

# Large increases in HIV suppression needed to reduce new infections in critical population

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Achieving moderate reduction of new HIV infections among men who have sex with men (MSM) will depend on significantly increasing the percentage of HIV-infected MSM whose viral load is suppressed to undetectable levels, according to a new mathematical model based on data from Baltimore. Access and adherence to antiretroviral therapy are key to sustained HIV suppression, which dramatically reduces the risk of transmitting HIV to others.

Researchers from the National Institutes of Health (NIH)-supported HIV Prevention Trials Network (HPTN) will present their results on Oct. 19 at the HIV Research for Prevention (HIVR4P) 2016 conference in Chicago. Scientists performed the modeling as part of a large clinical research study called HPTN 078, which is funded by NIH's National Institute of Allergy and Infectious Diseases (NIAID) and National Institute of Mental Health (NIMH). HPTN 078 began enrolling participants earlier this year to assess an HIV prevention strategy that includes identifying MSM living with HIV who are not virally suppressed, getting them into care, and helping them achieve and maintain viral suppression.

MSM in the United States are disproportionately affected by HIV/AIDS, and rates of viral suppression among MSM are quite low. Although MSM represent approximately 2 percent of the U.S. population, they accounted for 67 percent of newly diagnosed HIV infections in 2014,

according to the Centers for Disease Control and Prevention. During 2013, 57 percent of MSM in the United States who had been living with diagnosed HIV for at least one year were receiving continuous HIV medical care, and 58 percent of MSM diagnosed with HIV were virally suppressed. HPTN 078 is enrolling HIV-infected MSM in Baltimore and three other U.S. cities with a high HIV burden — Atlanta, Birmingham and Boston.

"Achieving and maintaining viral suppression is essential both for individual health and to reduce HIV transmission within the community," said NIAID Director Anthony S. Fauci, M.D. "Developing and validating strategies to enhance the engagement of men who have sex with men living with HIV in care and treatment is essential for controlling the HIV epidemic in this critical population in the United States."

The new modeling focuses on the increase in viral suppression needed to reduce the occurrence of new HIV infections among MSM in Baltimore. In 2014, an estimated 30 percent of MSM in Baltimore were living with HIV, and according to data from 2013, only 37 percent of these men were virally suppressed. To reduce new infections by 20 percent after 5 years, the community would need to increase the level of viral suppression by 10 percentage points in five years. To reduce HIV incidence by 20 percent after 10 years, a smaller increase in viral suppression — 8 percentage points over that period — would be needed.

The U.S. National HIV/AIDS Strategy calls for 90 percent of people living with HIV to be diagnosed, 90 percent of those diagnosed to be on antiretroviral treatment, and 90 percent of those in treatment to be virally suppressed by 2020. The new model predicts that meeting these "90-90-90" targets would require 75 percent of all HIV-infected MSM to be virally suppressed by 2020 and would lead to a 50 percent reduction in HIV incidence.

"Turning the tide on HIV will require a combination of evidence-based approaches," said Dianne Rausch, Ph.D., director of the Division of AIDS Research at NIMH. "We anticipate that the HPTN 078 study will provide important data to advance the evidence base on how to strengthen viral suppression in this community to save lives and prevent HIV infections."

HPTN 078 is testing a new strategy to find, engage, treat and retain MSM who are living with HIV and not virally suppressed. The study aims to recruit approximately 2,700 MSM aged 16 years and older. The investigators are assessing the ability of a peer-to-peer recruitment strategy to identify MSM who are not virally suppressed. In this strategy, a small group of well-connected MSM participants recruits their peers into the study. The newly recruited participants then refer other MSM they know, and the process repeats. Previous work has suggested that this type of process is effective in recruiting hard-to-reach populations.

Participants identified as not virally suppressed will be invited to be randomly assigned to either a case management intervention or to standard care. Participants assigned to the intervention will work with a trained case manager, who will assist them with navigating health care and supportive services and provide counseling for adherence to antiretroviral treatment. Participants in the case management group also will have the option to receive automated text, email and phone reminders to take their antiretroviral medications and attend appointments. After two years, the researchers will assess the effectiveness of the case management approach compared to standard care.

Mathematical modeling is a supporting component of the HPTN 078 study. Moving forward, HPTN researchers will use models to predict the effects of the case management intervention and the level of [viral suppression](#) achieved in the trial on new HIV infections within the

population, among other goals.

**More information:** KM Mitchell et al. Potential impact on HIV incidence of increasing viral suppression among HIV-positive MSM in Baltimore: Mathematical modelling for HPTN 078. Oral presentation at HIV Research for Prevention (HIVR4P) 2016, Chicago, session: Back to the Future: Optimizing the Cascade.

Provided by National Institutes of Health

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