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## Twenty-Five Years of HIV/AIDS

ON 5 JUNE 1981, A REPORT IN THE *MORBIDITY AND MORTALITY WEEKLY REPORT (MMWR)* described five young and previously healthy gay men with *Pneumocystis carinii* pneumonia (PCP) in Los Angeles. One month later, a second report in *MMWR* described 26 men in New York and California with Kaposi's sarcoma and 10 more PCP cases in California. No one who read those reports, certainly not this author, could have imagined that this was the first glimpse of a historic era in the annals of global health.

Twenty-five years later, the human immunodeficiency virus (HIV), the cause of acquired immunodeficiency syndrome (AIDS), has reached virtually every corner of the globe, infecting more than 65 million people. Of these, 25 million have died.

The resources devoted to AIDS research over the past quarter-century have been unprecedented; \$30 billion has been spent by the U.S. National Institutes of Health (NIH) alone. Investigators throughout the world rapidly discovered the etiologic agent and established the direct relationship between HIV and AIDS, developed a blood test, and delineated important aspects of HIV pathogenesis, natural history, and epidemiology. Treatment was initially confined to palliative care and management of opportunistic infections, but soon grew to include an arsenal of antiretroviral drugs (ARVs). These drugs have dramatically reduced HIV-related morbidity and mortality wherever they have been deployed. The risk factors associated with HIV transmission have been well defined. Even without a vaccine, HIV remains an entirely preventable disease in adults; and behavior modification, condom use, and other approaches have slowed HIV incidence in many rich countries and a growing number of poor ones.

With most pathogens, this narrative would sound like an unqualified success story. Yet it is very clear that scientific advances, although necessary for the ultimate control of HIV/AIDS, are not sufficient. Many important challenges remain, and in several of these the global effort is failing. New infections in 2005 still outstripped deaths by 4.1 to 2.8 million: The pandemic continues to expand. Despite substantial progress, only 20% of individuals in low- and middle-income countries who need ARVs are receiving them. Worldwide, fewer than one in five people who are at risk of becoming infected with HIV has access to basic prevention services, which even when available are confounded by complex societal and cultural issues. Stigma and discrimination associated with HIV/AIDS, and sometimes community or even governmental denial of the disease, too often dissuade individuals from getting tested or receiving medical care. Women's rights remain elusive at best in many cultures. Worldwide, thousands of women and girls are infected with HIV daily in settings where saying no to sex or insisting on condom use is not an option because of cultural factors, lack of financial independence, and even the threat of violence.

In the laboratory and the clinic, HIV continues to resist our efforts to find a cure (eradication of the virus from an infected individual) or a vaccine. In 25 years, there has not been a single well-documented report of a person whose immune system has completely cleared the virus, with or without the help of ARVs. This is a formidable obstacle to the development of an effective vaccine, for we will need to do better than nature rather than merely mimic natural infection, an approach that has worked well with many other microbes. The development of next-generation therapies and prevention tools, including topical microbicides that can empower women to directly protect themselves, will require a robust and sustained commitment to funding the best science.

Meanwhile, as we enter the second quarter-century of AIDS, we know that existing HIV treatments and prevention modalities, when appropriately applied, can be enormously effective. Programs such as President Bush's Emergency Plan for AIDS Relief; the Global Fund to Fight AIDS, Tuberculosis, and Malaria; and the efforts of philanthropies and nongovernmental organizations have clearly shown that HIV services can indeed be delivered in the poorest of settings, despite prior skepticism. We cannot lose sight of the fact that these programs must be sustained. As we commemorate the first 25 years of HIV/AIDS and celebrate our many successes, we are sobered by the enormous challenges that remain. Let us not forget that history will judge us as a global society by how well we address the next 25 years of HIV/AIDS as much as by what we have done in the first 25 years.



– Anthony S. Fauci

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