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HIV AIDS in ZIMBABWE

*Background
Projections
Impact
Interventions*

National AIDS Coordination Programme
Ministry of Health and Child Welfare



January 1998

**HIV/AIDS in Zimbabwe:
Background, Projections, Impact and Interventions**

**National AIDS Coordination Programme
Ministry of Health and Child Welfare**

January 1998

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
AIM	AIDS Impact Model
ANC	Antenatal Care
EDC-NHIS	Epidemiology and Disease Control/National Health Information Surveillance Unit
HIV	Human Immunodeficiency Virus
IEC	Information, Education and Communication
MOHCW	Ministry of Health and Child Welfare
MTP1	First Medium Term Plan
MTP2	Second Medium Term Plan
NACP	National AIDS Coordination Programme
NGO	Non Governmental Organisation
PHL	Public Health Laboratory
STDs	Sexually Transmitted Diseases
TB	Tuberculosis

INTRODUCTION

The HIV/AIDS epidemic has become a serious health and development problem in many countries around the world. HIV (Human Immunodeficiency Virus) is the virus that causes AIDS (Acquired Immune Deficiency Syndrome). HIV destroys the biological ability of the human body to fight off opportunistic infections. A person can be infected with HIV for a long time without showing any symptoms of the disease. Nonetheless, during that period before a person develops symptoms, he or she can transmit the infection through sexual contact to other, uninfected people. An infected woman can also transmit the disease to her unborn child or breastfeeding infant. AIDS itself is defined in terms of how much deterioration of the immune system has taken place as seen by the presence of opportunistic infections. Virtually all infected persons die from the disease.

UNAIDS estimates the number of adult HIV infections world-wide at 29.5 million for December 1997, nearly 3 1/2 times the number in 1990. Of these adult infections, 20.8 million, or about 68 percent of the world's total, were found in sub-Saharan Africa. Also, since the beginning of the epidemic, about 3.8 million infants have been born with HIV infection, about 90 percent of them in Africa. Most develop AIDS and die within a year or two.

The virus that causes AIDS has already infected and is infecting many Zimbabweans. For every 5 adults, 1 is infected, or more than 20 percent of the entire adult population of the country. This is a staggering level, and most of these people do not even know they are infected. In Zimbabwe, it is estimated that more than 400,000 persons have already developed AIDS since the beginning of the epidemic (although a much lower number has been recorded in the official health statistics). Since there is no available cure for AIDS, this disease threatens the social and economic well-being of the country.

However tragic the HIV/AIDS epidemic is for Zimbabwe, there is still occasion for hope. HIV is not spread by casual contact or by mosquitoes or in the air or water. Zimbabweans do not have to wait for expensive vaccines to be developed at sometime in the unknown future to protect themselves. HIV is spread by certain types of human behaviour; therefore, the epidemic can be controlled by changes in those behaviours. What is needed is a commitment from all sectors of Zimbabwean society to take appropriate actions to halt the epidemic.

This briefing book is intended to provide information about the HIV/AIDS epidemic in Zimbabwe. This material is also available as a slide or interactive computer presentation. The information is provided in four sections:

Background:	What we know about HIV/AIDS in Zimbabwe today
Projections:	The number of people who might develop AIDS in the future
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 briefing book should be directed to the National AIDS Coordination Programme. The address is located on the last page.

AIDS stands for Acquired Immune Deficiency Syndrome. It is a disease caused by the Human Immunodeficiency Virus or HIV. It acts by weakening the immune system, making the body susceptible to other diseases.
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I. BACKGROUND

The HIV/AIDS Pyramid

Sentinel Surveillance

Current Estimates of HIV Prevalence

Transmission Mechanisms

Incubation Period

Age-Sex Distribution of Reported AIDS Cases

BACKGROUND

The HIV/AIDS Pyramid

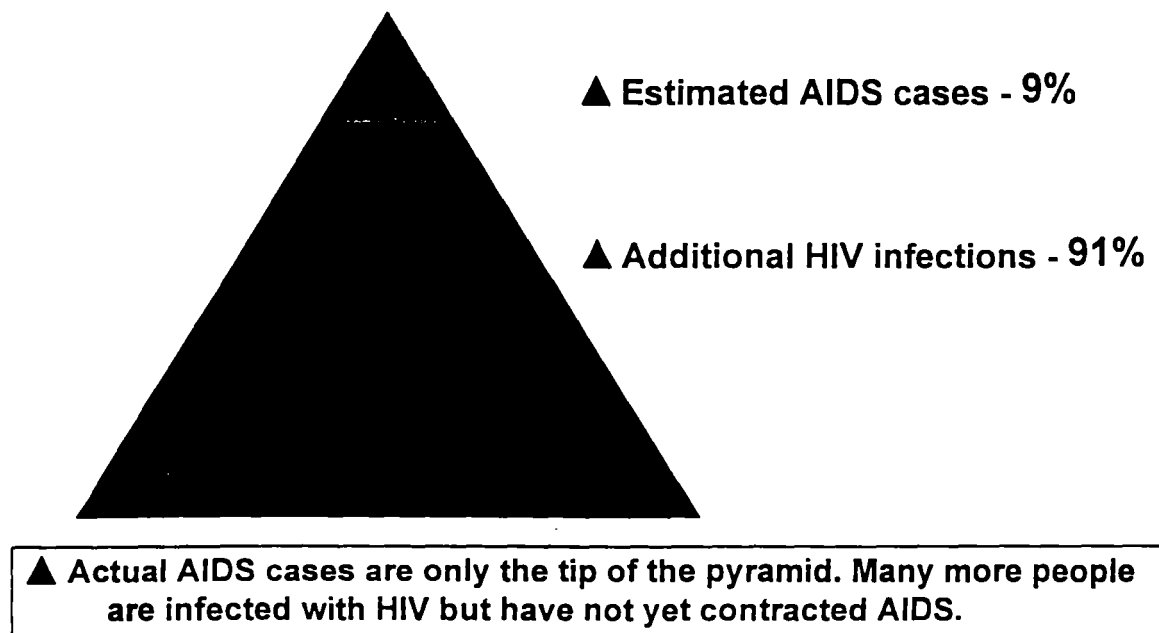
By the end of 1996, about 64,000 cases of AIDS had been reported to the Ministry of Health and Child Welfare (MOHCW) since the beginning of the epidemic in Zimbabwe. AIDS has spread throughout the country; cases have been reported from every district. However, there is much more to the epidemic than the number of reported cases.

First, we know that most AIDS cases are not reported. This can happen for several reasons.

- Some people never seek hospital care for AIDS.
- Some physicians or nurses may not want to record a diagnosis of AIDS because of the stigma attached to the disease.
- People with AIDS do not die from the virus but from the opportunistic infections (such as tuberculosis) that invade the body with the breakdown of the immune system; consequently, many persons die from these invasive infections before they are ever diagnosed as having AIDS.
- Most rural hospitals and districts do not have the capability to test for HIV infection.
- Private laboratories do not report their figures.

The true number of cumulative AIDS cases in Zimbabwe is not known, but, according to the projection model used in this study, the total was more than 400,000 by the end of 1996.

Second, actual AIDS cases are only the tip of the pyramid. Many more people are infected with HIV, but have not yet contracted AIDS. By 1996, an estimated 1.4 million persons were infected with HIV. This included about 1.3 million adults and 100,000 children. However, only about 9 percent of these had actually converted from HIV to AIDS. Most did not know they were infected, and many had no symptoms at all. However, almost all will develop AIDS and die within the next 10 years or so. There is no available cure for AIDS in Zimbabwe.



Sentinel Surveillance

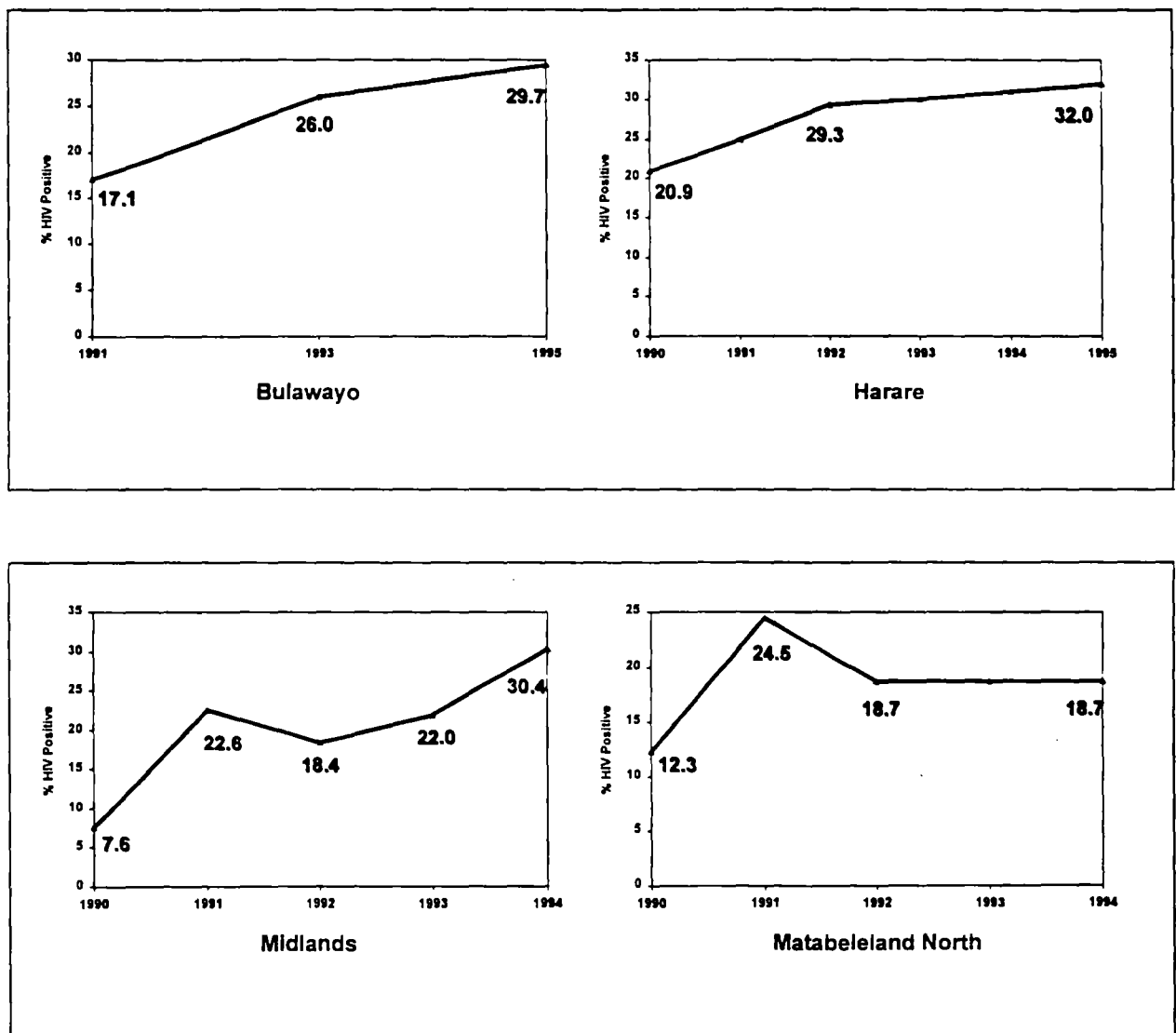
Zimbabwe has a sentinel surveillance system that provides the basis for estimating the extent of HIV infection. Each of the eight provinces, plus Harare, Chitungwiza and Bulawayo, has designated sentinel surveillance sites at different hospitals or health centres. The system is set up to take blood samples from sexually transmitted disease (STD) patients and first-visit antenatal care (ANC) patients and then to test the blood for HIV infection. STD patients represent a very high-risk group for HIV infection and the results from this testing are not necessarily indicative of the entire population. However, the Demographic and Health Survey reports that more than 94 percent of pregnant Zimbabwean women receive antenatal care, so this group is probably fairly representative of the general population.

Each site reports its results to provincial or city headquarters, and the findings are subsequently reported onwards to MOHCW. Unfortunately, the sentinel surveillance system does not always function in a thorough and timely manner. For example, although the system started to function in 1990, annual reports are not available for all provinces for all years. A critical component of the national effort to control this epidemic will have to be an improved sentinel surveillance system that provides consistently accurate and timely information.

The following graphs show trends in HIV prevalence among antenatal care clients in selected areas. Bulawayo, for example, reported sentinel surveillance information for three years: 1991, 1993 and 1995. The graph shows very high and continuously rising rates of HIV infection among antenatal care patients in Bulawayo. By 1995, 30 percent of the antenatal care patients tested HIV positive. The graph for Harare shows a similar trend.

Sentinel surveillance reporting from Midlands indicates an explosive epidemic at the beginning of the decade, relative stability between 1991 and 1993, then another surge upwards in 1994. Matabeleland North also shows an upsurge at the beginning of the decade, then relative stability through 1994. Sentinel surveillance sites report high rates from all parts of Zimbabwe.

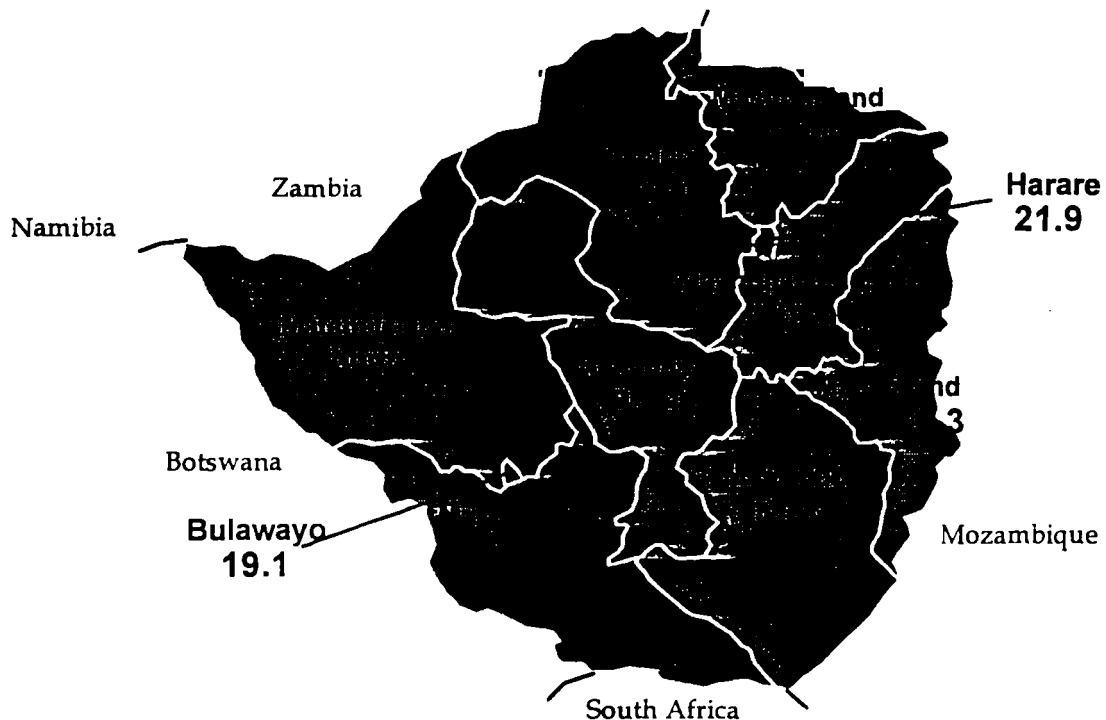
HIV Prevalence Among Antenatal Care Patients



Current Estimates of HIV Prevalence

Although the sentinel surveillance system needs to be more consistent and timely, sufficient information exists to draw a reasonably reliable picture of what is happening with HIV/AIDS in Zimbabwe. In November 1996, the National AIDS Coordination Programme organised an Expert Group Meeting to evaluate existing sentinel surveillance data and draw conclusions about the status of the epidemic in Zimbabwe. In February 1997, a larger group of provincial and national health experts met in Juliasdale and reviewed the findings of the first workshop. Much of the information in this book is based on the findings of these two meetings.

HIV Prevalence by Province, 1994

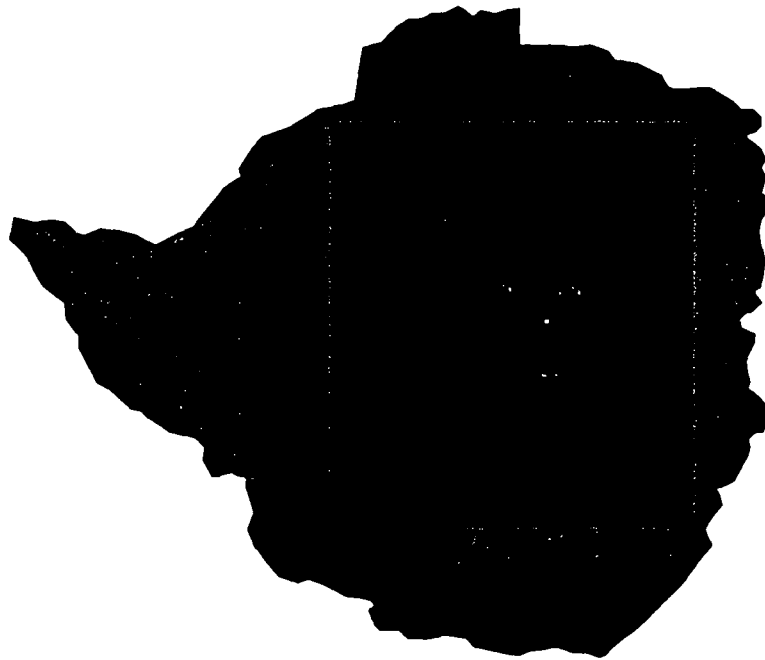


The map indicates estimates of HIV adult prevalence by province and major city. Adult prevalence is simply the percentage of all people over the age of 15 who are HIV infected. Not surprisingly, estimated HIV adult prevalence is comparatively high in Harare and Bulawayo. Urban areas tend to have relatively high HIV prevalence in eastern and southern Africa and elsewhere. Prevalence rates appear to be somewhat higher in the eastern and central parts of the country and somewhat lower elsewhere. The differences are not the important story, however. Much more important is the fact that reported rates are extremely high everywhere in the country. The HIV/AIDS epidemic has left no corner of Zimbabwe untouched.

In 1996, the estimated adult prevalence rate for the entire country was slightly over 20 percent. This is an exceedingly high level and suggests that Zimbabwe is undergoing one of the worst HIV/AIDS epidemics in the entire world. It means that among those Zimbabweans now over the age of 15, more than one out of five will probably die from this disease, mostly over the next 10 years. The lifetime risk of dying of dying from AIDS is over 60 percent. That means that, if the current prevalence rates were to persist, almost two-thirds of future deaths would be due to AIDS.

Why is this epidemic so serious in Zimbabwe? No one knows for certain. Several factors that seem to contribute to the rapid spread of HIV in Africa include: (1) poverty and the relatively low health status of much of the population, including malnutrition; (2) the high prevalence of other sexually transmitted diseases; (3) multiple sexual relationships occurring concurrently for a significant proportion of the population; (4) patterns of worker migration; (5) dislocations caused by drought and other factors; and (6) cultural factors and beliefs. In addition, Zimbabwe has a comparatively good transportation network. The relative ease with which people move about the country and the overall high mobility of the population - especially the high level of circular migration back and forth between town and countryside - may be contributing to the rapid spread of the disease. No part of Zimbabwe appears to be isolated from the devastating impact of HIV/AIDS.

HIV Adult Prevalence 1996

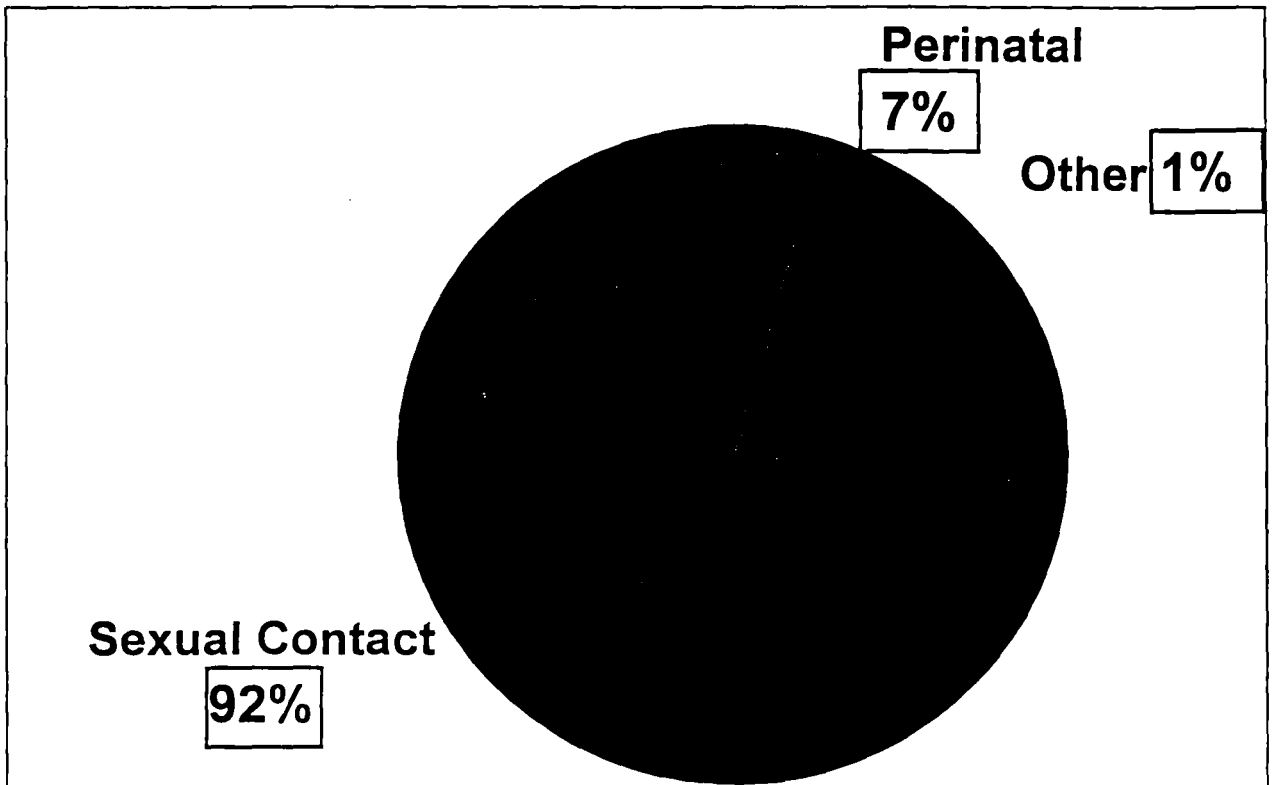


How much higher can prevalence rise? No one knows for certain and much depends on whether individuals are able to change high-risk behaviours and on the success of other interventions. The scattered evidence from the sentinel surveillance system suggests that the epidemic is still on the rise. For purposes of this study, prevalence is assumed to peak at about 22 percent, somewhat higher than current levels. It could go even higher.

Transmission Mechanisms

HIV can be transmitted from one person to another in different ways. In Zimbabwe, the medical blood supply appears to be well screened and clean, so that transmission from blood transfusion is not very common. Consequently, two transmission mechanisms account for most transferral in the country: heterosexual contact and perinatal transmission.

HIV Transmission Mechanisms



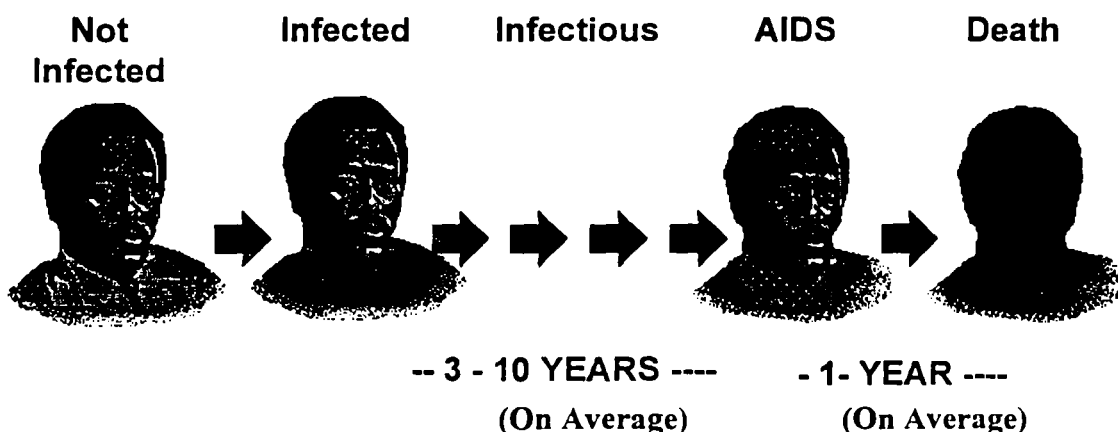
Heterosexual Contact. The majority of infections - about 92 percent according to the projection model - are transmitted through heterosexual contact. Although the probability of transmitting HIV in a single act of intercourse can be quite low, a number of factors increase the risk of infection dramatically. The two most important are the presence in either partner during unprotected sex of a sexually transmitted disease (STD), such as syphilis or gonorrhoea, and having a large number of sexual partners. A significant number of Zimbabwean adults do suffer from STDs and many have multiple 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. In the longer term, strategies will also have to address the underlying social and economic factors contributing to the spread of the disease.

Perinatal transmission. Many children are infected through perinatal transmission. They receive the infection from their mothers during pregnancy, at the time of birth or through breastmilk. About 30 - 40 percent of infants born to infected mothers will themselves be infected. The other 60 - 70 percent will not become infected, but are at risk of becoming orphans. The best estimate is that more than 100,000 children under the age of 5 were infected in 1996.

Incubation Period

A person does not develop AIDS as soon as he or she becomes infected with HIV. There is often a lengthy period, averaging 3 to 10 years, from infection with HIV to development of the disease AIDS. For most of this period, the person may not have any symptoms, and, therefore, may not even 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 knowing it. People with AIDS, of course, remain infectious.

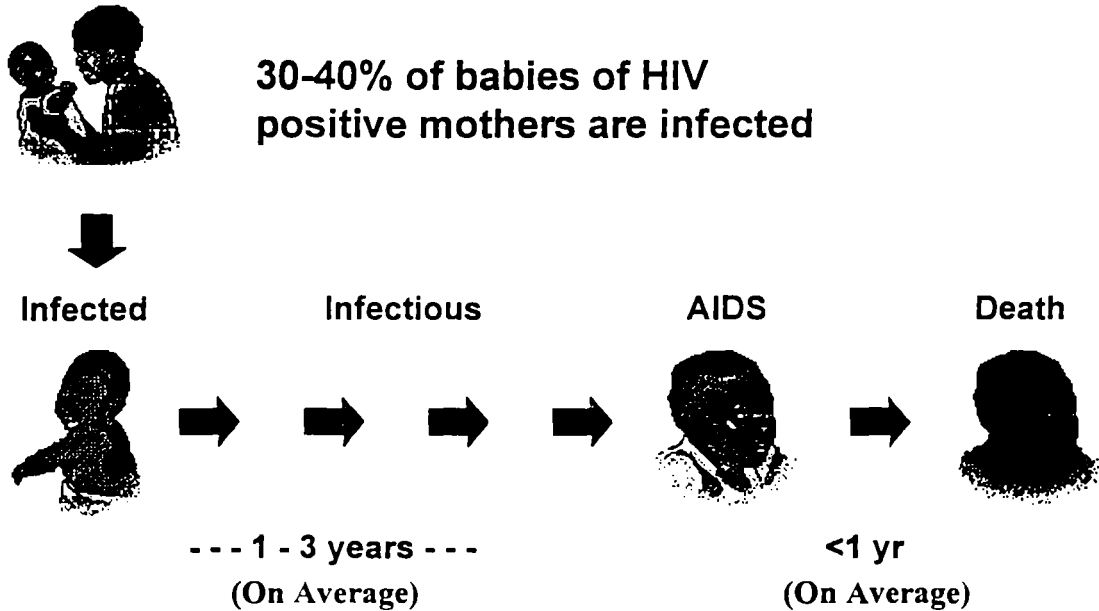
HIV Incubation Period (Adults)



Countries where health indicators are low have, on average, shorter incubation periods than countries with better health conditions. However, no one is quite sure why some infected individuals develop AIDS at a slower or faster pace than others.

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

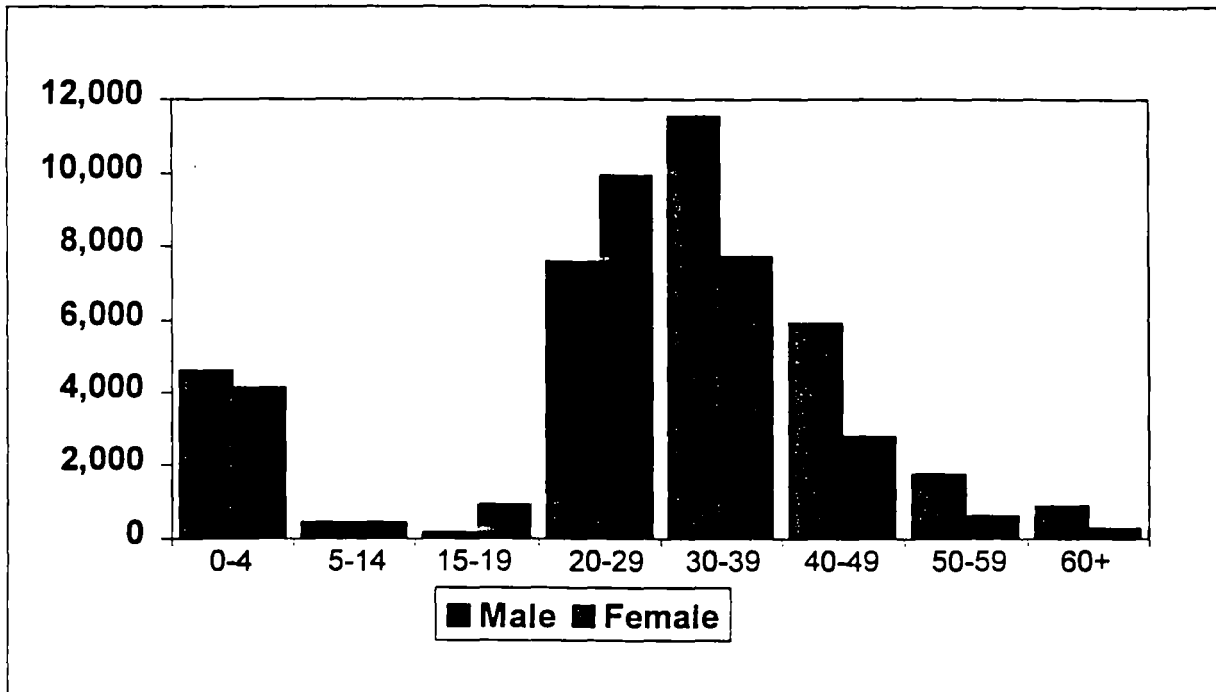
HIV Incubation Period (Infants)



Age-Sex Distribution of Reported AIDS Cases

The following chart shows the cumulative number of reported AIDS cases in Zimbabwe through 1996 by age group and sex. Each bar shows the number of reported AIDS cases in a particular age group. The blue bars represent AIDS cases among males for each age group; the red bars represent AIDS cases among females.

Age and Sex Distribution of Reported AIDS Cases (as of Dec. 1996)



This bar chart illustrates several interesting facts.

- More than 70 percent of AIDS cases are found among adults between the ages of 20 and 49. Since this is the most economically productive part of the population, these deaths constitute an important economic burden. Many productive years and much investment in education and training will be lost. These deaths also have significant family consequences since most people in this age group are raising young children.
- Somewhat more male cases have been reported to date than female cases. The usual pattern for an African HIV/AIDS epidemic is for there to be more male cases during the initial stages of the epidemic. As the epidemic continues and prevalence rises, however, these differences disappear to the point that the number of male and female cases becomes virtually equal.
- The peak ages for AIDS cases are 20-29 for females and 30-39 for males.

- Young women in the 15-19 age group are more than five times as likely to be infected as males in the same age group.
- A significant number of AIDS cases has been reported among young children. Most of these received the infection from their mothers.
- The small number of AIDS cases in the 5-14 year old age group emphasises the point that the main modes of transmission are through sexual contact or perinatal transmission. 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 be many more cases in the 5-14 year old age group. Rather, Zimbabwe shows a classic age distribution of AIDS cases, in which most cases are found among sexually active people and children under the age of 5.

II. PROJECTIONS

HIV Infections

Number of AIDS Cases

AIDS Deaths

Annual Deaths to Persons Aged 15 to 49

Death Rate

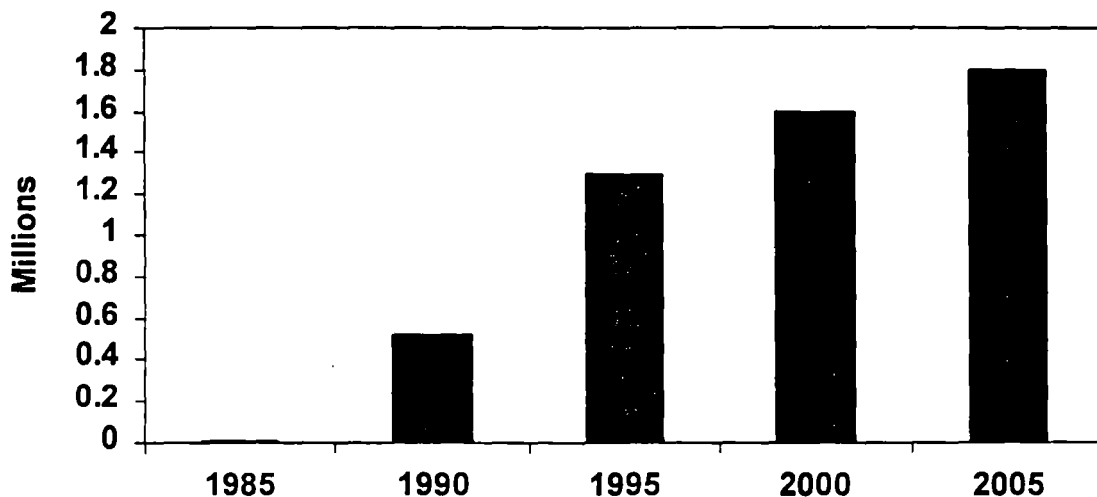
PROJECTIONS

This section makes projections about the future course of the HIV/AIDS epidemic in Zimbabwe. In particular, it looks at the projected number of HIV infections and AIDS cases and the number of AIDS deaths.

HIV Infections

If the 1996 HIV adult prevalence of 20 percent rises modestly to near 22 percent by the year 2000 and remains nearly stable thereafter, then the number of HIV infected persons in the population (including children) would increase from 1.4 million in 1996 to 1.6 million in 2000 and 1.8 million in 2005. This increase would result mostly from the modest rise in the HIV prevalence rate, along with the rapid increase in the size of the adult population due to high birth rates in earlier years. Also, as indicated on the graph on page 18, large numbers of people will die from the disease and be removed from the HIV infected population.

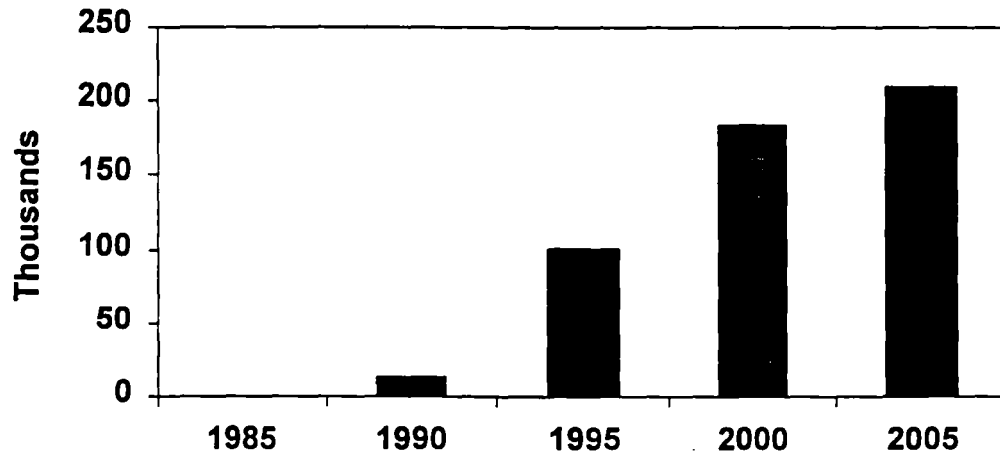
Projected Number of People Infected with HIV



Number of AIDS Cases

The number of new AIDS cases resulting each year from these infections would rise to 185,000 in 2000 and to 210,000 in 2005. The very large number of annual new AIDS cases will place intense pressure on the health system, as well as households, to provide the intensive care required by AIDS patients.

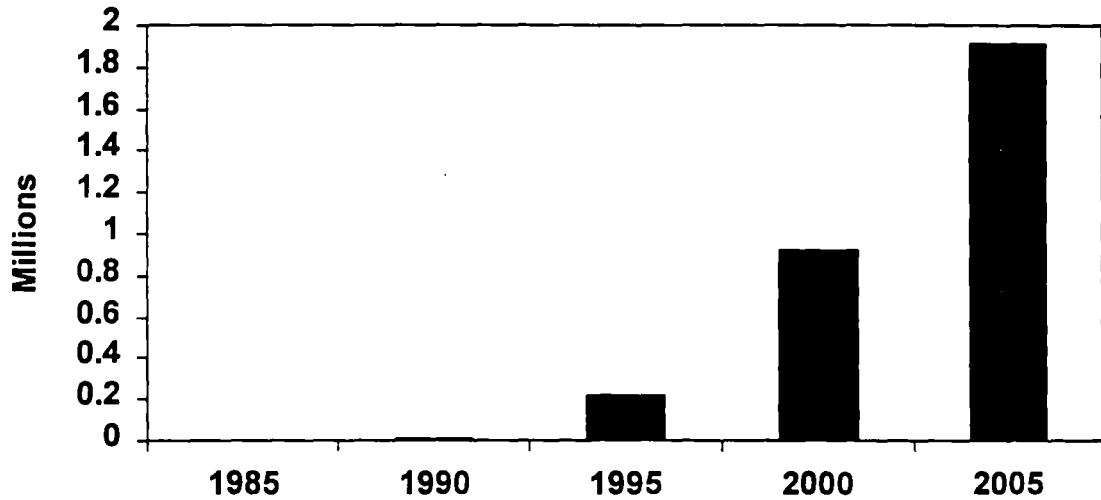
Annual New AIDS Cases



AIDS Deaths

The death toll would also be staggering. By 1995, the cumulative number of AIDS deaths from the beginning of the epidemic was estimated at over 200,000. Over the ensuing 10 years, 1995 - 2005, an additional 1.7 million persons are likely to die from the disease, which would result in a cumulative total of about 1.9 million deaths by 2005.

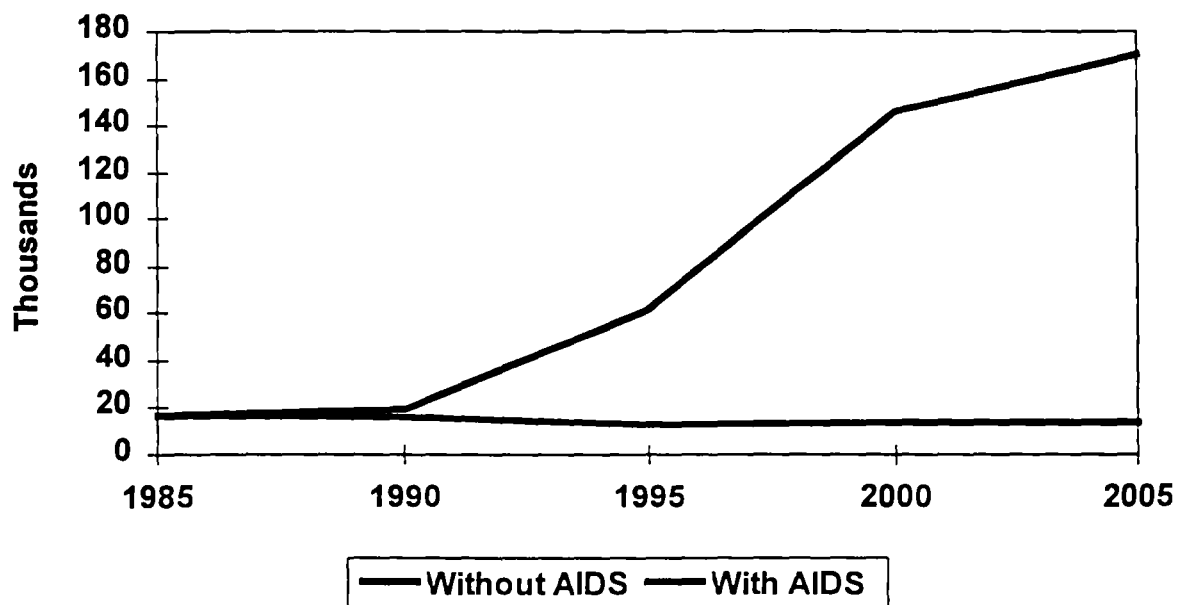
Cumulative AIDS Deaths



Annual Deaths to Persons Aged 15 to 49

The epidemic will increase the death rate at almost all ages. However, the impact will be most severe among adults in the prime working ages and among children under the age of 5. Without AIDS, and assuming a gradual decline in death rates from other causes, the annual number of deaths among adults aged 15-49 would increase slowly after 1995 because of the growth of the population. However, AIDS will dramatically increase that number, with deaths in this age group reaching 148,000 per year by 2000 and 176,000 by 2005. This rapid increase in deaths in the productive age group will have serious consequences for the economic and social development of the country.

Annual Number of Deaths to Adults Aged 15 to 49



Death Rate

The Central Statistical Office estimated the death rate - the annual number of deaths per 1000 population - at about 10 for 1993/94. With no AIDS, the death rate would continue to decline over time. With the AIDS epidemic, however, the projections show the death rate more than doubling to 23 per 1000 by 2005.

III. THE SOCIAL AND ECONOMIC IMPACT OF AIDS

Orphans as a Result of AIDS

Population Size and Growth

Child Survival

New Adult Cases of Tuberculosis

Costs of Health Care

Economic Impacts

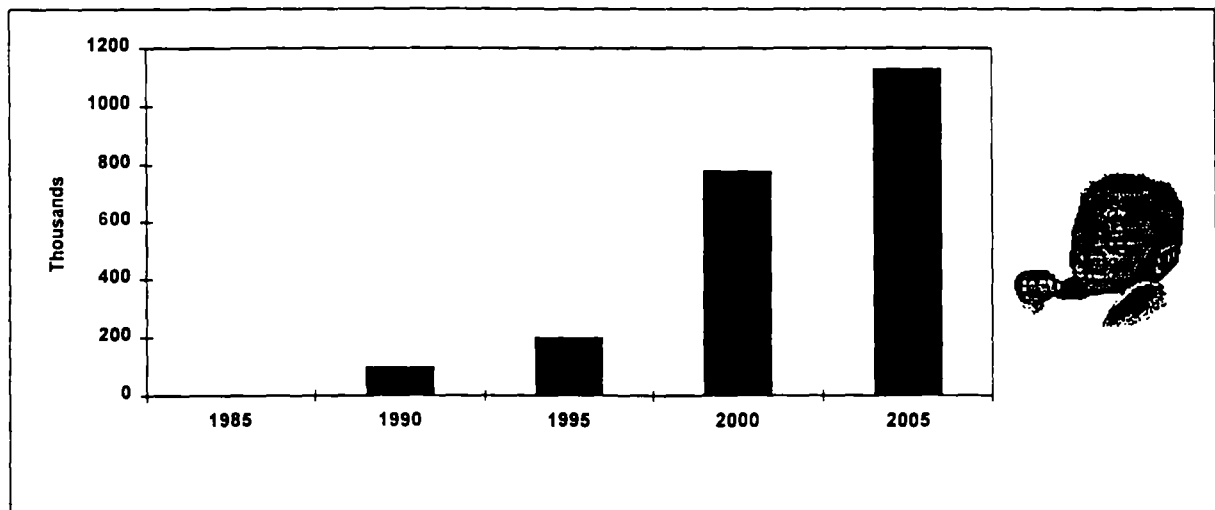
Women and AIDS

THE SOCIAL AND ECONOMIC IMPACT OF AIDS

Orphans as a Result of AIDS

One serious consequence of AIDS deaths to men and women in their prime childrearing ages is an increase in the number of orphans. An orphan is defined here as a child under the age of 15 who has lost his or her mother to AIDS. This has become a common definition in addressing the HIV/AIDS epidemic and reflects the central role of the mother in childrearing in many African societies. In reality, given the primacy of heterosexual transmission in spreading the virus, many children will lose both parents. The number of orphans would rise quickly from a small number in 1990 to 200,000 in 1995, 670,000 in the year 2000 and 1.1 million in 2005.

Orphans as a Result of AIDS



There will be a tremendous strain on social systems to cope with such a large number of orphans and provide them with needed care and supervision. At the family level, there will be increased burden and stress for the extended family, which has the traditional responsibility to care for orphans. Many grandparents will be left to care for young children. Other families will be headed by adolescents. 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 school fees. Many orphans will never receive adequate health care and schooling, increasing the burden on society in future years. There will be a likely increase in the number of street children in urban areas.

Population Size and Growth

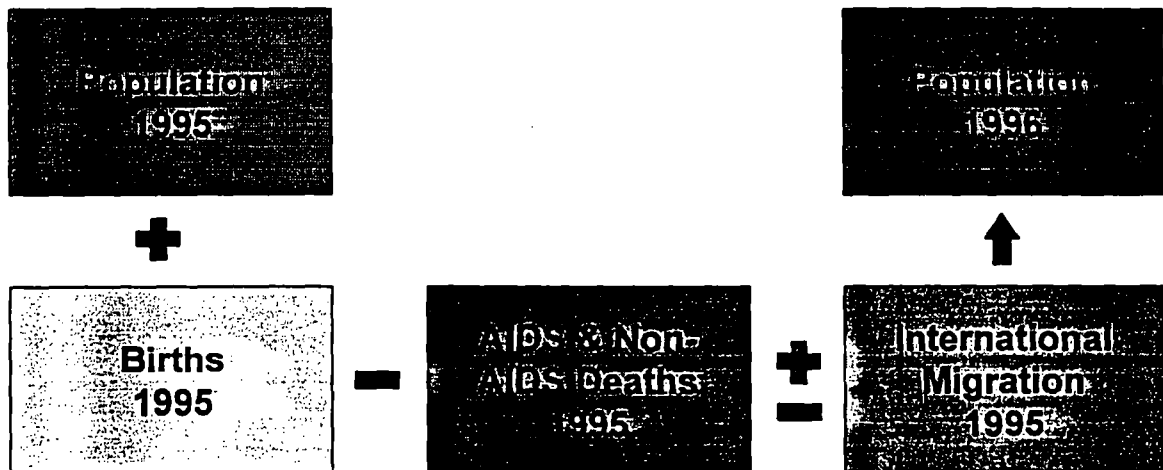
The impact of the AIDS epidemic on population growth is a significant question. Zimbabwe has had one of the most successful family planning programmes in sub-Saharan Africa. The fertility rate, the average number of children per woman, fell from well over 6 children per woman in the early 1980s to 4.3 at the time of the 1994 Zimbabwe Demographic and Health Survey. By 1994, about 42 percent of Zimbabwean women in their reproductive ages were using some form of modern contraception, one of the highest levels in the region. Consequently, the population growth rate dropped to about 2.3 percent per annum by 1994. How much further will it fall given the dimensions of the HIV/AIDS epidemic in Zimbabwe?

Both the following projections assume a decline in the fertility rate from 4.3 in 1994 to 3.4 children per woman in 2005. The first projection, however, assumes no AIDS epidemic and a continued decline in mortality from causes other than AIDS.

The second projection assumes an AIDS epidemic as described above. It also uses the assumption that the historic decline in non-AIDS mortality comes to a halt and that death rates from non-AIDS causes actually rise modestly. This assumption is based on the premise that the AIDS epidemic, in addition to its direct impact on mortality, is likely to have a secondary influence on death rates. For example, the large increase in the number of orphans, the economic disruption of households, the increase in mortality from tuberculosis and other causes, and additional factors are all probably going to have an impact on mortality in Zimbabwe.

Population Projections

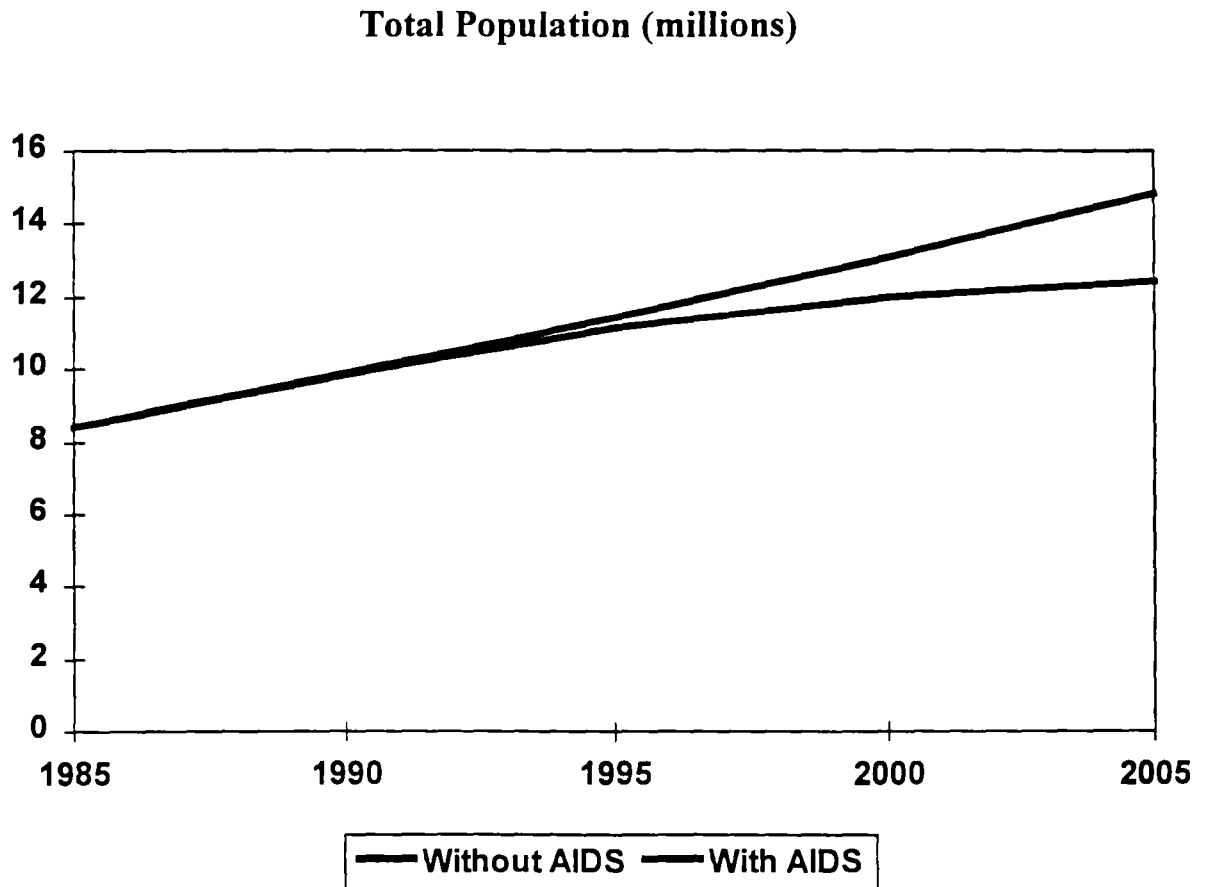
As the flow chart illustrates, a population projection starts with the base year population, in this example 1995. To the base year population, the projection then adds the expected number of births during the year, subtracts the number of deaths during that year from both AIDS and non-AIDS causes, and accounts for any international migration to provide the total population for the following year. The process is then repeated for each year of the projection. In the current analysis, population growth is projected to the year 2005. Projections can use different assumptions about future demographic trends; they can also use different starting points in time or different assumptions about the base year population. Therefore, they sometimes vary quite significantly from one another.



Using these assumptions, the projections show the impact of the epidemic on the population of Zimbabwe.

With no AIDS, the population would grow to 13.1 million persons in 2000 and 14.9 million in 2005.

With AIDS causing increased deaths, the population would nonetheless grow from about 10.4 million at the time of the 1992 census to 12.0 million in 2000 and 12.5 million in 2005. The population would still be growing by 0.7 percent per year.



AIDS will have a significant impact on population size, but the population will continue to grow. Even with declining birth rates and high HIV prevalence, Zimbabwe still does not approach negative population growth over the projection period.

How can the population continue to grow when the HIV/AIDS epidemic is so serious?

The projection used in the present analysis estimates that 1996 HIV adult prevalence is over 20 percent and still rising; it assumes that birth rates continue to decline; and it assumes that death rates from non-AIDS causes stop declining and actually increase over time. And yet the population continues to grow over the projection period. How can this be?

In the absence of significant international migration, the annual growth rate is determined by the formula

$$\text{BIRTH RATE} - \text{DEATH RATE} = \text{POPULATION GROWTH RATE.}$$

The Central Statistical Office estimated the death rate - the annual number of deaths per 1000 population - at about 10 for 1993/94. This estimate is consistent with the level of infant and child mortality found in the 1994 Zimbabwe Demographic and Health Survey. In the projection, the death rate rises to 23 by 2005 due to both the direct and indirect effects of the HIV/AIDS epidemic on mortality in Zimbabwe. This represents an extraordinary 130 percent increase in just 11 years.

The Demographic and Health Survey reports a fertility rate - the average number of children per woman - of 4.3 around 1994. That would be consistent with a birth rate of about 34 per 1000 population. The assumption in the projection is that fertility falls to 3.4 children per woman in 2005, which would imply a birth rate of about 30 per 1000 population. In 2005, then, the birth rate less the death rate would be

$$30 - 23 = 7$$

which is an annual growth rate of 0.7 percent per year. The rate is even higher in the years leading up to 2005. Thus, the population continues to grow even in the face of the HIV/AIDS epidemic.

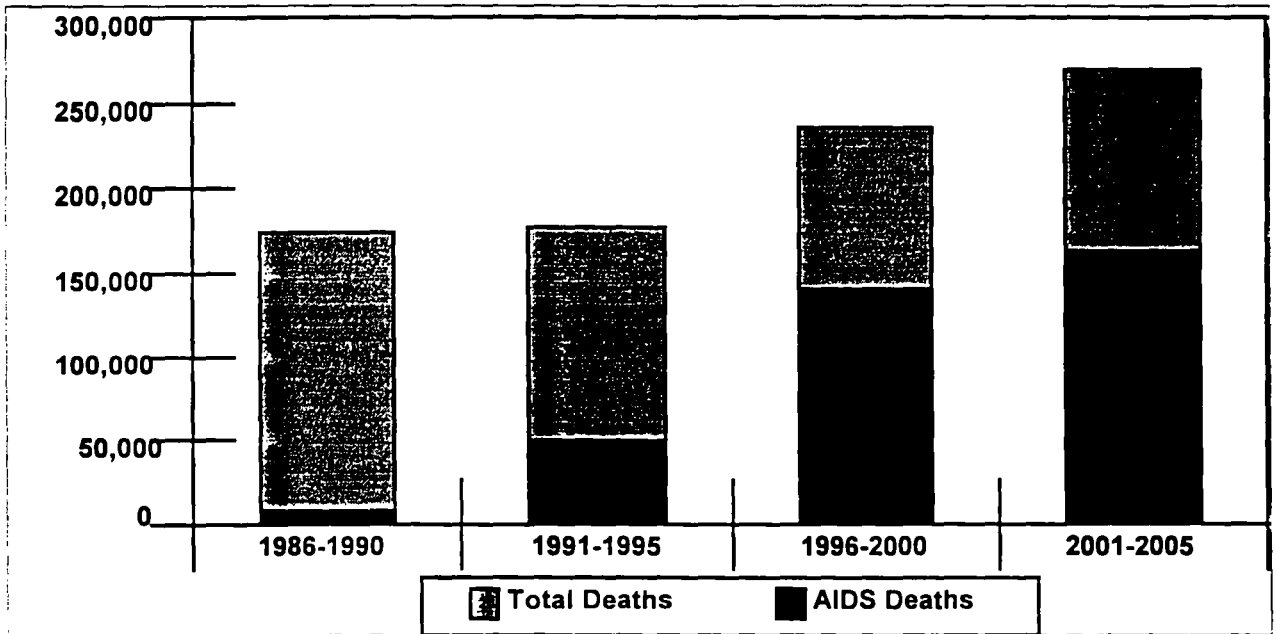
Child Survival

AIDS also affects child survival. About 30 to 40 percent of infants 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 is probably already the major cause of child death, worse than other major contributors such as measles and malaria. The increasing number of child deaths due to AIDS threatens to continue to reverse many of the recent gains of child survival programmes. Some examples follow.

- The infant mortality rate is the number of infants who die during the first year of life per 1000 live births. The 1988 Zimbabwe Demographic and Health Survey estimated the infant mortality rate at about 53 deaths per 1000 live births, representing a continuous decline throughout the 1980s. The 1994 Demographic and Health Survey reported the identical rate. A major reason that there was no improvement in infant mortality between the two surveys was the emerging HIV/AIDS epidemic. With a continuation of the epidemic, the infant mortality rate would likely rise to about 66 in 2005. By contrast, in the absence of AIDS, the infant mortality rate could potentially be in the low-20s by that time.
- The child mortality rate is the number of children who die before reaching their fifth birthday per 1000 live births. Estimates are somewhat different from varying sources but the trends are consistent. For example, the 1994 Demographic and Health Survey reported a child mortality rate of about 77, which is actually higher than that indicated in the 1988 survey. Again, the emerging HIV/AIDS epidemic was probably a major contributor to the upswing. In the absence of AIDS, the child mortality rate would likely continue its historic downward trend between 1994 and 2005. With the continuation of the epidemic, child mortality will actually increase about 56 percent over that time period.

- AIDS likely resulted in about 5 percent of the child deaths among children born over the 1986 - 1990 period. In the projections, that proportion rises over time. Among children born over the 2001 - 2005 period, AIDS-related causes would be responsible for more than 60 percent of child mortality. Another 18 percent of child deaths could be attributed indirectly to the HIV/AIDS epidemic because of the assumed rise in death rates from non-AIDS causes.

Deaths to Children under the Age of Five



New Adult Cases of Tuberculosis

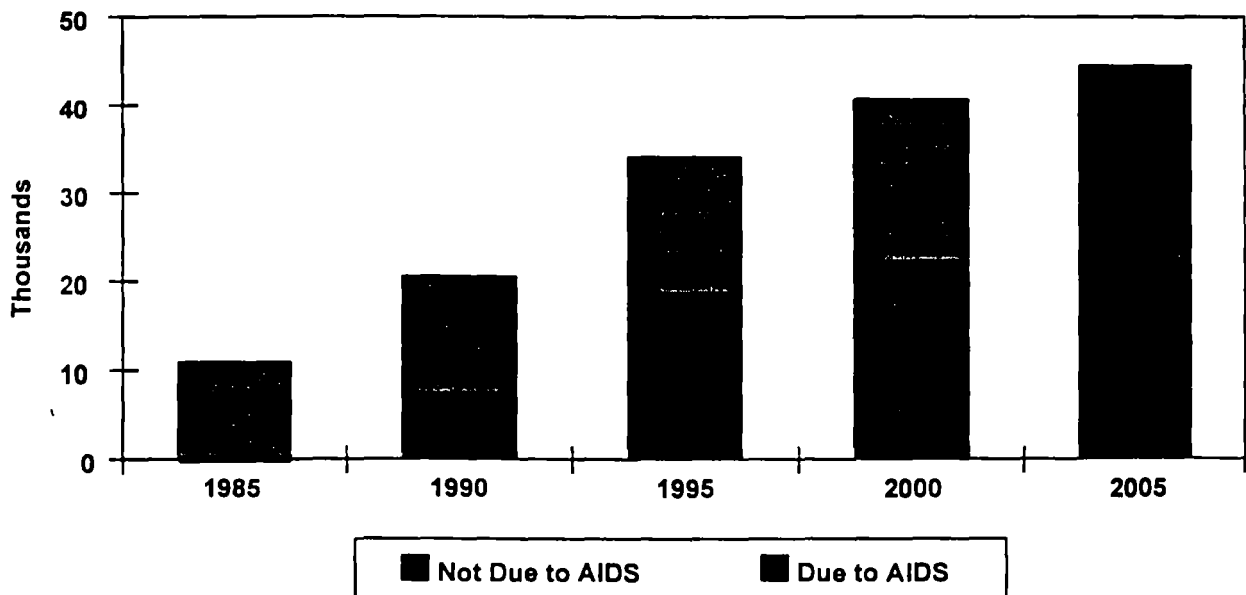
The number of tuberculosis (TB) cases has been rising rapidly. The MOHCW reports a 550 percent increase in reported TB cases since 1985. The number of reported cases was 30,800 in 1995. One district study suggests that the reporting system is capturing most, though not all, of the actual cases.

The MOHCW also reports that two-thirds of TB patients are HIV positive. HIV infection weakens the immune system of otherwise healthy adults. Many, perhaps half, of all adults in southern Africa 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 according to some estimates. This would result in 15,000 to 21,000 new TB cases each year.

With AIDS, the number of new cases will continue to increase rapidly. Assuming that 3.2 percent of people with both HIV and latent TB infections develop TB each year, then the additional number of TB cases due to HIV infection would be about 23,000 by 2005. Even this is likely to be an underestimate, since these new cases may transmit the disease to others.

HIV and Tuberculosis



The impact of HIV infection on tuberculosis is an especially serious problem because TB is infectious through casual contact. HIV threatens to 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 the disease. The prevention of TB is very expensive and puts considerable strain on the health budget.

Costs of Health Care

Today over 1.4 million people in Zimbabwe are infected with HIV. Therefore, it is important to consider the kinds of care and treatment that are available and appropriate for people with an HIV infection or AIDS. As HIV infection progresses in an individual it produces a variety of increasingly severe problems. The first symptoms may be common complaints such as headaches and diarrhea. Later opportunistic infections such as tuberculosis may appear. Eventually the immune system is weakened to the point where the person dies, often from one or more opportunistic infections. There are three classes of treatment that are available today: palliative care, prevention and treatment of opportunistic infections and anti-retroviral therapy.

Palliative care refers to the relief of symptoms that may be associated with HIV infection. These include diarrhea, skin rash, cough, fever, headache, pain, nausea and shortness of breath. People with an HIV infection may suffer of several of these problems at different times during the course of their illness. These symptoms can be treated with relatively inexpensive drugs, if the drugs are available.

Annual Cost of HIV/AIDS Treatment in Sub-Saharan Africa

Type of Treatment	Approximate Cost (US\$ per patient per year)
Palliative care	\$20
Inexpensive opportunistic infections	\$30
Expensive opportunistic infections	\$200
Anti-retroviral therapy	\$10-20,000

Source: World Bank, 1997.

Opportunistic infections are those that take advantage of the weakened immune system of people with HIV. These infections are usually rare or much less serious in people with healthy immune systems. Some of these infections can be treated with relatively inexpensive drugs. These infections include tuberculosis, pneumonia, thrush and toxoplasmosis. Treatment of these infections can extend the life of an infected individual by one to four years.

More expensive drugs are required to treat other opportunistic infections, such as cryptococcosis, herpes simplex virus and penicilliosis. These infections are not only more expensive to treat but they appear during the later stages of HIV/AIDS. Thus, effective treatment may only extend life by one year or less.

Anti-retroviral therapy uses the latest and most sophisticated drugs to combat the HIV infection itself. These drugs have proven effective in reducing the amount of HIV-infection in the blood. They have made a dramatic difference in the course of the disease in some patients. However, there are many problems associated with these drugs.

- The treatments are still experimental and the long-term effectiveness is unknown.
- It is also unclear whether an immune system already damaged by the AIDS virus can ever be restored to normal.
- Many patients cannot tolerate the side effects of the drugs and for them the combination therapy treatments are useless.
- Patients need to start treatments soon after becoming infected. Most newly infected persons do not realise they are HIV-positive in time to use this approach.
- The drugs - from 20 up to 60 pills a day or from 7,000 to 21,000 a year - have to be taken

under the strictest regimen, including time of day and with meals or on an empty stomach. Even small variations from the prescribed pattern can render the treatment ineffective. Patients also need constant access to sophisticated medical laboratories to track viral counts in the body.

- The costs of these treatments are prohibitive except for the very rich. The drugs themselves cost about U.S.\$10,000 - \$20,000 per year for each patient, apart from the other medical costs associated with the treatment. (By contrast, in Zimbabwe, MOHCW spends U.S. \$13 per person for the entire health sector according to the 1995/96 budget.)

Drugs for palliative care are relatively inexpensive and can make a big difference in the quality of life of people living with HIV infection. Drugs for the inexpensive opportunistic infections can prolong the life of an HIV-infected individual significantly.

Many people will be able to pay for these drugs themselves. The challenge for the government is to ensure that low-cost, generic drugs are available and that good information is provided about the relative effectiveness of the different drugs for specific symptoms and the appropriate doses. Treatment of the more expensive opportunistic infections may provide less benefits and are considerably more expensive.

The new combination drugs are important in that for the first time a medical treatment has proven effective against HIV. This creates hope for the future. But for the moment, even in the most developed countries, this is a highly expensive experiment with an unknown outcome. It will definitely be more cost-effective to prevent new infections than to treat people after they are infected.

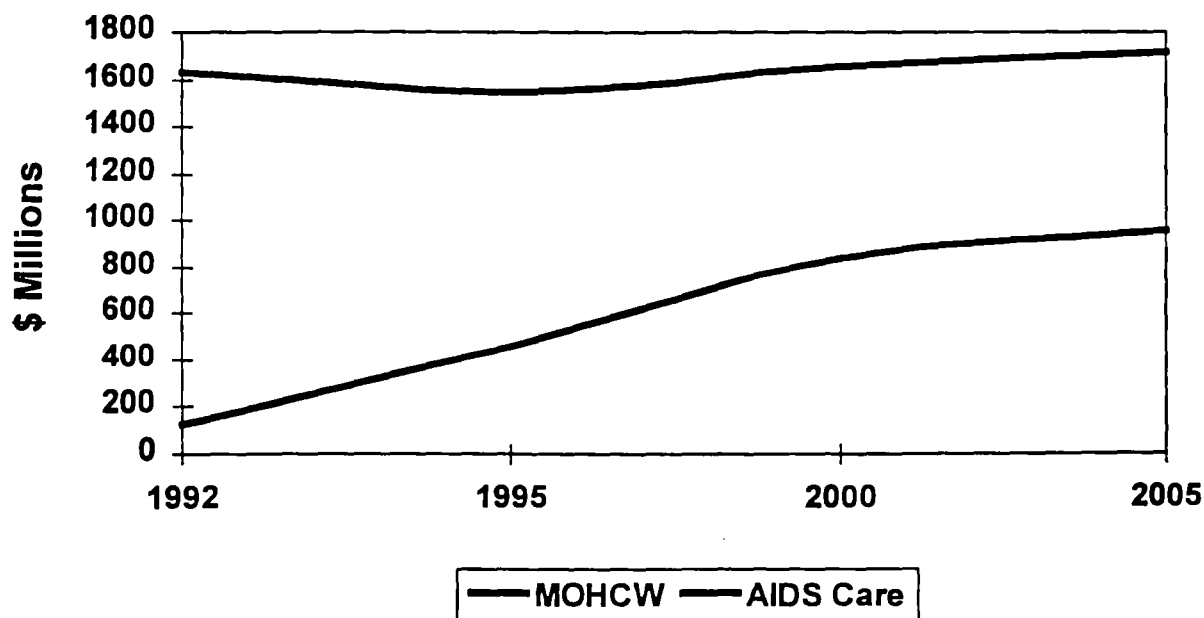
At current prices, drugs for anti-retroviral therapy cost a minimum of US\$10,000 per year. Even if only 25 percent of those with an HIV infection were treated with these drugs, the cost would be US\$3,500 million per year. This is 26 times the budget of the Ministry of Health and 60 percent of Zimbabwe's GDP. Clearly, treatment of HIV infection with these drugs is not possible for most Zimbabweans at today's prices.

The treatment of AIDS is expensive and will require a considerable amount of resources from the health system. For example, CIMAS, a medical aid society covering more than 300,000 beneficiaries, estimates average direct costs of an AIDS case had increased to about Z\$7,220 by 1996. This figure includes the costs of hospitalisation, general practitioners, specialists, drugs and tests. It does not include any of the advanced anti-retroviral therapies.

In addition to hospital care, various approaches to home-based care have been tried. A recent study by the Medical School at the University of Zimbabwe examined the costs and quality of a number of different home-based care programs (Woelk, et al, ND). The study found that home-based care cannot be a substitute for hospital care. It can provide important support for AIDS patients and their families and, if well done, can improve the quality of care the patient receives. The costs vary considerably depending on whether the program is entirely community-based or involves expensive visits from hospital or clinic-based personnel. Costs per visit in the programs studied ranged from Z\$120 to Z\$328.

Assuming that the costs of care remain at about Z\$7,220 per case (in constant Z\$), and assuming that about 70 percent of AIDS patients receive care, then expenditures would rise to Z\$930 million in 2000 and Z\$1060 million in 2005. By contrast, the entire MOHCW budget for all health services equalled about Z\$1545 million in 1995, or about Z\$138 per capita. If that per capita expenditure continued over time, the MOHCW health budget would be Z\$1645 million in 2000 and Z\$1718 million in 2005, so that about 62 percent of the entire budget would be required just to meet the needs of AIDS patients.

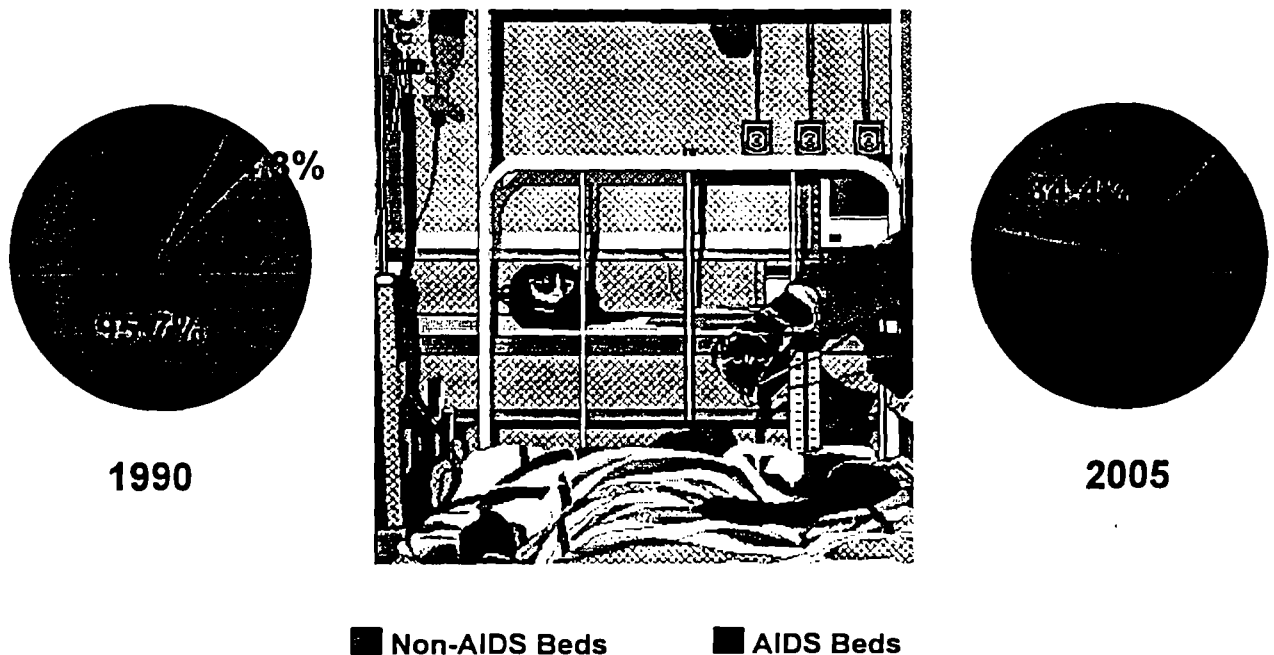
AIDS Care Costs vs. MOHCW Budget



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 - an estimated 37 days in Zimbabwe. Already, health staff estimate that as much as 50 - 70 percent of bed occupancy in some government hospitals is the result of HIV/AIDS. The demand will be 2.3 times as high over the next 10 years with the continuation of the epidemic, and perhaps as many as two out of every three available beds would have to go to service AIDS patients. Not only will the HIV/AIDS epidemic cause great suffering and death by itself, but it will also reduce resources available to deal with other health problems.

With increased pressures on the public health sector, home-based care may become more common. Home-based care is not always less expensive but it shifts the economic responsibilities back to households. In reality, it places the predominant work and psychological burdens on women and girl children, most of whom do not have the training, resources or support systems to provide long-term care to family members with AIDS.

Bed Occupancy Required for AIDS Patients



Economic Impacts

Zimbabwe has a relatively more developed economy than many of the neighbouring countries that have been hit hard by the HIV/AIDS epidemic; consequently, the impact of the epidemic could be worse than in more rural/subsistence-based economies. Having completed the first Economic Structural Adjustment Programme, the country is looking for rapid economic progress and improvement in the plight of the poor. The HIV/AIDS epidemic is likely to hinder achievement of these goals.

Economic forecasting is always difficult and establishing a direct relationship between the HIV/AIDS epidemic and future economic growth is tenuous given the myriad of other intervening factors. In a recent report, *The Socio-Economic Impact of AIDS: Issues and Options in Zimbabwe*, Rene Loewenson and Russell Kerkhoven summarise some of the issues to be taken into consideration.

AIDS sickness and mortality will strike the working age population disproportionately. The loss of young adults in their most productive years of life will cause serious reductions in both the quality and the quantity of labour. Labour losses will reduce production. The more that AIDS is prevalent among the economic elite, the best-educated people with the highest paying jobs, then the greater will be the economic impact. The loss of skilled and experienced workers also means much higher replacement and training costs.

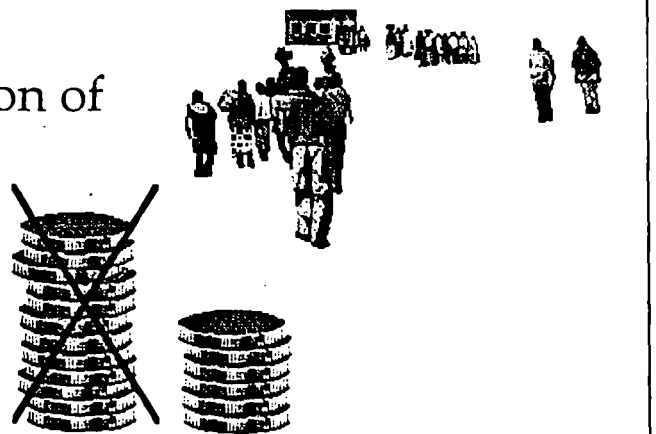
Zimbabwe already suffers from inadequate savings. Savings are necessary as a source of investment to drive the development effort. Household savings are likely to decline as the hundreds of thousands of Zimbabwean households affected by the epidemic have to divert savings to caring for the sick and dying, coping with funeral expenses and compensating for lost labour and income. Companies will have to redirect potential savings to make up for lost production and for higher health expenditures. Public expenditures will also be needed for rapidly increasing health and social welfare costs. This HIV/AIDS-induced pattern of reduced production, increased consumption and declining savings applies to all sectors, including the informal sector and agriculture.

The HIV/AIDS epidemic will likely result in ...

... decreased production

... increased consumption of health services

... declining savings



In agriculture, women will be increasingly faced with competing demands to maintain crop production, care for family members suffering from AIDS, and protect their own health. When a family member becomes sick with AIDS, it is usually the woman who cares for the sick person. In some cases, young girls may have to stay home from school to help the mother; consequently, children's education may suffer. Overall, the HIV/AIDS epidemic places an enormous unpaid burden on women and girl children and threatens to undermine fragile advances in women's economic status.

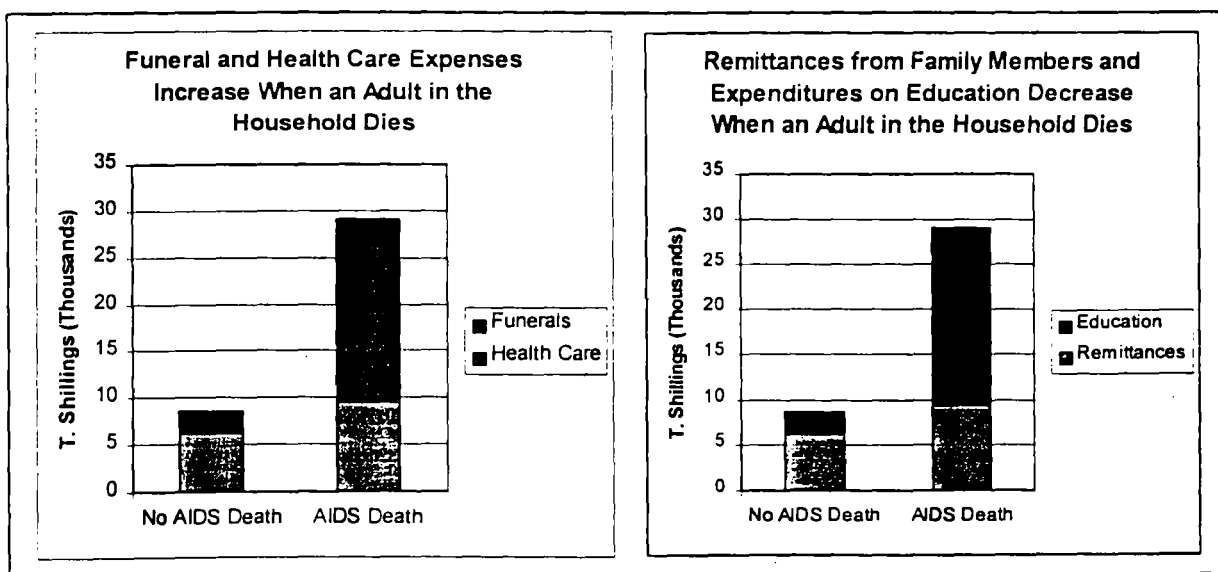
In Zimbabwe, where food security has been a continuous issue because of drought, any declines in household production can have serious consequences. The balance between subsistence and market production can also be disrupted as households are forced to emphasise less labour intensive crops. In the worst cases, rural families may be forced to exhaust their resources to pay for drugs and funeral expenses.

Economic Impact of AIDS on Households

The household impacts begin as soon as a member of the household starts to suffer from HIV-related illnesses. The male head of household is often the first member infected. His illness leads to a loss of income when he is unable to work. Household expenditures for medical care may increase substantially. Other members of the household may miss school or work less in order to care for the sick member. When HIV eventually leads to AIDS and death the impacts are even more severe. There will be a permanent loss of labour, which may mean less labour for the farm or may result in a loss of family income or remittances. Health care costs mount dramatically in the final stages of AIDS. Funeral and mourning costs can consume a major portion of household savings, leaving it ill equipped for the future. Of course, if one member of the household dies of AIDS the other parent may also be infected and die within a few months or years. Studies in Tanzania, Ethiopia, Zambia and Uganda have documented the tremendous burden of loss of income, large health care expenditures and consumption of savings to pay for funeral and mourning costs. In many cases children are removed from school in order to save educational expenses and increase household labour. The result is a severe loss of future earning potential.

A study of adult mortality in Tanzania found that 8 percent of total household expenditure went to medical care and funerals in household that had an adult death in the preceding 12 months. In households with no adult death the figure was only 0.8 percent. The study also found that an adult death in the household increased expenditures for health care. In addition to increased expenditures, many households experienced a reduction in remittances if the adult member worked outside the home. In partial compensation for these financial setbacks, many households were forced to remove children from school in order to reduce educational-related expenditures and have the children help out with household chores. (Over, 1996).

The Effects of an Adult AIDS Death on Household Income and Expenditures



Source: Mead Over Martha Ainsworth, et al. 1996. Coping with AIDS: The Economic Impact of Adult Mortality from AIDS and Other Causes on Households in Kagera, Tanzania.

The impacts of AIDS on households can be reduced to some extent by publicly-funded programs to address the most severe problems. Such programs have included home care for people with HIV/AIDS, support for the basic needs of the households coping with AIDS, foster care for AIDS orphans, food programs for children and support for educational expenses. Such programs can help families and particularly children survive some of the consequences of an adult AIDS death that occur when families are poor or become poor as a result of the costs of AIDS. The costs of these programs can vary widely. The table below shows the costs for various types of support programs in Kagera, Tanzania.

Annual Costs of Programs to Mitigate the Household Impacts of AIDS, Kagera, Tanzania, 1992

Type of Program	Annual Cost (US\$)
Home care for people with AIDS	\$227 per patient
Orphanage care	\$1,063 per orphan
Foster care	\$185 per child
Feeding post	\$69 per child
Basic needs support	\$47 per household
Educational support	\$13 per child

Source: World Bank, 1997, p221.

The costs of providing such assistance to all families experiencing an AIDS death would be quite large. Not all families would need such assistance since not all of these families are poor. However, poor families who do not experience an AIDS death also have a need for assistance. Home-based care and support for orphaned children will be needed mainly by families with an AIDS death. Nutrition and educational support are needed by all poor families. In this case, AIDS makes it more difficult for society to address the consequences of poverty

because it increases the number of families in poverty. Thus, it is important to recognise that AIDS is more than a health problem, it is a development problem that affects all sectors of society.

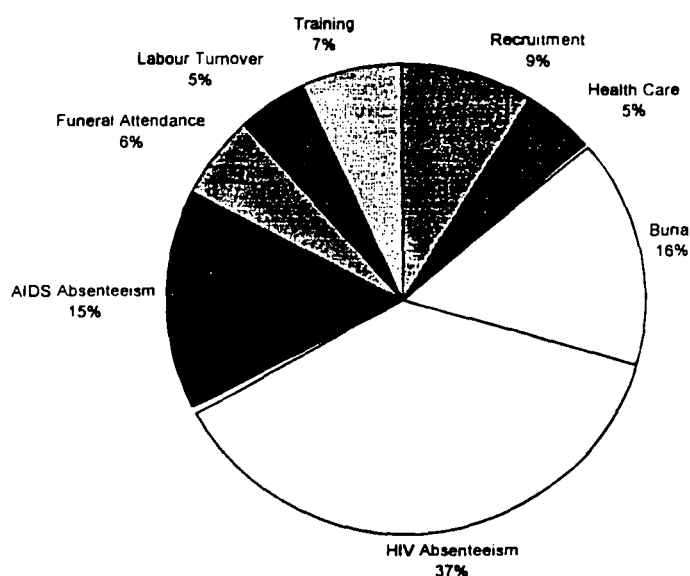
Economic Impact of AIDS on Firms

AIDS may have significant impact on some firms. AIDS-related illnesses and deaths to employees affect a firm by both increasing expenditures and reducing revenues. Expenditures are increased for health care costs, burial fees and training and recruitment of replacement employees. Revenues may be decreased because of absenteeism due to illness or attendance at funerals and time spent on training. Labour turnover can lead to a less experienced labour force that is less productive.

Factors Leading to Increased Expenditure	Factors Leading to Decreased Revenue
Health care costs	Absenteeism due to illness
Burial fees	Time off to attend funerals
Training and recruitment	Time spent on training
	Labour turnover

The magnitude of these costs has been calculated for several firms in Botswana and Kenya as part of an AIDSCAP study of the private sector impact of AIDS. The results showed that the most significant factors in increased labour costs were absenteeism due to HIV or AIDS and increased burial costs.

Distribution of Increased Labour Costs Due to HIV/AIDS by Category



Source: Roberts, Matthew and Bill Rau, African Workplace Profiles: Private Sector AIDS Policy, AIDSCAP, Arlington, VA, USA.

The same study found that the cost of AIDS per employee varied from US\$17 to US\$268 as shown in the table below.

Company Name	Total Cost of AIDS	Cost of AIDS per Employee
Botswana Diamond Valuing	US\$ 125,941	US\$ 237
Botswana Meat Commission	US\$ 370,200	US\$ 268
Auto Kenya*	US\$ 21,312	US\$ 17
Kenya Transport*	US\$ 61,132	US\$ 28
Muhoroni Sugar, Kenya	US\$ 58,303	US\$ 49
Western Wood, Kenya*	US\$ 40,630	US\$ 25

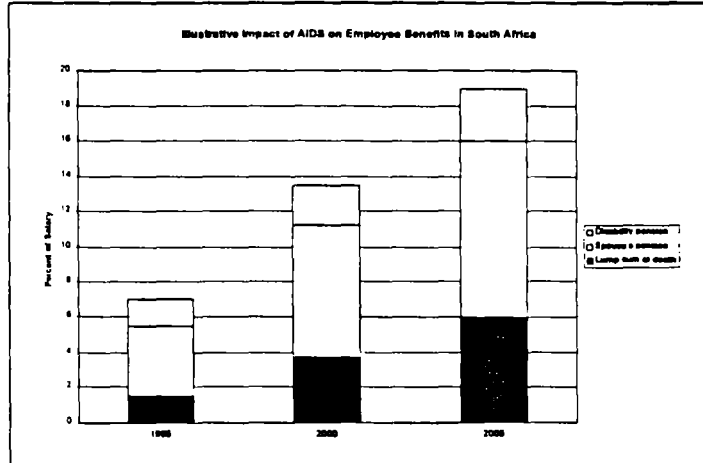
*Indicates fictitious name of firm.

Source: Roberts, Matthew and Bill Rau, African Workplace Profiles: Private Sector AIDS Policy, AIDSCAP, Arlington, VA, USA.

Increased labour costs can reduce the profits necessary for expansion. As an example, consider the Indeni Petroleum Refinery in Zambia. It spent US\$26,400 on AIDS related costs in 1994, more than its declared profits of US\$25,514 in that year. [Southern African Economist, 1997]

The Uganda Railway Corporation has been hard hit by AIDS among its employees. It has experienced a labour turnover rate of 15 percent per year in recent years. Its annual hospital bill has risen to US\$ 77,000 as the average cost per hospitalized patient has increased from US\$ 69 in 1988 to US\$ 300 in 1992. [Ainsworth, 1993].

A study in South Africa examined the expected impact of AIDS on employee benefits. It found that at current levels of benefits per employee, the total costs of benefits would rise from 7 percent of salaries in 1995 to 19 percent by 2005. Since these additional costs will have to be paid at the same time that productivity is negatively affected by AIDS, the net impact on profits could be significant. [Southern African Economist, 1997]



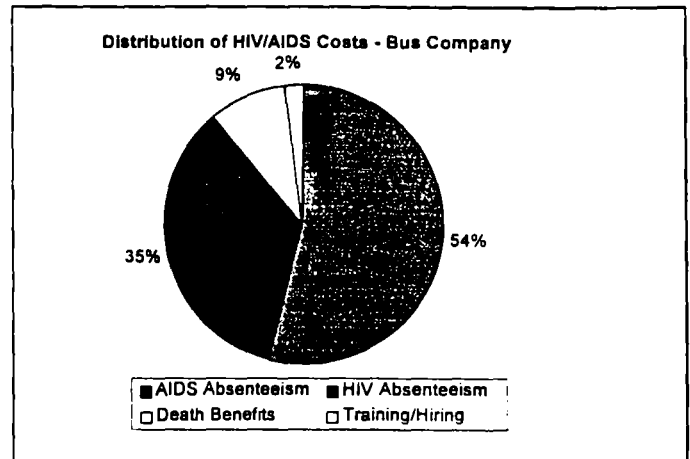
Health insurance companies in Zimbabwe have estimated that meeting all the claims of just one percent of HIV-infected members could result in a 31 percent increase in insurance rates. Most of this increase would have to be paid by employers. [Southern African Economist, 1997]

For some smaller firms the loss of one or more key employees could be catastrophic, leading to the collapse of the firm. In others, the impacts may be small. Firms in some key sectors, such as transportation and mining, are likely to suffer larger impacts than firms in other sectors.

The Impact of AIDS on the Transport Industry in Zimbabwe

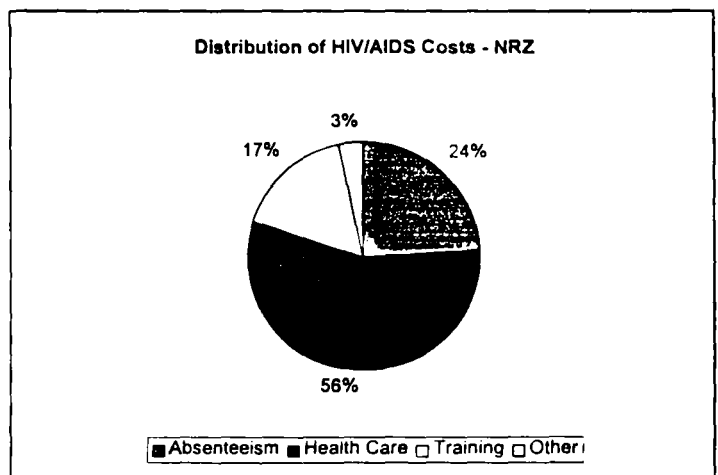
AIDS is already having an impact on the transportation industry in Zimbabwe and this impact will grow worse in the future. A recent study conducted by the AIDSCAP Project of a mid-sized bus company in Zimbabwe estimated that 350 of the company's 1100 employees are currently infected with HIV and that this figure may increase to as many as 440 employees by 2005. At that time, the number of employees dying of AIDS each year would reach nearly 130. This implies

significant costs to the company in terms of lost labour due to absenteeism, death benefits, and the cost of hiring and training replacement workers. The additional costs would climb to Z\$2.1 million and would represent 7 percent of the company's profits. A comprehensive AIDS prevention program could prevent many of the new HIV infections that are projected to occur by 2005. Such a program would cost between Z\$165,000 and Z\$275,000 per year. Prevention costs would be a significant expenditure for the company but would be only one-tenth the cost of absenteeism, death benefits and hiring/training costs that the company would have to pay if HIV infection continues to spread among its employees.



Another AIDSCAP-sponsored study looked at the impact of AIDS on the National Railways of Zimbabwe (NRZ). The NRZ has a large staff of 11,500 workers. Since the NRZ offers significant health benefits to its employees, the cost of AIDS is even higher than for other companies that do not provide such benefits. The study estimated that there are currently more than 3,400 workers who are infected with HIV and 64 who died from AIDS in 1996. The total costs of AIDS to the

NRZ in 1996 were estimated at Z\$39 million, equal to about 20 percent of the company's profits. More than half of this amount resulted from increased health care costs. By 2005 the cost of AIDS to the NRZ could reach Z\$108 million. There may be indirect costs as well. The report speculates that HIV/AIDS will worsen employee morale and create greater labor-management tensions and cause a labor shortage among skilled positions.



Macro-economic Impacts of AIDS

The macro-economic impacts of AIDS are difficult to assess. Since the full costs of AIDS will not be realized until 20-30 years after the peak in AIDS deaths there are few studies that have directly assessed the macroeconomic impacts of AIDS today. Studies attempting to estimate the macro-economic impacts have generally used computer simulation models. The following paragraphs summarize the evidence from many of these studies.

Most studies have found that estimate of the macroeconomic impacts of AIDS are sensitive to assumptions about how AIDS affects savings rates and whether it affects the best-educated employees more than others. Few studies have been able to incorporate the impacts at the household and firm level in macro-economic projections.

Some studies have found that the macro-economic impacts may be small, especially if there is a plentiful supply of excess labour and worker benefits are small. Other studies have found significant macro-economic impacts. Studies in Tanzania, Cameroon, Zambia, Swaziland, Kenya and other sub-Saharan African countries have found that the rate of economic growth could be reduced by as much as 25 percent over a 20-year period.

An important study by Mead Over of the World Bank examined the macroeconomic impact of AIDS in 30 sub-Saharan African countries. (Over, 1992) This study concluded that:

- If the only effect of AIDS were to reduce the size of the labour force then the growth rate of GDP per capita would increase.
- If HIV prevalence is higher in among the better educated workers (their higher income and mobility lead to more casual sexual partners) then the negative effects of productivity losses will lead to a reduction in the growth rate of per capita income.
- If 50 percent of AIDS treatment costs are financed out of savings, then the reduced investment will further depress the economic growth rate.

The net effect is likely to be a reduction of the annual growth rate of GDP of 0.8 to 1.4 percentage points per year and a 0.3 percentage point reduction in the annual growth rate of GDP per capita.

A simulation model of the economy of Cameroon was used to examine the effects of AIDS on economic growth through increasing health care expenditures and the loss of human resources. This model was one of the more detailed models developed for examining the impact of AIDS. It included three agricultural sectors, five manufacturing sectors and three service sectors. Labor was divided into three categories: unskilled rural labour, unskilled urban labour and skilled urban labour. The study found three mechanisms through which labour shortages affected the economy:

- AIDS leads directly to a reduction in the number of workers available
- A shortage of workers leads to higher wages which leads to higher domestic production costs. Higher productions costs lead to a loss of international competitiveness which causes foreign exchange shortages.
- Lower government revenues and reduced private savings (because of greater health care expenditures and a loss of worker income) leads to less investment and slower economic growth.

The study concluded that the annual growth rate of GDP could have been reduced by as much as 2 percentage points during the 1987-1991 period because of AIDS.

A study of the macroeconomic impacts of AIDS in Zambia (Forgy and Mwanza, 1994) found that by 2000 the GDP would be 5 to 10 percent lower because of AIDS than it would be if there were no AIDS affecting the population. The authors concluded that *"...without unprecedented infusions of free foreign aid to mitigate the effects of AIDS, the economy of Zambia will suffer considerable damage."*

An assessment of the macroeconomic impacts of AIDS in Tanzania was undertaken by the Government of Tanzania, the World Bank and the World Health Organization in 1991. (Cuddington, 1992) As part of the assessment an economic model was used to examine the impacts of AIDS on reduced labour productivity and reduced investment. The study found several important impacts.

- Rising mortality rates will cause the labour force and the population to grow more slowly than before the AIDS epidemic.
- Illness and absenteeism among existing workers and the need to hire replacement workers for those who die from AIDS will lead to a reduction in worker productivity.
- Rising health care expenditures will lead to a fall in domestic savings, which will reduce capital investment.
- The overall impacts of AIDS on the macroeconomy are small at first but increase significantly over time.

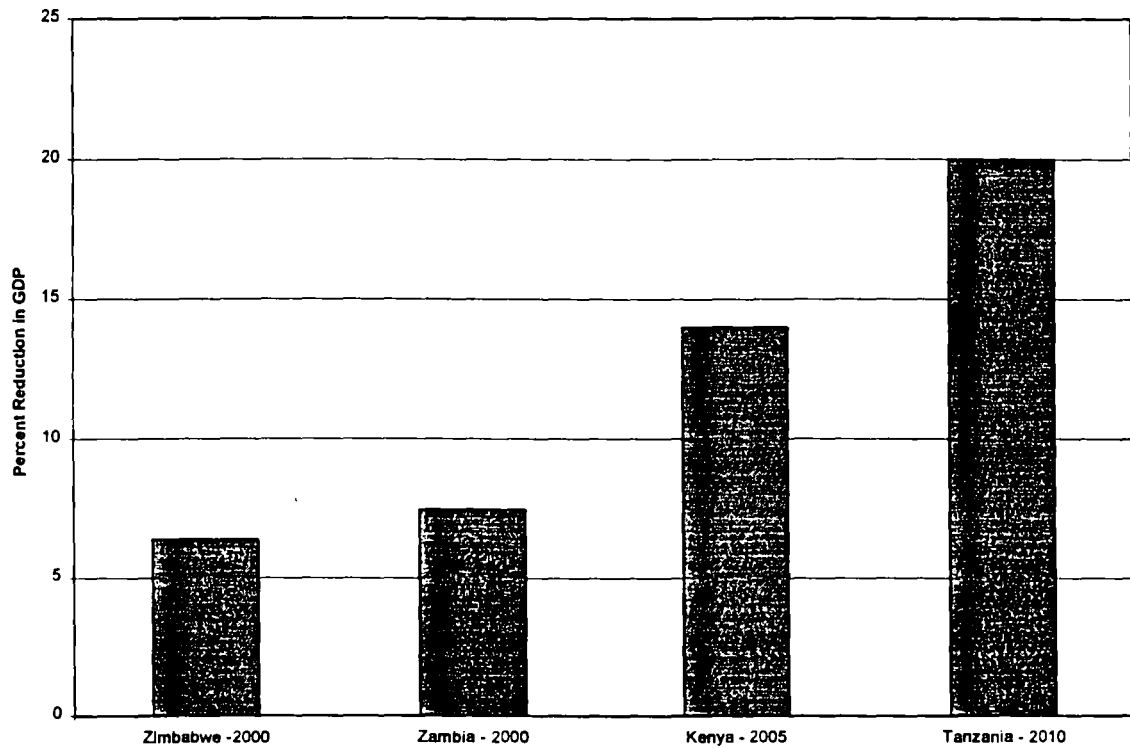
The study found that total GDP will be 15 to 25 percent smaller in 2010 because of the impact of AIDS.

A recent study of the impact of AIDS on the economy of Kenya found that the impact could be substantial in the coming years (Hancock, 1996). This study used the MacroAIDS model (Cuddington and Hancock, 1994) to project the impact of AIDS through the year 2005. It found that:

- The increased expenses of medical care for AIDS patients causes a significant drop in savings and capital accumulation. This leads to slower employment creation in the formal sector, which is particularly capital intensive.
- AIDS deaths to workers cause a reduction in the experience level of the labour force. The average age of workers drops from 34 to 25 years. This has a negative effect on worker productivity.
- Reduced worker productivity and investment will lead to fewer jobs in the formal sector. As a result some workers will be pushed from high paying jobs in the formal sector to lower paying jobs in the informal sector.
- The amount of capital available per worker may actually rise somewhat in the formal sector due to the loss of jobs, but it will decline in the informal sector.

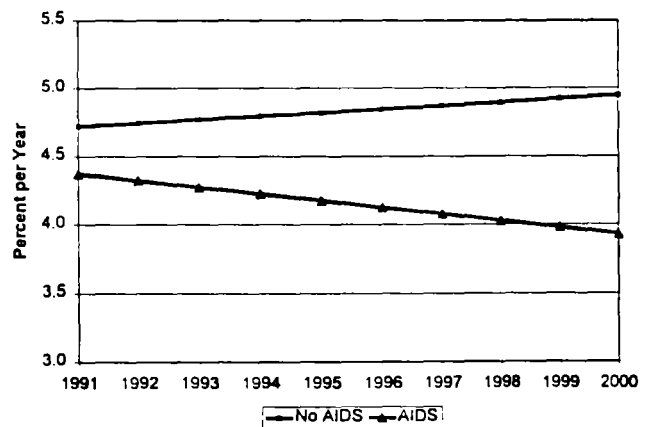
As a result of these interactions, GDP will be 14 percent lower in 2005 than it would have been without AIDS. GDP per capita will be 10 percent less in 2005.

Percent Reduction in Future GDP as a Result of AIDS: Projections from Various Studies



A computer simulation study of the impact of AIDS in Zimbabwe found that AIDS could lead to a serious reduction in economic growth rates and a large increase in the government deficit. This study found that the annual growth rate of GDP might be 25 percent lower by 2000 than it would have been without AIDS.

Projection of Annual Economic Growth Rates in Zimbabwe



Source: *The Economic Impact of AIDS in Zimbabwe*, Larry Forgy, 1993.

Women and AIDS

Men in Zimbabwe are often expected to exercise complete control in their relationships with women, including decisions about when and how a woman will engage in sexual relations. Male authority is frequently reinforced by tradition and social norms. This imbalance in relationships can make it extremely difficult for women to insist that men accept their fair share of responsibility for protecting couples against HIV.

A woman may be at risk of HIV infection even though she is faithful to her husband, because the husband has outside sexual partners. She may have little or no control over her husband's actions and no ability to protect herself by having her husband use condoms. This mixing of high-risk sexual behaviour with normal marital relationships can be deadly when HIV is so rampant. Female condoms, devices that could give women more independence and protection, are rarely available in Zimbabwe.

Research indicates that the risk of HIV infection is 2-4 times higher for women than men during unprotected intercourse because of the larger surface areas exposed to contact. Similarly, women are more vulnerable to other sexually transmitted diseases, the presence of which greatly enhances the risk of HIV infection. STDs that bring on recognisable symptoms in men are often asymptomatic in women and therefore remain untreated.

WOMEN CAN BE ESPECIALLY VULNERABLE TO THE HIV/AIDS EPIDEMIC...

... the risk of HIV infection is higher

... younger women are at an even higher risk

...the epidemic can undermine fragile
economic and social gains.



Younger women are at an even higher risk because the physiological immaturity of their reproductive systems provides less of a barrier to HIV transmission. As seen in the age-sex

distribution of AIDS cases in Zimbabwe, much HIV transmission is from older men to younger women. These young women also have a harder time insisting on the use of condoms or other protective measures in intergenerational relationships.

AIDS can have a serious economic impact on the lives of women when it strikes a family member. In many cases, women do not have a secure occupation that can provide a steady and adequate income and may not even have rights of inheritance. Thus, if the husband dies, the surviving wife and children can be particularly vulnerable and subject to exploitation.

A woman may also have reduced ability to be a provider for the family if she needs to spend a significant portion of her time caring for family members who are sick with AIDS. It invariably reduces the time she has for household tasks and other productive work and affects the amount of time she can spend caring for children and other family members, not to mention the time a woman needs to take care of herself. In sum, the HIV/AIDS epidemic seems to place a tremendous extra burden on women and girl children, but there are few resources, training opportunities or support systems available to help.

IV. INTERVENTIONS TO CONTROL THE SPREAD OF AIDS

Knowledge of AIDS and Interventions

Treatment

Prevention

The National AIDS Coordination Programme

What Needs to be Done?

Where Do We Go From Here?

INTERVENTIONS TO CONTROL THE SPREAD OF AIDS

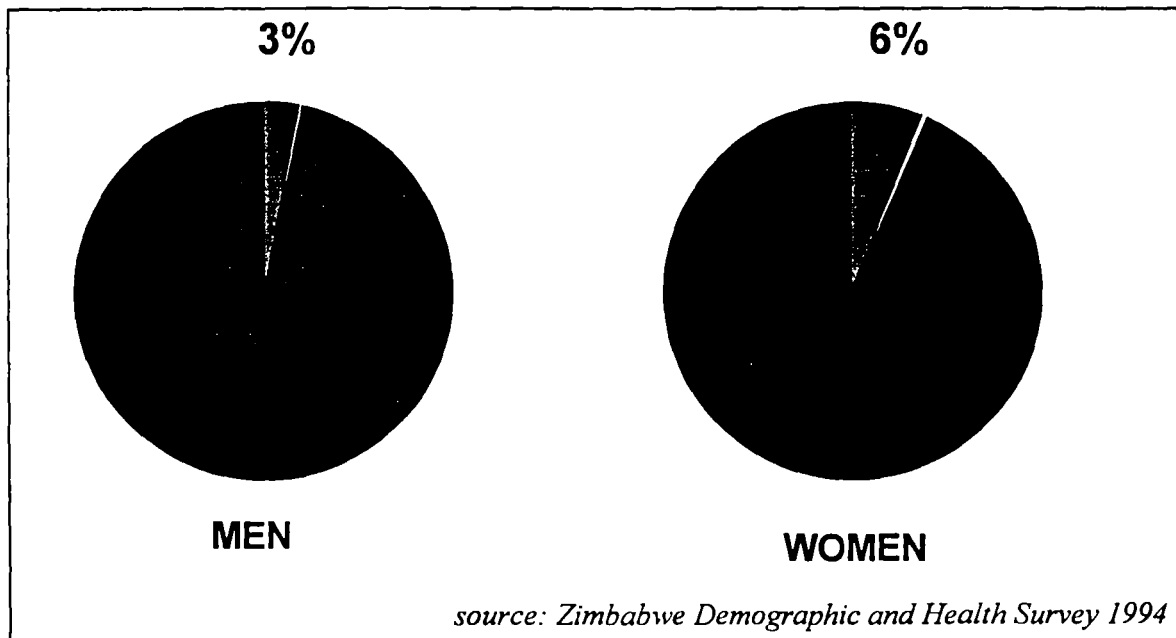
HIV prevalence is now so high that the impact of AIDS is going to be very severe in Zimbabwe regardless of what happens in the future. Nonetheless, much can be done to lessen the impact of the disease and eventually bring the epidemic under control.

Knowledge of AIDS and Interventions

Expanding knowledge about AIDS and ways to avoid the disease among the sexually active population is one key to bringing the epidemic under control. Information about the knowledge of AIDS in Zimbabwe was collected in the *Zimbabwe Demographic and Health Survey 1994*, a national survey on fertility, family planning and health. The survey interviewed 6,128 women between the ages of 15 and 49 and 2,141 men between the ages of 15 and 54. The results illustrate the level of knowledge and awareness of AIDS in the general population.

Knowledge about AIDS is virtually universal among Zimbabwean men and women. Sometimes the accuracy of that knowledge is poor, however. For example, about 25 percent of women and 15 percent of men think that a healthy looking person cannot be carrying the AIDS virus. In general, rural and less educated women and men are not as well informed as urban and better educated individuals.

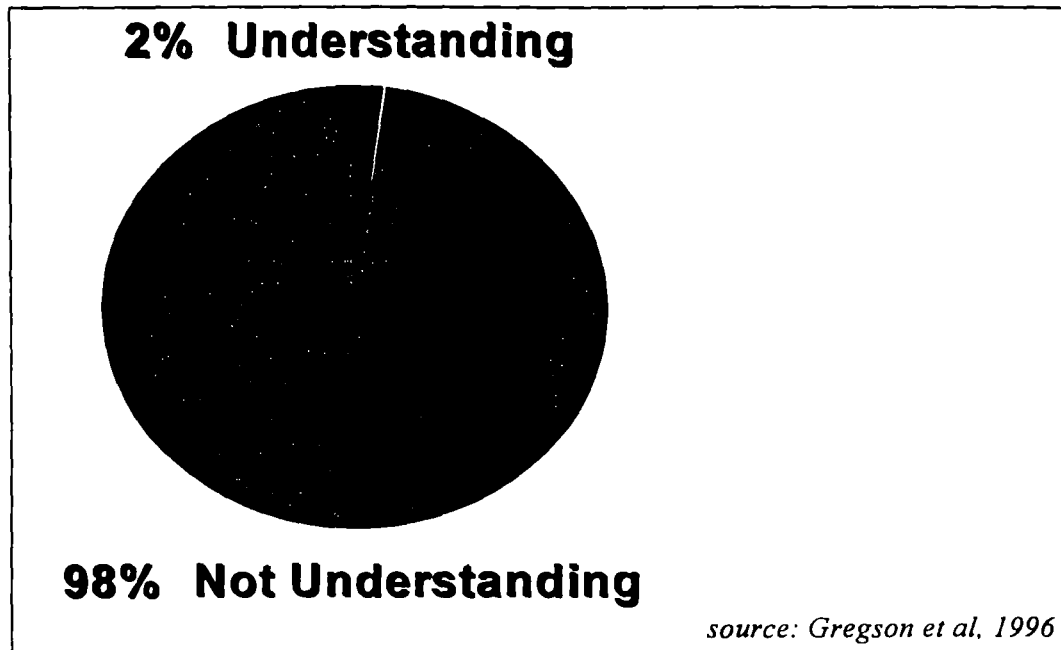
Proportion of Respondents Who Think Their Chances of Contracting AIDS are Very High



Those interviewed by the survey most often identified condoms and limiting sexual partners as the best ways to avoid HIV. However, 30 percent of women and 20 percent of men could not identify a single source for obtaining a condom. Only 6 percent of women and 3 percent of men thought their chances of contracting AIDS were very high.

A smaller, more recent study among women in two rural areas in Manicaland showed similar results. Nearly all the women in the survey knew about AIDS and understood that the disease can be spread through heterosexual contact. Only 2 percent thought that there is a cure for AIDS. In this study, about 2 out of 5 women felt at risk, mostly because of unfaithful partners.

Percent of Women Understanding the Role of STDs in Transmitting HIV



However, less than 2 percent of the women knew that the presence of another STD greatly increases the possibility of HIV infection. Among those interviewed, 1 out of 3 thought that HIV could be spread by sharing household utensils; 1 out of 4 thought the virus could be spread by touch. Only half the women understood clearly that HIV cannot be transmitted by mosquito bites.

Prevention

Different interventions can be adopted to influence the transmission mechanisms of HIV. Collectively, they can slow the spread of AIDS.

Transmission through blood transfusions

In Zimbabwe, health officials need to continue successful efforts to avoid infection through blood transfusion by keeping the blood supply as safe as possible. This means screening blood through laboratory tests and screening potential blood donors through interviews to reject as donors those that have a high probability of infection.

Mother-to-child transmission

A mother who is infected with HIV may transmit it to her new-born child 30-40 percent of the time. Various approaches can be used to reduce the number of children who are infected. Among them are:

- Reducing transmission during childbirth. Vaginal cleansing can reduce the transmission rate of HIV from mother to child by as much as two-fifths. It also has other health benefits. Studies are underway to determine whether delivery by Caesarean Section is also beneficial.
- Improving maternal nutrition. There is some evidence that improving maternal nutrition, particularly with Vitamin A supplementation, may reduce the transmission rate. Results from new studies are expected to shed more light on this option during 1998.
- Reducing transmission through breastfeeding. Perhaps, one-third of mother-to-child transmission occurs through breastfeeding. Curtailing breastfeeding could reduce transmission of HIV but would also eliminate the significant health benefits that children get from breastfeeding.
- Reducing the number of pregnancies. Women who are HIV-positive may wish to avoid childbearing so that they do not infect their new-born babies or leave behind orphaned children when they die. Counselling and testing needs to be available for couples where one or both of the partners is infected to help them understand the HIV test and the choices facing them.
- Anti-retroviral therapy. Mother-to-child transmission can be reduced through the use of AZT. Current approaches have proven to be effective, but require lengthy treatment with AZT for the mother as well as AZT treatment for the child. These treatments can cost \$800-1,000 per child and may have negative long-term consequences for the mother and child. Studies are underway to determine whether shorter and less expensive treatment procedures can be equally as effective.

Transmission through heterosexual contact

The major mode of transmission is through heterosexual contact and it is in this area that interventions have to be concentrated. Interventions include promoting reductions in the number of sexual partners; encouraging delays in the onset of sexual activity among adolescents; promoting the use and availability of condoms; and strengthening programmes for STD control.

Interventions to limit transmission through heterosexual contact -

- ... Reducing the overall number of sexual partners
- ... delaying the onset of sexual activity among adolescents
- ...promoting the use and availability of condoms, including female condoms
- ... controlling other sexually transmitted diseases

Promoting abstinence before marriage and faithfulness to one partner. One set of interventions focuses on encouraging people to abstain from sex before marriage and remaining faithful to a single partner. This could be done through a combination of mass media, counselling and education programmes. Delays in the onset of sexual activity among adolescents can have a significant impact on the spread of HIV. Reducing the overall number of sexual partners, but especially limiting the number of partners at any one time (concurrent), can also have an effect. Given the extremely high rates of HIV infection among commercial sex workers, a reduction in the number of men who have contact with prostitutes and bar girls can be important in bringing the epidemic under control. Overall, these strategies could make an important contribution to reducing the spread of HIV, although they would not be, by themselves, a complete solution.

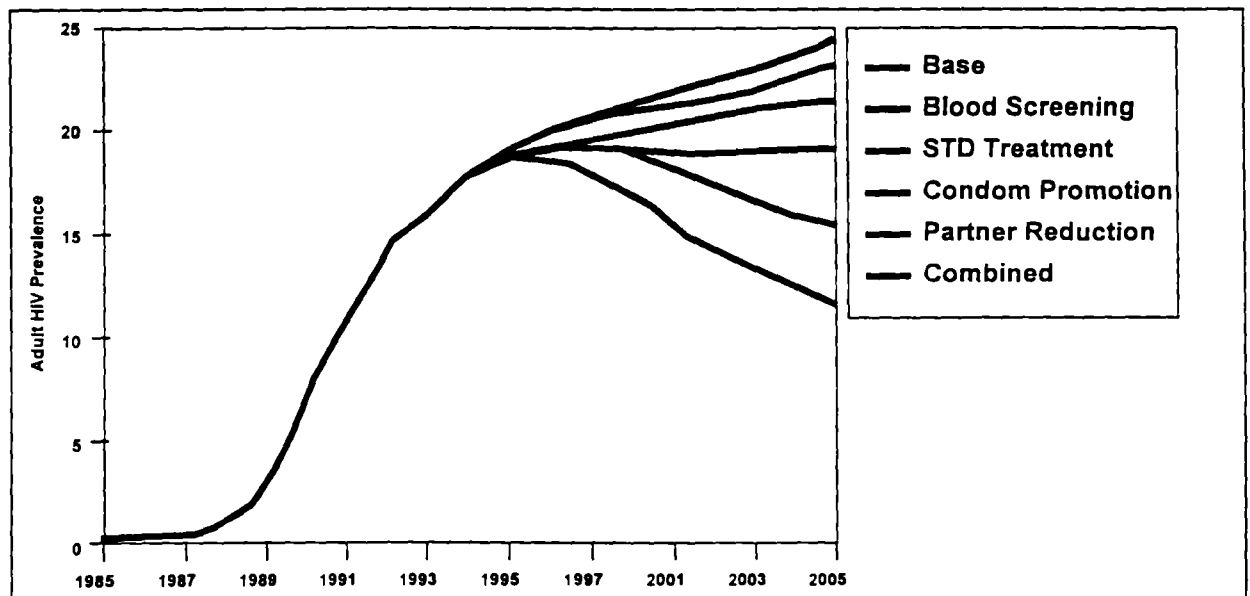
Promoting the use and availability of condoms, including female condoms. A second intervention is to promote condom use through mass media, counselling and education and to increase the availability of condoms through expanded public distribution, social marketing programmes and programmes in the workplace. Special initiatives to promote condom use among high-risk populations (such as commercial sex workers and long-distance truck drivers) have proven effective in some cases. Given the vulnerability of women, greater availability and use of female condoms could help control the spread of the disease. A 1992 study in Bulawayo found that the cost of condom distribution was about US\$0.07 per condom distributed. This translates in to a cost per new infection averted of about US\$50.

Controlling other sexually transmitted diseases. Another intervention focuses on controlling the spread of sexually transmitted diseases such as syphilis, gonorrhoea and chancroid. A recent study in Mwanza, Tanzania, for example, found that an STD prevention and treatment programme reduced the number of new HIV infections by 42 percent. The cost was about US\$10 per case treated and US\$218 per HIV infection averted. Services to detect and control STDs can be critically important for managing the HIV/AIDS epidemic.

Combined interventions. Each of the intervention packages described above can make an important contribution to controlling the spread of HIV. Alone, none is likely to solve the problem completely; some people will respond to one intervention while others will respond to another. Computer simulations suggest that a much larger effect can be achieved by implementing all the interventions together in a broad attack on the epidemic.

The following information is not specific to Zimbabwe, but is based on simulation modelling. It shows the expected impact of interventions in an illustrative high prevalence country. In the absence of interventions - the base projection or the top line on the graph - the HIV adult prevalence rate rises to about 23 percent in 2005. An effective blood screening programme - represented by the second line from the top - reduces prevalence only modestly. However, an effective STD control programme brings expected prevalence down by about 12 percent, and condom promotion and partner reduction interventions reduce HIV prevalence even more. Most importantly, when all four interventions are implemented simultaneously, the projected prevalence is nearly 55 percent less in 2005 than it would be in the absence of interventions.

Effects of AIDS Interventions



Signs of Success in Uganda

Recent trends in Uganda offer hope that high levels of HIV infection can be reduced. Reports from sentinel surveillance and other studies indicate that HIV prevalence is declining in Uganda. Of particular note, the evidence suggests that HIV prevalence among 15-19 years is declining in urban areas. Surveys indicate that behaviour has been changing within this age group. The most notable changes are that teens are waiting longer before becoming sexually active and fewer adolescents are having sex with multiple partners. There is also evidence of greater use of condoms in high-risk sexual encounters by members of this age group.

The reasons for the behavioural changes are not clear. Some data indicate that people are likely to change their behaviour if a relative or close friend dies from AIDS. This suggests that rising mortality is a grim catalyst for changing sexual practices. More positively, President Museveni and other Ugandan leaders have given strong support to AIDS control efforts and information about the risks and consequences of AIDS have been widely disseminated throughout the country.

The changes happening in Uganda show that the AIDS epidemic does not have to get worse. There is hope that a strong effort by all parts of society can help to dramatically reduce the transmission of HIV in Zimbabwe.

The fundamental message is a hopeful one. The simulation modelling suggests that with a concerted effort on a number of fronts, a high prevalence country can turn the rising prevalence curve downwards and start to bring the HIV/AIDS epidemic under control.

Overall, there are five important lessons to be learned concerning interventions.

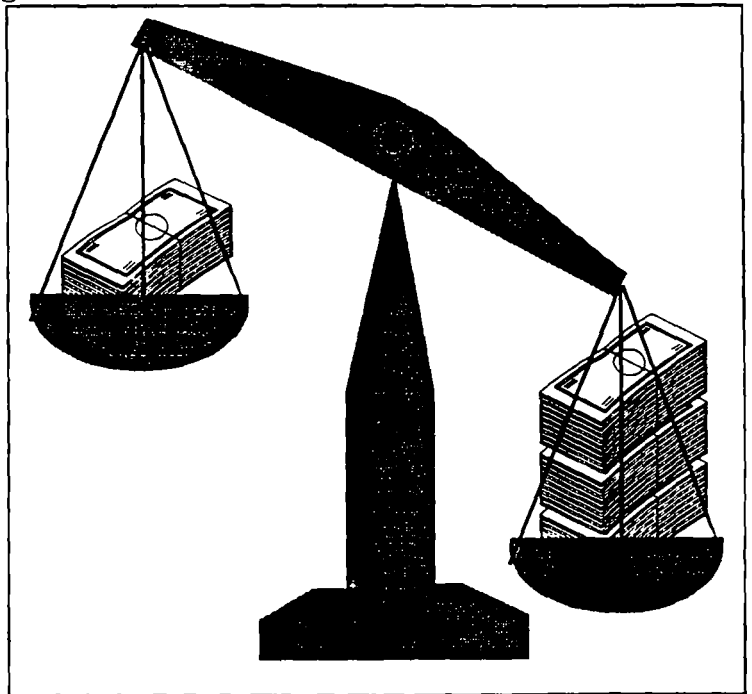
- Pilot tests have shown that interventions can be successful in significantly reducing the spread of HIV.
- Applying interventions on a nationwide scale is costly and success is difficult to measure. Nonetheless, there is now evidence from Uganda and Thailand that significant reductions in HIV prevalence can occur at a national level. Both countries recognised the seriousness of the epidemic early and implemented strong national programmes to reduce the spread of HIV and to provide support for people with AIDS and their families.
- It is important to intervene in many different ways to reach the largest possible number of people and have the maximum impact.
- The most effective interventions are those that focus on population groups that have the most sexual partners. This is true at all stages of the epidemic.
- As shown in the table below, prevention is many times more cost-effective if done through behaviour change and STD treatment than through anti-retroviral treatment.

Approximate Costs of Prevention and Treatment

Program	Approximate Cost
Treatment	US\$ per patient per year
Hospital treatment at current standards	\$700
Anti-retroviral therapy	\$10,000-\$20,000
Prevention	US\$ per infection averted
AZT to prevent perinatal transmission	\$2,400
Blood screening	\$200
Condom promotion and distribution	\$50
STD treatment	\$200

The Cost and Benefits of Prevention Programs

The total costs of a comprehensive prevention program will depend on the specific elements that are included. One study estimated the cost of a comprehensive prevention program in Zimbabwe at Z\$130 million per year. If this program had the same effectiveness as that shown in the graph above, then HIV prevalence would decline to about 12 percent after 10 years. The total cost of prevention for the 10 years would be Z\$1,300 million. The program would avert 1.6 million new HIV infections. *The savings in treatment costs during the 10 year period would be Z\$1,800 million (forty percent more than the prevention costs) and would ultimately reach Z\$8,000 million, more than six times the treatment costs.*



The costs per death averted of about Z\$800 compares favourably with international estimates of the costs of other public health programs, such as measles vaccination (Z\$5,000), Vitamin A supplementation for children (Z\$500) and iron fortification for pregnant women (Z\$8,000).

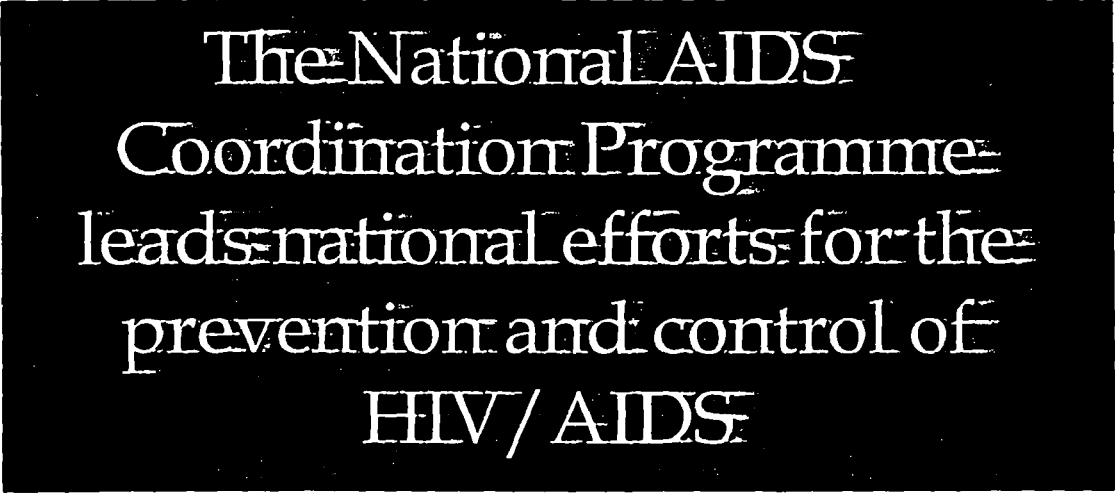
Vaccines. For many HIV/AIDS researchers and policymakers, the real hope is for a widely available vaccine that can prevent HIV infection in the first place. Research on vaccines continues in many laboratories around the world, with more than two dozen experimental HIV vaccines currently being tested. Most scientists believe that vaccines are not likely to be ready for mass use within the next 5 - 10 years, if then. Even if vaccines do eventually become available, there will be problems in producing large quantities and delivering the vaccine to large numbers of people.

**Neither drugs nor vaccines will
likely reduce the
heterosexual spread of HIV
in Zimbabwe in the next
several years.**

In brief, it does not appear that either drugs or vaccines will contribute much to reducing the heterosexual spread of HIV in Zimbabwe in the next several years.

The National AIDS Coordination Programme of Zimbabwe

The first case of AIDS was reported in 1985. The government responded by launching the Zimbabwe AIDS Prevention and Control Programme in 1987. The accompanying Short Term Emergency Plan extended from 1987 to 1988. Subsequently, the government established the National AIDS Coordination Programme (NACP) to lead and coordinate national efforts for the prevention and control of HIV/AIDS and other sexually transmitted diseases.



The National AIDS
Coordination Programme
leads national efforts for the
prevention and control of
HIV/ AIDS

NACP led in the development of the first Medium Term Plan (MTP1), which was implemented from 1988 to the end of 1993. The primary objectives of MTP1 were to limit transmission of HIV and other sexually transmitted diseases, mitigate the medical and psychological effects of the epidemic and establish a multi-sectoral approach to programme implementation.

The Second Medium Term Plan (MTP2), which covers the 1994 - 1998 period, places even more emphasis on a multi-sectoral approach that ensures the full participation of the government, NGO and private sectors in plans and programmes to prevent and control HIV/AIDS/STDs in Zimbabwe. The focus areas for MTP2 and the major activities within each area are indicated below.

1. Prevention of HIV/STD transmission through

- developing intensive information, education and communication (IEC) activities that will be promoted and implemented by all sectors
- increasing preventive counselling services
- promoting safer sexual behaviour
- providing condoms to all the different groups
- providing early diagnosis and treatment of STDs.

2. Reduction of the personal and social impact of HIV/AIDS/STDs by

- providing access to health care services for people with HIV/AIDS
- providing access to IEC for persons with HIV/AIDS and their families
- providing access to social services for people with HIV/AIDS and their families
- providing access to counselling for persons with HIV/AIDS/STDs and their families
- protecting human/social rights of people with HIV/AIDS and their families
- mobilising support at all levels to meet the physical needs of people with HIV/AIDS and their families as well as for the protection of groups with special needs.

3. Reduction of impact of HIV/AIDS/STDs on society by

- reducing the impact of HIV/AIDS/STDs on labour supply
- reducing the impact of HIV/AIDS/STDs on public expenditure.

MTP2 also calls for the development of supporting policies and legislation and increased political commitment; the provision of adequate resources to implement the plan; and appropriate training, monitoring, research and evaluation.

What Needs to be Done?

Actions can be taken to slow the transmission of HIV in Zimbabwe and avert some of the serious personal, social and economic consequences that come with the disease. Much impressive work is already being done in Zimbabwe today to care for HIV/AIDS infected individuals and to educate people about the dangers of AIDS. However, these efforts are not enough, as evidenced by the extremely high prevalence rates in the country. Some areas for renewed emphasis include the following.

- Strengthening political commitment for effective action by leaders at all levels. Experience from family planning and health programmes around the world has shown that the strong support of leadership groups can be crucial to success. As stated by one HIV/AIDS programme specialist: "If this realisation of the seriousness of the AIDS epidemic is expanded to all levels of the political and community leadership, it would provide the much-needed support for strengthened AIDS prevention and control initiatives in this country."
- Expanding the multi-sectoral approach to HIV/AIDS interventions. AIDS is much more than just a health problem; rather, it affects all areas of society and all components of the development effort. The epidemic affects individuals, families, villages and towns, as well as economic growth and social development. It is therefore important that all sectors of society be part of the solution to this problem, including government, NGOs, private sector organisations, religious institutions, unions, professional societies and others.
- Strengthening sexually transmitted disease treatments at all levels as a strategy for HIV prevention. The HIV epidemic follows in the wake of the STD epidemic.
- Improving AIDS education in school curricula to inform young people about the enormous risks of HIV and how to stop AIDS.
- Substantially increasing funding from the government, local communities, private sector organisations and international donors.

What Needs to be Done

... strengthen political commitment

... expand the multi-sectoral approach

... strengthen interventions



- Strengthening the sentinel surveillance systems for HIV/AIDS/STDs, and improving research and programme effectiveness.
- Promoting the use and availability of condoms.
- Improving counselling programmes and mobilising the huge number of Zimbabweans already infected, both to help them cope with the disease as best as possible and to keep them from infecting others.
- Taking into account in all programmes the special burdens that the epidemic is placing on Zimbabwean women and girl children.

Where Do We Go From Here?

To address such a calamitous epidemic, Zimbabwe needs to mobilise all possible resources. The National AIDS Coordination Programme engages in strategic planning activities designed to prepare “road maps” on how the country can address the HIV/AIDS epidemic. Strategic planning asks such questions as:

- What are the fundamental strategies to be adopted to bring the epidemic under control?
- What organisations should be involved and what are the practical next steps for each?
- What more should the different sectors or organisations be doing?
- Are there additional policies that need to be adopted?
- Are more resources needed and who should provide them?

Strategic Planning to Address HIV/AIDS

- Fundamental strategies?
- What organisations?
- Practicable next steps for each?
- Other sectoral programmes?
- Additional policies?
- More resources? From where?

The impact of the HIV/AIDS epidemic on the collective health and the social and economic well being of Zimbabwe is potentially staggering. The disease may well destroy more than 20 percent of the present adult population as well as large numbers of the coming generations. The country needs to respond accordingly and the government, NGO and private sectors all need to participate fully in plans and programmes to minimise further HIV transmission and bring the epidemic under control.

TECHNICAL NOTE

In November 1996, the National AIDS Coordination Programme organised a meeting of expert professionals from different organisations to review existing sentinel surveillance data and draw conclusions about the status of the epidemic in Zimbabwe. In February 1997, a larger group of provincial and national health experts met at an HIV, AIDS and STD Surveillance Workshop in Juliasdale and reviewed the findings of the first workshop. Much of the information in this book is based on the conclusions of these two meetings.

Data for the HIV sentinel surveillance sites come from the Epidemiology and Disease Control-National Health Information Surveillance Unit (EDC-NHIS Unit) and the National AIDS Coordination Programme (NACP), Ministry of Health and Child Welfare. Data on reported tuberculosis cases come from the EDC-NHIS Unit. Data on reported AIDS cases come from EDC-NHIS Unit/Public Health Laboratory (PHL).

Unless otherwise indicated, the projections in this book are the output of an application of a microcomputer projection programme for HIV/AIDS known as the AIDS Impact Model or AIM. AIM, in turn, is one component of the SPECTRUM Reproductive Health Policy Modelling System, a series of policy models developed by The Futures Group International in collaboration with Research Triangle Institute and The Centre for Population and Development Activities.

The simulation model results given on page 46 for alternative interventions come from Bernstein et al as indicated below under selected sources. The projections incorporate the following assumptions for the different interventions.

Intervention

Blood screening:	100 percent blood screening
Condom promotion:	Effective condom use in 70 percent of commercial sex contacts and 13 percent of casual contacts
STD control:	Effective STD treatment for 40 percent of STD episodes among commercial sex workers and men; 10 percent effective treatment among other women
Partner reduction:	50 percent reduction in proportion of men engaging in commercial sex; 25 percent reduction in proportion of men engaging in sex with short-term casual partners
Combined:	All four interventions implemented simultaneously

Further inquiries on the technical content of this document can be submitted to the National AIDS Coordination Programme. The address is on the last page.

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National AIDS Coordination Programme

Ministry of Health and Child Welfare

P.O. Box CY1122

Causeway, Harare

Tel: 792 - 981 or 702 - 446

Fax: 795 - 191