

Expert Consensus Viral Load and Risk of HIV Transmission



SUMMARY

Mai 2014

Comité sur les infections transmissibles sexuellement et par le sang (CITSS)

Background

In the mid-1990s, the arrival of effective antiretroviral therapy (ART) was a turning point in the treatment of people living with HIV (PLWH). At the time, some researchers put forward the idea that by controlling viral replication, ART could lower the risk of HIV transmission. Since then, a number of observational cohort studies, one randomized controlled study, a number of systematic literature reviews, and modelling studies have highlighted the important role played by viral load in reducing the risk of sexual HIV transmission. In some countries, expert groups have also adopted a position on this matter.

To date, there is no consensus amongst Quebec experts on viral load and HIV transmission risk reduction. PLWH and their partners could therefore receive contradictory information because healthcare and social services workers do not have resources that provide clear information on this matter.

Purpose of the Report

In 2013, the Service de lutte contre les ITSS (SLITSS) of the Ministère de la Santé et des Services sociaux (MSSS) of Québec asked the Comité sur les ITSS (CITSS), which is part of the Institut national de santé publique du Québec (INSPQ), to assess the effect of an undetectable viral load on the risk associated with condomless oral, vaginal, and anal sex. This request was made to support updating the *Estimation du risque associé aux activités sexuelles*, a resource designed to help guide risk-reduction counselling.

Method

Using a rigorous evaluation methodology, an expert subcommittee performed a literature review on the risk of HIV transmission through oral, vaginal, and anal sex in the presence of an undetectable HIV viral load. The group based its risk level assessment on the chart contained in the document *Estimation du risque associé aux activités sexuelles* developed by the MSSS. The report was presented to the INSPQ's CITSS, which approved it on November 11, 2013.

Main Findings from the Literature Review

Generally measured in plasma, the viral load represents the number of viral copies of HIV per millilitre (mL). There is a strong correlation between the viral load in plasma and the viral load in genital and rectal secretions.

However, the virus may be present in greater quantities in genital and rectal secretions even when the viral load is undetectable in plasma. The viral load can fluctuate slightly at times. In addition to these small variations, called “blips”, the viral load can sometimes increase and become detectable as a result of specific factors, such as a co-infection with another sexually transmitted and blood-borne infection (STBBI), the type of ART used, treatment adherence, the emergence of viral resistance to treatment, and the stage of HIV infection.

Given that the threshold for viral load detection varies depending on the sensitivity of the testing kits used, **this Expert Consensus establishes that an undetectable viral load is achieved when the number of viral copies is below 40 copies per mL and is maintained below this level for a period of at least six months, as shown by two consecutive viral load tests.**

The viral load threshold below which there is no risk of HIV transmission remains unknown. International studies investigating the effect of ART on the risk of HIV transmission have been conducted almost exclusively among heterosexual couples. These studies indicate that HIV transmission risk during vaginal intercourse is significantly reduced when a PLWH is on ART and the following conditions are met: absence of other STBBIs in both partners, treatment adherence, and regular and appropriate care and counselling. These studies highlight that under the same conditions, risk reduction for oral, insertive anal, and receptive anal sex could be similar to that for vaginal intercourse.

Studies published on these matters have some limitations because of a lack of data about gay couples, the exact measurement of the viral load at the time of transmission, the type of sexual activity, and the frequency of use of other protection methods, among other things.

An undetectable viral load and the use of condoms are two effective prevention strategies that are significantly different in the way they work. No consensus currently exists on the superiority of either strategy.

INSPQ's Expert Consensus

The Expert Consensus concludes that **the transmission risk during condomless vaginal intercourse is reduced from “high” to “negligible or very low” only when all of the following conditions are met:**

- The PLWH's viral load is undetectable by laboratory methods currently in use in Quebec and remains undetectable for at least six months (in response to ART), as measured by two consecutive viral load tests;
- The PLWH adheres to treatment at a rate of 95% or higher;
- The PLWH is in a stable and exclusive relationship with their partner;
- Neither of the partners has another STBBI;
- Both partners receive intensive medical care (every three or four months) that includes viral load measurement for the PLWH, screening for STBBIs in both partners, and HIV testing for the HIV-negative partner;
- Both partners receive regular and appropriate counselling.

According to the experts, mathematical and theoretical assessments, as well as epidemiological data, support the position that **the risk associated with oral sex** may also reach the risk level of **“negligible or very low” only if the aforementioned conditions are met.**

Also, according to the experts, the same position can be taken for **the risk associated with insertive and receptive anal sex, that is, going from “high” to “negligible or very low,” only if the aforementioned conditions are met.**

Conclusion

Aside from stating the INSPQ's position on this matter, the findings from this report will contribute to the update of the MSSS's tools and guides for clinical practitioners and other health and social services professionals. These documents will reflect the best scientific knowledge to date on the risk of HIV transmission when a person's HIV viral load is undetectable.

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