

HIV Prevention 1



The history and challenge of HIV prevention

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The HIV/AIDS pandemic has become part of the contemporary global landscape. Few predicted its effect on mortality and morbidity or its devastating social and economic consequences, particularly in sub-Saharan Africa. Successful responses have addressed sensitive social factors surrounding HIV prevention, such as sexual behaviour, drug use, and gender equalities, countered stigma and discrimination, and mobilised affected communities; but such responses have been few and far between. Only in recent years has the international response to HIV prevention gathered momentum, mainly due to the availability of treatment with antiretroviral drugs, the recognition that the pandemic has both development and security implications, and a substantial increase in financial resources brought about by new funders and funding mechanisms. We now require an urgent and revitalised global movement for HIV prevention that supports a combination of behavioural, structural, and biomedical approaches and is based on scientifically derived evidence and the wisdom and ownership of communities.

Introduction

Over the past 25 years, HIV/AIDS has become part of the landscape of the contemporary world. Every country in the world now acknowledges and reports HIV infection in its population (De Lay P, UNAIDS; personal communication). Close to 60 million men, women, and children have been infected with HIV, and nearly 25 million people have died of AIDS. Estimates of the number of people living with HIV (table),¹ the number of new infections each year (panel 1), and incidence rates (panel 1) illustrate the massive burden of illness due to HIV/AIDS now facing countries. In 2007, about 33 million people were living with HIV/AIDS and 2.5 million people were newly infected.² HIV/AIDS has become a leading cause of mortality worldwide and the main cause of death in sub-Saharan Africa. Prevalence rates in the most heavily affected countries have reached levels that had previously been unthinkable (figure 1).¹ In 2007, 35% of people with HIV/AIDS globally lived in southern Africa, which is also where 32% of AIDS deaths had occurred. In no part of the world has the pandemic had a more devastating effect.²

The pandemic was first recognised on June 5, 1981, when the US Centers for Disease Control and Prevention (CDC) reported five cases of pneumonia caused by *Pneumocystis jirovecii* (then called *Pneumocystis carinii*) in gay men living in Los Angeles.³ Although the CDC first believed that the new disease was confined to homosexual men,⁴ by the end of the year cases had been reported in non-homosexual injecting drug users and outside the USA (in the UK). Other immune-deficiency diseases were soon reported in different populations from many countries, including Haiti and some African countries.^{5,6} In May, 1983, a retrovirus (which was later termed the human immunodeficiency virus, or HIV) was isolated from a patient with AIDS in France.⁷ 22 months later, the US Food and Drug Administration approved a commercial test to detect the virus. By 1985, over 17 000 cases of AIDS had been reported from 71 countries to WHO in Geneva.⁸

Through much of the 1980s, it seemed almost incomprehensible to most policy makers and the public at large that overlapping sexual and needle-sharing networks had somehow led to tens of thousands of people around the world being infected with HIV. The disease seemed to be concentrated in marginalised populations. Many governments, including in heavily affected sub-Saharan Africa, denied that HIV or its associated risk behaviours

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Key messages

- Early prevention successes evolved from collective responses generated by people living with HIV/AIDS and community groups, and confronted the stigma, discrimination, and denial associated with the disease. A global response, involving social factors such as sexual behaviour, injecting drug use, and gender inequalities, is needed to fully address the HIV/AIDS pandemic
- National-level prevention successes have been associated with government (often inter-governmental) leadership and community activism. Such leadership and activism are even more important to sustain and renew responses
- Competing understandings of evidence and differences in prevention paradigms have sometimes undermined rather than contributed to an effective prevention response. We need innovative means to obtain, understand, and weigh evidence on the outcome of prevention programmes
- The availability of effective treatment and the recognition that HIV has development and security implications brought about a commitment to HIV prevention and a sharp increase in financial resources
- Combination prevention—a combination of behavioural, structural, and biomedical approaches based on scientifically derived evidence with the wisdom and ownership of communities—offers the best hope for successful prevention
- Successful prevention also requires knowledge of the country-specific nature of the epidemic as well as the community and country context. Broader socioeconomic and cultural factors—eg, poverty, gender, human rights, and religion—affect the spread of the virus and need to be better understood
- Investments in HIV prevention should be integrated with those that strengthen health systems and train community health workers who can generate and respond to community responses that are essential for HIV prevention
- HIV prevention remains one of the world's top public health and development priorities. A renewed and revitalised movement for HIV prevention is now required

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Search strategy and selection criteria

We searched medical, public health, and social science research with Medline and PubMed for articles published between 1981 and 2008 with the search terms “acquired immunodeficiency syndrome”, “AIDS”, “HIV”, “human immunodeficiency virus”, or “HIV infections” in combination with the terms “AIDS vaccines”, “antiretroviral therapy”, “behaviour”, “biomedical research”, “circumcision”, “community-institutional relations”, “community mobilisation”, “developing countries”, “disease outbreaks”, “history”, “drug therapy”, “epidemiology”, “financial support”, “funds”, “health policy”, “history/20th century”, “history/21st century”, “international cooperation”, “microbicides”, “national health programs”, “politics”, “poverty”, “prevention and control”, “public policy”, “prevalence”, “progress report”, “research”, “research and development”, “sexual behaviour”, “social class”, “social environment”, “substance abuse, intravenous”, “women”, or “world health”. We selected publications from the past 5 years as well as commonly referenced and highly regarded older publications. We also searched the reference lists of articles identified by this search strategy and selected those we judged relevant and important.

existed in their countries. A few epidemiologists and activists began to project that the epidemic would become a worldwide pandemic, leading to mortality that would outstrip measles, malaria, or tuberculosis. For the most part, they were met with widespread scepticism. At the same time, some media outlets began to focus heavily on the epidemic, particularly as it affected well known figures, including the son of Zambia’s president Kenneth Kaunda, French philosopher Michel Foucault, and American celebrities like Rock Hudson.

The brief media flurry of the late 1980s and early 1990s soon faded, but the virus spread relentlessly around the world over the next decade. By the late 1990s, HIV prevalence was slightly less than 1% globally and 6% in sub-Saharan Africa among adults aged 15–49 years. Since that time, although prevalence has stabilised globally, the absolute number of people living with HIV/AIDS has continued to increase in line with population growth.⁹ Considerable variations exist between and within countries (table, panel 1, figure 1), and differentiating on a global level the opposing influences of prevention efforts (that reduce new infections) and treatment scale-up (that reduce AIDS-related deaths) on HIV prevalence is not yet possible.²

HIV is transmitted mainly via sexual intercourse and a key driver of generalised epidemics is concurrent heterosexual partnerships.⁹ Early in the pandemic, infection rates among men were higher than among women, but since 2001 these rates have been about the same. However, global totals mask important regional differences. In sub-Saharan Africa, women now account for almost 61% of adults living with HIV/AIDS.

Consequently, almost 90% of all HIV-positive children live in this region, most infected through mother-to-child transmission. In other parts of the world, men continue to be disproportionately infected. Sexual intercourse between men accounts for most HIV infections in Latin America (figure 2),¹⁰ and is increasingly recognised even in sub-Saharan Africa. Injecting drug use has resulted in a third of all infections outside sub-Saharan Africa, and is the main route of transmission in eastern Europe and central Asia (figure 2), where it contributed substantially to the 150% increase in new infections in that region between 2001 and 2006.²

Although information on how HIV is transmitted was known early in the pandemic, the spread of the disease progressed essentially unabated. Bringing the infection under control would have demanded a unique and truly global response, one that would have required national policy makers to address sensitive social factors that affect transmission—eg, sexual behaviour, drug use, gender inequalities, and community structures and systems (panel 2).^{11–13} Instead, the response was for the most part delayed, grossly insufficient, fragmented, and inconsistent. Moreover, policy makers repeatedly failed to achieve the right balance and synergy between prevention and treatment efforts, first largely ignoring care and support needs in developing countries, and more recently investing in rapid (and urgently needed) expansion of antiretroviral treatment without expanding prevention investments at the same pace, especially those outside the health sector. Also, prevention science sometimes undermined rather than improved prevention responses, as academic debates over attribution of effects and standards of evidence made it more difficult for national HIV/AIDS programmes to decide on their prevention priorities. Insufficient attention was paid to the application of sound management principles to prevention programmes. Additionally, epidemiological forecasting often proved to be deficient, most dramatically in its failure to anticipate the hyperendemics of southern Africa and its overestimation of the extent of the pandemic in Asia. A summary of the major events in the history of HIV/AIDS prevention are shown in figure 3.

The initial years

Long-wave events are those with troubling and large-scale effects that emerge gradually over decades. The starting points of such events are often hard to identify, creating problems in recognising them, allocating appropriate resources, and taking action. When discovered, such events are framed and reacted to as emergencies, and actions taken for good reason in the short term will often make the situation worse in the long term.¹⁴ Moreover, management of their consequences makes novel demands on communities and leaders and requires analysis and commitment beyond the time-frame of most politicians. History shows us that the HIV/AIDS pandemic is the quintessential long-wave event.

Because of the association of disease with marginalised populations, sexual transmission, and death, the initial years of the pandemic were characterised by widespread stigma, discrimination, and denial. White homosexual men accounted for 73% of cases of AIDS in the USA by September, 1985;¹⁵ the characterisation of the disease as

gay-related immunodeficiency disease (GRID) created a strong worldwide stigma that was fed by the existing moral beliefs and prejudice about gay sex in many countries, including those in Africa and the Caribbean, where the pandemic was smouldering. The widely circulated photos of wasting patients with AIDS in

	Number of people living with HIV (range)
Sub-Saharan Africa	
South Africa	5 700 000 (4 900 000–6 600 000)
Nigeria	2 600 000 (2 000 000–3 200 000)
Kenya	.. (1 500 000–2 000 000)
Mozambique	1 500 000 (1 300 000–1 700 000)
Tanzania	1 400 000 (1 300 000–1 500 000)
Zimbabwe	1 300 000 (1 200 000–1 400 000)
Zambia	1 100 000 (1 000 000–1 200 000)
Ethiopia	980 000 (880 000–1 100 000)
Uganda	940 000 (870 000–1 000 000)
Malawi	930 000 (860 000–1 000 000)
Cameroon	540 000 (430 000–640 000)
Côte d'Ivoire	480 000 (400 000–550 000)
Democratic Republic of the Congo	.. (400 000–500 000)
Botswana	300 000 (280 000–310 000)
Lesotho	270 000 (260 000–290 000)
Ghana	260 000 (230 000–290 000)
Chad	200 000 (130 000–240 000)
Namibia	200 000 (160 000–230 000)
Angola	190 000 (150 000–240 000)
Swaziland	190 000 (180 000–200 000)
Central African Republic	160 000 (150 000–170 000)
Rwanda	150 000 (130 000–170 000)
Burkina Faso	130 000 (110 000–160 000)
Togo	130 000 (110 000–150 000)
Burundi	110 000 (78 000–130 000)
Mali	100 000 (88 000–120 000)
Guinea	87 000 (73 000–110 000)
Congo	79 000 (65 000–94 000)
Senegal	67 000 (47 000–96 000)
Benin	64 000 (58 000–73 000)
Niger	60 000 (44 000–85 000)
Sierra Leone	55 000 (42 000–76 000)
Gabon	49 000 (37 000–68 000)
Eritrea	38 000 (25 000–58 000)
Liberia	35 000 (29 000–41 000)
Somalia	24 000 (13 000–45 000)
Djibouti	16 000 (12 000–19 000)
Guinea-Bissau	16 000 (11 000–23 000)
Madagascar	14 000 (9100–23 000)
Mauritania	14 000 (8300–26 000)
Mauritius	13 000 (7500–28 000)
Equatorial Guinea	11 000 (8200–14 000)
Gambia	8200 (3700–13 000)
Comoros	<200 (<1000)
(Continues in next column)	

	Number of people living with HIV (range)
(Continued from previous column)	
Oceania	
Papua New Guinea	54 000 (53 000–55 000)
Australia	18 000 (11 000–36 000)
New Zealand	1400 (<1000–2600)
Fiji	.. (<500)
Asia	
India	2 400 000 (1 800 000–3 200 000)
China	700 000 (450 000–1 000 000)
Thailand	610 000 (410 000–880 000)
Vietnam	290 000 (180 000–470 000)
Indonesia	270 000 (190 000–400 000)
Burma	240 000 (160 000–370 000)
Pakistan	96 000 (69 000–150 000)
Iran	86 000 (68 000–110 000)
Malaysia	80 000 (52 000–120 000)
Cambodia	75 000 (67 000–84 000)
Nepal	70 000 (50 000–99 000)
North Korea	14 000 (8100–22 000)
South Korea	13 000 (7500–42 000)
Bangladesh	12 000 (7700–19 000)
Japan	9600 (7900–10 000)
Philippines	8300 (6000–11 000)
Laos	5500 (3300–13 000)
Singapore	4200 (2600–7300)
Sri Lanka	3800 (2800–5100)
Mongolia	<1000 (1500)
Bhutan	<500 (<1000)
Afghanistan	..
Brunei	..
Maldives	..
Timor-Leste	..
Eastern Europe and central Asia	
Russia	940 000 (630 000–1 300 000)
Ukraine	440 000 (340 000–540 000)
Uzbekistan	16 000 (8100–45 000)
Romania	15 000 (12 000–16 000)
Belarus	13 000 (10 000–19 000)
Kazakhstan	12 000 (7000–29 000)
Latvia	10 000 (7400–15 000)
Tajikistan	10 000 (5000–23 000)
Estonia	9900 (5400–19 000)
Moldova	8900 (6000–15 000)
Azerbaijan	7800 (4700–16 000)
Kyrgyzstan	4200 (2300–7700)
(Continues on next page)	

Number of people living with HIV (range)	
(Continued from previous page)	
Georgia	2700 (1500–6100)
Armenia	2400 (1800–3500)
Lithuania	2200 (1200–4600)
Bosnia and Herzegovina	<500 (<1000)
Croatia	<500 (<1000)
Turkmenistan	<500 (<1000)
Bulgaria	..
Western and central Europe	
Italy	150 000 (110 000–210 000)
France	140 000 (78 000–240 000)
Spain	140 000 (80 000–230 000)
UK	77 000 (37 000–160 000)
Germany	53 000 (31 000–97 000)
Portugal	34 000 (20 000–63 000)
Switzerland	25 000 (14 000–43 000)
Poland	20 000 (11 000–34 000)
Netherlands	18 000 (10 000–32 000)
Belgium	15 000 (8900–29 000)
Greece	11 000 (6100–19 000)
Austria	9800 (7600–13 000)
Serbia	6400 (3900–12 000)
Sweden	6200 (3500–11 000)
Ireland	5500 (4100–7700)
Israel	5100 (2500–12 000)
Denmark	4800 (3700–6900)
Hungary	3300 (2000–5900)
Norway	3000 (1700–5000)
Finland	2400 (1400–4400)
Czech Republic	1500 (<1000–2800)
Slovenia	<500 (<1000)
Iceland	<500 (<1000)
Malta	<500 (<1000)
Slovakia	<500 (<1000)
Macedonia	<500 (<1000)
Albania	.. (<1000)
Luxembourg	.. (<1000)
Montenegro	..
North Africa and Middle East	
Sudan	320 000 (220 000–440 000)
Algeria	21 000 (11 000–43 000)
Morocco	21 000 (15 000–31 000)
Egypt	9200 (7200–13 000)
Tunisia	3700 (2700–5400)
Lebanon	3000 (1700–7200)
Turkey	<2000 (<5000)
Jordan	<1000 (<2000)
Kuwait	<1000 (<2000)
Bahrain	..
Cyprus	..
Iraq	..
(Continues in next column)	

Number of people living with HIV (range)	
(Continued from previous column)	
Libya	..
Oman	..
Qatar	..
Saudi Arabia	..
Syria	..
United Arab Emirates	..
Yemen	..
North America	
USA	1 200 000 (690 000–1 900 000)
Canada	73 000 (43 000–110 000)
Caribbean	
Haiti	120 000 (100 000–140 000)
Dominican Republic	62 000 (52 000–71 000)
Jamaica	27 000 (19 000–36 000)
Trinidad and Tobago	14 000 (9500–19 000)
Bahamas	6200 (4000–8700)
Cuba	6200 (3600–12 000)
Barbados	2200 (1500–3200)
Latin America	
Brazil	730 000 (600 000–890 000)
Mexico	200 000 (150 000–310 000)
Colombia	170 000 (110 000–230 000)
Argentina	120 000 (90 000–150 000)
Peru	76 000 (57 000–97 000)
Guatemala	59 000 (41 000–84 000)
El Salvador	35 000 (24 000–72 000)
Chile	31 000 (23 000–39 000)
Honduras	28 000 (18 000–44 000)
Ecuador	26 000 (15 000–40 000)
Paraguay	21 000 (12 000–38 000)
Panama	20 000 (16 000–26 000)
Guyana	13 000 (7600–18 000)
Uruguay	10 000 (5900–19 000)
Costa Rica	9700 (6100–15 000)
Bolivia	8100 (6500–11 000)
Nicaragua	7700 (5300–15 000)
Suriname	6800 (4200–12 000)
Belize	3600 (2200–5300)
Venezuela	..
..=no estimate.	
Table: Estimated number of people (children and adults) living with HIV, 2007^a	

Africa, dying from their “slim disease”, for which there was no cure, created a climate of fear and fuelled the mounting discrimination and denial about the disease. Many religious organisations, while compassionately caring for patients with HIV/AIDS, refused to promote condoms or provide sexual education to youth because they perceived this to encourage or condone promiscuity.

People living with AIDS and their care givers organised the initial collective responses to the disease. Not surprisingly, the USA (particularly individuals in San Francisco and New York City) was at the forefront of this movement, since AIDS cases in east and central Africa at the time were not easily recognised in poor communities coping with many endemic illnesses and malnutrition. In 1982, in San Francisco, the Bay Area Physicians for Human Rights (an association of gay and lesbian doctors) and several similar groups issued pamphlets with information about Kaposi's sarcoma—initially one of the most common symptoms of AIDS—including how to avoid infection with the as yet unidentified causal agent of AIDS.¹⁶ That year, two publications that are now seen as having invented so-called safe sex were issued: the pamphlet *Play Fair!*, produced by the activist group Sisters of Perpetual Indulgence,¹⁷ and *How to Have Sex in an Epidemic: One Approach*,¹⁸ which advocated condom use and self-empowerment and laid the foundation for a generation of prevention approaches to follow.¹⁹ By the end of 1982, a variety of informal efforts had coalesced into formal AIDS groups, including the Gay Men's Health Crisis in New York, and the Terry Higgins Trust (later the Terrence Higgins Trust), in London.

In 1983, on the sidelines of a lesbian and gay health conference in Denver, CO, a small group of people with AIDS from across the USA drafted the Denver principles,²⁰ widely recognised today as the foundation of the AIDS activist movement. The declaration condemned attempts to label people living with AIDS as victims, and recognised the central role of these individuals in prevention.²⁰ Activists who had met in Denver immediately began to organise local and national political groups of people living with HIV/AIDS, and continued to embrace prevention as well as treatment through a human rights approach. Within months, PWA New York had designed and distributed the first safe-sex poster, to appear in gay bathhouses.

By the middle of the 1980s, hundreds of community groups had been established, not only in urban USA and other western nations, but also in places as disparate as Brazil, Senegal, Uganda, and the Philippines, to provide care and support, invent and promote prevention strategies, and advocate for more action from scientists, doctors, and politicians. Drug users and their physicians established needle and syringe exchange programmes in the Netherlands and in Scotland. These early responses were almost exclusively from newly formed groups responding specifically to HIV/AIDS; most established health, development, social service, and faith organisations only became involved some years later.²¹

As the complacency and inaction of governmental authorities became increasingly evident, activism took on a life separate from community-based prevention campaigns and care provision. Notably, ACT UP was

established in New York in 1987, using the slogan “silence=death” and challenging not just governments but drug companies for inaction.²²

Panel 1: Estimates of the yearly number of new HIV infections and HIV incidence rate, 2005*

New cases per year

- 100 000 new cases a year or more—India, Mozambique, Nigeria, South Africa, Tanzania
- 50 000 to <100 000 new cases a year—China, Ethiopia, Kenya, Malawi, Russia, Ukraine, Zambia
- 10 000 to <50 000 new cases a year—Angola, Botswana, Brazil, Burma, Cameroon, Central African Republic, Chad, Colombia, Côte d'Ivoire, Democratic Republic of the Congo, Ghana, Indonesia, Lesotho, Mexico, Namibia, Pakistan, Sudan, Swaziland, Thailand, Uganda, USA, Vietnam, Zimbabwe
- 1000 to <10 000 new cases a year—Algeria, Argentina, Azerbaijan, Bangladesh, Belarus, Benin, Burkina Faso, Burundi, Canada, Chile, Congo, Djibouti, Dominican Republic, Ecuador, El Salvador, Eritrea, France, Gabon, Germany, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, Iran, Italy, Jamaica, Kazakhstan, Liberia, Madagascar, Malaysia, Mali, Mauritania, Mauritius, Morocco, Nepal, Niger, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Moldova, Rwanda, Senegal, Sierra Leone, Somalia, Spain, Tajikistan, Togo, UK, Uzbekistan
- <1000 new cases a year—Afghanistan, Armenia, Australia, Austria, Bahamas, Barbados, Belgium, Belize, Bhutan, Bolivia, Cambodia, Comoros, Costa Rica, Cuba, Czech Republic, Denmark, Egypt, Equatorial Guinea, Estonia, Fiji, Finland, Gambia, Georgia, Greece, Guyana, Hungary, Iceland, Ireland, Israel, Japan, Kyrgyzstan, Laos, Latvia, Lebanon, Lithuania, Luxembourg, Maldives, Malta, Mongolia, Netherlands, New Zealand, Nicaragua, North Korea, Norway, Poland, Portugal, Romania, Serbia, Singapore, South Korea, Sri Lanka, Suriname, Sweden, Switzerland, Timor-Leste, Trinidad and Tobago, Tunisia, Uruguay

Incidence

- Incidence of 2% or more—Lesotho, Swaziland
- Incidence of 1.00% to <2.00%—Botswana, Malawi, Mozambique, Namibia, South Africa, Zambia
- Incidence of 0.30% to <1.00%—Cameroon, Central African Republic, Chad, Congo, Djibouti, Equatorial Guinea, Gabon, Kenya, Mauritius, Nigeria, Suriname, Togo, Uganda, Tanzania, Zimbabwe
- Incidence of 0.20% to <0.30%—Angola, Belize, Côte d'Ivoire, Ethiopia, Guinea, Guyana, Haiti, Liberia, Papua New Guinea, Rwanda, Sierra Leone, Ukraine
- Incidence of 0.10% to <0.20%—Bahamas, Benin, Burkina Faso, Burundi, Democratic Republic of the Congo, Eritrea, Ghana, Guinea-Bissau, Jamaica, Mali, Russia, Senegal, Sudan, Thailand, Trinidad and Tobago
- Incidence of <0.10%—Afghanistan, Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Bangladesh, Barbados, Belarus, Belgium, Bhutan, Bolivia, Brazil, Burma, Cambodia, Canada, Chile, China, Colombia, Comoros, Costa Rica, Cuba, Czech Republic, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, Estonia, Fiji, Finland, France, Gambia, Georgia, Germany, Greece, Guatemala, Honduras, Hungary, Iceland, India, Indonesia, Iran, Ireland, Israel, Italy, Japan, Kazakhstan, Kyrgyzstan, Laos, Latvia, Lebanon, Lithuania, Luxembourg, Madagascar, Malaysia, Maldives, Malta, Mauritania, Mexico, Mongolia, Morocco, Nepal, Netherlands, New Zealand, Nicaragua, Niger, North Korea, Norway, Pakistan, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Moldova, Romania, Serbia, Singapore, Somalia, Spain, Sri Lanka, South Korea, Sweden, Switzerland, Tajikistan, Timor-Leste, Tunisia, UK, USA, Uruguay, Uzbekistan, Vietnam

These data are derived with methods and data sources that were also used to produce the latest estimates of HIV prevalence and other epidemiological indicators in the 2008 UNAIDS report. Given the uncertainty in these estimates, it is possible that any given country belongs in the neighbouring category.

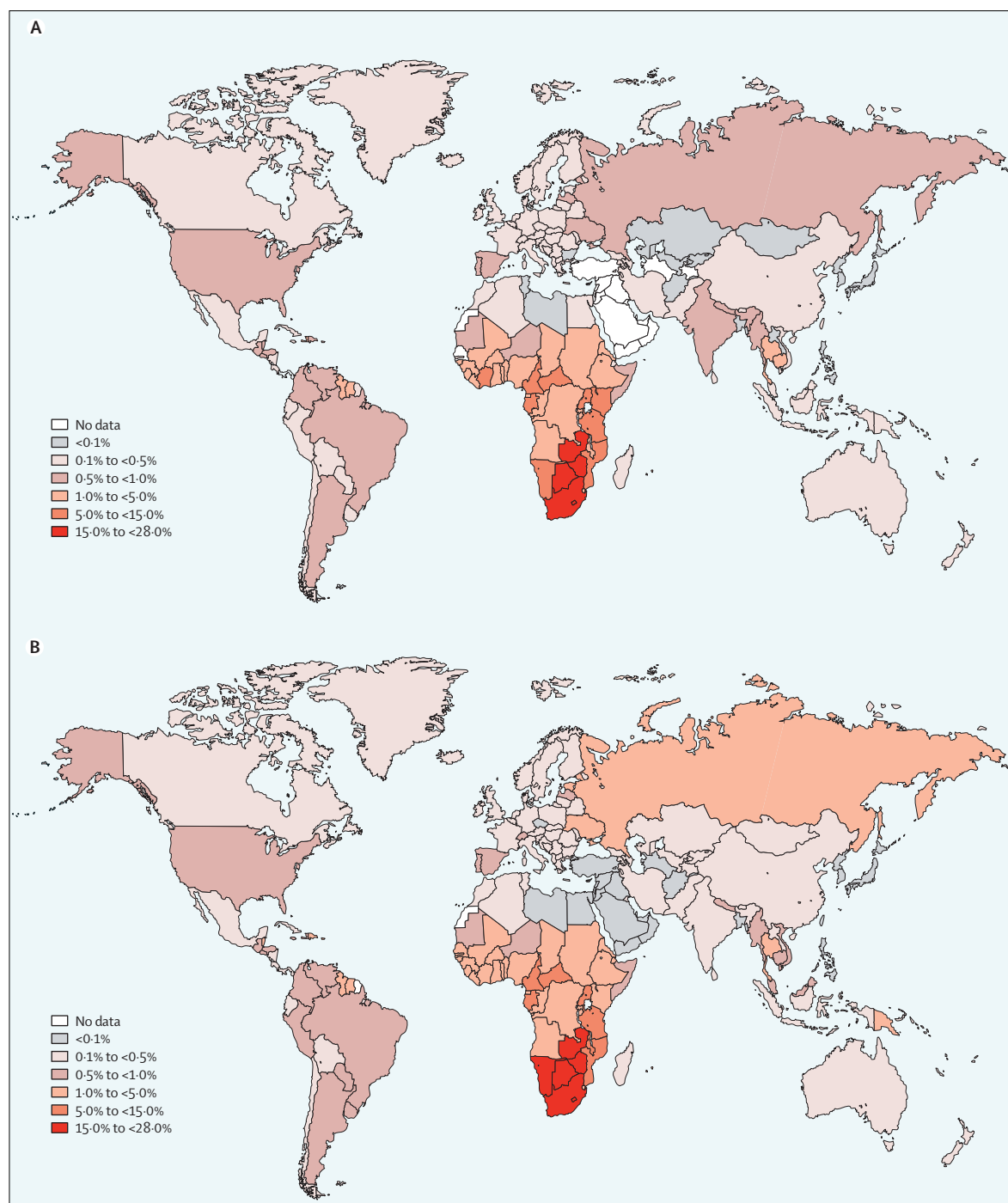


Figure 1: HIV prevalence in individuals aged 15–49 years
(A) In 2001 and (B) in 2007. Reproduced from UNAIDS.¹

Mistakenly underestimating the pandemic's rapid spread,²³ it was not until early the same year that WHO finally launched the Special Programme on AIDS (later the Global Programme on AIDS; GPA) in 1987 to "direct and coordinate the global response to the pandemic".²⁴ The programme's first director was the late Jonathan

Mann, an articulate, passionate physician who came to WHO from Zaire (now Democratic Republic of the Congo) where he had confronted the pandemic first-hand. GPA promptly formulated a global HIV/AIDS strategy, which helped to mobilise countries by providing a practical framework to encourage common policies, a vision of

what was required to confront the pandemic, and a metaphor for global solidarity that was much needed at the time.²⁴ In November, 1988, a global summit of health ministers in London endorsed a worldwide effort to confront the pandemic.²⁵ The programme operated largely outside the organisation's regional and country office structure, and within 3 years under Mann's leadership, GPA became the largest programme in WHO's history.

Mann raised global awareness of the pandemic's potential and gained respect for his courage to demand a human rights-based response to the pandemic.²⁶ He recognised and reached out to activist and community groups, working closely for the first time in WHO's history with non-governmental organisations (NGOs) and networks of people living with HIV/AIDS, even as many of these groups were challenging and criticising WHO's member states. GPA embraced and built on the activist language of human rights and community mobilisation. Many transnational community and activist networks emerged and formed unlikely alliances with UN programmes and officials. GPA supported a broad range of prevention strategies, ranging from individual behaviour change in high-risk populations to societal or structural interventions that protect those at risk of, and vulnerable to, HIV infection. Condom promotion, sex education in schools, simplified treatment of other sexually transmitted diseases, and syringe exchange programmes were widely promoted.²⁷ Efforts to improve blood safety substantially decreased this transmission route for the virus worldwide.

During the same years, several foundations, bilateral donor agencies, and international NGOs launched efforts to tackle HIV/AIDS that focused specifically on developing countries. In 1986, the American Foundation for AIDS Research (AmFAR) funded Family Health International (FHI) to launch pilot HIV prevention activities in Cameroon, Ghana, and Mali. Following the tradition of its work in population and reproductive health, HIV prevention efforts funded by the US government in these years tended to be designed by public-health experts and implemented by US-based non-profit organisations and their local subcontractors. In 1987, USAID funded FHI's AIDSTECH project and two related initiatives, the Academy for Educational Development's AIDSCOM project and Population Services International's first condom social marketing campaign for HIV prevention, which took place in Zaire.

By contrast with the American government's approach, a number of more modest funders identified and supported local activists to develop their own prevention and care strategies, responses, and organisations. Brazil's middle-class gay community self-financed many organisational responses, while its government avoided programmes that focused on marginalised populations. Likewise in Thailand, locally financed groups already active in supporting sex worker organisation and rights, such as EMPOWER, quickly began to add HIV prevention and AIDS care to their agendas. In Uganda, Action Aid

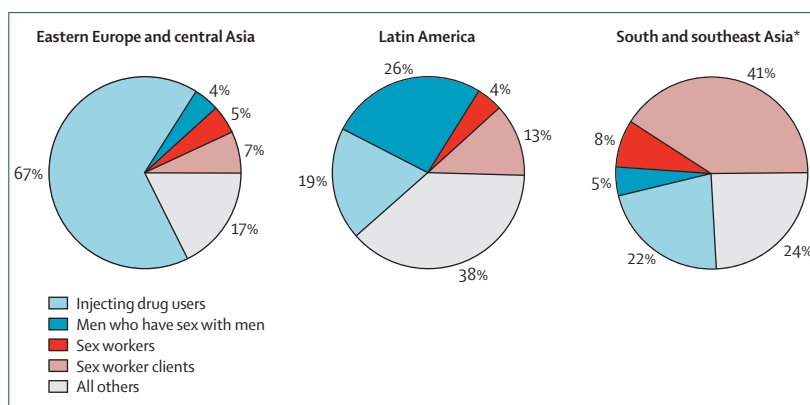


Figure 2: Prevalent HIV infections in different population groups, selected regions, in 2005

Data for Africa are forthcoming. *India omitted since the scale of the HIV epidemic there, largely spread by heterosexual individuals, masks the extent to which other at-risk populations feature in the epidemics in this region. Adapted from reference 10.

Panel 2: Social and community structures and systems and vulnerability to HIV/AIDS

There is increasing evidence that different kinds of community structures and systems make populations more or less vulnerable to HIV/AIDS, independent of exposure to HIV prevention interventions and relative wealth. A study of over 6000 female sex workers in Andhra Pradesh found that lack of knowledge on how HIV transmission could be prevented had the strongest association with inconsistent or no condom use, showing clearly that even basic HIV awareness programmes have had inadequate reach.¹¹ Beyond basic awareness, however, education levels or income were not the most important determinants of vulnerability. Instead, sex workers who did not participate in any support group were four times more likely to report inconsistent condom use; those who could not count on social support from peers for financial and medical emergencies had a two to three times higher risk. Similar but less dramatic associations were found in a linked study of over 6000 men who had sex with men in the state.¹¹ These findings have been echoed in other studies of sex worker populations, including in Rio de Janeiro and Calcutta.¹²

Community structures and systems affect epidemics in Africa as well. A study in Zimbabwe of over 2000 women aged 15–24 years found that membership of groups that were poorly functioning community groups was associated with increased rates of HIV infection, while membership of well-functioning groups was associated with reduced rates. Membership in well-run youth groups had the strongest protective effects, since it was associated with greater HIV knowledge, enhanced sense of personal vulnerability, greater self-efficacy, and increased chance of having avoided HIV infection, whereas participation in political parties, burial societies, or savings clubs showed negative effects and was associated with low self-efficacy. Additionally, young women who reported participating in poorly functioning community groups were less likely to be infected with HIV than were those who were not in any group.¹³

Uganda (a UK-based international NGO) was a pioneer in fostering and funding independent community groups, most notably The AIDS Service Organisation (TASO). In India, the Ford Foundation began funding a wide range of activists and small community groups to experiment with different approaches to HIV prevention and AIDS care. In Zimbabwe, the Canadian government supported an umbrella programme of NGO support for HIV projects. France and the Netherlands likewise began supporting emerging HIV/AIDS groups in a number of developing countries.

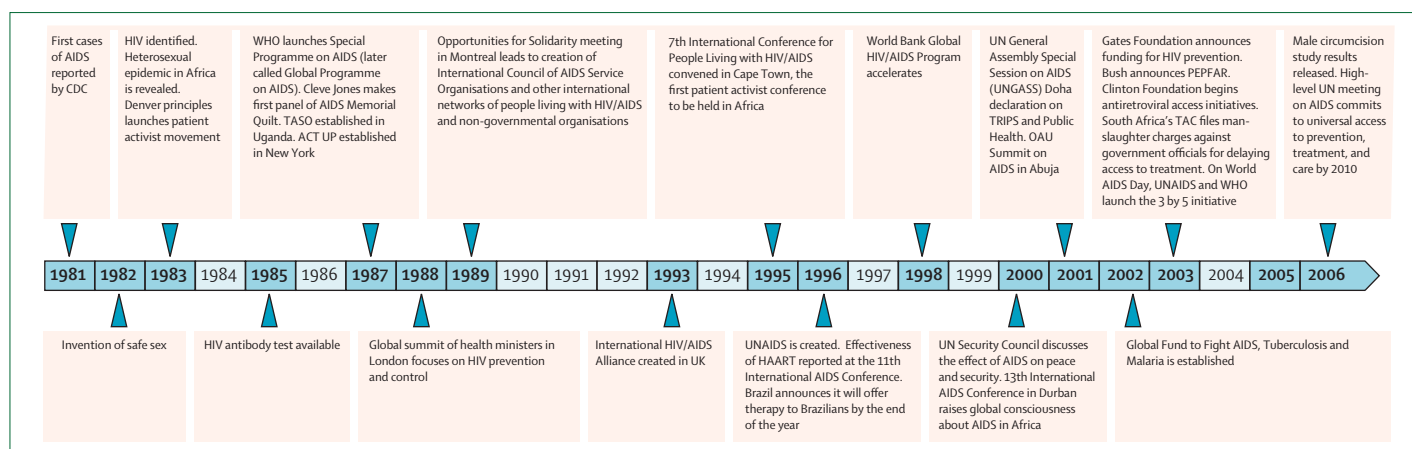


Figure 3: Some critical events in the global response to HIV/AIDS

Both the top-down USAID approach and the bottom-up approach of many other donors had successes and limitations: top-down approaches proved adept at packaging and branding replicable strategies like behaviour change communication and social marketing, while bottom-up approaches supported more local innovation and ownership. What is striking, however, is how uneven NGO and community responses were around the world, whether top-down or bottom-up, and how little the scale of the epidemic seemed to be related to the scale of the response. Variations in national political cultures and priorities provide some explanation. The French Government's AIDES initiative was created and intimately inter-linked with the French political and intellectual establishment; it expanded with government funding throughout the country, while wealthy English-speaking countries saw a proliferation of disparate organisations in different cities and even neighbourhoods. Brazil, the Philippines, and some other countries benefited from the fact that some of those first affected by HIV/AIDS, like Brazil's Herbert Daniel, were committed activists at the heart of still vibrant civil society movements for democracy, with access to the necessary resources. Early responses in India and Zimbabwe were generated by crusading journalists and upper-middle-class charity. In South Africa, the lack of attention to HIV/AIDS in the 1980s and early 1990s is often explained by the overwhelming focus on fighting apartheid and building a new nation. Additionally, socioeconomic factors, especially those related to wealth, influenced community responses (panel 3).

By the early 1990s, with resources from GPA and an increasing number of donor governments, almost all developing countries established national HIV/AIDS control programmes. Although many of these first generation government programmes were rightly criticised for lacking national ownership and for being ineffective, a small but substantial number achieved notable success at either reversing their epidemics (eg, Thailand,^{10,41} Uganda⁴¹) or preventing them from

becoming severe (Senegal,⁴¹ Brazil⁴²). The countries that achieved early success in prevention benefited from high-level political leadership that either actively encouraged or actively built upon their community responses. Intriguingly, in Thailand and Uganda, where the earliest civil society responses were independent of—and to some degree critical towards—the state, it was military governments that took such criticism seriously, accepting advice from technocrats in health ministries, and quickly establishing initiatives to actively support the expansion of civil society responses.⁴³ Another important success of this period was the creation of a global discourse around sexual behaviour and subsequent research,⁴⁴ which received support from a number of agencies, foundations, and governments.

Despite its achievements, GPA was unable to muster the political will required to mount the necessary response in affected and donor countries, in part because of its inability to get national leaders to sufficiently engage in the delicate issues inextricably linked to HIV transmission; in addition, serious tensions among UN agencies and HIV/AIDS experts—which still exist today—regarding the relative priority that should be given to different strategic approaches to HIV prevention also had a role. Some individuals felt that HIV/AIDS should be tackled primarily as a public-health problem with an emphasis on shorter term, behavioural interventions such as condom promotion and social marketing, sex education of youth in and out of school, voluntary testing and counselling, and treatment of sexually transmitted diseases. Others believed that the pandemic could best be controlled with a longer-term development approach that addressed structural determinants that increase vulnerability to HIV infection, such as gender, human rights, poverty and overall community development. This dichotomy of views impeded the ability of the UN agencies and bilateral donors to harmonise their efforts at the country level and served to polarise the HIV/AIDS community. There was also growing concern about the senior leadership of WHO

among donor governments, who reacted to the re-election of Hiroshi Nakajima to a second term as Director General by decreasing their overall support and voluntary contributions to WHO, calling for organisational reform, and devising new health-related initiatives outside the agency's influence or control.⁴⁵

Lost momentum and breakthrough science

On Jan 1, 1996, only 8 years after it was established, GPA was closed down and replaced by the Joint UN Programme on HIV/AIDS (UNAIDS), initially co-sponsored by six UN agencies (now ten), with a mandate to lead an expanded, coordinated, multisectoral global response. This change was driven largely by donor countries, although it was endorsed by a broad cross-section of UN member states and supported by many civil society groups. Three explicit justifications are often cited for this radical change in the global architecture of multilateral support for HIV work. The first was criticism of WHO's senior leadership, its perceived lack of effectiveness in supporting HIV prevention programmes at the country level because of its regional structure (particularly in sub-Saharan Africa), and its difficulty in working beyond its traditional ministry of health clients. The second was the desire for stronger coordination among the UN agencies, and for a true test of the overall UN reform movement that was underway at the time, which sought to make the UN more efficient and enhance the coordinating authority of the Economic and Social Councils. The third was the belief that the creation of UNAIDS was the best means of establishing an expanded, truly multisectoral response that included support for public-health interventions as well as programmes that addressed structural determinants.

Additionally, the mid-1990s was a time of declining development assistance overall. A number of donor governments abolished their stand-alone HIV/AIDS departments and budgets and integrated them into broader sexual and reproductive health budgets after the 1995 Cairo conference on population and development (one notable exception was the USA).⁴⁶ The hope of many donors was that a slimmer and more efficient UNAIDS, which emphasised coordination rather than direct financial support to countries, would require less funding than GPA. In turn, this would allow them to provide more of their resources to governments through bilateral rather than multilateral channels, which they had been developing during the first half of the 1990s.

The early years for UNAIDS were challenging. The organisation had assumed a more complex mandate than that of GPA, with an explicit commitment to multisectoral and multiagency approaches, and faced the challenge of creating a new organisational structure with a smaller operating budget than GPA had had at its peak. Resolving strategic conflicts and improving coordination between UN partners proved difficult, particularly since none of them was wholly committed to a joint programme, fearing that it would undermine their independent

efforts. UNAIDS even found itself at times in competition with its co-sponsors. For example, the first UNAIDS strategic plan was largely written by the secretariat without co-sponsor involvement and the initial attempts at joint funding appeals were viewed largely as failures.⁴⁷ At the country level, UN theme groups (the primary country coordinating mechanism used by UNAIDS over its first 5 years), had difficulties getting started, in great part because the country-based staff of the UN co-sponsors did not feel accountability, or receive credit, for their success. Moreover, donor governments did not maintain the pressure they had applied on the co-sponsors during the formative stage of UNAIDS to work together to build the new joint programme. Their diminished contributions led to a decrease in direct financial support for staffing and programmes at the country level. GPA had provided US\$29 million to national HIV/AIDS control programmes during the 1994 and 1995, but UNAIDS was unable to continue this support because of financial constraints.

Panel 3: Socioeconomic status and community responses

Many communities that first generated spontaneous and effective responses combined relative prosperity with traditions of political power or political activism. In many parts of Africa, for example, women of high socioeconomic status—wives and partners of mobile men with money—were as likely to be infected with HIV in the first two decades of the pandemic as low-income, illiterate women.^{28–32} In countries like the USA, white and relatively prosperous gay men were disproportionately affected in the early years of the pandemic.^{33,34} These communities had political skills and access to funding, and used both community self-help and political advocacy to generate successful responses.

However, the effect of the pandemic, and thus the potential for strong community responses, changed markedly over time. In many countries in Asia and Africa, lower income and less literate women were increasingly likely to be infected with HIV when compared with wealthier and better educated peers.³¹ A similar trend occurred in wealthier countries. In the USA, by 2005, African-Americans accounted for 49% of new HIV/AIDS diagnoses in the 33 states with confidential name-based HIV reporting, despite making up only 13% of the American population. Hispanic individuals accounted for a further 18% of new diagnoses in the same states.^{35,36} In both rich and poor countries, lower income and more marginalised populations were less likely to have been exposed to or to have participated in HIV prevention programmes in the 1980s and 1990s, which provides some explanation for the shifting epidemiology. The increasing effect of HIV on these populations is consistent with the association between socioeconomic status and health seen for many other health issues,^{37–40} independent of exposure to health promotion interventions. At the same time, these less prosperous populations had fewer financial or political reserves to organise either self-help responses or to make claims on governments.

Faced with this challenging environment, UNAIDS eventually hired the needed staff, prepared a strategic plan and budgets, formulated a resource mobilisation strategy, demonstrated the value of its crucial advocacy, normative, and coordination functions, and, as the 1990s drew to an end, was better able to assume its role as the multilateral leader of the global response.⁴⁸ Nonetheless, the pandemic expanded dramatically in many countries between 1995 and 1999, when both multilateral and bilateral technical assistance were in the throes of substantial restructuring and international and donor support for HIV prevention efforts were diminishing.

While the programmatic and development assistance response to HIV faltered in the mid to late 1990s, investments and returns in science were more impressive, although still uneven. The most dramatic gains were seen in treatment, rather than prevention, most notably the studies that reported on the effectiveness of highly active antiretroviral therapy (HAART) at the 11th International AIDS Conference in Vancouver in 1996, which led David Ho and others to predict that HIV could be cured after a few years of treatment.⁴⁹ Although early pronouncements predicting the quick discovery of an HIV vaccine⁵⁰ were to prove unfounded, the International AIDS Vaccine Initiative (IAVI) was established in 1998 to encourage the pharmaceutical and biotech industry to invest in vaccine development.⁵¹ Research also began in earnest to support development and testing of potential vaginal microbicides to provide women with a means to protect themselves from being infected by their partners. Although progress on both HIV vaccines and microbicides has subsequently proven elusive,^{52–54} a key milestone in prevention was achieved in 1998, when it was shown that short course antiretroviral therapy before delivery was highly effective in preventing perinatal transmission of the virus to newborn children.⁵⁵

The late 1990s were a challenging period for activists and communities as well. The advent of HAART and the optimism around vaccine development at the time risked breaking down the solidarity that had existed between people living with HIV/AIDS in wealthy countries and those in the developing world. Facing this challenge, Jon Gates, the first coordinator of Canada's Interagency Coalition on AIDS and Development and himself living with HIV/AIDS, made a dramatic speech captured on film in which he pledged to not use the new therapies until they were equally available to the poor around the world.⁵⁶ He also underlined that successful treatment access could only be achieved in parallel with successful prevention. Although Gates died of AIDS soon afterwards, his pledge was echoed by Zackie Achmat, a co-founder in 1998 of South Africa's Treatment Action Campaign (TAC). Achmat's personal pledge, the legitimacy of TAC's roots in the anti-apartheid struggle, and the passion of the cause helped TAC create Africa's first HIV/AIDS activist movement, as distinct from the many community service and support groups established before and since. Laying the foundation for a

reinvigorated HIV/AIDS movement after the turn of the millennium, TAC now campaigns both "for treatment for people with HIV and to reduce new HIV infections".

A multisectoral, accelerated response

Around the turn of the millennium, four key developments inspired a new receptivity to tackling HIV prevention. First, the World Bank, acknowledging the threat HIV posed to development, increased its HIV/AIDS-related commitments from \$500 million in 1998 to almost \$4 billion today, much of it for sub-Saharan Africa.⁵⁷ Second, the spread of HIV into Russia, China, and India prompted concern that HIV/AIDS could destabilise global political and economic systems beyond sub-Saharan Africa, in turn threatening global security. Notably, unlike the activist-driven calls for safe sex in the 1980s and treatment access in the 1990s, the linking of HIV/AIDS to development and to security was driven mainly by technical analyses and political strategists. Third, in 2000, the 13th International AIDS Conference in Durban, South Africa, raised global public consciousness about Africa's upward-spiralling AIDS-related mortality and the need for accessible, affordable antiretroviral drugs. This event took place after 4 years of treatment activism that followed the discovery of HAART and was led by an increasingly sophisticated and diverse group of community partners and researchers. Soon after the conference, generic producers made these drugs available at much lower costs and pharmaceutical companies dropped the price of brand-name products, while the Doha declaration permitted broader access to them.⁵⁸ Lastly, politically powerful religious groups, particularly in the USA, many of whom worked in sub-Saharan Africa, embraced the need for global treatment, largely to reduce the numbers of children being orphaned by HIV/AIDS.

The availability of effective treatment, and the recognition that HIV/AIDS had both development and security implications, brought about a renewed commitment to HIV prevention and a sharp increase in financial resources. In January, 2000, the UN Security Council debated the security implications of the HIV/AIDS pandemic, representing the first time a health issue had ever been discussed on its agenda.⁵⁹ 18 months later, UN Secretary-General Kofi Annan convened a UN General Assembly Special Session on HIV/AIDS (UNGASS) where political leaders from 180 governments adopted a declaration of commitment that set programme targets for affected countries and funding levels for donor governments.⁶⁰ Soon thereafter, the Global Fund to Fight AIDS, Tuberculosis and Malaria was established to provide money for country-owned initiatives.⁶¹ As of April, 2008, the fund had committed \$10.1 billion to 136 countries, 61% of it for HIV/AIDS programmes.⁶²

In January, 2003, the US government announced the President's Emergency Plan for AIDS Relief (PEPFAR), through which it pledged \$15 billion over a period of 5 years to prevention, treatment, and care, with a focus

For more on TAC see <http://www.tac.org.za/community/>

on 15 countries that were home to 80% of all people requiring treatment. Although its prevention efforts have been of limited success, in great part because of its adoption of a naively simplified ABC—abstinence, be faithful, condom—approach, the programme has helped to provide antiretroviral treatment to 1·4 million individuals, community outreach activities to 61·5 million people, and mother-to-child transmission services to women during 10 million pregnancies.⁶³

Many European governments have also increased their support to national and global HIV prevention efforts.⁶⁴ For example, the UK Government has provided resources to countries in Africa and south Asia as well as to IAVI and the International Partnership of Microbicides.⁶⁵ Additionally, other organisations have stepped up their support for prevention. For example, the Bill & Melinda Gates Foundation has established a project that is expanding access to effective HIV prevention in six highly vulnerable states in India⁶⁶ and has teamed up with the Merck Company Foundation and Merck and Co to provide considerable resources to Botswana's national treatment and prevention response to HIV/AIDS.

As a consequence of increased political and financial support, prevention successes have been reported in Cambodia, Kenya, Zambia, Zimbabwe, India, and Haiti after sizeable shifts in sexual behaviour.⁶⁷ These successes, like those seen 10 years earlier,^{15–18} show that barriers to scaled-up prevention efforts can be overcome through evidence-informed action and that successful prevention requires concerted community responses.

HIV prevention: the way forward

Despite mounting evidence that available behavioural strategies are effective, the sad truth is that global prevention efforts remain woefully insufficient, as reflected by the fact that key prevention services currently reach less than 10% of individuals at risk worldwide. Expansion of these services could avert more than half the HIV infections projected to occur by 2015 and save \$24 billion in treatment costs.⁶⁷ On the basis of recent evidence of the effectiveness of male circumcision,^{68–70} it is estimated that 70% coverage by male circumcision services could prevent another 700 000 cumulative infections in sub-Saharan Africa through 2015 (Stover J, Futures Institute; personal communication). Moreover, while there has been an increase of more than ten times over the past 5 years in the number of people placed on antiretroviral drugs, we cannot treat our way out of this pandemic. For every two patients placed on antiretroviral drugs during 2007, five new HIV infections occurred.⁷¹ A renewed and revitalised movement for HIV prevention is now required.

Expansion of prevention services will naturally require substantial resources. In 2007 alone, some \$10 billion was spent on HIV/AIDS—about 40 times as much as much as spent at the creation of UNAIDS.⁷² The UN World Summit in 2006 embraced the goal of implementing “a package for HIV prevention, treatment

and care, with the aim of as close as possible to universal access by 2010”.^{67,73} Such a package was estimated to require \$42·2 billion in 2010, 36% of which would be for prevention.⁷² The recent UNAIDS estimates for HIV incidence and prevalence² suggest that the gap between required and available resources will be less than previously thought, but will probably still be substantial and could impede progress in prevention.

Resources alone are not enough. Successful prevention requires knowledge of the nature of the epidemic in individual countries, as well as community and country contexts. Broader socioeconomic and cultural factors (eg, poverty, human rights, religion) that affect the spread of the virus must be addressed, but our early assumptions about their interactions have been too simplistic and need to be better understood. Although some individual communities have responded effectively on their own, all national-level successes have been associated with government (often inter-governmental) leadership and community activism. Such leadership and activism is particularly important for sustaining and renewing responses, especially among populations, such as injecting drug users and men who have sex with men, who continue to face stigma and discrimination and, as a consequence, lack access to prevention services. They are also essential for achieving a truly multisectoral response of the type that occurred in countries with early prevention success (eg, Uganda, Thailand) and remains a great challenge for many nations.

Combination prevention—ie, a combination of behavioural, structural, and biomedical prevention paradigms and approaches^{74–76} adapted and prioritised to specific contexts and based on scientifically derived evidence and bottom-up wisdom and ownership of local communities—offers the best hope for success in prevention.⁷⁷ To achieve this will involve building synergies between prevention, care, and treatment. Treatment programmes, by increasing demand for HIV testing, can enhance prevention, provided such measures minimise the high-risk sexual behaviour that can result from the availability of antiretroviral drugs. Combination prevention also requires sound management principles to be applied to the delivery of prevention programmes, which has only been given due attention since the start of the Global Fund.⁷⁸

Over the past 25 years, dominant discourses about HIV/AIDS have come variously from activists and from specialists. Today, a discourse around HIV/AIDS and health systems is especially visible, with various protagonists suggesting that the HIV/AIDS response is either essential or inimical to broader goals of health system strengthening and health equity. There are, however, hopeful signs of an emerging consensus that investments in HIV prevention should be combined with those seeking to strengthen the overall health system, as evidenced by the recent commitment of the UK Government to provide £6 billion to strengthen health

For more on efforts in Botswana see <http://www.achap.org>

systems and services in poor countries up to 2015.⁷⁹ Such strengthening means supporting diagonal, rather than vertical or horizontal programming.^{80,81}

Together with the strengthening of health systems, a key lesson to be learnt from successful responses to HIV/AIDS is the importance of system strengthening for health. We need not only more managers, public-health experts, physicians, and nurses, but also a new cadre of community

workers whose education is rooted in community development, gender equity, human rights, and public health, and who will be equally powerful in the promotion of hygiene, sanitation, and use of bednets as they are in the generation of a community response to HIV prevention. Alongside focused HIV/AIDS responses, we will need to develop links and common cause with other human rights and development priorities that will make HIV prevention possible: universal access to quality education, economic opportunities for women, an empowered citizenry that can hold governments to account, and human rights for the most marginalised. The net benefit of such an approach is likely to be substantial, especially for those communities that are traumatised by poverty, structural violence, and the inter-generational effects of HIV/AIDS.

With millions of people on treatment and the incidence of HIV infection falling in places, many involved in public health and public policy are calling for a shift of attention from HIV to other diseases. Combined with falling media coverage of HIV/AIDS,⁸² there is concern that the current level of investment in HIV prevention worldwide could soon start to decline rather than increase to meet estimated needs. While debate about the relative priority of HIV prevention and other public-health interventions is important, overall investment in HIV prevention remains dramatically suboptimal almost everywhere in the world.⁷⁸ Today, HIV-related expenses make up a mere 1·4% of all health expenditures in countries of low and middle income.⁷⁰

Research must also remain high on the prevention agenda. Efforts toward development of a preventive HIV vaccine and microbicide are continuing with support from the Bill & Melinda Gates Foundation and the US National Institutes of Health,^{54,69,83,84} but we must not be led astray by the promise of a technological fix to the pandemic, since one is not likely to be found in the near future. There are other promising prevention technologies that are likely to be available within a few years, including vaccines to reduce or prevent drug dependency, improved diagnostic tools for sexually transmitted diseases, including HIV, and better barrier methods. Just as increased choice of contraceptive methods increases use of contraception overall, each new HIV prevention technology will become an important additional tool for those at risk of HIV infection and for national prevention programmes and will require efforts to ensure successful introduction.

Even more urgently, there is a need for reliable evidence-based research to better guide the selection of available behavioural and structural interventions in specific areas or populations. The lack of such evidence and contextual data to tailor specific interventions is reprehensible, particularly in view of the large amount of resources that have been invested to date in HIV prevention efforts, and hinders policy makers' ability to make informed decisions on prevention priorities.⁸⁵ We also require new and innovative ways to obtain, understand, and weigh different kinds of evidence on the

Panel 4: Indicators for UNGASS 2008 reporting

- 1 Domestic and international AIDS spending by categories and financing sources
- 2 National composite policy index
- 3 Percentage of donated blood units screened for HIV in a quality assured manner
- 4 Percentage of adults and children with advanced HIV infection receiving antiretroviral therapy
- 5 Percentage of HIV-positive pregnant women who receive antiretroviral drugs to reduce the risk of mother-to-child transmission
- 6 Percentage of estimated HIV-positive incident cases of tuberculosis that received treatment for tuberculosis and HIV
- 7 Percentage of women and men aged 15–49 years who received an HIV test in the last 12 months and who know their results
- 8 Percentage of most-at-risk populations who received an HIV test in the last 12 months and who know their results
- 9 Percentage of most-at-risk populations reached with HIV prevention programmes
- 10 Percentage of orphans and vulnerable children aged 0–17 years whose households received free basic external support in caring for the child
- 11 Percentage of schools that provided life skills-based HIV education within the last academic year
- 12 Current school attendance among orphans and among non-orphans aged 10–14 years
- 13 Percentage of young women and men aged 15–24 years who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission
- 14 Percentage of most-at-risk populations who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission
- 15 Percentage of young women and men aged 15–24 years who have had sexual intercourse before the age of 15 years
- 16 Percentage of adults aged 15–49 years who have had sexual intercourse with more than one partner in the last 12 months
- 17 Percentage of women and men aged 15–49 years who have had more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse
- 18 Percentage of female and male sex workers reporting the use of a condom with their most recent client
- 19 Percentage of men reporting the use of a condom the last time they had anal sex with a male partner
- 20 Percentage of injecting drug users reporting the use of a condom the last time they had sexual intercourse
- 21 Percentage of injecting drug users reporting the use of sterile injecting equipment the last time they injected
- 22 Percentage of young women and men aged 15–24 years who are HIV infected
- 23 Percentage of most-at-risk populations who are HIV infected
- 24 Percentage of adults and children with HIV still alive and known to be on treatment 12 months after initiation of antiretroviral therapy
- 25 Percentage of infants born to HIV-infected mothers who are infected

outcome of prevention efforts. Clearly, such knowledge generation must be given higher priority.

HIV prevention must remain one of the world's top priority health and development priorities—now and for a generation to come. The mistakes of the mid-1990s, when HIV/AIDS slipped down the political agenda and the pandemic greatly expanded, must not be repeated. This year the UN General Assembly made refinements to the core indicators agreed on by countries in 2001 to monitor the progress towards achieving universal access to prevention, treatment, and care in 2010 and eventually in reaching the Millennium Development Goal of halting the spread of HIV/AIDS by 2015 (panel 4).⁸⁶ An additional 15 indicators for monitoring programmes have also been proposed by major bilateral and multilateral agencies for use at the national level. International coordination will be required, with donors aligning their assistance toward supporting robust, nationally led prevention strategies, policies, and plans.⁸⁷ The lessons we have learned over the past 25 years should be used to provide the foundation on which to build comprehensive, sustainable, nationally owned responses that are vital to the ultimate control of this pandemic.⁸⁸

Conflict of interest statement

We declare that we have no conflict of interest.

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