

If you have HIV, there's a chance that you could pass it on to somebody else. HIV is present in potentially infectious quantities in blood, semen, and vaginal fluids. Transmission of HIV can happen if one of these fluids gets into somebody else's body, either directly into the bloodstream, or through unprotected anal, or vaginal sex, and very rarely, unprotected oral sex.

Transmission of HIV doesn't always occur when an uninfected person is exposed to HIV. A number of factors affect the risk of transmission and include:

- The viral load of the infected person.
- The type of exposure to HIV. Sharing drug injecting equipment carries the greatest risk. Unprotected anal sex appears to be riskier than unprotected vaginal sex. A small number of HIV infections are due to oral sex performed on a man (fellatio). Ejaculation into the mouth and damage to tissue in the mouth, such as bleeding gums, increase the risk of transmission from fellatio. There have been no reports of HIV transmission from oral sex performed on a woman (cunnilingus).
- The presence of other sexually transmitted infections. These can increase the viral load in the sexual fluids of a person with HIV. They can also cause inflammation or ulcers in the sexual organs of an uninfected person making it easier for HIV to enter the body.
- Genetic factors.

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## High viral load and infectiousness

The infectiousness of somebody with HIV is directly linked to their viral load.

Some research suggests that as many as 50% of new HIV transmissions are due to people who have been infected with HIV very recently. Viral load in the first few weeks after infection with HIV (primary HIV infection) is very high so the risk of passing on the virus to others is particularly high at this time.

People who've had HIV for a long time and are ill because of HIV also have high viral loads and are also more infectious.

HIV-positive pregnant women with a high viral load are more likely to pass on HIV to their baby than women with a low viral load.

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## The effect of HIV treatment

HIV treatment reduces the amount of HIV in the body. The goal of HIV treatment is an undetectable viral load in the blood, but HIV treatment also reduces the amount of HIV in sexual fluids.

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## Does undetectable mean uninfected?

There is a lot of debate about how infectious somebody is if they are taking HIV treatment and have an undetectable viral load.

In early 2008, HIV doctors in Switzerland issued a statement saying that people with an undetectable viral load (below 50 copies/ml) could not transmit HIV sexually if they had had an undetectable viral load for at least six months, took their HIV treatment properly, and did not have a sexually transmitted infection. They justified their statement by pointing to results from studies in Africa that showed that HIV transmission did not occur in heterosexual couples if the HIV-infected partner had a low viral load.

This statement was controversial, but there is a consensus that treatment does reduce the risk of HIV transmission.

However, other HIV doctors, researchers and prevention workers have raised a number of objections, including:

- Viral load in the blood and sexual fluids can be different .
- The African studies looking at transmission only included steady heterosexual couples, so the results might not apply to other groups.
- The African studies only asked about vaginal sex. The couples in these studies may have also had anal sex, but because they weren't

asked, we don't know. The risk for transmission during anal sex might be different.

Despite this, the Swiss was largely vindicated by the results of a major study looking at the effect on treatment on infectiousness. Announced in summer 2011, these showed that successful HIV treatment reduces the risk of transmission by 96%.

Earlier research including gay men showed that having an undetectable viral load reduced the risk of transmission by the same magnitude.

An undetectable viral load can also reduce the risk of HIV transmission in other circumstances as well. In early 2009 a surgeon taking HIV treatment who had an undetectable viral load was allowed to continue working in Israel.

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## Mother-to-child transmission

Pregnant women who take anti-HIV drugs are less likely to pass on HIV to their baby than women who do not take such treatment . This is because treatment reduces the amount of HIV in the mother's body, and also because anti-HIV drugs can enter the baby's body making it harder for HIV to get a hold.