Gay men’s attitudes towards and perceptions of viral load and treatment as prevention

Question

What are gay men’s attitudes towards and perceptions of viral load and treatment as prevention?

Key Take-Home Messages

- Findings from recent studies (1-3) have highlighted the potential for antiretroviral therapy to prevent HIV by reducing an HIV-positive person’s viral load.
- Prevention experts are concerned that active promotion of “treatment as prevention” may undermine the benefits of widespread antiretroviral use by contributing to treatment optimism and increasing risk behaviours (4).
- The limited number of studies over the past five years suggest that treatment-related beliefs of reduced infectivity could lead to an increase in sexual risk-taking (5;6), particularly among HIV-positive gay men who believed that undetectable viral loads reduced HIV transmission (5).
- Some studies found that HIV-positive gay men who had undetectable viral loads were more likely to engage in unprotected anal intercourse, but other studies did not find the same association (5;7-10). Differences were associated with one’s own/partner’s HIV status, and type of partnership.
- HIV sero-concordant partners (i.e., both HIV-positive) were more likely than sero-discordant partners (i.e., one partner HIV-positive and one HIV-negative) to discuss viral load when making decisions about whether to engage in unprotected anal intercourse (10).
- The literature highlighted significant differences in sero-discordant partners’ understanding of viral load and in their decisions to use condoms (8).

The Issue and Why It’s Important

In January 2008, the Swiss Federal Commission on HIV/AIDS declared that HIV-positive individuals in stable sero-discordant relationships (one in which one partner is HIV-positive and the other is HIV-negative) could be considered non-infectious if they adhered to combination antiretroviral therapy, showed an undetectable viral load for at least six months, and were free of co-existing...
References


Two years later, Cohen et al. (1) published findings from HIV Prevention Trial Network 052 (HPTN 052) the first randomized controlled, multi-country trial to test the efficacy of early antiretroviral therapy (i.e., starting treatment at CD4 550 instead of waiting until CD4 350) as an HIV prevention strategy. The study confirmed outcomes from previous observational studies by demonstrating a decrease in sexual transmission of HIV among heterosexual HIV sero-discordant couples when the HIV-positive partner was on antiretroviral therapy (1).

Following HPTN 052, the concept of “treatment as prevention” gained widespread attention. In this prevention model, administering combination antiretroviral therapy to an HIV-positive individual aims to decrease viral replication and suppress viral load in both blood and genital fluid in order to improve the person’s quality of life, and also decrease the risk of HIV transmission (1).

In addition to reducing an individual’s viral load, “treatment as prevention” has been discussed for its potential to have population-level effects by decreasing the amount of virus circulating within a community, ultimately decreasing the number of new infections. A study (2) in British Colombia found that between 1996 and 2009, the number of individuals receiving highly active antiretroviral therapy increased from 837 to 5413 and the number of new diagnoses fell from 702 to 338 per year, and concluded that this was due to population-level effects of treatment. The authors also stratified their analysis by injection drug users, showing that between 1999 and 2009, new HIV diagnoses in this population decreased from 159 to 80 (2). These results confirm findings from a previous study which demonstrated reductions in community viral load as a result of highly active antiretroviral treatment decreasing HIV incidence in a cohort of injecting drug users (2). However, a recent study (12) in Alberta, which measured the impact of highly active antiretroviral therapy on community viral load between 2001 and 2010, found that the proportion of people on therapy increased from 62% to 81%, the proportion with undetectable viral load (viral loads less than 50 copies/mL) increased from 32% to 66%, and the proportion with viral suppression (viral loads less than 200 copies/mL) increased from 49% to 72% – yet annual community viral loads did not vary significantly after 2003 (12). The study also found that newly diagnosed HIV patients, and patients transferring in and out of the region or who were lost-to-follow-up accounted for 38% and 33% respectively of community viral load (12). It is important to note that often these population-level studies do not stratify their analyses by sub-populations such as men who have sex with men.

Nonetheless there are population-level studies of “treatment as prevention” among men who have sex with men, although the effects are difficult to establish. A recent study in San Francisco (3) suggested that increased antiretroviral therapy coverage has stabilized prevalence and decreased incidence of HIV. However, a nationwide study of men who have sex with men in England (13) found that, despite the widespread increase in antiretroviral treatment (from 69% to 80% of people with HIV), neither HIV incidence nor the number of undiagnosed HIV infections changed between 2001 and 2010. In October 2013, Cohen et al published an editorial cautioning the field about the generalizability of the HPTN052 findings to other groups, particularly men who have sex with men (14).

While effective HIV treatment does reduce infectiousness, prevention experts are concerned that the “treatment as prevention” model could undermine the benefit
of widespread antiretroviral use by increasing risk taking within high risk populations, such as men who have sex with men (4). They worry that these findings are affecting individuals’ perceptions about HIV infectivity and risk of transmission, and may lead some people to engage in risky behaviours such as unprotected anal intercourse (4;14). The way that the “treatment as prevention” messages are being communicated often fail to take into account other factors that affect infectivity, including how difficult it is to consistently adhere to antiretroviral treatment over time (14), the fact that those who regularly adhere to antiretroviral therapy may still experience erratic short term increases in viral load (15), and that people can continue to have higher viral load in genital fluids even when virus levels in the blood are undetectable. (16;17). Furthermore, “treatment as prevention” can lead to “treatment optimism” (4-6), a term used to describe the belief that safe sex is less important because being diagnosed with HIV is less serious nowadays, as a result of improved treatment outcomes that mitigate the impact of the virus. As such, it is important to understand gay men’s attitudes towards and perceptions of treatment as prevention and viral load, in addition to considering how “treatment as prevention” research is communicated and therefore impacts gay men’s community sexual safety norms.

What We Found

This rapid response summary reviewed three studies on treatment and four studies on viral load published in the last five years.

Treatment as Prevention

A review by Chen et al (18) on treatment as prevention examined the role of treatment optimism-related beliefs in changing people’s sexual risk behaviours. Ten of the 14 studies were with people living with HIV, two were with HIV-negative individuals, and two were with both HIV-positive and HIV-negative individuals. Both quantitative and qualitative studies with varying sample populations largely found an association between optimistic beliefs related to reduced infectivity and risk of HIV transmission (18):

- A study of 346 HIV-positive men who have sex with men on treatment from multiple cities across the United States (5) found that treatment beliefs about the reduced ability to transmit HIV was significantly associated with sexual risk behaviours, particularly among men who believed that low or undetectable viral load reduced transmission risk. Treatment beliefs were also found to be related to race, socio-economic status, alcohol and drug use, and mental health (5).

- A qualitative study of HIV-positive men who have sex with men (6) found only a small group of participants perceived that HIV treatments could reduce infectivity. However, participants described the shifting community norms that led to overall beliefs that undermined the importance of safe sex within the gay community (6).

Another related issue is the difficulty in establishing whether attitudes change behaviours or behaviours change attitudes. For example, a study of 217 HIV-negative men who have sex with men from Amsterdam (19) argued that treatment optimism precedes unprotected anal intercourse. Men who perceived that antiretroviral therapy reduced the threat of HIV were more likely to change behavior and engage in unprotected receptive anal intercourse. Conversely, a


18. Chen MY, Bilard JE, Lee D, Cummings R, Bush M, Fairley CK. Aus-
longitudinal study that included 538 HIV-negative men from the United States (20) found that treatment optimism did not predict unprotected anal intercourse, but engaging in unprotected anal intercourse did predict later treatment optimism.

**Viral Load**

The literature reinforces that there is a complex relationship between people’s knowledge of viral load and individual decisions to engage in sexual risk behaviours. It also highlight differences in understanding and safe-sex decision-making practices between sero-discordant partners.

- An Australian study (8) explored the association between viral load and unprotected anal intercourse among HIV sero-discordant gay couples and found that HIV-negative men in discordant relationships used the knowledge of their positive partner’s viral load to make a decision about whether or not to use a condom during intercourse. In contrast, the HIV-positive men in discordant relationships who had detectable viral loads were as likely as those who had an undetectable viral load to engage in unprotected anal intercourse with their negative partner (8).

- A French study of 670 HIV-positive gay men between 2000 and 2009 (9) also found that people with HIV who had detectable viral load reported sexual risk behaviours as frequently as those with undetectable viral loads. In addition, the study found that sexual risk behaviours increased gradually over time, remaining significant even after adjustment for viral load (9).

- A study of HIV-positive men from the Netherlands (10) found that between partners with the same HIV status, sex buddies were more likely than casual partners to discuss low viral load before engaging in unprotected anal intercourse. However, among sero-discordant partners, there was no difference between sex buddies and casual partners in discussing viral load before engaging in unprotected anal intercourse (10). The study also found that partners with the same HIV status frequently discussed unprotected anal intercourse based on viral load, while serodiscordant partners discussed viral load much less frequently (10). Authors suggested that this may be due to the HIV-positive partner not disclosing his status to the negative partner in order to avoid stigma and discrimination (10).

- An American study of gay men (7) showed that men who believed that low viral load reduces transmission risk were more likely to engage in unprotected sex with sero-discordant casual partners.

### Factors That May Impact Local Applicability

All papers included in this summary were published in the last five years and conducted in high income countries with HIV epidemics among gay men similar to that in Canada. The literature on gay men’s attitudes and perceptions on treatment as prevention and viral load is recent and, therefore, limited.

### What We Did

We searched PsychInfo, Sociological Abstracts, Social Sciences Abstracts, International Bibliography of the Social Sciences (IBSS), Social Sciences Citation Index, ASSIA: Applied Social Sciences Index and Abstracts using a combination
of text terms ((Gay) OR (men who have sex) OR (MSM)) AND (viral load). We also searched Scopus using a combination of text terms ((Gay) OR (men who have sex) OR (MSM)) AND (treatment as prevention). We reviewed references in the studies found. All searches were limited to articles published since 2007 in English.