

EMERGING HIV PREVENTION TECHNOLOGIES AND CANADA'S AFRICAN, CARIBBEAN AND BLACK COMMUNITIES

PURPOSE

The purpose of this resource is to provide service providers with an overview of what we know about biomedical approaches to HIV prevention, and highlight ways in which biomedical strategies are perceived as relevant or not for African, Caribbean and Black (ACB) communities.

1 in 35 People living in Canada are African, Caribbean or Black



whereas

1 in 5



of reported HIV cases in 2014 were identified as African, Caribbean or Black



ACB PEOPLE NEED HIV PREVENTION STRATEGIES THAT WORK FOR THEM

Despite decades of prevention work based on behaviour change and condoms, HIV transmission persists in Canada, with

a disproportionate burden among African, Caribbean and Black (ACB) communities. In 2014, nearly 20% of new HIV infections in Canada were among ACB people (even though they make up less than 3% of the population).

In order to improve our HIV prevention efforts within ACB communities, we need to take into account a whole range of determinants of health that influence vulnerability to HIV, such as age, gender, sexual orientation and homophobia, gender identity and transphobia, health literacy, socioeconomic status, housing and employment status, immigration status, experience of sexual or domestic violence, experience of racism, criminalization of HIV non-disclosure, religious beliefs and cultural norms and practices. All of these factors may place health and self-care as a lower priority, and place limitations on the ability of ACB community members to take measures to prevent HIV.

Acting on all of these social determinants of health is a long-term project. As we work to address the root causes of HIV, we should provide as many tools and strategies as possible for HIV risk reduction. If we can help individuals to protect themselves and their sexual partners, we may be able to lessen the impact of some of these determinants and decrease HIV vulnerability.

THE SCIENCE OF HIV PREVENTION IS ADVANCING QUICKLY

In the last 10 years, biomedical research around HIV testing, transmission and prevention has increased dramatically. Although there is still no cure, biomedical approaches to HIV prevention have the potential to greatly expand prevention efforts. Some of the biomedical prevention strategies and tools have already proven effective and are in use in Canada, some are not yet available for use in Canada (e.g., home-based testing), and some are still being researched or are in development. Below are some brief descriptors of these biomedical technologies and strategies.

Treatment as Prevention (TasP) and Undetectable Viral Load (UVL): The consistent and correct use of antiretroviral (ARV) drugs by people living with HIV and AIDS (PHAs) to maintain an undetectable viral load (UVL) is a highly effective strategy to reduce the risk of sexual transmission of HIV. Having a UVL can reduce the risk of sexual transmission of HIV by **90% or more**. To maximize the HIV prevention benefit of ARVs and a UVL, the HIV-positive individual should have had a UVL (defined as less than 40 or 50 copies per ml of blood) for at least six months, and both sexual partners should not have any untreated sexually transmitted infections (STIs).

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THE SCIENCE OF HIV PREVENTION IS ADVANCING QUICKLY (CONTINUED)

Pre-Exposure Prophylaxis (PrEP): PrEP is the use of ARVs by an HIV-negative person to reduce their risk of becoming infected with HIV. PrEP is a highly effective and safe strategy to reduce the risk of the sexual transmission of HIV. When used consistently and correctly, the daily use of Truvada as PrEP can reduce the risk of sexual transmission of HIV by **90% or more**. In clinical trials, women have been found to experience more barriers to adherence to PrEP. Daily oral Truvada has been approved by Health Canada, in combination with safer sex practices, to reduce the risk of sexually acquired HIV infection¹. PrEP may be less effective if STIs are present. Truvada as PrEP costs approximately \$1000 a month; some private and public health insurance plans cover the cost of the drugs.

Rapid testing: Point-of-care test using finger prick blood allows people to be tested and know their HIV status during the same visit, usually in less than an hour². Rapid testing is not available everywhere in Canada.

Male medical circumcision: Removing the foreskin of the penis can reduce the risk of HIV infection for men having vaginal sex. Voluntary penile circumcision is recommended by the World Health Organization for heterosexual men in countries with high rates of HIV among heterosexual people.⁵

Preventative vaccine: A vaccine would reduce the risk of someone acquiring HIV. A number of HIV vaccines that have been tested over the years have provided only a low level of protection. An effective HIV vaccine is not expected to be widely available in the near future⁷. Research is ongoing.

Microbicides: Microbicide products have the ability to prevent the sexual transmission of HIV and other STIs when applied topically to the vagina or rectum. A variety of forms — gels, creams, suppositories, films, sponges or rings — are being researched. No microbicide has yet been approved for use in any part of the world⁸.

Prevention of vertical transmission: Pregnant women with HIV receive HIV medicines during pregnancy and childbirth to reduce the risk of vertical transmission of HIV, and babies born to women with HIV receive HIV medicine for 6 weeks after birth¹⁰. Prevention of vertical transmission also involves safe childbirth practices and recommendations for infant feeding.

Home testing: Oral swab or finger prick tests for HIV that can be administered with an over-the-counter kit. These are not yet available in Canada.¹

Seropositioning: Also known as strategic positioning, seropositioning is the act of choosing a sexual position or practice depending on the serostatus (HIV status) of one's partner. For example, it is less likely for HIV to be transmitted from a receptive partner ("bottom") to an insertive partner ("top") during anal sex.³

Post-Exposure Prophylaxis (PEP)⁶: PEP is the prescription of a combination of ARVs after an actual or suspected exposure to HIV to prevent HIV transmission. It must be administered as soon as possible, within 72 hours after a suspected exposure to HIV, and needs to be taken daily for four weeks. While PEP is the standard of care for exposures of health care workers (occupational exposures), it is not standard practice for sexual or injection drug use exposures (non-occupational exposures). There is limited evidence regarding the level of protection that PEP provides. Availability of PEP varies across Canada.

Vaginal ring: Vaginal rings would continuously release an antiretroviral drug in the vagina. This method was shown to provide a modest level of protection against HIV infection in women over the age of 25 in a large clinical trial⁹, and sub-analyses showed that it provides significant protection against HIV infection in women when used consistently. Research is ongoing.

Serosorting: Choosing sex partners who have the same HIV status (HIV-negative or HIV-positive), or seeking out partners who have a UVL can help reduce the risk of transmitting HIV.

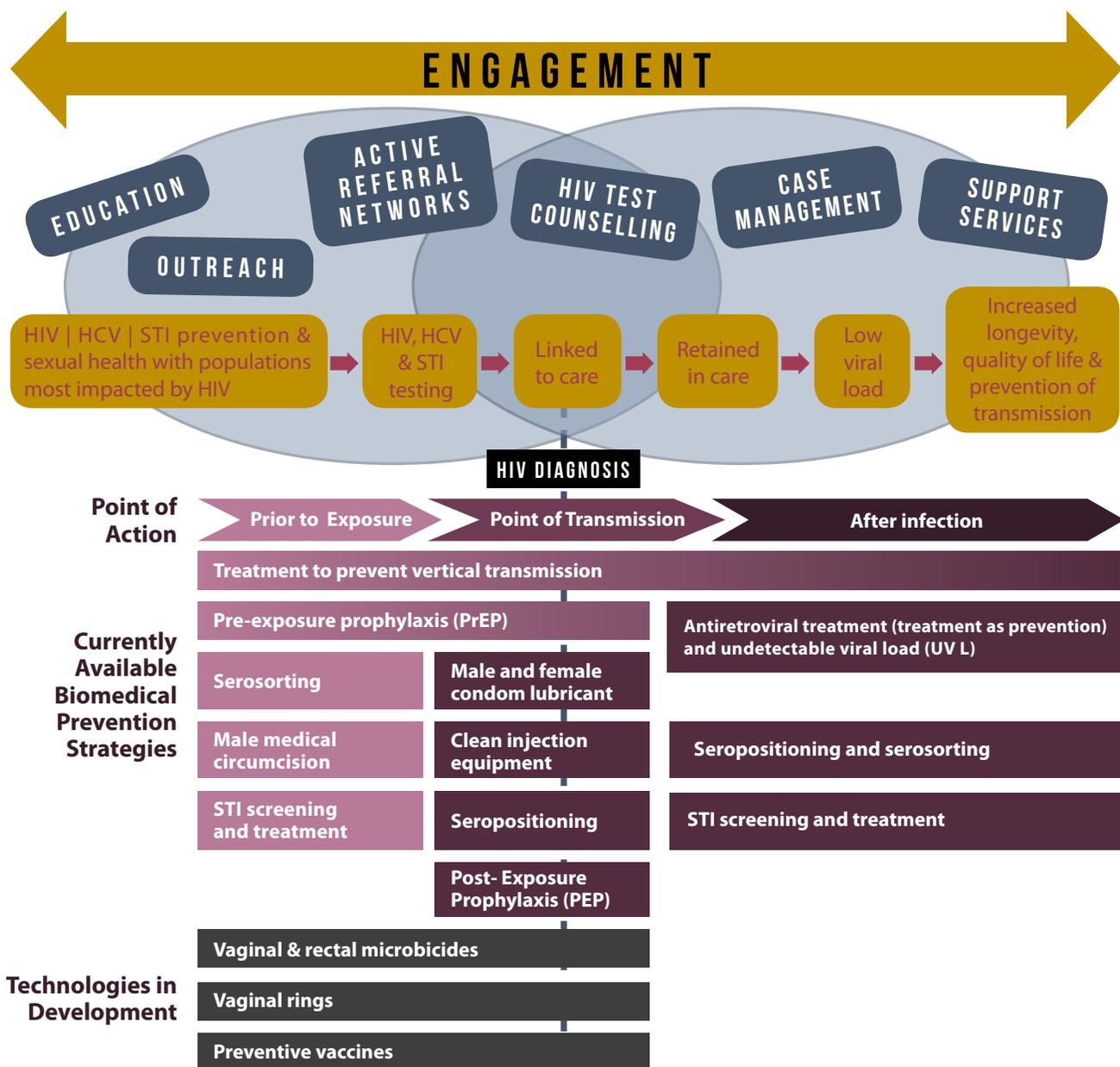
STI screening and treatment: Having an untreated STI can increase a person's risk of acquiring or transmitting HIV³. Regular testing and treatment can reduce the risk of transmission.

BIOMEDICAL PREVENTION APPROACHES FIT WITHIN THE PREVENTION, ENGAGEMENT AND CARE CASCADE

The Engagement, Prevention and Care Cascade is a strategy that has emerged globally and has been adapted by some provinces in Canada. It indicates that effective prevention focuses both on PHAs and their access to early diagnosis and HIV treatment, and people at high risk for HIV who require stronger access to supportive services and prevention tools to ensure they can avoid HIV infection for the long-term. The concept emphasizes

the responsibility of health and community services to understand and respond to HIV priority populations in ways that improve access to the full range of prevention, testing, care and treatment services. The full range of social determinants described above will influence the ability of individuals to engage at various levels of the Cascade.

Biomedical prevention strategies play an important role in the Engagement, Prevention and Care Cascade. The figure below indicates where emerging technologies fit within these frameworks, and the point at which they interrupt infection or transmission: 1) before a person is exposed to HIV, 2) at the time of or point when transmission occurs, and/or 3) after an individual is living with HIV to prevent onward transmission.



The information on pages 4, 5 and 6 is a summary of findings from a community-based research study called “ACB Service Provider Perceptions and Understanding of Biomedical Approaches to HIV Prevention” conducted in 2015-2016 in Ontario. The information represents the views of 14 Ontario service providers who participated in this study.

PREP HAS MANY POTENTIAL BENEFITS FOR THE ACB COMMUNITY

For heterosexual serodiscordant couples: Service providers felt that PrEP can decrease barriers in relationships, increase sexual freedom and reduce fears around HIV. PrEP can help open up conversations within serodiscordant couples about sexual health and conception, and HIV prevention in ways other than condom use. These conversations are often difficult for ACB community members, given the stigma around HIV.

For women: Service providers felt that women could especially benefit from PrEP as a tool that helps with family planning/conception, issues around power and autonomy, and control in relationships. PrEP is seen as a valuable prevention option that women can choose and control for themselves.

For gay, bisexual or other men who have sex with men: Awareness and dialogue about PrEP is much higher within the gay community, but ACB gay men may not necessarily be as familiar or comfortable with PrEP as their white counterparts. PrEP is valuable as a way to provide prevention “back-up” in sexual practices that may present HIV risks. PrEP can help start conversations about sexual risk, or can provide protection when conversations cannot or do not occur within sexual encounters.

For stigma reduction: PrEP can have the benefit of reducing fear, and thus stigma around HIV, and reducing stigma targeted to PHAs.

As an alternative to condoms: Some ACB community members dislike condoms, have difficulty negotiating their use, or are simply tired of using them. PrEP provides a reliable prevention option.

PrEP would be great for serodiscordant couples... PrEP provides a way to keep a relationship going and also prevent the spread of the virus.

I see it being valuable for women who may not know the status of their sexual partner and don't have the autonomy to negotiate safer sex.

PrEP is one of the great prevention tools that helps to reduce [HIV] stigma. If everyone is protected, then I don't have to hide myself because I'm HIV-positive. If everyone is protected, it takes the burden off of PHAs.

BUT THERE ARE SOME CONCERNS AROUND PREP

Homophobia: In Canada, the early adopters of PrEP have been white gay men and there has been significant buzz among gay men. ACB community members may associate PrEP with gay men. Unfortunately, this has had the unintended effect of bringing at least some people to have homophobic associations with PrEP.

Community readiness and capacity: Many of the service providers expressed concern that ACB communities are simply not ready for biomedical prevention approaches such as PrEP. They expressed concerns about community members being ‘just not ready’ and lacking understanding of the basics of HIV, let alone more complex biomedical literacy.

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BUT THERE ARE SOME CONCERNS AROUND PREP (CONTINUED)

Women may have difficulty accessing PrEP: Women are more likely than men to have more barriers to accessing PrEP due to issues of poverty, domestic and sexual violence, and less gender-based autonomy in their sexual health. In the case of HIV-positive women in serodiscordant relationships, getting male partners to take PrEP could be a challenge.

Confusion around condom use: One fear is that promoting PrEP may result in decreased condom use, and a common message is that PrEP should only be discussed in conjunction with condom promotion as it does not protect against STIs other than HIV. However, the message “you still have to use condoms if you’re on PrEP” does not make sense to community members, and can create confusion and/or alienation.

Judgment of PrEP users: PrEP users may be judged as being promiscuous, or taking an ‘easy fix’ to HIV prevention (when compared to condom use). The underlying value is that condom use is on a higher moral plane than PrEP use, and that those who would choose to use PrEP are more promiscuous and/or less responsible than those who use condoms.

Universal access to treatment is a priority: Some ACB community members living with HIV have difficulty covering the cost of treatment (or their drug plan deductibles), and some service providers feel that public funding should therefore prioritize HIV medication for those already living with HIV versus covering the cost of PrEP for those who are not infected.

Because PrEP has been taken up so readily by the gay population, it becomes blocked as an option for the heterosexual community. PrEP is a gay man's drug.

Some of the basic discussions aren't even happening. Without all that first, talking about PrEP is useless.

If I'm going to be talking to the ACB community about PrEP, how it will reduce HIV infection, it will be misinterpreted as promoting condomless sex.

I want to choose PrEP instead of condoms, not use both at the same time. Your message is that they are both effective prevention tools, so why are you telling me to use both?

For the ones who take PrEP, you feel like: I can have any amount of sex, I can do anyone I want, and I'm fully protected. Most of them are having risky sex with substance use involved.

PHAs no longer think that they are a viable match for intimate partnership. If they're interested in dating somebody who is not necessarily a PHA, UVL can open up conversations.

I have had women who have come to me crying saying that their male partners have abused them and said: I accepted you because you are HIV-positive and now you have to do everything I want. So, sexual violence and blackmail. If they are able to explain UVL to their partners, it will help to reduce stigma and take back some of their power.

The concept of undetectability is encouraging to PHAs. But there's this other side to it...suddenly, they think they don't need to keep taking the meds.

TREATMENT AS PREVENTION AND UNDETECTABLE VIRAL LOAD ARE ENCOURAGING CONCEPTS

For serodiscordant couples: Achieving a UVL represents the possibility of living a long and healthy life with HIV, and the possibility of condomless sex. UVL as a prevention strategy can open up options and discussions around relationships and conception.

For women: Women who are living with HIV can find renewed sexual empowerment within their relationships. With an understanding of UVL as an effective risk reduction strategy, their HIV status is no longer the same liability or source of disempowerment in relationships.

For stigma reduction: UVL helps PHAs see the possibility of pursuing sexual/romantic relationships with people who are HIV-negative. Having a UVL helps PHAs demonstrate that they are healthy despite having HIV and that they are actively taking care of their health.

BUT THERE ARE SOME CHALLENGES AROUND THE CONCEPT OF UNDETECTABLE VIRAL LOAD

Silence around living with HIV and sexuality: Many ACB PHAs are not comfortable discussing their HIV status and sexual practices. Thus, it can be difficult to broach the topic of UVL, despite its stigma-reduction potential.

Low biomedical literacy: Within ACB communities, there is misinformation or incomplete knowledge about UVL, and, in some cases, an absence of discussions about TasP. Another gap in knowledge is PHAs' biomedical literacy around their own blood work (i.e., viral load, CD4 count). One concern is that some PHAs may have too much confidence in the concept of UVL, believing that they have been cured of HIV.

Community readiness: As with PrEP, there is a concern that the ACB community is simply not ready for the concept of UVL as a prevention strategy. Some service providers are worried about overwhelming community members with "too much information."

BIOMEDICAL PREVENTION STRATEGIES ARE INTRODUCED INTO AN ALREADY CHALLENGING CONTEXT

Biomedical approaches to HIV prevention are introduced into a social context that is full of challenges for ACB community

members and their service providers. Biomedical strategies are part of an array of prevention options. Like any prevention strategy, they interact and intersect with the social determinants outlined on page 1, including:

- o ACB community members' access to the health care system and health insurance.
- o Community understandings of safer sex, HIV stigma, homophobia and moralism about sexual behaviour.
- o Geographic concentration of services in large urban centres, resulting in reduced access for those living in smaller urban centres or rural areas.
- o Environment of fear and uncertainty created by the criminalization of HIV non-disclosure.
- o Historical and recent basis for distrust of the medical system, the pharmaceutical industry and biomedical research due to colonial traumas (e.g., slave trade).
- o Cultural norms around medicine; taking medication for preventative purposes may be a foreign concept.
- o Disparities in health and biomedical literacy, and varying levels of HIV awareness.

SERVICE PROVIDERS INFLUENCE THE UPTAKE OF BIOMEDICAL STRATEGIES

Service providers have their own personal perceptions, values, knowledge and attitudes towards biomedical strategies. These in turn shape not only what information they provide to ACB community members, but also how the information is passed on.

Service providers, advocates and community members must seek a careful balance between over-simplistic promotion of biomedical components of the HIV prevention toolkit, and dismissing, ignoring or over-inflating concerns about biomedical approaches.

KEY MESSAGES FOR SERVICE PROVIDERS

PrEP and UVL have the potential to reduce stigma and fear around HIV, and normalize sex for PHAs.

All community members have the right to access the most full and updated information available. The role of service providers is to equip community members with this information, help them understand it and allow people to choose for themselves which strategies work best for them.

It is natural to act as an information gatekeeper, but avoid stigmatizing those who may be exploring alternative HIV prevention methods to condom use. The role of service providers is to correct any misconceptions and acknowledge the most recent scientific data, and help people find the strategy(ies) that work best for their particular life situations.

*According to Canadian law, PHAs must have a low or undetectable viral load and wear a condom to avoid possible criminal prosecution for non-disclosure. Otherwise it is considered that there is a "realistic possibility" of transmission, opening them to criminal prosecution. For more information, please refer to the [Canadian HIV/AIDS Legal Network](#).

COMMON MISUNDERSTANDINGS ABOUT PREP

“PrEP is not 100% effective.” This is true, but it is also true that no prevention tool (not even the condom) is 100% effective. PrEP is highly effective (up to 99%) when taken as prescribed.

“PrEP has resulted in higher rates of STIs.” People who are eligible to take PrEP are already at high risk of HIV and other STIs. PrEP is a prevention option for people who already have difficulty using condoms consistently. PrEP does not protect against STIs, but due to the regimen of medical visits every three months for counselling and HIV and STI testing, any STIs are detected and treated quickly.

“PrEP is inferior to condom use.” Condoms are highly effective and have many advantages, but they are not without their disadvantages, and these can make it difficult for people to use them consistently and correctly. For example, condom use can be difficult to negotiate and can decrease sexual pleasure and intimacy. Condoms also need to be available at the time of intercourse, they may be difficult to use when under the influence of alcohol or drugs, and they do not allow a woman to conceive. A recent literature review of 50 studies revealed that the incorrect use of male condoms is surprisingly common ¹¹. For these reasons, some people may choose to reduce their risk of HIV transmission in other ways.

“PrEP has lots of side effects.” In some people PrEP can cause minor side effects like nausea, vomiting, fatigue and dizziness, but these symptoms are common to any new medication and eventually disappear over time.

“PrEP leads to more risky behaviours.” One of the concerns around PrEP is risk compensation, or the idea that the use of PrEP will increase risky behaviour. PrEP studies consistently found no association between PrEP use and changes in sexual risk behaviour ¹².

“PrEP doesn’t work for women.” Daily oral PrEP prevents HIV acquisition in women. In three efficacy trials conducted among men and women, Truvada-based oral PrEP reduced HIV infections in women by more than 85% when accounting for PrEP adherence. Two trials did not demonstrate an HIV prevention benefit from PrEP in women, but we know this was due to very low adherence to the study medication. PrEP offers HIV protection in women who are adherent to the medication ¹².

“PrEP is only for people who have a lot of sex and don’t want to use condoms.” There are many reasons why someone might want to take advantage of PrEP. Perhaps they are in a relationship with a person living with HIV. Perhaps they have trouble consistently using condoms. Whatever the reason, PrEP is a safe and effective HIV prevention strategy that should be seen as a welcome addition to the HIV prevention toolbox.

BOTTOM LINE MESSAGES ABOUT BIOMEDICAL ASPECTS OF HIV PREVENTION

There are three highly effective strategies to reduce the risk of the sexual transmission of HIV.

All of these highly effective strategies can reduce the risk of HIV transmission by 90% or more:

- The consistent and correct use of condoms.
- The consistent and correct use of antiretroviral treatment by PHAs to maintain a UVL.
- The consistent and correct use of daily oral Truvada as PrEP.

BOTTOM LINE MESSAGES ABOUT BIOMEDICAL ASPECTS OF HIV PREVENTION (CONTINUED)

PHAs with an undetectable viral load are at low risk of transmitting HIV.

- The consistent and correct use of ARVs by PHAs to maintain a UVL is a highly effective strategy to reduce the risk of the sexual transmission of HIV.

PrEP works very well to reduce HIV infection, but only if it is taken as recommended.

- Overall, studies suggest that the use of daily oral Truvada as PrEP can reduce the risk of sexual transmission of HIV for HIV-negative men and women, including gay and bisexual men, and heterosexual men and women.
- A key finding from all studies is that PrEP effectiveness is strongly linked to adherence; PrEP is more effective when taken consistently, and less effective when not taken consistently. Women have been found in some studies to have more challenges than men with adhering to PrEP.
- Daily oral Truvada as PrEP has been approved by Health Canada (February 2016), and accessibility varies by jurisdiction.

Post-Exposure Prophylaxis (PEP) can lower the risk of HIV infection when taken soon after an exposure.

- To be effective, PEP must be taken quickly after an exposure (no more than 72 hours later), must be taken as prescribed, and additional exposures must be avoided while taking it.
- Access to and financial coverage of PEP for non-occupational exposure (due to sexual contact or injection drug use) varies greatly across the country.

People who are recently infected are more likely to transmit HIV.¹⁴

- Some people with acute HIV infection develop symptoms. However, many people who have recently become infected do not know they are HIV infected.
- The high viral load during recent HIV infection can increase the risk of HIV transmission from an exposure. Many HIV transmissions happen during the first few months after someone becomes infected with HIV.
- This period of acute HIV infection represents a period of very high risk for transmission because this is when viral load is very high and also when individuals are likely engaging in high-risk practices.

Microbicides are still in development.¹⁴

- One ARV-based gel has proven to be effective in one trial, but another trial of the same product failed to show efficacy. Other products are in development, including vaginal- and rectal-specific products, ARV-based and non-ARV-based products, and products formulated as gels or rings.
- No vaginal or rectal microbicide is currently available on the market.

Vaccines are still in development.¹⁴

- One preventative vaccine has shown modest efficacy in reducing HIV risk. Further research is planned for this vaccine to improve its efficacy. It is unlikely to be made available in its current form. Other preventative vaccine candidates are being pursued. Therapeutic vaccines are also being investigated.⁷

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BOTTOM LINE MESSAGES ABOUT BIOMEDICAL ASPECTS OF HIV PREVENTION (CONTINUED)

Vaccines are still in development.¹⁴ **(Continued)**

- No preventative or therapeutic vaccines are currently available on the market.

There is no cure for HIV.¹⁴

- Researchers are pursuing two types of cures: sterilizing cures and functional cures.
- So far, only one case of a sterilizing cure (the “Berlin patient”) has been documented. The apparent cure of the “Berlin patient” using chemotherapy, radiation and stem cell transplantation has spurred interest in cure research.
- It will be many years before a potential cure may be found.

Sexual position influences HIV risk for men and women.¹⁴

- For the HIV-negative person, insertive (anal or vaginal) sex is generally less risky than receptive sex.
- The risk of HIV transmission from receptive anal sex is up to 18 times higher than from receptive vaginal sex.
- The risk of HIV transmission from receptive anal sex is about 6 times higher than from insertive anal sex.
- The risk from receptive vaginal sex is about twice as high as that from insertive vaginal sex.
- Oral sex is not as risky as vaginal or anal sex, but it is not completely risk-free.



This fact sheet was produced by San Patten for the Canadian HIV/AIDS Black, African and Caribbean Network (CHABAC). CHABAC is a national network of organizations, individuals and other stakeholders who are dedicated to responding to issues related to HIV and AIDS in Canada’s African, Caribbean and Black communities. July 2016

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For More Information: It is important for service providers to stay updated with the rapidly evolving research around biomedical prevention approaches. Here are some reliable resources for further information:



1 - CATIE (2016). Pre-Exposure Prophylaxis (PrEP). Fact Sheet.

2 - Broecker L, Challacombe L (2015). Rapid point-of-care HIV testing: A review of the evidence. Prevention in Focus, Spring 2015. CATIE.

3 - CATIE (2015). Treatment of Other Sexually Transmitted Infections. HIV in Canada: A primer for service providers.

4 - MSMGF (2012). Serosorting and Strategic Positioning. Technical Bulletin Series.

5 - CATIE (2015). Penile Circumcision. HIV in Canada: A primer for service providers.

6 - CATIE (2014). Post-Exposure Prophylaxis (PEP). HIV in Canada: A Primer for Service Providers.

7 - CATIE (2015). Vaccines. HIV in Canada: A primer for service providers.

8 - CATIE (2015). Microbicides. HIV in Canada: A primer for service providers.

9 - Baeten JM, Palanee-Phillips T, Brown ER, Schwartz K, Soto-Torres LE, Govender V, et al. Use of a Vaginal Ring Containing Dapivirine for HIV-1 Prevention in Women. New England Journal of Medicine. 2016 Feb 22;0(0):null.

10 - NIH AIDSInfo (2015). Preventing Mother-to-Child Transmission of HIV. Fact Sheet.

11 - Sanders SA, Yarber WL, Kaufman EL, Crosby RA, Graham CA, Milhausen RR. (2012). Condom use errors and problems: a global view. Sex. Health: 17;9(1):81–95.

12 - CATIE (2014). PrEP use in the “real world”: Results from the iPrEX open label extension.

13 - Thomson KA, Baeten JM, Mugo NR, Bekker L-G, Celum CL, Heffron, R. (2016). Tenofovir-based oral preexposure prophylaxis prevents HIV infection among women. Curr Opin HIV AIDS, 11: 18–26

14 - Canadian AIDS Society (2014). HIV Transmission: Factors that Affect Biological Risk.