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HIV/AIDS in Africa

Epidemiology in Africa

Most of the epidemiological data indicate that extensive spread of HIV started in Africa in the late 1970s. Heterosexual intercourse is the predominant mode of HIV transmission in the region and unlike other regions of the world, more women than men in sub-Saharan Africa are infected with HIV. The status of the epidemic in Africa is as follows:

- An estimated 12 million adults and 1.5 million children have been infected with HIV since the beginning of the epidemic;
- Heterosexual transmission of HIV is predominant: female to male ratio is 1:0.87, showing more women then men infected with HIV, which is unique to Africa;
- 330,000 cumulative adult and pediatric AIDS cases were ***reported*** by mid-1994;
- It is estimated, however, that 3 million adult Africans have developed AIDS; and
- An estimated 2 million adult Africans have already died from AIDS.

Africa suffers from the highest percentages of both HIV infections and AIDS deaths in the world:

- 66% of all HIV infections in adults (15-49 years) in the world are in Africa;
- 73% of the total estimated AIDS cases in the world are in Africa;
- 74% of total estimated AIDS deaths in the world are in Africa; and
- 8.8% of the adult population in Sub-Saharan Africa is infected with HIV.

Projections for the Epidemic in Africa

Projections of the epidemic's course in sub-Saharan Africa include:

- Continued higher new HIV infection rates in women than men;
- 2 to 5 million HIV-infected children in Africa by the year 2000;
- New adult HIV infections in Africa continuing to rise, and starting to level at 800,000 annually by the year 2000; and
- By 2010 the population growth rate will slow dramatically--by over one-half--in African countries hardest hit by AIDS.

Socioeconomic Impacts of the Epidemic in Africa

HIV/AIDS will have greater social and economic impacts than other diseases in sub-Saharan Africa because it strikes adults during their economically productive years and because it extols costs, both direct and indirect, on those infected by HIV and on the communities associated with the disease. AIDS is already starting to reverse hard-won gains in child survival, education and economic development, and appears to be the major reason that per capita income growth is slowing in ten sub-Saharan countries. The social impact of HIV/AIDS in Africa will be exacerbated by the follow facts:

- Mother-to-child transmission of HIV in Africa is approximately 30% compared to perinatal transmissions rates of approximately 19% in the US and Europe;
- Between 3 and 5 million children in East and Central Africa will lose their mothers to AIDS in this decade;
- Infant mortality will nearly double in Zambia and Zimbabwe by 2010;
- Child mortality will increase nearly threefold in Zambia and Zimbabwe and double in Kenya and Uganda by 2010; and
- Life expectancy will be reduced in some African countries, such as Tanzania and Zambia, by 25 years by 2010.

The potential economic impact of HIV/AIDS in sub-Saharan Africa is indicated by the following:

- Rural households in several East African countries already spend the equivalent of an individual's annual income on AIDS-related costs including treatment and funerals;
- Some industries, such as the copper industry in Zambia, have lost as much as 10% of their work force to AIDS;
- Labor costs to the sugar estates in Kenya are expected to increase by as much as 65% by 2005 because of AIDS-related deaths;
- Profit losses of 15% to 25%, due to AIDS-associated direct and indirect costs are anticipated in many business sectors such as lumber processing in Kenya;
- More than half of some governments' total annual spending on health is now consumed by AIDS; and
- Gross domestic products (GDP) of some countries could be reduced by 14% by 2005 and per capita income could decline by as much as 9%.

USAID's Strategic Approach to the HIV/AIDS Epidemic

Since 1986 USAID has committed $600 million through bilateral and multilateral programs to HIV/AIDS prevention worldwide. Approximately $200 million has been provided to country programs in Africa. In fiscal year 1994, USAID bilateral funding to HIV/AIDS prevention in Africa totalled approximately $41 million; USAID also awarded a $28.5 million grant to the WHO/GPA with a significant portion of that grant contributing to African programs. USAID works with governments, international donors, NGOs and other private entities (eg. the transportation industry) at global, regional and national levels. USAID's prevention efforts focus on four integrated strategies:

1) Support for community-based prevention interventions targeted to individuals at highest risk of acquiring HIV that combine behavior change communications with condom distribution and treatment of sexually transmitted diseases;

2) Transferring the skills required to enable developing country partners to better plan and manage HIV/AIDS prevention and control programs;

3) Policy initiatives to support indigenous efforts to create a supportive environment for HIV prevention programs; and

4) Behavioral and biomedical research to develop new/improved technologies and approaches to reduce the spread of HIV.

Other Initiatives Supporting HIV/AIDS Prevention

Additional USAID initiatives supporting HIV/AIDS prevention include:

- Integrated family planning and HIV/AIDS prevention programs;

- Technical support to Peace Corps for the introduction of HIV/AIDS prevention into high school curriculum being taught in developing countries;

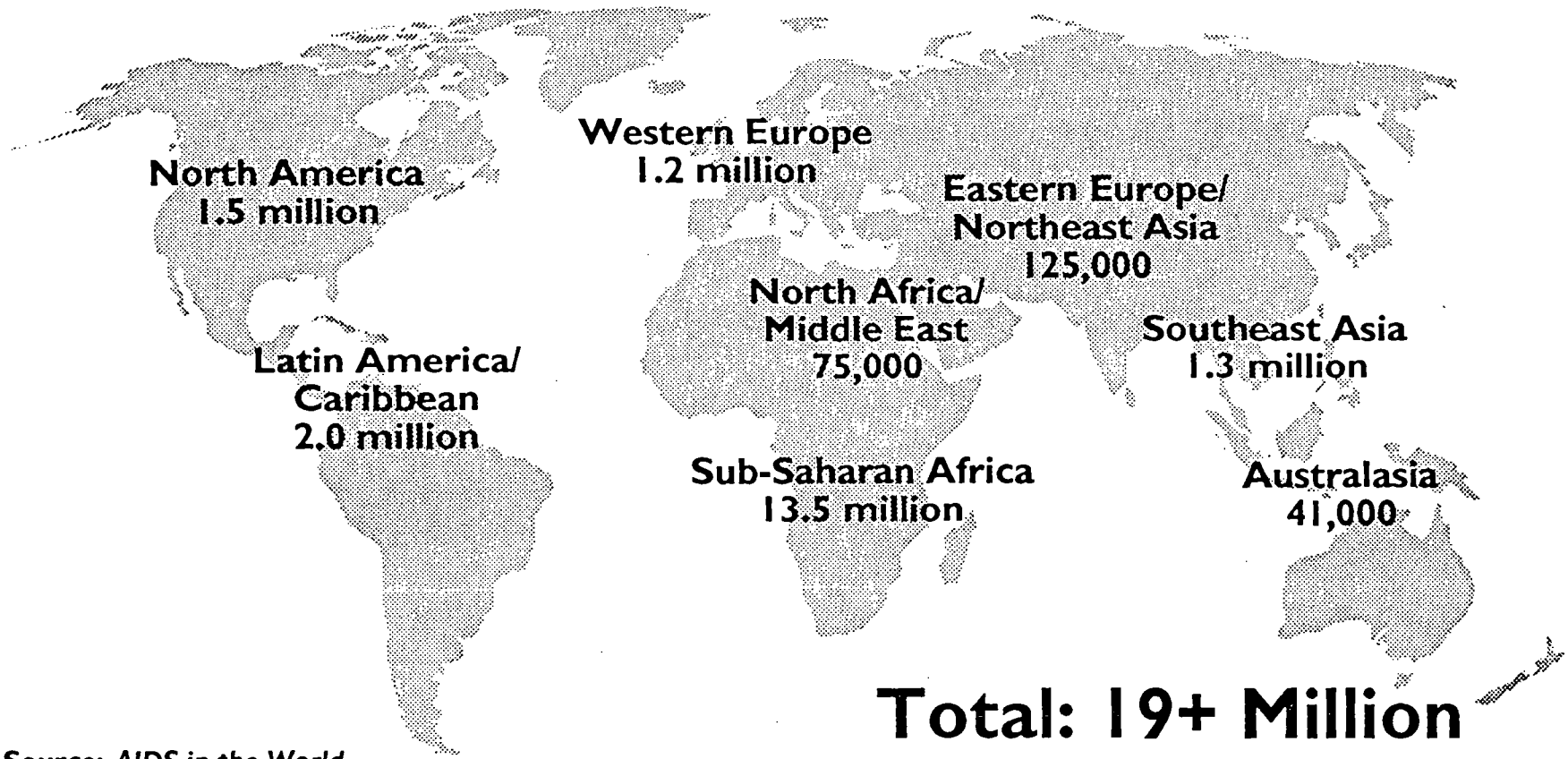
- Women and AIDS initiatives with the International Center for Research on Women to conduct behavior and applied research, leading to the implementation of interventions which enhance women's ability to protect themselves from HIV;

- Biomedical research into the development of rapid and inexpensive diagnostics for sexually transmitted diseases, including HIV;

- Support to US PVOs and indigenous NGOs through the development of a US HIV/AIDS network with NCIH and support to the International HIV/AIDS Alliance, as well as direct support to PVOs and NGOs for program implementation; and

- A joint USAID-HHS initiative, "Lessons Without Borders", to review international experiences and apply them to domestic programs.

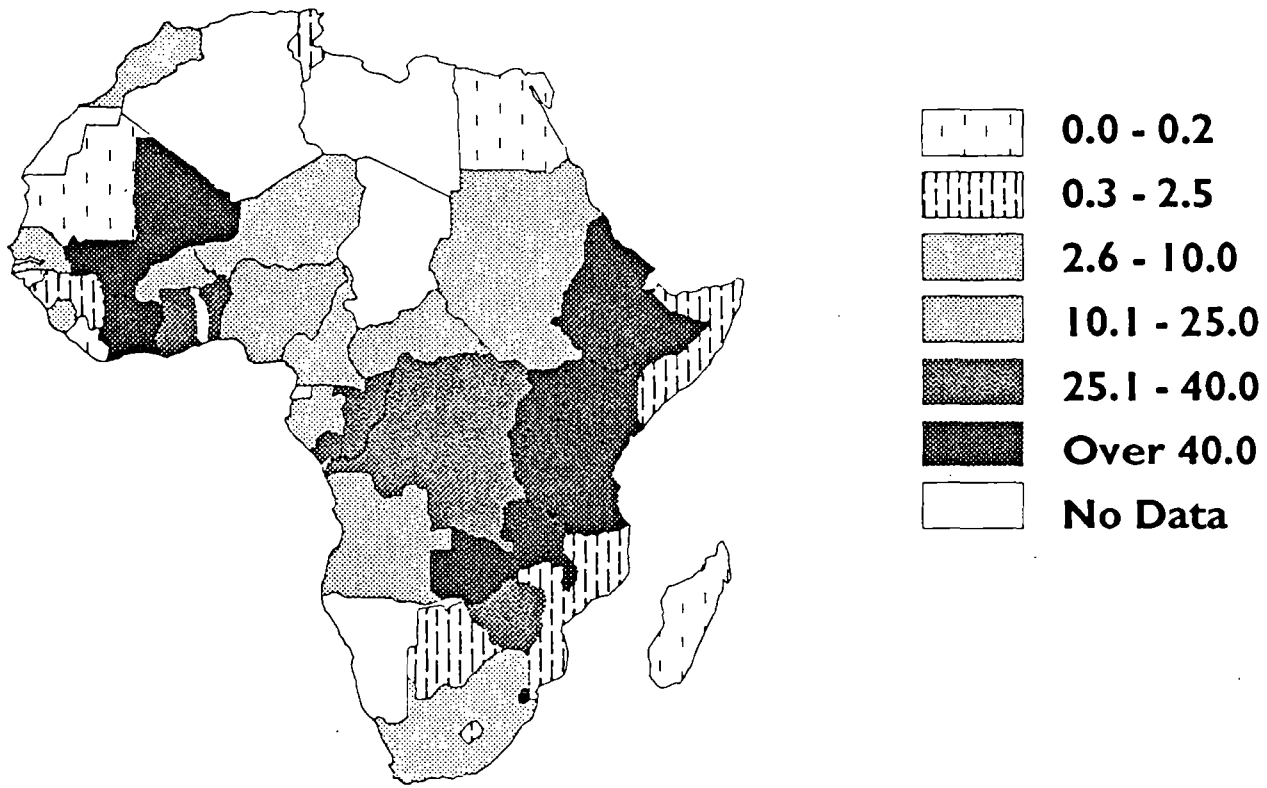
Projected Geographical Distribution of HIV Infections: 1995



Total: 19+ Million

Source: *AIDS in the World*

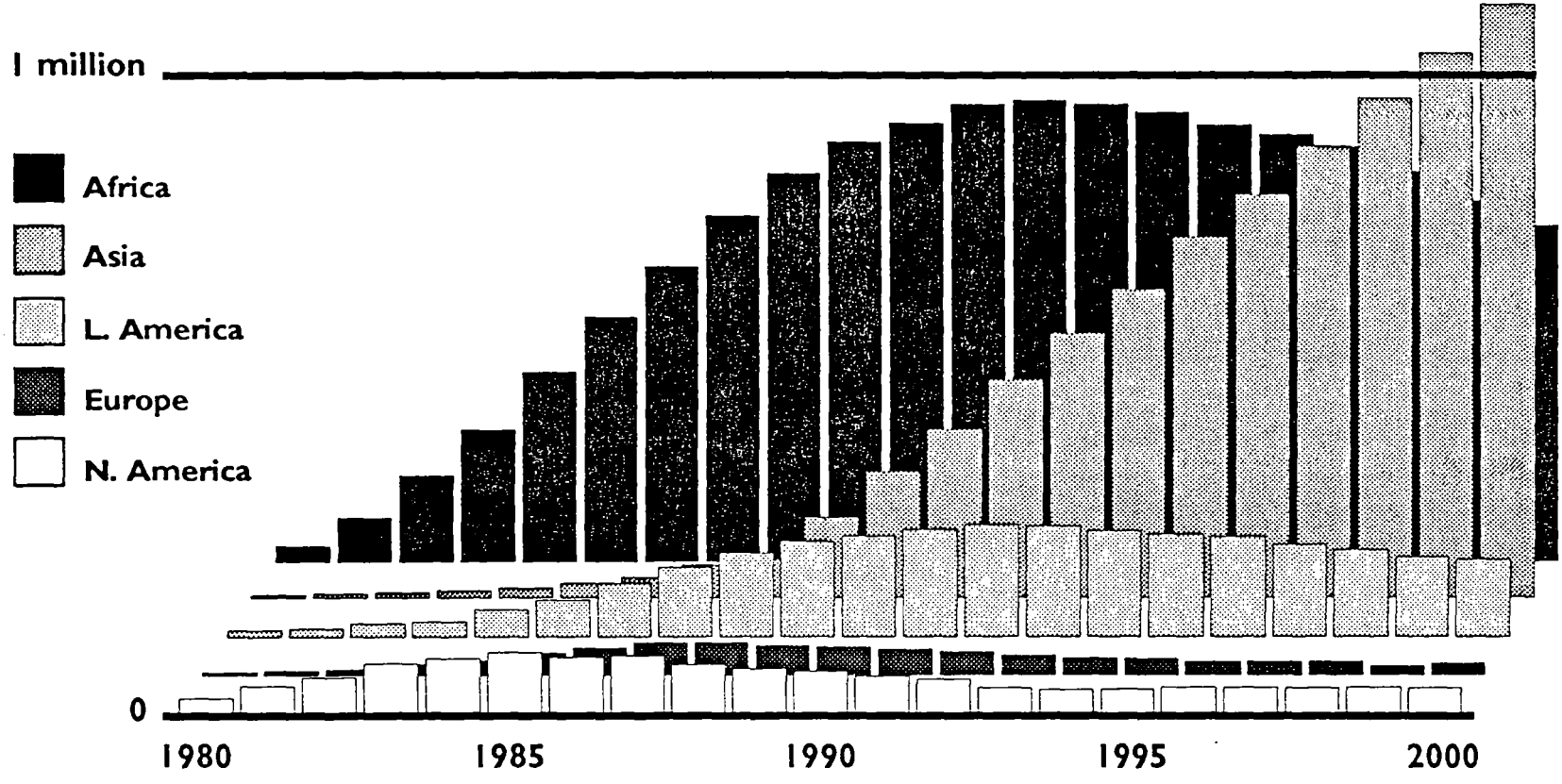
African HIV-1 Seroprevalence for High-Risk Urban Populations



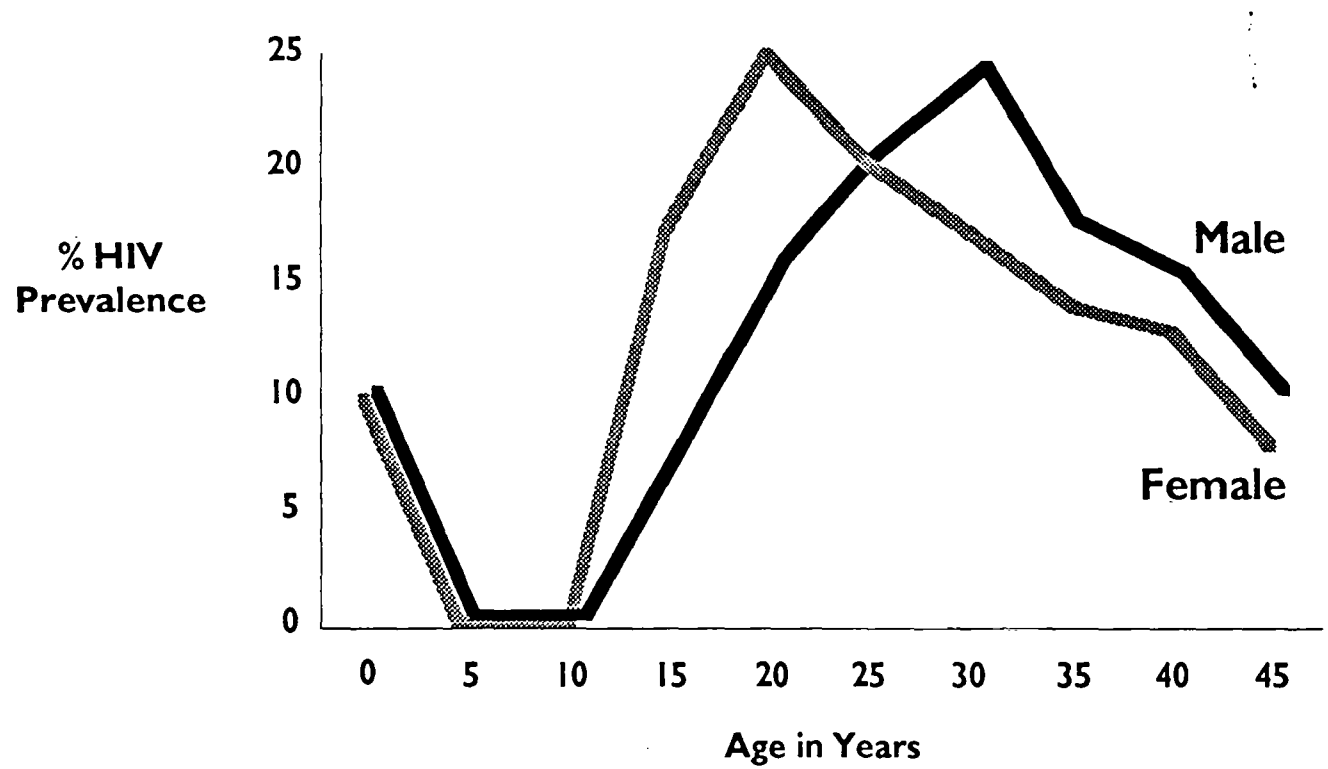
Source: *U.S. Bureau of the Census, Center for International Research, HIV/AIDS Surveillance Data Base, November, 1992*

USAID's HIV/AIDS Activities in Africa

Estimated/Projected Annual New Adult HIV Infections



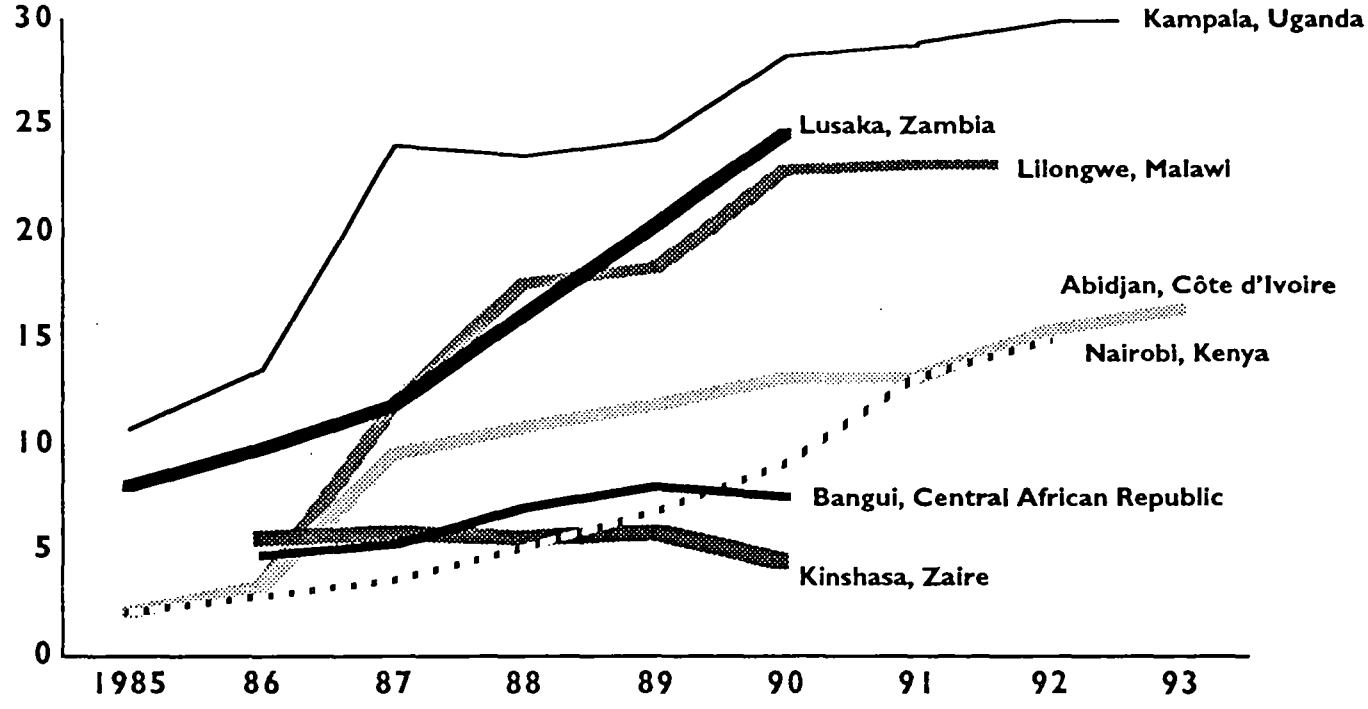
HIV Prevalence by Gender and Age in Sub-Saharan Africa



Source: *DeCosas and Pedneault*

HIV Seroprevalence Among Pregnant Women

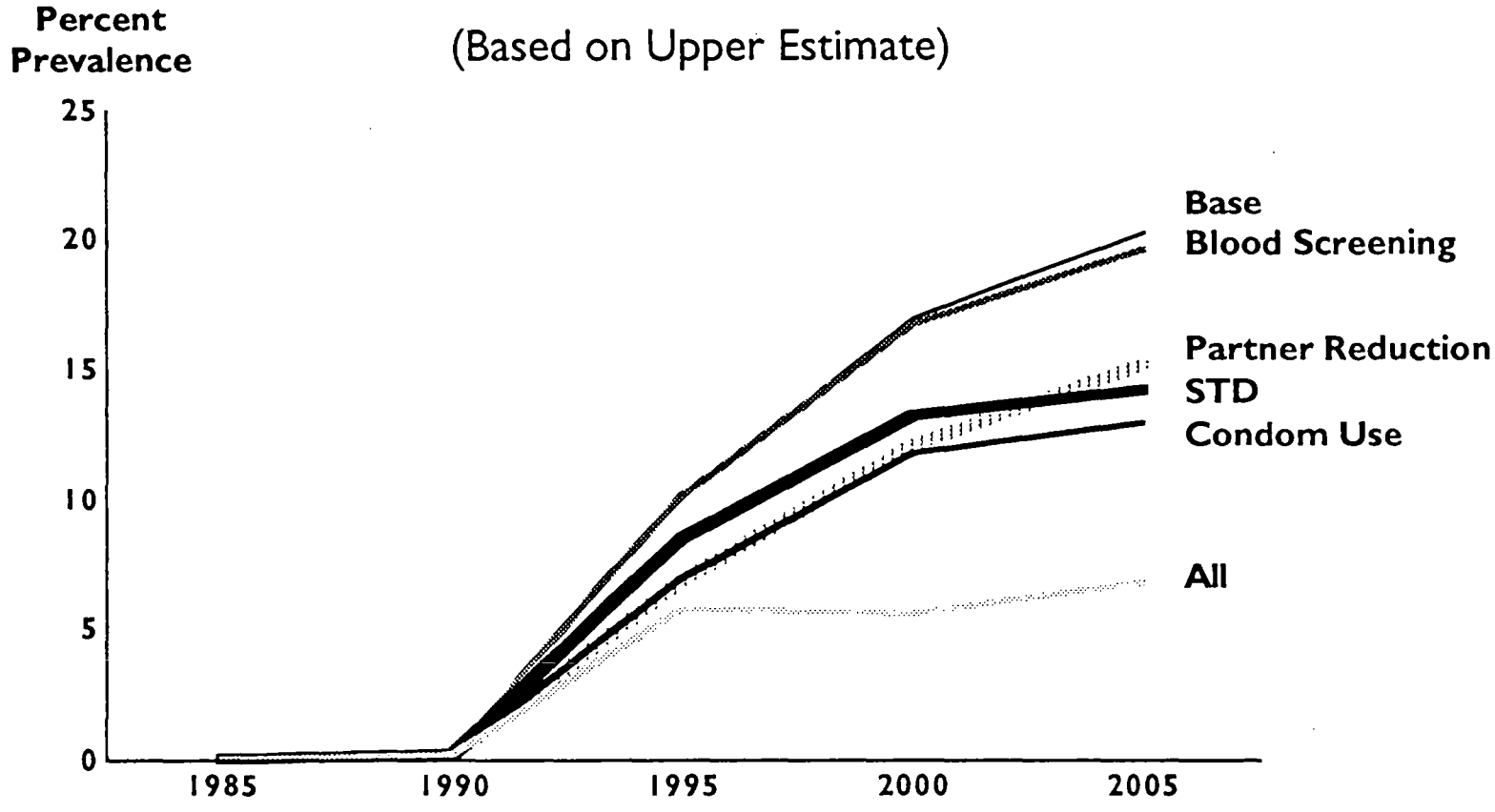
Selected Urban Areas in Africa: 1985–1992



Source: U.S. Bureau of the Census

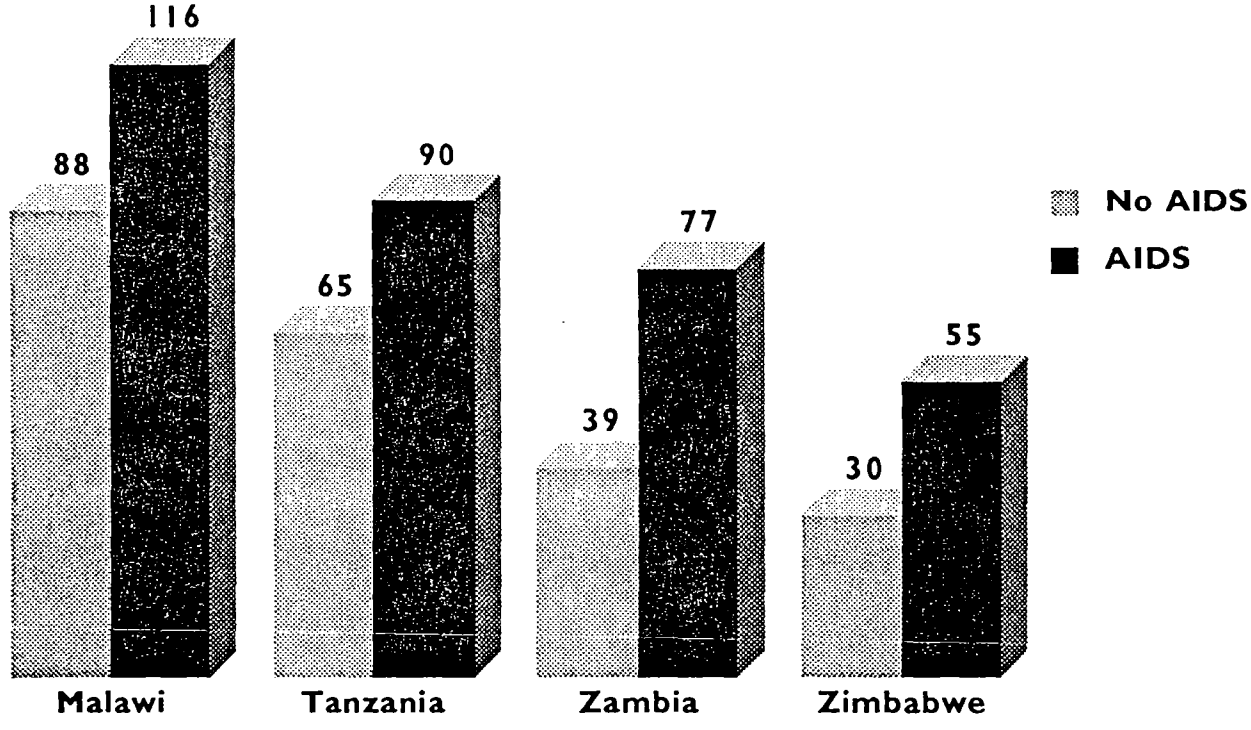
Projected Effect of AIDS Interventions

Modeling of an African City



Projected Infant Mortality Rates

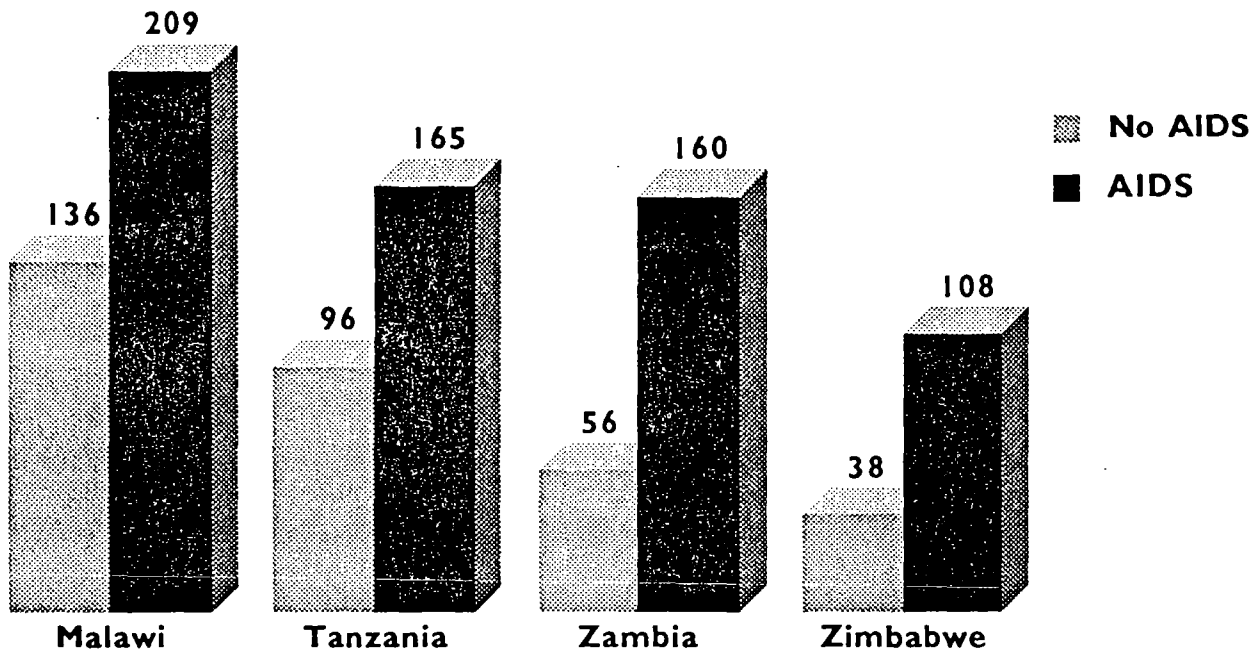
With and Without AIDS: 2010



Source: U.S. Bureau of the Census

Projected Child Mortality Rates

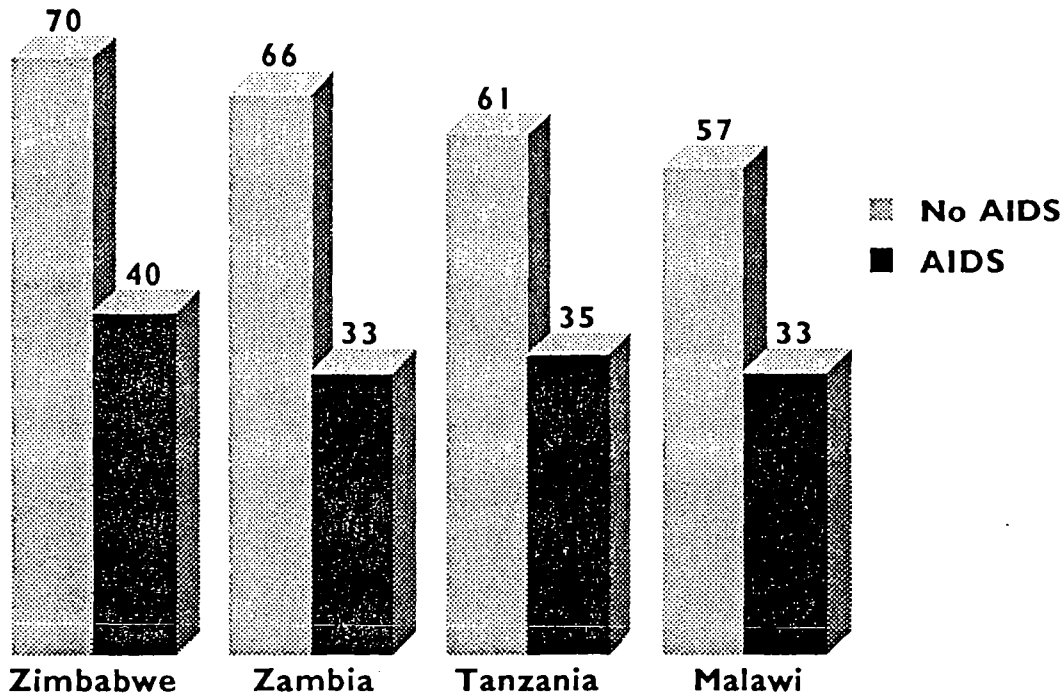
With and Without AIDS: 2010



Source: U.S. Bureau of the Census

Projected Life Expectancy at Birth

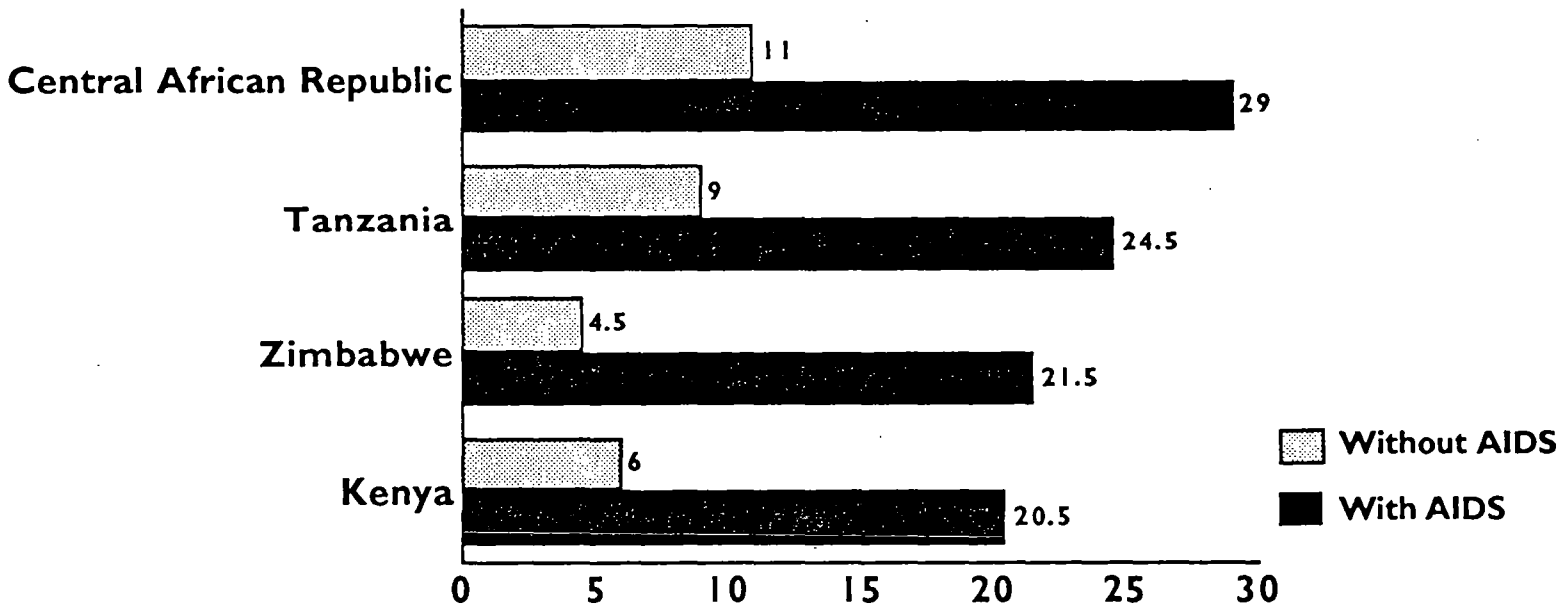
With and Without AIDS: 2010



Source: U.S. Bureau of the Census

Crude Death Rate With and Without AIDS

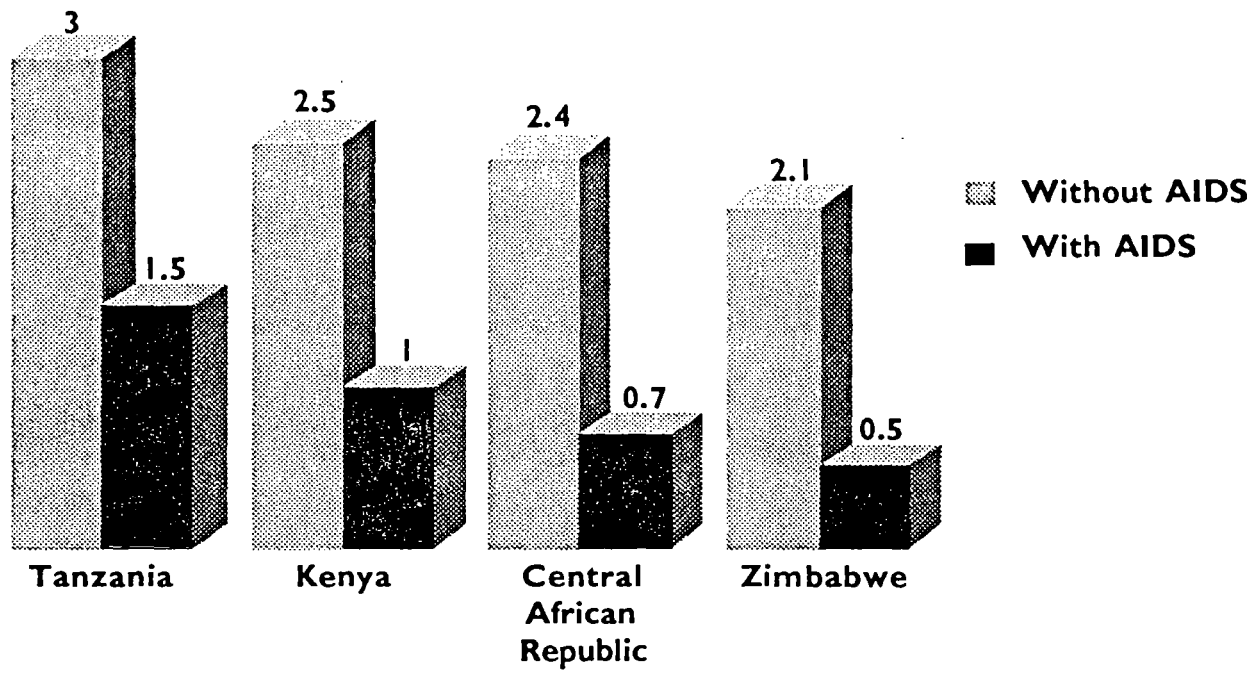
For Selected Countries: 2010



Source: U.S. Bureau of the Census

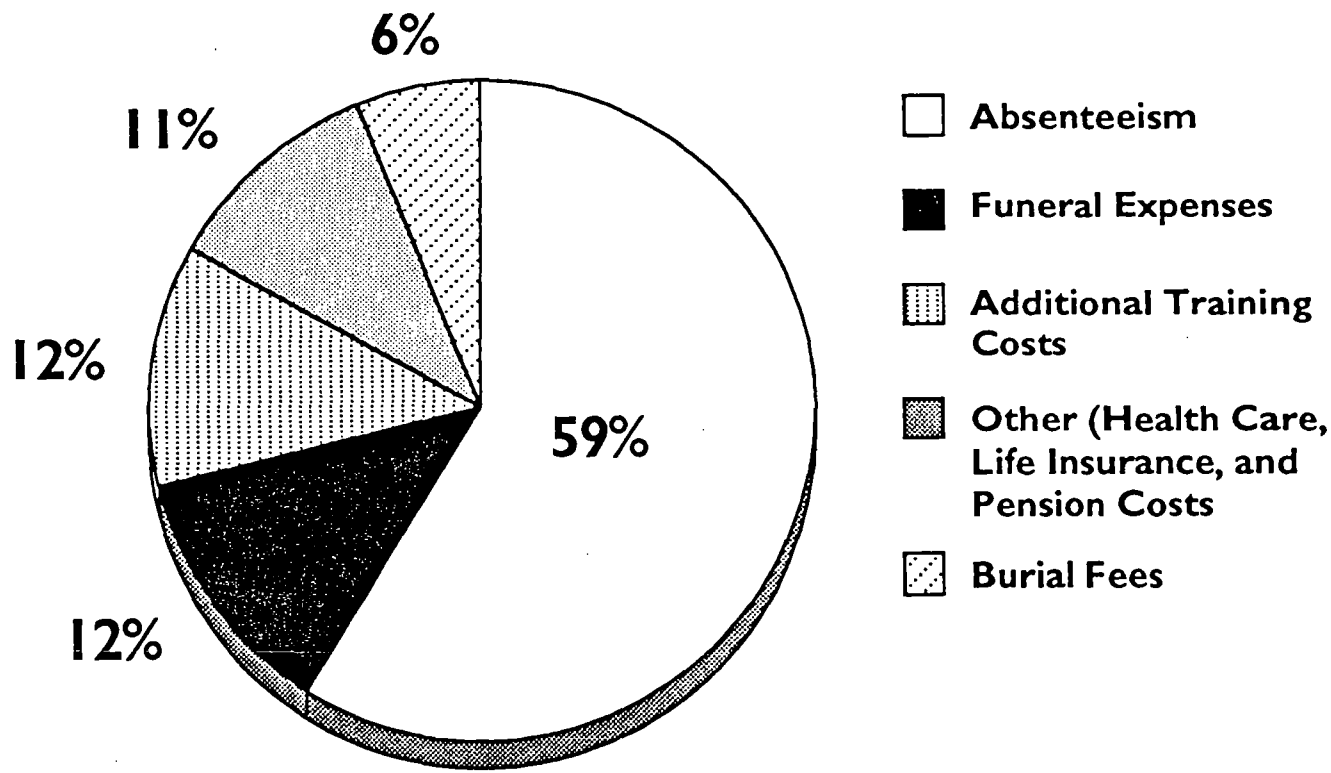
AIDS Epidemic Will Slow Growth Dramatically in a Number of Countries

Projected Population Growth Rate With and Without AIDS, Selected Countries: 2010



Source: U.S. Bureau of the Census

The Financial Costs of AIDS to a Kenyan Business



HIV/AIDS in Africa

An estimated 12 million adults and 1.5 million children in sub-Saharan Africa have been infected with HIV. By early 1994 almost 3 million Africans had developed AIDS and of those, about 2 million had died. Almost 75 percent of all AIDS deaths reported in the world have been in Africa.

Epidemiology of HIV/AIDS in Africa

Most of the epidemiological data indicate that the extensive spread of HIV started in Africa in the late 1970s. Heterosexual intercourse is the predominant mode of HIV transmission in the region, and estimates show that more women than men in sub-Saharan Africa are now infected with HIV, unlike other regions of the world. The female to male ratio of HIV infections in Africa is 1:0.87. Fifty to 65 percent of HIV infections have occurred in east and central Africa, but WHO serological data show that the epidemic continues to evolve, particularly in western and southern Africa.

Sentinel surveillance results in 1992 from Nigeria, which contains almost one-fifth of sub-Saharan Africa's population, indicated that HIV had spread throughout the country; HIV prevalence rates of 15 to 20 percent were found among some groups of female sex workers. In many cities in East Africa, infection levels in commercial sex workers approach 50% with several cities estimating nearly universal infection among sex workers in the lower socio-economic stratum. In Rwanda and Kenya infection rates for commercial sex workers is between 80% and 90%. Among antenatal clinic attenders in Abidjan, Côte d'Ivoire, HIV prevalence is 10 to 15 percent. Major urban areas of Botswana, Zambia and Malawi have shown adult HIV prevalence of over 20 to 30 percent. And in South Africa data suggest a threefold increase in HIV prevalence between 1990 and 1992 in women attending antenatal clinics.

Projections for the Epidemic

Projections of the trends of the epidemic in sub-Saharan Africa made in the last ten years are all being fulfilled. An increasing number of people are infected with HIV--66 percent of all HIV-infected adults in the world are in Africa--and a large percentage of them are young and economically productive. HIV levels are increasing in women. As a result, by the end of this decade as many as 5 to 10 million children worldwide will be HIV-infected through their mothers, with the majority in sub-Saharan Africa. There is evidence, however, that new adult HIV infections, now averaging about 800,000 annually, may be starting to level off in Africa. Even if some leveling of infection rates begins to occur now, the impact of current HIV infections will result in a dramatic slowing of the population growth--by over one-half--in the year 2010 in African countries hardest hit by the epidemic.

Sociocconomic Impacts of the Epidemic

HIV/AIDS is expected to have greater social and economic impact than other, more prevalent, diseases in sub-Saharan Africa because it strikes adults during the years when they are most economically productive--between the ages of 15 and 45--and because of the costs of caring for those infected and affected by HIV.

In many African countries, AIDS already is starting to reverse hard-won gains in child survival, education and economic development. According to the World Bank, the epidemic appears to be the major reason that per capita income growth is slowing in ten sub-Saharan countries. Poverty is expected to increase and development to falter because of the epidemic's effects on households, governments, businesses and national economies.

Impact on Population

As life expectancy at birth is the best summary measure of a population's mortality experience and because AIDS deaths are concentrated in childhood and mid-adulthood, HIV infection will have a relatively larger impact on life expectancy in 2010 than other measures of mortality. In countries where non-AIDS life expectancy is higher, such as Zimbabwe, each AIDS death represents a relatively greater loss of potential life-span than where non-AIDS life expectancy is shorter. Consequently, while the AIDS epidemic is more severe in Malawi than Zimbabwe, Malawi overall has a shorter life expectancy and will see somewhat less of an impact on potential life-span than Zimbabwe.

By 2010 AIDS is projected to reduce life expectancy in Malawi from 57 to 33 years, in Tanzania from 61 to 35 years, in Zambia from 66 to 33 years and in Zimbabwe from 70 to 40 years. In some African countries that are furthest along in the epidemic, more than half of adult mortality is now attributable to HIV infection.

Population growth in some African countries will be slowed by one-half or more by AIDS by 2010. In Tanzania, projected population growth by 2010 without AIDS is 3 percent while with AIDS it's 1.5 percent. Projections for Kenya show growth slowed from 2.5 percent without AIDS in 2010 to 1 percent with AIDS; Zimbabwe's population projections show 2.1 percent growth without AIDS and 0.5 percent with AIDS for that same year.

Child Mortality

Mother-to-child transmission of HIV is significant in Africa, with a transmission rate of around 30 percent. By 2010 infant mortality rates from AIDS are expected to nearly double in Zambia and Zimbabwe and to increase by 20 to 25 percent in Malawi and Tanzania.

The impact of AIDS on child mortality will be even greater than on infant mortality because many infected children survive for more than one year. In Zambia and Zimbabwe, for example, AIDS will increase child mortality rates nearly threefold. Malawi and Tanzania will have increases of 35 to 40 percent. Overall, these increases will reverse some of the hard-won improvements in child survival achieved in sub-Saharan countries over the last several decades.

Families' Costs

For a family, AIDS means increased expenditures and reduced income and investment. The expenses incurred can include the costs of hospitalization, outpatient or hospice care, treatment by traditional healers, medications, herbs, special foods and transportation to seek health care. Funeral costs can also deplete household savings. A single hospital admission for a child with AIDS in Zaire costs as much as several months of an adult's average salary, and funeral costs are equivalent to almost a year's salary. Even in Tanzania, where the government pays most health care costs, rural households affected by AIDS spent $60--the equivalent of a rural individual's average annual income--on treatment and funerals.

Increasing medical expenses and funeral costs are only part of the financial burden of AIDS on a family. Income is lost when adult members of the household become too sick to work. Studies in Kenya and Malawi report that two-thirds of an individual's lifetime production is lost due to early death from AIDS. Other members of the family may have to give up their jobs to care for those who have AIDS or replace them in the fields. Rural families may shift production to less labor-intensive crops, which can result in poorer nutrition or an additional loss of income from cash crops. Children are frequently removed from school because their labor is needed at home or because their families can no longer afford school fees.

Reduced income due to AIDS also restricts a family's ability to save and invest in education, farm production (labor, pesticides, equipment), or household goods. A study in Ghana found that 25 percent of households with an HIV-positive family member borrow or sell property to manage the cost of illness.

Public Sector Costs

AIDS illness and increasing poverty at the household level put economic pressure on governments in the form of rising demand for health care and social welfare support. These demands can in turn lead to higher taxes and a growing public sector at a time when most African governments are trying to reduce the size of government.

Although most hospitals in Africa can offer only minimal levels of care to people with AIDS, the cost of maintaining AIDS patients in hospitals remains high. In Kenya, for example, hospital care for the duration of the disease of a single AIDS patient is estimated to cost $940. To maintain this level of care for the growing number of AIDS patients, the Kenyan government would have to spend up to $170 million per year on AIDS patients alone by the year 2000. In the early 1990s the Kenyan government spent $100-120 million per year on all health care.

In some sub-Saharan African countries, AIDS consumes from one-quarter to more than half of the government's total spending on health. For example, a World Bank study found that as early as 1990, Rwanda was already spending more than 65 percent of its public health expenditures on care and treatment of patients with AIDS.

Demands for social welfare assistance from the government are also increasing. In east and central Africa alone, 3.1 to 5.5 million children will lose their mothers to AIDS during the 1990s. The growing number of orphans is straining the ability of the extended family to care for them; increasingly orphans are becoming the responsibility of the public sector.

Projections indicate that there will be almost 1 million orphans in Kenya by the year 2005, a five-fold increase from current levels. Society's inability to care for and educate these children is likely to affect the country's homeless rate, the number of street children, crime, and the appeal of tourism in the country. All of these burdens will eventually be faced by the government.

For many countries any future economic growth will come from those who are educated and have received extensive on-the-job training. Unfortunately the educated, in whom the country invests a great deal of resources, are also particularly vulnerable to HIV. A study of blood donors in Malawi indicated that educated professionals are 58 percent more likely to be HIV positive than the average blood donor. Another study of a bank in Zaire indicated that professionals were much more likely to be infected than other nonprofessionals in the bank. Similarly, other studies in Malawi, Rwanda, Kenya and Zambia have all indicated that high socioeconomic status is associated with higher rates of HIV infection.

Replacing educated and highly skilled individuals can be especially expensive. In Tanzania, where the average annual income is less than $100, the cost of putting one person through 15 years of school is over $13,000. It can be financially devastating for a country like Tanzania to make such a long term educational investment, only to see that young adult die of AIDS.

Commercial Sector Costs

Africa's commercial sector is also beginning to feel the impact of AIDS. Some businesses are beginning to report steep increases in absenteeism and turnover among their workers. The Uganda Railway Corporation has an annual turnover rate of 15 percent of the company's workers; about 10 percent of its 5,600 employees have died from AIDS in recent years.

A recent study by USAID and Kenyan researchers found that HIV/AIDS could increase labor costs for some Kenyan businesses by 23 percent by the year 2005. Preliminary results of the study suggest that absenteeism, training costs and HIV-related health care will cause the greatest losses to Kenyan businesses.

Despite increasing labor costs, the HIV/AIDS epidemic might not cause a substantial drop in profits for most Kenyan businesses. On average AIDS-related costs for the companies surveyed accounted for an average of 3.2 percent of profits in 1992 and were projected to reach 8.4 percent of profits by 2005. Some companies, however, could find their profits cut by 15 to 25 percent within the next 10 years.

Impact on the Military

AIDS has clearly decimated many African countries, and in turn has disproportionately affected those in the military. In Zimbabwe, a study as early as 1989 indicated that up to one half of the soldiers were infected with HIV. Another sub-Saharan country has lost so many pilots to AIDS that it has reportedly recruited soldiers from Yugoslavia to compensate for the loss.

In Rwanda it was found that HIV prevalence was between 40% and 65%. Rates were found to be the highest among the officer corps. Many of these in the officer cadre had already died, leading to a reported breakdown in military discipline. At one military camp in Rwanda, 70% of soldiers reported being more afraid of HIV/AIDS than of being at war.

Macroeconomic Impact

All of these effects on the economies of families, businesses and governments will have a significant, but difficult to measure, macroeconomic impact. The World Bank projects that over the next 15 years, the size of the overall Tanzanian economy could end up being 14 to 24 percent smaller than it would have been in the absence of AIDS. A USAID study indicates that AIDS could reduce Kenya's gross domestic product by 14 percent within 10 years, with per capita income declining by 9 percent. This analysis found reductions in investment, savings, non-medical consumption, formal sector employment and the experience level of workers.

USAID's Response to the AIDS Epidemic in Africa

Since 1986 the United States Agency for International Development (USAID) has committed over $600 million through bilateral and multilateral programs to HIV/AIDS prevention activities worldwide, including Africa. The Agency's fiscal year 1993 bilateral obligations to HIV/AIDS prevention in Africa totalled $41 million. In addition, the Agency gave the World Health Organization a grant of $28.5 million, a significant portion of which went to Africa.

USAID's policy guidance on HIV/AIDS focuses the Agency's activities on two areas: reducing the number of new HIV infections and identifying and developing more effective interventions that will prevent HIV transmission and mitigate the impact of the epidemic. To achieve these objectives, USAID works with governments, nongovernmental organizations (NGOs) and international donors at the global, regional and national levels.

Prevention Strategies

USAID's AIDS prevention efforts focus on four supporting strategies: (1) Support for community-based prevention interventions targeted to individuals at highest risk of acquiring HIV; (2) Capacity building of developing country institutions through training and skills transfer; (3) Policy initiatives to support indigenous efforts to create a supportive environment for HIV prevention programs; and (4) Behavioral and biomedical research to improve effectiveness of prevention efforts.

The largest USAID HIV/AIDS prevention program is the AIDS Control and Prevention (AIDSCAP) Project, managed by the HIV/AIDS Division of USAID's Global Bureau, which supports prevention programs in 15 countries in Africa. The countries include Tanzania, Kenya, Cameroon, Nigeria, Senegal, Ethiopia, Rwanda, Zimbabwe, South Africa, Lesotho, Côte d'Ivoire, Mali, Niger, Burundi, and Uganda.

Since 1991 25,000 health care professionals and community workers have been trained in effective HIV prevention programming, half a million people at highest risk of being infected with HIV have been educated and counseled, and over 30 million condoms have been sold through condom social marketing programs and six million have been distributed for free through the AIDSCAP project. In addition, policy seminars and training for key political and private sector leaders have been and continue to be conducted in Kenya, Malawi and Tanzania and are planned for Zimbabwe and Senegal. Policy studies related to employment practices in the private sector have been conducted in Tanzania, Kenya, Uganda and Senegal to support the design of effective workplace policies and a primer has been distributed internationally. Studies of the socioeconomic impacts and consequences of AIDS have been conducted in Kenya and

Malawi, and are about to be initiated in Guinea. And, computer modeling of the epidemic has been done in Côte d'Ivoire, Kenya and will soon start in Senegal, where surveys of attitudes of religious and political leaders currently are being conducted.

HIV/AIDS is one of the four priority issues identified by USAID's Health and Human Resources Analysis for Africa (HHRAA) Project, which supports research, analysis and information dissemination on regional issues of concern to governments, private organizations and USAID Missions in Africa. Implemented by the Academy for Educational Development and Tulane University School of Public Health and Tropical Medicine, HHRAA supports resident technical advisors to help Missions increase local understanding of critical HIV/AIDS issues and to improve policy, strategy, resource allocation, project design and implementation decisions.

A number of USAID bilateral programs also are integrating family planning and HIV/AIDS prevention. In Kenya, for example, AIDS education and condom promotion are being integrated into the standard curricula for family planning providers working in the private sector and in clinic- and community-based programs.

Behavioral research studies also are being supported by USAID. In Malawi a research study conducted by Johns Hopkins University and the University of Malawi focused on the kinds of information on sexuality and sexual health being delivered by traditional advisors--*nankungwi*--to adolescent girls. Based on the study, USAID is designing community-based interventions to prevent HIV infection in adolescent girls using *nankungwi* as AIDS educators. As part of the initiation ceremonies, the *nankungwi* will encourage girls to delay having sex.

Other USAID-supported research includes biomedical research by the Population Council on vaginal microbicides to protect women from HIV infection; biomedical and behavioral research through a small grants program of the National Institutes of Health designed to enhance the research skills of developing country investigators; and behavioral research to reduce women's risk of HIV infection by the International Center for Research on Women. USAID also supports a multi-donor effort to develop rapid, inexpensive STD diagnostic tests for field use. The results of this work are critical to improving prevention efforts in the field since they address social, economic and political factors that directly influence the success of interventions. These include the lack of empowerment of women that frustrates their attempts to protect themselves from HIV infection by their partners and the severe lack of affordable, easy STD diagnostic tools in developing countries.

AIDS prevention activities also can be integrated into sectors other than health. In Cameroon, for instance, Peace Corps volunteers and their counterparts are incorporating HIV/AIDS prevention into their English language classes for secondary school students. They use a curriculum entitled "Teach English/Prevent AIDS" with a companion student workbook, *Learn English/Prevent AIDS.*

Children and AIDS

USAID is supporting a growing number of activities to reach children orphaned by AIDS. Under the Agency's program in Uganda, for example, pilot activities are underway with five church and community-based organizations including the Church of Uganda and the Uganda Women's Effort to Save Orphans to provide care for this growing population. Activities include covering school fees for primary education and vocational training, income generating activities for widows and foster parents and capacity building. In 1993 the Uganda Women's Effort sponsored over 1,000 students to attend primary schools by providing school fees, uniforms and materials. The Church of Uganda has orphan project committees in all 40 of its parishes across the country.

In Tanzania USAID recently has embarked on a major effort to strengthen the capacity of NGOs to develop orphan support programs that maintain survivors in a family and community environment. Activities will include counseling and emotional support, skills training for income generation, and support for community service programs as well as policy dialogue to formulate guidelines on acceptable long-term interventions for orphans.

Such efforts are becoming increasingly important as traditional family and community networks are being stretched beyond the capacity to cope. Additionally, AIDS care initiatives--particularly those that focus on resource allocation, identifying cost-effective options for care, and treating tuberculosis--must also receive greater attention.

Hope and Challenges for the Future

Given the insidious nature of the epidemic, its prolonged period of incubation between infection and illness and the stigma attached to becoming HIV infected, many countries continue the cycle of national and personal denial, undermining prevention efforts. Despite these obstacles and the absence of a biomedical remedy, incremental changes are occurring in individual behavior. It is far too early to claim success, however small indicators that measure reported behavior change, STD rates in key populations, condom social marketing figures, and achievements of other program output targets, suggest that programs are working.

Activities such as those noted above are being replicated across Africa and provide hope for the future. They are, in fact, gaining the attention of HIV prevention programmers in the U.S. under the Agency's "Lessons Without Borders" initiative, a joint initiative between the U.S. Department of Health and Human Services and USAID to review international experiences and apply them to domestic programs in HIV and other areas of health. USAID's challenge for the future is to collect and further disseminate these lessons to demonstrate that HIV/AIDS prevention works and, through experience gained every day, can work better.