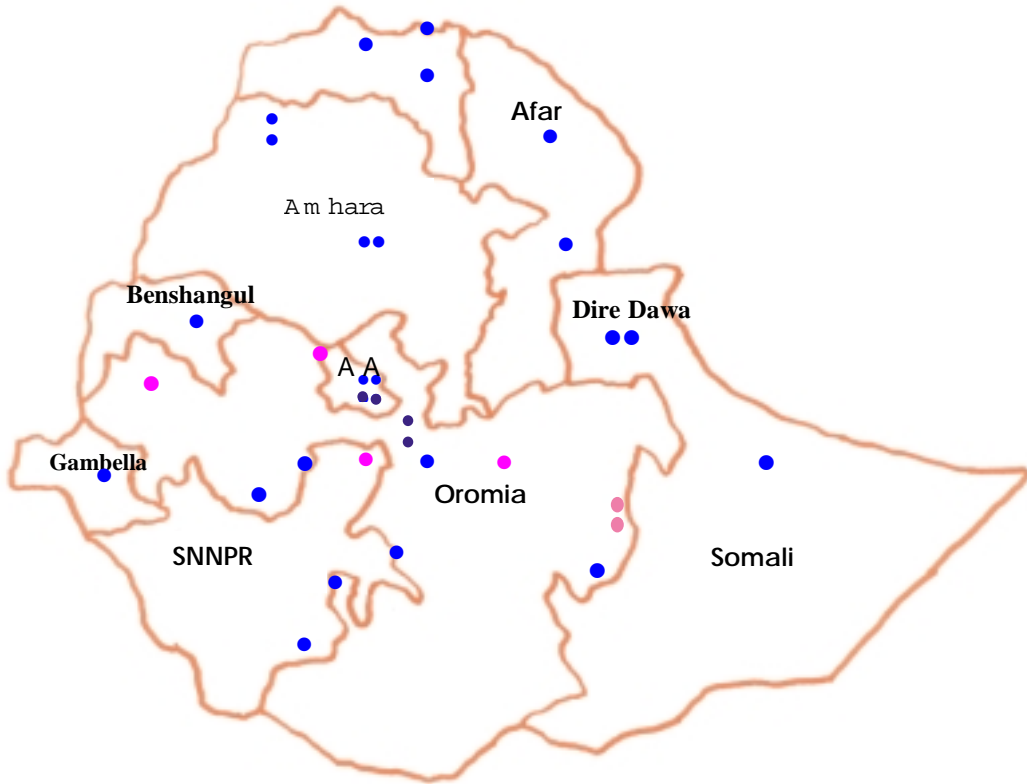
#### 2.1 The Sentinel Surveillance System

HIV sentinel surveillance is defined as the regular testing of selected groups of people for the presence of antibodies for HIV in order to monitor trends in the infection. The process constitutes the systematic collection, analysis, interpretation, and dissemination of sero-prevalence data. The globally accepted method for obtaining data relies on the use of sentinel surveillance. Sentinel surveillance data are collected from health facilities that regularly provide antenatal services to pregnant mothers. Such facilities routinely take blood for a variety of diagnostic purposes, with the sample also tested for sero-positivity. No names are attached to the samples used to test for HIV, thus, each subject's identity remains anonymous.

Sentinel surveillance data are by no means the best type of data to be used to determine HIV prevalence rates. But obtaining data on the sero-status of pregnant women ages 15 to 49 gives a reasonable estimate of the status of males in the corresponding age groups. HIV prevalence among pregnant women also provides an estimate of the prevalence rates among those who caused the pregnancy. Some, however, argue that the use of data from pregnant women tends to overestimate the rates for the general population, given biological reasons, females have a higher probability than males of contracting HIV, other things being equal. Others argue that the use of data from pregnant women ages 15 to 49 may underestimate the true prevalence in the population because fewer females seek out ante-natal care. Furthermore, one of the effects of HIV is reduced fertility by approximately 30 percent. Thus, it is less likely for a woman with HIV to be pregnant than a woman without the infection. This problem remains, by and large, unresolved. Nonetheless, it is the best system so far available of collecting blood samples from a representative sample of the general population.

Hospitals, health centers, and health stations provide antenatal care. Some of these health institutions were selected to serve as sentinel sites based on criteria set out in the national guideline on sentinel surveillance. For example, the third version of "AIDS in Ethiopia" (2000) used 15 surveillance sites. The current version is based on 34 sites, and represents a significant improvement in the database. But, rural sites remain underrepresented. The map below shows the geographic distribution of sentinel surveillance sites. The 2001 round of data collection included six rural and 28 urban sites.

# SENTINEL SITES MAP I N ETHIOPIA-2001



## 2.2 Minimum Requirements for Antenatal Care Facilities to Qualify as Sentinel Surveillance Sites

For health facilities to qualify as sentinel surveillance sites they need to meet certain requirements. Selection of sentinel sites takes into consideration the following as prerequisites:

- ▶ Sustainable antenatal services
- ▶ Access to a functional laboratory (ensuring adequacy of personnel, equipment, and supplies)
- ▶ Adequate client volume for a required sample size (250 to 400)
- ▶ Regular blood drawing for other routine services: for instance, for syphilis screening, haemoglobin , and so forth
- ▶ Sustainable supply of RPR for syphilis screening
- ▶ Commitment of the regional and zonal and Woreda health bureaus to coordinate and carry out sentinel surveillance in a sustainable manner at specified intervals

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# Part Three

## HIV/AIDS Surveillance Results

### 3.1 Use of Computer Models for Data Analysis

The number of pregnant women ages 15 to 49 on whom HIV tests were performed in the six rural and 28 urban sentinel sites totaled 12,689. The data were entered into a computer by using EPI-Info software. HIV prevalence rates were estimated by using a computer model called the EpiModel. The prevalence rates were then exported to the SPECTRUM Model, which includes DemProj (a population projection model) and AIM (AIDS Impact Model).

The model has the capacity to estimate the number of current adult HIV-infected persons and to make projections. The AIM model is designed to estimate the social, economic, and demographic impacts of AIDS by using data from two years before the start of the epidemic as data for a base year.

### 3.2 Database on Which This Report Is Based

This report is based on surveillance data obtained from 34 sentinel surveillance sites across Ethiopia. Estie, a site formerly presumed to be a rural site, (with an HIV prevalence rate of 10.7 percent), was reclassified as urban in the process of analysis because expert group discussions determined, beyond reasonable doubt that it was in fact an urban site. The reclassification of Estie is the primary reason that the 2001 estimate of prevalence presented in this report, is less than the prevalence reported in 2000.

The analysis of data from the 34 sites produced an estimated national adult prevalence rate of 6.6 percent. At this juncture, it is interesting to note that the national HIV prevalence rate of 7.3 percent estimated for 2000 was based on a 5 percent rural prevalence figure, the analysis for that year considered the Estie site as rural. With an estimated population of over 11,000, the town of Estie in South Gonder Zone was initially selected as a rural site on the grounds that the large share of antenatal clients of the health center came from the surrounding countryside, but this was later proved to be not the case.

### 3.3 HIV/AIDS in Urban Areas

As shown in Table 2, the highest urban HIV prevalence in Ethiopia is reported for Bahir Dar (23.4 percent) followed by Jigiga (19 percent). A close third is Nazareth with an HIV prevalence of 18.7 percent. The current estimate for Addis Ababa is 15.6 percent. The Addis Ababa estimate is an average of prevalence rates for four sentinel sites located in



the city. The mean prevalence rates for the 24 urban areas other than Addis Ababa is 12.8 percent. The mean prevalence rate for all urban sentinel sites including Addis Ababa is 13.2 percent. Extrapolating this data onto the total urban population using EpiModel, an urban prevalence rate of 13.7 percent was estimated.

**Table 2. Percentage of Pregnant Women Testing HIV- Positive in 28 Urban Sentinel Surveillance Sites: - 2001**

S.No	City	Region	N	HIV +
1.	Teklehymanot	Addis Ababa	301	16.6
2.	Kazanchis	Addis Ababa	277	17.7
3.	Higher 23	Addis Ababa	308	12.3
4.	Gulele	Addis Ababa	297	15.8
5.	Awassa	SNNP	400	10.0
6.	Dilla	SNNP	347	9.8
7.	Hossana	SNNP	301	5.9
8.	Soddo	SNNP	386	11.6
9.	Ginir	Oromia	354	3.1
10.	Jimma	Oromia	467	8.6
11.	Mettu	Oromia	334	10.5
12.	Nazereth	Oromia	417	18.7
13.	Nekemte	Oromia	495	9.1
14.	Shashemene Hsp	Oromia	487	13.1
15.	Bahir Dar (Hsp)	Amhara	521	19.9
16.	Bahir Dar (HC)	Amhara	379	23.4
17.	Gonder	Amhara	680	15.1
18.	Estie	Amhara	233	10.7
19.	Dire Dawa (HC)	Dire Dawa	330	15.2
20.	Dire Dawa (Hsp)	Dire Dawa	385	8.5
21.	Gambella	Gambella	252	14.6
22.	Harari	Harari	320	9.4
23.	Aasita	Afar	356	12.4
24.	Pawi	Benshangul	270	8.5
25.	Jijiga	Somalia	400	19.0
26.	Adigrat	Tigray	400	16.2
27.	Maichew	Tigray	303	16.8
28.	Mekele	Tigray	400	17.2
	<b>Average</b>		<b>10,400</b>	<b>13.2</b>
<i>95% Confidence Interval : [11.5, 14.9]</i>				



### 3.4 HIV Prevalence Rates in Rural Areas 2001

As indicated , the data in Table 3 on rural prevalence were collected from only six sites. Of the six sites, one is located in SNNPR and five in Oromia region.

Without including Estie, the mean rural prevalence rate of the six rural sites declined from 3.9 to 2.3 percent, but the figures might not represent a realistic picture of the rural situation. In a quest for corroborative evidence, rural prevalence data estimated for 64,000 army recruits of rural background ages 18 and 25 from all over the country was referenced. The estimated HIV prevalence for this group was

**Table 3. Percentage of Pregnant Women Testing HIV Positive at Rural Sentinel Surveillance Sites: 2001**

Sentinel site	Region	Sample size	Prevalence %
Attat	SNNP	355	1.5
Gambo	Oromia	360	1.1
Aira	Oromia	420	2.6
Borena Dadim	Oromia	411	1.7
Borena Gosa	Oromia	340	1.7
Ambo-Toke	Oromia	403	4.6
Average		2289	2.3

*95% Confidence Interval : [1.2, 3.2]*

3.8 percent. Extrapolating the data from the rural sentinel sites and the army recruits survey onto the total rural population using EpiModel, a rural prevalence rate of 3.7 percent was estimated.



### 3.5 The Age Pattern of HIV Prevalence Rates among Pregnant Women 15 to 49 Years

Results of the analysis of 2001 surveillance data for the sample of 12, 689 women from 34 urban and rural sentinel sites reveal that prevalence decreases with age. At a prevalence of 12.1 percent, pregnant women age 15 to 24 years have the highest mean HIV prevalence. Prevalence in the group 15 to 24 years represents “recent” infections and hence demands attention.

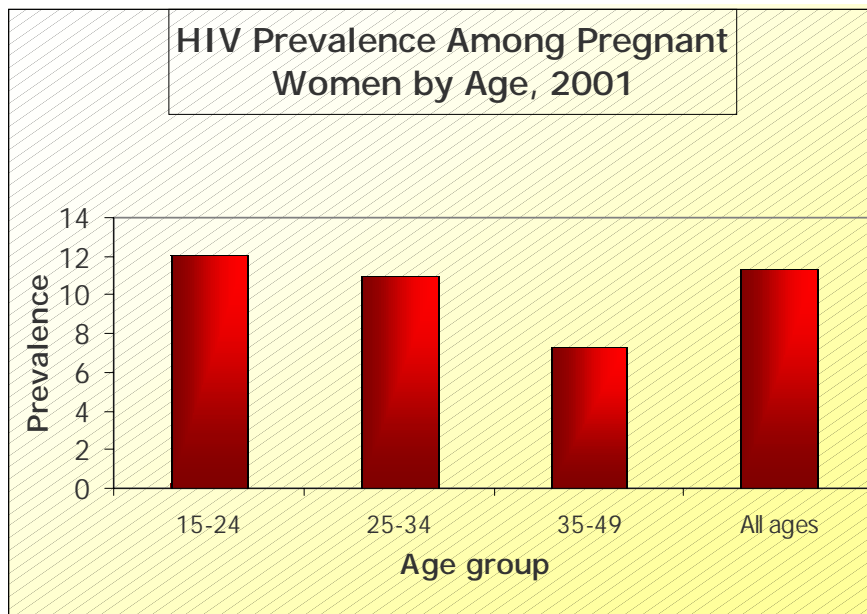


Figure 1

### 3.6 Trends in HIV Prevalence: 1989 -2001

Table 4 summarizes reported time-series data on HIV prevalence for 15 cities and towns including Addis Ababa and 16 new ones. Addis Ababa is the only city for which data were reported for a period of seven years.

**Table 4. Percentage of Pregnant Women Testing HIV Positive by Sentinel Site (Urban and Rural) : 1989-2001**

Site	Year							
	1989	1992-1993	1995	1996	1997	1998	1999-2000	2001
Addis Ababa	4.6	11.2	21.2	17.8	17.5	-	15.1	15.6
Metu	-	10.7	-	-	-	-	4.0	10.5
Gambella	-	-	-	-	12.7	-	19.0	14.6
Dire Dawa	-	12.3	-	-	-	-	13.6	15.2
Awassa	-	-	-	-	-	14.4	11.5	10.0
Attat	-	-	-	-	-	0.8	4.0	1.5
Dilla	-	-	-	-	-	14.5	11.7	9.8
Gambo	-	-	-	-	-	-	0.7	1.1
Hossana	-	-	-	-	-	3.6	4.8	5.9
Aira	-	-	-	-	-	-	2.0	2.6
Soddo	-	-	-	-	-	9.2	10.7	11.6
Shashemene	-	-	-	-	-	-	14.3	13.1
Estie	-	-	-	-	-	-	7.3	10.7
Bahir Dar (HC)	-	13.0	-	-	-	-	20.8	23.4
Diredawa (HC)	-	12.3	-	-	-	-	13.6	15.2
Nazareth	-	-	-	-	-	-	-	18.7
Jigiga	-	-	-	-	-	-	-	19.0
Mekele	-	-	-	-	-	-	-	17.2
Machew	-	-	-	-	-	-	-	16.8
Adigrat	-	-	-	-	-	-	-	16.2
Borena Dadim	-	-	-	-	-	-	-	1.7
Borena Gosa	-	-	-	-	-	-	-	1.7
Ambo Toke	-	-	-	-	-	-	-	4.6
Jimma	-	-	-	-	-	-	-	8.6
Nekemet	-	-	-	-	-	-	-	9.1
Ginir	-	-	-	-	-	-	-	3.1
Asita	-	-	-	-	-	-	-	12.4
Diredawa (Hsp)	-	-	-	-	-	-	-	8.5
Bahir Dar (Hsp)	-	-	-	-	-	-	-	19.9
Gonder HC	-	-	-	-	-	-	-	15.1
Pawi	-	-	-	-	-	-	-	8.5



Sentinel surveillance started in Addis Ababa in 1989 and in three other urban centers in 1992-1993. Only Addis Ababa was able to continue collecting samples yearly except for 1998 from the first round in 1989 to 2001.

The graphic representations labeled as Figures 2(a) and 2(b) show trends in HIV prevalence from 1989 to 2001. The data for Addis Ababa show that after a relatively steep increase between 1989 and 1995, a period of gradual decline started around 1995. The decline has continued until the present, an HIV prevalence of 15.6 percent is currently reported. Other things being equal, the available data show that the HIV prevalence in Addis Ababa appears to be levelling off and may even improve further if prevention and control efforts are sustained.

Figure 2(a). Patterns of Change in HIV Prevalence in Addis Ababa: 1989-2001

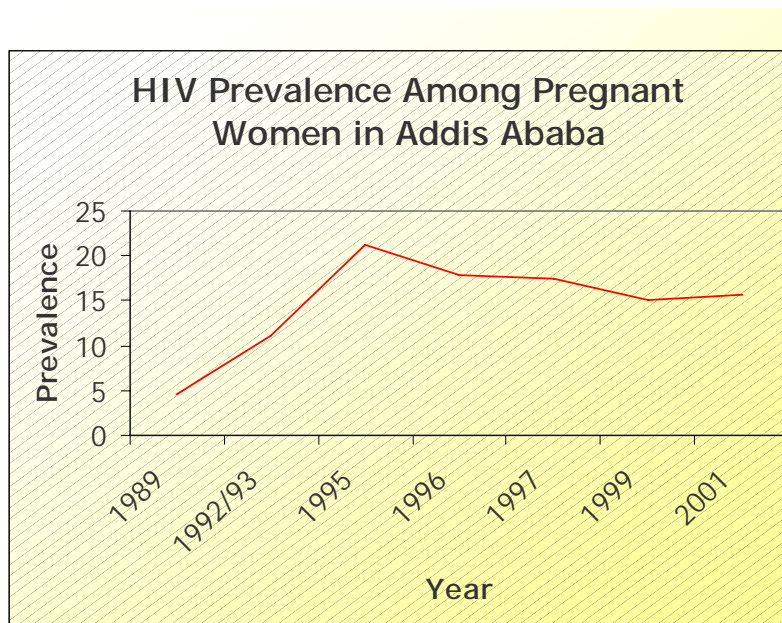
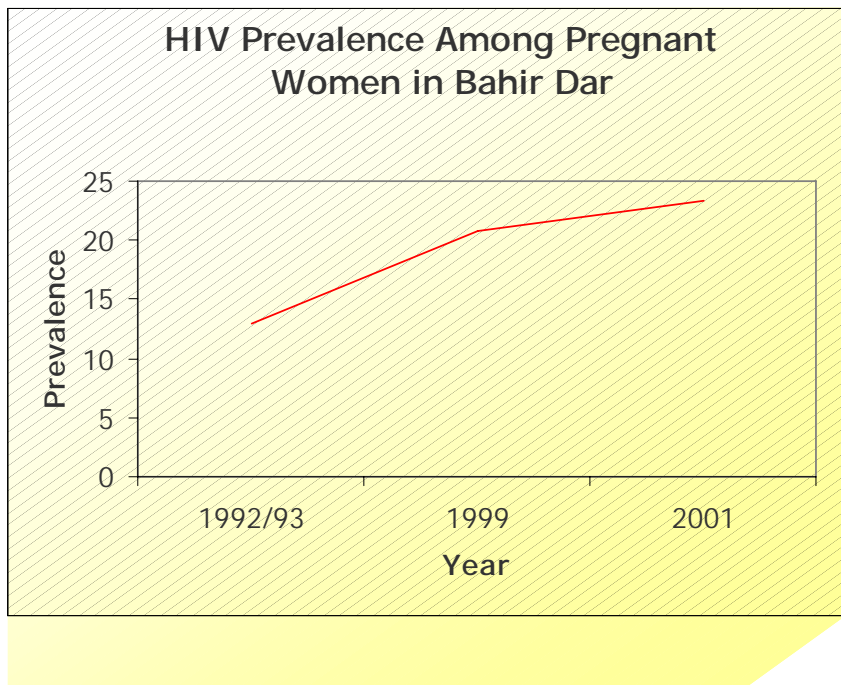


Figure 2a

The prevalence rate in Bahir Dar presents a different picture. Bahir Dar has the highest prevalence of all registered sites in the country. However, the available data do not permit trend analysis.

Figure 2(b) Patterns of Change in HIV prevalence in Bahir



### 3.7 Age and Sex Distribution of Reported AIDS Cases:

The Disease Prevention and Control Department of the Ministry of Health compiles reports of AIDS cases from hospitals around the country. The bar chart presents the distribution of these cases by age and sex. Each vertical bar shows the number of reported AIDS cases in a particular age group. Males are shown with the red bar, females with the yellow bar.

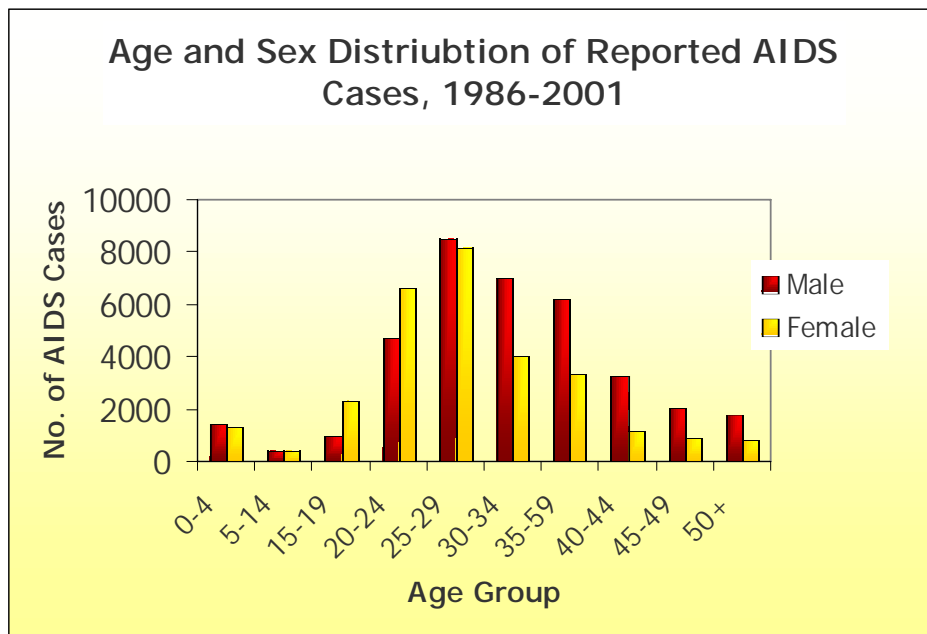


Figure 3

This chart illustrates several important facts:

- ▶ About 91 percent of infections occur among adults between 15 and 49 years. Given that the age range encompasses the most economically productive segment of the population, the higher number of cases adversely affects labor productivity and hence economic development. The age range also represents that period of life when investments in education are just beginning to pay off.

- ▶ The number of male and female cases is roughly equal because most infection is, by and large, acquired through heterosexual contact.
- ▶ The peak ages for AIDS cases are 20 to 29 for females and 25 to 34 for males. Given that the average incubation period between the time of infection and the emergence of full-blown diseases is about eight years, the mean age at which people become infected must be 15 to 24 years for females and 25 to 34 years for males.
- ▶ The number of females infected between 15 to 19 years is much higher than the number of males in the same age group. The discrepancy may be attributable to earlier sexual activity among young females and the fact that they often have older partners.
- ▶ There have been a significant number of AIDS cases reported among young children. Most of these may have received it from their mothers during gestation or at the time of birth or through breast-feeding.
- ▶ The absence of many AIDS cases among those five to 14 years shows that infection is not transmitted by agents such as mosquitoes or through casual contact such as shaking hands or kissing. The use of non-sterilized skin piercing instruments might account for the transmission of the virus in this and lower age groups.
- ▶ Children between the ages of five and 14 represent few cases of AIDS; they are the “Window of Hope”. If these children can be taught to protect themselves from HIV infection before they become sexually active, they can remain free of HIV for their entire lives. But action must be taken now, because rates of new infection are high once children reach 15 to 19 years of age.



### 3.8 Estimated Number of Persons Living with HIV/AIDS by Age and Sex: 2001

Data on age-specific HIV prevalence rates reported in Section 3.5 have shown that the highest infection rates are concentrated among the group 15 to 24 years and to a slightly lesser extent among the group 25 to 34 years. Yet, in terms of absolute numbers, the highest concentration of HIV-infected persons is found in the groups 20 to 24 years and 25 to 29 years, particularly in the case of females.

The highest concentration of infected males is found among in both age-groups 20 to 24 years and 25 to 29 years. The HIV prevalence rates as well as the number of infected persons seem to decline with age. The implication is quite clear. It is the population in the most productive age group that is primarily affected by HIV.

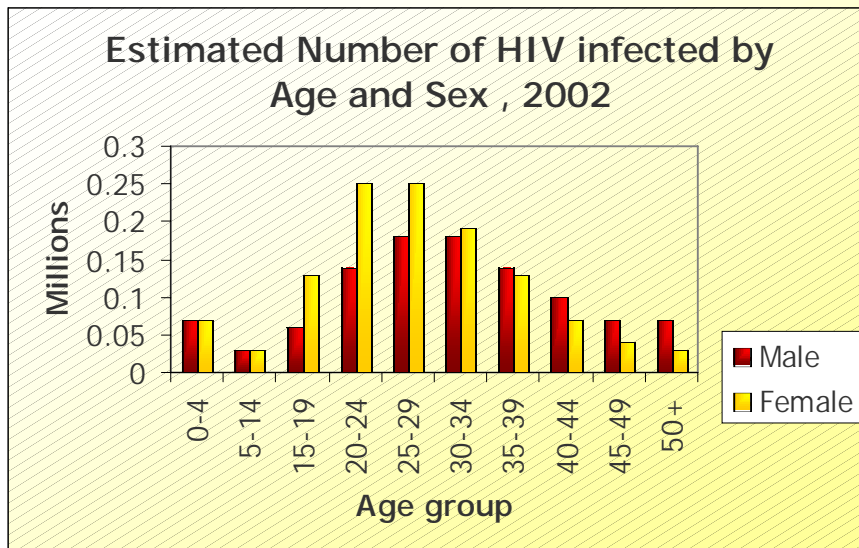


Figure 4

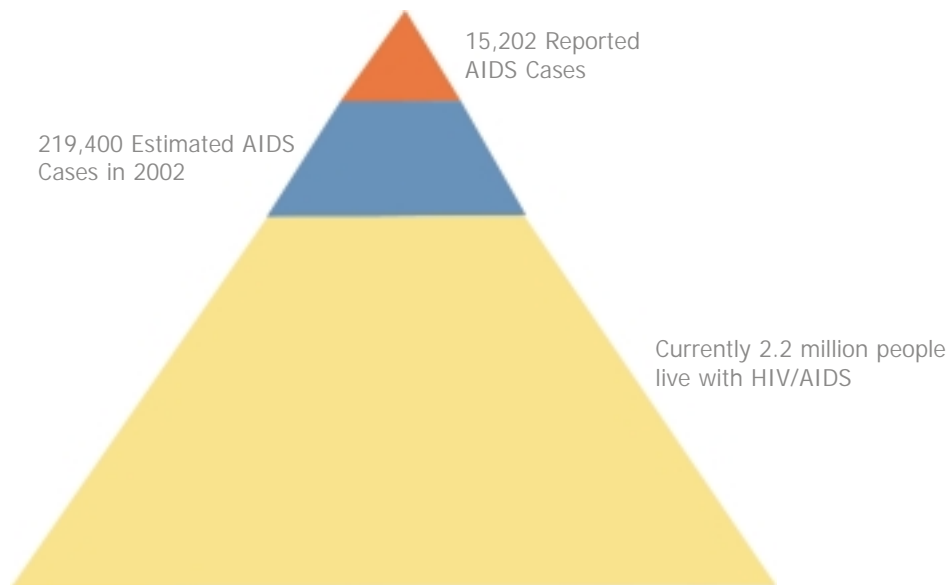
### 3.9 The HIV/AIDS Pyramid

Since the beginning of the AIDS epidemic, the Ministry of Health has received reports of 107,575 cases of AIDS. These reported AIDS cases represent only the visible part of the epidemic. However, there is much more to the epidemic than is revealed by the number of reported cases. For a number of reasons, such as the following, many AIDS cases go unreported:



- ▶ Most people never seek medical care for AIDS.
- ▶ Some people with HIV infection may die of other diseases before they are never diagnosed as having AIDS.
- ▶ Most rural hospitals and district health care facilities may not have the capability to test for HIV infection.
- ▶ Most private laboratories do not report data.

### HIV/AIDS Pyramid - 2002



It is estimated that about 2.2 million people in Ethiopia are currently infected with HIV/AIDS, including about 2 million adults and 200,000 children. Most people do not know that they are infected because they have no visible symptoms they can easily recognize. However, almost all will develop AIDS and die within the next 10 years or so.

- ▶ The red portion of the pyramid is the number of new AIDS cases reported to the Ministry of Health in 2001
- ▶ The blue portion of the pyramid represents the estimated number of new AIDS cases in 2001.
- ▶ The yellow portion of the pyramid represents the total number of persons living with the virus, including those with full-blown AIDS cases in 2001



### 3.10 Preliminary Finding Behavioral Surveillance Survey (BSS): June 2002

Surveillance data used to measure and monitor trends in HIV and STI prevalence need to be linked with behavioral factors for effective prevention and control of HIV/AIDS. Goal attainment in the prevention and control of the HIV/AIDS epidemic is facilitated by an effort to bring about changes in behavior and practice. UNAIDS, WHO, FHI and others have developed a new framework for HIV surveillance. This framework, known as Second Generation HIV Surveillance, stresses the need to design a surveillance system that includes an assessment of attitudinal and behavioral factors that tend to feed the epidemic. It particularly emphasizes the importance of using behavioural data to inform and explain trends recorded in HIV infection in a population, and advocates for more extensive use of behavioural data in planning and evaluating an appropriate response to HIV.

The Behavioral Surveillance Survey (BSS), a second generation surveillance tool, was introduced in Ethiopia in 2001 to complement the extensive sero-prevalence and HIV surveillance systems instituted nationally. Ethiopia is currently experiencing a generalized HIV epidemic among the overall population. A “generalized” epidemic is defined as an HIV prevalence among sexually active adults in the general population that has surpassed 1 percent. However, specific high-risk groups such as sex workers, youth, and mobile populations demonstrate increased prevalence levels compared with the general population.

At the start of the BSS process in Ethiopia, the HAPCO called a meeting that brought together all stakeholders (both national and international organizations working in HIV/AIDS in Ethiopia) to discuss the target populations and sites to be included in the first round of the BSS. Addis Ababa University's, Department of Community Health implemented the first round of the BSS with technical support from Family Health International. An ethical clearance was obtained from the Ethiopian National Science and Technology commission.

Because of the high prevalence of HIV in Ethiopia and the size of the target groups and the groups' importance to the national economy, the following population groups received high priority in the prevention and control of HIV/AIDS in Ethiopia: (1) school and out-of-school youth, (2) female sex workers, (3) military personnel, (4) farmers and pastoralists, (5) long-distance drivers, and (6) factory workers.

The fieldwork for the BSS Round 1 in Ethiopia was conducted from December 2001 to June 2002. The basic objectives of the BSS are to: (1) provide a description of the basic sociodemographic characteristics of the target groups; (2) identify risk behaviors

necessitating interventions among subpopulations; (3) identify priorities for planning prevention programs and for appropriately distributing limited resources; (4) establish a baseline for monitoring trends and patterns in risk behaviors; (5) provide information to explain changes in HIV prevalence; (6) provide essential information for advocacy and policy making; and (7) provide information to measure program impact.

#### Summary Findings from the BSS

- ▶ About 98 percent of the study population is aware of HIV/AIDS.
- ▶ Almost all groups know at least one prevention method.
- ▶ Nearly 60 percent know all three prevention methods.
- ▶ Knowledge of prevention methods increases with the number of media source for AIDS messages.
- ▶ Nearly two out of three young people out of school reported that they are sexually active and had sex with two or more partners in the last year.
- ▶ In some areas, sexually active girls out of school are even more likely than boys to report multiple partners.
- ▶ Condom accessibility and cost are not barriers to condom use among most groups.
- ▶ Condom use is high among commercial sex workers.
- ▶ Significant proportions of respondents do not always use condoms with non-regular partners, though they know condoms protect from HIV/AIDS.
- ▶ A little more than one out of five married respondents who have had multiple partners in the last 12 months do not always use a condom.
- ▶ Forty-seven percent of respondents have ever tried drugs.
- ▶ About two-thirds of respondents who consume “Chat” at least weekly and drink alcohol once a week have had recent unprotected sex with a nonmarital partner.
- ▶ Commercial sex is more common among mobile men with money.
- ▶ Noncommercial sex is relatively very high among in and out of school youth.
- ▶ Misconceptions about HIV/AIDS transmission remain high in almost all groups and regions.
- ▶ Misconception about HIV/AIDS are high irrespective of level of knowledge.
- ▶ Own-risk perception is very low in almost all target groups.
- ▶ Most respondents who had unprotected sex with nonmarital partners do not feel that they are at risk.
- ▶ Despite a high level of knowledge, a significant proportion of the population, particularly the young, is at high risk of HIV infection.

(Source : Preliminary BSS reports)



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# Part Four

## Estimates and Projections

### 4.1 The Purpose of Projections:

The purpose of this report is not only to describe the past and current situations but also to use the available data to project what the future is likely to hold under a given set of assumptions. The report makes projections in terms of number of the basic features of the HIV/AIDS epidemic, such as future trends in HIV prevalence, trends in the number of persons likely to be infected with HIV. AIDS and its impact on population dynamics, and so forth. All estimates and projections attempt to provide a picture of what may happen if nothing were done.

### 4.2 Basic Assumptions:

The base year for the 30 year projection is 1984, when Ethiopia officially acknowledged the first HIV cases. Fertility and mortality assumptions were taken from the estimates and projections of the United Nations Population Division (United Nations, 1995)

Given that the data used in projecting future trends in the various features of the HIV epidemic are sentinel surveillance data on pregnant women 15 to 49 years, the projections rest on the assumption that the data based on pregnant females also apply to males of the same age group and for the adult population as a whole. Thus, by assuming a predictable annual rate of change in the HIV prevalence rate, projections describe reasonable estimates of prevalence at the end of the projection period and for the years in between.

*All estimates & projections try to provide a picture of what would happen if nothing were done.*



### 4.3 Estimated and Projected HIV Prevalence Rates

While the presence of HIV was sensed in 1984, the first two officially acknowledged cases were reported in 1986. Below is a graph presenting the annual estimates and projections of adult HIV prevalence from 1984 to 2014. The estimated adult HIV prevalence rate for 2001 is 6.6.

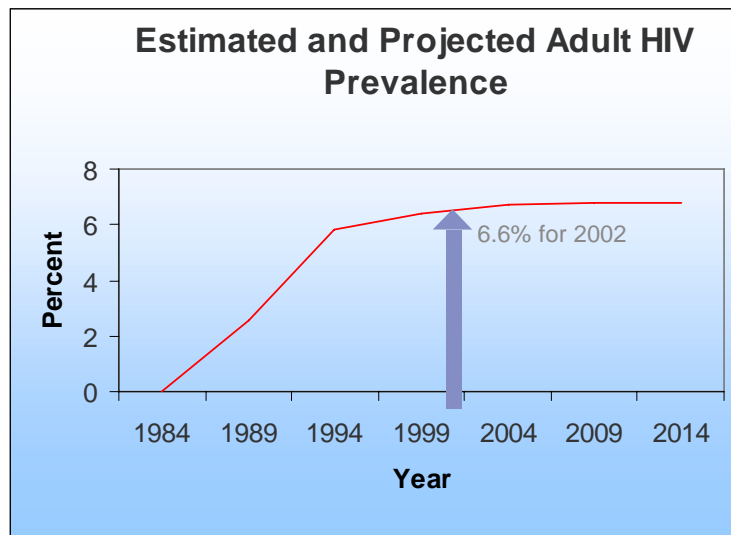


Figure 5

The period between 1984 and 1994 is characterized by a steep rise in the HIV prevalence rate followed by a period of moderation between 1994 and 2004. From 2004, it is expected to level off at a prevalence rate of 7 percent.

#### 4.4 Estimated and Projected Number of Persons with HIV/AIDS

The determination of the projected number of persons who would be infected with HIV over the coming 12 years rests on the assumption that HIV prevalence rates obtained at the end of each five years is as indicated in the graph. According to the model used for estimating the number of persons living with HIV/AIDS (PLWHAs), the estimate is 2.2 million HIV positive and AIDS cases in 2001. This figure would increase in a more or less, consistent manner over the coming 12 years. For example, from 2.2 million, persons in 2001 it would increase to 2.6 million in 2006 and to 2.9 million by 2010.

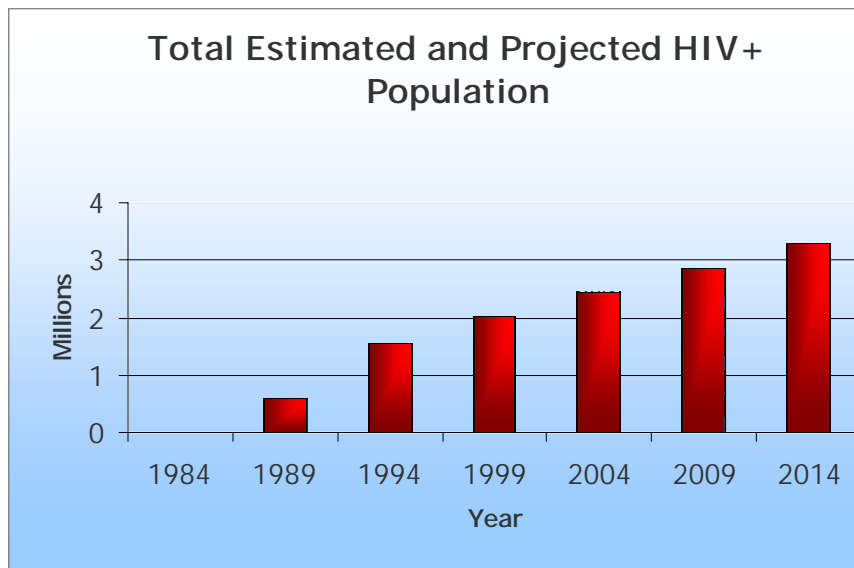


Figure 6

#### 4.5 Estimated and Projected New AIDS Cases

The process of estimating the number of HIV positive persons who would become AIDS cases at some specified future date rests on what is known to be the prevailing incubation period. For the purpose of the present exercise the assumed incubation period is eight years.

On the basis of this assumption, the number of AIDS cases increased from near zero in the early 1980s to nearly 103,350 in 1994, and to 189,850 in 1999. If this trend continues the total number of persons with full-blown AIDS in 2014 would be 322,310.

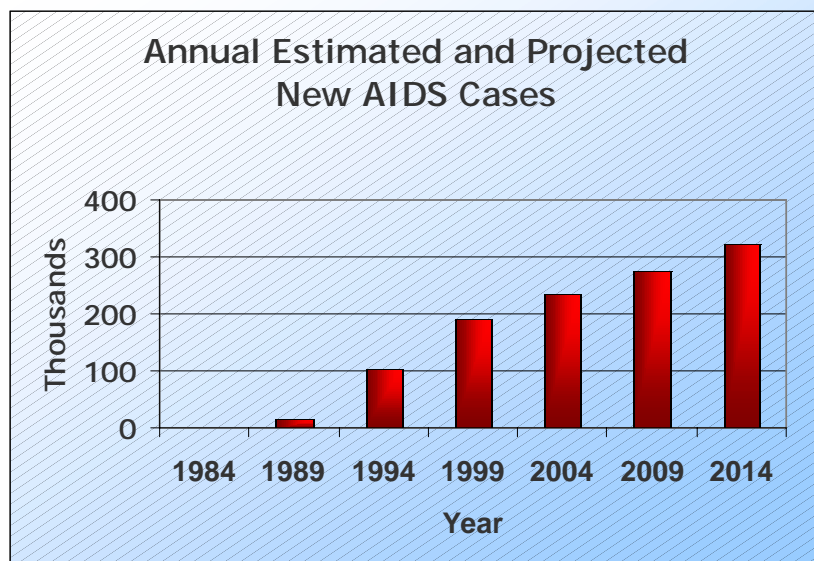


Figure 7

# Part Five

## Impacts of HIV/AIDS

### 5.1 Increase in General Mortality Rates:

One of the most visible impacts of HIV/AIDS on human welfare is its impact on both general and age-specific mortality rates. The rapid increase in AIDS related mortality, particularly in low-income countries, is eroding the gains made in reduced mortality and increased survival probabilities at all ages. It is also reducing life expectancy at birth as well as at older ages.

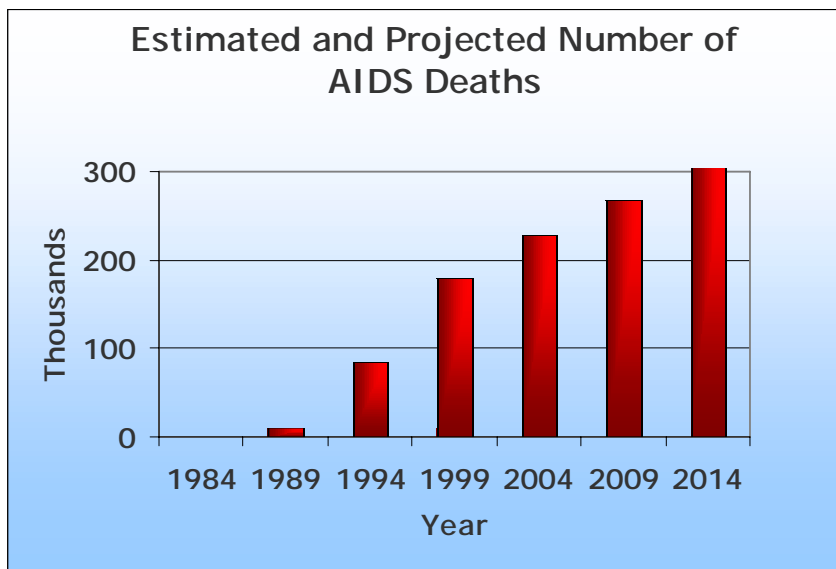


Figure 8



Figure 9 illustrates a mortality picture with AIDS taken into account and without AIDS taken into account. Clearly, without taking AIDS into account, the number of persons dying seems to be constant, with taking AIDS into account, the number of persons dying with AIDS fairly steep increase.

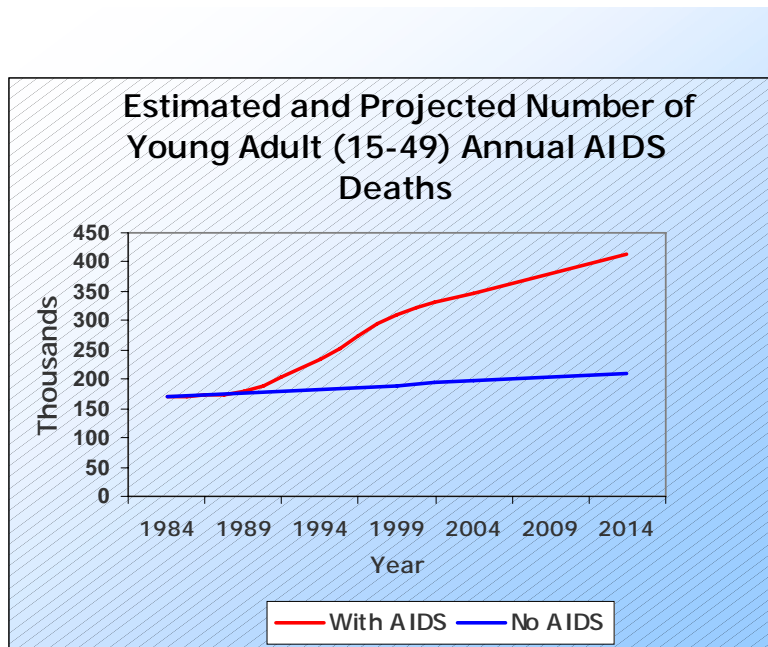


Figure 9

## 5.2 Impact on Child Survival

AIDS also affects child survival. About 30 to 40 percent of infants born to infected mothers are likely to be infected with HIV. Most of these babies will develop AIDS and die within two years. Few will survive past the age of five. AIDS is undoubtedly already a major cause of child death.

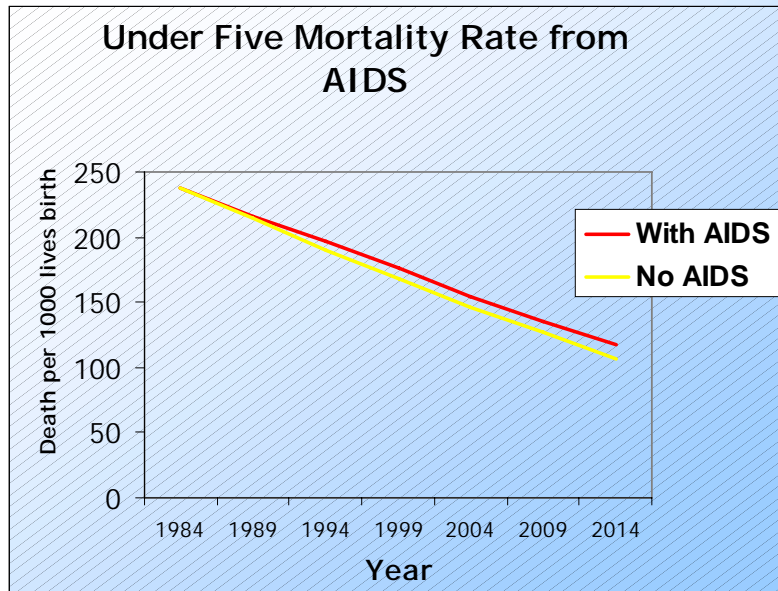


Figure 10

The infant mortality rate is defined as the number of infants, who die during the first year of life per 1,000 live births, while the child mortality rate is the number of children who die before their fifth birthday per 1,000 live births. Until the onset of the HIV epidemic, both rates were declining, though, at moderate rates for several decades.

More specifically, the child mortality rate declined from 240 deaths per 1,000 population in 1984 to about 160 during the first two years of the 21st century. But the rate of decline slowed beginning around 1996-1997 and will remain slightly lower until 2014 - the end of the projection period as indicated by the gap between the red and the yellow lines in Figure 10.

### 5.3 The Impact of HIV/AIDS on Life Expectancy

One dramatic but not so visible consequence of HIV/AIDS is that it adversely affects the life expectancy at birth as well as at older ages. In Ethiopia, life expectancy at birth in 1989 was estimated at 45 years and was expected to increase to 53 by 2001, 55 by 2007 and 59 by 2014, barring major destabilizing events. But this major destabilizing agent appeared in the form of HIV/AIDS. As Figure 11 suggests, the effect of HIV/AIDS related deaths began to be observed around 1989 and since the time the gap between death without the impact of AIDS and death with the impact of AIDS began to widen until the two began to run parallel to each other maintaining the same width until the end of the projection period.

The increase in HIV-related deaths drastically slowed the rate of growth in life expectancy. Estimates taking into account the impact of AIDS resulted in life

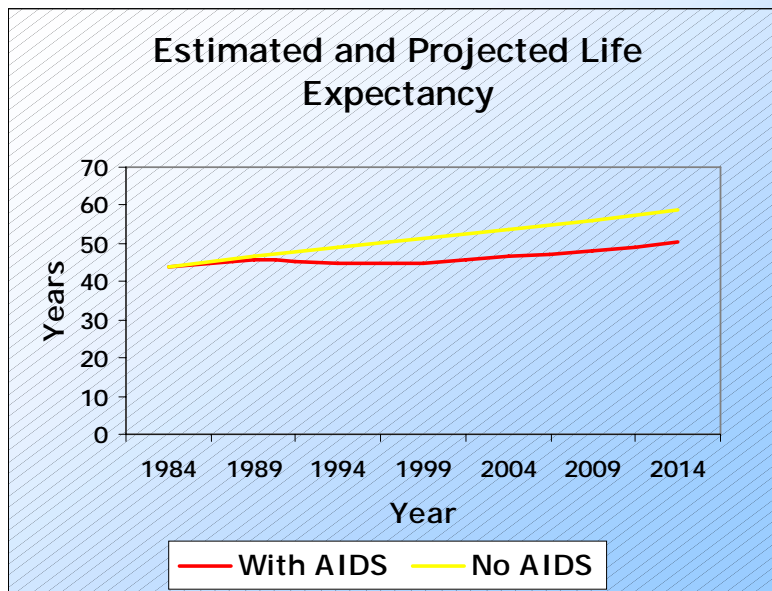


Figure 11

expectancy of 46 years instead of 53 years in 2001, and 50 years instead of the expected 59 years in 2014.

#### 5.4 The Impact of AIDS on Population Size and Growth

The goal of reducing population size relative to population sustaining resources is pursued in a positive rather than a negative approach. The major feature of population planning is to balance the relationship between supply and demand by regulating the number of new entrants into a population. The supply side is regulated through economic development and the demand side is regulated through fertility control.

The AIDS pandemic is killing individuals who are already in the population, and most of these individuals are within the productive and reproductive age groups. With or without AIDS, the population of Ethiopia has been growing steadily. From a little more than 40 million in the mid 1980s Ethiopia's population increased to approximately 57 million in the mid-1990s and will reach 91 million in 2014 - the end of the projection period.

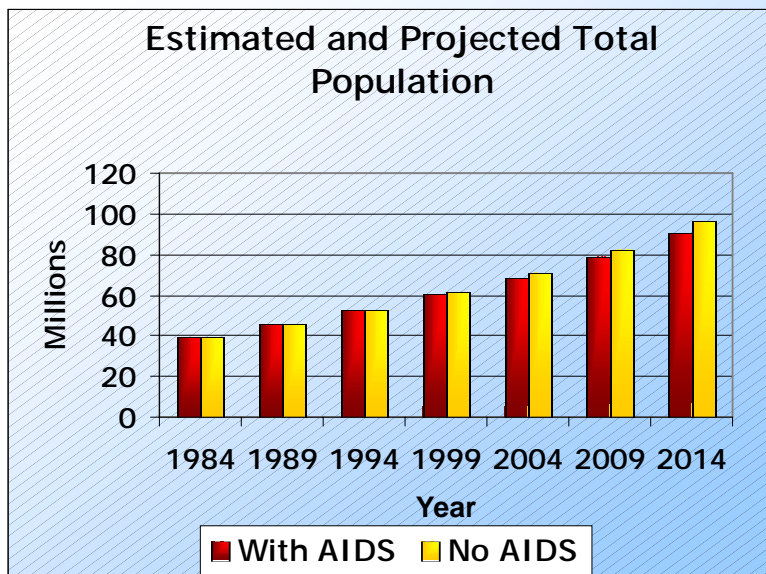


Figure 12

## 5.5 Orphans and Vulnerable Children

One serious consequence of AIDS related deaths to men and women in their prime child rearing ages is an increase in the number of orphans. An AIDS orphan is defined here as a child under the age of 15 who has lost its mother to AIDS. In reality, given the importance of heterosexual transmission in the spread of the virus, many children are likely to lose both parents. In view of the prevailing AIDS-related general and age-specific death rates, the number of orphans in Ethiopia would increase from 1.2 million in 2001 to 1.8 million by 2007 and to 2.5 million in 2014 (see Figure 13), other things being equal. Clearly the increase in the number of orphans is likely to aggravate the already severe problem of homeless children who seek to make a living out of working and living in urban streets.

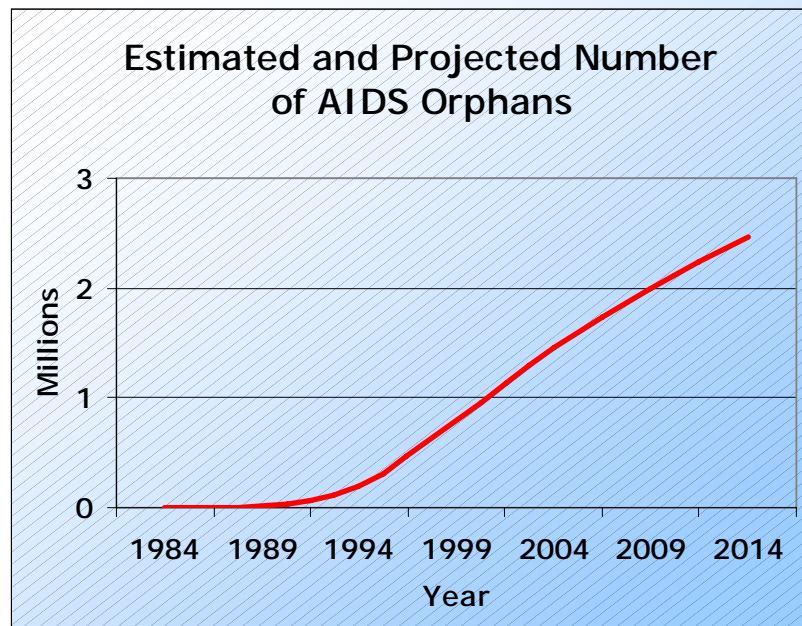


Figure 13

## 5.6 HIV and Tuberculosis

Efforts in the past 20 years to control tuberculosis had been showing some success. However, of late, the number of TB cases in Ethiopia has been rising rapidly, as a consequence of the spread of HIV. HIV infection weakens the immune system of otherwise healthy adults. Probably, one-half, of all adults carry a latent TB infection that is suppressed by a healthy immune system. When HIV weakens the immune system, it can no longer keep TB suppressed. This is not, however to say that people cannot contract TB without being HIV positive. The number of TB cases is projected to increase as shown by the blue curve in figure 15 below. The number of TB cases which was estimated by taking into account the compounding effect of AIDS at approximately 50,000 in 1984, increased to nearly 82,680 in 1989 and

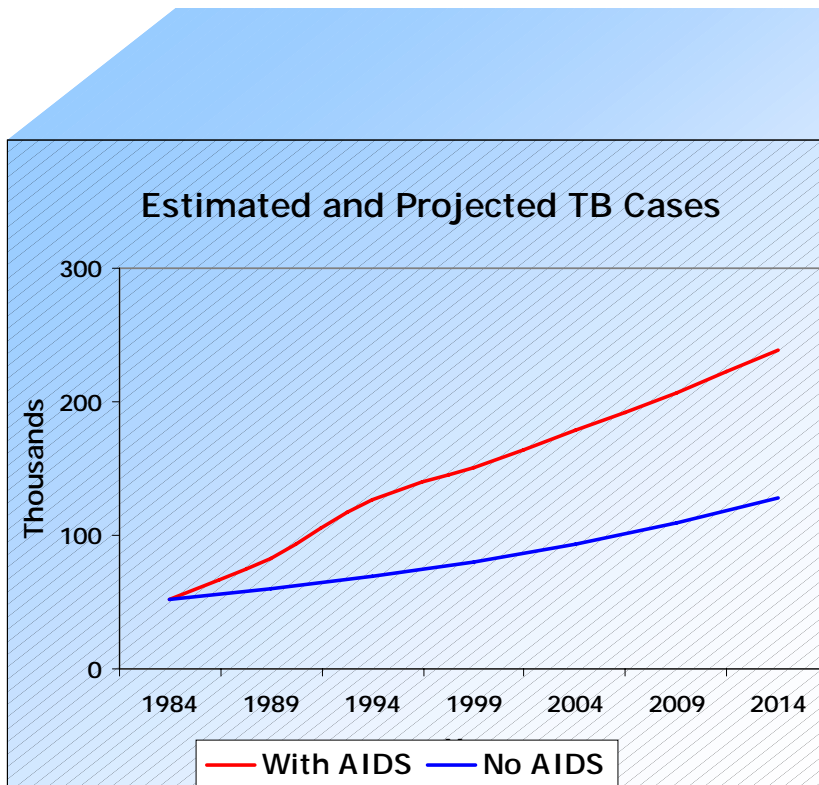


Figure 14

further increased to approximately 126,830 in 1994. By 2014, the number of TB cases is expected to increase to about 238,820.

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# Part Six

## Summary and Conclusion

The fourth edition of “AIDS in Ethiopia” is based on 34 urban and rural sentinel surveillance sites in contrast to the third edition, in which the number of sites from which surveillance data were collected was only 15. The sample of pregnant women 15 to 49 years involved in the present study totaled 12,689.

### The report depicts the following about the HIV/AIDS situation in Ethiopia:

1. The HIV prevalence rate for the country as a whole is estimated at 6.6 percent 2001.
2. The estimated HIV prevalence rate for urban areas is 13.7 percent.
3. Prevalence rates for some urban centers other than Addis Ababa are much higher than the rate for Addis Ababa.
4. The estimated rural prevalence rate is 3.7 percent, which is 25 percent of Addis Ababa's rate.
5. HIV seems to be driving the TB epidemic in Ethiopia
6. The highest prevalence of HIV is seen in the group 15 to 24 years of age. The figure is worrying as it represents “recent” infections.
7. There are some encouraging signs that the HIV prevalence is leveling off in some areas of the country

### The social costs of HIV/AIDS manifest themselves in a number of ways, including:

1. an increasing number of orphans many of whom are reduced to abject poverty from lack of alternative care and protection, and
2. the negative economic and social impact HIV/AIDS on worker productivity, as manifested in the loss of experienced human power in the workplace as well as the social and economic implications of loss of income at the household and community levels.

Considerable efforts have been made to increase educational opportunities, to improve the accessibility of health services to the population, and to increase the percentage of the total population engaged in productive activities. Past and current empirical data, though inadequate, show that HIV/AIDS is adversely affecting education, health services and economic productivity in Ethiopia. Deaths are increasing among young professionals. Hospital bed occupancy rates for HIV/AIDS are also increasing. These facts need to be substantiated with empirical data as part of the national effort to supply policy makers and program managers with up-to-date information upon which to base action and national priorities.



**The following conclusions can be drawn from the analysis of the field data used as a basis for this report:**

1. The database for estimating rural prevalence rates is inadequate for the estimation of a more realistic HIV prevalence rate.
2. Greater attention needs to be directed at assessing the economic and social impact of HIV/AIDS.

**In view of the above, the following measures need to be taken:**

1. To deal temporarily with the problem of inadequate sources of data for estimating rural prevalence the sample size requirements can be met by collecting data from small sites and aggregating them to meet the minimum sample size requirement.
2. Efforts need to be made to increase the capacity of existing health facilities to perform HIV tests.
3. Research, through the collaboration of the government, NGOs and civil society, should be conducted to determine the impact of HIV on worker productivity, on the educational system, on the cost of health care, and so forth.
4. More efforts need to be made to involve public and civil society resources to provide care and support to PLWHAs, orphans and their families.



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## annexes

### Annex 1

#### Blood Donors Report

No.	Region	Prevalence	Year
1	Addis Ababa	4.4	2001
2	Afar	N.A	
3	Amhara	8.1	2001
4	Benshangul	N.A	
5	Dire Dawa	N.A	
6	Gambela	N.A	
7	Harari	6.8	2000-2002
8	Oromia	5.5	2000-2001
9	SNNPR	5.1	2001
10	Somali	9.2	2001-2002
11	Tigray	3.7	2002
	National	6.1	2000-2002

## Annex 2

### VCT Centers in Addis Ababa

No.	Centers	Telephone Address
1	Bethezata Higher Clinic	533453
2	Blue Nile Higher Clinic	614351
3	Arsho Electronic Laboratory	111483
4	Tirat Higher Clinic	660240
5	St. Gabriel Hospital	613622
6	D' Afrique Higher Clinic	526255
7	Addis Ababa Poly Clinic	
8	Medical Missionary of St. Marry	565115
9	Menaharia Higher Clinic	
10	Global Medium Clinic	
11	Tekle Haimanot Higher Clinic	
12	Hayat Hospital	
13	Haya hulet Matoria Higher Clinic	614821
14	Prime Higher Clinic	508990
15	Tikur Anbesa Hospital	511211
16	Balcha Hospital	513205
17	Zewditu Hospital	150164
18	CARE Ethiopia Kazanchis Health Center	518681
19	OSSA	767652
20	Rabie Higher Clinic	

