

Antiretroviral treatment for preventing HIV infection: an evidence review for physicians

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While immediate postexposure treatment for suspected HIV is critical, pre-exposure preventive treatment is a newer method that may be effective for people in high-risk groups, states a review of evidence published in *CMAJ (Canadian Medical Association Journal)*.

"Although postexposure prophylaxis has a long history of success, newer methods such as pre-exposure prophylaxis and earlier treatment in the course of infection ("treatment as prevention") are being implemented with some success," writes Dr. Isaac Bogoch, Harvard Medical School and the Division of Infectious Diseases, Massachusetts General Hospital, Boston, with coauthors.

Several recent large [randomized controlled trials](#) have added to knowledge about pre-exposure prevention and early initiation of antiretroviral therapy. To provide physicians with current pharmacologic [prevention methods](#), researchers from Massachusetts General Hospital, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts and Sunnybrook Health Sciences, Toronto conducted a review of literature from January 1990 to April 2012.

[HIV](#) is transmitted mainly through unprotected sex, contaminated needles and from mother to baby, although the latter transmission was not part of the review.

After assessing with a detailed history whether a person has been exposed to HIV, postexposure treatment (prophylaxis) should begin as

soon as possible or within 72 hours and be continued for 28 days. If the patient is in a low-risk situation but not completely without risk, the physician and patient can decide upon the risks of transmission and whether to treat prophylactically. Current practice recommends a two-drug regimen of tenofovir with [emtricitabine](#) and a third drug in people with high-risk exposure.

"Evidence for quickly starting prophylaxis and a four-week duration of therapy stem from macaque models of transmission, in which starting prophylaxis later and shorter durations of therapy resulted in higher rates of HIV seroconversion [development of antibodies against HIV]," write the authors.

For high-risk populations, such as men who have sex with men, intravenous drug users and women in areas with a high prevalence of HIV, pre-exposure prophylaxis has been shown to prevent HIV infection before being exposed to the virus. For example, one recent trial that involved 900 women from a region with high HIV prevalence showed a 39% reduction in HIV infection rates after application of a topical vaginal microbicide 12 hours before and after sex.

"All pre-exposure prophylaxis interventions should be considered one part of a more comprehensive plan for preventing the spread of HIV infection, including standard counselling on safer sexual practices and condom use, testing for and treating other sexually transmitted infections and, in select circumstances, male circumcision and needle exchange programs," state the authors.

"Whereas pre-exposure prophylaxis may be reserved for people with the highest risk of exposure, the trend of treating HIV at higher CD4 T cell counts earlier in infection will likely show the most promise as a pharmacologic strategy for preventing transmission of the virus," the authors conclude. They note that while pre-exposure [prophylaxis](#) is

promising, there are unanswered questions, such as which groups would benefit most, the possibility of drug resistance and others. Several large-scale trials are underway to determine effectiveness of early treatment.

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