More Treatment, Less PrEP Would Slash New HIV Cases by 94%

A new CDC model shows the potential power of Undetectable = Untransmittable to curb HIV rates by 2027.

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Allocating more money to make sure every U.S. resident living with HIV achieves and maintains an undetectable viral load, rather than focusing on HIV pre-exposure prophylaxis (PrEP), could slash new HIV cases by 94% by 2027.

Those are the conclusions of a Centers for Disease Control and Prevention (CDC) modeling study published in the American Journal of Public Health.

In addition to the federal Ending the HIV Epidemic: A Plan for America, many U.S. cities participate in the international Fast-Track Cities program, which seeks to get 90% of people living with HIV diagnosed, 90% of those people engaged in care and prescribed antiretroviral (ARV) treatment and 90% of those to a durable undetectable viral load. These targets are known as the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90-90-90 goals.

Some countries, like the African kingdom of eSwatini, have reached or are near reaching the 90-90-90 goals with broad testing, the rollout of immediate ARV initiation and PrEP. But the U.S. lags behind. Only New York City has achieved the 90-90-90 goals, and then not consistently across communities.

So the CDC model sought to see whether available resources could nearly eliminate new HIV diagnoses in the United States by 2027 without significantly increasing the current total budget of $37.5 billion for HIV testing, treatment and prevention.

The model was limited to U.S. residents ages 13 to 64 and imagined a world in which public and private funding worked together to fully fund testing, treatment and engagement support across the HIV care continuum.

The model based its estimates of the number of people living with HIV on federal HIV surveillance data and used data from studies of evidence-based interventions for testing, PrEP, care engagement, viral suppression and syringe services programs. Then they added in the associated costs per person to estimate how and whether the United States could support its residents living

with HIV in achieving better health.

Models are only as good as their assumptions, of course, and this model assumed that PrEP funding remained stable at $12,599 per person between 2018 to 2027 and that syringe access program costs would remain stable at $234 per person and $24.5 million annually for needle equipment itself.

For treatment, the model assumed an annual ARV cost of $25,059 per person as well as health care costs for HIV-related illnesses. The study doesn't detail the cost of expanding effective interventions or the cost of building infrastructure in states with underfunded public health systems. It also doesn't mention the cost of programs that address the social determinants of health, such as housing or employment.

The researchers then considered three different scenarios: one in which nothing changed in terms of funding or how that money was allocated, a "limited-reach" scenario and an "idealistic, unlimited-reach" scenario for ending the HIV epidemic. The unlimited-reach scenario imagined that everyone at risk for HIV could receive PrEP and everyone with HIV had been diagnosed, had full access to health care and was receiving medication to achieve an undetectable viral load.

With no change in the $37.5 billion annual public and private spending or how those funds are allocated for HIV care and prevention, another 330,051 people were expected to be diagnosed with HIV by 2030—an average of 33,100 new cases per year, which is lower than the current HIV diagnosis rate, which hovers around 37,000 per year.

If current funds were reallocated, that number would drop by 69% over 10 years, to 103,359 total new HIV cases by 2027, or an average of just 10,400 per year. The assumption of this model was that with current funding, services wouldn't be able to reach everyone, but they could be allocated more effectively. Among other things, the model calls for halving funding for PrEP prescriptions to heterosexuals at high risk for HIV in the short term, increasing it for gay and bisexual men and significantly increasing funding for syringe services programs.

In the ideal scenario, where the same amount of funds are allocated optimally and program infrastructure is sufficient to reach everyone at risk for or living with HIV, new HIV diagnoses dropped by 94% over 10 years, to a total of 20,417, or an average of 2,000 cases a year.

This was achieved by dramatically increasing testing among heterosexuals at high risk for HIV between 2018 and 2022 and then ramping up screening among low-risk heterosexuals between 2023 and 2027. It also slightly increased testing among gay and bisexual men and called for increasing linkage to care after diagnosis and care engagement by sixfold. Funding for ARV prescriptions increased by one and a half times in the first five years, and funding to help people maintain an undetectable viral load more than doubled.

"The current allocation spends a large proportion of prevention funding on testing low-risk heterosexuals and on PrEP for high-risk [gay and bisexual men]," Stephanie Sansom, PhD, of the CDC's Division of HIV/AIDS Prevention, and colleagues wrote. "Models comparing interventions

show that [PrEP] is less effective in reducing new HIV cases nationally than ensuring that those already infected cannot transmit to others by achieving and maintaining viral suppression with effective [antiretroviral therapy].”

Click here to read the full study.
