



**National Institute of Allergy and Infectious Diseases**  
**National Institutes of Health**

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Address by

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Your Excellency, the President of the General Assembly; Your Excellencies, Heads of State and Government; Your Excellency, the Secretary General of the United Nations; Excellencies, Ministers and Heads of Delegation; Ladies and Gentlemen, it is an honor and a privilege to share with you my perspectives as a physician-scientist on the global HIV/AIDS pandemic, the progress we have made, and the many challenges that remain.

Twenty-seven years ago, almost to this very day, the first cases of a mysterious disease -- seen in five gay men in Los Angeles -- were reported in a publication of the U.S. Centers for Disease Control and Prevention.

One month later, additional cases in California and right here in New York City were reported.

We now call this disease AIDS.

As we have sadly witnessed, AIDS has turned into one of the most devastating scourges in human history and its full impact has yet to be realized.

As this body well knows, most of these cases have occurred in poor countries, where HIV/AIDS is superimposed on other serious problems, such as poverty, food insecurity, a lack of clean water and sanitation, and endemic infections such as malaria, tuberculosis, and diarrheal, respiratory, and parasitic diseases.

Looking back as a physician and a scientist who was involved in caring for and studying some of the earliest AIDS cases in the United States, those early days were the darkest of my professional career. Those of us caring for patients with AIDS had few tools at our disposal. The only treatments we could provide were largely palliative, and most of our patients died within months of coming to our attention.

Then, with the discovery of HIV as the cause of AIDS in 1983, we launched an extraordinary and breathtaking odyssey of scientific discovery. In the developed world, those discoveries were translated to the benefit of patients almost immediately.

A diagnostic test for HIV was rapidly developed. Basic research studies unlocked many of the mysteries of the virus and how it causes disease.

These scientific advances in turn facilitated the development of nearly 30 lifesaving drugs to treat HIV infection.

As is the case with most diseases, the developed world benefited first and foremost from the fruits of AIDS research, and the “implementation gap” between biomedical research discoveries and the delivery of these advances to those who need them most, particularly people in the developing world, was most dramatic in the provision of anti-HIV drugs. However, in the past several years, programs such as the Global Fund to Fight AIDS, Tuberculosis, and Malaria and the U.S. President's Emergency Plan for AIDS Relief, as well as individual governments, NGOs, philanthropies, and many others have done heroic work in making AIDS drugs available to those who need them.

Three million people with HIV are now receiving antiretroviral drugs in low- and middle-income countries. Much progress has been made; nonetheless, just 30 percent of HIV-infected people in those countries who need treatment based on established medical criteria are receiving it. We clearly need to do more, and these recent successes provide us with the impetus to accelerate our efforts to deliver the fruits of biomedical research and sound public health policies to these countries.

It would be naïve to think that this task will be simple and straightforward. Providing lifelong, but lifesaving therapy for any disease is challenging in

most settings, certainly in the case of poor countries with many other health, social and economic problems. The argument has been put forth that it is futile to attempt to provide universal access to therapy for HIV in poor countries because viral resistance to the drugs will inevitably develop. The answer to this dilemma is not to withhold therapy and care; it is to develop new and better drugs, and to perform the operational research that would guide the best practices appropriate for resource-poor settings to minimize the emergence of drug resistance.

This brings up the broader issue of health systems in the developing world and the goal of narrowing the “implementation gap.” As we all know, even with the availability of HIV drugs or drugs for other important diseases, treatment does not just happen spontaneously. In much of the world, a shortage of trained health care workers remains an important rate-limiting factor in efforts to scale-up services to people with HIV infection.

Significant resources are needed to train doctors and nurses in resource-poor areas, as well as community healthcare workers to provide care for HIV/AIDS and, importantly, for other diseases in the settings in which they occur.

Furthermore, medications alone rarely solve problems inherent to the settings in which catastrophic diseases such as HIV/AIDS occur. We also must provide services that enable HIV-infected individuals to overcome the social and economic impediments to successful adherence to HIV/AIDS treatment and care. These services include food supplements, transportation to clinics, child care, and housing, as well as care for other health issues.

Simply stated, the treatment and care of people with HIV cannot be done in a vacuum, but must be implemented in the context of their overall health needs. In this regard, as terrible as HIV/AIDS is, the global attention and momentum that has been generated to address this challenge, particularly in developing countries, may serve as a lens to also focus our attention on other compelling health needs. This approach need not have AIDS services compete for scarce resources required for these other diseases, but should serve as an opportunity for synergism in addressing the multitude of health problems that beset so many poorer nations and communities.

I believe that striving for universal access to AIDS therapy and related services is a public health and moral imperative. However, it may be logistically impossible to achieve this goal, as newly acquired infections are outstripping our ability to treat everyone infected with HIV. In 2007, about

2.5 people were newly infected with HIV for every person put on treatment. We cannot end the HIV/AIDS pandemic merely by treating infected people, even if this were logistically possible. This fact, however, does not relieve us of the moral responsibility to treat HIV-infected people where possible, but treatment alone is not the solution to the problem.

The solution is prevention. Robust HIV prevention efforts, hopefully with -- but possibly without -- a safe and effective HIV vaccine are critical to slowing the trajectory of the HIV/AIDS pandemic.

Scientifically proven prevention approaches such as behavioral modification; condom distribution; prevention of HIV transmission from mother to baby; and the provision of clean needles and syringes to drug users have been successfully deployed in many countries. But only one-fifth of people at risk of HIV infection have access to such proven preventive services.

In scaling up and applying prevention services, we can draw important lessons from common elements of the HIV/AIDS prevention efforts in those countries that have had documented success in reducing HIV infections.

Such factors include the strong support of political, religious, and community leaders; adequate and sustained funding; the use of the media to raise HIV awareness; efforts to encourage respect, tolerance, and compassion for HIV-infected people; and importantly, the use of evidence-based strategies derived from a detailed understanding of the specific dynamics and epidemiology of the epidemic in a particular setting.

Encouragingly, new means of preventing HIV infection are emerging through well-designed and implemented clinical research trials. Recent studies in Africa have confirmed that adult male circumcision can help prevent men from becoming infected with HIV by heterosexual intercourse, if the procedure is properly and hygienically performed and accompanied by appropriate counseling and post-surgical care.

Medical research can help address other societal impediments to the control of HIV. In this regard, under certain circumstances and in some countries more than others, the spread of HIV infection is linked to the lack of empowerment of women. Globally, nearly half of all HIV infections have occurred among women and girls. In many countries, including my own, women may find themselves in situations in which they lack the power to protect themselves from sexual transmission of HIV.

Ongoing research to develop microbicidal gels or creams to be applied before sex offers the hope of empowering women to protect themselves from HIV infection when the use of condoms or the refusal of sexual intercourse is not feasible.

Finally, a preventive HIV vaccine remains the greatest hope for halting the relentless spread of HIV/AIDS. The search for a vaccine has been extremely challenging because of the unique nature of the virus, particularly its uncanny ability to elude the body's natural attempt to contain it. HIV has proven to be very different from those viruses for which we have developed effective immunizations. We must solve the mystery of how to prompt the human body to produce a protective immune response against HIV, something that natural infection with the virus seems unable to do.

The past year was disappointing in the search for a safe and effective HIV vaccine. The top candidate proved to be ineffective when clinically tested. Although this result was disappointing, such disappointments are not unusual in the history of vaccine development. Historically, it has taken decades to find effective vaccines to combat most infectious diseases. Researchers usually experienced numerous setbacks and disappointments before reaching success; yet they persevered. Finding a safe and effective

HIV vaccine demands an equally intense resolve, even as treatment and non-vaccine prevention efforts are ramped up.

In summary, during the first 27 years of the AIDS pandemic, much has been accomplished, but we are sobered by the many challenges that remain.

Developing HIV interventions and delivering them to the people who need them, regardless of where they happen to live, will require political will, a long-term commitment of considerable financial resources, scientific and public health vision, and dedication from all sectors of society. We should be proud of the many scientific advances that have been made in the fight against HIV/AIDS. However, much, much more needs to be done by all of us, and the implementation gap must be closed.

To be sure, history will judge us as a global society by how well we address the next 27 years of HIV/AIDS as much -- or more -- than by what we have accomplished in the first 27 years.

Thank you.

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