

HIV Transmission Rates

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[Human immunodeficiency virus](#) (HIV) is a condition that attacks a person's [immune system](#). The immune system helps identify and destroy pathogens that cause infection and illness in the body.

HIV is [transmitted](#) through contact with body fluids, such as blood, semen, vaginal fluids, and breastmilk, of a person who is infected. If left untreated, HIV can develop into an advanced condition called [acquired immunodeficiency syndrome](#) (AIDS). There is currently [no cure](#) for HIV, but there are effective [treatments](#).

Read on for more information about HIV risk factors, how the virus is transmitted, and prevention strategies.

 Prevention of HIV - Illustration by Michela Buttignol

HIV Risk Factors

The [risk for transmitting HIV](#) increases based on certain types of behaviors that put a person in contact with bodily fluids which may contain the virus.

Risk Factors for HIV Transmission

There are a number of behaviors and situations that can increase the risk for HIV transmission, including:

- Engaging in unprotected anal or vaginal sex (e.g., [without a condom](#))
- Sharing needles that have been used by another person
- Having a [sexually transmitted infection](#) (STI)
- Non-sterile injections, piercings, or surgical procedures
- Being stuck with a needle that came in contact with contaminated blood
- Blood transfusions

Related: [How Is HIV Transmitted?](#)

How Common Is HIV?

Globally, there are over 37 million people living with HIV. About 1.2 million people in the United States are living with HIV. Of those people, however, it's estimated that as many as 13% do not know their HIV status.

Since the 1980s, rates of HIV have declined. In 2019, there were 34,800 new cases identified in the U.S., and the incidence rate was 12.6 per 100,000 people.

Related: [Global HIV Statistics: A Complete Geographical Breakdown](#)

HIV Among Different Communities

Though anyone can be infected by HIV, some groups of people are disproportionately affected. For instance, people in the [Black](#) and [Latinx](#) communities have higher rates of HIV compared with other racial and ethnic groups.

Men who have sex with men ([MSM](#)) are also disproportionately affected. MSM

men who have sex with men (MSM) are also disproportionately affected. MSM account for 70% of new cases each year, but make up about 2% of the general population.

Related: [Health Disparities in HIV](#)

Blood Transmission

There are a few ways that HIV may be transmitted through contact with virus-containing blood, including blood transfusions and sharing used needles or syringes.

Blood Transfusion

A [blood transfusion](#) procedure using blood from an HIV positive donor is one possible way to transmit the virus. However, since the implementation of rigorous blood donor screening and laboratory testing of donated blood, the rates of HIV found in the donated blood supply is extremely low.

Currently, the rate of HIV found in the donated blood supply is about 0.3 per 10,000 donations. However, donated blood is tested and any HIV positive blood is removed, so HIV is almost never transmitted this way.

Shared Needles or Syringes

HIV can be transmitted by sharing needles from one person to another. This may occur when access to sterile syringes is unavailable.

This mode of transmission among people who inject drugs accounts for 22% of people living with HIV. However, the population of people who inject drugs only accounts for about 3% of the total population.

Incidental Transmission

HIV transmission risk from an [incidental needlestick](#), such as in the healthcare setting, is possible but very low.

Sexual Transmission

During sex, a person living with HIV can transmit the virus to a sexual partner

During sex, a person living with HIV can transmit the virus to a sexual partner through certain body fluids. These include:

- [Semen](#)
- [Pre-ejaculate \(pre-cum\)](#)
- Vaginal fluids
- Rectal fluids

There are a few ways the virus can enter the body during sex. Body fluids containing the virus can transmit HIV through contact with mucous membranes, such as the vaginal walls and [cervix](#) during [vaginal sex](#).

During [anal sex](#), the virus could be transmitted through semen or pre-ejaculate through the thin rectal walls of the receptive partner (bottom).

If a person has any cuts or sores on their genitals, it may allow for the virus to enter the body if their sexual partner is HIV positive. For example, the penetrative partner (top) during anal or vaginal sex could be at risk for transmission if there are any cuts or sores on the [penis](#).

The probability of transmitting HIV through sex is highest for receptive anal sex (138 per 10,000 exposures). Insertive anal sex, receptive vaginal sex, and insertive vaginal sex all have a rate of transmission lower than 12 per 10,000 exposures. [Oral sex](#) carries little risk for HIV transmission.

Pregnancy or Breastfeeding Transmission

There are a few ways HIV can be passed from a pregnant person to a baby. During pregnancy, the virus can be transmitted to the fetus through the [placenta](#). It can be transmitted during childbirth through contact with blood or other body fluids that contain the virus.

Because the virus can also be detected in breastmilk, it's possible for a baby to contract HIV through [breastfeeding](#).

In the absence of intervention or treatment, the rate of HIV transmission from a parent living with HIV to their child during pregnancy, labor, delivery, or breastfeeding ranges from 15% to 45%.

Prevention Strategies

There are several ways for both people living with HIV and those who are currently HIV negative to reduce the risk of spreading the virus to others.

Practicing Safer Sex

Using barrier methods, such as a [condom](#), correctly and consistently can decrease the risk of HIV transmission. These methods work by providing a physical barrier during sex. The barrier prevents body fluids that may contain the virus from coming into contact with mucus membranes or entering the bloodstream through cuts or sores.

In addition to reducing the risk of STI transmission (an HIV risk factor), decades of research has found that HIV transmission risk between serodiscordant sexual partners (where one partner is living with HIV and the other partner is not) is reduced when using external or internal condoms.

More specifically, early studies found that external condoms reduced the risk of HIV by 90% to 95% during penile-vaginal sex when used consistently. Another review found that heterosexual couples with one HIV-positive partner that used external condoms had an 80% reduction in HIV transmission. External condom use among MSM was found to result in up to a 70% reduction in HIV transmission risk.

Penile Circumcision

Researchers identified an association with removal of the foreskin on the penis ([circumcision](#)) and a 40% reduction in HIV transmission.

There are a few theories about this method of prevention. One way is by reducing the risk of STIs, as having an STI increases the risk of HIV.

Another theory is that the removal of the foreskin also removes the cells contained in the tissue that are typically targeted by the virus. Further, removing the foreskin itself may eliminate a suitable environment (being warm and moist) for an infection to grow.

Lastly, any small tears or scrapes in the fragile tissue of the foreskin could also create easier entry points for the virus to enter the body.

Pre-exposure Prophylaxis (PrEP)

Research has demonstrated that [PrEP](#), when taken by someone who is HIV negative but may be at a higher risk for contracting HIV, can reduce the risk of transmission. There are currently three approved prescription medications:

- **Truvada** (emtricitabine + tenofovir disoproxil fumarate) is a daily pill approved for those at risk for HIV through sex or injection drug use.
- **Descovy** (emtricitabine + tenofovir alafenamide) is a daily pill approved for sexually active men and transgender women at risk for HIV.
- **Apretude** (cabotegravir extended-release injectable suspension), which is approved for at-risk adults and teens, is an injectable given every two months.

PrEP has been shown to reduce the risk of HIV transmission through sex by 99% and through injection drug use by 74%-84%.

Related: [How Effective Is PrEP at Preventing HIV?](#)

Post-Exposure Prophylaxis (PEP)

[Post-exposure prophylaxis](#) (PEP) is a preventative medicine taken after a possible exposure to HIV, such as from a needlestick or sexual assault.

Antiretroviral Therapy (ART)

[ART](#) is a combination of medications used to treat HIV. The medications reduce the virus' ability to multiply in the body. This allows the body's immune system to create more CD4 cells to fight infections.

The medication will reduce the amount of the virus in the body (referred to as the [viral load](#)) to levels that are undetectable over time. A viral load that is undetectable through the use of ART reduces the risk of transmitting the virus to virtually zero.

Using Clean Needles/Syringes

Ensuring that needles or syringes used for any purpose are disposed of properly and aren't used again by others decreases the risk of HIV transmission. Needle exchange programs can facilitate the collection of used needles and provide people with sterile needles as an HIV harm reduction measure.

From Parent to Baby

HIV positive parents can prevent transmission to their children during delivery by having a [C-section](#) instead of a vaginal birth.

They can also prevent transmission through breastfeeding by choosing not to breastfeed their baby.

Summary

An HIV infection attacks a person's immune system. The virus is transmitted through certain body fluids, including semen, blood, vaginal fluids, or breastmilk, of a person who has HIV. This is accomplished through contact with another person's mucus membranes (e.g., vagina or anus) or directly through the bloodstream (e.g., shared needles).

Certain conditions and behaviors put people at a higher risk for HIV transmission, such as condomless sex, sharing needles, or breastfeeding. A number of prevention strategies, from safer sex practices to prescription medications, can be used to reduce the risk of transmitting HIV and limit the virus from spreading in the body.

A Word From Verywell

Though rates are decreasing, millions of people across the globe are currently living with HIV. Fortunately, due to medical advancements, people living with HIV are able to have full lives while managing the condition.

There are many misconceptions about how people acquire HIV. Knowing transmission methods and risk factors can help prevent the spread. Being aware of your HIV status is key. Speak with a healthcare provider about your risk and determine if you should be tested for HIV. Getting tested regularly can help identify HIV infections early and lead to effective treatment.

FREQUENTLY ASKED QUESTIONS

- **How does HIV stigma affect transmission rates?**

Some people hold negative attitudes about people with HIV, including moral judgements about who they are. People who experience HIV stigma may feel isolated and ashamed. Not wanting to be subjected to those attitudes may prevent some people from getting tested. Not knowing whether or not you have HIV makes it harder to determine what prevention strategies or treatment can be used to reduce the risk of transmission.

- **How much does HIV medication reduce transmission rates?**

For people living with HIV, taking daily ART medication can reduce the amount of the virus in their body to levels that are undetectable. Researchers have found that when the virus cannot be detected in those taking ART, the risk of transmitting it to another person is virtually zero.

PrEP can be used by people who have tested negative for HIV but may be at a higher risk for transmission. This medication can prevent the virus from replicating and spreading in the body by 74%-99%.

22 Sources

Verywell Health uses only high-quality sources, including peer-reviewed studies, to support the facts within our articles. Read our [editorial process](#) to learn more about how we fact-check and keep our content accurate, reliable, and trustworthy.

1. Centers for Disease Control and Prevention. [About HIV](#).
2. World Health Organization. [HIV/AIDS](#).

3. HIV.gov. [US statistics](#).
4. HIV.gov. [Impact on racial and ethnic minorities](#).
5. UpToDate. [Risk of HIV from blood transfusion](#).
6. Kulikowski J, Linder E. [Making the case for harm reduction programs for injection drug users](#). *Nursing*. 2018;48(6):46-51. doi:10.1097/01.NURSE.0000532745.80506.17
7. Centers for Disease Control and Prevention. [Body fluids that transmit HIV](#).
8. Centers for Disease Control and Prevention. [Ways HIV can be transmitted](#).
9. Centers for Disease Control and Prevention. [HIV risk behaviors](#).
10. American College of Obstetricians and Gynecologists. [HIV and pregnancy](#).
11. World Health Organization. [Mother-to-child transmission of HIV](#).
12. Smith DK, Herbst JH, Zhang X, Rose CE. [Condom effectiveness for hiv prevention by consistency of use among men who have sex with men in the United States](#). *JAIDS Journal of Acquired Immune Deficiency Syndromes*. 2015;68(3):337-344. doi:10.1097/QAI.0000000000000461
13. Sharma SC, Raison N, Khan S, Shabbir M, Dasgupta P, Ahmed K. [Male circumcision for the prevention of human immunodeficiency virus \(HIV\) acquisition: a meta-analysis](#). *BJU Int*. 2018;121(4):515-526. doi:10.1111/bju.14102
14. HIV.gov. [Pre-exposure prophylaxis](#).
15. Food and Drug Administration. [FDA approves first injectable treatment for HIV pre-exposure prevention](#).
16. Centers for Disease Control and Prevention. [Effectiveness of prevention strategies to reduce the risk of acquiring or transmitting HIV](#).
17. Centers for Disease Control and Prevention. [PEP \(post-exposure prophylaxis\)](#).
18. National Institutes of Health. [HIV treatments: the basics](#).
19. Centers for Disease Control and Prevention. [HIV stigma and discrimination](#).
20. Gwadz M, Leonard NR, Honig S, Freeman R, Kutnick A, Ritchie AS. [Doing battle with “the monster”: how high-risk heterosexuals experience and successfully manage HIV stigma as a barrier to HIV testing](#). *Int J Equity Health*. 2018;17(1):46. doi:10.1186/s12939-018-0761-9
21. Rodger AJ, Cambiano V, Bruun T, et al. [Risk of HIV transmission through condomless sex in serodifferent gay couples with the HIV-positive partner taking suppressive antiretroviral therapy](#).

(Partner): final results of a multicentre, prospective, observational study. *The Lancet*.
2019;393(10189):2428-2438. doi:10.1016/S0140-6736(19)30418-0

22. National Institutes of Health. Pre-exposure prophylaxis (PrEP).