Unknown, negative or positive? Using knowledge of HIV status as an HIV prevention strategy

By James Wilton and Tim Rogers

As front-line workers in HIV prevention, it is important to understand what prevention strategies clients are using and how they understand the risks associated with them.

A common HIV prevention strategy used by gay men and other men who have sex with men (MSM) is known as “serosorting” and involves limiting all – or just “high-risk” – sexual activities to partners who have the same HIV status. For example, an HIV-negative person may choose to only have condomless sex with other people who are HIV negative or an HIV-positive person may choose to only have condomless sex with other people who are HIV positive. This strategy is used in the context of different types of relationships, such as stable, casual, monogamous and non-monogamous relationships.

This article focuses on how often serosorting is used, how well it works, and how knowledge of HIV status can be effectively used as a prevention strategy. The article only covers serosorting strategies that are based on individuals identifying themselves or others as HIV-positive or HIV-negative. It does not address other factors, such as viral load or use of other HIV prevention strategies, which play a very important role in assessing HIV risk. For information on these other strategies, please see the resource list at the end of the article.

How common is serosorting?

Serosorting is quite common among MSM in Canada and other parts of the world.

Research from the United States, Europe and Australia shows that 14% to 44% of HIV-positive MSM and 25% to 38% of HIV-negative MSM engage in serosorting behaviours. In a 2009 survey of MSM in Vancouver, serosorting was reported by 50% of HIV-positive MSM and 34% of HIV-negative MSM. Furthermore, in a national survey of HIV-negative and HIV-positive MSM in Canada, condomless sex was more common in casual and regular relationships where a partner was believed to have the same HIV status and less common in relationships where a partner was believed to have a different HIV status.

Does serosorting work?

The perception in the MSM community on the effectiveness of serosorting is mixed. In the 2011/12 Male Call Canada national telephone survey of men who have sex with men, respondents were asked how effective they think serosorting is. According to the study, 50% of respondents thought it was effective and 50% thought it wasn’t effective.

In theory, serosorting might be a highly effective strategy to reduce the risk of HIV transmission, since we know
there is no possibility of HIV transmission if both partners have the same status (with the exception of superinfection for HIV-positive serosorting - discussed later).

However, in practice, research tells us something different. While there is evidence that HIV-negative serosorting may provide some protection, there is still a relatively high risk of HIV infection among men using this strategy.

The largest study to explore the effectiveness of serosorting analyzed data from over 12,000 HIV-negative MSM in North America. This study defined HIV-negative serosorting as only engaging in condomless anal sex with partners who are thought to be HIV negative. The analysis found that the risk of HIV infection among “serosorters” was 57% lower compared to men who engaged in condomless receptive anal sex with partners of unknown/positive HIV status. However, the study also found that the risk of HIV infection among “serosorters” was 82% higher compared to men who did not have any condomless anal sex.

Other studies have found similar results: that serosorting generally decreases risk compared to using no prevention strategies but has a higher risk compared to using condoms consistently.

Why doesn’t it always work?

The effectiveness of serosorting is likely lower than most people would expect. Incorrect knowledge of one’s own, or one’s partners’, HIV status is the most probable explanation for this lower than expected effectiveness. If an HIV status is different from what was presumed, then the risk of HIV transmission associated with serosorting increases.

Unfortunately, research suggests incorrect knowledge of HIV status is common. There are two main reasons for this: problems with disclosure and false belief about one’s own HIV status.

Problems with disclosure

If disclosure of HIV status does not happen (non-disclosure), then the HIV status of a sexual partner may be incorrectly assumed.

For a variety of reasons, including privacy issues and fear of stigma, discrimination, rejection, violence or criminalization, many HIV-positive individuals do not disclose to sexual partners. Indeed, research suggests as many as 30% of MSM living with HIV don’t disclose their HIV status to sex partners before engaging in condomless anal sex. Many HIV-negative MSM also do not disclose their HIV-negative status. Moreover, a substantial proportion of MSM do not ask their sexual partners about their HIV status. In a Vancouver-based survey, 36% of both HIV-positive and HIV-negative MSM did not ask the HIV status of their sex partners.

Instead, men may make assumptions about a partner’s HIV status based on indirect clues rather than directly asking/talking about HIV status (also known as implied/inferred disclosure). For example, some men may base assumptions on a partner’s appearance or actions (that is, whether or not they want to use a condom) or the belief that a partner would disclose if their HIV status is different from them.

As a result, some HIV-negative men may assume their partners are HIV negative and some HIV-positive men may assume their partners are HIV positive. If these assumptions are incorrect, then the risk of HIV transmission increases. Unfortunately, research suggests incorrect assumptions may be common. For example, in a study of recently diagnosed MSM, 21% reported that they were certain the sexual partner who transmitted the virus to them was HIV negative. Similarly, in a study of people living with HIV, many (64%) incorrectly thought their sexual partners were also living with HIV.

False belief about one’s own HIV status

While disclosure is an important step in the serosorting process, it only works if the HIV status being disclosed is accurate. While it is relatively easy to be certain of an HIV-positive status (once someone is diagnosed as HIV-positive, their HIV status is known and does not change), it can be more difficult to know for certain if one is HIV negative. Consequently, some men may incorrectly think, and disclose, that they are HIV-negative when they are
It is estimated that approximately 20% of HIV-positive MSM in Canada are unaware of their own HIV infection. These men may think and disclose that they are HIV negative and engage in serosorting behaviours based on this assumption. For example, a study from Vancouver reported that 50% of undiagnosed HIV-positive MSM thought they were unlikely or very unlikely to acquire HIV in their lifetime (despite already being infected) and 39% reported the use of serosorting to reduce their risk of becoming infected. In another study, approximately 20% of men who serosorted said they were HIV negative even though they hadn’t been tested in the last 12 months and 16% said they didn’t know their HIV status.

It is important to consider two factors when assessing the accuracy of an HIV-negative status: the time since the last HIV test and the window period.

If someone has engaged in an activity that may have exposed them to HIV since their last HIV-negative test result, then they may actually be HIV positive. Therefore it is important to consider the length of time, and risk behaviours, since the last HIV test.

Even if someone has not engaged in any risk activities since an HIV-negative test result, it is still possible they are HIV positive due to the window period. The window period refers to the period of time from when a person first becomes infected with HIV to when a test can detect their infection. Depending on the test used, the window period can range from two weeks up to three months. During the window period, a test may incorrectly find a person who is HIV positive to be HIV negative. This incorrect test result may lead someone to assume they are HIV negative and disclose this HIV status to partners.

Assessing the risks

Aside from incorrect knowledge of HIV status, there are several other risks associated with the use of serosorting and it is important these are communicated to clients.

Recent HIV infection

HIV-negative serosorting increases the risk of HIV transmission if a sexual partner is presumed to be HIV negative when they are actually HIV positive. This risk is amplified if the incorrectly presumed HIV-negative partner has recently become HIV positive. Research shows the amount of virus (viral load) in the bodily fluids is very high in the first few months after infection and this increases the chance of HIV transmission. Even if someone who is recently infected gets tested for HIV, they may receive an HIV-negative result because they are in the window period. The person may then disclose this false-negative result to partners. HIV could spread quickly through sexual networks in this manner because recent infection is hard to identify.

Sexually transmitted infections

While negative and positive serosorting may help reduce the risk of HIV transmission, they do not reduce the risk of acquiring other sexually transmitted infections (STIs), such as gonorrhea, syphilis, chlamydia and herpes. Furthermore, STIs can increase the risk an HIV-negative person becomes infected with HIV and the risk that an HIV-positive person transmits HIV.

Superinfection

HIV-positive serosorting poses a risk for superinfection, which refers to the transmission of a new strain of HIV between two HIV-positive partners (also known as re-infection). If a drug-resistant strain is transmitted, the treatment being used by the re-infected partner may stop working. However, it is unclear how frequently superinfection occurs. While some studies suggest it is rare, other studies suggest superinfection rates among HIV-positive people are comparable to rates of HIV transmission between positive and negative people in the same population. (However, most of these studies have involved heterosexual transmission.)

Making serosorting work
How well serosorting works largely depends on how accurately each partner knows their HIV status and whether they are able to communicate their status to each other. Therefore, effective serosorting requires sexual partners to commit to a process that involves open and honest disclosure of HIV status and – for HIV-negative serosorting – a discussion of testing and sexual history.

For couples in a stable relationship, the effective use of serosorting requires several steps and this process is sometimes referred to as negotiated safety or a “talk, test, test, trust” strategy.

First, both partners should discuss this strategy and its potential risks and benefits. Next, both partners need to get tested for HIV. They may get tested separately, although some places that provide HIV testing allow couples to be tested and counselled together. If the test results are negative, and there is no chance either partner was in the window period for the test, then the results are definitive. However, if either partner has had a recent potential exposure to HIV, then they should be tested again at the end of the relevant window period while avoiding any additional potential exposures to HIV during this time.

Once a couple has confirmed they are both HIV negative, the priority is to avoid HIV transmission from sexual activity outside of the relationship. If one partner becomes HIV positive, there is a high risk of HIV transmission to the HIV-negative partner. Couples may need to develop a strategy for avoiding HIV transmission from outside partners. This may include an agreement about what is and isn’t allowed outside of their relationship. Trust and open communication is key, so that both partners are comfortable disclosing when they may have been exposed to HIV. If a potential exposure happens, the couple can take precautions to avoid onward HIV transmission until the exposed partner is tested.

Serosorting in the context of casual sex can be very risky since the accurate knowledge of one’s own or one’s partner’s HIV status is difficult (and potentially impossible) to know for certain. Additionally, some people may have a false belief about their HIV status.

While it can be difficult to be certain of an HIV-negative status in the context of non-monogamous relationships, regular HIV testing is still important as it allows someone to know their HIV status to the best of their ability and (if infection occurs) learn about an HIV-positive diagnosis as early as possible.

**Key messages**

The effectiveness of strategies based on knowledge of HIV status in preventing in preventing HIV transmission depends on context and how well it is used. There are several things that front-line service providers can do to help improve the effectiveness of these strategies for HIV-negative and HIV-positive clients.

- **Challenge a client’s ability to know their own HIV-negative status with certainty.** Educate clients about the limitations of using past HIV-negative test results to determine current HIV status. If a client has potentially been exposed to HIV since their last test, or the window period is a potential explanation for their last HIV-negative test result, encourage them to discuss this with their sex partner(s) and disclose their HIV status as unknown.
- **Encourage sexually active gay men to test frequently for HIV.** Service providers should help clients develop an acceptable and practical HIV testing strategy.
- **Support and encourage clients to openly discuss their HIV status with partners.** Encourage frank, open discussions and discourage clients from making assumptions about the HIV status of their partners. Support all clients – negative, positive or unknown status – to initiate such discussions, recognizing that there is a shared responsibility to avoid HIV transmission. For those who are HIV positive, this may require programs to support disclosure of HIV status and interventions to reduce stigma and discrimination.
- **Offer couples counselling to help improve the communication and development of HIV-prevention strategies within partnerships.**
- **Improve knowledge of acute HIV infection and the window period.** Each HIV test has a different window period and it is important to know which tests are used in your region.

**Resources**

[HIV disclosure: a legal guide for gay men in Canada](#)

[Treatment and viral load: what do we know about their effect on HIV transmission?](#)
**STIs: What role do they play in HIV transmission?**

**Moving PrEP into practice: an update on research and implementation**

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

**Putting a number on it: The risk from an exposure to HIV**

**References**

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