

Can the United States Achieve Human Immunodeficiency Virus Epidemic Control? A New Initiative Offers Hope

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(See the Brief Report by Bosh et al on pages 1431–3.)

Keywords. HIV epidemic; Epidemic Control; Administration's HIV initiative.

In the last decade, remarkable advances have been made in confronting the global human immunodeficiency virus (HIV) epidemic to the point that the phrase “end of AIDS” has become something that politicians, organizations such as the Joint United Nations Programme on HIV/AIDS (UNAIDS), and scientists are not afraid to say. Yet the data suggest that the HIV pandemic is not on track to end, and the talk about ending AIDS may be leading to dangerous complacency [1]. Hoping to energize the global response, in 2014, UNAIDS launched the 90-90-90 targets with the goal of diagnosing 90% of all HIV-infected persons, providing antiretrovirals to 90% of those diagnosed, and achieving viral suppression for 90% of those in treatment by 2020. This would result in an estimated 73% of all people living with HIV achieving viral suppression, which was seen as a critical step in epidemic control toward “ending AIDS as a public health threat” by 2030 [2]. To more clearly define “epidemic control,” in 2017 UNAIDS convened an expert panel charged with defining what was meant by such a term

[3]. The panel proposed 4 potential metrics or milestones that could complement existing indicators as countries move along the pathway to ending the AIDS epidemic: (1) percentage reductions (the percentage reduction in new HIV infections and AIDS-related deaths with a target of a 90% reduction by 2030 compared with a 2010 baseline); (2) an absolute rate (an HIV incidence of <1 per 1000 adults and of AIDS-related mortality of <1 per 10 000 adults); (3) an incidence-mortality ratio (IMR) of <1 indicating epidemic control; and (4) an incidence-prevalence ratio (IPR). In the study by Bosh et al in this issue of *Clinical Infectious Diseases*, investigators from the Centers for Disease Control and Prevention sought to determine if the United States had achieved “epidemic control” based on UNAIDS’ 4 metrics.

Using surveillance data from 2010–2015, the authors estimated that new infections had declined by 7.9%, deaths by 22.8%, HIV incidence rates by 11.7% to 1.44 per 10 000 persons, and rates of death due to HIV by 27.3% to <0.24 per 10 000 persons in 2015. Many of these met the UNAIDS targets for epidemic control. The IMR did not meet the UNAIDS target of <1 because the number of new infections exceeds the number of deaths. Based on these findings, the authors concluded that the United States had achieved several but not all of the UNAIDS epidemic control measures. The data presented highlight the progress that has been made so far in the control of the HIV epidemic in the

United States but also makes it clear that reducing incidence is critically important. Evaluating the US response against UNAIDS performance metrics provides a useful check, but the United States should be held to even higher standards. In particular, much further reductions in HIV incidence and elimination of HIV-related mortality should be the aspiration of all communities in the United States.

Furthermore, the US HIV epidemic is not a homogeneous epidemic but a diverse set of microepidemics, and the data presented fail to highlight the regional differences that exist in today’s HIV epidemic, an epidemic that is not generalized but highly concentrated. In the United States, HIV diagnoses are not evenly distributed across states and regions or among race/ethnicities and sexual identities. Southern states now account for more than half (52%) of all HIV diagnoses [4]. And, while the rate of HIV diagnosis among adults and adolescents in 2017 in the United States and 6 dependent areas was 11.8 per 100 000 population, this varied from a high of 46.3 in the District of Columbia to 0.0 in American Samoa and in the Republic of Palau [5]. In 2017, 5 of the 6 cities with the highest rate of HIV diagnoses per 100 000 population were all in the South: Miami–Fort Lauderdale–West Palm Beach, Florida (35.8); Orlando–Kissimmee–Sanford, Florida (28.6); Atlanta–Sandy Springs–Roswell, Georgia (27.3); New Orleans–Metairie, Louisiana (27.0); Baltimore, Maryland (26.8); and Baton Rouge, Louisiana (26.9) [5]. Furthermore,

Received 15 February 2019; editorial decision 19 February 2019; accepted 21 February 2019; published online February 26, 2019.

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Clinical Infectious Diseases® 2019;69(8):1434–5

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while the majority of people diagnosed with HIV in the United States now live in metropolitan areas, in the South 23% of new HIV diagnoses are among people living in suburban and rural areas. In addition, while new infections in the United States remain stable, this is not the case among men who have sex with men (MSM) and, in particular, young, black MSM, in whom rates have increased [6].

Given these data, can the HIV epidemic be controlled in the United States? On 5 February 2019 at the State of the Union address, President Trump announced the intention to end the HIV epidemic in the United States within 10 years. The administration's bold goals for this initiative are to reduce new infections by 75% within 5 years and by 90% within 10 years from a baseline of approximately 40 000 new HIV infections. The Department of Health and Human Services is proposing to target the 48 counties plus Washington, D.C. and San Juan, Puerto Rico that accounted for >50% of the new HIV diagnoses in 2016–2017. In addition, 7 southern states where there is a disproportionate occurrence of HIV in rural areas would be targeted [7].

Many recognize this challenge is difficult as the US epidemic increasingly affects disenfranchised populations and is a reflection of health disparities. By targeting geographic hotspots, the initiative does acknowledge that the US HIV epidemic is not a single epidemic but rather a collection of microepidemics occurring in hotspots and that there are vast differences in the local response to the epidemic. High-incidence areas face many challenges to achieving epidemic control, which extend beyond the basic consideration of scaling up HIV testing and ensuring an adequate supply of antiretrovirals for treatment and preexposure prophylaxis (PrEP) and must take into account social determinants of disease and cultural challenges. As a nation we must approach this challenge with a fresh perspective and cultural humility to make progress. Access to care requires not only Medicaid expansion, lacking in many of the targeted areas, but access to

mental health and substance use services, available transportation to care facilities, and stigma-free provision of care. The Ryan White program, with its focus on holistic care, has proven outcomes with high rates of viral suppression in vulnerable groups but is in critical need of expansion [8]. National and local policies that shrink access and further stigmatize racial, ethnic, sexual, and gender identity minority populations cause us to lose ground. We must grapple with the medical mistrust that is in part the legacy of the Tuskegee experiment in the South and win back trust. In the face of a growing opioid epidemic, it is critical that we reexamine assumptions that are not based in evidence and offer syringe exchange services and medication-assisted therapy, which have been demonstrated to improve health [9]. We must work closely with those living with HIV to identify potential approaches that work for PrEP and treatment delivery and then evaluate them scientifically in local settings [10]. Finally, we must discuss HIV in hard-hit communities as the crisis that it is and not generalize about the “end of AIDS”

The Trump administration indicated that new resources will be allocated in the fiscal year 2020 budget, but the details are not known. Using a mathematical simulation model, Borre et al recently estimated that to achieve the goals of the National HIV/AIDS Strategy would require an additional \$120.4 billion but would be cost effective [11]. We have the tools to end the epidemic in the United States; now we need to implement them in a manner that ensures that we do not simply reach target goals by focusing on the easiest segments of the population to reach. There must be equitable progress throughout the country and across racial, ethnic, socioeconomic, and gender lines. Even in cities such as San Francisco and New York City that are on track to control their epidemics, minority populations are not realizing the same progress and risk being left behind [12, 13]. True progress will need an honest examination of barriers to care followed by resources,

partnerships, and collaboration and political leadership. Time to get started!

Note

Potential conflicts of interest. All authors: No reported conflicts. All authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest.

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