

# HIV Transmission and Risks

HIV enters the body through open cuts, sores, or breaks in the skin; through mucous membranes, such as those inside the anus or vagina; or through direct injection. There are several ways by which this can happen:

- Sexual contact with an infected person.
- Sharing needles, syringes, or other injection equipment with someone who is infected.
- Mother-to-child transmission. Babies born to HIV-positive women can be infected with the virus before or during birth, or through breastfeeding after birth.
- Transmission in health care settings. Healthcare professionals have been infected with HIV in the workplace, usually after being stuck with needles or sharp objects containing HIV-infected blood.
- Transmission via donated blood or blood clotting factors. However, this is now very rare in countries where blood is screened for HIV antibodies, including in the United States.

Since the beginning of the HIV/AIDS epidemic, new or potentially unknown routes of transmission have been thoroughly investigated by state and local health departments, in collaboration with the U.S. Centers for Disease Control and Prevention (CDC). To date, no additional routes of transmission have been recorded, despite a national system designed to detect unusual cases.

## COMMON MYTHS ABOUT HOW HIV IS SPREAD

These are some of the circumstances you don't have to worry about because they will not put you at risk for becoming infected with HIV:

- Being bitten by a mosquito or other bugs, being bitten by an animal.

- Eating food handled, prepared or served by somebody who is HIV positive.
- Sharing toilets, telephones or clothing.
- Sharing forks, spoons, knives, or drinking glasses.
- Touching, hugging or kissing a person who is HIV positive.
- Attending school, church, restaurants, shopping malls or other public places where there are HIV-positive people.

HIV cannot be transmitted through urine, feces, vomit, or sweat. It is present, but only in negligible quantities, in tears and blister fluid. It is present in minute amounts in saliva in a very small number of people.

### **Sexual Transmission of HIV**

In the United States, sexual contact is the most common route of HIV transmission. The term MSM is important because many men who have sex with men do not necessarily identify themselves as "gay" or even "bisexual." HIV transmitted through sexual activity among heterosexuals accounted for 31 percent of new infections, with most of these cases among women infected by men. Injection drug users, in total, accounted for 12 percent of new infections, though about a quarter of those were MSM, so it isn't possible to know for sure whether those men were infected by sharing injection equipment or through sex.

Heterosexual intercourse is the most common mode of HIV transmission in many resource-poor countries. In Africa slightly more than 80 percent of infections are acquired heterosexually, while mother-to-child transmission and transfusions of contaminated blood account for the remaining infections. In Latin America, most infections are acquired by MSM and through misuse of injected drugs, but heterosexual transmission is rising. Heterosexual contact and injection of drugs are the main modes of HIV transmission in South and South East Asia.

The reason why sexual activity is a risk for HIV transmission is because it allows for the exchange of body fluids. Researchers have consistently found that HIV can be transmitted via blood, semen, and vaginal secretions. It is also true that HIV has been detected in saliva, tears, and urine. However, HIV in these fluids is only found in extremely low concentrations. What's more, there hasn't been a single case of HIV transmission through these fluids reported to the CDC.

### **Specific Sexual Practices: What are the Risks?**

Studies have repeatedly demonstrated that certain sexual practices are associated with a higher risk of HIV transmission than others.

#### **Vaginal Intercourse:**

Unprotected vaginal intercourse is the most common mode of HIV infection worldwide. In the United States and many other developed nations, it is the second most common mode of sexual HIV transmission (after anal intercourse among MSM).

Studies have demonstrated that male-to-female HIV transmission during vaginal intercourse is significantly more likely than female-to-male HIV transmission. In other words, HIV-positive men are much more likely to transmit the virus to HIV-negative women through vaginal intercourse than HIV-positive women are to HIV-negative men.

There are a few reasons for this. First, there are more men than women in the United States infected with HIV, meaning that it's much more likely for a female to have sex with an HIV-positive male than for a male to have sex with an HIV-positive female. Second, women have a much larger surface area of mucosal tissue – the lining of the vagina and cervix that can chafe easily and are rich in immune system cells that can be infected by HIV – than men. For men,

HIV must enter through a cut or abrasion on the penis or through the lining of the urethra inside the tip of the penis.

There has been some research suggesting that men who are uncircumcised have a higher risk of becoming infected with HIV or transmitting the virus if they are already HIV positive. However, it is important to stress that men who are circumcised can still be infected (or transmit the virus) if condoms are not used for vaginal sex.

Men or women who have sexually transmitted infections (STIs), such as genital herpes or syphilis, are more likely to spread the virus if they are HIV positive or to become infected with the virus if they are HIV negative.

### **Anal Intercourse:**

Anal intercourse is associated with a high risk of HIV infection, if condoms are not used and the insertive partner's HIV status is either positive or not known.

Being the receptive partner – the "bottom" – during unprotected anal intercourse puts you at a much high risk of HIV infection but it's possible for either partner to get HIV. The reason for this is that HIV-infected semen can come into contact with mucosal tissues in the anus that can be damaged easily during anal intercourse. And the risk of HIV transmission isn't necessarily reduced if the "top" pulls out before ejaculation – studies have demonstrated that pre-ejaculate (pre-cum) can contain high amounts of HIV and can result in transmission during anal intercourse.

The insertive ("top") partner is at lower risk but it is possible for HIV to enter through a cut or abrasion on the penis or through the lining of the urethra inside the tip of the penis.

Studies suggest that unprotected insertive anal sex is roughly four to 14 times less risky than unprotected receptive anal sex.

## **Penile-Oral Sex**

The risk of penile-oral sex raises the greatest amount of confusion in terms of risk – and raises the greatest number of questions. But most experts agree that fellatio, sometimes referred to as "blow jobs," is not an efficient route of HIV transmission. This does not mean that it cannot happen, but the risk is very low.

Because unprotected fellatio allows body fluids from one person to come into contact with the mucosal tissues or open cuts, sores, or breaks in the skin of another person, there is a "theoretical risk" of HIV transmission, meaning that passing an infection from one person to another is considered possible. But the likelihood of it happening is rare as there are only a few documented cases reports and studies.

These instances all involved MSM – men who were the receptive partners (the person doing the "sucking") during unprotected oral sex with another HIV-positive man. There haven't been any instances of HIV infection among female receptive partners during unprotected oral sex. And there hasn't been a single documented case of HIV transmission to an insertive partner (the person being "sucked") during unprotected oral sex, either among MSM or heterosexuals.

## **Oral-Vaginal Sex**

Like fellatio, this is also considered a low risk activity. Case reports document one case of female-to-female transmission of HIV via cunnilingus and another case of female-to-male transmission of HIV via cunnilingus. Both of these cases involved transmission from receptive partner (the one receiving oral sex) to the insertive partner (the one performing oral sex). There haven't been any documented cases of HIV transmission from the insertive partner to the receptive partner.

## **Oral-Anal Sex**

Oral-anal sex is often referred to as anilingus. Anilingus, or "rimming," is not considered to be an independent risk factor for HIV. However, it has been shown to be a route of transmission for hepatitis A and B, as well as parasitic infections like giardiasis and amebiasis.

## **Digital-Anal or Digital-Vaginal Sex**

Digital-anal or digital-vaginal sex is the clinical term for "fingering" either the anus or the female genitals (including the vagina). While it is theoretically possible that someone who has an open cut or fresh abrasion on his or her finger or hand can be infected with HIV if coming into contact with blood in the anus or vagina or vaginal secretions, there has never been a documented case of HIV transmission via fingering