

# PrEP can reduce new HIV cases by a third among MSM over next 10 years

July 14 2016

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A daily pill to prevent HIV infection can reduce new cases among men who have sex with men (MSM) by a third in the U.S. over the next 10 years, according to a new modeling study published in *The Journal of Infectious Diseases* and available online. The expected significant drop in HIV incidence, however, will depend on clinicians prescribing the medication according to federal guidelines and on patients using it as directed.

A combination of two HIV drugs, tenofovir disoproxil fumarate and emtricitabine, sold under the name Truvada, was approved by the Food and Drug Administration for daily use as pre-exposure prophylaxis, or PrEP, in the U.S. in 2012 to help prevent HIV infection. Studies have shown that PrEP is highly effective, reducing the risk of getting HIV from sex by more than 90 percent when used consistently. In 2014, the Centers for Disease Control and Prevention (CDC) issued [guidelines](#) for PrEP's use in clinical practice.

In this study, researchers at Emory University, CDC, and the University of Washington used network-based mathematical models of HIV transmission in a population of MSM to estimate the impact of applying these CDC guidelines to prevent new HIV infections in the U.S. The models were built and simulated using an open-source software package, EpiModel, that allowed the study authors to test different potential scenarios with varying levels of adherence to PrEP's recommended daily regimen and PrEP coverage among MSM.

If 40 percent of MSM who are good candidates for PrEP based on CDC's guidelines were actually prescribed the drug and used it consistently, 33 percent of new HIV infections in this population in the U.S. would be avoided over the next 10 years, the researchers found. Preventing one new HIV infection would require treating 25 men with PrEP for a year. The researchers concluded that providing PrEP according to the CDC guidelines strikes a good balance between public health impact and intervention efficiency, given these results.

"This is a modeling study of future impact, meaning that we're providing forecasts of what could be based on the best available data that we have now," said study author Samuel M. Jenness, PhD, MPH, of Emory University. "There's a big gap between the 5 percent of MSM using PrEP today and those who could potentially benefit from it. There's still a lot of work to be done to promote this intervention and scale it up more broadly, but our models suggest that the CDC guidelines provide a good framework for doing so."

In an accompanying editorial commentary, Jared M. Baeten, MD, PhD, of the University of Washington, who was not involved with the study, noted that how PrEP is provided to patients is likely to evolve as more experience is gained with it.

"Every provider, public health professional, patient, and advocate who has seen the devastation wrought by HIV in the last three decades wants to see far fewer men and women presenting for care with a new diagnosis of HIV infection," Dr. Baeten wrote. "PrEP can be a part of that outcome—especially if pragmatic approaches are sought, aimed at achieving the coverage necessary to gain population impact at scale."

## **Fast Facts**

- A daily pill—a combination of two existing HIV drugs—was

approved for use as [pre-exposure prophylaxis](#), or PrEP, in the U.S. in 2012 to help prevent HIV infection.

- If prescribed by clinicians according to federal guidelines and used consistently, PrEP could reduce new HIV cases among men who have sex with men by a third over the next 10 years in the U.S., a new modeling study suggests.
- The expected drop in HIV incidence would require that 40 percent of those who are good candidates for PrEP actually be prescribed the medication, a significantly higher percentage than are currently on PrEP.
- Preventing one new HIV infection would require treating 25 [men](#) with PrEP for a year, according to the study.

Provided by Infectious Diseases Society of America

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