Reflections on AIDS, 1981–2031

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Unfortunately, for many of us, the sense of déjà vu about the progress of the AIDS epidemic is all too clear. Reports at this conference on the staggering toll of HIV and the growing impact in more and more countries have an all-too-familiar ring. Haven't we heard these stories repeatedly before? The resurgence of activism during this past year is welcome. Just as past AIDS activism played a crucial role in accelerating drug development and access in the United States and other countries, so also activism around access to care worldwide brings needed attention to the global epidemic. *Silence does equal death!*

And worldwide silence about sexual behavior and drug use has been the death of prevention so far. After 21 years and over 60 million people infected with HIV through sexual contact or use of contaminated drug-use equipment, the world still cannot speak with one voice on HIV prevention. Government scientists in the United States remain hampered by politicians from promoting the efficacy of condoms and the provision of sterile needles and syringes. The president of South Africa openly questions the cause of AIDS, let alone how it is transmitted. Hundreds of millions of Chinese citizens seem to remain unaware that HIV exists as the virus invades their nation.

Government officials and politicians who deny the cause of AIDS or hamper the spread of life-saving information on the effectiveness of condoms and sterile needles are the 21st-century equivalent of the tobacco companies who denied that smoking causes cancer.

Ten million more people have been infected with HIV since the XIII International AIDS Conference in Durban in 2000. After 21 years of the HIV revolution, the virus is clearly winning the battle. This truth and my fear for the future make me angry about the lack of progress worldwide on prevention and about the denial, stigma, and abject poverty behind it.

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Lessons from the First 2 Decades of AIDS

With that in mind, let us look back at some lessons from the first 2 decades and think ahead to 2031, which will be the 50th anniversary of the reports of the first cases of AIDS in the United States.

The first lesson is that all of us tend to underestimate HIV. In the United States, our initial projections of cases and infections frequently needed revision. So also last week, UNAIDS announced an upward revision of its already grim projections.[1] In part, this underestimation is due to an innate inability to predict the future course, but the consistent predictions on the low side imply a form of denial even among us grim predictors, that is, an unwillingness to confront the future potential impact of hundreds of millions of HIV-infected persons in our own lifetimes. The term "natural leveling off" of HIV prevalence perpetuates this underestimation and represents premature acceptance of the worst of possible futures and high endemicity. If current worldwide HIV incidence "levels off" at the UNAIDS estimates of >5 million new infections per year, then is it our fate to count >200 million total infections within just 50 years of the first case reports? Why must this be if three quarters of these infections have yet to occur and most of those to be infected have yet to be born? We know the modes of transmission and how to prevent the spread of HIV. Are all of us part of the problem due to our own skepticism about the likelihood of the revolutionary changes needed to reverse these trends?

In this era, we are often incapable of thinking about long-term solutions for anything. Since AIDS is a new disease, we remain optimistic that science will provide an easy solution to the epidemic. Ironically, in some ways, the HIV threat seems too new and urgent for us to consider the long-term implications of the epidemic and to consider revolutionary change. We are trapped in the present days of AIDS, and we are losing time!

HIV will continue to radically change communities, and successful efforts to combat the epidemic will demand revolutionary changes at the individual, community, national, and global levels. There have been some revolutionary successes in HIV prevention. Let us examine two of them.

Reduced transmission of HIV among gay men. In the 1980s, prevalence of HIV infection within the community of gay men in the United States was as high or higher than that currently in adult populations in the hardest-hit regions of sub-Saharan Africa. At the Inter-

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national AIDS conference in Amsterdam in 1992, it was estimated that the cumulative risk of HIV infection by age 50 for a gay man in the United States was 50%.[2] This is similar to the estimate made at this meeting for an adult man in Lesotho in 2002.[1] Stigma and discrimination were already a part of life for gay men, and HIV became an additional burden. Intense awareness of AIDS occurred within the community where illness and death were unavoidable. This awareness was followed by coping and then revolutionary behavior change. Sexually transmitted disease (STD) rates plummeted and, eventually, HIV incidence declined in the gay community. Widespread testing and counseling resulted in most gay men knowing their infection status. Since most infected persons were healthy (even before highly active antiretroviral therapy), thousands became leaders in the fight for prevention and care. Significantly, the gay community was able to deal explicitly with sex. "Safe sex" (i.e., avoidance of sexual intercourse between partners of discordant HIV status or correct and consistent use of condoms in unknown situations) became the norm in the gay community in the 1980s. The gay sexual behavior patterns present in the 1960s and 1970s would never be safe again, but the community not only coped with AIDS, it has emerged stronger than ever. Make no mistake, AIDS is still a leading cause of death for gay men and there are disturbing data from the last 2 years about STD and HIV resurgence within the gay community.[3] Revolutionary changes in gay sexual behavior did not eliminate HIV as a problem, and continued success will require renewed commitment to education and behavior change. But the gay community has coped with the epidemic, greatly reduced HIV incidence, and survived.

HIV prevention story in Thailand. The remarkable HIV prevention story in Thailand has lessons for the world. With strong and consistent governmental leadership and resource commitments, HIV incidence was reduced by 80% nationwide during the past decade.[1] It is critical to note that the Thais established and utilized excellent HIV and behavioral surveillance systems and acted early upon learning that sero-surveys predicted high future morbidity and mortality. The entire society, like in the example of the gay community, acted upon the knowledge that it was simply unsafe to have sex with someone of unknown HIV status without correct use of a condom. Certainly, condoms were known in Thailand before HIV, and reduction of HIV transmission among drug users has been less successful, but the turnaround in the HIV epidemic in Thailand remains the most remarkable in the world.

It is ironic that the two clearest examples of large-scale successes in HIV prevention—reduction in HIV transmission among gay men in the United States and national declines in HIV incidence in Thailand—arise in societies/communities known in their own way for sexual openness. Undoubtedly, the preceding behavior patterns were unwitting contributors to the rapid spread of HIV among gay men and in the heterosexual population in Thailand, but the openness in both communities provided the environment to make the revolutionary changes needed. In Africa, the powerful voice of President Museveni of Uganda has also encouraged candor about sexual risk-taking and facilitated that nation's encouraging early successes in reducing HIV prevalence among young women attending prenatal clinics.

Unfortunately, most of the world remains unable or unwilling to deal frankly and consistently with sexuality despite the considerable risks of HIV infection in many communities. There is a worldwide sexual hang-up hampering HIV prevention efforts. It is not enough for government leaders and those of us in the healthcare community to promote awareness of AIDS and to provide care without dealing frankly with sexual risk and making condoms universally available. In thousands of communities throughout the world at this moment, it is simply not safe to have sex without a condom.

HIV Prevention and Care

Effective prevention efforts depend on widespread awareness of the extent of HIV infection in each community. Widespread availability of counseling and HIV testing is a very important component of this awareness. For one thing, it has been shown time and time again that the vast majority of HIV-infected persons will take effective steps to prevent transmission to others if they know themselves to be infected. Experience throughout the world shows that reaching the goal of having most people know their status involves the widespread availability of testing and counseling. But it involves much, much more than that! First, HIV-infected persons need to feel safe in their own community, and they need assistance in medical care and in coping with the social and economic consequences of their infection. That is, HIV testing without protection from discrimination and without hope for care and social support will not be successful in any large scale. The dramatic government-sponsored programs in Brazil demonstrate how effective HIV counseling and testing and HIV treatment can be, and there are opportunities to evaluate the impact of this approach on national HIV infection rates.[4]

As with all health problems, the urgent need for care of those currently infected and ill with AIDS will be more compelling and will command more immediate resources than prevention activities. In the United States, $<7\%$ of the federal HIV budget is spent for prevention! Let us be warned: It is far easier for government officials, nongovernmental officials, and international donors to fund treatment for those who

are ill than to confront the controversial issues involved in prevention, including changes in sexual behavior and drug use. As we look forward to 2031 and the next 30 years, we must place a higher priority on HIV prevention. Consider this perspective. UNAIDS estimates that only 700,000 persons in the world are currently receiving long-term antiretroviral therapy, while >5 million new HIV infections are occurring each year.[1] Each day we fail at prevention, we are losing ground in our capacity to care for those with HIV in the world.

Here is our double challenge: In the long run, effective HIV prevention efforts are not possible without attention to treatment and care. But emphasis on treatment and care without effective HIV prevention will be futile!

Despite similarities, HIV differs throughout the world in one crucial way: the economic ability of the poorest nations to address the epidemic. The majority of persons with HIV in the world have no or very limited access to health care and live in countries where healthcare systems are woefully inadequate. In most countries of the world, the vast majority of persons with HIV do not yet know they are infected because testing is not readily available. The vast majority of sexual transmission of HIV in the world occurs in a sea of personal ignorance of who is infected and who is not. Furthermore, condoms are neither universally available nor affordable in many of these same communities. UNAIDS reported a very disturbing "condom gap," with a deficit in availability of >2 billion per year in Africa alone.[1,5] How can this be during the AIDS epidemic? Why do we not call for strong action in this area? Condoms are not under patent, and they are inexpensive. Condom usage increased greatly in Brazil when prices dropped in the 1990s.[1] Condoms should not be in short supply anywhere HIV threatens. Perhaps the pharmaceutical industry leaders, foundations, and governments could join forces to buy the world's largest condom company and to make condoms available for free or at nominal cost in developing nations severely threatened by HIV.

The Future

What are my hopes and fears for when we return for the International AIDS Conference in 2031 to look back on our progress on the 50th anniversary of the first case reports of AIDS?

Primarily, I hope for an effective vaccine to prevent HIV infection, and I hope for curative therapy. I hope both of these are readily accessible for the entire world. From prevention science, I hope for much better understanding of society-wide and community-wide HIV prevention efforts. Why do HIV rates vary so dramatically between countries on the same continents? What has made the difference in Uganda, Thailand, and Brazil compared to their less successful neighbors? Have these successes been sustained overtime? How can they be replicated?

Without *both* a vaccine and curative therapy, HIV will not go away by 2031. But even without these technological breakthroughs, I hope and pray that the world will cope successfully with the HIV revolution and turn around the pandemic. We can no longer afford to underestimate HIV. Success will require revolutionary leadership at all levels.

1. Leadership from the international community. There must be a commitment to provide consistent and ample resources and technical assistance for prevention and care to the poor nations hit hardest by AIDS. The $7 billion to $10 billion per year suggested by the U.N. Secretary General seems to be a good starting point.[1] Transnational corporations should provide leadership by prohibiting discrimination in hiring and employment for HIV-infected persons and should provide HIV medical care for employees and their families. Resource commitments from donor nations should be made in decade-long time frames, which acknowledge the long incubation period for HIV and the critical infrastructure improvements needed. Such resources should be used to leverage and facilitate leadership from within nations and communities, and should strongly emphasize prevention as well as care.
2. Leadership from elected and appointed government officials in all countries. They should promote widespread awareness of HIV and the modes of transmission of the virus. This must be accompanied by prohibition of discrimination against HIV-infected persons in employment, housing, and health care, as well as by changes in laws that greatly hamper HIV prevention efforts among sex workers and drug users. Government leaders must promote frank and open discussion of sexuality, educate the public about HIV, and make condoms widely available in communities where sex without a condom is simply a death sentence for their citizens.
3. Leadership from individuals in communities. Openly acknowledge the epidemic and don't flinch from it. Embrace those infected with HIV, accept their own strong support, and listen to them. As they have done for the past 20 years, persons with HIV infection will continue to provide leadership on HIV prevention and care.

My greatest fear is that our efforts will remain at current levels and that the revolution will be won by HIV rather than by us. If so, in 2031 we will see a minimum of 150 million more HIV-infected persons in the world, unless this too is an underestimate. Most of these infections will have been transmitted through sexual contact among persons not yet born today, while

we are still mired in our pre-HIV revolution attitudes about sexuality and family values, and while we are wringing our hands about the efficacy of condoms and the terrible difficulties of coming to grips with sexual risks in our respective communities.

It does not have to be this way, of course, and I hope we will follow the lead of the international gay community and the successes in Thailand, Uganda, and Brazil while learning to cope with HIV and stopping the HIV revolution through effective prevention. With long-term commitment and working together, we can do it!

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