Does serosorting prevent HIV transmission in men who have sex with men?

By Erica Lee

Seroadaptive prevention strategies refer to using the knowledge of your HIV status and the HIV status of your partner to inform sexual activities. Examples of seroadaptive strategies include serosorting and strategic positioning.

This article summarizes a systematic review on the effectiveness of serosorting as a prevention strategy in HIV-negative men who have sex with men.¹

What is serosorting?

Serosorting is an HIV prevention strategy that involves choosing a sexual partner or prevention method based on a person’s HIV status. For example, by choosing a sexual partner with the same serostatus, an HIV-negative person can reduce their risk of HIV infection, and an HIV-positive person can reduce their risk of transmitting HIV to others.

A new type of serosorting has emerged out of an increasing awareness that pre-exposure prophylaxis (PrEP) and the use of ART to maintain an undetectable viral load are highly effective HIV prevention strategies. In these instances, people may choose sex partners based on their use of a highly effective prevention strategy. For example, people choosing to have sex with HIV-positive people who have an undetectable viral load, or HIV-positive people choosing to have sex with HIV-negative people on PrEP. This new type of serosorting was not included in this review.

For serosorting to be a successful strategy, a person must have accurate knowledge of their own HIV status and that of their sexual partner, but HIV status can be difficult to know with certainty. In Canada, an estimated 20% of people with HIV are unaware of their status.² HIV testing is essential for making informed decisions related to serosorting. People can also have incorrect knowledge of their own or their sexual partner’s HIV status due to mistaken assumptions, the window period, or a lack of proper communication with a partner.³ Without HIV testing and clear communication with sexual partners, serosorting may not reduce the risk of HIV transmission, and may even increase the risk of infection if it is used as a replacement for highly effective prevention strategies such as condoms, PrEP, or treatment along with an undetectable viral load.

A better understanding of the potential effectiveness of serosorting can help people make more informed decisions about using it as a prevention strategy.

What kind of research does the systematic review include?

The systematic review sought to identify the effectiveness of serosorting as a prevention strategy in HIV-negative men who have sex with men (MSM).
The review was based on six studies. A study was included if it:

- Was published between 1988 and 2015 in a peer-reviewed journal
- Involved HIV-negative MSM.
- Looked at serosorting, which the authors defined as a prevention strategy consisting of an HIV-negative person selecting a partner (for sex with or without a condom) based on the belief that the partner is also HIV-negative.
- Included data that could be used to determine the impact of serosorting on HIV or sexually transmitted infections (STIs) transmission compared to other prevention strategies.

Characteristics of the six studies included:

- Four took place in North America, one in Australia and one in Europe.
- The four North American studies reported on participants’ race/ethnicity. In three of the studies, the majority of participants were white. The fourth study looked specifically at Black and Latin American MSM.
- Of the five studies that reported on participants’ age, the median age range was between 30 and 35 years old. This means that approximately half of participants were above this age range and half were below.
- All were observational studies, meaning that they did not assign participants to use or not use of serosorting, but simply observed what people were already doing.
- The smallest study had approximately 440 participants. The largest study had approximately 12,200 participants. The combined total in the six studies was 34,674 participants.

**Is serosorting an effective HIV prevention strategy for HIV-negative men who have sex with men?**

To assess its effectiveness as a prevention strategy, serosorting was compared to two other sexual activities. They were:

- Using a condom for anal sex with a partner who is HIV positive or whose HIV status is unknown, which was characterized as a lower risk activity than serosorting.
- Having condomless anal sex with a partner who is HIV positive or whose HIV status is unknown, which was characterized as a higher risk activity than serosorting.

Combining the results from the six studies in the review, the authors found that:

- Serosorting was associated with a 64% *increase* in transmission risk compared to the lower risk activity of using a condom for anal sex.
- Serosorting was associated with a 54% *reduction* in transmission risk compared to the higher risk activity of condomless anal sex with a partner who is HIV positive or whose HIV status is unknown.

**What are the implications of the review for service providers?**

This systematic review found that while serosorting was a more effective prevention strategy for HIV-negative MSM than having condomless anal sex with a partner who is HIV positive or whose HIV status is unknown, it was a less effective prevention strategy than always using a condom for anal sex. For service providers helping MSM adopt prevention strategies that work for them, some things to consider include:

- Serosorting can reduce the risk of HIV transmission for MSM who do not use condoms; however, it is not without its own transmission risk. MSM should be encouraged not to use serosorting as their only means of HIV prevention and to consider employing a combination of other strategies to reduce their HIV transmission risk, such as pre-exposure prophylaxis or knowledge of an undetectable viral load in the other partner.
- To facilitate accurate knowledge of HIV status of oneself and one’s partner, regular HIV testing and improved communication skills with sexual partners should be promoted among MSM who use serosorting as a prevention strategy. Communication around testing can include test history, discussion of relationship status (monogamous vs. non-monogamous), window periods and possible exposures since last test. Communication about HIV status can also include discussions about being on treatment and undetectable viral load for MSM choosing partners who are HIV positive. If an HIV-positive partner has an undetectable viral load, they don’t transmit HIV sexually.
- When serosorting is accompanied by condomless sex, MSM also need to consider the transmission risk of other STIs. Regular testing for STIs should be encouraged.
When considering this review, it is important to remember that:

- There were some variations in the definition of serosorting and of the lower and higher risk comparison activities for some studies in the review. For example, in one study, serosorting was defined as only condomless anal sex with partners believed to be HIV negative, while in other studies serosorting also included sex with condoms with a partner who is HIV positive or whose HIV status is unknown. Differences in how activities were measured in each study also mean different variables were used to calculate transmission rate. The differences between studies may impact the combined outcomes calculated in the review, although the authors concluded it unlikely that the differences between studies influenced the review conclusions based on additional calculations examining their impact.

- The studies included transmission data collected in 2011 or earlier. More recent data may not reflect the same rates of HIV transmission given the impact that newer treatment guideline recommendations on when to start to HIV treatment may be having on the number of people with an undetectable viral load. An increase in the number of people with an undetectable viral load and subsequent lower rates of HIV transmission during condomless anal sex would mean the comparative risk reduction provided through serosorting could be less than 54%.

- All of the studies in the review were observational studies, which the authors rated low in terms of quality of study design. This is because observational studies do not necessarily have the same features that a more rigorous study design such as a randomized controlled trial would have. This increases the chance that the results may be influenced by unaccounted for factors.

- The studies only compared serosorting to sex with condoms and did not look at PrEP, or the use of treatment along with an undetectable viral load to prevent sexual transmission.

**What is a systematic review?**

Systematic reviews are important tools for informing evidence-based programming. A systematic review is a critical summary of the available evidence on a specific topic. It uses a rigorous process to identify all the studies related to a specific research question. Relevant studies can then be assessed for quality and their results summarized to identify and present key findings and limitations. If studies within a systematic review contain numerical data, this data can be combined in strategic ways to calculate summary (“pooled”) estimates. Combining data to produce pooled estimates can provide a better overall picture of the topic being studied. The process of pooling estimates from different studies is also referred to as a meta-analysis.

**References**


**About the author(s)**

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