HIV prevention within serodiscordant couples: A changing paradigm

By James Wilton

Serodiscordant couples (where one partner is HIV negative and the other is HIV positive) are often thought to be at “high risk” of HIV transmission. However, new understandings of the biology of HIV transmission and the emergence of new HIV prevention options mean that the HIV transmission risk within these couples can be reduced to very low, even negligible levels. In fact, preventing HIV transmission may be easier for couples in serodiscordant relationships compared to couples in other types of relationships, such as presumed seroconcordant HIV-negative relationships (where both partners believe themselves to be HIV negative) and individuals in casual relationships.

This article explores this changing HIV risk paradigm and how frontline service providers can help people in known serodiscordant relationships to reduce their HIV transmission risk.

Note: we define a serodiscordant couple as two people (one HIV positive and the other HIV negative) who are in an ongoing sexual relationship in which both partners have tested for HIV and there has been full disclosure of HIV status.

How common are serodiscordant relationships?

We don’t have good estimates of how many people in Canada are in serodiscordant relationships. While HIV-related studies of populations in Canada often ask participants about the HIV status of their sex partners, the full nature of these sexual relationships are rarely explored in detail.

The changing HIV risk paradigm

Serodiscordant couples are often thought to be a population at “high risk” of HIV transmission. Therefore, it may come as a surprise to know that the HIV transmission risk within these couples can be reduced to very low, even negligible levels. This reality is the result of our relatively new knowledge of the biology of HIV transmission and the emergence of new HIV prevention options.

Unfortunately, many people remain fearful of entering into serodiscordant relationships, suggesting this new information on HIV transmission and prevention is not reaching those who need it. For example, in a telephone survey of over 1,000 gay and other men who have sex with men (MSM) across Canada conducted in 2011–2012, 49% of men said they would not have sex with an HIV-positive man even if they were very attracted to him. Furthermore, 68% of HIV-positive men in this survey said they worry about being rejected by gay and bisexual men in their community because of their HIV status.

Contrary to common belief, preventing HIV infection may in fact be easier for couples in serodiscordant relationships compared to couples in other types of relationships, such as presumed seroconcordant HIV-negative relationships.
relationships (where both partners believe they are HIV negative). This is because being in a serodiscordant relationship can:

- **Open the option of** using antiretroviral treatment (ART) as an HIV prevention strategy. ART can reduce the amount of virus (viral load) in the bodily fluids of an HIV-positive partner to very low levels and this can dramatically reduce a couple’s risk of HIV transmission.

- **Provide motivation** for the adoption of risk-reduction strategies to prevent HIV transmission. For HIV-negative individuals who are not in a serodiscordant relationship, it can often be difficult to assess one’s risk of HIV transmission. Low perception of HIV risk may reduce motivation to adopt risk-reduction strategies.

- **Eliminate uncertainties** related to a partner’s HIV status. In seroconcordant HIV-negative relationships, it can be difficult to know for sure whether both partners are actually HIV negative (particularly if the relationship is non-monogamous). If one partner is unknowingly infected with HIV, the couple’s risk of HIV transmission can be very high because the viral load of the HIV-positive partner is probably elevated and the couple may not be using preventative measures.

HIV prevention may also be easier for individuals in stable serodiscordant relationships compared to those who are in more casual relationships. For people who are in stable relationships, there is more opportunity for the ongoing sharing of information that is important for making informed safer sex decisions, such as results of HIV and sexually transmitted infection (STI) screening and viral load testing. Also, partner support can play an important role in ensuring an HIV prevention strategy is used consistently and correctly.

**Counselling serodiscordant couples and discussing HIV risk**

There are several HIV prevention strategies that can dramatically lower the risk of HIV transmission within serodiscordant relationships. Integrating information about these strategies into education and counselling for clients can help improve awareness of these options and facilitate informed decisions to adopt them. Since inconsistent and incorrect use can be common and compromise a strategy’s effectiveness, counselling can also play an important role in ensuring a couple optimizes the prevention benefit of these strategies.

Before discussing highly effective strategies with a client, you may want to consider the following:

**Couples-based counselling**

Counselling both partners in a serodiscordant relationship at the same time (couples-based counselling) may be more effective in reducing risk behaviours compared to counselling the partners individually. Couples-based counselling can create a supportive space where partners can come to a consensual agreement on how to reduce their risk of HIV transmission and develop ways to support each other in using HIV prevention strategies consistently and correctly. Couples can also be supported to discuss potentially sensitive issues relevant to HIV prevention, such as sexual intimacy, relational dynamics and whether there are sexual partners outside of the relationship. Through counselling, heterosexual couples can also explore whether plans to have children may influence the adoption of HIV prevention strategies.

**Assessing baseline risk**

Before discussing risk-reduction strategies, service providers should explore what kind of sex a couple is having, how high or low they perceive their HIV transmission risk to be (and correct any misconceptions), and how comfortable they are with their level of risk. To determine whether engaging in activities with a lower baseline risk for HIV transmission is a possible option (for example, engaging in oral sex instead of vaginal/anal sex or decreasing their frequency of receptive anal sex – where the HIV-negative partner takes the receptive role), it may be important to discuss the types of sex they enjoy most, what they want from sex, and how types of sex with a lower risk can be eroticized. If a couple’s baseline risk is very high, reducing their risk to a low/negligible level may require the use of a combination of HIV prevention strategies.

**Communicating cumulative risk**

The potential for ongoing HIV exposures within a serodiscordant relationship means that the risk of transmission can accumulate quickly. Highly effective strategies can reduce the risk of HIV transmission from a single exposure to very low or negligible levels, but these small risks can accumulate and become larger in the long term with multiple
exposures. Combining more than one HIV prevention strategy can help slow the accumulation of risk and minimize a couple’s risk of HIV transmission over the long term.

**Exploring highly effective HIV prevention strategies**

In this article, highly effective strategies are defined as strategies that can reduce the risk of HIV transmission by over 90% when used consistently and correctly. Unfortunately, research shows that incorrect and inconsistent use of these strategies can be common and this can reduce their effectiveness in preventing HIV transmission. In other words, a highly effective strategy can become an ineffective one if not used well.

When discussing prevention options with clients, it is important to explore how well a couple will be able to use a prevention option in order to facilitate the adoption of a strategy that will work best for them.

**Use of antiretroviral treatment as prevention**

Antiretroviral treatment can reduce the viral load in the bodily fluids of a person with HIV to undetectable levels and this can lower the risk of HIV transmission through anal and vaginal sex. Several studies show that ART can reduce the risk of HIV transmission by 90% or more if used consistently and correctly.\(^3\)\(^,\)\(^4\)\(^,\)\(^5\) [For more up-to-date information see the CATIE statement on the use of antiretroviral treatment (ART) and an undetectable viral load to prevent the sexual transmission of HIV.]

However, research suggests some couples are not optimizing the HIV prevention benefit of ART. For example, in an analysis combining the results of nine studies, ART only reduced the risk of HIV transmission between serodiscordant couples by 42%.\(^3\) In fact, two studies included in the analysis found that ART provided no protection against HIV transmission. Many participants in these studies may not have been engaged in regular care, adherent to their ART regimen (adherence is important to keep the viral load undetectable) or tested regularly for STIs (infections in either partner may increase the risk of HIV transmission).

Counselling on the use of ART as prevention should include:

- **A discussion of the HIV prevention benefits of ART and the conditions that can maximize its effectiveness.** These conditions include 1) an undetectable blood viral load for at least 6 months; 2) no untreated STIs in either partner; and 3) regular medical visits to monitor the viral load and test for STIs.
- **Encouragement for the couple to discuss viral load test results on an ongoing basis** and an emphasis on the importance of not assuming the viral load is undetectable.
- **Support for ART adherence and engagement in care.** This should explore potential barriers to adherence/engagement (and how to overcome them) and the important role a partner can play in supporting adherence.

If the HIV positive-partner is not currently on treatment, counselling should include:

- **Provision of information on the health benefits of treatment and its potential side-effects.** This information is important to ensure a decision to start ART is well informed.
- **An assessment of readiness to start ART.** Effort should be made to ensure the HIV-positive partner is ready to commit to ongoing adherence to HIV treatment and is not being coerced into starting treatment (by their partner or healthcare provider).
- **Help to facilitate linkage to care and access to treatment** if the HIV-positive partner is not currently receiving care.

**Condoms**

Condoms act as a barrier to prevent bodily fluids containing HIV from coming into contact with the parts of the body that are vulnerable to HIV infection. There are two main types of condoms: the external (male) and internal (female) condom. The external condom is placed on the erect penis and the internal condom is placed within the vagina or rectum. If a condom is used correctly and doesn’t break, slip or leak, then there is no risk of HIV transmission because an exposure to HIV cannot occur. Condoms are the only HIV prevention strategy that can also reduce the risk of STI transmission and pregnancy.

Research suggests many people struggle to use condoms effectively. For example, analyses combining the results
of multiple studies have found that the \textit{consistent} use of condoms only reduced the risk of HIV transmission by 70 or 80\%.\textsuperscript{6,7} While participants in these studies said they were using condoms consistently, many participants may not have been using condoms \textit{correctly}. \textit{Incorrect} condom use can compromise the effectiveness of this strategy and research shows condom use errors are common.\textsuperscript{8} \textit{Inconsistent} use is also common and can dramatically reduce condom effectiveness.\textsuperscript{9}

Counselling on condoms should include:

- \textit{The offer of free condoms and lubricant}.
- \textit{Information on how to use condoms correctly}. This should include directions on how to open, put on, and take off condoms. It should also emphasize that the correct use of condoms means they are used for the entire duration of sex and in combination with a lubricant that is compatible with the type of condom used. Several sizes and shapes of external condoms are available and encouraging a couple to find a brand with good “fit and feel” may help prevent breakage/slippage and increase pleasure.
- \textit{Exploration of barriers to using condoms consistently and provision of support in trying to overcome them}. Common barriers to consistent condom use include lack of availability at the time of sex, erectile dysfunction, reduced pleasure or intimacy, and poor comfort. Possible solutions to discuss with clients include planning ahead and ensuring condoms are available, use of lubricant, and finding a brand of condom with improved “fit and feel.” The internal condom should be discussed with couples as a potential alternative to the external condom (for both anal and vaginal sex). Counselling may also want to explore the relationship between condoms and intimacy or encourage clients to seek medical advice for erectile dysfunction.

For more information see the \textbf{CATIE statement on the use of condoms to prevent the sexual transmission of HIV}.

\textbf{Pre-exposure prophylaxis (PrEP)}

PrEP refers to the ongoing use of anti-HIV medications by an HIV-negative person to reduce their risk of HIV infection. Several studies show that the use of a daily pill called Truvada as PrEP can reduce the risk of HIV transmission by over 90\% if used consistently and correctly.\textsuperscript{10,11,12} PrEP also involves regular visits with a service provider to monitor for side-effects, test for HIV and STIs, and receive a prescription for more pills. Although PrEP has not been approved in Canada, it is currently available through “off-label” prescriptions from healthcare providers. “Off-label” prescriptions are not prohibited in Canada and are common for some types of drugs.

Research shows that the effective use of this strategy can be challenging. For example, an analysis combining the results of several studies found that PrEP only reduced the risk of HIV infection by 47\%.\textsuperscript{13} In fact, two studies in the analysis found that PrEP provided no protection against HIV infection. Many participants in these studies were not taking their pills consistently and also had difficulty remaining engaged in PrEP services (and therefore may not have received a new prescription from their service provider).

Counselling on PrEP should include:

- \textit{Information on PrEP and help determining whether PrEP is right for the couple}. This should include an HIV risk assessment because PrEP is only recommended for HIV-negative people at “high risk” of HIV infection (because it is expensive and can cause side-effects). Discussing the risks and benefits of initiating PrEP can help facilitate an informed decision about this strategy. If a couple is already using a highly effective prevention strategy consistently and correctly (such as condoms and/or the use of ART as prevention), the risks/costs of PrEP may outweigh the benefits because the risk of HIV transmission may already be very low.
- \textit{Assistance in finding 1) a healthcare provider who is willing to prescribe PrEP and 2) a way to cover the cost}. Clients should be encouraged to discuss PrEP with their family doctor or the physician who prescribes ART to the HIV-positive partner. Clients should also contact their private health insurance company (if available) to determine if the cost of PrEP is covered. Public health insurance should also be contacted as they may cover some or all of the cost in some provinces/territories.
- \textit{Support with adherence and engagement in PrEP services}. This should explore potential barriers to adherence/engagement (and how to overcome them) and the important role a partner can play in helping to support adherence.

For more information see the \textbf{CATIE statement on the use of pre-exposure prophylaxis (PrEP) to prevent the sexual transmission of HIV}.
Reproductive technologies

The use of ART for prevention and PrEP are safe and effective options for couples who want to conceive through condomless sex and reduce their risk of HIV transmission. However, other highly effective, reproduction-specific prevention options also exist and should be discussed with clients. These options include sperm washing and assisted reproduction.\(^\text{14}\)

Additional prevention measures

Below is a description of HIV prevention strategies that are not highly effective when used alone, but can help reduce a couple’s overall risk of HIV transmission when used in combination with highly effective strategies.

Post-exposure prophylaxis (PEP)

PEP refers to the use of anti-HIV medications by an HIV-negative person to reduce the risk of HIV infection from a single exposure to HIV.\(^\text{15}\) It needs to be started as soon as possible (but generally within 72 hours) after an exposure and involves taking medications every day for a full month. PEP is not meant to be used as a regular method of preventing HIV infection, but only in the case of an emergency. It also involves several visits with a service provider to monitor side-effects and test for HIV.

Research shows that PEP is effective at reducing the risk of HIV infection from an exposure.\(^\text{16}\) However, waiting longer to access PEP, poor adherence to daily pill taking, and additional exposures to HIV while using this strategy have been associated with lower PEP effectiveness.\(^\text{16}\)

Counselling should include:

- **A discussion of when PEP is an appropriate HIV prevention tool.** PEP should only be used for “high-risk” exposures because it is expensive and has side-effects. A discussion of the risks and benefits of PEP can help facilitate an informed decision on what type of exposures PEP should be accessed for. If a couple is already using a highly effective prevention strategy consistently and correctly (such as condoms and/or the use of ART as prevention), the risks/costs of PEP may outweigh the benefits because the risk of HIV transmission may already be very low. Couples may want to prioritize PEP when highly effective strategies are not being used or in situations where they have been compromised, such as when a condom breaks, ART pills are missed, an STI is present, or tearing of the genital or rectal mucous membranes occur.

- **Assistance in developing a plan for accessing PEP quickly should it be needed.** Ideally, this planning should occur prior to the need for PEP, to ensure it can be accessed promptly when needed. Local hospital emergency departments should be contacted to determine if PEP is available and how much it costs. Emergency departments are the ideal location to access PEP as they are generally open 24 hours a day. Other potential sources of PEP include a family doctor, the HIV-positive partner’s HIV doctor, or local health clinics. Efforts should be made to determine whether public health insurance covers some or all of the cost of PEP. If clients have private health insurance, they should be encouraged to ask their insurance company about PEP coverage.

- **Support with adherence and engagement in PEP services.** This should explore potential barriers to adherence/engagement (and how to overcome them) and the important role a partner can play in helping to support adherence.

Management of STIs

Sexually transmitted infections in either the HIV-positive or HIV-negative partner can increase the risk of HIV transmission.\(^\text{17}\) Therefore, STI prevention and treatment may help lower a couple’s risk of HIV transmission.

Counselling should encourage couples to get tested for STIs (and treated if necessary) prior to engaging in sex that could lead to STI or HIV transmission. If a relationship is non-monogamous and there are other sex partners, a couple may want to get tested for STIs on a regular basis. Couples should be advised to use condoms when there is a risk of STI transmission.

Sexual agreements / negotiated safety

Counselling should encourage couples to discuss the status of their relationship (monogamous or non-
monogamous) and disclose whether there are sexual partners outside of the couple. Sex with outside partners can introduce STIs into the main relationship and this can increase the risk of STI and HIV transmission. Also, for a serodiscordant couple using a highly effective strategy consistently and correctly, the main risk of HIV infection for the HIV-negative partner can come from outside sex partners.\textsuperscript{3,4}

In order to prevent the introduction of STIs into a relationship, counselling should encourage and support non-monogamous couples with developing sexual agreements on what is (and isn’t) allowed with partners outside of the relationship. This counselling should establish the importance of disclosing when an agreement is broken, as disclosure can help inform decisions related to STI testing and prevention.

**Conclusion**

There are several HIV prevention strategies available to prevent HIV transmission within serodiscordant couples. While these can dramatically reduce HIV transmission risk, research shows that incorrect and inconsistent use can reduce their effectiveness. Frontline service providers can play an important role in helping serodiscordant couples choose, access, adopt and optimize these HIV prevention strategies.

**Related article**

For a discussion on counselling serodiscordant couples, see Views from the front lines: Counselling serodiscordant couples.

**Resources**

**Assessing baseline risk and communicating cumulative risk**

*Citing articles*

- Putting a number on it: The risk from an exposure to HIV – *Prevention in Focus*
- Certainly uncertain: Challenges in communicating HIV risk – *Prevention in Focus*

**Use of ART as prevention**

*Citing articles*

- CATIE statement on the use of antiretroviral treatment (ART) and an undetectable viral load to prevent the sexual transmission of HIV
- Treatment and viral load: what do we know about their effect on HIV transmission? – *Prevention in Focus*
- Insight into HIV transmission risk when the viral load is undetectable and no condom is used (overview of the PARTNER study) – *CATIE News*
- Quebec develops expert consensus on viral load and HIV transmission risk – *CATIE News*
- Guiding principles on the use of HIV treatment as prevention: an international community consensus statement – *CATIE News*
- Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations – The World Health Organization (WHO)
- Position statement on the use of antiretroviral therapy to reduce HIV transmission – The British HIV Association (BHIVA) and the Expert Advisory Group on AIDS (EAGA)

**Condoms**

*Citing articles*

- CATIE statement on the use of condoms to prevent the sexual transmission of HIV
- Condoms: Tried, tested and true? – *Prevention in Focus*
- High prevalence of condom use errors and problems—implications for HIV prevention messaging – *CATIE News*

**Pre-exposure prophylaxis**
Pre-exposure prophylaxis (PrEP) – CATIE fact sheet

CATIE statement on the use of pre-exposure prophylaxis (PrEP) to prevent the sexual transmission of HIV

Moving PrEP into practice: an update on research and implementation – Prevention in Focus

Truvada approved in the U.S. to help prevent HIV infection – CATIE News

Uptake of PrEP in the United States – CATIE News

PrEP use in the “real world”: Results from the iPrEX open label extension – CATIE News

Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations – World Health Organization

Preexposure prophylaxis for the prevention of HIV infection in the United States: A clinical practice guideline – Centers for Disease Control and Prevention

Reproductive technologies

Canadian HIV Pregnancy Planning Guidelines – The Society of Obstetricians and Gynecologists of Canada

Post-exposure prophylaxis

Post-exposure Prophylaxis (PEP) – CATIE fact sheet

Can we prevent infection with HIV after an exposure? The world of post-exposure prophylaxis (PEP) – Prevention in Focus

The PEP Program at Clinique l’Actuel – Programming Connection

STI management

STIs: What role do they play in HIV transmission? – Prevention in Focus

References


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