The Beginning of the End of AIDS?
Diane Havlir, M.D., and Chris Beyrer, M.D., M.P.H.

We are at a moment of extraordinary optimism in the response to the human immunodeficiency virus (HIV). A series of scientific breakthroughs, including several trials showing the partial efficacy of oral and topical chemoprophylaxis

1,2 and the first evidence of efficacy for an HIV vaccine candidate,3 have the potential to markedly expand the available preventive tools. There is evidence of the first cure of an HIV-infected person. And most important, the finding that early initiation of antiretroviral therapy can both improve individual patient outcomes and reduce the risk of HIV transmission to sexual partners by 96%4 has led many to assert what had so long seemed impossible: that control of the HIV pandemic may be achievable.

What will it take to achieve what U.S. Secretary of State Hillary Rodham Clinton called, in a 2011 address, an “AIDS-free generation”? Expanded access to and coverage of high-quality prevention and treatment services tailored to affected populations are critical to keeping people living with HIV healthy and to dramatically reducing the number of new HIV infections.5 This goal requires an ambitious implementation-science agenda that improves efficiency and effectiveness and incorporates strategies for overcoming the stigma and discrimination that continue to limit the uptake and utilization of services. Research efforts on HIV vaccines will also probably be key, and the field has been reinvigorated, after a series of unsuccessful trials, by the findings of the RV144 trial involving Thai adults, which showed that the vaccine provided modest protection against HIV acquisition in selected populations.3 Research focused on curing HIV disease is yielding fascinating insights into how HIV persists in the face of current therapy, and such research must be earnestly pursued. A combination approach to prevention that includes HIV treatment can generate tremendous gains in the short term by curtailing new HIV infections, but ending the AIDS epidemic will probably require a vaccine, a cure, or both.

The scientific opportunities and optimism at this moment in HIV research are not matched, however, by the available resources. Global resources have been de-
clining, not growing, in this period of scientific success. This lack of funding is the major point of divergence between optimism and pessimism. Thanks to the President’s Emergency Plan for AIDS Relief (PEPFAR), the Global Fund to Fight AIDS, Tuberculosis, and Malaria, and many other donors, HIV treatment has become a reality for more than 6 million adults and children in developing countries. Yet in 2012, less than half of the people living with HIV who need treatment are receiving therapy (see map), and realizing the prevention benefits of earlier initiation of treatment will require that millions more people receive therapy in the coming years. The cancellation of the Global Fund’s 11th round of funding was the largest of several recent setbacks in the resource base for AIDS globally.

The global fiscal realities are compounded by what we would argue are artificial debates that pit AIDS against other global health needs. We believe that the yield on investment in HIV research and care is unparalleled in modern medicine. Moreover, secondary benefits of AIDS care include reductions in tuberculosis rates and maternal and child mortality, expansion of health center capacity, and increases in rates of school retention and workforce participation that support overall community health. Comprehensive economic models predict that making the needed investments in HIV-related efforts will result in cost savings over the long term. It would be an extraordinary failure of global will and conscience if financial constraints and false dichotomies truncated our ability to begin to end AIDS just when the science is showing that this goal is achievable.

The call to begin ending AIDS necessitates consideration of the HIV epidemic here in the United States. The most sobering HIV news from the United States in 2011 was the report that in only an estimated 28% of people living with HIV in the United States has suppression of HIV RNA been achieved; such suppression is a marker of treatment success and a gauge of the risk of transmission. This deficiency exposes a challenge shared by many countries affected by HIV. The “care cascade” — entailing HIV diagnosis and linkage to and retention in or reengagement in care — is broken in the United States and in too many other countries. It is in urgent need of repair. In our zeal for prevention, we must not abandon the commitment to pioneering new approaches to treatment. These must address aging populations and those with hepatitis C, for whom revolutionary treatments are on the horizon.
Every country, including ours, must develop more effective ways to reach key affected populations and to apply the tools that we know work, if we are to make significant advances.

Is there a roadmap to an AIDS-free generation? The core elements of a strategy are arguably now in hand: first, the strategic use of existing resources, including resources for accelerated research on prevention, HIV vaccines, and a cure; second, marked increases in HIV testing, counseling, and linkages to and retention in services and care; third, the eradication of mother-to-child transmission of HIV and preservation of maternal health, a goal very much within the realm of possibility with existing knowledge; and finally, expanded access to prevention services and antiretroviral treatment to reach everyone in need — which will require an end to the stigma, discrimination, legal sanctions, and human rights abuses against people at risk for or living with HIV infection. Markedly expanding high-quality treatment programs, taking new prevention tools to scale, and maximizing the potential of antiretroviral therapies for prevention will be difficult and costly, but failure to capitalize on the scientific advances of this critical period could be devastating. A future of ongoing transmission of HIV, ever-increasing numbers of people receiving or needing therapy, and further strains on overburdened health systems will not be sustainable.

As the international HIV community gathers in Washington, D.C., for the 19th International AIDS Conference, the meeting’s theme, “Turning the Tide Together,” captures the essence of this defining moment. The response to HIV, perhaps better than efforts against any other epidemic, encapsulates what can be accomplished when scientists, policymakers, the private sector, and the community mobilize toward a common goal. Propelling us to the point where we can talk about the end of AIDS is nothing short of remarkable. Yet the most important part of the story is about to be written.

Disclosure forms provided by the authors are available with the full text of this article at NEJM.org.

From the University of California, San Francisco, School of Medicine, and San Francisco General Hospital, San Francisco (D.H.); and the Center for Public Health and Human Rights and the Johns Hopkins Center for AIDS Research, Johns Hopkins Bloomberg School of Public Health, Baltimore (C.B.).

This article was published on July 18, 2012, at NEJM.org.


DOI: 10.1056/NEJMtp1207138
Copyright © 2012 Massachusetts Medical Society.