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AIDS in Kenya

Background
Projections
Impact
Interventions

Prepared by:
National AIDS and STDs Control Programme
Ministry of Health
National Council for Population and Development
Office of the Vice-President & Ministry of Planning
and National Development

**AIDS in Kenya:
Background, Projections, Impact and Interventions**

**Edited by:
TM Okeyo, GM Baltazar, J Stover, A Johnston**

Third Edition, 1996

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List of Abbreviations

AIDS	Acquired immune deficiency syndrome
APS	AIDS Programme Secretariat
AZT	Zidovudine
GDP	Gross National Product
GPA	Global Programme on AIDS
HIV	Human immunodeficiency virus
MTP	Medium term plan
NASCOP	National AIDS and STDs Control Programme
NCPD	National Council for Population and Development
NGO	Non-governmental organization
RAPID	Resources for the awareness of population impact on development
SDDMS	Senior deputy director of medical services
STDs	Sexually transmitted diseases
TB	Tuberculosis

Foreword

AIDS has quickly become a very serious problem in Kenya. By June 1996 over 65,000 deaths due to AIDS had been reported to the Ministry of Health. This booklet and the presentation on which it is based are intended to provide accurate information about the current status of the epidemic, the likely future consequences and the programmes that can combat it.

This booklet and the companion presentation have been prepared through a joint effort of the Kenya National AIDS and STDs Control Programme (NASCOP) and the National Council for Population and Development (NCPD). This effort has also benefited from the feedback provided by many individuals who saw early versions of the presentation. We welcome additional comments from people who read this booklet so that future versions can be improved.

Finally, I would like to thank the United States Agency for International Development for financial support, The Futures Group International and Research Triangle Institute for technical assistance provided through the RAPID Project and The World Bank for financing the printing of the booklet.



Dr. Martin Kayo/SDDMS
Programme Manager
National AIDS and STDs Control Programme
June 1996

Introduction

The disease called AIDS, Acquired Immune Deficiency Syndrome, has become a serious health problem in many countries around the world. Over one million AIDS cases worldwide have been reported to the Global Programme on AIDS (GPA) as of the end of July 1995. GPA estimates that the actual number of cases is about 4.5 million. In addition, another 20 million people are estimated to be infected with HIV, Human Immunodeficiency Virus, the virus that causes AIDS. (A person can be infected with HIV without having any of the symptoms of the disease. During the 5 to 10 year period before a person develops symptoms, that person can transmit the infection through sexual contact to other, uninfected people.) In sub-Saharan Africa about 11 million people are infected.

The virus that causes AIDS already infects many Kenyans. For every 13 adults, one is infected. In urban areas, one out of every eight adults is infected. Most of these people do not know they are infected. In Kenya more than 200,000 people have already developed AIDS since the beginning of the epidemic (although only about one-third of these have been recorded in the official health statistics). Since there is no cure for AIDS, this disease threatens the social and economic well-being of the country. However, this is not inevitable. If we act now, there is much we can do to slow the spread of AIDS.

This booklet is intended to provide information about the AIDS epidemic in Kenya. This material is also available as a slide or interactive computer presentation. The information is provided in four sections:

Background:	What we know about AIDS in Kenya today
Projections:	The number of people who might develop AIDS in the future if current trends continue
Impacts:	The social and economic impacts of AIDS
Interventions:	What needs to be done to prevent the spread of AIDS

Requests for presentations of this material or copies of this booklet should be directed to the National AIDS and STDs Control Programme or the National Council for Population and Development. Their addresses are located on the last page.

I. Background

The HIV/AIDS pyramid

Sentinel surveillance results

Current estimates of HIV prevalence

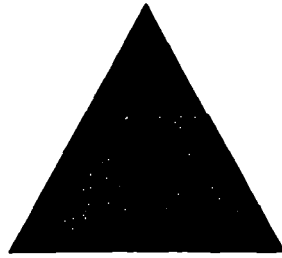
Transmission mechanisms

Incubation period

Age distribution of reported AIDS cases

Frequently asked questions

The HIV/AIDS Pyramid



65,647 Reported AIDS
Cases (June 18, 1996)

200,000+ Actual AIDS
Cases

1,100,000 Additional
HIV Infections

(1995 estimate)

The HIV/AIDS Pyramid

There have been 65,647 cases of AIDS reported to the Ministry of Health since the beginning of the AIDS epidemic in Kenya through June 1996. AIDS has spread throughout the country; cases have been reported from every district. These reported AIDS cases represent the visible part of the epidemic. This is what most people see. However, there is much more to the epidemic than the number of reported cases.

We know that not all AIDS cases are reported. This can happen for several reasons:

- some people never seek hospital care for AIDS,
- some doctors may not want to record a diagnosis of AIDS because of the stigma attached to AIDS,
- some people with HIV infection may die of other diseases before they are ever diagnosed as having AIDS, and
- some rural health care facilities may not have the capability to test for HIV infection.

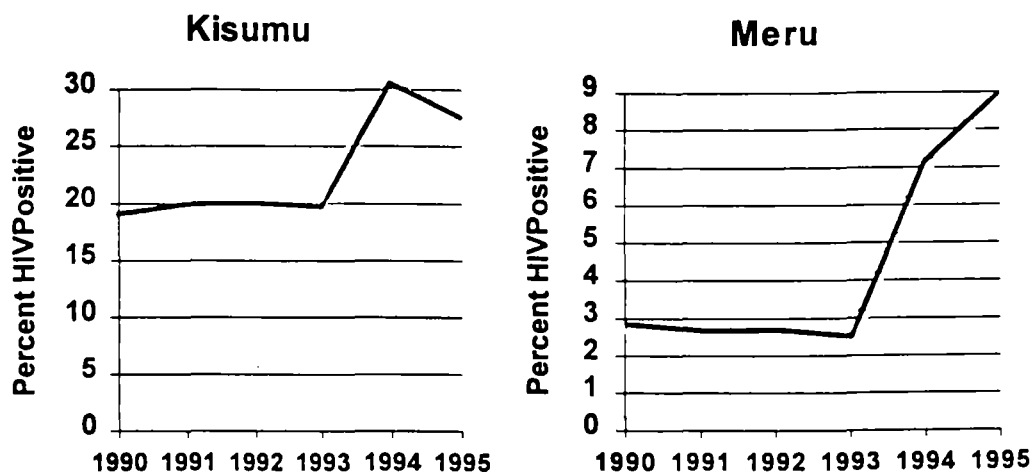
The true number of AIDS cases in Kenya is not known. However, it is estimated that at least 200,000 adults and children had developed AIDS by the end of 1995.

AIDS cases are only the tip of the pyramid. Many more people are infected with HIV, the virus that causes AIDS. In 1995 it is estimated that there were about 1,100,000 people infected with HIV. This includes about 1,030,000 adults and 70,000 children. Most of these people do not know they are infected. They may have no symptoms at all. However, almost all will develop AIDS and die within the next 10 years or so. There is no cure for AIDS.

AIDS stands for Acquired Immune Deficiency Syndrome. It is a disease that is caused by the HIV virus. It acts by weakening the immune system, making the body susceptible to other diseases.

Trends in HIV infection are shown for two sentinel surveillance sites — Kisumu and Meru — for the last six years. These graphs show the percentage of pregnant women visiting the ante-natal clinic who are infected with HIV. Kisumu is representative of an area that has had high infection levels for some time. For the first four years it seemed to have reached a plateau, where the number of new infections each year was about equal to the number of people dying each year from AIDS. However, during the past two years the prevalence has risen to an even higher level. In Meru there was a period of lower prevalence, but it too has increased rapidly over the past two years. In other areas - Mombasa, Nyeri - the prevalence rates seem to be relatively steady, but it is not certain that this trend will continue. The rapid spread of HIV infection means that no district in Kenya can be complacent about AIDS, even if HIV levels are currently low. HIV can spread very rapidly and become a major problem in a time period as short as three or four years in areas where it was initially low. There is a need to intensify prevention efforts in all districts.

Trends in HIV Prevalence in ANC Clients at Selected Clinics

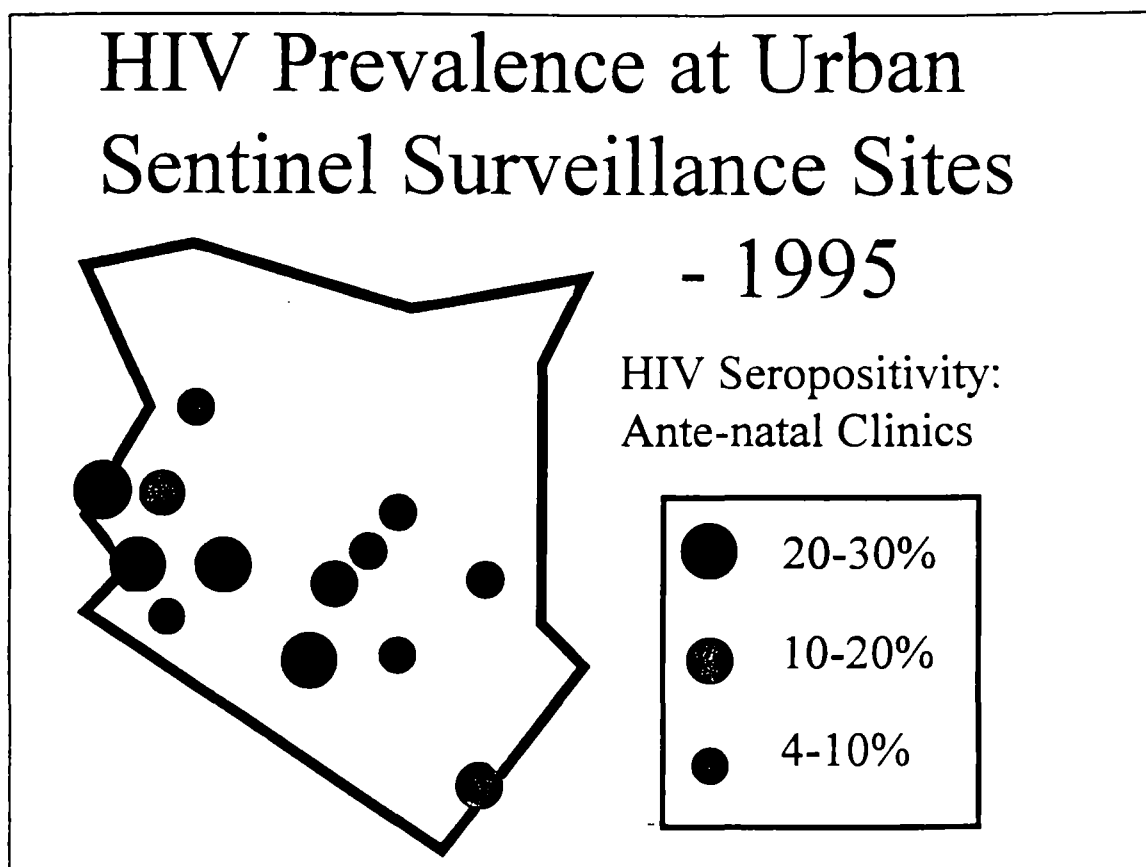


Sentinel Surveillance Results

Kenya has a sentinel surveillance system that provides the basis for estimating the extent of HIV infection. The sentinel surveillance system operates in 13 urban sites and six peri-urban/rural sites around the country. These sites are all ante-natal clinics, where pregnant women go for care during pregnancy. Each year, 200-400 pregnant women are tested for HIV in each site. The results are reported to the National AIDS and STDs Control Programme.

The results for 1995 show that there are several places in Kenya — Kisumu, Nakuru, Nairobi, Busia, Tiwi, Chulaimbo — where the proportion of pregnant women who are infected with HIV is greater than 20 percent. In several other sites — Mombasa, Kakamega, Thika, Karurumo, Maragwa, Mbale, Mosoriot — 10-20 percent of pregnant women are infected. In other sites — Kitale, Kisii, Meru, Nyeri, Garissa, Kitui — infection rates are 4-10 percent. Some sites may have lower infection rates because behavior patterns are different or because the epidemic started later in these areas. However, it is clear that the levels of HIV infection are alarmingly high in many parts of the country.

Using the sentinel surveillance data and adjusting it to be representative of the total population, the National AIDS and STDs Control Programme has estimated that at the end of 1995 there were 1,100,000 people in Kenya alive and infected with HIV.



Current Estimates of HIV Prevalence

HIV probably started to spread in Kenya in the late 1970s or early 1980s. One commonly used measure of the extent of HIV in a population is adult prevalence, the percentage of adults (ages 15 and older) who are infected with HIV. Although HIV prevalence was very low in Kenya during the early 1980s, it has been increasing rapidly in the past few years. The National AIDS and STDs Control Programme estimates that by 1995, adult HIV prevalence had increased to about 7.5 percent.

In urban areas prevalence is estimated to be twice as high, about 13-14 percent. That means that there are about 315,000 HIV-infected adults in urban areas.

There is little information about HIV prevalence in rural areas. It is probably around 6-7 percent. This implies that there are about 715,000 HIV-infected adults living in rural areas.

Although prevalence is higher in urban areas, the absolute or total number of people infected is larger in rural areas than in urban areas. This is because about 80% of Kenyans live in rural areas.

Adult HIV Prevalence

1990 → 1991 → 1992 → 1993 → 1994 → 1995
3.1% 4.2% 4.7% 5.3% 6.7% 7.5%

Urban prevalence = 13-14 % (1995)

Rural prevalence = 6-7 % (1995)

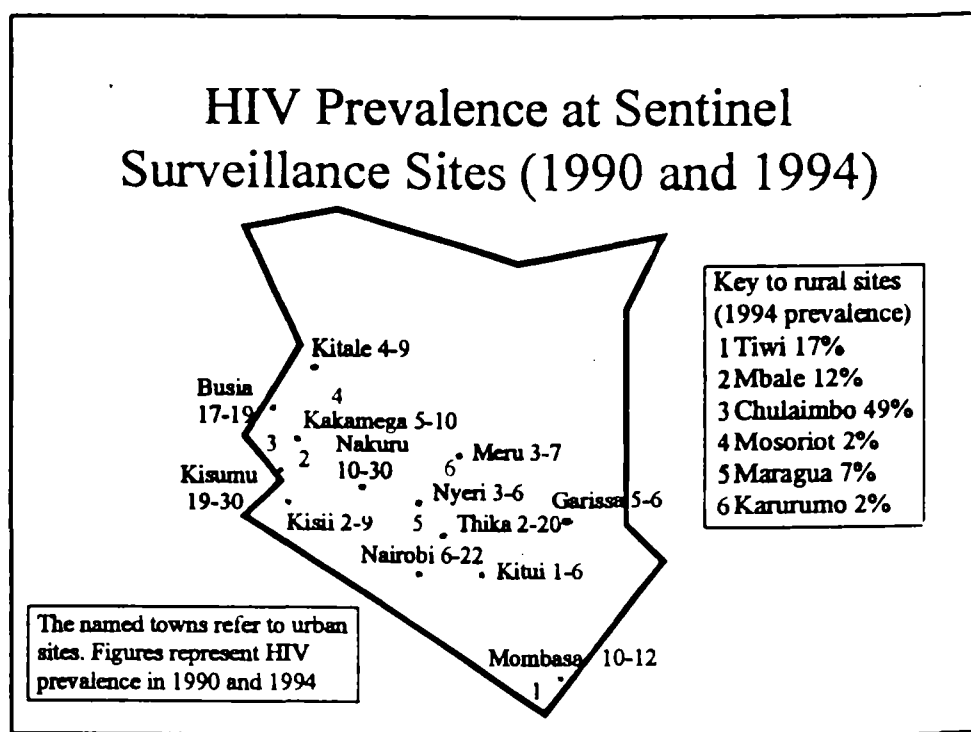
Number infected with HIV alive (1995):

1,030,000 adults

70,000 children

Results for each of the sentinel surveillance sites are shown in the table below. It should be noted that these are not exact estimates since the number of women tested varies by year and by site. When the number tested is small, the uncertainty associated with the estimate is high. However, taken as a whole, these results describe the extent of HIV infection some parts of urban and rural Kenya.

Pregnant Women Testing Positive for HIV (Percent)			
Urban			
Sentinel Sites	1990	1993	1995
Busia	17.0	22.0	22.0
Garissa	4.9	3.8	5.8
Kakamega	5.3	8.6	11.7
Kisii	1.6	2.5	4.3
Kisumu	19.0	20.0	27.3
Kitale	3.5	7.5	10.0
Kitui	1.0	2.0*	4.1
Meru	2.7	2.3	8.7
Mombasa	10.0	16.0	12.5
Nairobi	5.8	17.1	24.6
Nakuru	9.9	22.0	27.2
Nyeri	2.9	6.4	6.2
Thika	2.5	9.6**	19.6***
*1992 data for Kitui ** 1991 data for Thika *** 1994 data for Thika			
Peri-urban [p/u] and Rural [r]			
Sentinel Sites	District	1994	1995
Karurumo [r]	Embu	2.0	10.3
Maragua [p/u]	Muranga	7.0	12.7
Tiwi [p/u]	Kwale	12.2	24.1
Mbale [p/u]	Vihiga	11.9	10.7
Chulaimbo [r]	Kisumu	49.4	21.8
Mosoriot [r]	Uasin Gishu	2.0	12.5



Heterosexual contact

The majority of infections are transmitted through heterosexual contact. Although the probability of transmitting HIV in a single act of intercourse can be quite low, a number of factors increase the risk of infection dramatically. The two most important are the presence in either partner of a sexually transmitted disease (STD), such as syphilis or gonorrhea, and having a large number of sexual partners. A significant number of Kenyan adults do suffer from STDs and many have a number of sexual partners. As a result, most new HIV infections are due to heterosexual contact. Programmes designed to slow the spread of HIV will need to focus on reducing transmission through sexual contact.

Perinatal transmission

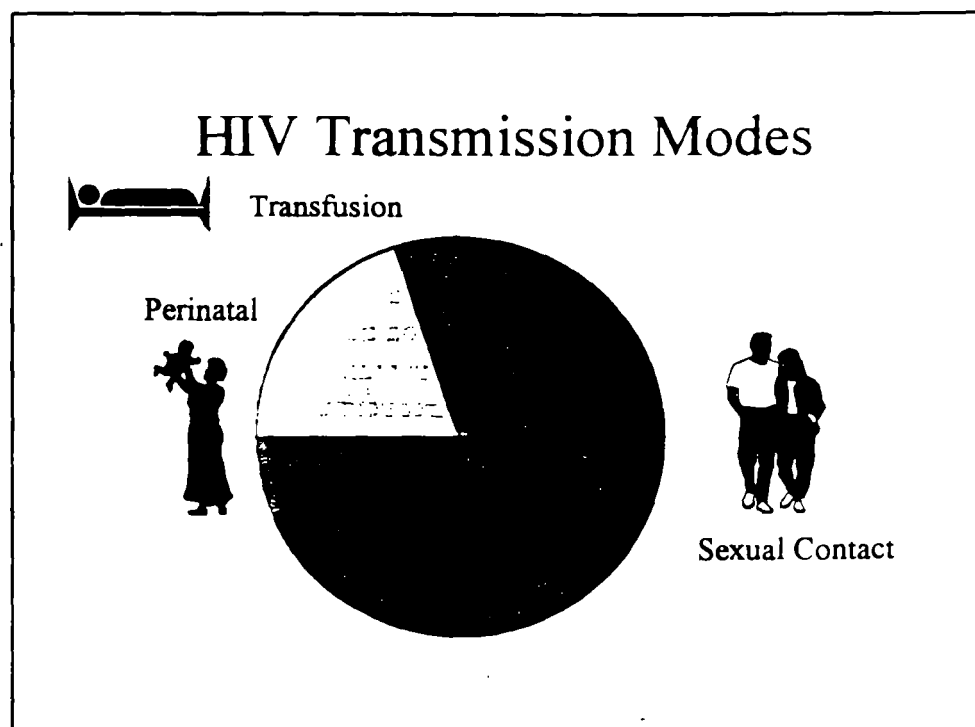
Many children are infected perinatally; that is, they receive the infection from their mothers during pregnancy, at the time of birth or through breastmilk. About 40 percent of babies born to infected mothers will themselves be infected. The other 60 percent will not be infected, but are at risk of becoming orphans when their parents die from AIDS. Our best estimate is that about 70,000 children under the age of 5 are infected today.

Blood transfusion

Transfusion with infected blood will almost always transmit HIV. However, in Kenya most blood is screened for HIV. Therefore, few new infections are due to blood transfusions. The risk of transmission through blood is highest in malaria endemic regions where the need is high for frequent transfusions, especially among children.

Transmission Mechanisms

HIV can be transmitted from one person to another in a number of ways. In Kenya, three transmission mechanisms are most important: heterosexual contact, perinatal transmission and blood transfusion.



HIV Incubation Period (Infants)



30-40% of babies of HIV
positive mothers are infected



Infected - - - - Infectious - - - - AIDS - - - - Death



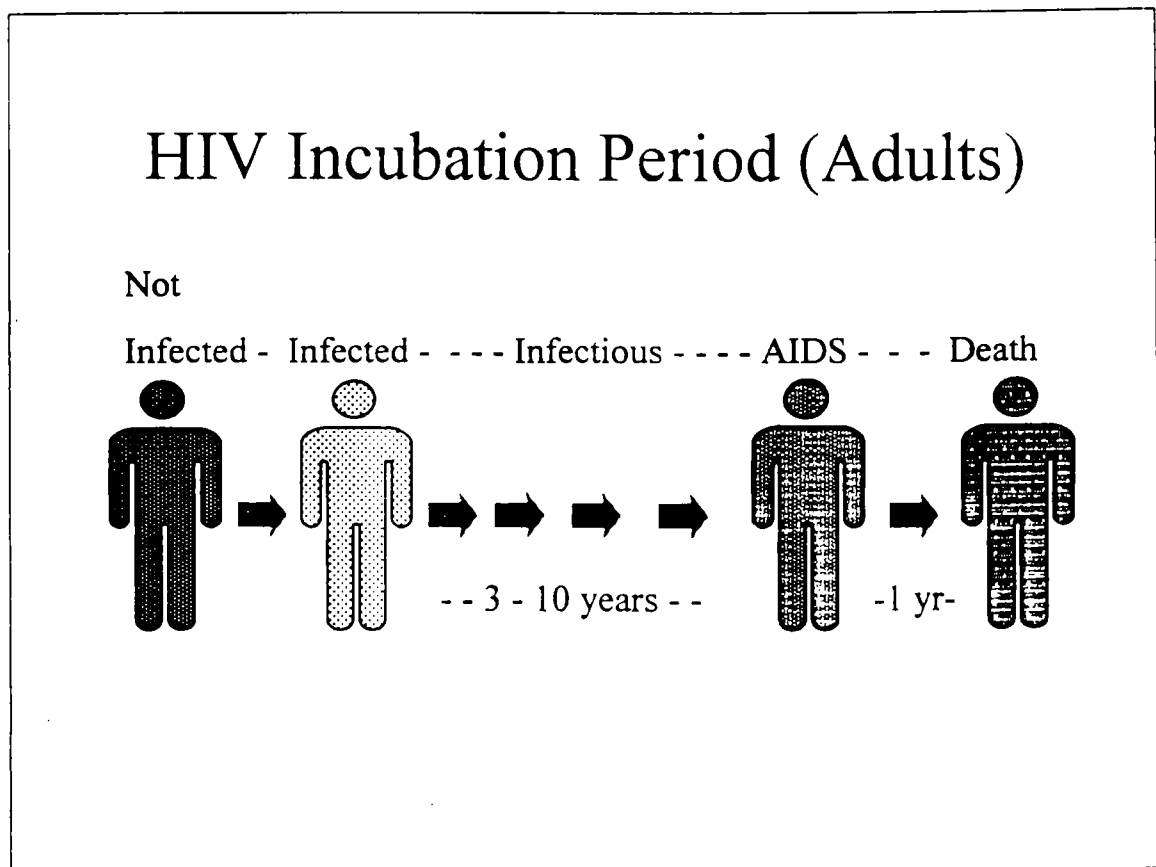
- - - 1 - 3 years - - -

<1 yr

Incubation Period

A person does not develop AIDS as soon as he or she becomes infected with HIV. There is a lengthy incubation period. The average time from infection with HIV to development of the disease AIDS is about 3 to 10 years. That is, on average, a person does not develop AIDS until 3 to 10 years after becoming infected. For most of this period the person may not have any symptoms and, therefore, may not be aware that he or she is infected. This contributes to the spread of HIV, since the person can transmit the infection to others without realizing it.

For children the incubation period is much shorter because their immune systems are not yet fully developed. Most children who are infected at birth develop AIDS and die within two years.

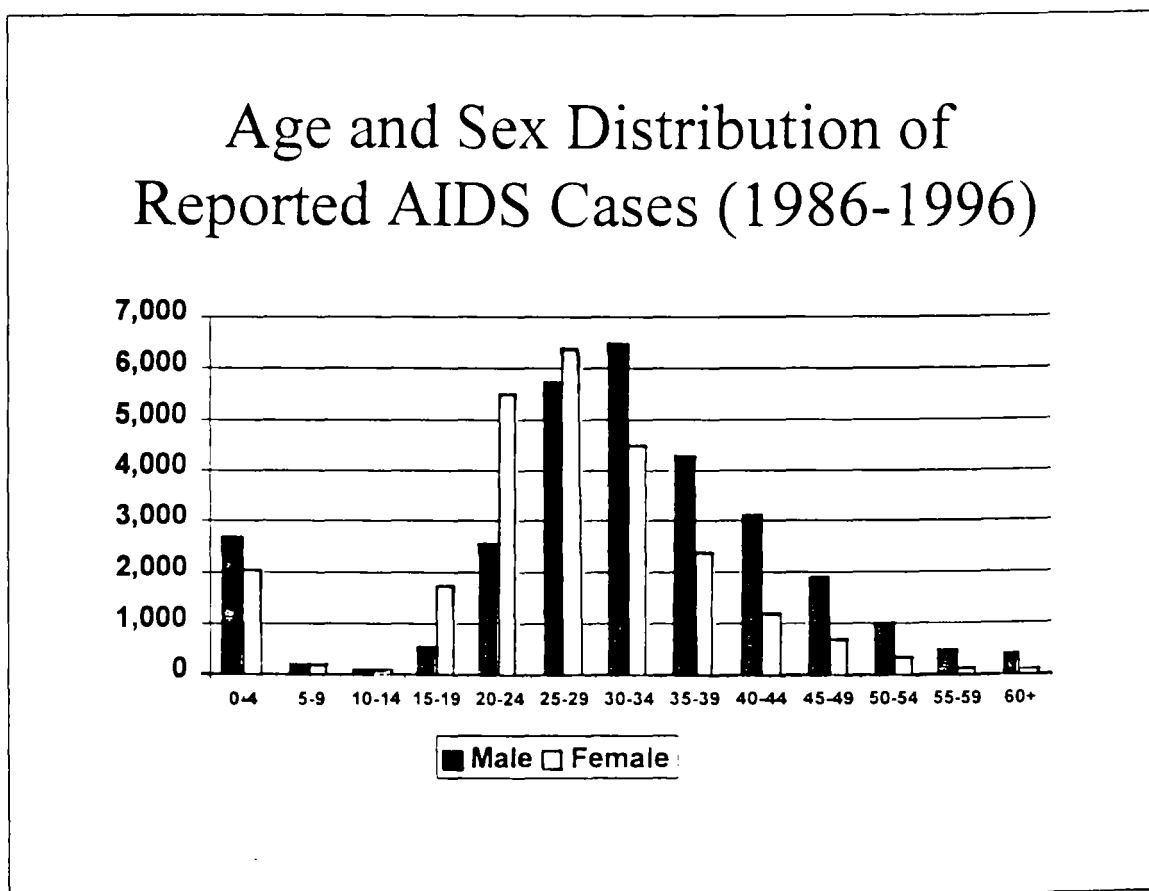


Several interesting facts are illustrated by this bar chart.

- About 75 percent of AIDS cases occur to adults between the ages of 20 and 45. Since this is the most economically productive part of the population, these deaths constitute an important economic burden. This is also the age when investments in education are just beginning to pay off. These deaths also have important consequences for children since most people in this age group are raising young children.
- There is roughly an equal number of male and female cases.
- The peak ages for AIDS cases are 25-29 for females and 30-34 for males.
- Young women in the age groups 15-19 and 20-24 are twice as likely to be infected as males in the same age group.
- There have been a significant number of AIDS cases reported among young children. Most of these received the infection from their mothers when they were born.
- The absence of many AIDS cases in the 5-14 year old age group emphasizes the point that the main mode of transmission is through sexual contact and that the virus is not transmitted by mosquitoes or casual contact such as shaking hands. If infection were transmitted by mosquitoes or casual contact then there would not be this classic age distribution of AIDS cases where most cases are among sexually active people and children under the age of five who predominantly catch HIV through their mother.

Age Distribution of Reported AIDS Cases

The chart below shows the number of AIDS cases reported since 1986 by age group and sex. Each vertical bar shows the number of reported AIDS cases in a particular five-year age group. Males are shown on the left and females on the right.



Frequently Asked Questions

Since April 1993 over 216 presentations based on this booklet have been given to audiences in Kenya. More than 8,600 people have participated in these presentations and asked many questions. Some questions have been asked more often than others. The ten most frequently asked questions are listed below, along with brief responses.

1. *How and where did AIDS originate?*

No one knows how AIDS originated or where. It may be that HIV has been around for a long time, infecting only a few people, and only recently started to spread so quickly and became so deadly. The fact is that AIDS is here and it matters little where it originated. Some research on this issue continues, but most scientific efforts are concentrating on finding ways to prevent and treat the disease.

2. *Why is Africa, of all the regions in the world, the most hard hit?*

The World Health Organization estimates that 70 percent of all AIDS cases have occurred in Africa. A large number of cases have also occurred in the United States and Europe. HIV is now increasing rapidly in Asia. It is expected that within a few years there will be more HIV infections in Asia than anywhere else in the world. Africa certainly has a higher proportion of its population infected than any other region of the world. This may be due to several factors including (1) poverty, (2) the high prevalence of other sexually transmitted diseases, (3) patterns of worker migration, (4) military conflicts, (5) cultural practices and beliefs, (6) relatively low health status in the population and (7) other factors. Epidemiological studies are needed to define the relative importance of these and other factors.

3. *Why is HIV worse in Western Kenya?*

It may be that infection rates are higher in western Kenya because the epidemic started earlier there. Other factors may also be contributing, such as a higher density of population, more movement of people due to trading and migration routes, and cultural beliefs and practices such as widow inheritance. In some other areas of Kenya the infection is spreading rapidly. They may eventually have similar rates of infection to Western Kenya if urgent steps are not taken to intensify information, education and communication efforts.

4. *Are scientists succeeding in getting a cure for AIDS?*

Scientists have learned much about HIV and AIDS in the years since the epidemic started. They are pursuing approaches to find vaccines to prevent HIV transmission and drugs that can prevent HIV infection from developing into AIDS. Some drugs, such as AZT, are already in use, but they can, at best, extend the life of an AIDS patient for a few months, but not cure the disease. Several vaccines are being readied for testing in the near future. However, the process of developing and testing drugs and vaccines is a long one. No one expects an effective vaccine to be available within the next ten years. Therefore, efforts to prevent the spread of HIV through education are very important.

5. *You have said that the most important mechanisms for transmitting the virus are heterosexual intercourse, perinatal transmission and blood transfusions. How important are other means of transmitting the virus, such as circumcision, homosexuality, sharing shaving instruments, dental instruments, mosquitoes, kissing, etc.?*

HIV can be transmitted by any means that involves contact of blood from an infected person with the blood of an uninfected person. Therefore, it can be transmitted through unsafe practices such as using circumcision knives, shaving tools or dental tools on many people without properly sterilizing the instruments between uses. However, there are very few confirmed cases of transmission through these mechanisms. Although low levels of HIV have been found in saliva there is no evidence that HIV has ever been transmitted through kissing. Although mosquitoes may transmit small amounts of blood from one person to the next, the amount of blood is very small and insects do not normally travel from one person to another immediately after ingesting blood. There is no evidence of HIV transmission through mosquitoes, even in areas where there are large numbers of HIV-infected people and large numbers of mosquitoes.

6. *Why do some people (e.g. some prostitutes) escape HIV infection despite constant exposure and lack of protection?*

Scientists do not know why some people seem to remain free of infection even though they are apparently exposed repeatedly to HIV. This issue is being studied intensively in hopes that it will lead to advances in HIV prevention or cure. However, it appears that only a small portion of the population has this immunity and there is no way of knowing who is immune and who is not. Therefore, all people should take precautions to protect themselves.

7. *Why do some HIV-positive mothers transmit the virus to their new born children while others do not?*

Scientists do not know exactly why some mothers transmit the virus to their babies and others do not. Many factors may be involved, such as the type the delivery, the amount of blood involved, the nutritional status of the mother, the length of time the mother has been infected and whether the mother breastfeeds the baby. Research is continuing to try to understand this transmission mechanism so that prevention approaches can be developed.

8. *Why can't the government test everybody for HIV infection?*

There are several reasons why it is not sensible to test everyone for HIV infection. Firstly, the cost would be very large, several times as much as what the government currently spends for all health services. Secondly, the HIV test is not 100 percent accurate. Even if only one percent of people were incorrectly identified as having HIV that would amount to a quarter of a million people who would falsely be identified as being infected. Thirdly, it would be unethical to test people for HIV infection without asking their permission or providing them with counseling to help them cope with a positive test or understand how to remain infection free if they are currently not infected. There are not enough trained counselors or funds to mount such a massive effort.

9. *Why not quarantine those who are infected with HIV?*

There are several reasons why quarantine is not an effective measure for the control of HIV infection. First, most people who are infected do not know it, so it would be impossible to quarantine everyone who is infected. Second, there are an estimated 1,100,000 infected people in Kenya today. How could so many people be quarantined? Third, there are other ways to prevent HIV transmission that do not require quarantine (partners remaining faithful to each other, use of condoms, treatment of sexually transmitted diseases). Finally, establishing a policy of quarantine would cause people to hide their HIV status. People would not want to be tested and, if they knew they were infected, they would not want to tell anyone. Most people would act as if they were not infected, to avoid quarantine. This behaviour would contribute to a worsening epidemic. Respecting the human rights of infected individuals is important in its own right and is essential to implementing effective HIV control programmes.

10. *Despite education campaigns and increased condom use, HIV is still increasing. Why aren't these programmes effective?*

The AIDS prevention programmes that have been implemented have had an effect in reducing the severity of the epidemic. Many people have changed their behaviour to stick with one faithful partner. Many other have adopted condom use. One study estimated that increased condom use alone has saved over 110,000 people from HIV infection in Kenya. So these programs have had an effect. Unfortunately, they have not been so widespread or effective to prevent all new infections. In fact, the number of infected people is still increasing. Only a much expanded prevention programme, with participation from all sectors (government, NGO, private sector, religious groups, churches, professional organizations, community groups) will be successful in reducing the number of infected people in the future.

II. Projections

Projected HIV prevalence

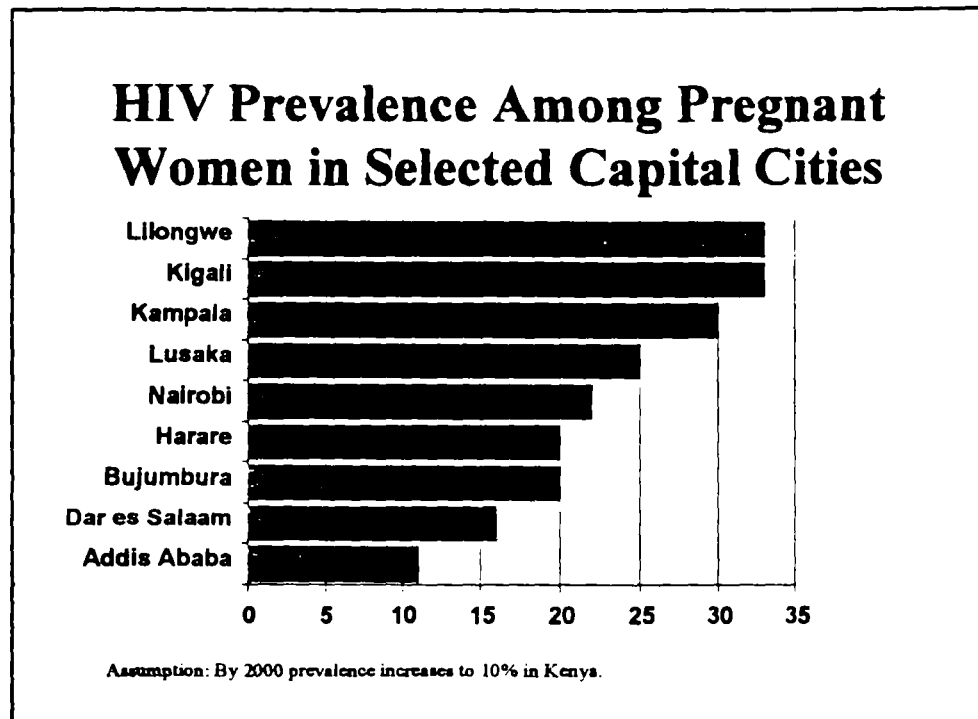
Number of future HIV infections and AIDS cases

Adult deaths

Projected HIV Prevalence

In order to project the number of new infections in the future, it is necessary to make an assumption about how rapidly HIV will continue to spread. Will adult HIV prevalence in Kenya increase above the 1995 level of about 7.5 percent? If it does, how high might it go in the absence of expanded AIDS control programmes and significant behavioral changes: 8 percent, 12 percent, 20 percent?

Since prevalence seems to be increasing rapidly in most areas of Kenya, it is likely that prevalence will continue to increase, at least for the next six or seven years. Although the national prevalence in 1995 was estimated at 7.5 percent, it was 13-14 percent in urban areas. There are areas in urban Kenya today where prevalence is already 20-30 percent. In other countries in the region, urban HIV prevalence is even higher than in Kenya [US Census Bureau, 1992]. Higher prevalence in other countries may be due to an earlier start of the epidemic in those countries or to different behavior patterns or both.

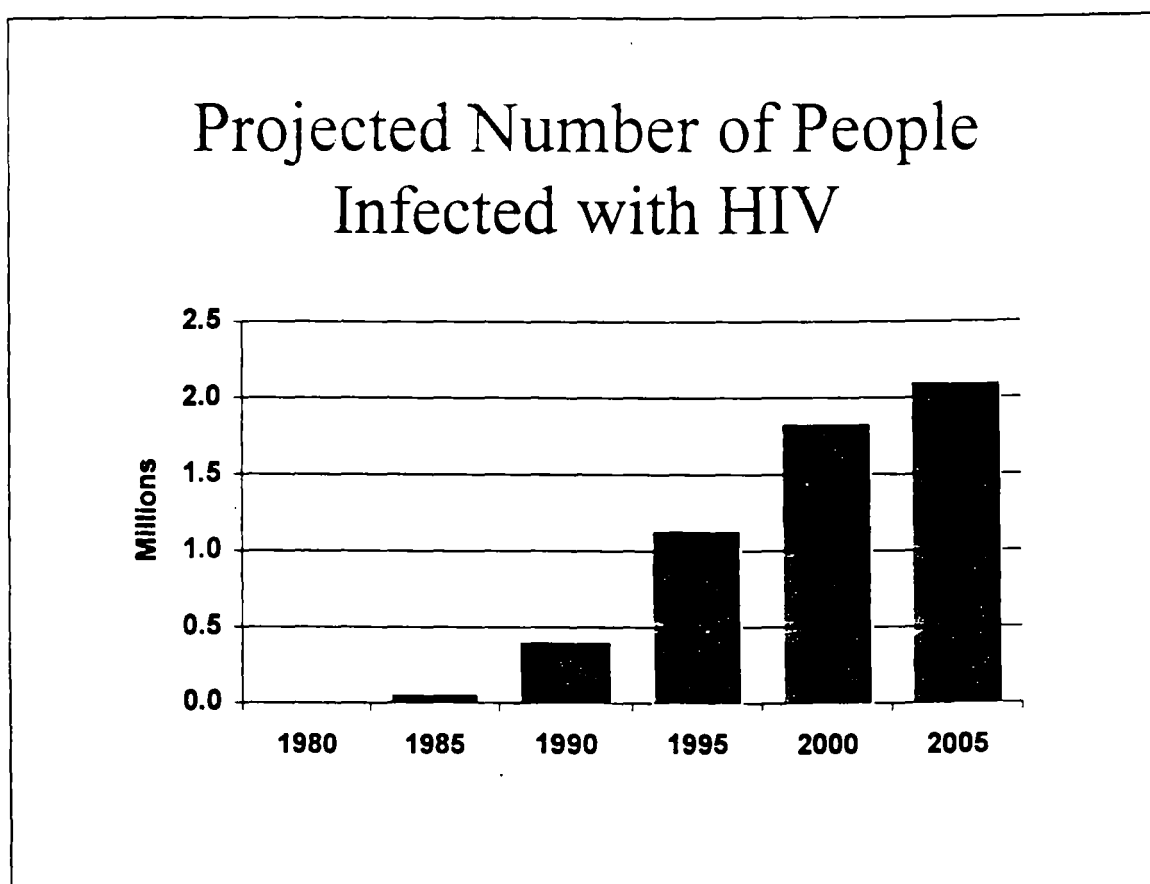


For purposes of this study, we have assumed that adult HIV prevalence in all of Kenya will increase from about 7.5 percent of the adult population in 1995 to 10 percent by the year 2000 and then stabilize at that level. Evidence from other countries does seem to suggest that adult prevalence will stabilize at some level. Ten percent is probably a conservative estimate of the level at which it would stabilize in Kenya. Without effective interventions, it could be much worse. However, given the uncertainty about prevalence in rural areas, it seems best to select a conservative estimate.

Number of Future HIV Infections and AIDS Cases

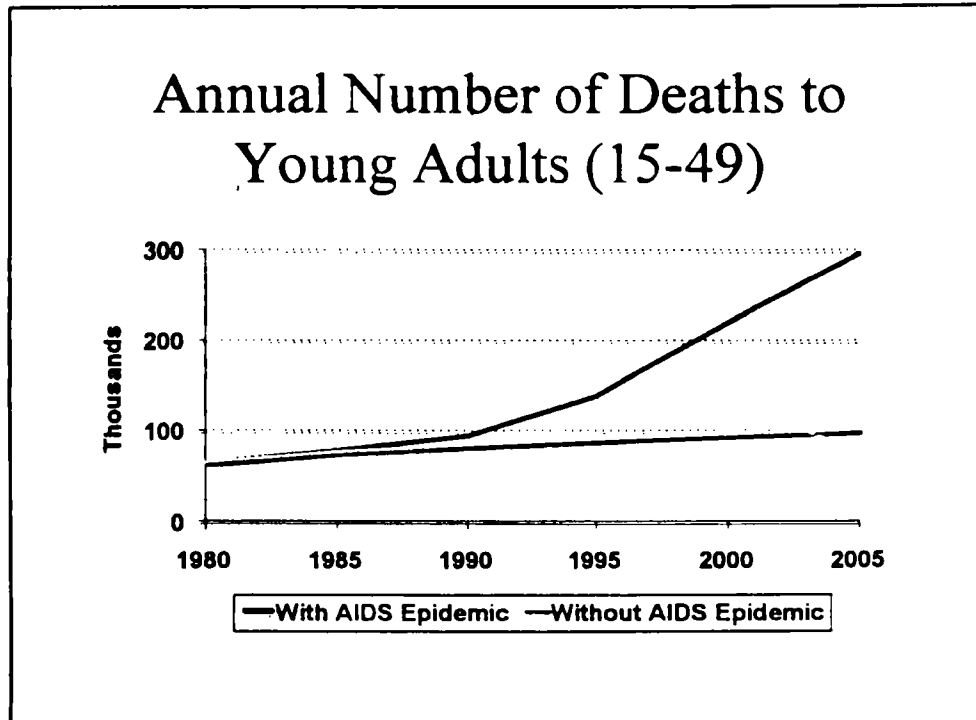
If HIV prevalence does increase to 10 percent by the year 2000, then the number of infected people in the population would increase to 1.8 million people by 2000 and to 2.1 million by 2005. The number of new AIDS cases each year resulting from these infections would increase to 240,000 by 2000.

The cumulative number of AIDS deaths would increase from over 100,000 today to 1 million by 2000 and to over 2.1 million by 2005.



Adult Deaths

AIDS will increase the death rate at all ages. However, the impact will be most severe among young adults and children under the age of five. Without AIDS, and assuming a gradual decline in the death rates from other causes, the annual number of deaths among young adults (ages 15 to 49) would increase slowly (because of the growing population) from about 90,000 today to 100,000 by 2005. However, AIDS will dramatically increase that number, more than doubling it to 220,000 a year by 2000 and increasing it by 230 percent (to 300,000) by 2005. This rapid increase in young adult deaths would have serious consequences for economic and social development. Many of these impacts are examined in the next section of this report.



III. The social and economic impacts of AIDS

AIDS orphans

Population size and growth

Costs of health care

Childhood deaths

HIV and tuberculosis

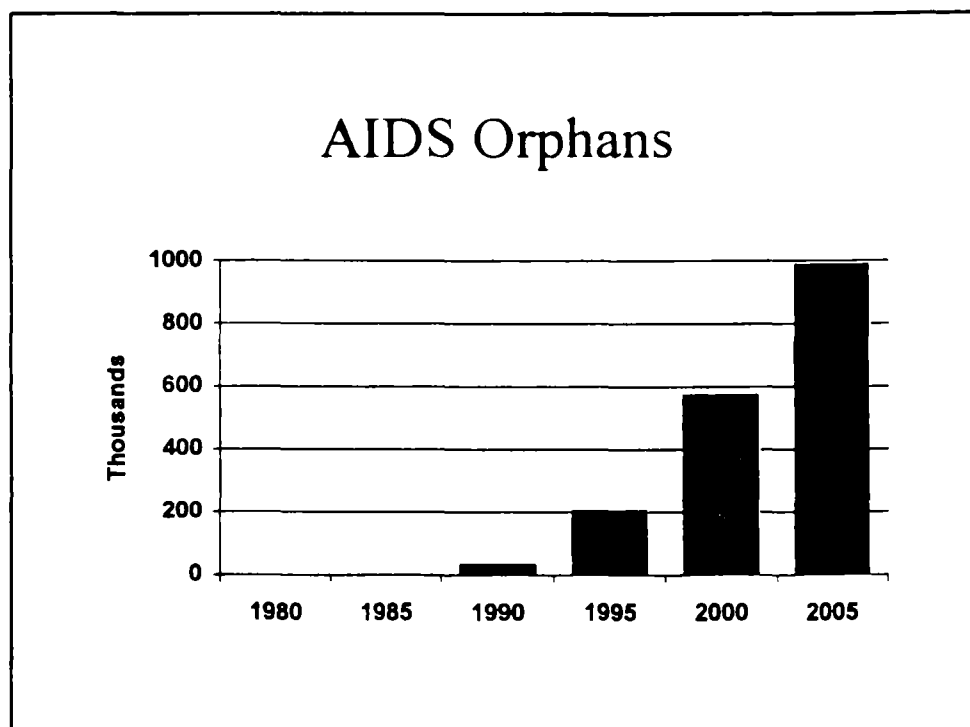
The economic impacts of AIDS

AIDS Orphans

One of the worst impacts of AIDS deaths to young adults is an increase in the number of orphans. We define an AIDS orphan as a child under the age of 15 who has lost the mother to AIDS. With this definition, the number of AIDS orphans would increase to 580,000 by 2000 and to almost 1 million by 2005.

These children may lack the proper care and supervision they need at this critical period of their lives. There will be a tremendous strain on social systems to cope with such a large number of orphans.

- At the family level there is increased burden and stress for the extended family which has the traditional mandate to care for these orphans. Many grandparents are left to care for young children. Some families are headed by children as young as 10-12 years old.
- At the community and national level there is an increased burden on society to provide services for these children, including orphanages, health care and school fees. Many children go without adequate health care and schooling, increasing the burden on society in future years. There is an increase in the number of street children, particularly in urban areas.



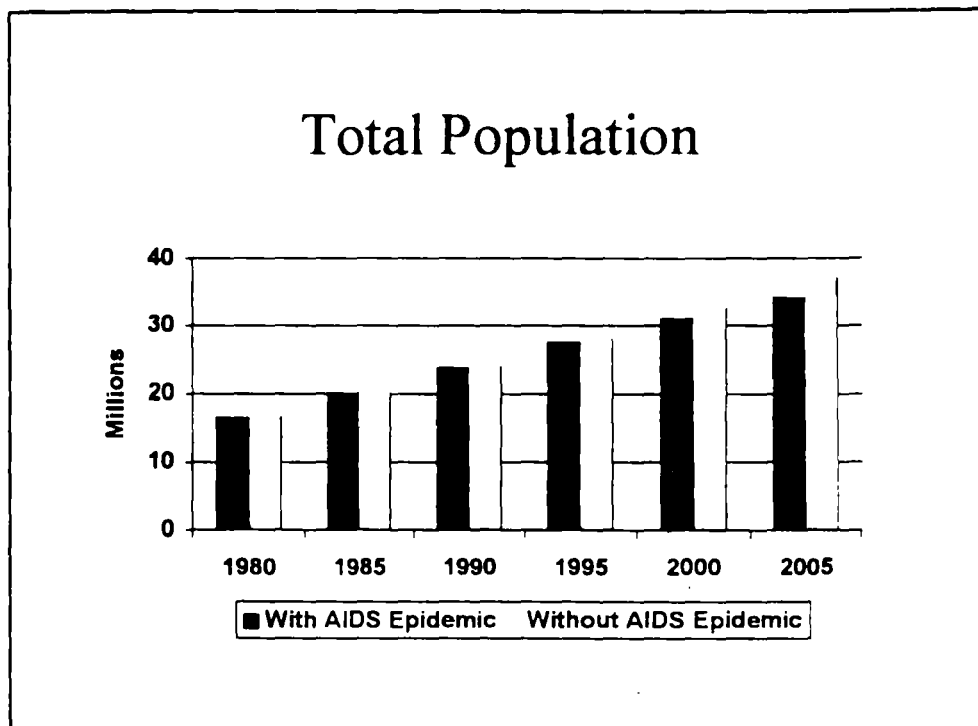
Population Size and Growth

AIDS will have a large impact on population size. However, it will not cause population growth to stop or become negative. The following projection illustrates this point. The projection assumes that the total fertility rate (the average number of births per woman during her lifetime) continues to decline, from about 5.4 during 1990-93 to 4.2 by 2000 and 3.5 by 2010. It also assumes that mortality from all causes other than AIDS continues to decline so that life expectancy would increase from about 57 years today to 67 by 2010 if there were no AIDS deaths.

With no AIDS, the population would increase from about 27.2 million in 1995 to 32 million by 2000 and to 37 million by 2005. By 2005 the population would be growing at 2.5 percent per year.

With AIDS causing increased deaths, the total population of Kenya would be 1.3 million smaller by 2000 and 2.9 million smaller by 2005. Thus, the combined impact of AIDS deaths and fewer births because of a smaller reproductive age population would result in almost 3 million fewer people by 2005. However, by 2005 the population would still be growing at 1.7 percent per year.

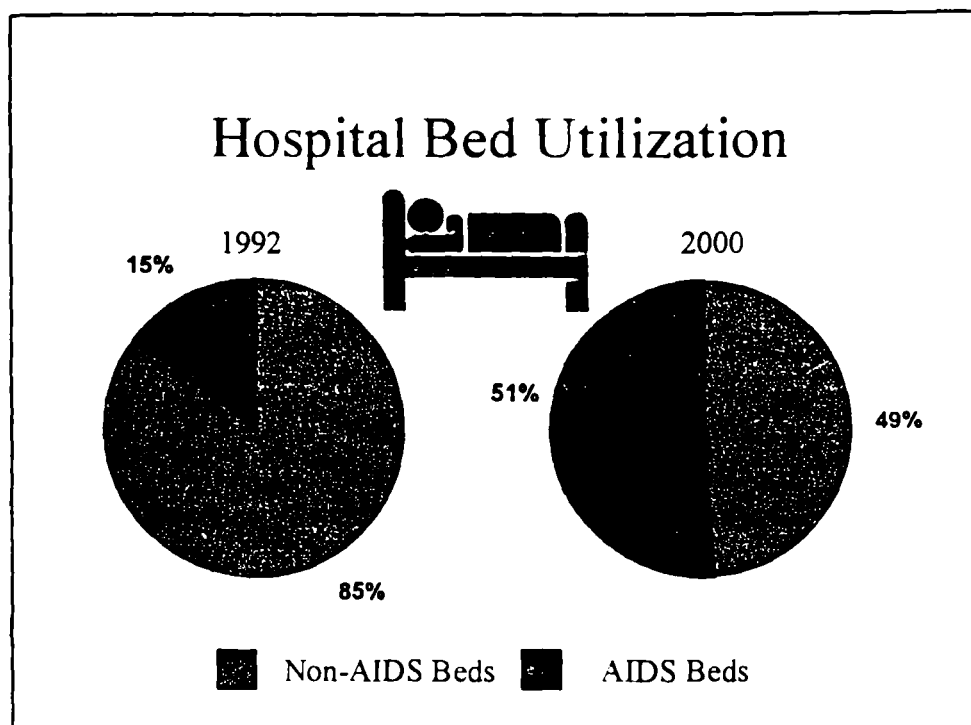
AIDS will have a significant impact on population size, but the population will still grow by over 30 percent by 2005. The growth rate of the population will be less because of AIDS, but it will still be 1.7 percent per year. Changes in the total fertility rate will have much more impact on the population growth rate than will AIDS deaths.



Costs of Health Care

AIDS is an expensive disease that will require a considerable amount of resources from the health system. A 1992 study [Forsythe] estimated that the cost of hospital care for AIDS patients averaged about 27,200 KSh during the course of their illness. If this expenditure rate remains constant then the total hospital costs for AIDS care, expressed in 1992 KSh, would increase to about 3,800 million KSh by 2000 and to 5,400 million KSh by 2005. This could amount to as much as half of public expenditures for health care. Clearly, this would place a tremendous burden on the public health care system to provide adequate care for AIDS patients and still try to meet all the other health needs of the population.

The demand on health services caused by AIDS can also be illustrated by looking at hospital beds. Not all people with AIDS seek hospital care. But, for those that do, the average length of stay is considerably longer than for most other diseases, perhaps as long as 60 days of total hospital stay. In 1992, as much as 15 percent of all hospital beds in the country were occupied by AIDS patients. As the epidemic grows, so will the hospital bed requirements. By 2000 about half of all hospital beds would be required for AIDS patients. This would leave an insufficient number of beds for patients for all other causes. Therefore, AIDS must be controlled or it will seriously affect the provision of health services to all.



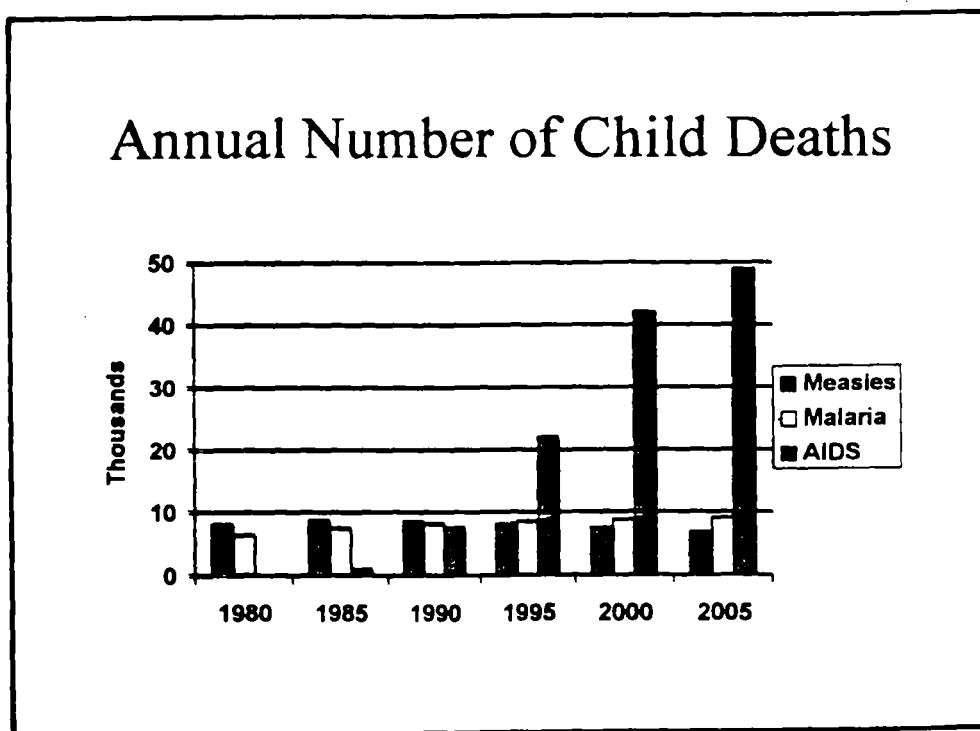
Childhood Deaths

AIDS also affects child survival. About 30-40 percent of babies born to infected mothers will also 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 could soon become the major cause of child death, worse than other major causes such as measles and malaria. For example, the annual number of child deaths due to measles and malaria is expected to range between 5,000 and 10,000 through the year 2005 [UNICEF, 1992]. The annual number of deaths due to AIDS could reach 40,000 to 50,000 over the same time period.

The increasing number of child deaths due to AIDS threatens to reverse many of the recent gains of child survival programmes.

- The infant mortality rate is the number of infants who die during the first year of life per 1000 live births. It is currently around 72. Without AIDS the infant mortality rate might be expected to decline to 45-50 by 2005. However with AIDS, it would decline to only about 55-60.
- The child mortality rate is the number of children who die before reaching their fifth birthday per 1000 live births. It is currently around 115. Without AIDS it might be expected to decline to around 70 by 2005. However, with AIDS it is likely to remain constant or rise slightly to 120-125.



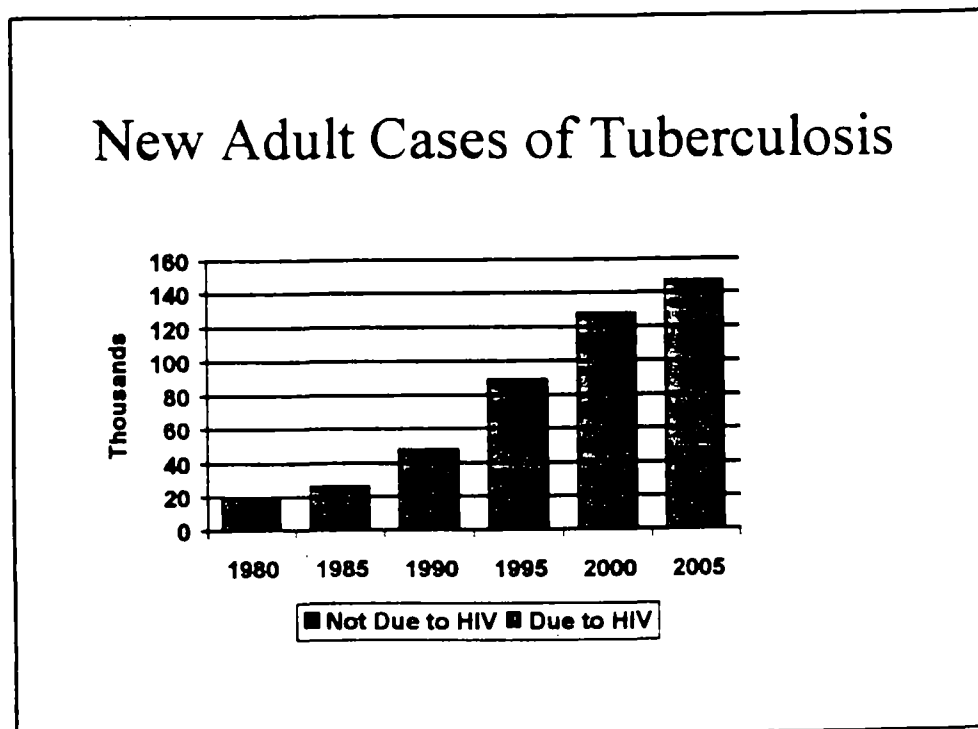
HIV and Tuberculosis

Efforts over the past 20 years to control tuberculosis had been showing some success. However, recently the number of TB cases has been rising rapidly. This is due to the spread of HIV infection. HIV infection weakens the immune system of otherwise healthy adults. Many, perhaps half, of all adults in Kenya carry a latent TB infection which is suppressed by a healthy immune system. When that immune system is weakened by HIV, it can no longer control the TB infection and overt TB can develop.

In the absence of HIV, the number of new TB infections would be limited to about 0.2 percent of the population [Harries, 1990]. This would result in 30,000 to 50,000 new TB cases each year.

With AIDS, a number of new cases will develop. If we assume that among people with both HIV and latent TB infections, 8 percent develop TB each year, then the additional number of TB cases due to HIV infection would be about 100,000 by 2005. Even this is likely to be an under-estimate since these new cases may transmit the disease to others.

The impact of HIV infection on tuberculosis is a serious problem because TB is infectious through casual contact. It threatens to vastly increase the risk of tuberculosis for the entire population. Also, drug-resistant strains of TB are appearing, making it much more difficult and expensive to treat tuberculosis. The control of TB is very expensive and puts considerable strain on the health budget.



The Economic Impacts of AIDS

AIDS will impact the economic development of Kenya in a number of ways. The loss of young adults in their most productive years of life will certainly affect overall economic output. The magnitude of the effect could be large or small depending on several factors. If AIDS is more prevalent among the economic elite, the best-educated people with the highest-paying jobs, then the impact could be much larger than the absolute number of AIDS deaths would indicate. It is also important to consider how the private costs of AIDS will be paid. These costs include expenditures for medical care, drugs, funeral expenses, etc. If most of these extra expenditures are financed out of savings then the reduction in investment could lead to a significant reduction in economic growth. A World Bank study [Over, 1992] on the economic impacts of AIDS in Africa concluded that the macroeconomic impacts of AIDS could be significant if these two factors are taken into account.

An analysis conducted by the Long Range Planning Division of The Office of the Vice President and Ministry of Planning indicates that the costs of AIDS could be a major burden to the economy in Kenya. This study projected that the cost of caring for AIDS patients by the year 2000 could be equal to the entire 1993/94 recurrent budget of the Ministry of Health. This analysis also projects that the total direct and indirect costs of AIDS could increase from 2-4 percent of GDP in 1991 to 15 percent by 2000. [Ministry of Planning, 1993].

The economic impacts are likely to be larger in some sectors than others. Certainly, health care and insurance are likely to be significantly affected. The military will also be severely affected. Infection rates tend to be quite high among military personnel since many are young, sexually active men who are away from their families for long periods of time. Other sectors that require a mobile work force may also be adversely affected, including transportation, extension services and banking.

The impacts on agriculture are likely to vary by agricultural system. In rainy areas, where a variety of crops are planted throughout the year, families can cope relatively well with the loss of a few laborers. They may reduce the area cultivated and cut back on the number of crops planted, but may still be able to produce an adequate amount of food. In dry areas, where farming depends on one or two crops that must be planted and harvested at specific times of the year, the impacts are likely to be more severe. In these areas the loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest. The loss of labor force because of AIDS could make it difficult for families to feed themselves.

When someone in a family becomes sick with AIDS, it is usually the woman who cares for the sick person. Young girls may have to stay home from school to help the mother with the other children. The family may exhaust its savings to pay for drugs and funeral expenses. In some cases they may even be forced to sell land. The result is that families become poorer, children's education may suffer and the standard of living of the entire family declines [Okeyo, 1992].

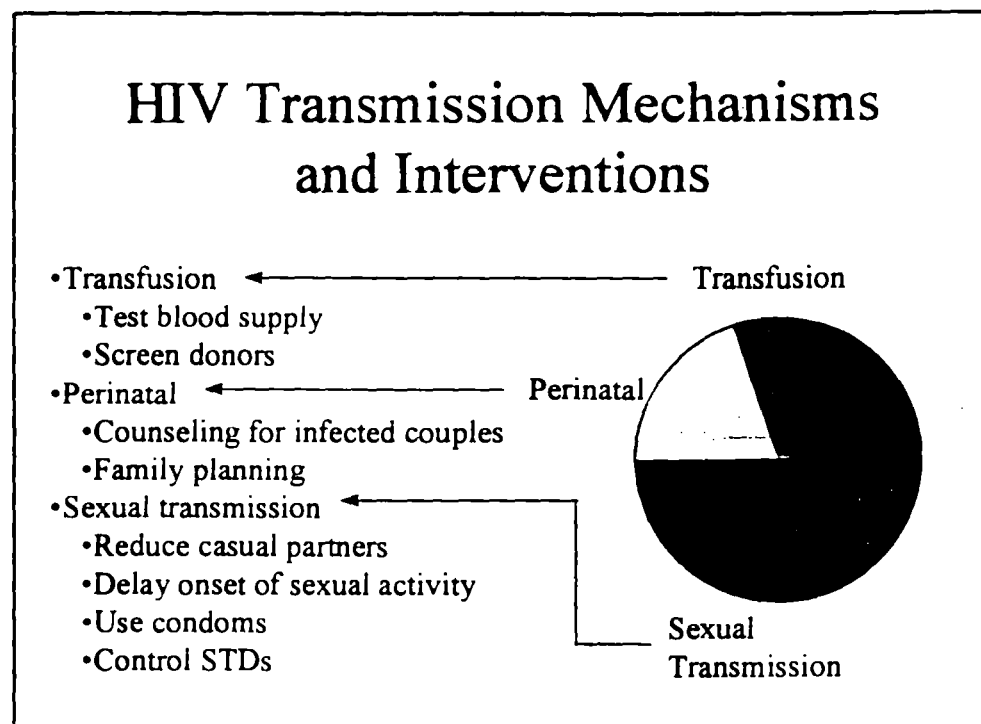
A loss of agricultural labor is likely to cause farmers to switch to less labor-intensive crops. In many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops.

A more detailed examination of the economic impact of AIDS in Kenya is provided in *An Assessment of the Economic Impact of AIDS in Kenya* [Forsythe, 1992] and *Socioeconomic Impact and Policy Implications of AIDS in Kenya* [Forsythe, 1996].

Transmission Mechanisms

The impact of AIDS will be very severe in Kenya if HIV infection continues to spread rapidly. However, there are several things that can be done to slow the spread of HIV.

- To avoid infection through blood transfusion the blood supply needs to be made as safe as possible. This means screening blood through laboratory tests and screening potential blood donors through interviews in order to reject as donors those that have a high probability of being infected.
- To reduce perinatal transmission it is important that young women know whether they are infected. If they are HIV-positive, they may wish to use family planning to avoid pregnancies. Counseling needs to be available for couples to help them understand the HIV test and the choices facing them.
- The major mode of transmission is through heterosexual contact. People can protect themselves by avoiding sexual contact with multiple partners. The use of condoms can also reduce the risk of acquiring the HIV infection. Since the presence of a sexually transmitted disease can increase the chances of acquiring HIV during unprotected sexual contacts, programmes to control STDs can also help reduce the number of new infections.



Knowledge of AIDS

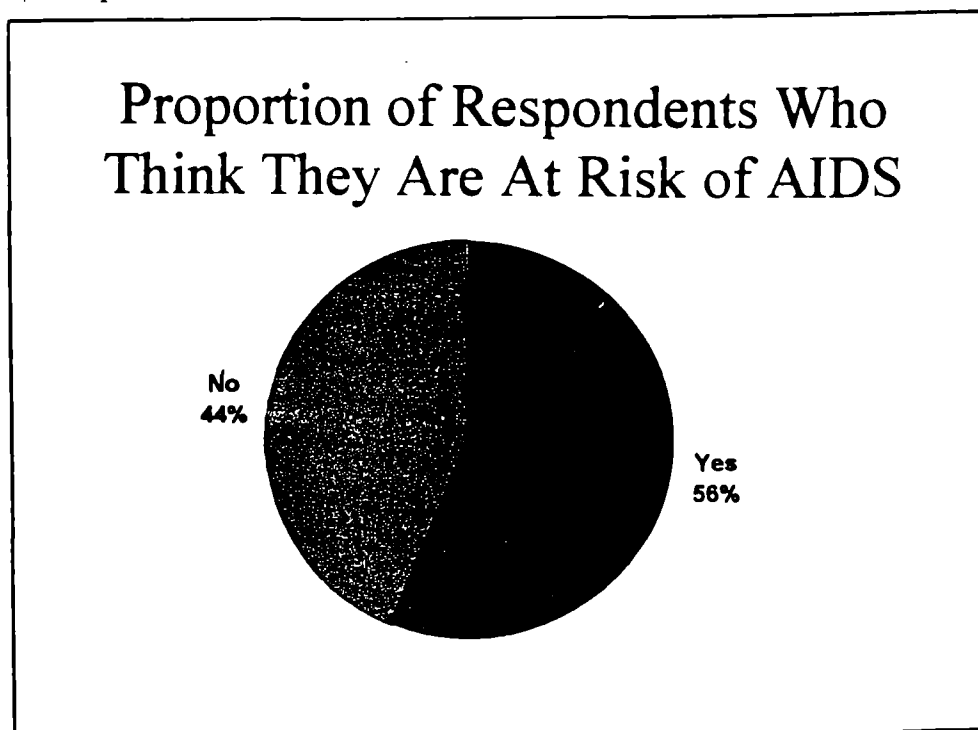
Information about the knowledge of AIDS in Kenya was collected in a 1993 national survey on fertility, family planning and health, the Kenya Demographic and Health Survey, 1993 (National Council for Population and Development, 1994). The survey interviewed 7540 women between the ages of 15 and 49 and 2336 men between the ages of 20 and 55. The results illustrate the level of knowledge and awareness of AIDS in the general population.

Knowledge of AIDS and the key transmission mechanisms is widespread. Practically everyone has heard of AIDS (99 percent of women and 95 percent of men). Almost everyone knows that the AIDS virus is transmitted through sexual intercourse (96 percent of men and 90 percent of women).

However, there are many misconceptions about how the AIDS virus can be transmitted. More than half believe that the AIDS virus can be transmitted through mosquito bites. One-quarter to one-third believe the virus can be transmitted through kissing, sharing clothes, sharing eating utensils, or touching the dead. In reality, the virus is not transmitted through any of these situations.

Most people believe that they can protect themselves from AIDS. When asked how a person can avoid catching the AIDS virus, 70-75 percent mentioned limiting the number of sexual partners. However, only 35 percent of men and 20 percent of women mentioned using condoms and only 9 percent of men and 19 percent of women mentioned abstaining from sex.

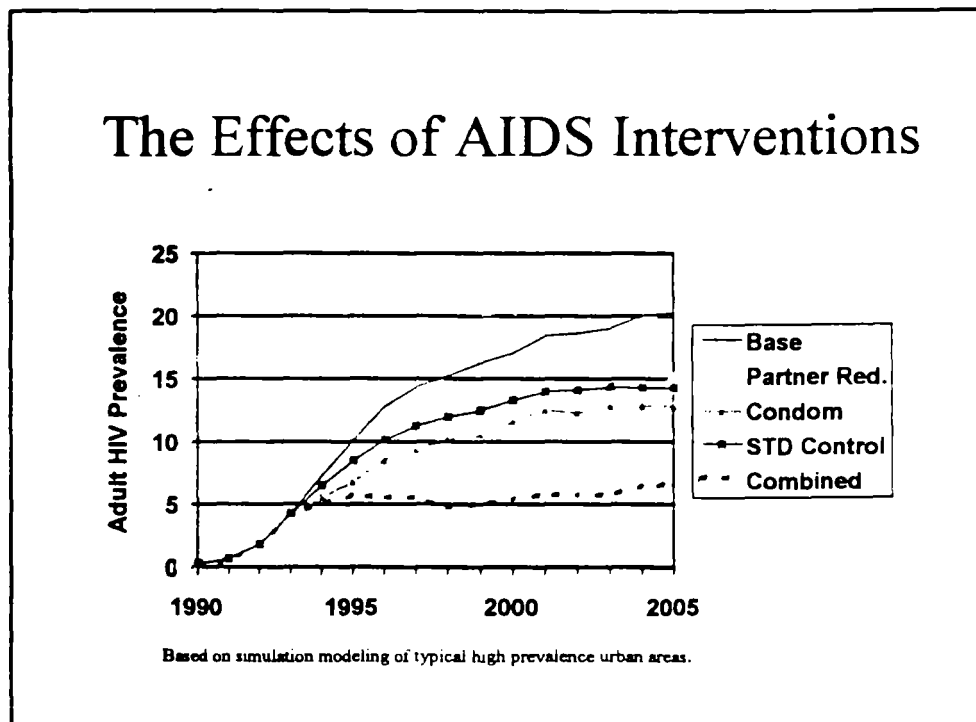
More than half of the men (66 percent) and almost half of the women (46 percent) believe they are at risk of acquiring AIDS. Most of them think that they are likely to get the virus from their spouses or sexual partners.



The Effects of Interventions

There has been much research worldwide to discover the best ways to slow the spread of HIV. These activities include information, education and counseling programmes; counseling and HIV testing programmes; condom promotion and distribution; and STD control. Much success has been achieved in pilot studies, but much work needs to be done to apply these lessons at the national scale.

The potential impact of successful interventions can be illustrated using computer modeling. The following information was developed using two different models: the iwgAIDS simulation model [Seitz, 1991] and Simul-AIDS [Auvert, 1991]. These models show the expected impact of interventions in a typical urban setting. In these illustrations it is assumed that adult HIV prevalence would increase to 20 percent with no interventions to control the spread of AIDS. (This is similar to current prevalence in some major cities in Kenya.) The proposed interventions are based on model intervention programmes developed by the Global Programme on AIDS of the World Health Organization.



Promoting abstinence before marriage and faithfulness to one partner. The first intervention focuses on encouraging people to abstain from sex before marriage and remain faithful to a single partner. This could be done through a combination of mass media, counseling and education programmes. We assume that the result is a reduction of 50 percent in the number of men who visit commercial sex workers (prostitutes and bar girls) and an increase of three years in the average age at which sexual activity begins. If these interventions are implemented when prevalence has reached about 5 percent the result would be a 25 percent reduction in prevalence after 10 years. This is an important reduction in the spread of HIV, but not by itself a complete solution.

Promotion and availability of condoms. The second intervention is to promote condoms through mass media, counseling and education and to increase the availability of condoms through expanded public distribution, social marketing programmes with high risk populations (such as commercial sex workers and long distance truck drivers) and programmes in the workplace. This illustration assumes that condom use increases to 60 percent for commercial sex workers, to 10 percent in contacts between men and their casual girl friends and to 5 percent among couples. Under these assumptions, prevalence is reduced by 35 percent after 10 years.

STD control. The next intervention focuses on controlling the spread of sexually transmitted diseases such as syphilis and gonorrhea. A recent study in Mwanza, Tanzania found that an STD prevention and treatment program reduced the number of new HIV infections by 42 percent. The intervention shown in the accompanying graph involves improved services to detect and treat STDs. However, it should be noted that a full STD programme would also include condom promotion and education. It is assumed that through this intervention correct treatment of STDs increases to 60 percent for men and commercial sex workers and to 10 percent for all other women. The result is a 30 percent reduction in HIV prevalence after 10 years.

Combined intervention. Each of the interventions described above can make an important contribution to controlling the spread of HIV. However, alone, none solves the problem completely. A much larger effect can be achieved by implementing all the interventions together. In the case illustrated here, combining the interventions would reduce HIV prevalence by two-thirds within 10 years. It is important to implement combined interventions in order to reach the maximum number of people. Some people will respond to one intervention while others will respond to another.

Treatment and Vaccines. There is no known cure for AIDS. There are several drugs that are approved for the treatment of people with HIV infection or AIDS; however, the effectiveness of these drugs is primarily limited to combating opportunistic infections that arise because of the weakened immune system. They do not cure the HIV infection or prevent AIDS. Research on vaccines continues in many laboratories around the world. Trials of vaccines are underway. However, most scientists believe that vaccines are not likely to be ready for mass use before the year 2000. Even once vaccines are available there will be problems in producing large quantities and delivering the vaccine to large numbers of people. Therefore, it does not appear that vaccines or drugs will contribute much to the fight against AIDS in the next several years.

There are three important lessons to be learned concerning interventions.

1. Pilot tests have shown that interventions can be successful in significantly reducing the spread of HIV.
2. Applying interventions on a nation-wide scale is costly and success is difficult to measure.
3. It is important to intervene in many different ways in order to reach the largest possible number of people and have the maximum impact.

Resources required for effective interventions

A successful intervention program will require the active participation of all aspects of Kenyan society as well as the dedication and hard work of those directly involved in prevention programs. A successful program will also require considerable financial resources. Funds are needed for salaries, equipment, commodities, drugs, test kits, transportation, communications, etc. The Global Programme on AIDS has estimated that funding required for global prevention efforts are 10 to 15 times higher than current spending [GPA, 1993]

The funding required for a successful program in Kenya depends on a number of factors, including the mix of prevention programs implemented, the effectiveness of targeting services to the groups with the highest need and the degree of participation of the private sector. The costs of different interventions vary according to the way they are implemented and local conditions. Experience from programs around the world indicates that condom promotion programs cost 150-750 KSh (US\$ 3-15) per 100 condoms distributed, STD treatment costs 150-2500 KSh (US\$ 3-50) per treatment, and the costs of education and counseling programs are 250-600 KSh (US\$ 5-12) per person reached. Simulation modeling of AIDS interventions suggests that an appropriately designed comprehensive program might cost about 30 KSh (US\$ 0.60) per capita. [Stover 1995] That means that the total costs of an effective prevention program in Kenya might be around 800 million KSh (US\$ 16 million) per year. Of course, additional resources would be needed for patient care and research.

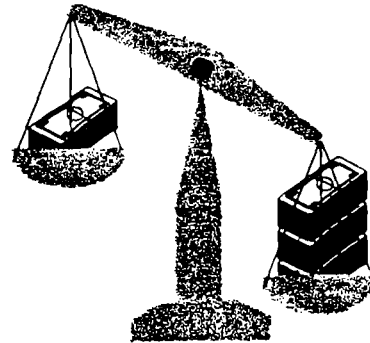
Some of the funds required will come from individuals who can afford to pay for prevention services. The private sector may also pay for some prevention services for private sector employees. However, most of the funds will have to be provided by the public sector. Donor resources have paid for a large share of most prevention programs to date, however, they are unlikely to increase substantially in the future. Kenya will have to find most of the funds to meet this need from its own resources.

Even though the costs of prevention are large, the costs of doing nothing are even greater. The estimated expenditure required to prevent one new infection is about 3750 KSh. This is considerably less than the cost of treating a new AIDS patient, which is estimated to be 27,000 KSh. The lost productivity caused when a worker dies from AIDS may be 10 times as large as the treatment costs. Analysis of the costs and benefits of prevention programs indicates that, in Kenya, the benefit-cost ratio may be about 30 to 1. That means that every shilling invested in effective AIDS prevention programmes will result in 30 shillings in savings and economic benefits.

Considerable resources will be needed to fund successful AIDS interventions. However, those expenditures will save many lives and avert the suffering of many families. In addition, investments to prevent future infections will result in a net savings to the government. Therefore, it is vital that significant financial resources be devoted to AIDS prevention efforts.

Resources Required

- Substantial resources are required to fund prevention programmes
- Each shilling invested in prevention returns more than 30 shillings in savings and economic benefits



The National AIDS and STDs Control Programme of Kenya

In 1987 the Government of Kenya created the AIDS Programme Secretariat (APS) to organize the nation's efforts against AIDS. The National AIDS and STDs Control Programme (NASCOP) was created within the Ministry of Health to be the major implementing organization of the Government's programme. Also in 1987 the APS developed a Medium Term Plan (MTP I) for the period 1987-1991. That plan focused on public awareness campaigns, strengthening of laboratory services, surveillance of HIV/AIDS and training of health workers. In 1992, the second Medium Term Plan (MTP II 1992-1996) was prepared. Although the medium-term plan has not been fully implemented due to a number of constraints, it does represent an attempt to design a comprehensive intervention programme for Kenya. The plan adopts a multi-sectoral approach to mobilize a widespread effort against AIDS. The plan calls for action in six primary areas. These focus areas and the major activities within each area are shown below:

1. Prevention of sexual transmission of HIV

- AIDS education to youth in and out of school, including family life education, to provide children with the information to protect themselves from HIV when they become sexually active.
- Community-based AIDS education, including promotion and provision of community counseling services and public sex education to provide information to adults who are already sexually active about how to protect themselves against AIDS.
- AIDS/STDs in the workplace.
- Control of sexually transmitted diseases; diagnosis and treatment of STDs, in order to reduce the prevalence of STDs in the population and, as a result, reduce the transmission of HIV.
- Promotion of condom use.

2. Prevention of HIV transmission through blood and blood products

- Training, quality assurance, supplies, equipment and maintenance, re-organization of blood donor services.

3. Mitigation of the socio-economic impacts of HIV/AIDS

- Care of AIDS orphans.
- Empowerment of women.
- Counseling.
- Patient care (institutional care and home-based care).
- Socioeconomic impacts.

4. Epidemiological surveillance

5. Co-ordination of research

6. Management and coordination of the multi-sectoral AIDS control programme

In addition to these government efforts, a number of NGO and private sector programmes are also contributing to the fight against AIDS. The NGO AIDS Consortium helps to organize the efforts of a large number of NGOs who are making a major contribution to the provision of AIDS prevention and care. Some commercial sector organizations are developing AIDS in the workplace programmes to protect employees and their families.

What Needs To Be Done

Actions can be taken to slow the spread of HIV in Kenya and to avert the serious personal, social and economic consequences that would result from a continued AIDS epidemic. Much is being done today in Kenya to care for HIV/AIDS patients and to educate people about the dangers of AIDS. However, these efforts are not enough. HIV is still spreading rapidly in most parts of Kenya. In order for prevention efforts to succeed, a number of changes are required. Among the most important are:

- Strong political commitment by all leaders. Experience from development programmes around the world has shown that with a difficult problem such as AIDS, the strong support of the top leaders of the country is crucial to success.
- Adoption of a multi-sectoral approach to AIDS interventions. It is clear that AIDS is not just a health problem. It will affect all areas of society. It will affect individuals, families, villages, towns, economic growth and social development. Therefore, it is important that all sectors of society be involved in the solution to this problem including government, NGOs, private sector organizations, religious organizations, unions, professional societies, etc.
- Establishment of an effective national coordinating body with strong leadership and the backing of the Office of the President, international donor agencies, NGOs and all Kenyans. This is necessary in order to effectively coordinate a multi-sectoral approach to AIDS prevention.
- Strengthening of STD treatment at all levels as a strategy for HIV prevention.
- Introduction of AIDS education into school curricula in order to inform young people about how to stop AIDS.
- Substantially increased funding from the government, local communities, private sector organizations, and organizational donors.
- Strengthen HIV/AIDS/STDs surveillance, research and programme effectiveness.

V. Sources

- Auvert, Bertrand. "The Auvert Approach: A Stochastic Model for the Heterosexual Spread of the Human Immunodeficiency Virus." *The AIDS Epidemic and Its Demographic Consequences*. Proceedings of the UN/WHO Workshop on Modeling the Demographic Impact of AIDS in Pattern II Countries: Progress to Date and Policies for the Future, December 13-15, 1989, New York.
- Forsythe, Steven, Bill Rau, Elizabeth Gold, Janet Hayman and Neen Alrutz (editors). *AIDS: Socioeconomic Impact and Policy Implications in Kenya*. AIDSCAP, Arlington, VA: Family Health International, 1996.
- Forsythe, Steven, David Sokal, Lois Lux, Tim King, Alan Johnston. *An Assessment of the Economic Impact of AIDS in Kenya*. AIDSTECH. Chapel Hill, NC: Family Health International, 1992.
- GPA. "Effective prevention could halve new HIV infections" *Global AIDSnews*, Global Program on AIDS, 1993: 3.
- Harries, A.D. "Tuberculosis and Human Immunodeficiency Virus Infection in Developing Countries." *Lancet* 335 (1990):387-390.
- Ministry of Planning. "Chapter 12. HIV/AIDS and Development", *National Development Plan 1994-1996*, Nairobi, 1993.
- National AIDS/STDs Control Programme of Kenya. AIDS Case Reporting System and Sentinel Surveillance System, various reports, 1993.
- National AIDS/STDs Control Programme of Kenya. *The Second Five Year Medium Term Plan for AIDS Control, 1992-1996*. Nairobi, Kenya, 1991.
- National Council for Population and Development. *Demographic and Health Survey, 1993*. Nairobi, 1994.
- Over, Mead. "The Macro-Economic Impact of AIDS in Sub-Saharan Africa." Population and Human Resources Department. Washington, DC: The World Bank, April 20, 1992.
- Okeyo, T.M. *Widow Inheritance and socio-economic impact of AIDS on Luo women in Kenya*, 1993, (dissertation).
- Stanley, E.A., S.T. Seitz, P.D. Johnson, P.O. Way and T.F. Curry. "The United States Interagency Working Group Approach: The IWG Model for the Heterosexual Spread of HIV and the Demographic Impact of the AIDS Epidemic." *The AIDS Epidemic and Its*

Demographic Consequences. Proceedings of the UN/WHO Workshop on Modeling the Demographic Impact of AIDS in Pattern II Countries: Progress to Date and Policies for the Future, December 13-15, 1989, New York.

Stover, J. and P.O. Way. "Impact of interventions on reducing the spread of HIV in Africa: computer simulation applications" *African Journal of Medical Practice* 1995; 2(4): 110-120.

UNICEF. *Children and Women in Kenya: A Situation Analysis*. UNICEF and the Government of Kenya, August 1992.

US Bureau of the Census. Center for International Research. *Recent HIV Seroprevalence Levels by Country: November 1992*. Washington, DC, 1992.

Appendix

Persons Involved in Preparing and Presenting This Report

Administrative

Amb. S.B.A. Bullut, Director NCPD
Dr. Martin Kayo, Programme Manager NASCOP
Dr. Jimbo, former Programme Manager NASCOP
Margaret K. Chemengich, former Deputy Director NCPD

Technical Analysis

Godfrey Baltazar, NASCOP
Tom Mboya Okeyo, NASCOP
Roselyn Mutemi, NASCOP
John Stover, The Futures Group International
Alan Johnston, Research Triangle Institute

Presentations

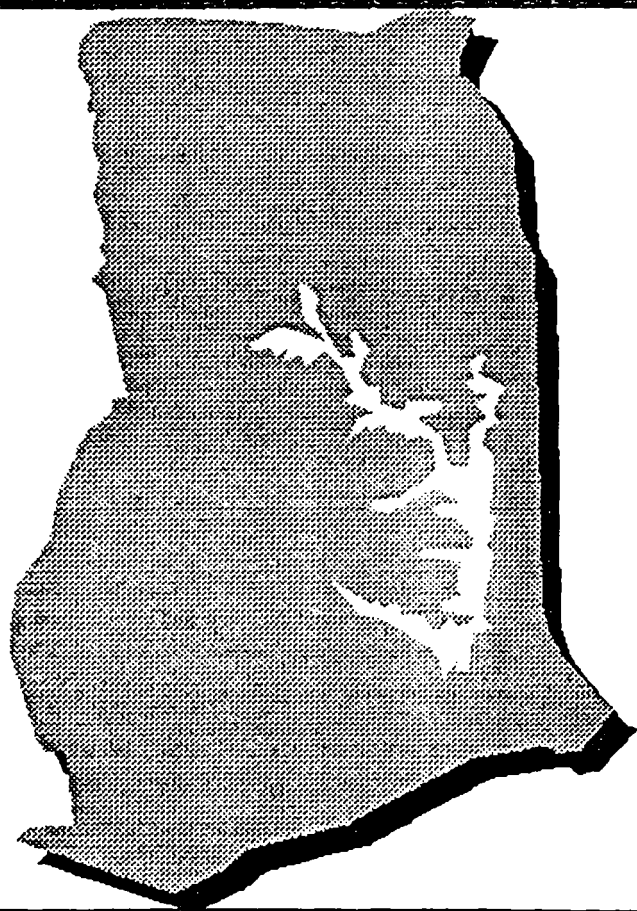
Edward K. Mburugu, University of Nairobi	Jaxon Ambole, Ministry of Culture and Social Services
Paul M.L. Kizito, NCPD	Angela Kamau, Ministry of Culture and Social Services
Godfrey Baltazar, NASCOP	David arap Kimeto, Ministry of Home Affairs and National Heritage
Roselyn Mutemi, NASCOP	David Nalo, Office of the President
Tom Mboya, NASCOP	Monica Aoko, Ministry of Planning and National Development
Vane Nyong'a, NCPD	Sammy R. Oyando, Kenya Broadcasting Corporation
Helen Odido, NCPD	Rosemary Nyanjom, National Assembly
Churchill Ndire, NCPD	Julius Lawi Onyango, Ministry of Finance
Kirogo Mwange, NCPD	M. M. Mwithi, Ministry of Public Works
Kagwiria Kioga, NCPD	Charles Nyaoro, Ministry of Transport and Communications
Emmanuel S. Adienga, NCPD	Charles Owino, Ministry of Finance
Catherine W. Ndei, NCPD	
Julius Majale, NCPD	
James Gitau, NCPD	
Mohamed Khamisi, Department of Defense, Office of the President	
Michael O. Jobita, Attorney General's Office	

For additional information on how you can help or for more information about this booklet or to schedule a presentation for your organization, please contact:

Programme Manager
National AIDS and STDs Control Programme
PO Box 19361, Nairobi
Tel: 729502/27/49
Fax: 729504
E-mail: KNACP@ken.healthnet.org

or

Director
National Council for Population and Development
PO Box 48994, Nairobi
Tel: 711600
Fax: 710281



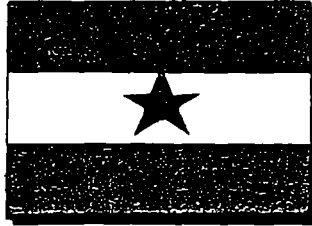
AIDS in Ghana

Background

Projections

Impacts

Interventions



National AIDS/STD Control Programme
Ministry of Health

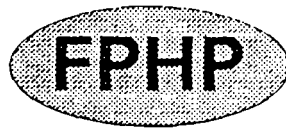


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Technical Annex

References

Acknowledgements

AIDS in Ghana was developed by:

- Dr. Emil Asamoah-Odei
Programme Manager
National AIDS/STD Control Programme
Accra.
- Dr. Phyllis Antwi
Lecturer
School of Public Health
University of Ghana
Legon.
- Mr. Donald W. Dickerson
Chief of Party
Family Planning and Health Project/Futures Group
USAID
Accra.

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For additional information of **AIDS in Ghana** contact the following address:

The Programme Manager
National AIDS/STD Control Programme
Disease Control Unit
P O. Box 2848
Accra, Ghana

Accra
September 1995

I. Introduction

The first cases of the Acquired Immune Deficiency Syndrome (AIDS) in the world were reported in 1981. Since that time the world has seen an illness that appeared at first to be largely confined to homosexual men and drug injectors in developed countries become a pandemic affecting millions of men, women and children on all continents.

As at the end of 1994, WHO estimated that around 18 million adult men and women and about 1.5 million children have been infected with the human immunodeficiency virus (HIV) since the beginning of the pandemic. It further projects that by the year 2000 a total of 30 to 40 million people will have been infected, and that there will be 10 million adult AIDS cases.

In countries where heterosexual transmission predominates, men and women are affected in approximately equal numbers. About one-third of all babies born of women infected with HIV are themselves infected and eventually die. By the year 2000, there will be 5-10 million AIDS orphans. These are children who do not receive the virus from their mothers but are orphaned when their parents die of AIDS.

II. Background

In Ghana about 15,000 cases of AIDS have been reported to the Ministry of Health as at the end of 1994. These reported AIDS cases represent only the visible part of the epidemic. However, there is much more to the epidemic than the number of reported cases.

The HIV/AIDS Pyramid

Many AIDS cases are usually not reported for several reasons. These include:

- Some people never seek hospital care for AIDS.
- Some doctors may not want to record a diagnosis of AIDS because of the stigma attached to AIDS.
- Some people with HIV infection may die of other diseases before they are ever diagnosed of having AIDS
- Some rural health care facilities may not have the capacity to test for HIV infection.

The actual number of AIDS cases in the country is not known. It is, however, estimated that the officially reported cases represent less than 50% of all cases of AIDS that have occurred in this country, and that more than 40,000 cases have actually occurred.

AIDS cases are only the tip of the pyramid. Many more people are infected with HIV, the virus that causes AIDS. It is estimated that at the end of 1994, a cumulative total of almost 400,000 Ghanaians had been infected with HIV. Most of these people do not know they are infected. They have no symptoms at all. However, all of them are capable of passing on the AIDS virus to others.

The HIV/AIDS Pyramid

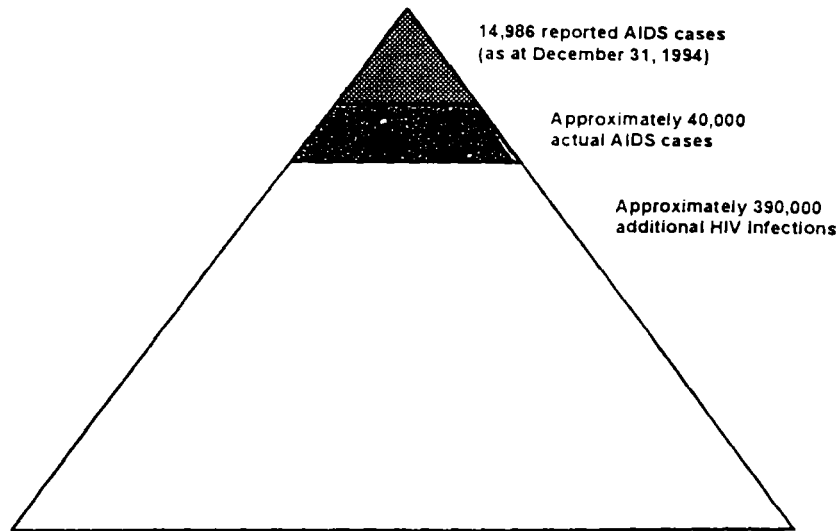


Figure 1

Regional Distribution of AIDS Cases

AIDS cases have been reported from all parts of the country. As can be seen in figure 2, the majority of cases have been reported from the Ashanti and Eastern regions which together have over 50% of the reported cases. Ashanti region has reported almost 5000 AIDS cases while more than 3000 cases of AIDS have been reported in Eastern region. Greater Accra, Brong Ahafo, Western and Central regions each has reported more than 1000 cases.

Reported AIDS Cases by Region

as at December 31, 1994

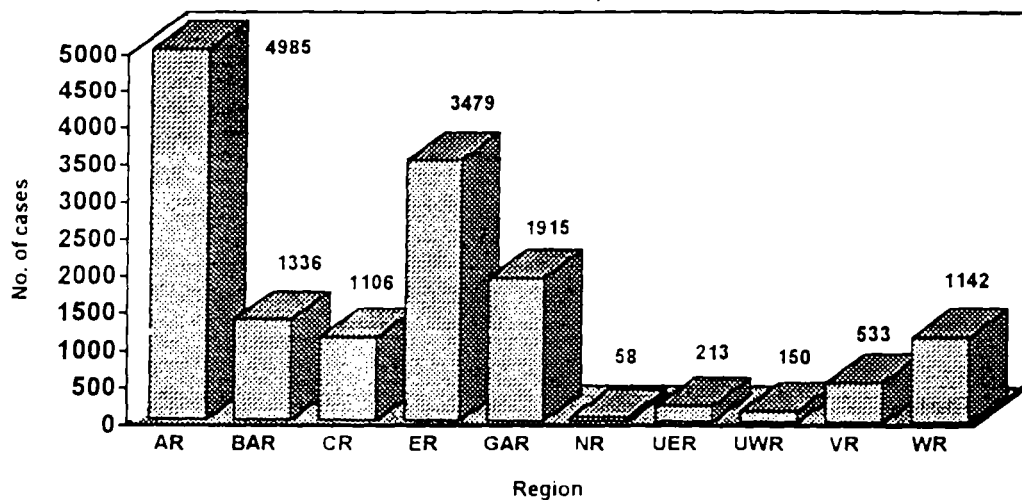


Figure 2

Age and Sex Distribution of AIDS Cases

Almost 90% of all reported AIDS cases occur in adults between the ages 20 and 49 years. Since this is the most economically productive group of the population, the resultant deaths constitute an important economic burden. This is also the age group when investments in education are just beginning to pay off. These deaths also have important consequences for children since most people in this age group are raising young children.

Reported AIDS Cases by Age and Sex (as at December 31, 1994)

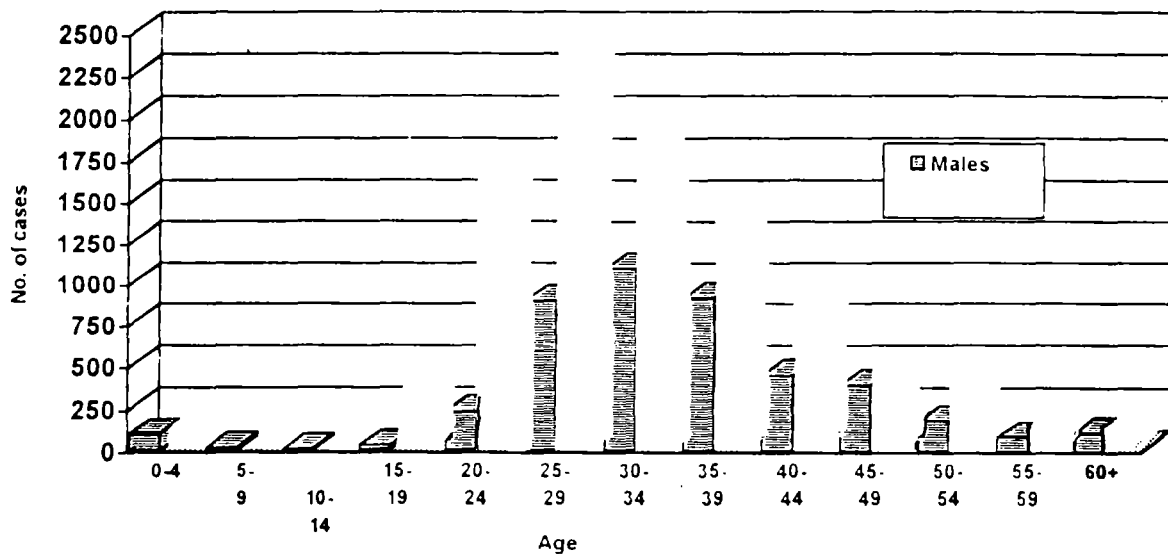


Figure 3

From figure 3, the following remarks can be made about AIDS in Ghana:

- There is a preponderance of females among the reported AIDS cases.
- The peak ages for AIDS cases is 25-29 for females and 30-34 for males. This indicates that females are getting infected at an earlier age than males.
- The absence of many AIDS cases in the 5-14 year old age group disproves two common misconceptions: HIV is not transmitted by mosquitoes or casual contact.

Transmission Mechanisms

AIDS is essentially a sexually transmitted disease (STD) which, like some other STDs, can also be transmitted through blood. This transmission may be through the transfusion of infected blood or blood products or through the use of non-sterile injection equipment. Less than 10% of HIV transmission in Ghana is due to blood as there is almost universal screening of blood (blood screening is not available in some small hospitals, however). The AIDS virus can also be transmitted from an infected woman to her foetus or infant.

HIV Transmission Modes

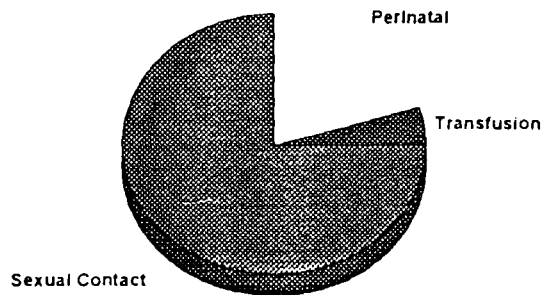


Figure 4

Incubation Period

A person does not develop AIDS as soon as he or she becomes infected with HIV. There is a lengthy incubation period. On average, a person does not develop AIDS until 5 to 10 years after becoming infected. For a large part of this period, the person may not have any symptoms and, therefore, may not be aware that he or she is infected. This contributes to the spread of HIV, since the person can transmit the infection to others without realising it. The amount of time from when a person develops full-blown AIDS until death is usually about one year.

HIV Incubation Period (Adults)

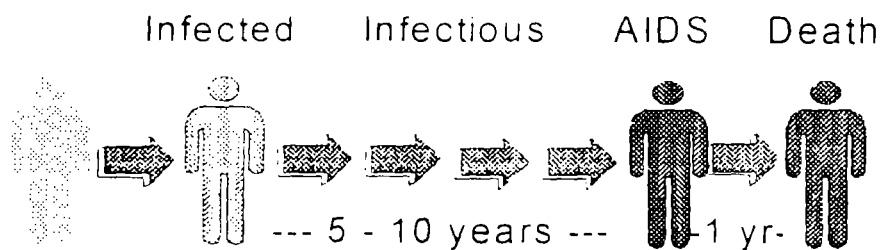


Figure 5

For children, the incubation period is much shorter. Most children who are infected at birth develop AIDS and die within two years.

Sentinel Surveillance Results

The Ministry of Health has instituted a sentinel surveillance system that provides the basis for estimating the extent of HIV infection. The sentinel surveillance system operates in 22 sites around the country. All these sites, except for two, are ante-natal clinics, where pregnant women go for care during pregnancy. The other two sites are STD clinics in Kumasi and Accra.

The confirmed¹ results for 1994 show that in most of the antenatal sites², the proportion of pregnant women who are HIV positive is between 2-4%. The lowest rates of HIV prevalence, 1%, was found in two sites, Tamale and Nalerigu. In one particular area, Agomanya, the prevalence was almost 10% (figure 6). Using the sentinel surveillance data and adjusting it to be representative of the total population, it is estimated that there are about 390,000 people in Ghana with HIV infection.

HIV Prevalence at Sentinel Sites: 1994
(Ante-Natal Clinics)

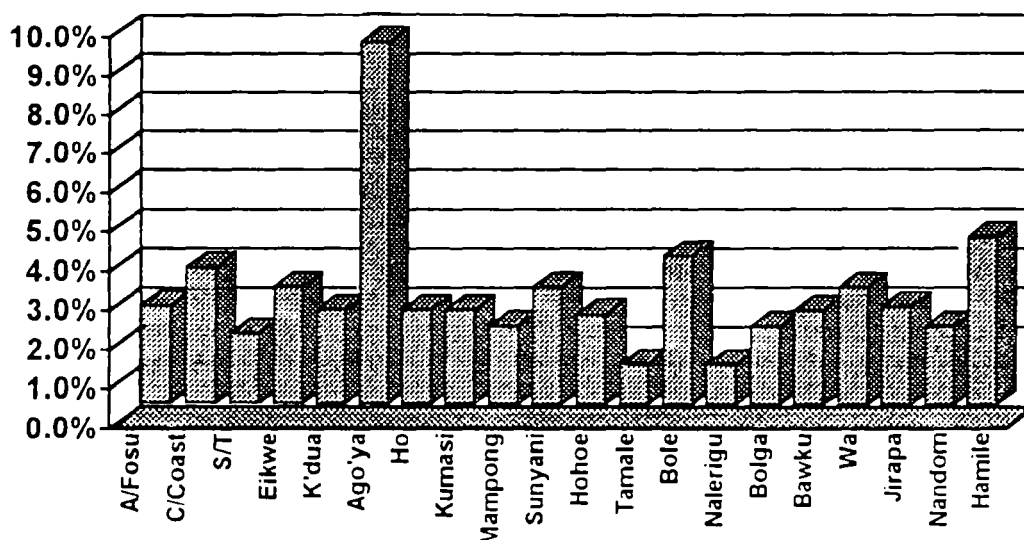


Figure 6

Discussing trends in HIV infection is difficult. In figure 7, comparable, screened (but unconfirmed) data are presented for 6 sentinel surveillance sites, Koforidua, Agomanya, Kumasi, Sunyani, Jirapa and Wa, for the years 1992 and 1994 (1991

¹ The design of the 1994 sentinel surveillance study represents an improvement over the previous studies in that the sites were chosen from all of the 10 regions and all positive results were confirmed by the Public Health Reference Laboratory.

² Work was successfully completed in 20 of the 22 ANC sites and 1 of the 2 STD sites.

data is also presented for Sunyani).³ In 4 of the 6 sites, prevalence seems to be declining while in Jirapa and Wa, HIV prevalence in 1994 was higher than in 1992. One cannot draw any meaningful conclusions from these results.

Comparison of HIV Prevalence at Sentinel Sites (Screened Results)

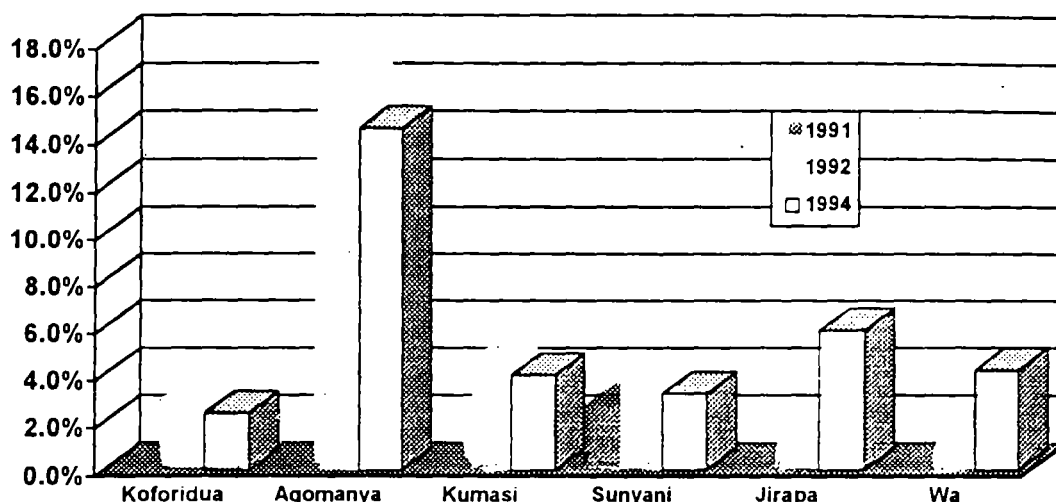


Figure 7

Current Estimates of HIV Prevalence

HIV probably started to spread in Ghana in the early to mid-1980s. The first cases of AIDS were detected in Ghana in 1986. One commonly used measure of the extent of HIV in a population is adult prevalence, that is, the percentage of adults over 15 years of age who are infected with HIV. In 1986, HIV prevalence in Ghana was still very low. The National AIDS Control Programme (NACP) estimated that by 1990, however, adult prevalence had risen to 2.5%. Based on the results of the 1994 sentinel surveillance study, the NACP estimates that the 1994 prevalence rate is around 4%.

³ In the previous years, screened results from the sentinel sites were not confirmed. Therefore, no comparison of confirmed results can be made. There is also reason to believe that the screened results for 1994 are more accurate than in previous years because of increased, updated training, continuous supply of reagents and regular supervisory and monitoring visits. Furthermore, some of the reagents used in 1992 were more sensitive which could have resulted in more false positives.

III. Projections

In order to project the number of new infections in the future, it is necessary to make an assumption about how rapidly HIV will continue to spread. The spread of HIV depends on many factors such as sexual practices, condom usage, and screening of blood, to name a few. How fast and how far HIV spreads in the future will depend on the success of control and prevention activities in all of these areas.

Projected HIV Prevalence

Prevalence is increasing in Ghana and one might assume that it will continue to rise over the next several years. In 1994, the NACP estimated that adult HIV prevalence was about 4% although, as shown above in figure 6, there are areas in the country where the estimated prevalence is almost 10%. Most of the sentinel sites, however, show a prevalence of between 2%-4%. By way of comparison, the HIV prevalence rate among pregnant women in selected West African cities for the 1991/92 time period, shown in figure 8, varies from 0.3% in Dakar, Senegal to almost 15% in Abidjan, Cote d'Ivoire⁴.

HIV Prevalence among Pregnant Women
in Selected West African Cities
(1991/1992)

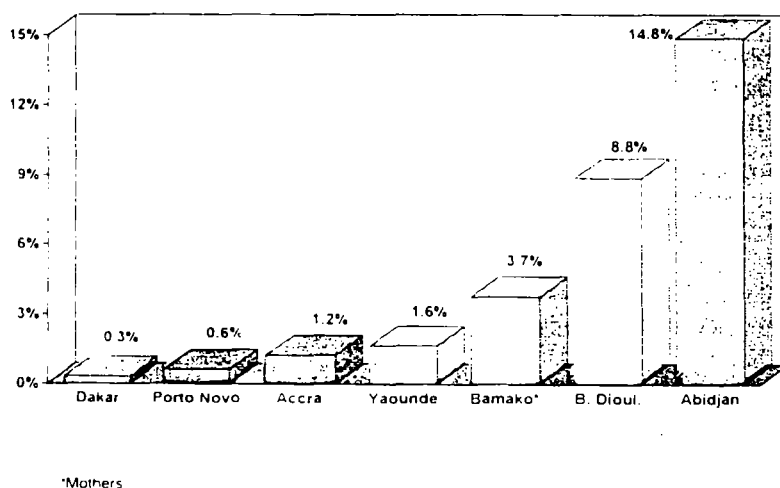


Figure 8

From the present trend, it is estimated that the prevalence of HIV will continue to rise to a level of about 8% in 2005 and remain more or less stable until 2010. (This estimate is on the conservative side.)

⁴ U.S. Bureau of the Census, Health Studies Branch, Center for International Research, **Seroprevalence Levels by Country: December, 1993**, Research Note No. 11, December, 1993.

With a rise in HIV prevalence to 6.5% by the year 2000 and 8% by 2005, the number of adult Ghanaians infected with HIV will rise from the almost 400,000 estimated cases in 1994 to 750,000 by the year 2000 and 1,250,000 by the year 2010. The number of new AIDS cases would increase to almost 62,000 by the year 2000 and 113,000 by the year 2010.

Projected Number of People Infected with HIV

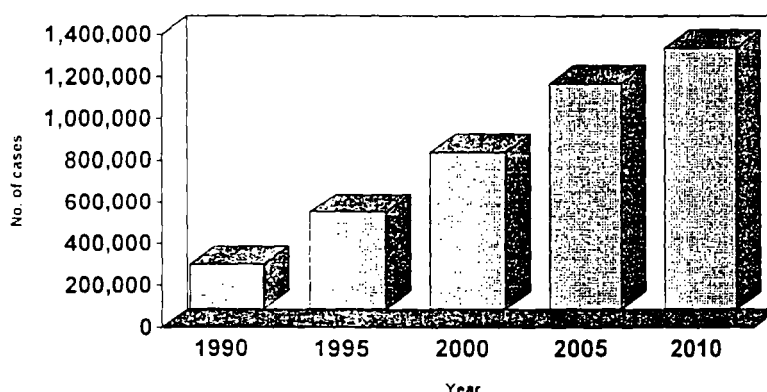


Figure 9

Population Size and Growth

The increased deaths attributable to AIDS will have a significant impact on the population size. Population growth, however, will continue at a high level. The following population projection (figure 10) illustrates this point. This projection is based on the median population projection used by the Population Impact Project's RAPID model.

In this projection, the total fertility rate (the average number of births per woman during her lifetime) falls from the 1993 level of about 5.5 to 4.7 by the year 2000 and 3.8 by the year 2010. Furthermore, it assumes that mortality from all causes other than AIDS continues to decline so that life expectancy would increase from about 56 years in 1990 to 67 by the year 2010 if there were no AIDS deaths.

With no AIDS, the population would increase from over 16 million this year (1995) to about 19.79 million by 2000 and 25.89 million by 2010. The growth rate of the population would be 2.6% per year in 2010.

With AIDS, the population would be 19.46 million in 2000, a difference of 330,000. This difference would be 1.35 million by 2010. Thus, the combined impact of AIDS deaths and fewer births because of a smaller reproductive age population would result in over 1.35 million fewer people by 2010. In spite of this, however, the population would be growing at a rate of 2.2% per year.

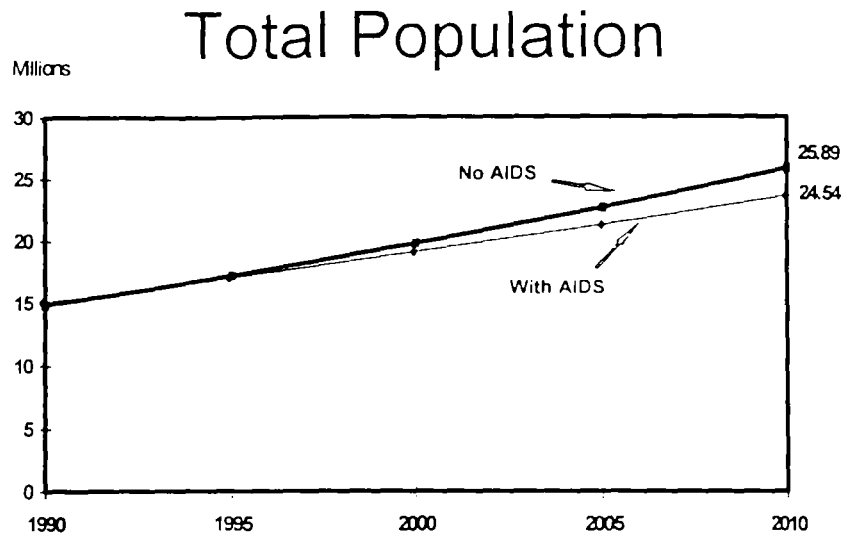


Figure 10

AIDS will therefore have a significant impact on population size, but the population will still be growing at a relatively rapid rate. The growth rate of the population will be less because of AIDS, but will still be 2.2% in 2010, implying a doubling time for the population of only about 30 years. Changes in the total fertility rate will have much more impact on the population growth rate than will AIDS deaths.

Adult Death Rate

AIDS deaths will have a differential impact on different age groups of the population. Infants and young adults will be the most affected groups. Without AIDS, the annual number of deaths among young adults (ages 15-49) would increase slowly from the present estimated 62,000 to 63,000 by 2010. However, AIDS will dramatically increase that number, more than doubling it to 132,000 per year by 2010. This rapid increase in young adult deaths would have serious consequences for economic and social development.

Annual Number of Deaths of Without AIDS (63,000) Young Adults (15-49) by 2010

With AIDS (132,000)

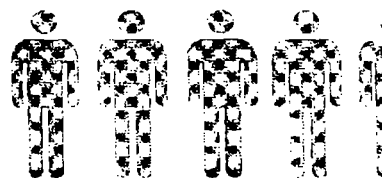


Figure 11

IV. The Social and Economic Impacts of AIDS

AIDS, more than any other disease, has the potential to destabilise the fabric of society, since it mainly affects those in the reproductive ages, usually the bread-winners.

The household is usually the first unit to suffer. Because transmission is principally through sexual contact or from mother to child, often more than one member of a household will be affected. The family will have to adapt and cope if members fall ill. Relatives and other family members will have to handle domestic and agricultural tasks of the sick person while colleagues will have to take on his or her work responsibilities.

The death of an adult invariably leads to far-reaching changes in the structure of the household. Children may be fostered, a surviving spouse may move out or, in some cases, even remarry and grandparents will take on new roles raising children or caring for sick persons. Already this is happening in some parts of the country.

AIDS Orphans

One of the worst impacts of AIDS deaths in young adults is an increase in the number of orphans. An AIDS orphan is defined as a child under the age of 15 who has lost his or her mother to AIDS. With this definition, the number of AIDS orphans in this country is estimated to increase over the years to about 160,000 by the year 2000. Coping with such a large number of orphans will lead to a tremendous strain on social systems.

AIDS Orphans

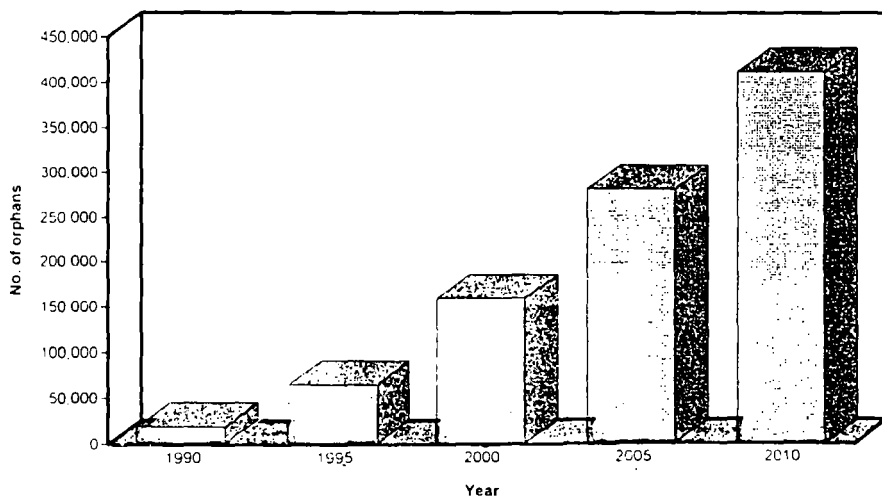


Figure 12

AIDS orphans may be deprived of proper care, supervision and parental guidance at a critical period in their lives, before they develop their own survival skills.

At the family level, there will be an increased burden and stress on the extended family which will try to care for these orphans. Many grandparents will be left to care for young children. Some families may even be headed by children as young as 10-12 years old as is already happening in some parts of East Africa.

At the community and national level, there will be an increased burden on society to provide services for these children, including orphanages, health care and schools. Some of these children may not have adequate health care and schooling, increasing the burden on society in future years. These children are often obliged to stop their formal education prematurely due to lack of resources, or forced to provide care for their families, or to earn a living. A World Bank study in Tanzania found that children who have lost their mothers to AIDS have markedly lower enrolment rates and, once enrolled, spend fewer hours in school than children with two living parents. There may also be an increase in the number of urban street children.

These are real challenges for any community, including ours, especially in these days of economic difficulties and structural adjustment.

Women and AIDS

Although, on a global level, most of the early reported HIV infections were men, women have been infected with HIV since the beginning of the pandemic. In, Ghana, however, many more women than men were infected throughout the history of the epidemic. As stated earlier, at December 31, 1994, women constituted the majority of reported AIDS cases in all age groups except the 5-9 age group. New AIDS cases in women are expected to rise to almost 32,000 by the year 2000 and almost 60,000 by 2010 (figure 13).

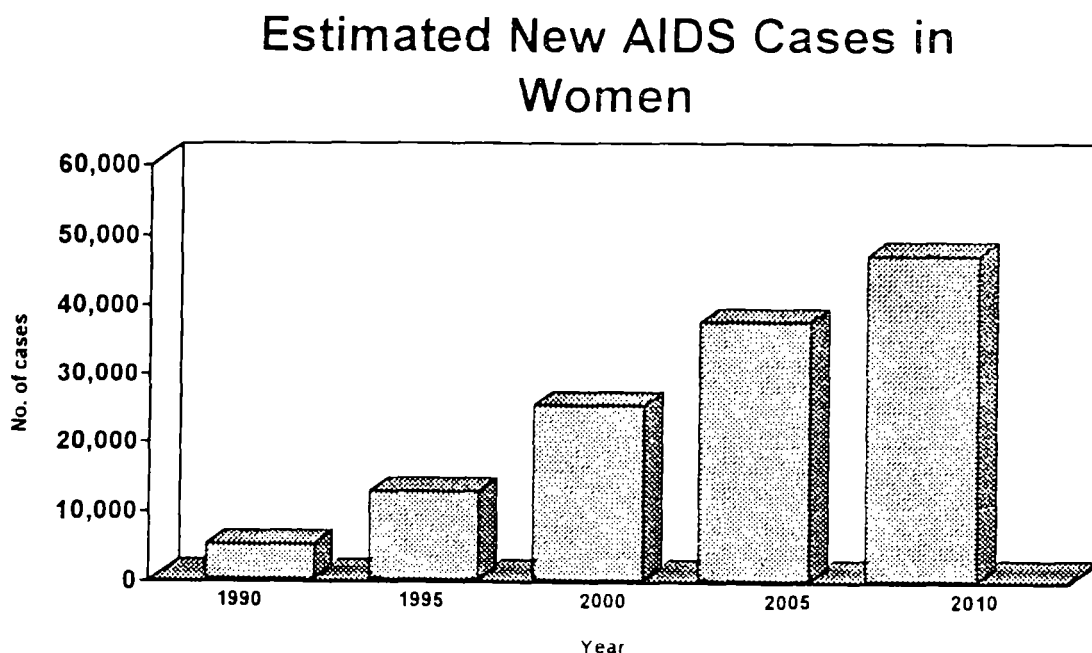


Figure 13

This gender difference results from several factors. First, women are more biologically vulnerable than men to sexually transmitted diseases, including HIV infection. Furthermore, STDs which bring on recognisable symptoms in men, are often asymptomatic in women and therefore remain untreated. In fact, according to the findings of the 1993 Ghana Demographic and Health Survey (GDHS), only 54% of all women interviewed and 34% of women with no education have ever heard of a STD other than AIDS. A related factor is the relative lack of services designed to meet women's needs. Finally, women are more vulnerable than men due to their status in society, including social and cultural expectations about their sexuality.

Women by virtue of their traditional role in society as care-givers carry a greater burden in terms of the social and cultural impact of the pandemic. Over 45% of female respondents in the 1993 GDHS reported that if a relative was suffering from AIDS, they would want that person cared for by a family member. This responsibility will likely fall more fully on women who may themselves be infected with HIV.

Childhood Deaths

AIDS also affects child survival. It is estimated that about 30-40 percent of babies born to infected mothers will also 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 could soon become the major cause of child death, worse than other major causes such as measles and malaria. For, example, the annual number of child deaths due to measles and malaria is estimated to range between 5,000 and 11,000 through the year 2010 whilst those due to AIDS could reach almost 18,000 over the same period (figure 14).

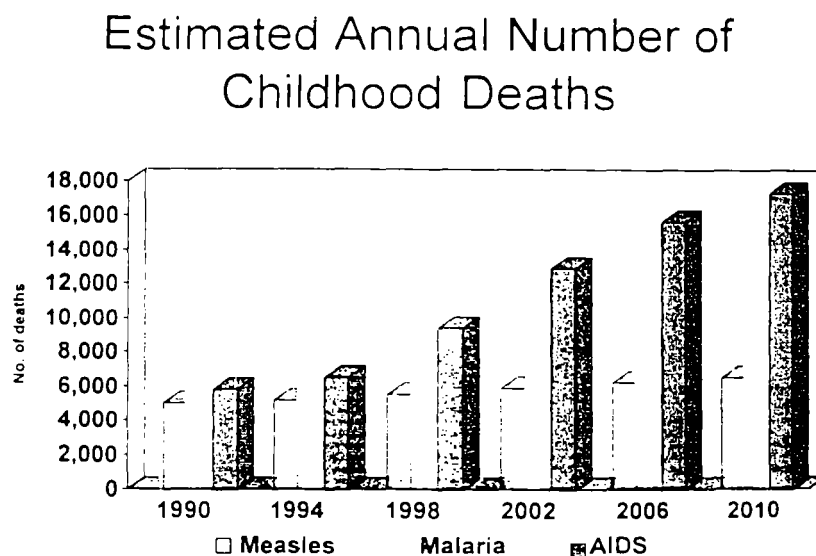


Figure 14

The increasing number of child deaths due to AIDS threatens to reverse many of the recent gains of child survival programmes.

- The infant mortality rate is the number of infants who die during the first year of life per 1000 live births. The 1988 Ghana Demographic and Health Survey (GDHS) found infant mortality to be 77. The 1993 GDHS found this rate to be 66. Without AIDS, the infant mortality rate might be expected to decline to about 40 by 2010. However, with AIDS, it would only decline to about 45 by the same year.
- The under-5 mortality rate is the number of children who die before reaching their fifth birthday per 1000 live births. In 1988, the GDHS reported the rate as 155 while in 1993 it was found to have decreased to 119. Without AIDS, it might be expected to decline to around 51 by 2010. However, with AIDS, this rate would be around 75 in 2010.

Demand for Health Services

The growing number of people with AIDS and AIDS-related complications will severely strain the health infrastructure. One way to quantify this increased demand for health services can be illustrated by looking at hospital beds. Not all people with AIDS will seek hospital care. But for those that do, the average length of stay is considerably longer than for most diseases. Using estimated AIDS cases in 1994, figure 16 shows that as much as 20% of all hospital beds in the country would have been occupied by patients with HIV-related disease. As the epidemic grows, so will the hospital bed requirements. By the year 2000, almost half of all hospital beds would be required for HIV/AIDS persons. By 2010, over 90% of all hospital beds would be occupied by AIDS patients.

Hospital Bed Utilisation

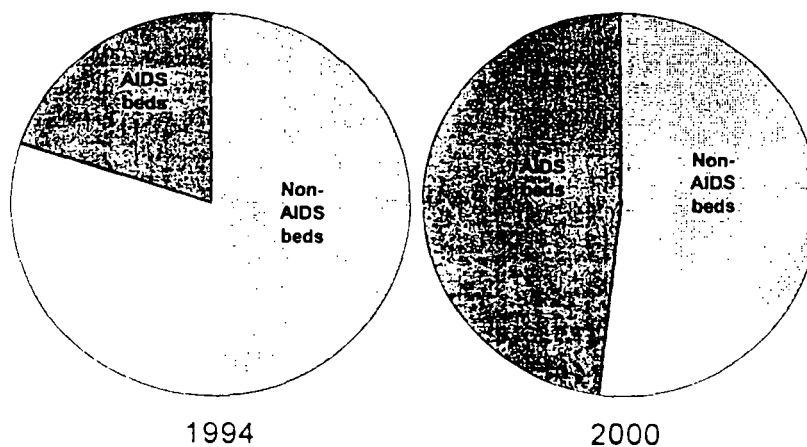


Figure 15

This would leave an insufficient number of beds for patients for all other causes. Therefore AIDS must be controlled or it will seriously affect the provision of health services.

HIV and Tuberculosis

The potential interaction between HIV infection and other infectious diseases is of great clinical and public health concern. The most significant interaction is with tuberculosis.

Efforts to control TB have been put in place over the past few years. In spite of this, the number of TB cases has been rising. This is due to the spread of HIV infection. HIV weakens the immune system of otherwise healthy adults. Many adults carry a latent TB infection which is suppressed by a healthy immune system. When that immune system is weakened by HIV, it can no longer control the TB infection and overt TB can develop.

In the absence of HIV, the number of new TB infections would be limited to about 0.2% of the population. This would result in 20,000-30,000 new TB cases each year.

Estimated New Adult Cases of Tuberculosis

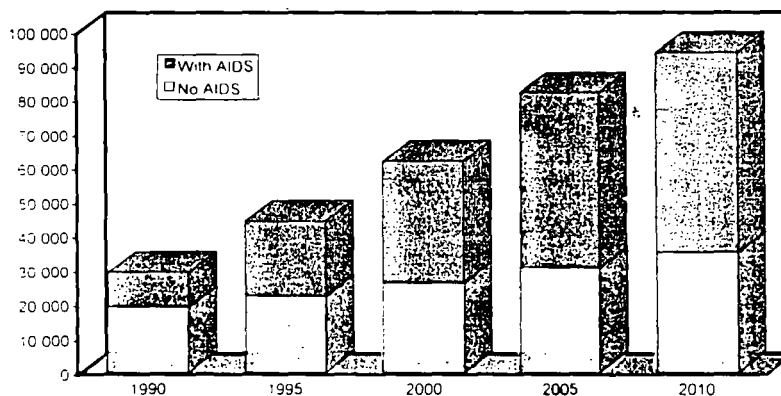


Figure 16

With AIDS, a number of new TB cases will develop. If the assumption is made that, among people with both HIV and latent TB infections, 10% develop TB each year then as can be seen in figure 16, the additional number of TB cases due to HIV infection would be about 36,000 by the year 2000. Even this is likely to be an underestimate since these new cases may transmit the disease to others.

The impact of HIV infection on tuberculosis is a serious problem because TB is infectious through casual contact. It threatens to vastly increase the risk of

tuberculosis for the entire population. Also, drug-resistant strains of TB are appearing, making it much more difficult and expensive to treat TB.

Cost of AIDS

The cost to individuals, families, and society of treating manifestations of HIV/AIDS in any particular case will vary with the marked differences in signs and symptoms, and length and severity of illness among various patients. People with HIV infection may seek treatment for HIV-related symptoms such as cough, fever, diarrhoea, oral sores and skin problems, or for opportunistic infections such as tuberculosis and fungal infections of the throat and oesophagus. As people with HIV infection and related diseases progress from asymptomatic infection through episodic illnesses of varying severity to eventual death, their corresponding health care and social support needs increase. Ghanaians feel that these increased needs should be met by the government. Almost 38% of respondents in the 1993 GDHS believe that a government organisation should care for relatives suffering from AIDS while almost 40% believe that the most important thing that the government should do for people who have AIDS is to provide them with free medical treatment.

AIDS Treatment Costs

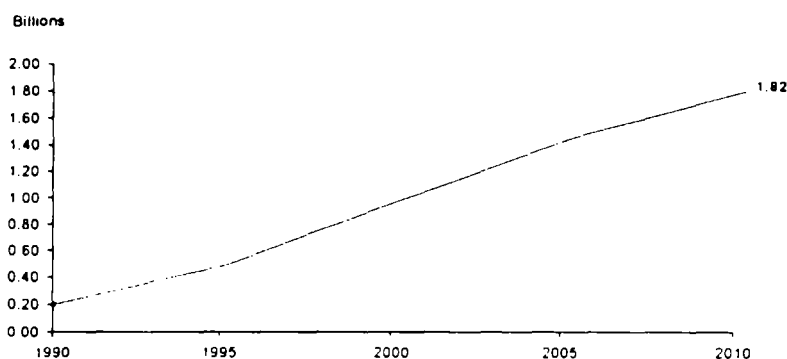


Figure 17

Information is lacking for calculating costs for the spectrum of conditions associated with HIV/AIDS. Some attempts have been made to determine these costs, but efforts have mostly been directed at costs of in-patient treatment in hospitals. Much less is known about costs of out-patient treatment and medications. Little is known about the cost of home-based services. Still less is known about the value of the services provided by family members, lovers, friends and others in support of the terminally ill person's basic activities of daily living. Though such supportive care is generally not classified as personal health service, it requires diversion of economic resources

that substitute for long-term institutional care or home-based care by health professionals.

A recent study done in Korle-Bu estimated the in-hospital, lifetime cost of treating one AIDS patient to be about 100,000 cedis. Even assuming a relatively small percentage of AIDS patients seeking hospital care (20% in urban areas, 10% in rural areas), it is estimated that over 200 million cedis was spent on in-hospital costs for AIDS patients.

If this expenditure remains constant, then, as shown in figure 17, the total hospital cost for AIDS care would increase to about 1 billion cedis by the year 2000 and 1.82 billion by the year 2010. This would amount to almost 4% of public expenditures for health care by the year 2000. Again, this represents only the in-hospital costs. Clearly, this would place a tremendous burden on the public health system to provide adequate care for AIDS patients and still try to meet all the other health needs of the population. This situation will also have serious consequences on the proposed Health Insurance scheme being developed in the country. At a large bank in Zambia, for example, life insurance payments rose threefold between 1991 and 1992, largely due to HIV/AIDS related causes.⁵

Economic Impact of AIDS on the Nation

AIDS will have an impact on the economic development of the country in a number of ways. Although the actual impact of AIDS on the rate of growth of the Gross Domestic Product (GDP) is difficult to estimate, simulations carried out by the World Bank indicate that growth in GDP per capita in Sub-Saharan African countries may decline on average by about 0.6 percentage points

The loss of young adults in their most productive years of life will certainly affect overall economic output. If AIDS is more prevalent among the economic elite, who are the best educated people with the highest paying jobs, then the impact would be much larger than the absolute number of AIDS deaths would indicate. It is also important to consider how the private costs of AIDS will be paid. These costs include expenditures for medical care, drugs, funeral expenses, etc. If most of these extra expenditures are financed out of savings then the reduction in investment could lead to a significant reduction in economic growth.

The economic impacts are likely to be larger in some sectors than others. Certainly health care and insurance are likely to be significantly affected. Sectors that employ young, sexually active men who are away from their families for long periods of time may be severely affected. This may include men in the armed forces, transportation, mining and extension services. Some evidence of this phenomenon already exists in the large number of AIDS cases being reported in the Adansi West District (which includes Obuasi, home of Ashanti Goldfields Corporation).

Studies in South Africa, Zambia and Zimbabwe suggest that absenteeism and fatigue on the job resulting from AIDS-related illnesses may be even more costly

⁵ Roberts, Matthew, p. 4.

than the eventual deaths of employees. An in-depth analysis of five Kenyan companies found that AIDS is already costing an average of \$45 per employee annually, or about 3% of company profits. If the spread of HIV/AIDS infection progresses as predicted in Kenya, within the next 10 years the average annual cost will rise to over \$120 per employee or 8% of company profits.⁶ Initial estimates from work done in a few companies in this country indicate that the costs involved may not be very different from those in East Africa.

The Food and Agriculture Organisation (FAO) estimates that the AIDS epidemic has become so serious that it threatens to hurt agricultural production and cause food shortages, although the actual impacts on agriculture are likely to vary by agricultural system. In rainy areas, where a variety of crops are planted throughout the year, families can cope relatively well with the loss of a few labourers. They may reduce the area cultivated and cut back on the number of crops planted, but may still be able produce an adequate amount of food. In dry areas, where farming depends on one or two crops that must be planted and harvested at specific times of the year, the impacts are likely to be more severe. In these areas the loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest. The loss of labour force because of AIDS could make it difficult for families to feed themselves.

A loss of agricultural labour is likely to cause farmers to switch to less labour-intensive crops. In many cases this may mean switching from export crops to food crops. Thus, AIDS could affect the production of cash crops as well as food crops.

⁶ Roberts, Matthew, p. 4.

V. Interventions to Slow the Spread of AIDS

There is as yet no vaccine to protect people against HIV infection or a drug to cure individuals already infected with HIV. However, much is known about how to prevent the spread of HIV through sexual intercourse and blood transfusion. It is vital to put that knowledge to work in order to slow the spread of the virus and thereby minimise the enormous personal and socio-economic costs resulting from the pandemic.

Strategies to Slow HIV Transmission

The impact of AIDS will be very severe in Ghana if HIV infection continues to spread at its current rate. Fortunately, there are actions that can be taken to slow the spread of HIV (figure 18).

- To avoid infection through blood transfusion, the blood supply needs to be made as safe as possible. This means screening blood through laboratory tests and screening potential blood donors through interviews in order to reject as donors those that have a high probability of being infected.
- To reduce perinatal transmission, it is important that young women know whether or not they are infected. If they are they may wish to use family planning to avoid pregnancies. Counselling needs to be available for couples to help them understand the results of the HIV test and the choices facing them.
- The major mode of transmission is through heterosexual contact. People can protect themselves by avoiding sexual contact with multiple partners. The use of condoms can also reduce the risk of acquiring HIV infection. Since the presence of a sexually transmitted disease can increase the chances of acquiring HIV during unprotected contacts, programmes to control STDs can also help reduce the number of new infections.

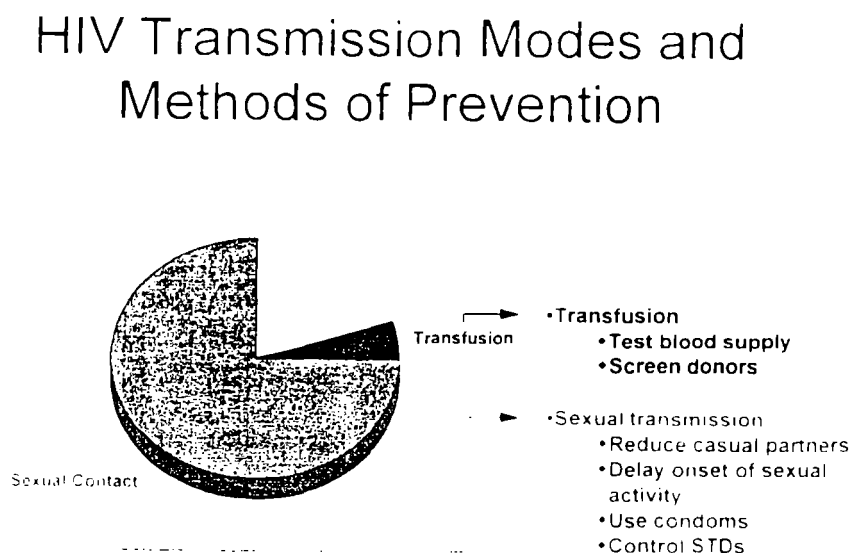


Figure 18

The Effects of Interventions

There has been much research world-wide to discover the best ways to slow the spread of HIV. These activities include information, education and counselling programs; testing, condom promotion and availability and STD control.

The potential impact of successful interventions can be illustrated using computer modelling. The following information, presented in figure 19, was developed using two different models to show the expected impact of interventions in a typical urban setting.⁷ In these illustrations, it is assumed that adult HIV prevalence would increase to 20 percent with no interventions.

Expected Effects of AIDS Interventions

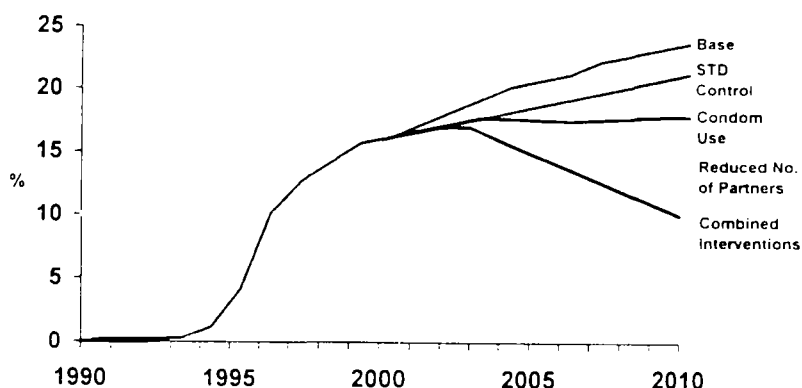


Figure 19

Reduction in number of sexual partners. The first intervention focuses on encouraging people to remain faithful to a single partner. This could be done through a combination of mass media messages, counselling and education programs. It is assumed that the result will lead to a reduction of 50 percent in the number of men who visit prostitutes, a 25 percent reduction in the number of casual sexual contacts and a doubling of the average duration of casual relationships. If these interventions are implemented when prevalence has reached about 15 percent, the result would be a 35 percent reduction in prevalence after 10 years. This would be an important reduction in the spread of HIV, but not by itself a complete solution.

⁷ The interventions are based on model intervention programs being developed by the Global Programme on AIDS of the World Health Organisation.

Promotion and availability of condoms. The second intervention is to promote condoms through mass media, counselling and education and also to increase the availability of condoms through expanded public distribution, social marketing, programmes with prostitutes and programmes in the workplace. This illustration assumes that condom use increases to 70 percent for prostitutes and to 13 percent in contacts between men and their casual girl friends. Under these assumptions, prevalence would be reduced by 25 percent after 10 years.

STD control. The next intervention focuses on controlling the spread of sexually transmitted diseases such as syphilis and gonorrhoea. This intervention involves improved services to detect and treat STDs. However, it should be noted that a full STD program would also include condom promotion and education. It is assumed that through this intervention 30 percent of all STD episodes are correctly treated. The result would be a 10 percent reduction in HIV prevalence after 10 years.

Combined intervention. Each of the interventions described above can make an important contribution to controlling the spread of HIV. However, none by itself solves the problem completely. A much larger effect can be achieved by implementing all the interventions together. In the case illustrated here, combining the interventions would reduce HIV prevalence by 50 percent within 10 years. It is important to implement combined interventions in order to reach the maximum number of people. Some people will respond to one intervention while others will respond to another.

Treatment and vaccines. There is no known cure for AIDS. There are several drugs that are approved for the treatment of people with HIV infection or AIDS. However, the effectiveness of these drugs is primarily limited to combating opportunistic infections that arise because of the weakened immune system. They do not cure the HIV infection or prevent AIDS. Research on vaccines continues in many laboratories around the world. Trials of vaccines may begin this year. However, most scientists believe that vaccines are not likely to be ready for mass use before the year 2000. Even once vaccines are available there will be problems in producing large quantities and delivering the vaccine to large numbers of people. Therefore, it does not appear that vaccines or drugs will contribute much to the fight against AIDS in the next several years.

There are three important lessons to be learned concerning interventions.

1. Pilot tests have shown that interventions can be successful in significantly reducing the spread of HIV.
2. We do not yet have much experience with applying interventions successfully on a nation-wide scale.
3. It is important to intervene in many different ways in order to reach the largest possible number of people and have the maximum impact.

What is being Done in Ghana

The AIDS Control Programme in Ghana is one of the programmes co-ordinated by the Disease Control Unit of the Ministry of Health.

The programme developed a five-year medium term plan (MTP) for the period 1989-1993 that described the objectives, strategies and activities for the prevention and control of the disease.

When the MTP ended in 1993, a national workshop was organised in June 1994 with the view of arriving at a consensus on the nature of the current and future epidemic, its determinants and its impact.

Agreement was reached on the objectives, strategies and interventions to deal with the current and future epidemic as well as emerging issues notably the socio-economic impact of the disease.

The earlier medium term plan focused on:

- (a) preventing sexual transmission
- (b) preventing infection through blood transfusion and unsafe medical practices, and
- (c) the reduction of the impact of the disease on affected individuals, their families and the community at large.

Among the accomplishments realised in the effort to prevent and control AIDS in Ghana include the following:

- ♦ A high level of awareness of AIDS exists in the country although this level of awareness has not been translated into the desired level of positive sexual behaviour or positive attitude towards HIV/AIDS.
- ♦ Affordable condoms are now available throughout the country through both public and private sector outlets.
- ♦ The existing MOH management structure has been strengthened at the national and regional levels and to some extent at the district level to deal with the AIDS problem. This has been achieved through the development of guidelines, training of staff, and provision of equipment to the regions.
- ♦ An HIV/AIDS epidemiological surveillance system has been put in place to measure the magnitude of the AIDS problem and to monitor trends.
- ♦ A counselling system now exists at both the regional and district levels to provide psycho-social support to HIV seropositive persons, persons with AIDS and their relatives.
- ♦ The management of STDs has been strengthened through the development of guidelines and training of staff.
- ♦ Ninety to ninety-five percent of all of the blood transfused in the country is screened for HIV.

- ♦ Some sector ministries and NGOs have been mobilised to integrate HIV/AIDS prevention and control into their activities.

What Needs to be Done

During the consensus workshop it was agreed that actions should be taken to slow the spread of HIV in Ghana and to avert the serious social and economic consequences that would result from a continued AIDS epidemic.

It was recognised that much is being done presently to care for people with HIV infection and AIDS and also educate the general public about the dangers of AIDS. Despite these efforts, HIV is still spreading rapidly in most parts of Ghana. For the prevention efforts to succeed, a number of issues need to be addressed. Among them are:

Promoting safer and responsible sexual behaviour which among other things should include the proper use of condoms and its acceptance by the general public and mutual fidelity among couples. All channels should be used to deliver these messages. According to the 1993 GDHS, almost 60% of respondents received their AIDS information from the radio and 32% from the television. After friends or relatives, these are the two most important sources of information about AIDS. Only 18% of the respondents received their information from health workers. This is perhaps not surprising as the 1993 Situation Analysis of Family Planning Service Delivery Points in Ghana showed that whereas 93% of FP clients would be willing to discuss AIDS with a nurse, only 44% of providers surveyed were willing to provide information and counselling on AIDS to FP clients.

Promoting early diagnosis and adequate treatment of STDs and periodically reviewing the essential drug list to include appropriate and effective drugs taking into consideration emerging resistance to the common drugs.

Incorporating effective family life education with school curricula and out of school youth programmes to inform young people about how they can protect themselves from AIDS/STDs.

Developing policies that provide an enabling environment for AIDS prevention and control that also protect the human rights of affected individuals, e.g. non-discrimination and confidentiality of information on HIV infected individuals. Such actions are extremely important in light of the findings from the 1993 GDHS which show that 33% of women and 41% of men interviewed believe that AIDS sufferers should be quarantined, while 10% of women and 9% of men think that they should be killed.

Educating employers to use the skills of HIV/AIDS persons to the maximum as long as possible. This should include retraining of employees where necessary and appropriate use of their services

Adoption of a multisectoral approach. AIDS/STD programmes require action, support and resources not only from the Ministry of Health but also

from other sector ministries and NGOs. Whereas the National AIDS/STD Programme has developed a good working relationship with some sector ministries and NGOs, the latter still look up to MOH for financial resources. These sectors/institutions must be encouraged to plan, allocate resources and implement AIDS/STD control activities in their relevant areas of operation. Focal persons for AIDS/STD activities should be designated for these sectors and trained. The role of MOH will be to provide technical leadership, co-ordination, monitoring and evaluation of activities implemented by the various sectors and institutions.

Strengthening of the National Advisory Council on AIDS. AIDS/STD is a major health problem. However, the consequences of AIDS go far beyond the illness and death of those who are infected. Just as AIDS affects other sectors, the policies of other sectors can enhance or hinder AIDS/STD prevention and care activities. A programme for AIDS/STD prevention and care requires support, co-operation and action from many groups in both public and private sectors. A high level multisectoral national committee is usually the most effective way to achieve this goal.

Strengthening the Health Sector. The health sector needs to be strengthened to enable it to provide technical leadership and guidance, and provide clinical care to persons with HIV/AIDS. Staff at all levels will have to be provided with the skills and knowledge to enable them to integrate AIDS/STD prevention activities into the primary health care programme.

The health information system and the health laboratory services will need to be strengthened to allow for the collection of a meaningful series of confirmed results in support of the sentinel surveillance system. This will provide program managers and policy makers with the relevant information they need to make informed decisions.

Specific interventions that would help to reduce the incidence of HIV infection in women include:

Increasing the access to and utilisation of appropriate services by women through the funding of interventions that educate women to recognise signs and symptoms of STDs and to seek appropriate health care services.

Reducing the stigmatisation and blaming of women for HIV infection by ensuring that laws and policies do not contribute to the stigmatisation of women with HIV (e.g. arresting prostitutes and mandatory testing of prostitutes for HIV).

Reviewing the existing laws and policies in terms of their impact on women's status and health (e.g. those regarding income, property, inheritance, access to credit).

Increasing girls' access to education including access to scholarships and other financial assistance. The 1993 GDHS shows that awareness of AIDS

and knowledge of how AIDS is transmitted rises with the level of education of the women. For example, while 85% of all women know that AIDS is sexually transmitted, only 72% of women with no education know this. Over 90% of women with primary education or higher know that AIDS is sexually transmitted.

Providing support to programmes and interventions to assist women who provide foster care to children as a result of AIDS and other diseases.

Developing a broad intersectoral approach to home care with an emphasis on support for programmes that promote the sharing by men and women of the care-giving role.

Reviewing the impact of prostitution-related laws and regulations on the ability of HIV/AIDS and STDs prevention intervention projects to operate effectively.

And, most importantly:

Stronger political commitment by leaders at the national, regional and district levels. Currently it is estimated that approximately 80% of MOH non-personnel expenditures for AIDS/STD control activities are funded by external donors. More financial and human resources need to be committed by Central Government through its annual budget estimates for AIDS/STD prevention and control activities.

Ministers of State, parliamentarians, religious and traditional leaders, other policy makers and opinion leaders can help place AIDS/STD prevention and control prominently in the public agenda. These leaders should seize every opportunity to inform and educate the public on AIDS/STD, and must ensure that whatever policies they develop provide an enabling environment for AIDS/STD control.

With the district being the focus of implementation of all programmes, including health, District Assemblies should include AIDS/STD control in their developmental plans and allocate resources for programme activities.

Technical Annex

I. Demographic and Prevalence Projections

Population Projections: The population projections used for this analysis are based on the median population projection used by the Population Impact Project's RAPID model.

Prevalence estimates: calculated from fitting a curve to the following prevalence estimates from NACP:

1985	0.0%
1988	0.7%
1990	2.5%
2005	8.0%

II. Base data and assumptions

Percent distribution of new adult HIV infections by sex: From 1990 HIV data (NACP); assumed constant over projection period.

Percent of AIDS cases reported: 45% (NACP estimates)

AIDS orphans: AIDS orphans are defined as children under the age of 15 who have lost their mother to AIDS. The number of AIDS orphans between 1986 (the start year of the epidemic) and 1990 was calculated based on the age breakdown of the adult female AIDS cases between 1986 and 1989 (from NACP/EPID, for the purposes of this calculation, it is assumed that an AIDS patient dies after 1 year), a 45% reporting rate of AIDS cases, and the average number of living children per women by 5-year age group (1988 DHS). This will result in an overstatement in the number of orphans because the average number of living children is not reported by age.

Number of adults and number of HIV+ adults 1986-1994: Calculated using the census figure in 1984 and the base year projection from PIP in 1990. The intervening years were calculated using an exponential extrapolation. Data for 1991-1994 are drawn from the population projections. The prevalence figures discussed above were used to calculate the number of HIV+ adults.

Health budget and growth rate of the budget. In 1990, the health budget was 20,242,600,000 cedis (PPME). The growth rate of the budget over the past several years has averaged about 7%. A growth rate of 3% is assumed for the projection.

Number of hospital beds: 11,040 in 1990 (PPME). This number is assumed to remain constant over the projection period.

Lifetime cost of treating one AIDS patient: Estimated to be 107,287 cedis based on the average cost of treating AIDS patients in Korle-Bu who were discharged or died in April, 1994 multiplied by the average number of times and AIDS patient will be hospitalised before dying (17 times based on a World Bank study)¹

¹ World Bank, **World Development Report 1993**. Washington, DC, June 1993

Bed days per AIDS patient: Estimated to be 213 based on the average number of days AIDS patients in Korle-Bu who were discharged or died in April, 1994 spent in Korle-Bu multiplied by the average number of times and AIDS patient will be hospitalised before dying (17 times based on a World Bank study)

Percent of AIDS patients hospitalised: Assumed to be 20% in the urban areas and 10% in the rural areas in 1990. These numbers are assumed to remain constant throughout the projection period.

Disease case rates.

Measles

Proportion of children 0-4 vaccinated:	0.760 (NACP)
Vaccine efficacy:	0.800 (from CDC estimates)
Proportion susceptible children getting measles by age 5	1.000
Case fatality rate	0.024 (NACP)

Malaria

Case rate for children 0-4	3	(Average number of episodes/year. CDC estimates this to be between 1.25 and 5 for SSA)
Case fatality rate for children 0-4	.0014	(Proportion of disease episodes that end in death. CDC calculates 0.5%-1% of episodes are severe and life-threatening and that there is 15%-20% mortality in these cases, therefore fatality rate is between 0.00075 and 0.002. The mid-point is 0.0014)

Tuberculosis

Incidence rate without HIV	2.400	AIM default values based on African data
Percent of HIV+ with TB latent infection	50.00	
Percent of HIV+ and TB+ adults developing overt TB per year	10.00	

References

Auvert, Bertrand, "The Auvert Approach: A Stochastic Model for the Heterosexual Spread of the Human Immunodeficiency Virus." **The AIDS Epidemic and Its Demographic Consequences**. Proceedings of the UN/WHO Workshop on Modelling the Demographic Impact of AIDS in Pattern II Countries: Progress to Date and Policies for the Future, December 13-15, 1989. New York.

Ghana Statistical Service, **A Situation Analysis Study of Family Planning Service Delivery Points in Ghana**. Accra. Ghana, March 1995.

Ghana Statistical Service and Macro International Inc., **Ghana Demographic and Health Survey 1993**, Calverton, MD, 1994.

Ghana Statistical Service and Macro Systems, Inc., **Ghana Demographic and Health Survey 1988**, Calverton, MD, 1989.

Ministry of Health, Disease Control Unit, **HIV/STD Sentinel Surveillance, 1994**, Accra. Ghana, March 1995.

Roberts, Matthew. "Coping with the impact on business: positive lessons from the African experience," *AIDS Analysis Asia*, Volume 1(3) London, England, May/June 1995.

Stanley, E.A., S.T. Seitz, P.D. Johnson, P.O. Way and T.F. Curry, "The United States Interagency Working Group Approach: The IWG Model for the Heterosexual Spread of HIV and the Demographic Impact of the AIDS Epidemic," **The AIDS Epidemic and Its Demographic Consequences**. Proceedings of the UN/WHO Workshop on Modelling the Demographic Impact of AIDS in Pattern II Countries: Progress to Date and Policies for the Future. December 13-15, 1989, New York.

U.S. Agency for International Development, Program for Prevention and Control of HIV Infection, **HIV/AIDS: The Evolution of the Pandemic, The Evolution of the Response**, Washington, D.C., August 1993.

U.S. Agency for International Development, U.S. Department of Health and Human Services, **Addressing the Challenges of Malaria Control in Africa**, Washington, D.C. and Atlanta, 1994.

U.S. Bureau of the Census, Health Studies Branch, Center for International Research, **Seroprevalence Levels by Country: December 1993**. Research Note No. 11. Washington DC. December 1993.

World Bank, **Tanzania: AIDS Assessment and Planning Study**. Washington DC. December 1992.

World Bank. **World Development Report 1993**. Washington, DC, June 1993.