Incidence Survey (RAHIS) estimated a 1 year incidence of 0.27 per 100 person-years (95% CI 0.18–0.35)—twice the estimate produced by Spectrum modelling. Despite some shortcomings, the advantage of the RAHIS methodology is its ability to detect localised outbreak infections that mathematical modelling has been unable to show.

Treatment scale-up has been a big success story for sub-Saharan Africa and directly linked to reductions in new HIV infections. But treatment must not be considered the only pathway to ending AIDS. Other branches of this journey, to take us the final mile, must include simultaneous efforts to expand the delivery of behavioural interventions, including adherence support, and structural interventions that improve access and uptake of ART services. Structural interventions that have been successful in Rwanda have included concurrent efforts to scale up ART along with health system strengthening activities including roll-out of a national community-based insurance scheme (Mutuelle de Santé) and health-facility performance-based financing. Finally, strengthened data systems to track the epidemic and guide response efforts are needed to empirically measure success.

Kharsany and colleagues addressed many of these challenges for high prevalence settings where low ART coverage resulting in a high community viral load will continue to limit efforts to control HIV. Although ART scale-up has been a success story for sub-Saharan Africa, Kharsany and colleagues remind us that understanding the sub-national context is still needed to better guide response efforts. In the HIV response for sub-Saharan Africa, we have arrived at the delta of the Nile River, with many pathways ahead to consider. Subnational data are crucial to investing in the right combinations of pathways to end AIDS by 2030.

*Sabin Nsanzimana, Jamie I Forrest*
Institute for HIV Disease Prevention and Control, Rwanda Biomedical Center, Kigali, Rwanda (SN); and MTEK Sciences, Vancouver, Canada (SN, JIF)

nsabinco@gmail.com or sabin/nsanzimana@rbc.gov.rw


Treatment for HIV prevention, one couple at a time

The belief that treatment of HIV infection will reduce the spread of the virus was inspired by a series of observational studies of HIV serodiscordant heterosexual couples, in which HIV transmission was reduced or eliminated if the sexual partner with HIV was given antiretroviral therapy (ART), and by the results of the HPTN 052 multinational randomised controlled trial. However, these studies included few homosexual couples; therefore, the risk of HIV transmission from condomless anal intercourse could not be addressed.

Bavinton and colleagues report on the Opposites Attract study of HIV transmission in serodiscordant homosexual couples living in Australia, Brazil, and Thailand. 343 couples were followed up for 588.4 couple-years. More than 75% of HIV-positive partners had durable suppression of HIV to less than 200 copies per mL with ART. Bavinton and colleagues detected no phylogenetically linked HIV transmission events in 16 800 acts of condomless anal intercourse reported. Three participants acquired HIV from a...
sexual partner outside the study. These results confirm the earlier work of Rodger and colleagues who followed up 340 homosexual couples for 439 couple-years and noted no linked HIV transmission events. The published research seems to contain no reliable reports of HIV transmission within couples when HIV replication in the infected partner has been durably suppressed.

The efficacy of HIV treatment to prevent HIV transmission deserves further examination. Although ART suppresses HIV in blood, copies of HIV can routinely be recovered from semen. The success of treatment as prevention suggests that HIV detected in semen (despite treatment) is either not replication competent or does not reach a crucial concentration required for transmission, or that antiviral drugs concentrated in semen inhibit transmission after ejaculation. Development of strategies to eliminate HIV from male and female genital tracts remains important to cure HIV infection.


A third of HIV-negative partners reported daily use of PrEP during follow-up. Nonetheless, in 232-2 couple-years of follow-up in which condomless anal intercourse was reported and PrEP was not used, no transmission events were detected. It has been argued that serodiscordant couples should use PrEP when ART is initiated because HIV transmission events have been observed during this window of time. Additionally, reliable viral suppression in a HIV-positive individual depends on selection of appropriate agents and patients’ adherence to medications. ART delivered through long acting injection agents or implants might have an important role in the management of serodiscordant couples.

TREATMENT OF HIV FOR PREVENTION HAS BECOME THE MAINSTAY OF HIV PREVENTION WORLDWIDE, AND SEEMS TO HAVE DECREASED HIV INCIDENCE IN MANY COUNTRIES. However, such benefit is realised one couple at a time. The Opposites Attract and PARTNER studies show the benefits of treatment as prevention to homosexual couples and in HIV prevention during condomless anal intercourse. Furthermore, detection and treatment of HIV infection improves quality of life and life expectancy. As shown in this study and other studies, successful treatment of HIV reduces the risk of sexual transmission to a negligible level. The Undetectable=Untransmittable campaign was launched to inform people with HIV that treatment eliminates contagion, which should reduce stigma.

The findings from Opposites Attract further contribute to our understanding of the prevention of transmission of HIV, and to the wellbeing of people with HIV infection.

Myron S Cohen
Institute for Global Health and Infectious Diseases, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599-7030, USA
mscohen@med.unc.edu
I report personal fees from Merck and Gilead outside the submitted work.