Ongoing Engagement in Care Associated With Drop in HIV Transmission

Getting to undetectable requires continued engagement in care, especially for people facing additional challenges.

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A modeling study described in the Journal of the International AIDS Society suggests that continuing engagement in care can reduce the number of HIV transmissions over time, as viral loads continue to drop.

Researchers have already shown that once people with HIV have an undetectable viral load, they do not transmit HIV, a concept known as Undetectable Equals Untrasmittable, or U=U. Researchers with the Centers for Disease Control and Prevention previously found that people with viral suppression account for none of the estimated 37,000 new cases of HIV in a year. But Satyanand Satyanarayana, JD, of the University of Miami Department of Psychology, and colleagues wanted to know how HIV transmission changed over time for people in the real world—people with mental health issues and other challenges.

So the researchers drew data from 14,261 people living with HIV who received care through the Centers for AIDS Research Network of Integrated Clinical Systems between 2007 and 2017. The centers were in San Francisco; Birmingham, Alabama; Seattle; San Diego; Boston; Baltimore; and Chapel Hill, North Carolina. Then they pulled health data for the participants, including viral load, doctor visits and data on syndemic conditions—which in this case meant anxiety, depression and alcohol or drug misuse disorder as quantified by standard questionnaires. They also gathered data on number of sex partners in the last six months and frequency of condom use.

In this way, the team cobbled together snapshots of viral load and coexisting health conditions four to six months apart and generated a model to calculate the risk of HIV transmission at each point and over time.

The 14,261 people on HIV treatment made 61,198 primary visits for HIV care during the study period. Fifty-eight percent of participants were white, and 33% were Black. Most (84%) were cisgender men, and 17% were women, including 163 transgender women. Just over half (54%) were gay and bisexual men. The median age was 44.

At the first visit, 76% of all participants had an undetectable viral load, defined in this study as below 400 copies. But that varied across groups: 80% of cisgender straight men had an undetectable viral load compared with 76% of gay and bisexual cisgender men, 77% of transgender women and 75% of cisgender women. Men without a disclosed sexual orientation had the lowest rate of viral suppression, at 73%.

At baseline, depression was the most common comorbidity, with 46% meeting criteria for this diagnosis. More than one in four reported symptoms of anxiety, 24% reported high alcohol consumption and 15% reported using substances such as amphetamines, cocaine, heroin and other opioids. Interestingly, the researchers found that the longer people remained engaged in care, the lower their viral load and the lower their risk of transmitting HIV. Their likelihood of experiencing these other conditions also decreased.

By the end of the study, the viral suppression rate was 85% overall, including 88% of cisgender heterosexual men, 86% of both transgender women and cisgender gay and bisexual men, and 82% of cisgender women. Once again, cisgender men with an undisclosed sexual orientation had the lowest viral suppression, at 80%.

At the beginning of the study, the researchers modeled 0.83 HIV transmissions per 100 people annually. But as they remained in care and on treatment, the model predicted that this would fall to 0.38 HIV transmissions per 100 people. Overall, attendance at each clinical visit was associated with a 0.05 drop in HIV transmissions.

This changed with the number of co-occurring conditions, however. People with none of the identified comorbidities had an overall risk by the end of the study of 0.19 transmissions per 100 people per year—half of the 0.38 transmissions overall. But if a person had all four coexisting conditions, the model predicted that there would be 1.32 HIV transmissions per 100 people. And that’s for everyone together. For cisgender women, the model calculated that 0.25 transmissions per 100 people would occur, while for transgender women, the presence of multiple other conditions would result in 2.21 HIV transmissions per 100 people. For cisgender gay and bisexual men, the presence of four coexisting conditions translated to 1.83 HIV transmissions per 100—a rate that was statistically the same for transgender women.

“On the individual level, our finding raises questions for future study as to whether the effects of time in care are a function of retention in care and resultant viral suppression, of decreased sexual activity over time (or once in care), and/or of increased prevention behaviors resulting from clinic prevention messaging,” wrote Satyanarayana and colleagues. “A future direction of study is the measurement of structural syndemic conditions (e.g., housing instability, criminal justice involvement, poverty) to understand how structural barriers influence individual transmission risk.”

Click here to read the study.

Click here to learn more about HIV treatment and U=U.
