

HIV and PEP (Post Exposure Prophylaxis)

AIDS is a **pandemic**, seriously lowering the living standard and life expectancy of people in developing countries and costing much money in industrial nations. **HIV (Human immunodeficiency virus)** is the virus leading to AIDS. It can be transmitted via blood, semen, vaginal fluid, pre-ejaculate and breast-milk. HIV-infections are mainly caused by unprotected acts of sex or contaminated needles. Another important way of HIV transmission and infection is from a mother to her baby, which can occur for example during birthing or during breast feeding.

The virus primarily affects cells in the immune system which are supposed to defend the body against diseases. But HIV overtakes and destroys these cells in the immune system directly or indirectly. The immune system weakens.

AIDS is exactly this condition in humans in which the HIV virus makes the immune system finally fail. Resulting from the specific damage to the immune system the body becomes more and more prone to all kinds of diseases and even a simple cold may lead to death. Today medics tend to call AIDS 'late stage' or 'advanced' HIV (infection).

There are several symptoms for a primary HIV-infection. These symptoms are similar to the ones you have if you have the flu. The most common ones are fever, general indisposition, tiredness, headaches, sweat, muscle and limb pain, sickness and weight loss. In the last stage of AIDS these symptoms never vanish, as they are a result of infections which occur because the immune system is weakened so much by HIV.

Furthermore HIV-positive individuals are likely to develop diseases that do not threaten a body with a fully vital immune system. These are called AIDS-defining diseases. For example, PCP, a pulmonary disease that is quite rare in healthy people but common among HIV infected individuals. In Sub-Saharan Africa PCP is still one of the first indications of AIDS in untested individuals. There are further AIDS-defining diseases; HIV-infected people develop certain neurological illnesses more often and have a significantly increased probability to develop certain forms of tumors which in the end lead to death.

There is **no known cure for AIDS**. Expensive drugs can slow down the spread of the HIV-virus but in the end everyone who is infected with HIV and who gets AIDS dies much earlier than a healthy person. So one should avoid getting infected by HIV by any means.

To avoid getting infected with HIV one should absolutely never have unprotected sexual intercourse. Even people with a regular partner often get infected by their partner. In fact, as many as 49% of people get a HIV infection from their permanent partner according to a Swiss study. Using a good condom and using it the right way avoids possible HIV infections when having vaginal intercourse. Anal intercourse also needs condoms, as anal intercourse has a significantly higher probability to lead to an HIV-infection than any other sexual intercourse. Some say, oral intercourse is very dangerous, too. But the risk of HIV transmission through oral sex is difficult to assess, say scientists. "In a 1990-1992 study of [...] men with newly diagnosed HIV infection, six of 37 patients (16.2%) who had been infected within a year before testing claimed receptive oral sex as the only possible route of their infection."⁰¹ But the others might have got infected via oral intercourse, too. Besides, this study only deals with men, but oral infection happens to women, too. So one should also use a condom if one has oral intercourse. Furthermore cunnilingus should not be practiced while a woman has her period.

Except sexual intercourse with a HIV positive partner there are other forms of infection and protection e.g. contaminated needles. HIV is often spread among drug users who need needles to inject their drugs. Sharing needles leads to a high infection probability within drug user communities because of small (you may not see them) quantities of blood on the needles. So drug users should only use needles of their own. However, it is fortunately seldom that patients become accidentally infected via contaminated needles by health care workers.

But Accidental infection via blood transfusion is still a problem in developing countries. The industrial nations solved the problem by blood monitoring and blood heating (heating destroys the HIV virus). But in Sub-Saharan Africa there's mostly no money to do so. A patient can't do much against this problem. However a possible solution for developing countries could be heating the blood samples in the sun.

Another way of infection is the infection from an infected mother to her baby. This can happen during pregnancy or birth or through breast milk. However there are ways to lower the possibility of getting infected: At first certain drugs are taken during pregnancy - highly reduce the chances that a baby will get infected with HIV by its mother. Furthermore, delivering the baby by cesarean section reduces the chance of infection. These two measures combined, lower the probability of the baby getting infected to a rate of 1 percent.

Of course, breast feeding should be avoided in any case so that the baby won't get infected this way after being delivered without any infection. In reality this is quite easily done in the United States and other developed countries, but in Sub-Saharan Africa most mothers can't afford feeding their babies otherwise than through breast feeding. So even if antiretroviral drugs go to the expense of aid organizations, HIV may still be transmitted through breast milk.

Though all these things sound quite bad, there is also some good news. Even if people are infected by HIV there might be at the beginning - be a possibility to stop the spread of the virus in the body fully, so that the infectious disease does not start. Therefore, **PEP, Post Exposure Prophylaxis**, is used. It is a short-term antiretroviral treatment which can be applied shortly after potential exposure. Potential exposure can happen for example occupationally (interesting for health care workers) or through sexual intercourse.

The post exposure treatment is most effective the earlier it starts after a potential exposure. Within two hours after - for example - sexual intercourse with a HIV positive partner there's a really high probability to prevent a HIV infection by PEP. When time passes the probability sinks. Twenty-four hours after exposure the treatment has no need to be started because it is too late to prevent the early spread of the virus in the body.

PEP is especially valuable for the health care system. In many settings where protective supplies are limited and where there are many HIV positive patients, there's of course a chance for health care workers to become infected, too. The availability of PEP would and will probably reduce this chance. It is supposed to be provided as part of a universal precautions package that reduces health staff's exposure to infectious hazards at work. So it is believed that the availability of PEP for health workers may reduce the concerns of the workers about the risk of exposure to HIV at the workplace. This might also motivate more people to work with people infected with HIV.

Quoted sources:

[1http://www.phac-aspc.gc.ca/publicat/epiu-aepi/epi_update_may_04/13_e.html](http://www.phac-aspc.gc.ca/publicat/epiu-aepi/epi_update_may_04/13_e.html)

Some of my other sources:

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<http://www.faz.net/s/RubDDBDABB9457A437BAA85A49C26FB23A0/Doc~E2FFCA35112524FEF9131137A6DE0922A~ATpl~Ecommon~Scontent.html>

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