CHAPTER 6

Lessons from the Past, Opportunities for the Future

OVER THE PAST TWO DECADES THE HUMAN immunodeficiency virus has spread silently throughout the world, profoundly affecting the lives of men and women, their families, and societies. It has not respected international boundaries or spared the elite. By the time that researchers understood how HIV spreads, how it can be prevented, and the behaviors that put people at risk, HIV had already infected millions of adults in the industrial and developing world. In the hardest-hit countries in Sub-Saharan Africa, poverty, illiteracy, poor health, low status of women, and political instability fueled its spread. By the time East African health authorities identified the mysterious "slim" disease as AIDS in the early 1980s, HIV had already widely infected those with the riskiest behavior and had a firm foothold in the general population.

On the medical frontier there have been many advances, but there is still no vaccine for HIV and no cure for AIDS. Medical researchers have succeeded in substantially prolonging the lives of some people living with HIV and AIDS in industrial countries. However, these treatments are still very expensive, they are not always successful, and no one knows for how long they prolong life. The costs of these new therapies are so high and the requirements for their implementation are so demanding that they are simply not feasible in low-income countries and would bankrupt the health systems of middle-income countries.

Lessons from Two Decades of Experience

STILL, WE HAVE LEARNED MUCH IN THE PAST TWO DECADES that is cause for optimism as we confront the epidemic. We now know that HIV is not spread easily and that it can be prevented through behavioral change. Other STDs signal risky behavior, and preventing or treating these STDs can slow HIV transmission rates. Low-cost, cost-effective interventions to prevent HIV/AIDS in poor countries are now known to exist. Behavior change has reduced incidence of HIV among specific groups in countries as diverse as Australia, Thailand, and Uganda. And there are many opportunities to alleviate suffering and prolong the lives of HIV-infected people in developing countries, for example, through low-cost treatments of common opportunistic infections, particularly tuberculosis.

We can also learn from the policy mistakes of the past. No country, rich or poor, is insulated from the risk of HIV. Governments should intervene as soon as possible; if policymakers wait until AIDS is killing many people, HIV already will have spread widely, interventions will be less cost-effective, reducing infection will become more difficult and, absent a cure, the epidemic and its terrible impact are likely to persist for decades. Behavioral change must focus first on people with high-risk behavior who are most likely to become infected and unknowingly infect others. But discrimination against such individuals makes behavioral change more difficult and inhibits efforts to cope with the impact of AIDS.

The Role of Government

EXPERIENCE HAS ALSO SHOWN THAT ACTIVE GOVERNMENT involvement is crucial if AIDS is to be overcome. Only governments have the means and mandate to finance the public goods necessary for the monitoring and control of the disease—epidemiological surveillance, basic research on sexual behavior, information collection for identifying high-risk groups, and evaluation of the costs and effectiveness of interventions. Private individuals left to their own devices would not invest adequately in these activities. Governments also have a unique responsibility to intervene to reduce the negative externalities of high-risk behavior, while preventing discrimination that

would inhibit behavioral change. Without these government efforts, those at high risk of contracting and spreading HIV are unlikely to reduce risky behaviors enough from the perspective of the rest of society. The government role extends to ensuring equity in access to HIV prevention and treatment for the most destitute.

Other key functions that most governments are already attempting to perform can also make an important contribution to slowing the spread of HIV: promoting labor-intensive economic growth to reduce poverty; assuring basic social services, law and order, human and property rights; and protecting the poor. Investing in female schooling and ensuring equal rights for women in employment, inheritance, divorce, and child custody proceedings are part of this broader mandate. These policies yield large development benefits in their own right but are also important for preventing an HIV epidemic and coping with its impact. Reform of health systems, as outlined in the *World Development Report 1993* (World Bank 1993c), will improve the efficiency of health care delivery, including HIV and STD prevention, and will reduce the impact of AIDS on the health system. In areas where there is a severe epidemic and targeted poverty reduction programs already exist, these can often be combined with efforts to ease the impact on surviving household members, especially children, in the most destitute families that suffer a prime-age adult death.

We know that certain policies can work, yet developing countries face many financial, political, and managerial obstacles to implementing them. Financial resources are scarce. In low-income countries, annual health spending from public and private sources averages only $16 per person.[1] This is one-tenth the resources available in middle-income countries and only 0.7 percent of the $2,300 per capita annual health spending in high-income countries. Many developing country governments also have limited capability to implement complex or multifaceted programs. The *World Development Report 1997* (World Bank 1997a) makes a compelling case that the government role must be matched with its capability. In fighting the spread of HIV and mitigating the impact of AIDS, developing country governments will be most effective if they focus their financial and other resources on a limited set of feasible activities that have the potential to be highly cost-effective. Pressures from the public and from international donors can lead governments to try to do too much with too few resources, reducing the effectiveness of programs. Governments can sometimes expand their effectiveness by involving the private sector, reputable NGOs, those

most severely affected, and decentralized community organizations in the design and implementation of high-priority HIV/AIDS prevention activities. However, coordination and management of these activities can also stretch the capabilities of government.

Opportunities To Change the Course of the Epidemic

ONCE LAUNCHED, AN HIV/AIDS EPIDEMIC CAN TAKE decades to unfold. Epidemiological models predict that between 1996 and 2001, between 10 and 30 million new infections will occur in developing countries. But the future of the epidemic is not carved in stone. One reason that such projections are very uncertain is that nobody knows the extent to which individuals, especially those most likely to contract and spread HIV, will change their behavior in response to the virus. Concerted, focused action in developing countries, where more than 90 percent of HIV infections occur, can save millions of lives (box 6.1).

Preventing the Expansion of Nascent Epidemics

Public action can make the greatest difference for the 2.4 billion people who live in areas where the epidemic is nascent. Developing areas with nascent epidemics include half of the world population, two-thirds of the population of developing countries, and nearly 40 percent of the population of low-income countries (table 6.1). Half of India, all of China except Yunnan Province, Indonesia, the Philippines, most of Eastern Europe and the former Soviet Union, North Africa, and a third of the countries in Latin America and the Caribbean are at this stage. In these areas, HIV has not yet spread widely even among those whose behavior puts them at risk. But countries with nascent epidemics cannot assume that they will never be affected; every country that now has a generalized AIDS epidemic went through a phase of denial that gave the virus time to gain a foothold.

These nascent-stage areas present an enormous opportunity for governments and donors to prevent an HIV epidemic by intervening actively and early. Epidemiological surveillance of those who practice the

Box 6.1 Estimating the Power of Prevention in Three Countries

THE PREVIOUS CHAPTERS HAVE HIGHLIGHTED simulations of the epidemic in hypothetical populations. What might happen in a real country?

Modeling the potential benefits of interventions for a specific country requires detailed information about behavioral and biological characteristics of the population—the types and distribution of risk behavior, the number of people involved, sexual mixing patterns, and the prevalence of other STDs in specific population groups. Such information is rarely available and is urgently needed. Efforts are underway to calibrate the STDSIM model for Nairobi, Kenya, for example, and the iwgAIDS and SimulAIDS models have been calibrated to predict the impact of interventions in Kampala, Uganda (Bernstein and others 1997).

Nevertheless, we can get some sense of the likely impact of interventions that change high-risk behavior by applying limited country-specific parameters to existing models. Simulation results for three countries at different stages of the epidemic—Indonesia (nascent), Brazil (concentrated), and Côte d'Ivoire (generalized)—have been derived from a model developed at the World Bank.[1] Like the STDSIM model used earlier in this report, the World Bank model simulates the spread of HIV through heterosexual contacts and from mothers to their children, and it takes into account factors, like the presence of STDs and condom use, that affect the probability of HIV transmission. In addition, it models transmission through blood transfusion, needle sharing, and homosexual contact.

Country-specific parameters for these simulations were based on information from surveys and other studies in each country, as well as on informed estimates. We show below the simulated impact of raising condom use among two segments of the population with high rates of partner change: women who have 500 new partners per year (1 percent or less of all women), and women (and men, in countries where homosexual transmission is modeled) who have one new partner per month (5 to 10 percent of the population). The simulations show the impact of raising condom use in these two groups with the most partners from 20 to 80 percent and from 5 to 15 percent, respectively, between 1997 and 2000. In Brazil, where needle sharing has played an important role in spreading HIV, the share of injections with clean needles among injecting drug users is assumed to rise from 20 to 80 percent. Finally, for comparison, we show the effect of raising condom use among women in stable relationships, from 1 to 3 percent in Côte d'Ivoire and from 5 to 10 percent in Indonesia between 1997 and 2000. The simulations show the results of these interventions through 2010.[2]

- In Indonesia, HIV prevalence is still very low—less than 0.01 percent of the population is infected. Among sex workers, homosexuals, and transvestites, however, HIV prevalence is as high as 3 percent. A rapid expansion of condom use among the two groups with the highest rates of partner change can prevent the level of HIV infection in the general population from reaching above 0.2 percent. Increased condom use among women in stable relationships has very little impact.
- In Brazil, with a concentrated epidemic, an increase in condom use among the two groups with the highest rates of partner change is sufficient to bring HIV prevalence down to about 2 percent in 2010. An increase in the use of clean needles accelerates this trend, but by itself is insufficient to reduce prevalence substantially.
- In Côte d'Ivoire, where HIV prevalence in the general population has already reached 13 percent, the epidemic would, in the absence of any behavior change, continue to increase, reaching 16 percent of the population by 2010. Interventions to dramatically increase condom use among those with the highest rates of partner change would lower preva-

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Box 6.1 *(continued)*

lence to 9 percent by 2010. In contrast, increased condom use among women in stable relationships would have a negligible impact.

These results are suggestive of the impact that programs can have if they succeed in changing the behavior of the population with the highest rates of partner change. However, they understate the impact to the extent that other segments of the population may also change their behavior, either spontaneously or as the result of interventions. More detailed information on sexual behavior in these countries is necessary to generate more accurate models.

1. The model called "Projecting AIDS," or PRAY, is described in Pulatao (1991).

2. Condom use continues to climb at the same rate until 2020, the end of the simulation period. It reaches 98 percent and 70 percent among the groups with the highest and next-highest rates of partner change. Among the women with the fewest partners, it reaches only 10–25 percent.

Box Figure 6.1 Projected Impact of Behavioral Interventions in Three Countries

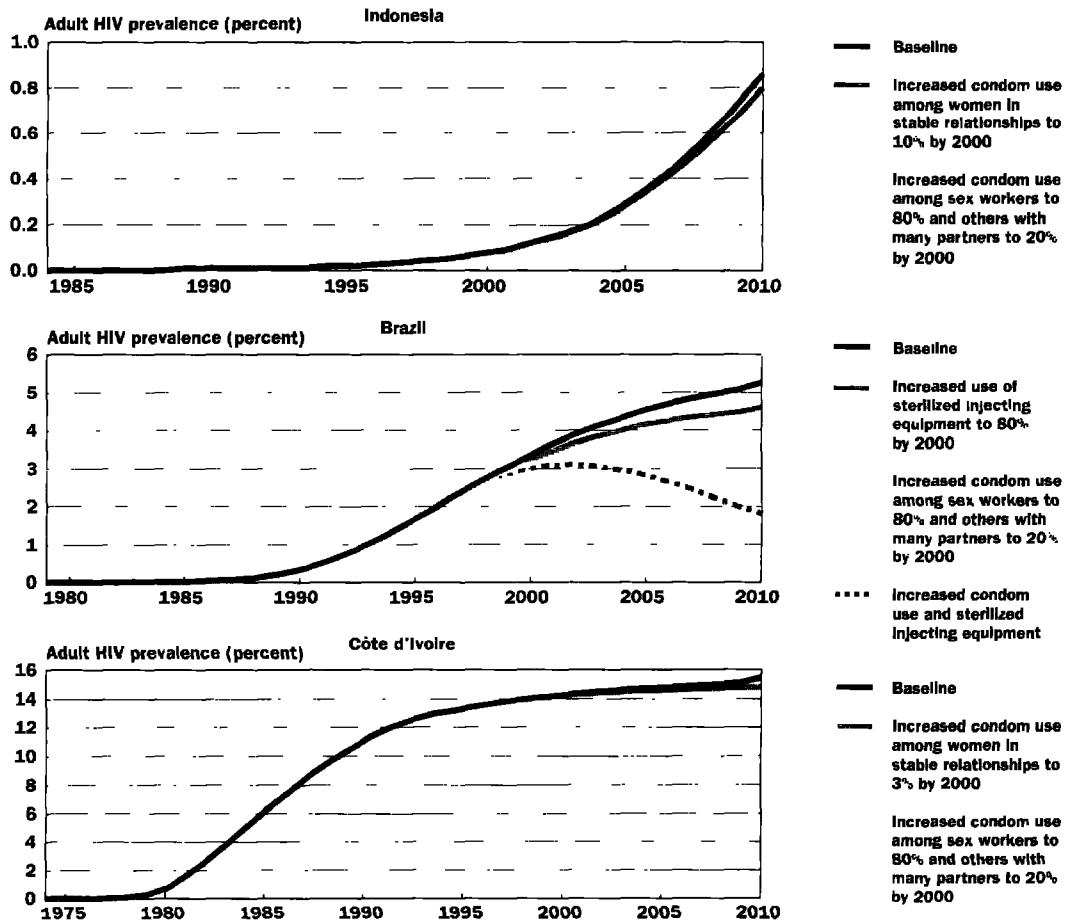

Table 6.1 Distribution of Developing Country Population by Stage of the Epidemic and Income

	Low income[a]		*Lower-middle income*		*Upper-middle income*		*Total*	
Stage of the epidemic	*Population (millions)*	%	*Population (millions)*	%	*Population (millions)*	%	*Population (millions)*	%
Nascent	1,735	37	503	11	28	1	2,265	49
Concentrated	1,008	22	320	7	311	7	1,640	35
Generalized	181	4	3	0	42	1	226	5
Unknown	151	3	307	7	42	1	500	11
Total population[b]	3,075	66	1,133	24	422	9	4,630	100
Number of countries	60		46		17		123	

a The populations of China and India, both low-income countries, have been distributed between nascent and concentrated stages of the epidemic based on the stage in specific provinces and states, respectively.

b Any discrepancies in totals are from rounding numbers.

Source: Income groups are from the *World Development Report 1997* (World Bank 1997a). Stage of the epidemic and 1995 population are from table 2 of the statistical appendix to this report.

riskiest behavior and studies of risky behaviors in the general population and specific subgroups have high payoffs at this stage. An HIV/AIDS epidemic can be pre-empted, for little cost, by promotion of safe injecting behavior among injecting drug users and of safe sex and STD prevention through condom use among those with high levels of sexual activity. We know that this can be done. In chapter 3 we highlighted the example of five cities in which early intervention kept infection levels among injecting drug users below 5 percent, even as HIV prevalence soared among injecting drug users in nearby cities. Experience has shown that early interventions focused on groups at high risk of sexual transmission can be equally effective.

Prevention efforts focused on those who practice the riskiest behavior may be politically controversial, especially if such efforts are perceived by some constituencies as facilitating antisocial or immoral behavior. Policymakers who encounter such opposition have an obligation to make clear that preventing infections among those with risky behavior is the best way to protect everyone.

Containing Concentrated Epidemics

Developing countries with concentrated epidemics—where HIV prevalence exceeds 5 percent in one or more groups with high-risk be-

havior but not in the general population—are a diverse group of low- and middle-income countries, with a variety of risk factors. In Latin America, Ukraine, Yunnan province of China, much of Indochina, and the northeast of India, the epidemic has reached concentrated levels among injecting drug users; in many countries in Latin America, the epidemic has also reached concentrated levels among homosexual and bisexual men. In addition, HIV has infected more than 5 percent of high-risk heterosexuals, among them sex workers, in southern India, Indochina, and much of Africa.

Once HIV has reached high levels among those who are most likely to contract and spread the virus, containing the epidemic is difficult and requires drastic action—but is nonetheless possible. Thailand undertook such a massive effort when injecting drug users and prostitutes were discovered to have high infection rates. A policy of heavily subsidized condom promotion and STD treatment programs for prostitutes and others with high-risk behavior, supplemented by widespread dissemination of information to the general population, brought down the prevalence of HIV among military conscripts within a few years. Not all countries have the same institutional setup or implementing capacity as Thailand. Each country will have to find its own way. But whatever tactics are adopted, the underlying strategy of massive interventions to change the behavior of those most likely to contract and spread HIV is crucial.

Adapting this strategy successfully will require better information about the cost-effectiveness of alternative interventions to prevent the spread of HIV. Research documenting the effectiveness of such interventions in preventing secondary infections can be very valuable in generating and sustaining support for these measures. Governments also have a role in ensuring that basic information about HIV is presented to the general public in ways that will minimize irrational fear and persecution of individuals who are infected with HIV or thought to engage in high-risk behavior, since such responses make it harder to reach those with risky behavior and encourage safer behavior.

As people infected early in the epidemic begin to get sick and die from AIDS, governments will face growing pressure to spend public resources on care and treatment. Responding to these needs compassionately, while keeping them in perspective with the many other pressing human needs and demands upon public resources, is one of the most difficult challenges posed by the epidemic. Pressure for spending for AIDS care and treatment will be stronger in a generalized epidemic, when the disease has spread into the general population and people infected with HIV are a

large and highly motivated constituency. By then, subsidies begun during the concentrated stage may be unsustainable and yet very difficult politically to withdraw. The concentrated stage of the epidemic is therefore the time when policymakers and their constituents need to consider how government can best respond to the medical needs of people with HIV.

The fair response in terms of health care, advocated in chapter 4, is to offer the same level of subsidy for the care and treatment of people with AIDS as for the care and treatment of people with other diseases that are expensive and difficult to treat. Denying care to individuals simply because they have HIV/AIDS is unjust to those who are infected and to their families. By the same token, providing a higher level of subsidy for AIDS care than for other illnesses is also unfair to the majority of people who are not infected with HIV. Choices about the appropriate overall level of public subsidies for health care will vary across societies. Governments and their constituents should be aware, however, that high subsidy levels will be extremely difficult to sustain in the face of a large epidemic. Since it is unfair and impractical to deny care and treatment subsidies to people with HIV while providing them to people with other illnesses, any changes in subsidy levels should apply equally to the HIV infected and the uninfected.

Policymakers need also be aware that the care and treatment of AIDS, in sharp contrast to preventive interventions focused on those most likely to spread HIV, is primarily a private rather than a public good: most of the benefits of the care and treatment of AIDS accrue to the person who receives the care. There are important exceptions to this general rule. Treating tuberculosis, STDs, and other infectious diseases in people with HIV can prevent these infections from spreading to others, including people who are HIV-negative; these "externalities" are a sound rationale for public funding of such treatments, regardless of whether the recipient of the treatment has HIV. Similarly, outreach programs that include care for those infected with HIV who practice high-risk behavior may be a justifiable use of public funds if the program results in behavior changes that reduce the spread of the virus. Often, however, demands for publicly funded care and treatment threaten to drain scarce resources that could have been used for preventing new infections.

Maintaining Focused Prevention in Generalized Epidemics

Countries with a generalized epidemic will face two related sets of challenges: establishing or maintaining prevention programs focused on

those most likely to contract and spread HIV, while expanding prevention efforts to those with somewhat lower risk of transmitting the virus; and mitigating the impact of AIDS sickness and death, especially among the poor.

Except for Botswana and South Africa, all countries that currently have generalized epidemics are low-income, with 1995 per capita income of $765 or less. Scarce financial and managerial resources mean that these governments must be especially vigilant in implementing the most cost-effective prevention programs. Although prevention measures for the general population become increasingly cost-effective as prevalence rises, interventions for those practicing the riskiest behavior continue to have the greatest impact on incidence per dollar spent and must be maintained even as prevention programs are expanded to others. Condom social marketing programs and other forms of prevention subsidies aimed at poor people who would otherwise be unable to afford to protect themselves are an appropriate government response at this stage, where resources are available. But these programs are no substitute for reaching the highest-risk groups. Indeed, one of the greatest threats to effective prevention in generalized epidemics is pressure to divert resources from highly targeted cost-effective interventions to politically popular interventions with lower cost-effectiveness.

Even where prevention measures are very effective, declines in prevalence will occur only gradually, as people already infected die and are succeeded by younger cohorts. But declines in incidence—the number of new infections—can be achieved relatively quickly, even in the face of a generalized epidemic. Recent declines in HIV incidence among young people in Uganda are an encouraging sign that even the worst-hit countries can make progress against the epidemic.

The second challenge to governments in a generalized epidemic is mitigating its impact, especially on the poor. A widespread epidemic will greatly increase the number of households that suffer a prime-age adult death. In poor households, such deaths can have a severe and lasting impact on surviving children, who may suffer further declines in already inadequate nutrition and schooling. But not all households that suffer a prime-age adult death are poor. Indeed, in many of the countries hardest hit by AIDS, while most of those infected may be poor, it is still the case that nonpoor people are more likely to be infected than the poor.

Confronted with demands to finance programs to help households affected by AIDS, policymakers need to balance the needs of poor

households hit by AIDS with the needs of other poor households that are more numerous and often poorer. In approaching this task, they should ask two questions: Which households need help most? How best can they be helped? If many households are very poor and children are malnourished and not in school, government's priorities must include such basic development policies as fostering labor-intensive economic growth, improving nutrition levels, and increasing school enrollments, especially of girls. Where targeted poverty reduction programs are already in place, modifying these programs to make assistance available to very poor families that suffer a prime-age adult death can help to improve the targeting of assistance to the households that need help most.

Challenges for the International Community

INTERNATIONAL DONORS HAVE BEEN GENEROUS IN THEIR support for AIDS prevention in developing countries, but their support has not always gone to those interventions that are most cost-effective from the perspective of government. To have the largest impact now on the pandemic, donors need to consider two main strategies.

First, in terms of bilateral and multilateral assistance, donors should support major interventions in countries at the nascent stage of the epidemic, including epidemiological surveillance, surveys of risky behavior, and programs to change behavior among those who practice the riskiest behavior. Among countries at the concentrated and generalized stages, particularly the low-income countries, ensuring prevention of infection among those who practice the riskiest behavior would be the most cost-effective strategy. Moreover, donor funds could help promote such programs when they might be politically unworkable if openly sponsored by government. With respect to mitigating the tragic impact of AIDS on society, donors must not lose sight of the myriad development problems faced by the low-income countries with generalized epidemics. The AIDS epidemic will increase poverty and will undermine household investments in human capital. Countries with generalized epidemics are therefore likely to need renewed support for core public programs to raise levels of human capital and reduce poverty. In addition, there may be some scope in specific hard-hit areas for assistance in integrating tar-

geted poverty reduction efforts and AIDS mitigation. However, governments and donors need to be careful that such assistance does not displace household and community efforts to cope or, worse, drain time, energy and money from prevention measures focused on people who practice high-risk behavior.

The second important strategy for international donors is to finance key international public goods that poor countries cannot afford to support collectively. Two important public goods stand out: knowledge about the costs and impact of interventions on the incidence of HIV in differing environments; and development of vaccines and low-cost preventive medical technologies that will be effective under conditions prevailing in developing countries.

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The poet and philosopher George Santayana said, "Those who cannot remember the past are condemned to repeat it." This maxim is nowhere truer than with the AIDS epidemic. Country after country responded to evidence of the first infections by saying "We are different. AIDS cannot strike us." Each has been proven wrong. When countries discovered that they indeed did have a fatal, sexually transmitted disease spreading rapidly in their midst, one after another responded by cleaning up the blood supply or conducting general awareness campaigns, while avoiding or devoting insufficient resources to efforts to encourage safer behavior among people most likely to contract and spread the virus.

But recent history also offers valuable examples of success. Experience demonstrates that enabling people who practice the riskiest behavior to protect themselves and others can be extraordinarily effective. National policymakers now face the challenge of applying this strategy in the cultural and political context of their own countries.

Note

1. When China and India are excluded, average health spending in low-income countries is even lower—$11 per person per year (1994 World Bank data).