

AIDS

Taking a Long-Term View

The aids2031 Consortium

AIDS

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The aids2031 Consortium

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Preface

There are a number of compelling messages in this important book, *AIDS: Taking a Long-Term View*. The over-arching message is that the world needs to come to terms with the fact that AIDS is not over, by any measure. Over 25 million people have died from AIDS since it was first reported in 1981, and more than 33.3 million are living with HIV today. We have made remarkable progress against the disease, with greatly expanded access to prevention and treatment in just the last few years. AIDS is, nevertheless, an enduring, generations-long challenge that can only be effectively addressed with long-term thinking, planning, and investing.

Our understanding of AIDS has matured over the course of the past three decades since it was first reported. Many no longer see AIDS as a global emergency threatening everyone in every country and at every level of society. While in some countries AIDS has become hyperendemic, such as in Southern Africa, in others its most devastating effects have become concentrated and entrenched in the most marginalized communities.

To this far more heterogeneous epidemic landscape, *aids2031* brings fresh thinking. We need to look up, look farther ahead, and think seriously about the long-term implications of our actions today. For the first three decades of AIDS, our response has been exactly that—a response—a reaction to a global emergency that needed immediate attention with little information about the disease and its origins. Today, we have far more information at hand, but are we using it? We cannot give up the quest for new knowledge—new prevention tools, better and more efficient treatment, better understanding of the social drivers of HIV transmission, and better evidence of what works and what doesn't and why. But, while we work toward improving our knowledge, we need to make much better use of the information and tools we have in front of us. Without more efficient prevention efforts, new HIV infections will continue to grow; without more effective treatment strategies, people will continue to die.

As leaders in the continuing global fight against AIDS, we recognize that there are a number of challenges ahead—some persisting, some new, and some which are yet to surprise us. We welcome this important

analysis and recommendations from aids2031, an independent initiative to take stock of where we are today, and consider what we need to do better, or differently, to dramatically reduce the number of HIV infections and AIDS deaths by 2031, 50 years after AIDS was first reported. We laud the process of aids2031 which, through its nine thematic working groups and its young leaders network, has involved more than 500 people around the world. Indeed, the process has been as important as the products.

We encourage you to read *AIDS: Taking a Long-Term View* and never forget the implications that our decisions today have for the lives of millions.

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Executive summary

A new approach for meeting the challenges of AIDS

The world is at a crossroads in the still-unfolding history of AIDS. In 30 years, an immense amount has been accomplished: scientific breakthroughs, unprecedented global funding, and a new model for human rights and public health policy. Most important, millions of lives have been saved. Despite these achievements, we are losing ground in the struggle: The response to the pandemic remains well behind the curve. Every day more than 7,000 individuals become newly infected with HIV—more than twice as many as the number of people who start on antiretroviral therapy each day. Although the continuing growth of the pandemic is sobering, we have the ability to bring it under control—with more and better science, smarter public policy, more efficient and effective programs, adequate funding, and strategies for addressing the blind spots in existing efforts.

aids2031 is an independent consortium of partners with experience in AIDS research, policymaking, and program design and practice, as well as expertise and perspectives from diverse fields, including economic, biomedicine, the social sciences, international development, and community activism. The consortium's mandate was to question conventional wisdom, stimulate new research, spark public debate, and examine social and political trends regarding AIDS. Initiated by UNAIDS in 2007, aids2031 has convened nine working groups that focused on modeling, social drivers, programmatic response, leadership, financing, science and technology,

communications, hyperendemic countries, and countries in rapid economic transition. The consortium's charge was to bring new thinking to address the dilemma of a pandemic that is still growing despite great investments and efforts at control. Its focus has been to look at what should be done differently *now* to radically reduce the numbers of infections and deaths by 2031, the year that will mark 50 years since AIDS was first reported.

Tough choices have to be made in order to achieve a significant reduction in AIDS over the long term. *AIDS: Taking a Long-Term View* offers a vision of how our response to the pandemic can be reconceived to have more positive and sustainable outcomes, not only in the short term, but over the coming decades.

Possible futures of the pandemic: opportunities and challenges

Much about the future of AIDS is known. The pandemic is certain to remain an extraordinary global challenge over the next generation and a leading cause of illness and death.

Yet much about the future of AIDS is currently unknowable. It is uncertain how the pandemic will evolve in its diverse settings and how effective the responses to it will be. In the coming years, changing global social, political, technological, and economic context will continue to affect both the pandemic and our efforts to respond. Some of these changes are predictable; others will take us by surprise. Increased economic development and prosperity may help sustain a renewed AIDS effort; new technologies and drugs will likely improve available diagnostics, prevention measures, and treatment.

However, other changes may create severe challenges. Further globalization and climate change are likely to increase migration and, hence, the spread of the disease. The world is generating the largest ever cohort of sexually active people in history, greatly expanding the numbers susceptible to HIV infections. A resurgence in risk behaviors is already apparent in some regions, including the world's richest countries, and new combinations of risk factors are occurring in some of the world's poorest nations and emerging economies. Progress remains meager in tackling the sexual and gender-based violence, exploitation, and discrimination that render women and girls disproportionately vulnerable to

infection. Political instability and economic failures may create added pressures and distract attention from efforts to control the pandemic. A projected world population of more than 8 billion people by 2031, with large dependent populations of young people in some countries and elderly in others, will greatly increase the stress on funding for health. Population growth will also be a significant contributing factor to future numbers of people living with HIV, even if transmission rates decline.

There is of course, the possibility of a game-changer—the discovery of an effective vaccine or even a cure for HIV infection. Without either of these, however, we will probably never be able to eliminate AIDS. But with redesigned strategies to optimize currently available tools and support the introduction of new ones, it is possible to reduce the number of new infections to levels well below the current ones.

The vision of aids2031

aids2031 asserts that a focus on long-term success has important implications for both future planning and current choices.

New knowledge must be continually generated and used in biomedical research as well as in more rigorous, field-based evaluation and learning. Research must focus on both effectiveness and efficacy. We will need to be vigilant to changes and adapt strategies, programs, and policies to stay relevant to the constantly evolving epidemics.

Decision-makers must move from lip service to meaningful action on HIV prevention and prioritize it as the mainstay of a sustainable response. The goal for prevention policies and programs should be to maximize the number of infections prevented. Bold leadership is needed to avoid policies and practices that stigmatize and marginalize groups or individuals at high risk of infection. Prevention efforts need to be more specifically focused on the populations and settings where they are most needed.

An exceptional response will continue to be needed in Southern Africa. Political leadership and accountability are sorely needed along with bold efforts to address the social drivers of HIV transmission. An all-out prevention campaign is needed and should include targeted strategies for young women and marginalized groups such as migrant labor, men who have sex with men, and injecting drug users.

aids2031 proposes a minimum legal framework for all countries which includes decriminalization of HIV status and transmission, sex work, and same-sex relationships and practices; ending barriers to the provision of harm reduction services for injecting drug users; destigmatization and equal rights for people living with HIV; as well as equality under the law for men and women.

Additional strides are needed to improve treatment regimens and ensure their availability to all people living with HIV. Historic achievements in expanding treatment access must not blind us to the reality that the current treatment model is not sustainable. In spite of marked declines in drug prices, standard antiretroviral regimens remain too expensive and complex to make life-long therapy feasible for tens of millions of individuals in the most resource-limited settings. In moving forward, the global community should adopt as its first priority extending life for the greatest number of people.

While continuing to mobilize resources, improving efficiency will be critical to reaching more people with needed prevention and treatment services. Synergies between prevention and treatment must be maximized.

Nothing can replace the importance of leadership in addressing the future. AIDS leaders have long criticized punitive laws and policies that impede a sound response to the epidemic and urged that funding targets those who need services the most. Less often have the political leaders who adopt punitive policies or ignore most-at-risk populations been called to account. That must change. International bodies, civil society groups, the news media, and other stakeholders need to be more willing to criticize those who undermine or obstruct effective action on AIDS. Structured reviews of national and subnational plans must be implemented to monitor progress toward adopting long-term strategies, plans, and budgets. Funders should significantly increase investment in independent civil society watchdog groups to monitor governments and other key stakeholders. Long-term sustainable change needs sufficiently robust budget lines with longer-term horizons of 10–20 years.

***AIDS: Taking a Long-Term View* urges constant consideration of the long-term implications of our choices.** It recognizes that the choices that need to be made may not be politically popular, especially given that they may not show immediate success. But significant long-term change requires long-term thinking, long-term planning horizons, and long-term financing.

Much remains to be accomplished if future generations are to live in a world in which the threat of AIDS has been overcome. Social change does not come quickly or easily. The population of people living with HIV can contribute much to these efforts; a younger generation is socially conscious and looking for both opportunities and inspiration. A promise of positive synergies exists between the global AIDS response and responses to other diseases. Globalization also has brought new opportunities for communication, technical development, and supportive interactions to build new coalitions.

As with any effort that must be sustained over many years, complacency and denial are the enemies of long-term success. If we are to transform the landscape of AIDS by 2031, AIDS must remain high on the global agenda. We must move to a response that is long term and sustainable—one that makes full use of the knowledge and resources developed over the past three decades, yet continues to evolve and respond to a changing world that is constantly influencing the future of AIDS.

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AIDS timeline

- 1981 • Centers for Disease Control (CDC) publishes first report of AIDS
- 1982 • First community-based AIDS service provider created
 - First AIDS case reported in Africa
- 1983 • French scientists isolate HIV
 - Heterosexual transmission confirmed
 - Epidemic in central Africa documented
 - People With AIDS movement launched with Denver Principles
- 1984 • Jonathan Mann launches Projet SIDA in Zaire
- 1985 • First International AIDS Conference held
 - First test to diagnose HIV licensed
 - National AIDS response launched in Uganda
- 1986 • AIDS control program established at World Health Organization (WHO)
- 1987 • The AIDS Support Organisation (TASO) founded in Uganda
 - AIDS Coalition to Unleash Power (ACTUP) created
 - FDA approves azidothymidine (AZT) for treatment of HIV

- 1988 • The number of women living with HIV in sub-Saharan Africa found to exceed that of men
 - First World AIDS Day held
- 1990 • Michael Merson appointed as Director of the WHO Global Programme on AIDS
 - Less than one decade after the epidemic was recognized, an estimated 7.3 million people are living with HIV
- 1991 • Red ribbon first used as the international symbol of AIDS awareness
 - International Council of AIDS Service Organizations formed
 - Thai AIDS program moves from the Ministry of Public Health to the prime minister's office, initiating dramatic increases in AIDS funding
- 1992 • International Community of Women Living with HIV founded
 - Rapid HIV test licensed
- 1993 • Results of Concorde study fail to demonstrate that AZT monotherapy extends life
 - Regulatory authorities approve female condom
- 1994 • 42 countries formally adopt a declaration calling for Greater Involvement of People Living with HIV/AIDS
 - Bill & Melinda Gates Foundation formed
 - Report of an outbreak of HIV among paid blood donors in China
- 1995 • More than 18 million people worldwide are living with HIV

- 1996
 - The Joint United Nations Programme on HIV/AIDS (UNAIDS) launched
 - Studies demonstrate that combination antiretroviral therapy significantly reduces risk of HIV-related illness and death
 - Free distribution of antiretroviral therapy begins in Brazil
 - International AIDS Vaccine Initiative (IAVI) launched
 - Number of new HIV infections—more than 3 million—is the highest in the epidemic’s history
- 1997
 - Global Business Council on HIV/AIDS launched in Edinburgh, U.K.
 - UNAIDS launches HIV Drug Access Initiative in Uganda and Côte d’Ivoire, representing the first introduction of antiretroviral therapy in sub-Saharan Africa
- 1998
 - Treatment Action Campaign (TAC) forms in South Africa
- 1999
 - The worldwide pace of AIDS deaths is rapidly increasing, with more than 1.5 million people dying each year
- 2000
 - United Nations Security Council convenes first session on AIDS
 - Millennium Development Goals call for reversing the HIV epidemic by 2015
 - International AIDS Conference in Durban, South Africa, significantly quickens global momentum to expand HIV treatment access
 - World Bank launches Multi-Country HIV/AIDS Program (MAP)

- UNAIDS launches Accelerating Access Initiative (AAI)
 - UNAIDS and WHO announce joint agreement with five pharmaceutical companies to lower prices for antiretrovirals
 - The number of people living with HIV reaches 30 million
- 2001
- UN Secretary-General Kofi Annan calls for global “war chest” to fight AIDS
 - African leaders gather in Abuja, Nigeria, for a historic summit on AIDS, committing to take specific action to strengthen national AIDS responses
 - UN General Assembly’s first-ever special session on HIV/AIDS results in adoption of time-bound pledges to strengthen AIDS response
 - Doha Agreement allows developing countries to buy or manufacture generic drugs for HIV and other priority diseases
 - South African President Thabo Mbeki appoints advisory body that includes AIDS denialists; the group issues a report recommending alternative therapies for AIDS
 - Pretoria High Court orders government of South Africa to roll out a program to target the prevention of mother-to-child HIV transmission
 - Pan Caribbean Partnership Against HIV and AIDS (PANCAP), a major regional initiative on AIDS, launched in Barbados
- 2002
- The Global Fund to Fight AIDS, Tuberculosis and Malaria launched

- AIDS becomes leading cause of death worldwide for people ages 15–59
- 2003 • U.S. President George W. Bush launches President’s Emergency Plan for AIDS Relief (PEPFAR) initiative
- UNAIDS and WHO launch the “3 by 5” campaign to reach three million people living with HIV/AIDS in low- and middle-income countries with antiretroviral treatment (ART) by the end of 2005
- Clinton Foundation secures major price reductions for AIDS drugs
- First large-scale HIV vaccine trial announces results, with no efficacy found
- Avahan India AIDS Initiative launched to provide HIV prevention services to most-at-risk populations in high-prevalence states
- Wen Jiabao becomes first Chinese premier to shake the hand of an HIV-positive person
- 2004 • G8 nations call for creation of Global HIV Vaccine Enterprise
- More AIDS deaths—more than 2 million—occur than in any prior year
- 2005 • French researchers report that adult male circumcision reduces risk of female-to-male sexual transmission by 60%
- 2006 • Global community endorses goal of universal access to HIV prevention, treatment, care, and support by 2010
- UNITAID launched to create international drug purchase facility

- 2007
 - New international guidelines issued for provider-initiated HIV testing in health care settings
 - Efficacy trial for most promising AIDS vaccine candidate halted due to lack of efficacy
 - International recommendations for adult male circumcision issued after two additional studies confirm 2005 study findings
 - UNAIDS and WHO announce that global HIV incidence appears to have peaked in mid- to late 1990s
- 2008
 - Coverage for antiretroviral therapy and services to prevent mother-to-child transmission exceeds 40% for the first time
 - Global financial and economic crisis emerges, threatening future financing for HIV programs
- 2009
 - No efficacy found for most promising early-generation microbicide candidate
 - Surveys commissioned by UNAIDS suggest that the global financial and economic crisis is negatively affecting AIDS programs in many developing countries
 - Modest funding increase for PEPFAR falls well short of amounts authorized
- 2010
 - South African President Jacob Zuma commits to dramatically strengthen the country's HIV prevention and treatment programs
 - Several African countries begin capping enrollment in antiretroviral treatment programs as a result of funding shortfalls

List of acronyms

ACTUP	AIDS Coalition to Unleash Power
AIDS	Acquired immune deficiency syndrome
ARV	Antiretroviral
ART	Antiretroviral therapy
AZT	Azidothymidine (antiretroviral drug)
CAPRISA	Centre for the AIDS Programme of Research in South Africa
CDC	Centers for Disease Control and Prevention
CERN	European Organization for Nuclear Research
CHAI	Clinton Health Access Initiative
DHS	Demographic Health Survey
FDA	Food and Drug Administration
GDP	Gross domestic product
GIPA	Greater Involvement of People with HIV/AIDS
HAART	Highly active antiretroviral therapy
HIV	Human immunodeficiency virus
IAVI	International AIDS Vaccine Initiative
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change
IPPF	International Planned Parenthood Federation
IPM	International Partnership for Microbicides
NERCHA	National Emergency Response Committee on HIV/AIDS (Swaziland)

NGO	Nongovernmental organization
ODA	Overseas Development Assistance
PEPFAR	President's Emergency Plan for AIDS Relief
PrEP	Pre-exposure prophylaxis
R&D	Research and development
SMS	Short Message Service
STI	Sexually transmitted infection
TASO	The AIDS Support Organisation
TAC	Treatment Action Campaign
TB	Tuberculosis
UN	United Nations
UNAIDS	The Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFCC	United Nations Framework Convention on Climate Change
UNITAID	International facility for the purchase of drugs against HIV/AIDS, malaria, and tuberculosis
UNODC	United Nations Office on Drugs and Crime
WHO	World Health Organization
WHOSIS	World Health Organization Statistical Information Service

1

The future of AIDS: a still-unfolding global challenge

The world is approaching a moment of truth in the still-unfolding response to the AIDS epidemic.

The worldwide mobilization to combat a disease unheard of 30 years ago has generated historic achievements. For the first time, complex, lifelong management of a chronic disease has been widely implemented in low-income countries, averting millions of deaths.¹ Prevention services have also been introduced in antenatal settings to prevent infants from becoming infected, and the overall number of new HIV infections in 2009 for both children and adults was more than 20% lower worldwide than in 1997.²

The pandemic has also elicited an unprecedented global mobilization of political and financial resources. For the first time in history, a United Nations program was established dedicated to fighting a single disease and the first-ever special session of the UN General Assembly was held devoted to a particular health condition. AIDS also led to the creation of a major new addition to global health financing architecture, The Global Fund to Fight AIDS, Tuberculosis and Malaria. As of 2008, total annual resources for HIV programs in low- and middle-income countries reached US\$ 15.6 billion, an astonishing 53-fold rise in 12 years.^{3,4} And, by 2010 an estimated 5 million people in low- and middle-income countries were receiving antiretroviral treatment, a remarkable 12-fold increase in less than a decade.⁵

Against this historic progress, ominous signs suggest that the AIDS response is beginning to fracture. In May 2010, the *New York Times* profiled Uganda's biggest AIDS clinic, where stalled funding has prompted authorities to cap the number of patients enrolled in HIV treatment.⁶

Citing Uganda as the “first and most obvious example of how the war on global AIDS is falling apart,” the *Times* reported that the “golden window” of worldwide generosity appears to be closing, consigning countless newly diagnosed Ugandans to an early death.

The world has traveled this road before. From the Green Revolution that made acute hunger a thing of the past in scores of countries throughout the world to major initiatives that eradicated malaria from large swathes of the world, the global community has repeatedly mobilized to address global health inequities, only to lose interest or to declare victory prematurely. The results have been catastrophic, especially in Africa, where conditions that have been unknown in upper- and middle-income countries for decades continue to cost millions of lives each year.

Will this same tragic story be repeated with AIDS? Or will decision-makers throughout the world learn from the mistakes of the past and chart a different, healthier, more enlightened course?

In 2031, the world will mark 50 years since AIDS was first reported. Recognizing the generations-long challenge posed by AIDS, UNAIDS launched aids2031 as an independent consortium, composed of experts in public health, economics, biomedicine, the social sciences, international development, and community activism. Organized into nine thematic working groups, the aids2031 Consortium has examined possible futures of the pandemic, the factors most likely to determine its future course, and the steps needed to sharply reduce the number of new HIV infections and AIDS deaths over the next generation.

The aids2031 Consortium

aids2031 is a consortium of partners experienced in AIDS research, policymaking, and programming, as well as additional voices who have contributed expertise and perspectives from such diverse fields as economics, biomedicine, the social sciences, international development, and community activism. Conceived in 2006, 25 years after AIDS was first reported, and launched at the World Economic Forum’s 2007 Annual Meeting in Davos, Switzerland, the consortium set out to bring new thinking to address the dilemma of a pandemic that is still growing despite great investments and efforts to control it. The consortium’s answer to this charge is to offer recommendations for a transition from what has been a largely short-term response to

one that is governed by a long-term perspective. The consortium focused on what needs to be done now to radically reduce the numbers of infections and deaths by 2031.

aids2031 has convened nine multidisciplinary working groups that include economists, epidemiologists, and biomedical, social, and political scientists to question conventional wisdom, stimulate new research, spark public debate, and examine social and political trends regarding AIDS. The nine Working Groups are hosted by different institutions and focus on modeling, social drivers, programs, leadership, financing, science and technology, communications, hyperendemic areas, and countries in rapid economic transition. Together the working groups have engaged more than 500 individuals around the world. Each working group has taken a different approach in generating analyses, from community dialogues in West and Southern Africa, to mathematical modeling of possible epidemic and financial futures, forums on trends in scientific discovery, global political stakeholder analyses, and youth leadership forums.

AIDS: Taking a Long-Term View examines the AIDS challenge, using a future-oriented lens to identify successful strategies that need to be strengthened and ways in which the response to AIDS must change. It directly refutes the growing “AIDS fatigue” reported among key international donors, some national governments, and global opinion leaders, and rejects the either/or choice between focused initiatives to address specific diseases and strengthened broad-based health services. Both approaches are needed.

If the AIDS landscape is to undergo transformation by 2031, when the world marks the 50th anniversary of the initial recognition of the pandemic, AIDS *must* remain high on the global agenda. A long-term and sustainable response is needed that continues to generate and apply new knowledge.

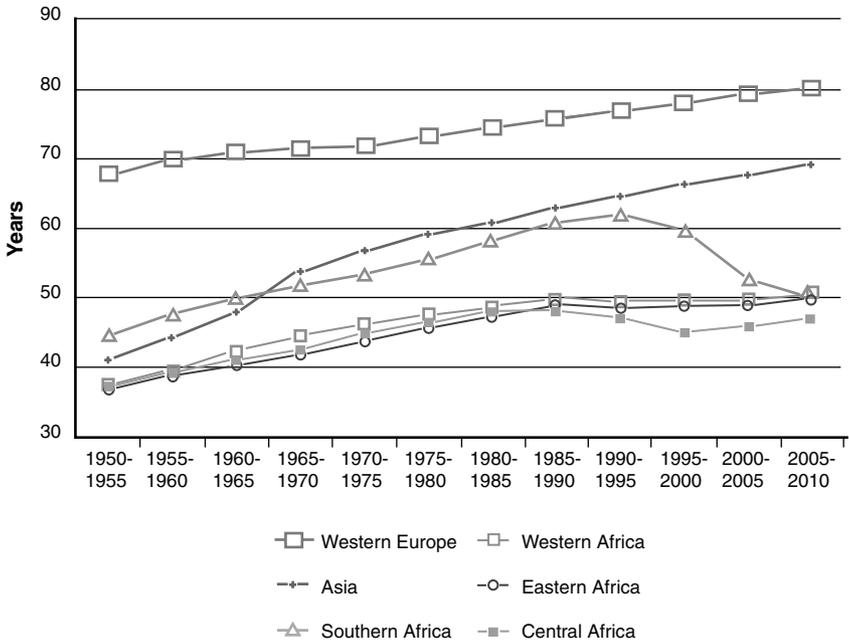
Reflecting on the past, looking toward the future

The emergence of the epidemic more than a generation ago represented a historic and unexpected development. By the early 1980s, experts believed that the era of infectious disease was fast becoming a relic of an earlier era.

While developing countries might continue to grapple with old diseases that had been largely banished from industrialized settings but never brought under control globally—including malaria and tuberculosis—it was assumed that the world overall was entering an epoch when chronic diseases associated with rising affluence would consume the efforts of health planners and medical researchers.

AIDS upset all these expectations and assumptions. In three decades, HIV has infected more than 60 million people worldwide.⁷ More than 27 million have died of AIDS-related causes. AIDS is the leading cause of death in sub-Saharan Africa and one of the leading causes of death worldwide among reproductive-age women.

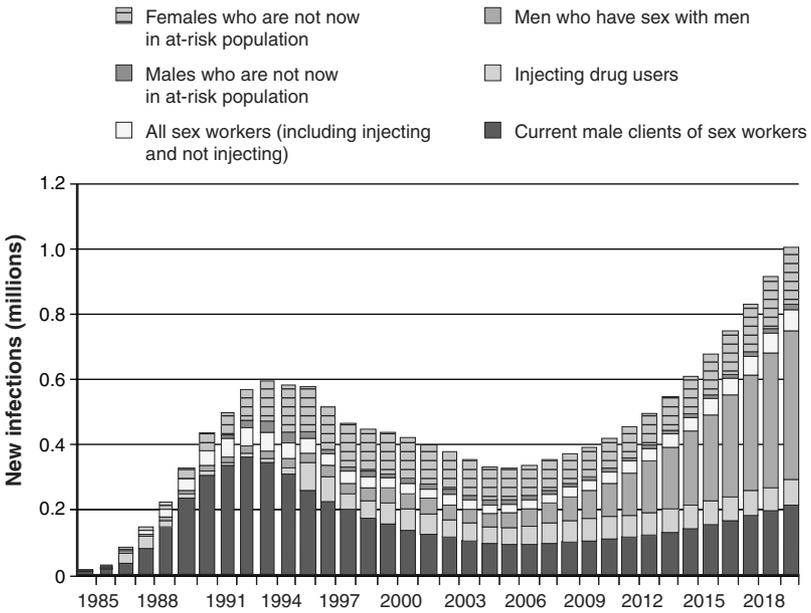
The epidemic has inflicted the “single greatest reversal in human development” in modern history.⁸ In sub-Saharan Africa, home to two-thirds of all people living with HIV, average life expectancy has fallen by more than a decade during the last 20 years as a result of AIDS (see Figure 1.1).



Source: Population Division of the Department of Economics and Social Affairs of the United Nations Secretariat/World Population Prospects.

Figure 1.1 Life expectancy at birth, selected regions 1950–1955 to 2005–2010.

Although sub-Saharan Africa has been most affected, other regions have not been spared. Even though HIV prevalence in Asia is only a small fraction of that in Africa, the region experienced 300,000 AIDS deaths in 2009.⁹ Moreover, as Figure 1.2 illustrates, existing trends are not encouraging in Asia and the modes of transmission are changing. The pandemic costs affected Asian households more than US\$ 2 billion annually and is projected to cause an additional 6 million Asian households to fall into poverty by 2015.¹⁰



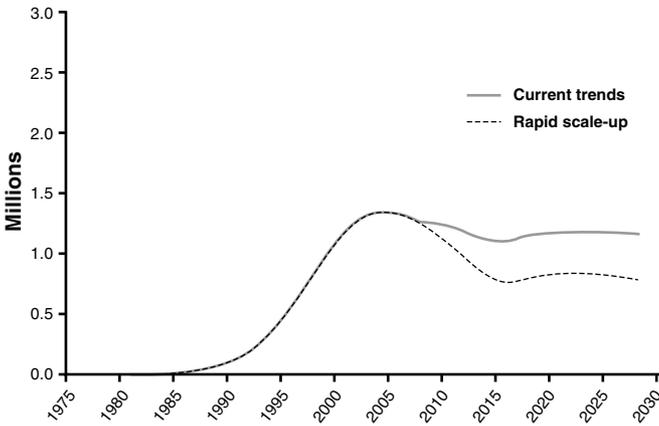
Source: CAA: *Redefining AIDS in Asia Technical Annex*.

Figure 1.2 Past and projected new HIV infections in Asia by population group.

Much is certain about the epidemic’s future. AIDS will remain an enormous global challenge. Even with a robust and much stronger effort to prevent new infections and deliver effective therapies, the disease will undoubtedly remain a major cause of death worldwide. In Southern Africa, AIDS will continue to pose an existential threat to national economies, agricultural sectors, and both urban and rural communities.

Yet much about the future of AIDS remains uncertain. In large measure, the pandemic’s severity in 2031 will depend on choices to be made in the next few years. This chapter summarizes the sobering results of modeling undertaken by the aids2031 Modeling Working Group. If efforts to tackle AIDS become smarter, more focused, and more community

centered, tens of millions of lives can be saved over the next generation. If actions to address AIDS instead remain static or weaken over time, the result will be millions of preventable new infections and AIDS will claim many more millions of lives.



Source: *aids2031 Modeling Working Group (unpublished data)*

Figure 1.3 Annual AIDS deaths (adults 15–49 years) comparing current trends against expanded scenario. The cumulative number of deaths avoided between 2008 and 2031 in the expanded scenario is more than 7 million.

What the history of AIDS may tell us about the future

More than 33.3 million people worldwide are living with HIV, and nearly 5,000 die every day. Each hour, around 200 people die of AIDS. There are around 7,400 new infections every day.¹¹ The statistics are numbing, conveying the extraordinary human toll of the disease.

What was once a new disease has long since become familiar. The well-documented history of the epidemic tells us important facts that are relevant to the future. Consider some of the known facts.

Epidemics often differ radically within and between countries and regions

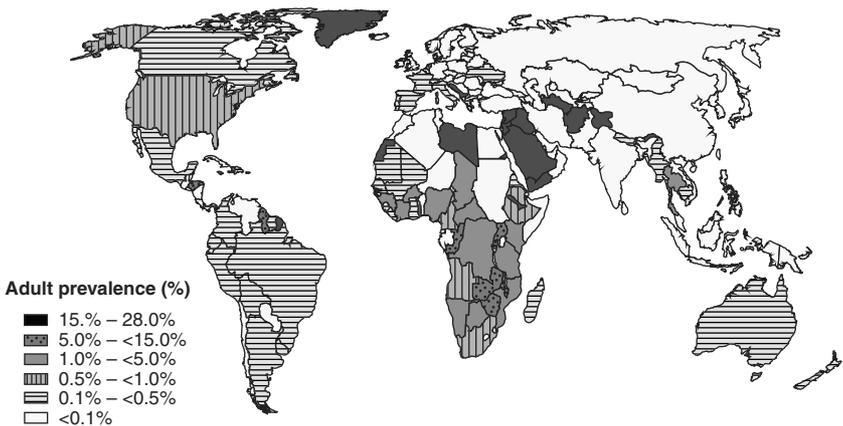
The so-called “global AIDS epidemic” is, in reality, an amalgamation of multiple local epidemics that often differ markedly from one another. Although women account for 60% or more of all people living with HIV in sub-Saharan Africa, men tend to predominate among HIV cases in most

other regions.¹² Whereas sexual intercourse is the primary mode of transmission in India overall, extremely high rates of infection are reported among people who inject drugs in certain districts.¹³ In Benin, Kenya, and Tanzania, the variation between the highest-prevalence district and the lowest is 12-fold, 15-fold, and 16-fold, respectively.¹⁴ Meanwhile, HIV prevalence in Côte d'Ivoire is more than twice as high as in Liberia or Guinea, even though these countries share national borders.¹⁵

These and other variations teach us that AIDS programs and policies must address the unique set of circumstances in particular settings. Certain principles may apply to AIDS responses everywhere—such as the value of a rights-based approach or the importance of engaging affected communities in the response—but no cookie-cutter model exists for addressing the broadly divergent types of epidemics around the world.

The pandemic is constantly evolving

Even when epidemiological trends appear stable, the pandemic is constantly changing. As Figures 1.4–1.6 illustrate, what began as epidemics with differing characteristics primarily confined to a handful of countries progressively spread to affect the entire world.



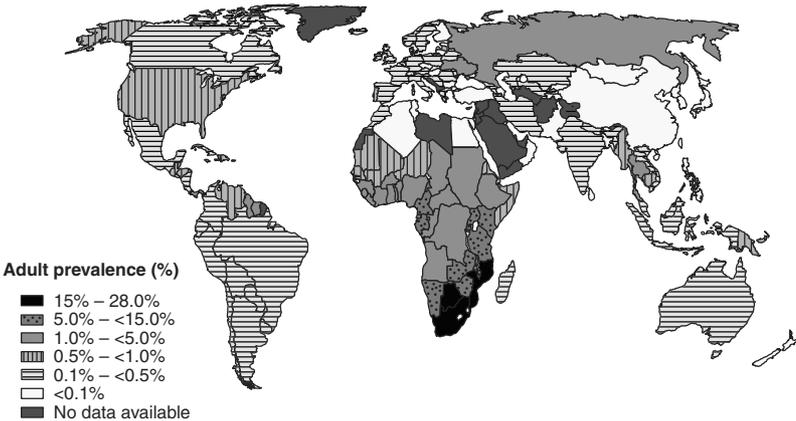
Source: Adapted from UNAIDS data.

Figure 1.4 Progress of the AIDS pandemic, 1990.



Source: Adapted from UNAIDS data.

Figure 1.5 Progress of the AIDS pandemic, 2000.



Source: Adapted from UNAIDS data.

Figure 1.6 Progress of the AIDS pandemic, 2009.

Within regions and countries, the nature of individual epidemics has changed over time. In China, Eastern Europe, and Central Asia, epidemics that were previously characterized primarily by transmission via injecting drug use are now increasingly driven by sexual transmission.¹⁶ In many European countries, epidemics that were earlier concentrated in gay communities have given way to epidemics in which heterosexual adults and immigrants to the region are also at risk of infection.¹⁷ As the epidemic has matured and become endemic in sub-Saharan Africa, older adults in stable, long-term relationships now account for the largest share of new infections in many African countries.¹⁸

The evolution of each epidemic is affected by its social, economic, and physical environment

Patterns of social and economic life often determine the trajectory of local epidemics. In New York City, a “synergism of plagues,” abetted by the planned shrinkage of municipal services as a result of the city’s acute fiscal crisis in the 1970s, was directly tied to the explosion of HIV in the early 1980s among low-income drug users.¹⁹ The astonishing emergence of South Africa’s HIV epidemic in the 1990s—with estimated HIV prevalence rising from less than 1% at the beginning of the decade to nearly 20% by the turn of the century—coincided with the dramatic social and population dislocations associated with the demise of apartheid. In Eastern Europe and Central Asia, the disintegration of the Soviet Union triggered radical shifts in sexual and drug-using behaviors and the rapid deterioration of public health services, contributing to sharp increases in HIV transmission.

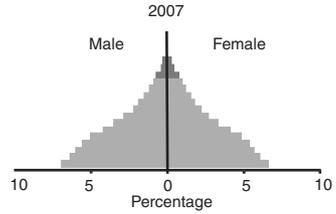
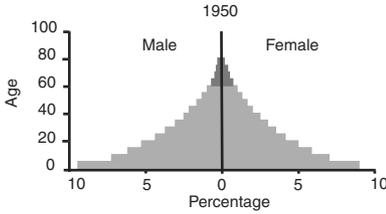
The history of human relations and labor patterns in Southern Africa is indelibly tied to the epidemic’s severity in that subregion. The countries with exceptionally high HIV prevalence are generally called “hyperendemic.” Southern Africa is home to nine hyperendemic countries where adult HIV prevalence exceeds 10%, about which the aids2031 Hyperendemic Working Group concludes: “A central historical feature shared by all the hyperendemic countries was the rapid, forced proletarianization of males, the establishment of circular migratory patterns and, post-independence, large-scale urbanization.”²⁰ These trends triggered broad-scale migration of male workers, disrupted households, contributed to high rates of sexual concurrency, and destroyed traditional methods for setting social norms. The eventual results are evident in South Africa’s rapidly growing informal urban settlements, where infection rates are twice the national average.²¹

The epidemic has become firmly entrenched in Southern Africa

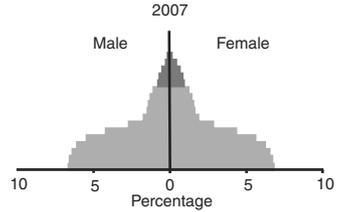
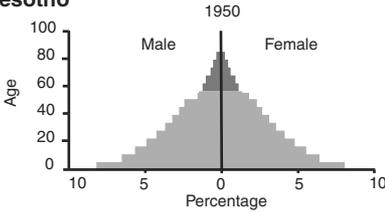
AIDS is a pressing health challenge for scores of countries, but its effects are especially pronounced in Southern Africa. With just 2% of the world’s population, Southern Africa accounts for 34% of all people living with HIV.²² It is impossible to speak of the future of Southern Africa without discussing the future of AIDS.

As Figure 1.7 reveals, the epidemic has skewed population structures in countries such as Lesotho. The figure for Ghana shows a more typical change in age structure resulting from lowered birth rates and improved life expectancy. By contrast, Lesotho, with one of the world's highest levels of HIV infection, shows a marked depletion of the population of working-age adults. In hyperendemic settings, the extraordinary loss of adults in their 30s and 40s has interrupted the natural process that imparts learning and values to younger generations, resulting in national populations that consist largely of the very young and the very old. These patterns not only reflect the epidemic's extraordinary impact, but also illustrate the degree to which AIDS undermines the ability of hyperendemic countries to mount a robust and sustained response to the epidemic.

Ghana



Lesotho



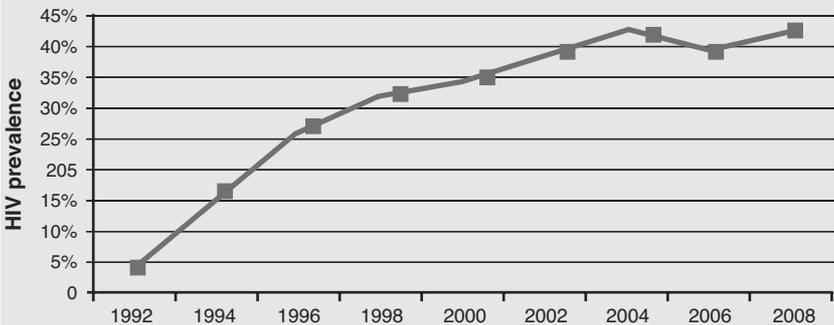
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, *World Population Prospects: The 2006 Revision*.

Figure 1.7 Changes in population structure: Ghana and Lesotho.

Swaziland: the worst AIDS epidemic in the world

The little country of Swaziland, home to about a million people, has the dubious distinction of having the world's worst national AIDS epidemic. Although Swaziland is unmatched in the seriousness of its national epidemic, the AIDS challenge is comparable to other subnational areas, such as KwaZulu-Natal province in South Africa.

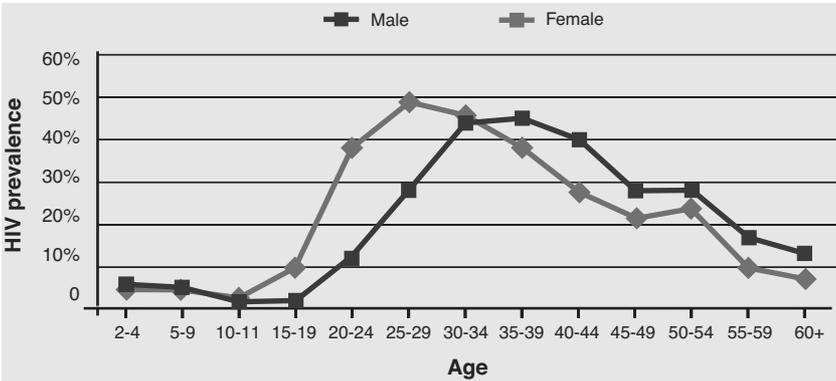
The earliest AIDS case in Swaziland was in 1986. In 1992, the first sentinel survey of antenatal clinic attendees was conducted, revealing a prevalence of 3.9%. Biannual surveys have subsequently tracked the exponential spread of the virus (see Figure 1.8). By 2004, Swaziland had the highest prevalence ever recorded. The small decrease in HIV prevalence in antenatal settings in 2006 was reversed in 2008, although the reversal may be indicative of increased numbers of women accessing treatment, placing upward pressure on HIV prevalence by reducing the rate of AIDS deaths.



Source: *Sentinel Surveillance Reports, Ministry of Health and Social Welfare.*

Figure 1.8 HIV prevalence among antenatal clinic attendees in Swaziland, 1992–2008.

In 2008, the Demographic and Health Survey (DHS) found that 18.8% of the national population was living with HIV. Figure 1.9 shows this by age and gender. Note that adult HIV prevalence is considerably higher than national prevalence: 26.1% in 2007, according to UNAIDS. Prevalence is higher among women than men, and highest in 25- to 29-year-olds.



Source: Demographic and Health Survey 2008.

Figure 1.9 HIV prevalence in Swaziland by age and gender.

Drivers of the epidemic

Why is the epidemic so serious in Swaziland? What has driven prevalence? If the answer were known, interventions would be clear. Studies and speculation have not yielded a single neat answer.²³ Instead, Swaziland's unmatched epidemic can most plausibly be traced to a unique combination of biological, economic, social, and cultural factors.

Migration has been common for decades and increases risk. For example, many Swazi men once worked in South Africa's mining industry. One study on a sugar plantation found that 24% of daily commuters and 41% of monthly commuters were infected. Permanent workers had a prevalence of 33.7%, casual workers 48.6%.²⁴

The epidemic is also perpetuated by multiple concurrent partnering and intergenerational sex in which girls and young women have sex with older men (see Figure 1.9). No evidence suggests that Swazis have more partners, or more frequent sex, than other groups in southern Africa. However, polygamy is culturally accepted. The Demographic Health Survey shows HIV prevalence is higher for men in polygamous marriages than for those in monogamous unions (47% and 30%, respectively). However, few Swazis are in formal polygamous relationships (2% of men and 7% of women), so of greater concern is the message that polygamy communicates about male sexuality, gender equity, and female status.²⁵ Although a national male circumcision policy was launched in August 2009, lack of male circumcision still contributes to the spread of HIV in Swaziland.

Sexual and gender-based violence disproportionately affect women and girls of all ages and are major risk factors. Sexual violence against females occurs across all socioeconomic and cultural backgrounds; many societies socialize women to accept, tolerate, and rationalize such experiences and, worse, to remain silent about them.²⁶ Among 18- to 24-year-old females, nearly 66% have experienced sexual violence in Swaziland. Overall, 48% of females report experiencing some form of sexual violence in their lifetime.

Responses

Early responses to the epidemic in Swaziland were consistent with international best practice. By 1987, blood for transfusions was screened, information and education programs rolled out, condoms promoted, and a National Prevention and Control Program established.

The potential threat to the nation's social and economic well-being was discussed as early as 1992, and the Ministry of Economic Planning commissioned work on the socioeconomic impact of HIV/AIDS.²⁷ In 1999, King Mswati III declared AIDS a "national disaster" and the National Emergency Response Committee on HIV/AIDS (NERCHA) was established. Swaziland has successfully mobilized resources from donors, including the U.S. government and The Global Fund to Fight AIDS, Tuberculosis and Malaria. By 2009, 89% of adults needing treatment were on antiretrovirals, 59% of HIV-infected children were on treatment, and many orphaned and vulnerable children were being supported.

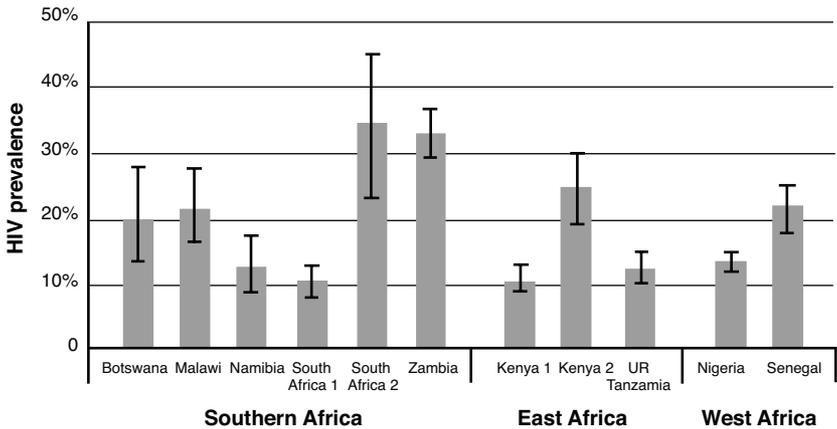
Concept of an emergency

Swaziland's epidemic is so severe that it has led to a reassessment of the concept of an emergency.²⁸ The work used key socioeconomic indicators on demographic changes, health, social indicators, orphans, economic growth, investment, and agriculture to build a picture of the multidimensional impact of the disease.

The picture is bleak: Swaziland is experiencing a humanitarian crisis comparable to conflict countries or those facing a severe natural disaster. AIDS here is a slow-onset disaster, leading to a long-term catastrophe and requiring an urgent, sustained response. One challenge is the country's classification as "lower-middle-income," making it ineligible for some development assistance. An immediate response is needed while simultaneously building capacity for the long-term.

AIDS discriminates

Although AIDS epidemics began among the most affluent in some countries, they almost invariably visit their harshest effects on marginalized groups. Adult HIV prevalence for the world as a whole is 0.7%, yet an estimated 13% of people who inject drugs, 6% of men who have sex with men, and 3% of sex workers are living with HIV.²⁹ Moreover, these global estimates, derived from national surveys, significantly understate the pandemic’s burden on these populations in particular settings. National surveys in Malawi, for example, indicate that more than 70% of sex workers in the country are infected.³⁰ Even in sub-Saharan Africa, where heterosexual intercourse has long been assumed to be the almost exclusive driver of epidemics, recent studies have documented exceptionally high HIV prevalence among these key populations. As Figure 1.10 illustrates, multiple studies have documented levels of HIV infection among men who have sex with men that consistently exceed overall adult HIV prevalence in these settings. In Kenya, men who have sex with men, people who inject drugs, and sex workers and their clients account for roughly one in three new HIV infections.³¹ In Senegal, men who have sex with men are believed to represent up to 20% of all incident infections.³²



Source: WHO/UNAIDS 2009 AIDS epidemic update.

Figure 1.10 HIV prevalence among men who have sex with men in sub-Saharan Africa (2002–2008). [Note: South Africa 1 and 2 and Kenya 1 and 2 refer to the results from different studies.]

The pandemic's history cautions us to anticipate unexpected turns over the next generation

Although HIV information systems remain weak in many countries (an issue that Chapter 2, “Generating knowledge for the future,” addresses in some detail), the ability to monitor and understand national epidemics has greatly improved. After experiencing a rapid increase during its first 15 years, the pandemic appears to have stabilized globally, with the annual number of new infections about 20% lower today than in the mid-1990s.³³ With the exception of Eastern Europe and Central Asia, where new infections continue to increase, the pandemic appears to have stabilized or slowed in most regions.

This apparent stabilization of the pandemic has given rise to a general consensus in the popular media that the future of the pandemic can be projected with some accuracy. AIDS, it is said, has “peaked,” with a slow but steady decline in rates of new infections likely to occur in the foreseeable future.

This emerging confidence in our ability to predict the future of the pandemic ignores previous experience with other infectious diseases and with AIDS itself.³⁴ Studies of endemic syphilis, for example, have documented that waves of infections are common over time, with spikes in incident cases often separated by a decade or more.³⁵ This is especially likely for epidemics that have become concentrated in particular populations. After a sharp decline in HIV incidence among men who have sex with men more than two decades ago in high-income countries, rates of new infections have steadily increased since the early 1990s.³⁶ In part, this reflects the fact that new cohorts of young people enter the population of sexually active adults over time.

Indeed, AIDS has repeatedly defied predictions and is sure to do so in the future. In December 1995, the WHO Global Programme on AIDS erroneously projected that the pandemic's center would be in Southeast Asia, with more modest growth predicted in sub-Saharan Africa.³⁷ A decade ago, few would have predicted that more than 1 million people would be living with HIV today in the Russian Federation. And certainly few observers foresaw a reversal in Uganda's longstanding gains in reducing HIV prevalence.³⁸ On the more favorable side of the ledger, only a small number of scientists were prepared for the

emergence in the mid-1990s of combination antiretroviral therapy, which, for those who had access to it, rapidly converted the disease from an invariably fatal condition to one that is chronic and manageable.

The pandemic's past teaches that political, economic, and social shocks can greatly affect the trajectory of AIDS. In this regard, the accelerating rate of population migration in many regions is cause for concern. A study of six Asian countries by the *aids2031* Working Group on Countries in Rapid Economic Transition concludes that major, continued population movements, particularly associated with growing urbanization, may facilitate the spread of HIV over the next generation.³⁹ In China alone, 300 million people are expected to migrate over the next 20 to 30 years.⁴⁰ Although mobility on its own is not a risk factor for HIV, migration often increases risk and vulnerability by disrupting social and familial networks, contributing to sexual risk taking and drug use, and subjecting individuals to violence and discrimination. In Asia, population migration has been strongly linked with the spread of infectious diseases.⁴¹

Other changes are also foreseeable. The introduction of antiretroviral therapy in resource-limited settings is rapidly altering attitudes about AIDS in many parts of the world where infection has long been regarded as a death sentence. Although the availability of treatment is arguably a prerequisite for a strong, sustainable effort to prevent new HIV infections (an issue Chapter 4, "Financing AIDS programs over the next generation," addresses in greater detail), the health benefits of treatment may also cause some to view the disease with less concern and alarm. In high-income countries, especially among men who have sex with men, evidence indicates that sharp reductions in HIV-related death and illness have contributed to an increase in sexual risk behaviors, ultimately resulting in rises in HIV incidence.⁴² Were such trends to be replicated elsewhere, the results could be potentially catastrophic.

In short, much about the future of the pandemic remains unclear. This uncertainty necessitates continued vigilance in the AIDS effort worldwide.

How will the virus itself evolve?

National epidemics evolve in response to changes that affect vulnerability to infection, but the virus itself is also evolving. In comparison to human evolution—which, from our vantage point, occurs quite slowly—the virus may evolve rapidly.⁴³

One outstanding question is what evolutionary impact the still-recent introduction of highly active antiretroviral therapy will have on the evolution of HIV. For example, if viral load and HIV transmissibility are heritable traits, they may introduce new selective pressure.⁴⁴ One result may be a decline in overall HIV prevalence, but with prevalent infections more likely to be characterized by highly virulent, highly resistant, and easily transmissible virus. Thus, one possible future of AIDS could be that infection will become somewhat less common, but that the disease could be far more lethal to those who are infected. Another could be that the virus evolves to have less virulence, but affects more people.

AIDS in a changing world

As a disease that is fundamentally linked to the way humans live and how they relate to one another, AIDS is inextricably entwined with the future of our world—and our world is rapidly changing.

Globalization

Regions that once seemed remote from each other have drawn considerably closer as a result of increased international travel, breakthroughs in communications technology, and the internationalization of commerce, social trends, and political groupings. These trends have already had important effects on the pandemic and will continue to do so.

Globalization may bring benefits as well as challenges. Whereas humans have historically concerned themselves primarily with problems in their own countries or communities, the increasing inter-connectedness of our world makes it possible to mobilize global endeavors to address global problems. Thus, an Irish rock star can galvanize global attention on the pandemic's intense burdens in sub-Saharan Africa, and an African-born player for a major European football club can focus attention on problems in his home country.

A key driver of globalization, the revolution in information and communication technology, is changing the ways people communicate about behaviors and issues.⁴⁵ Although speaking about the “digital divide” between rich and poor countries is common, this gap is narrowing

quickly, as use of the Internet and mobile communications technology is growing fastest in developing countries. Technological advances also may upend historic patterns; in developing countries, for example, women are more likely than men to use SMS text messaging to communicate. As with other aspects of globalization, communications advances may provide new avenues for intervention while at the same time raising new challenges. Social networking technologies offer new ways to mobilize communities and societies to take action, but they may also facilitate increased risk behavior; in some countries, sex work solicitation is rapidly transitioning from brothels, streets, and other traditional venues to the Web and mobile phones.

Globalization also teaches us something else. We sometimes speak as if we are living in a unique moment in human history, but this is not the first era of globalization. Between 1890 and 1913, levels of international trade and financial transactions were comparable to today's.⁴⁶ But unforeseen political and economic shocks, including World War I and the Great Depression, brought this earlier era of globalization to an abrupt end. This history reminds us that although we can—and should—do our best to anticipate future trends, unexpected surprises may well be in store, testing our ability to adapt to a radically different set of circumstances.

Climate change

Extreme weather events and other disasters associated with climate change, as well as the increased frequency and severity of droughts in developing countries, are likely to generate up to 150 million climate-change refugees in coming decades⁴⁷ and further accelerate the exodus from rural villages to urban settings. Although mobility itself is not a risk factor for HIV, large-scale population dislocations frequently place people in situations of increased risk and vulnerability. By exacerbating the degradation of agricultural sectors, climate change may worsen the well-documented effects of AIDS on household food security and agricultural economies in sub-Saharan Africa.

Climate change could have other real, although indirect, effects on the future of AIDS by reducing funding for health programs in low- and middle-income countries. The United Nations Framework Convention on Climate Change projects that developing countries will incur annual

costs of adapting to climate change of US\$27 billion to 66 billion by 2030⁴⁸; other researchers predict that associated costs will be considerably higher.⁴⁹ With such extraordinary costs looming, developing countries and external donors may struggle to accommodate other competing needs, such as AIDS, other infectious diseases, or health-systems strengthening.

Climate change and AIDS: some similarities and one notable difference

AIDS and climate change are linked not only in their possible effects on human behavior and their potential competition for scarce resources. Both issues have also given rise to massive global movements.

AIDS and climate change are alike in another way. Just as AIDS produced its own chorus of “denialists,” who resisted the overwhelming scientific evidence linking the disease to HIV, climate change has generated a minority of skeptics who disregard science and dispute the evidence of the human contribution to climate change.

However, the single largest contrast between the AIDS movement and the global environmental movement is perhaps more revealing. As the following chapters of this book explain, the response to AIDS has, from the very beginning, been framed as an emergency response. Since AIDS first appeared, time has been of the essence. Instead of building for the future to sustain a generations-long fight, the AIDS movement has tended to seek immediate results.

By contrast, the global effort to slow and reverse climate change has from its inception been understood as a long-term undertaking. Even the most ardent activists have understood that weaning the world off fossil fuels will take time. And the extensive planning focused on coping with the impact of climate change has expressly sought to achieve results only decades down the road.

Population growth

By 2031, the global population is projected to exceed 8 billion people. Countries are already finding that stability in the percentage of the

national population infected with HIV translates over time into increasing numbers of people living with the disease. Population growth also has the potential to increase social conflict regarding natural resources such as water or food, which could give rise to greater population mobility and further increase risks of and vulnerabilities to HIV.

A changing global power structure

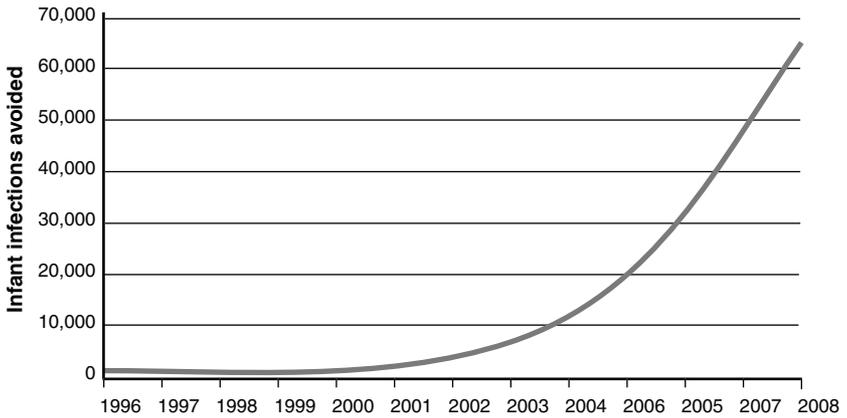
Existing global structures and mechanisms for AIDS decision-making arose out of political and economic power structures put in place after World War II. The victors in that conflict forged global institutions that have played central roles in the AIDS response, including the United Nations system and the World Bank. The major AIDS donors also have largely reflected the Atlantic orientation of global power in the second half of the 20th century.

These power dynamics are rapidly changing. China, India, and other Asian economies are growing far more rapidly than those represented by the Group of Seven major industrialized countries. Brazil, Russia, South Africa, and other countries are also rapidly coming into their own as global and regional powers, illustrated most vividly by the G20's replacement of the G7 as a key forum for global decision-making. Meanwhile, the traditional global powers, most recently buffeted by the global financial and economic crisis, confront worrisome structural challenges associated with economic stagnation, long-term budget deficits, and rapidly aging populations.

How these trends will affect the future of AIDS is uncertain. The relative political and economic decline of the donors that have helped underwrite the massive build-up of financial resources for AIDS is a cause for concern, at least. And the transition to a more multipolar world could conceivably make it even more difficult to marshal coordinated global action on major problems. But these trends also offer potential opportunities, as the corresponding development of new global powers offers the prospect of new AIDS donors coming on the scene in future years.

Scenarios for the pandemic's future

Perhaps the clearest message of the pandemic's history to date is that concerted action can make a difference. Antiretroviral treatment had saved 2.9 million lives worldwide between 1996 and 2008.⁵⁰ Similarly, as Figure 1.11 shows, expanded access to services to prevent mother-to-child HIV transmission averted at least 200,000 new infections globally between 1996 and 2008, with these life-saving results increasing from year to year as services have been expanded.⁵¹



Source: WHO/UNAIDS 2009 AIDS epidemic update.

Figure 1.11 Estimate of the annual number of infant infections averted through the provision of antiretroviral prophylaxis to HIV-positive pregnant women globally (1996–2008).

The magnitude and quality of the continued response to AIDS will be determining factors in the pandemic's future. To clarify the long-term implications of choices to be made in the coming years, the *aids2031* Modeling Working Group produced a series of mathematical models on potential AIDS futures in 22 countries, including 12 in Africa (Cameroon, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, South Africa, Sudan, Tanzania, Uganda, Zimbabwe, and Zambia), six in Asia (Cambodia, China, India, Indonesia, Thailand, and Vietnam), two in Eastern Europe (Russia and Ukraine), and two in Latin America (Brazil and Mexico). For each of these countries, the model took into account the interaction between different sexually transmitted diseases and HIV, the role of heterogeneity in sexual behavior, patterns of sexual acts within partnerships, networks of concurrent sexual partnerships, patterns of incidence as a function of age,

and the impact of interventions. For intervention impact, the modelers relied on the public health literature, including clinical trials and epidemiological studies; the models all assumed constant coverage and impact from 2015 onward. Models further assumed that receipt of antiretroviral therapy would reduce the likelihood of onward HIV transmission, a conclusion that is consistent with numerous studies that have correlated viral load with transmissibility.

Using these various data sources, modelers charted the likely future of epidemics in these 22 countries according to various scenarios, calculating the number of incident infections, total HIV prevalence in 2031, and the number of AIDS deaths likely to occur under each scenario between 2010 and 2031. Importantly, the models aim to quantify the long-term impact of choices that will be made in the next several years, tracing the ultimate impact in 2031 to political choices made between 2010 and 2015. One possible future scenario, the “status quo” scenario, calculates results based on a continuation of current coverage levels. A second scenario envisages an intensification of HIV prevention and treatment programs toward saturation coverage.

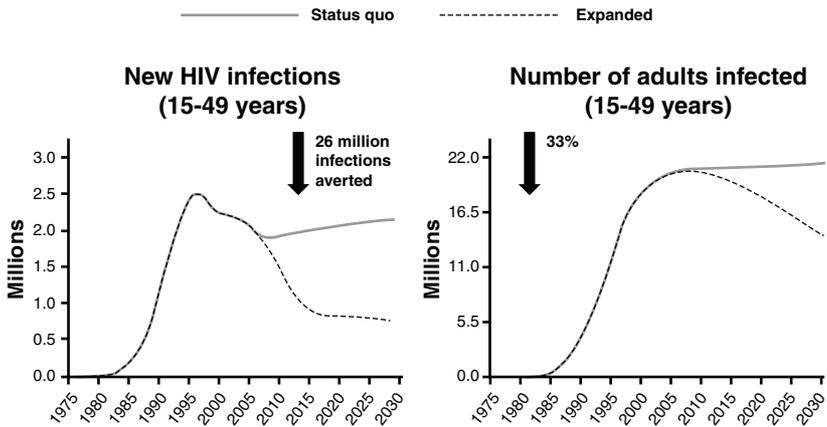
The results of the modeling exercises led to several fundamental conclusions about the epidemic’s future and the choices facing global decision-makers over the course of the next several years.

Choices made in the next five years will profoundly affect how the pandemic will look in 2031

Maintaining existing coverage levels would allow nearly 50 million cumulative new infections among 15- to 49-year-olds in these 22 countries by 2031. By contrast, as shown in Figure 1.12, expanded coverage would avert more than 26 million of these infections (or more than half).

The impact of these choices in specific countries is revealing. Consider South Africa, for example, home to the world’s largest number of people living with HIV. If current coverage levels continued, HIV prevalence in 2031 would be the same (18%) as it was in 2008, the most recent year for which data is available.⁵² Yet this stability in prevalence is deceiving; with the projected growth in population, a stable prevalence would mean 12 million new infections between now and 2031. By contrast, if AIDS response efforts are strengthened over the next several

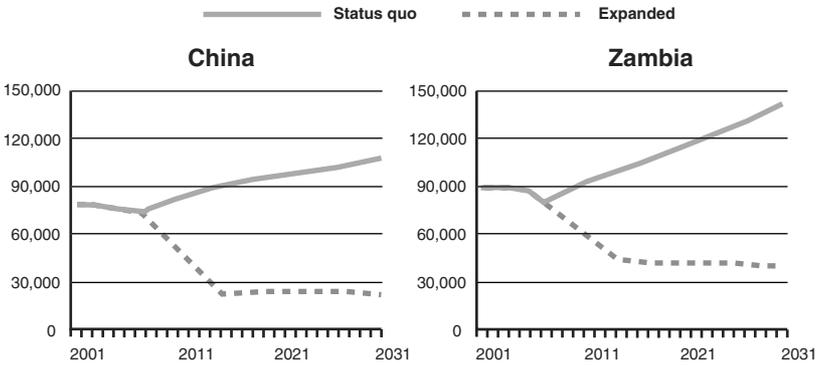
years, HIV prevalence would be one-third lower in 2031, assuming that scaled-up treatment will help slow the rate of new infections by lowering the level of virus circulating in communities. In Nigeria, Mozambique, and Zambia, reductions would be even sharper, with projected prevalence in 2031 nearly 50% lower under an intensified response. The flattening of all the curves after 2015 reflects the assumption that all intervention coverage and impacts is constant after that date.



Source: *aids2031 Modeling Working Group (unpublished data)*

Figure 1.12 Projection of new HIV infections and number of adults infected according to status quo and an expanded scenario based on information received from 22 countries.

In Zambia, the annual number of new infections in 2031 would be nearly four times greater with a continuation of current service coverage than with an intensified, expanded response, as Figure 1.13 shows. In China, where population growth will be a critical driver in the number of new HIV infections over the next generation, the status quo scenario would result in more than three times as many incident infections in 2031 as in an expanded response, also shown in Figure 1.13. HIV-related deaths in Zambia would be more than twice as high in 2031 if current coverage levels continue, and the mortality rate in China would be more than three times as high.



Source: WHO/UNAIDS 2009 AIDS epidemic update.

Figure 1.13 Current and projected annual new HIV infections in adults (15–49 years) in China and Zambia, according to different scenarios.

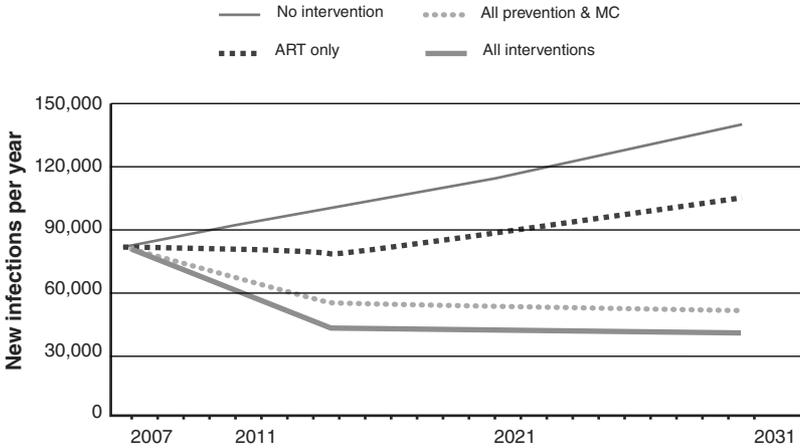
To achieve dramatic change, all available tools must be used to their maximum advantage

To avert tens of millions of deaths over the next generation, as projected in the most favorable scenario, the best results possible must be obtained with the available tools. This demands continuous quality improvement, results-based management, and program evaluation to improve performance over time (see Chapter 3, “Using knowledge for a better future”). Such improvements over time could be expected to continue beyond 2015, leading to better future results than shown in the projections.

Prioritizing HIV prevention is critical to accelerated progress between now and 2031

The level of resources devoted to HIV treatment in low- and middle-income countries is roughly 2.5 times greater than amounts dedicated to HIV prevention.⁵³ Increasingly, AIDS efforts are characterized by an approach that focuses almost exclusively on treating existing infections and devotes meager resources to preventing new infections. This approach mimics the path high-income countries have taken. In the United States, for example, only 3% of government outlays for HIV are currently allocated to prevention programs.⁵⁴ Without substantial targeted HIV prevention efforts, new HIV infections will continue to outpace treatment efforts—even while recognizing some prevention efforts from expanded treatment.

Figure 1.14 demonstrates that the long-term results of this approach would be potentially devastating in resource-limited settings. In Zambia, nearly twice as many incident infections would occur in 2031 under a treatment-only approach as would occur with a combination of robust prevention *and* treatment efforts.



Source: *aids2031 unpublished data.*

Figure 1.14 Current and projected impact of intervention strategies on new HIV infections among adults in Zambia.

To achieve optimal results for 2031, new prevention tools will be needed

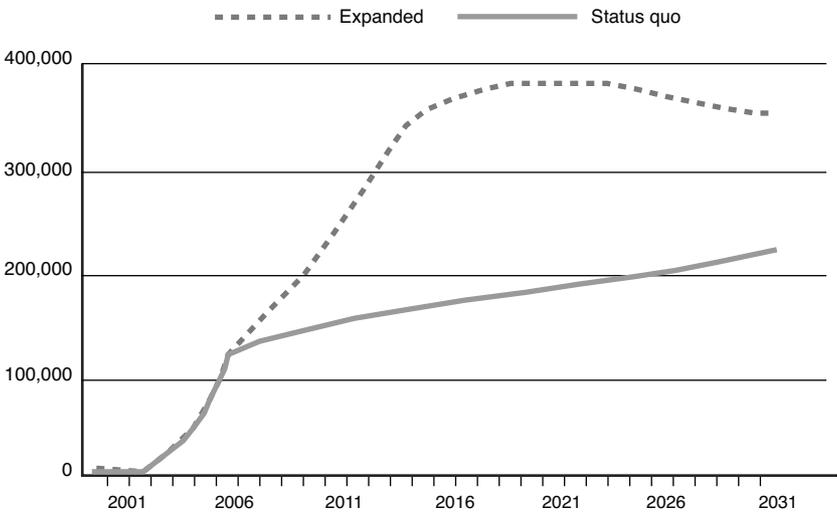
To make truly revolutionary gains in the epidemic over the next two decades, new and better prevention tools are needed, along with structural changes in many communities and societies. According to the *aids2031* Modeling Working Group, achieving a 90% reduction in HIV incidence by 2031 necessitates a 70% reduction in the average number of sexual partners.⁵⁵ This effect far exceeds results obtained with existing prevention tools, pointing to the need for additional prevention options and a broader approach to prevention that accounts for social drivers of national epidemics.

Figure 1.12 is telling. With an expanded response that achieves maximum coverage for both HIV prevention and treatment, the annual number of new HIV infections in Zambia would be half what it was in 2001 and roughly 50% lower than current HIV incidence. This would represent significant progress, but it would still leave Zambia grappling with an enormous health crisis that would sap national resources and push countless households into poverty.

The world should aim higher. However, reaching this lofty goal will require new scientific tools and improved knowledge about ways to change sexual behavior and prevent new infections, topics that the following chapter addresses in depth.

Delivering treatment to those who need it will be vital to minimizing the pandemic's impact

Securing the gains envisaged in the intensified/expanded scenario will require continued, sustained support for scaling up HIV treatment. As Figure 1.15 illustrates, current coverage trends would cover fewer than half the number of people who would receive treatment under the optimal scenario in 2016. By 2031, the number of people receiving treatment in the optimal scenario would be more than 60% higher than with current trends.



Source: *aids2031 unpublished data.*

Figure 1.15 Current and projected number of adults (15–49 years) receiving treatment in Zambia.

These projections underscore the need to intensify measures to mitigate the pandemic's impact

An important lesson learned thus far in the global AIDS response is that even the most heavily affected societies have proven to be far more resilient than projected earlier in the epidemic.⁵⁶ Yet this resilience masks enormous individual and societal burdens, many of which are likely to endure for generations.

A case in point is the extraordinary number of the world's children who have been orphaned by the pandemic. In sub-Saharan Africa, more than 14.8 million children have lost one or both parents to AIDS.⁵⁷ As the projections summarize, vulnerable households will still face significant numbers of deaths and further burdens, even under the most favorable scenarios.⁵⁸

Over the last three decades, the primary focus of the AIDS response has been on getting programs up and running, frequently in communities with little health infrastructure. In many cases, the goal has been to achieve immediate results. In some cases, responses have been premised on the expectation that an imminent biomedical breakthrough will resolve the need for further action. Typically, more difficult challenges—such as changing community norms or gender relations, or addressing the impact of labor or economic structures on individual or collective vulnerability—have been dismissed as too long range and time-intensive to merit investment in the context of an emergency.

The overarching theme of this report is that AIDS is a generations-long challenge and thus requires a generations-long response that adopts a longer-term mindset. In moving forward, the imperative of scaling up must be matched by an equally strong commitment to quality, efficiency, and sustainability. And, to achieve long-term success with AIDS, underlying drivers of national and local epidemics must be addressed, even if these efforts are unlikely to achieve results in the short term. Table 1.1 details the characteristics of the long-term and short-term approaches.

As with any effort that must be sustained over many years, complacency and denial are the enemies of long-term success; already, signs of the world's fading interest in AIDS are apparent. But with concerted efforts and a changed approach as described in this book, success in the AIDS response is achievable. A great deal of the knowledge needed to radically reduce the number of new HIV infections and AIDS deaths over the next generation is already available, and the world possesses the

research capacity to generate the new preventive and therapeutic tools that will be required. Even in the midst of worldwide economic uncertainty and anxiety, little doubt arises that sufficient resources exist to address AIDS and other global health challenges.

The subsequent chapters detail the steps needed to place a global AIDS response on a long-term and sustainable footing. In the final chapter, the aids2031 Consortium offers recommendations for the steps that need to be taken now to ensure long-range success.

Table 1.1 Selected characteristics of shifting from a short-term to long-term approach

Short Term	Long Term
Reactive	Proactive
Generic approach	Locally adapted approaches
Donor-imposed short-term (1–2 year) funding	Locally designed multiyear plans and financing (5–15 years)
External consultants	Investment in local capacity
AIDS isolated from broader health and development	Synergies with other health and development
Individual behavior change	Societal and individual behavior change

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