



Rising PrEP Use Is Associated With Declining HIV Diagnoses in United States

This association held true even when researchers controlled for changing rates of viral suppression of HIV in 2012 to 2016 records.

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The increased use of Truvada (tenofovir disoproxil fumarate/emtricitabine) as pre-exposure prophylaxis (PrEP) in the United States between 2012 and 2016 was associated with a decline in HIV diagnoses. This association held true even when researchers controlled for changing rates of viral suppression among people living with HIV.

These findings derive from a research collaboration between Gilead Sciences, which manufactures Truvada, the Centers for Disease Control and Prevention (CDC) and Emory University. Results from their inquiry were presented in a poster at the International AIDS Conference in Amsterdam (AIDS 2018).

The study is the first out of the United States that has sought to assess the impact of PrEP on HIV diagnoses on a national public health level.

Between 2008 and 2015, the estimated number of HIV diagnoses in the United States declined by 18 percent. Approximately 40,000 U.S. residents are diagnosed annually.

According to the conference poster, the decline may be the result of multiple factors, including: lower HIV testing frequency; lower levels of needle-sharing behaviors among people who inject drugs (PWID); higher levels of viral suppression among people with HIV; and higher uptake of PrEP among those at high risk for the virus.

Maintaining an undetectable viral load is associated with effectively no risk of transmitting HIV, a fact supported by the [PARTNER2](#) study presented at AIDS 2018.

Evidence indicates that HIV testing frequency and behaviors associated with a higher risk of contracting the virus have not recently decreased among those at high risk for infection.

In their new study, the researchers wanted to address whether higher viral suppression rates or

higher use of PrEP or a combination of the two factors drove the recent reduction in HIV diagnoses.

The investigators obtained HIV diagnosis data spanning 2012 to 2016 for all 50 states plus the District of Columbia from the National HIV Surveillance System. They calculated diagnosis rates based on U.S. Census data.

Data on viral suppression rates were only available for 37 states plus DC. The investigators considered 2012 to 2015 data on this measure.

For data on PrEP use, the study authors relied on a national prescription database representing at least 83 percent of all prescriptions dispensed by commercial U.S. pharmacies. The estimates of the population of people who are good candidates for PrEP came from a [recent CDC study](#) presented at the 2018 Conference on Retroviruses and Opportunistic Infections (CROI) in Boston and was based on 2015 statistics.

The national U.S. diagnosis rate per 100,000 people age 13 and older declined from 15.7 diagnoses in 2012 to 14.5 diagnoses in 2016, for an estimated decline of 1.6 percent per year.

The national PrEP use rate per 1,000 people considered good PrEP candidates was 7.0 in 2012 and increased steadily during the following years to 10.7 in 2013, 23.9 in 2014, 51.7 in 2015 and 68.5 in 2016, for an estimated increase of 78 percent per year.

Among states in the highest quintile for PrEP use rates, HIV diagnoses per 100,000 residents declined from 19.4 in 2012 to 17.4 in 2013, 15.6 in 2014, 14.1 in 2015 and 13.6 in 2016. Meanwhile, the PrEP use rate per 1,000 people considered good PrEP candidates increased from 12 in 2012 to 19 in 2013, 42 in 2014, 87 in 2015 and 110 in 2016.

Among states in the lowest quintile for PrEP use rates, HIV diagnoses per 100,000 residents generally increased from 7.51 in 2012 to 7.48 in 2013, 7.57 in 2014, 7.75 in 2015 and 7.94 in 2016. Meanwhile, the PrEP use rate per 1,000 people considered good PrEP candidates increased from 3 in 2012 to 6 in 2013, 12 in 2014, 26 in 2015 and 35 in 2016.

Between 2012 and 2015, viral suppression rates increased slightly in the 38 jurisdictions analyzed and across all PrEP-use-based quintiles of jurisdictions.

In the 10 states in the highest quintile of PrEP use, the HIV diagnosis rate declined by an estimated 4.7 percent per year, while the bottom 10 states saw an estimated 0.9 percent annual increase in their HIV diagnosis rate.

After controlling these HIV diagnosis figures to account for changes in viral suppression rates among state residents living with HIV, the study authors concluded that PrEP's association with HIV diagnosis rates remained statistically significant, meaning it is unlikely to have occurred by chance.

“PrEP uptake,” the study authors concluded, “was significantly associated with a decline in HIV

diagnoses in the USA, and this association is independent of levels of viral suppression. U.S. states should take steps to increase the use of PrEP among persons with indications [for its use] and should continue efforts to increase HIV viral suppression for people living with HIV.”

The investigators were not able to parse the relative contributions of viral suppression versus PrEP use rates on HIV diagnoses. And they could not determine the effects on diagnosis rates of any changing behaviors associated with HIV risk or HIV testing behaviors.

PrEP use rates have continued to increase rapidly since 2016, so it is likely that Truvada is having even more of an impact on the HIV epidemic today. However, PrEP uptake remains troublingly uneven and is largely limited to white men who have sex with men (MSM) age 25 and older. The demographic at highest risk for HIV in the United States, Black MSM, especially those living in the South, remains essentially excluded from this important HIV prevention revolution.

The new study is limited by the fact that it cannot prove a causal relationship between PrEP and declining HIV rates. Also, HIV diagnosis rates may have been underreported. Additionally, PrEP use statistics represent minimums of Truvada’s actual use as prevention, and the study authors do not know whether this data set included systematic biases that drove more underreporting of PrEP in certain states compared with others.

To read a press release about the study, [click here](#).