

# Post-exposure prophylaxis (PEP)

## Summary

Post-exposure prophylaxis, or PEP, is a way to help prevent the transmission of HIV in an HIV-negative person who may have been recently exposed to HIV. It involves taking HIV medications as soon as possible *after* a potential exposure to HIV. Anyone who thinks they may have been exposed to HIV should contact their doctor, a hospital emergency room or sexual health clinic immediately to see if they offer PEP.

PEP is very effective but will not prevent 100% of HIV transmissions from occurring. It must be started within 72 hours of exposure to HIV. For PEP to be effective, a person must have high adherence to the full course of PEP drugs and should have no further exposures to HIV while taking PEP.

## What is PEP?

PEP consists of a combination of three HIV medications that an HIV-negative person takes for four weeks to reduce their risk of getting HIV *after* a potential exposure to HIV. This is different from pre-exposure prophylaxis (PrEP), which involves taking two HIV medications on an ongoing basis, starting before and continuing after an exposure to HIV. PEP should be started as soon as possible, but definitely within 72 hours of being exposed to HIV. The prescription drugs used for PEP need to be taken every day for four full weeks (28 days).

## How does PEP work to help prevent HIV?

PEP interferes with the pathways that HIV uses to cause a permanent infection in the body. For HIV to cause infection the virus must enter the body, infect certain immune cells, make copies of itself (replicate) within these immune cells, then spread throughout the body.

When PEP is taken, the HIV drugs get into the bloodstream and the genital and rectal tissues. If there is HIV in the body, the drugs can prevent HIV from replicating within the body's immune cells, and help to prevent a permanent infection from developing.

# FACT SHEET

**Published**  
2018

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PEP drugs need to start working against HIV as soon as possible after the virus enters the body, meaning that PEP should be started as soon as possible after a potential exposure and not more than 72 hours afterwards. Drug levels must also remain high during the month of treatment to help prevent infection. If the pills are not taken consistently, as prescribed, there may not be enough medication in the body to prevent HIV infection.

### When is PEP used?

PEP can be used after exposure to HIV in the workplace (occupational exposure) or after exposure to HIV that is not work related (non-occupational exposure).

Occupational PEP is when PEP is used by people who have an exposure to body fluids that may contain HIV in their workplace — for example, a healthcare worker who accidentally experiences a needle-stick injury.

Non-occupational PEP is when PEP is used after a potential high-risk exposure to HIV that is not work related, such as unprotected sex, a condom breaking during sex, sexual assault, or sharing needles used to inject drugs.

### How well does PEP work?

PEP does not prevent 100% of HIV infections but it is very effective at preventing HIV if used consistently and correctly.

Observational research suggests that PEP can reduce the risk of getting HIV by more than 80%, which means some people in the studies acquired HIV despite taking PEP. Although some of these people reported high adherence to PEP and no further exposures to HIV, many HIV transmissions among people taking PEP occurred because of low adherence (not taking PEP every day for 28 days) and/or ongoing exposures to HIV. Effectiveness is likely much higher than 80% if PEP is used consistently and correctly, as prescribed. This includes:

- Obtaining PEP from a healthcare provider.

- Taking the medications every day for 28 days. High adherence to the full month-long course of PEP is important for maximizing effectiveness.
- Starting PEP as soon as possible after a potential exposure to HIV, but not more than 72 hours afterwards. The sooner PEP is started after an exposure to HIV the more likely it is to work because the drugs need to start interrupting HIV replication as soon as possible.
- Taking extra precautions (for example, using condoms) to reduce the risk of being exposed to HIV again while taking PEP. The use of PEP is meant to reduce the risk from a single exposure to HIV and should only be used for emergencies.

### Who should consider taking PEP?

An HIV-negative person who thinks they may have been exposed to HIV within the last 72 hours should consider taking PEP. When a person presents for PEP at a clinic or emergency room, a risk assessment will determine whether PEP should be started based on their risk for HIV infection. Assessment of HIV risk is based on the type of exposure and the likelihood that the contact person was HIV positive.

PEP may not be recommended if a person's chance of getting HIV is low, either because their exposure carries a low risk of transmission (for example, oral sex) or because it is unlikely that the contact person is HIV positive.

PEP is not intended for people with ongoing exposures to HIV. People who engage in high-risk behaviours on a regular basis, or who find themselves using PEP frequently, should consider using PrEP to prevent HIV instead.

### What is involved in taking PEP?

First, a doctor or nurse will assess whether the risk of HIV transmission is high or low, using the risk assessment described above. If the risk is high enough, PEP will be prescribed.

PEP should only be used by people who are HIV negative. When a person starts PEP, an HIV test must be done to determine their HIV status. If the person is HIV positive (but doesn't know it) they should be referred to HIV care and treatment.

If rapid HIV testing (which gives results within a matter of minutes) is not available, the test result may not be ready for one to two weeks; however, PEP will be started immediately. PEP should be discontinued if the PEP user tests HIV positive; or the contact is confirmed to be HIV negative.

PEP medications need to be taken consistently and correctly—every day for four weeks—or the risk of HIV infection will increase. A counsellor, doctor, nurse, pharmacist or staff member at an AIDS Service Organization can suggest strategies to help a person adhere to the pill-taking schedule and/or manage any side effects of the drugs.

A person taking PEP needs monitoring for side effects and other complications such as drug toxicity, though this is rare. Blood tests may be needed to ensure that the medications are not causing harm to the body. If side effects and toxicity are a problem, a doctor may decide to change one or more of the drugs being used for PEP.

A person taking PEP should take extra precautions to avoid exposure to HIV while taking PEP. The use of PEP is only intended to reduce the risk of infection associated with one exposure. If a person continues to engage in behaviours that can transmit HIV, such as sharing needles or having unprotected sex, while taking PEP, their risk of getting HIV increases.

### **Is PEP an alternative to other prevention methods?**

PEP should not replace highly effective prevention methods, such as condoms, pre-exposure prophylaxis (PrEP), or using a new needle for every injection. PEP is meant to be used for emergencies only and should not be used as an ongoing HIV prevention strategy.

### **What are some of the safety concerns associated with taking PEP?**

#### **Drug resistance**

A person with low adherence who acquires HIV while taking PEP could develop resistance to the drugs in PEP. If a person's HIV becomes resistant to the PEP drugs, those same HIV drugs may not work for treating their HIV.

#### **Side effects**

HIV drugs can cause side effects, such as nausea, fatigue and diarrhea. The nature and severity of the side effects depend on the type of drugs prescribed and the person who is taking them. The HIV drugs that are recommended for PEP in Canada are generally well tolerated and associated with minimal side effects.

### **How can people access PEP?**

The Canadian PEP guidelines recommend that PEP should be readily available in places where it is likely to be needed urgently. These include emergency departments, sexual health clinics and other clinics serving populations at increased risk of HIV.

The decision to provide PEP lies with the healthcare provider and is made on a case-by-case basis. Many healthcare providers are unaware of non-occupational PEP or may be unwilling to prescribe it. The Canadian guidelines outline practical advice for physicians providing PEP, including how to assess risk in people who present for PEP, how to provide monitoring and follow-up, and recommended drug regimens.

People starting PEP may be offered a "starter pack" of pills, so that PEP can be started right away, along with a prescription that needs to be filled to receive the full 28-day course of medications. Most (but not all) emergency departments will have PEP "starter packs" available.

Anti-HIV drugs are expensive: a month-long course of PEP can cost \$900 or more, depending on the drugs used. Although occupational PEP is normally covered by workplace insurance, coverage for non-occupational PEP varies across Canada.

Non-occupational PEP medications are covered by some private and public health insurance plans; coverage varies depending on the province or territory and the type of the exposure.

Beymer MR, Kofron RM, Tseng C, et al. Results from the post-exposure prophylaxis pilot program (P-QUAD) demonstration project in Los Angeles County. *International Journal of STD & AIDS*. 2017 Jan 1:956462417743158. [Epub ahead of print]

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## Acknowledgement

We thank Dr. Isaac Bogoch, Toronto General Hospital Research Institute, for expert review.

## Resources

Canadian guideline on HIV pre-exposure prophylaxis and nonoccupational postexposure prophylaxis

HIV Post-Exposure Prophylaxis (PEP) Guidelines – British Columbia Centre for Excellence in HIV/AIDS

Alberta Guidelines for Non-Occupational, Occupational and Mandatory Testing and Disclosure Act Post-Exposure Management and Prophylaxis: HIV, Hepatitis B, Hepatitis C and Sexually Transmitted Infections – Alberta Health Services

Guide pour la prophylaxie et le suivi après une exposition au VIH, au VHB et au VHC – 2017, Ministry of Health and Social Services of Quebec

## References

Tan DHS, Hull MW, Yoong D, et al. Canadian guideline on HIV pre-exposure prophylaxis and nonoccupational postexposure prophylaxis. *CMAJ*. 2017; November 27;189:E1448–E1458. Available from: <http://www.cmaj.ca/content/189/47/E1448>

Centers for Disease Control and Prevention, U.S. Department of Health and Human Services. *Updated guidelines for antiretroviral postexposure prophylaxis after sexual, injection drug use, or other nonoccupational exposure to HIV – United States, 2016*. Available from: <https://stacks.cdc.gov/view/cdc/38856>

Bryant J, Baxter L, Hird S. Non-occupational postexposure prophylaxis for HIV: a systematic review. *Health Technology Assessment*. 2009 Feb;13(14):1–60.

Cardo DM, Culver DH, Ciesielski CA, et al. A case-control study of HIV seroconversion in health care workers after percutaneous exposure. *New England Journal of Medicine*. 1997;337(21):1485–1490.

Schechter M, do Lago RF, Mendelsohn AB, et al. Behavioral impact, acceptability, and HIV incidence among homosexual men with access to postexposure chemoprophylaxis for HIV. *Journal of Acquired Immune Deficiency Syndromes*. 2004 Apr 15;35(5):519–525.

## Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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Funding has been provided by the Public Health Agency of Canada.

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