

UNDETECTABLE= UNTRANSMITTABLE: Sexual Transmission of HIV from Virally Suppressed People Living with HIV

OVERVIEW

NASTAD reaffirms the conclusive scientific evidence that people living with HIV who are on antiretroviral therapy (ART) and are durably virally suppressed (defined as having a consistent viral load of less than <200 copies/ml) do not sexually transmit HIV. This renewed statement and recommitment actions for governmental public health reinforces our longstanding work to end the dual epidemics of HIV and HIV-related stigma and to dramatically reduce new HIV infections through policies and public health practice grounded in science.

WHY IT'S IMPORTANT

The conclusive evidence about the highly effective preventive benefits of ART provides an unprecedented opportunity to reinforce sexual and reproductive health among people living with HIV, support ART uptake and adherence, and advocate for expanded access to comprehensive care and support services.

People living with HIV who are on ART and are durably virally suppressed are not only less likely to develop HIV-related complications, they also do not transmit the virus to others. The mounting evidence supporting this conclusion, including new data reported since NASTAD released its original statement in February 2017, must be recognized to dismantle decades of HIV-related stigma and discrimination. The added preventive benefit of treatment encourages people living with HIV to initiate and adhere to a safe and effective ART regimen, closely monitor their viral load, and stay in regular medical care. It is important to note that while viral suppression prevents the transmission of HIV, consistent and correct condom

use and pre-exposure prophylaxis (PrEP) also prevent the transmission of the virus, and condoms provide additional protection for other sexually transmitted infections (STIs) and pregnancy.

Despite our efforts to achieve universal viral suppression, many people living with HIV face immense barriers to successful treatment and care that must be addressed, including social determinants of health (e.g., inadequate health systems, poverty, racism, gender inequality, denial, stigma, discrimination, criminalization, and prohibitive costs) and previous ART treatment that may have resulted in resistance or adverse effects. Some people may choose not to be treated or may not be ready to start treatment.

WHAT WE KNOW

A number of studies have demonstrated that lower HIV levels in blood plasma are associated with reduced concentrations of the virus in genital secretions.^{1,2} One of the first clinical trials to demonstrate a relationship between low viral load and a decreased risk of sexual transmission, at least among HIV-serodifferent heterosexual couples, was published in 2000.³

One of the most definitive studies conducted to date is the international HIV Prevention Trials Network (HPTN) 052 trial, with final results published in 2016.⁴ HPTN 052 enrolled 1,763 HIV-serodifferent heterosexual couples in which the partner with HIV hadn't yet initiated ART and had a CD4 count of 350 to 550 cells/mm³ at enrollment. The study compared immediate ART versus delayed therapy—not started until the CD4 count dropped below 250 cells/mm³—on HIV transmission to the partner who did not have

HIV. After more than five years of follow up, the study investigators reported:

- A sustained 93% reduction of HIV transmission within couples when the partner with HIV was taking ART as prescribed and viral load was suppressed.
- There were only eight cases of HIV transmission within couples after the partner with HIV started ART; four transmissions occurred before the partner with HIV was virally suppressed and four other transmissions occurred when ART failed to maintain viral suppression.
- No transmissions occurred among couples in which the partner with HIV remained virally suppressed.

At the International AIDS Conference in 2018 in Amsterdam, additional data from the PARTNER study confirmed that gay, bisexual, and other men who have sex with men who are virally suppressed (HIV-RNA <200 copies/mL) are not at risk of transmitting the virus to their partners. The original PARTNER study followed 548 heterosexual and 340 HIV-serodifferent male couples reporting condomless sex.⁵ During a median follow up of 1.3 years per couple involving 58,000 instances of condomless sex, 11 study participants acquired HIV. None, however, were phylogenetically linked to their virally suppressed partners with HIV.

To strengthen the statistical certainty of these results, particularly among same-sex male couples, a second phase of the study involving an additional 635 HIV-serodifferent male couples was conducted, allowing for 1,596 couple-years of data involving nearly 77,000 condomless sex acts.⁶ According to the results reported in Amsterdam:

- There were 15 new infections, though none of these transmissions were phylogenetically linked to the partner with HIV enrolled in the study; the risk of infection among the couples was effectively zero.
- The upper bounds of the 95% confidence intervals for any sex between male couples (0.84%) and for receptive anal sex with ejaculation (4%) in the first phase of PARTNER were reduced to 0.23% and 0.57%, respectively, following the second phase of the study. In other words, if the 0.23% upper bound of the 95% confidence interval reflects the worst-case true risk of HIV transmission associated with any condomless sex between serodifferent

male couples in which the HIV-positive partner maintains virologic suppression and the study was repeated multiple times, one infection might occur among more the 400 couples followed for a year – or one couple followed for more than 400 years.

- “It is clear through the PARTNER clinical trials that the chance that people who are virally suppressed can transmit HIV is zero. Undetectable does equal untransmittable,” said lead PARTNER investigator Alison Roger at a press conference highlighting the final study results.

The evidence confirms:

- Zero new linked transmissions in the PARTNER study and zero transmissions from virally suppressed partners in HPTN 052 equates to there being effectively no chance of sexual HIV transmission from people living with HIV who are on ART and durably virally suppressed.
- An [FAQ on the original PARTNER study results](#) notes that STIs and likely small short-lived increases in viral load or ‘blips’ did not increase HIV transmission risk during sex in this study. STIs and viral blips have not been shown to increase transmission risk from an HIV positive person who is on ART and virally suppressed in any study or empirical evidence to date.

These findings have been embraced by leading experts in the field:

- Dr. Maureen Goodenow, Director of the Office of AIDS Research, at the National Institutes of Health (NIH), said in a [2018 Director’s Update](#), “[Undetectable=Untransmittable] is a game changer because it transforms the social, sexual, and reproductive lives of people with HIV. It enables people with HIV and their partners to be in a relationship without fear of transmitting HIV.”
- Dr. Anthony Fauci, Director of NIAID, at the National Institutes of Health, said in an August 2016 [NIH Interview](#), “Suppressing the viral load of a person living with HIV to undetectable levels not only saves their lives but prevents them from infecting others. So the higher percentage of people who are on treatment, in care and get their viral loads to undetectable, the closer you get to literally ending the epidemic”
- Dr. Carl Dieffenbach, Director of the Division of AIDS, NIAID, at the National Institutes of Health, said in a Nov 2016 [NIH interview](#), “Once you begin therapy and you stay on therapy, with full durable virologic suppression, you are not capable of transmitting HIV to a sexual partner.” Dr.

Dieffenbach went on to explain, “With successful ART, that individual is not infectious”

- The Division of HIV/AIDS Prevention at the U.S. Centers for Disease Control and Prevention, said in a [2017 letter](#), “Across three different studies, including thousands of couples and many thousand acts of sex without a condom or pre-exposure prophylaxis (PrEP), no HIV transmissions to an HIV-negative partner were observed when the HIV-positive person was virally suppressed. This means that people who take ART daily as prescribed and achieve and maintain an undetectable viral load have effectively no risk of sexually transmitting the virus to an HIV-negative partner.”

RECOMMITMENT ACTIONS FOR GOVERNMENTAL PUBLIC HEALTH

NASTAD and its members will continue to widely share this conclusive scientific understanding of the risk of sexual transmission of HIV from virally suppressed people living with HIV to promote optimal health outcomes, sexual and reproductive health, and reduce stigma. We will continue to support efforts to examine and support evidence-based public health policies, approaches, and resources to promote and reduce barriers to HIV prevention and care. NASTAD members will also continue to emphasize the importance of providing comprehensive prevention and care services for people living with HIV to improve their quality of life and reduce risk of transmission to others.

In conjunction with new and existing partners, our members also pledge to:

- Promote public education and an evidence-based understanding of HIV transmission risk
- Use this information to provide unequivocal public health leadership and support on decriminalizing HIV status
- Promote comprehensive care services for individuals living with HIV and work to achieve viral suppression among all people living with HIV
- Promote comprehensive prevention services for HIV-negative individuals vulnerable to HIV acquisition

NASTAD will continue to advocate at the national level to raise awareness about the latest science of

HIV transmission risk and implement policies and practices grounded in our best science void of stigma and discrimination. Finally, NASTAD will continue to monitor the scientific landscape for advances that will enhance our understanding of how to reduce new HIV infections and optimize the quality of life for people living with HIV.

NASTAD (National Alliance of State & Territorial AIDS Directors) is a leading non-partisan non-profit association that represents public health officials who administer HIV and hepatitis programs in the U.S. and around the world. Our singular mission is to end the intersecting epidemics of HIV, viral hepatitis, and related conditions. We do this work by strengthening domestic and global governmental public health through advocacy, capacity building, and social justice.

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