

TRANSMISSION

MODES

How Do People Become Infected?

Ans. This virus is spread through the blood, semen, and vaginal discharges of an HIV-infected person. People can get HIV infection when they have contact with these fluids. This can happen by engaging in specific sexual and/or drug use practices. Also, HIV-infected women can pass the virus to their newborns during pregnancy and childbirth. Lastly, some people who received blood products before March 1989 got infected blood. Now all donated blood is being screened for HIV.

Many people do not know they have this virus and therefore can unknowingly pass it to others. This is because they usually look and feel fine for many years after HIV infection occurs.

■ Sex and HIV

Both men and women, including teenagers, can pass HIV to a sex partner, whether he or she is the same sex or the opposite sex. This can occur during unprotected anal, vaginal, and oral (mouth) sex through contact with infected semen, blood, or vaginal secretions.

■ Drugs, Sex and HIV

People can get infected with HIV through sharing needles, cookers, or cottons (works) with someone who is infected. This can happen even when the person passing the works looks clean and healthy.

Some people stopped shooting and/or sharing works many years ago and do not realize that they may have become infected with HIV back when they were still shooting drugs. They also may not realize they can pass it through unprotected sex now.

■ Pregnancy and HIV

Treatment during pregnancy can help an HIV-infected woman protect her baby from becoming infected. Without treatment, more than a third of all babies born to HIV-infected women will have the virus and eventually get sick.

Can I become infected with HIV through normal social contact/activities such as shaking hands/toilet seats/swimming pools/sharing cutlery/kissing/sneezes and coughs?

No. This is because HIV is not an airborne, water borne or food-borne virus. Also, the virus does not survive for very long outside the human body. Therefore ordinary social contact such as kissing, shaking hands, coughing and sharing cutlery does not result in the virus being passed from one person to another. No. HIV is not transmitted by day to day contact in the home, the workplace, schools, or social settings. HIV is not transmitted through shaking hands, hugging or a casual kiss. You cannot become infected from a toilet seat, a drinking fountain, a doorknob, dishes, drinking glasses, food, or pets. HIV is a fragile virus that does not live long outside the body. HIV is not an airborne or food borne virus. HIV is present in the blood, semen or vaginal secretions of an infected person and can be transmitted through unprotected vaginal, oral or anal sex or through sharing injection drug needles.

Parent to Child Transmission of HIV

How does a mother transmit HIV to her unborn child?

Ans. An HIV-infected mother can infect the child in her womb through her blood. The baby is more at risk if the mother has been recently infected or is in a later stage of AIDS. Transmission can also occur at the time of birth when the baby is exposed to the mother's blood and to some extent transmission can occur through breast milk. Transmission from an infected mother to her baby occurs in about 30% of cases.

Q. Can HIV be transmitted through breast-feeding?

Ans. Yes. The virus has been found in breast milk in low concentrations and studies have shown that children of HIV-infected mothers can get HIV infection through breast milk. Breast milk, however, has many substances in it that protect an infant's health and the benefits of breast-feeding for both mother and child are well recognized. The slight risk of an infant becoming infected with HIV through breast-feeding is therefore thought to be outweighed by the benefits of breast-feeding.

Can infected mother's breast milk transmit HIV infection to the newborn?

Breast milk is the ideal food for an infant. It contains many protective factors which help an infant at a time when its own bodily resistance is inadequate due to the immaturity of its immune system. These protective factors are in the form of certain immune cells and protective weapons or proteins (antibodies) produced against all the organisms to which a mother has been exposed in the past. However, the breast milk of a HIV – infected woman also contains a small quantity of HIV. Though the concentration of HIV is low, the fact that an infant consumes almost one litre of breast milk everyday becomes a cause of concern. The mucosa (inner skin/membrane) of the gastro-intestinal tract is immature and the acidity which protects against such infections is not particularly well developed during the first month after birth. Thus, the normally protective defenses against HIV are weaker during infancy; these issues are responsible for the peculiar, enhanced vulnerability to HIV in this period. The risk of acquisition of HIV infection through breast milk ranges between 14% and 29%. This documented risk of HIV transmission through breast milk has led to a practice of advising against breast-feeding in the western countries. However, in the developing countries like India, where per capita income is low, we may have to consider certain other important factors such as :

- It has been shown that risk of death at one year's age (infant mortality rate) due to malnutrition caused by non-availability of breast milk is 4 to 6 times more than that due to AIDS itself. A child usually dies much earlier due to malnutrition than AIDS.
- Breast milk contains certain protective factors (antibodies) which help it to fight against other infectious agents such as organisms causing respiratory diseases, ear infection and diarrhea.
- The chance of transmission of HIV from an infected mother during pregnancy and delivery is about 30%.

All newborns of HIV infected mothers show the presence of antibodies in the ELISA test. However, this does not mean that all these newborns are infected with HIV. This is due to passive transfer of antibodies to a newborn from the mother during pregnancy to protect them from various infections. Only 30% of such newborns will be found to be truly infected after 18 months. Hence if we stop breast feeding to all the newborns, we will be depriving 70% of healthy children from mother's breast milk. This will also increase the cost of child-rearing especially in developing countries unnecessarily. Moreover, with the widely prevalent improper hygienic practices, the risk of development of potentially fatal diarrhoeal diseases and malnutrition will increase tremendously. However, the decision to breast-feed or not rests with the parents of these children.

UNAIDS (WHO) recommends that the risks and benefits associated with breast feeding should be informed to the HIV infected mother, to enable her to take the decision about breast feeding the newborns.

Why does a newborn acquire HIV infection through breast milk?

Normally HIV does not enter through the gastro-intestinal tract due to the presence of hydrochloric acid in the stomach. Therefore, one does not acquire HIV infection from an HIV infected person even if one eats or drinks from the same utensils. However, newborns tend to have lower levels of hydrochloric acid in the stomach during the first month of their life. though breast milk contains a small quantity of HIV, infants consume about half a liter of breast milk in the first month of their life, everyday. Hence, they are repeatedly exposed to a small quantity of HIV everyday. Absence/lower level of the normally protective hydrochloric acid in the stomach can not prevent the entry of HIV in the body. Therefore newborns acquire HIV through drinking the breast milk from an HIV-infected mother and adults who have a high level of hydrochloric acid in their stomach do not acquire HIV through the gastro – intestinal route.

ORAL/ ANAL SEX

What About Getting AIDS From Body Fluids Like Saliva?

Ans. Although small amounts of HIV have been found in body fluids like saliva, feces, urine, and tears, there is no evidence that HIV can spread through these body fluids.

By now, HIV has been the subject of more research than most other diseases in history. Medical science is confident about these basic facts: You can't get HIV or AIDS from touching someone, sharing items such as cups or pencils, or coughing or sneezing. HIV is not spread through routine contact in restaurants, workplaces, or schools.

There has never been any danger of becoming infected with HIV from donating blood. The needles at blood collection sites in the United States are never used twice.

Can I get HIV from kissing on the cheek?

Ans. HIV is not casually transmitted, so kissing on the cheek is very safe. Even if

the other person has the virus, your unbroken skin is a good barrier. No one has become infected from such ordinary social contact as dry kisses, hugs, and handshakes.

Q. Can I get HIV from open-mouth kissing?

Ans. Open-mouth kissing is considered a very low-risk activity for the transmission of HIV. However, prolonged open-mouth kissing could damage the mouth or lips and allow HIV to pass from an infected person to a partner and then enter the body through cuts or sores in the mouth. Because of this possible risk, the CDC recommends against open-mouth kissing with an infected partner.

One case suggests that a woman became infected with HIV from her sex partner through exposure to contaminated blood during open-mouth kissing

Can I get HIV from performing oral sex?

Yes, it is possible for you to become infected with HIV through performing oral sex. There have been a few cases of HIV transmission from performing oral sex on a person infected with HIV. While no one knows exactly what the degree of risk is, evidence suggests that the risk is less than that of unprotected anal or vaginal sex. Blood, semen, pre-seminal fluid, and vaginal fluid all may contain the virus. Cells in the mucous lining of the mouth may carry HIV into the lymph nodes or the bloodstream. When giving oral sex to a man (sucking or licking a man's penis) a person could become infected with HIV if infected semen got into any cuts, sores or receding gums a person might have in their mouth.

Giving oral sex to a woman (licking a woman's clitoris or vagina) is also considered relatively low risk. Transmission could take place if infected sexual fluids from a woman got into the mouth of her partner. The likelihood of infection occurring might be increased if there is menstrual blood involved or the woman is infected with another STD. Currently, risk reduction options when performing oral sex on a man (fellatio) include the use of latex condoms, but also include withdrawal before ejaculation without a condom (avoiding semen in the mouth) and/or refraining from this activity when cuts or sores are present in the mouth.

When performing oral sex on a woman (cunnilingus), moisture barriers such as a dam (sheet of latex), a cut-open and flattened condom, or household plastic wrap can reduce the risk of exposure to vaginal secretions and/or blood.

Q. Can I get HIV from anal sex?

Ans. Yes, it is possible for either sex partner to become infected with HIV during anal sex. HIV can be found in the blood, semen, pre-seminal fluid, or vaginal fluid of a person infected with the virus. In general, the person receiving the semen is at greater risk of getting HIV because the lining of the rectum is thin and may allow the virus to enter the body during anal sex. However, a person who inserts his penis into an infected partner also is at risk because HIV can enter through the urethra (the opening at the tip of the penis) or through small cuts, abrasions, or open sores on the penis.

Having unprotected (without a condom) anal sex is considered to be a very risky behavior. If people choose to have anal sex, they should use a latex condom. Most of the time, condoms work well. However, condoms are more likely to break during anal sex than during vaginal sex. Thus, even with a condom, anal sex can be risky. A person should use a water-based lubricant in addition to the condom to reduce the chances of the condom breaking.

Needles

Why is injecting drugs a risk for HIV?

Ans. At the start of every intravenous injection, blood is introduced into needles and syringes. HIV can be found in the blood of a person infected with the virus. The reuse of a blood-contaminated needle or syringe by another drug injector (sometimes called "direct syringe sharing") carries a high risk of HIV transmission because infected blood can be injected directly into the bloodstream.

In addition, sharing drug equipment (or "works") can be a risk for spreading HIV. Infected blood can be introduced into drug solutions by

- using blood-contaminated syringes to prepare drugs
- reusing water
- reusing bottle caps, spoons, or other containers ("spoons" and "cookers") used to dissolve drugs in water and to heat drug solutions
- reusing small pieces of cotton or cigarette filters ("cottons") used to filter out particles that could block the needle.

"Street sellers" of syringes may repackage used syringes and sell them as sterile syringes. For this reason, people who continue to inject drugs should obtain syringes from reliable sources of sterile syringes, such as pharmacies. It is important to know that sharing a needle or syringe for any use, including skin popping and injecting steroids, can put one at risk for HIV and other blood-borne infections.

Are health care workers at risk of getting HIV on the job?

Ans. The risk of health care workers getting HIV on the job is very low, especially if they carefully follow universal precautions (i.e., using protective practices and personal protective equipment to prevent HIV and other blood-borne infections). It is important to remember that casual, everyday contact with an HIV-infected person does not expose health care workers or anyone else to HIV. For health care workers on the job, the main risk of HIV transmission is through accidental injuries from needles and other sharp instruments that may be contaminated with the virus. Even this risk is small, however. Scientists estimate that the risk of infection from a needle jab is less than 1 percent, a figure based on the findings of several studies of health care workers who received punctures from HIV-contaminated needles or were otherwise exposed to HIV-contaminated blood.

MYTHS AND MISCONCEPTIONS

Can I become infected with HIV from needles on movie/cinema seats?

There have been a number of stories circulating via the Internet and e-mail, about people becoming infected from needles left on cinema seats and in coin return slots. However these rumours appear to have no factual basis. For HIV infection to take place in this way the needle would need to contain infected blood with a high level of infectious virus. If a person was then pricked with an infected needle, they could become infected although there is only a 0.4% chance. Although discarded needles can transfer blood and blood-borne illnesses such as hepatitis B, C and HIV, the risk of infection taking place in this way is extremely low.

Am I at risk of becoming infected with HIV when visiting the doctor's or dentist's?

Transmission of HIV in a healthcare setting is extremely rare. All health professionals are required to follow infection control procedures when caring for any patient. These procedures are called universal precautions for infection control. They are designed to protect both patients and healthcare professionals from the transmission of blood-borne diseases such as hepatitis B and HIV.

If blood splashes into my eye can I become infected with HIV?

Research suggests the risk of HIV infection in this way is extremely small. A very small number of people -usually in a healthcare setting- have become infected with HIV as a result of blood splashes in the eye.

Can I be infected with HIV through contact with animals such as dogs and cats?

No. HIV is a Human Immunodeficiency Virus. It only affects humans. There are some other types of immunodeficiency viruses, which specifically affect cats and monkeys, namely the Feline Immunodeficiency Virus (FIV) and Simian Immunodeficiency Virus (SIV). These viruses are of no risk to humans though.

Can I get HIV from a mosquito bite?

No it is not possible to get HIV from mosquitoes. When taking blood from someone mosquitoes do not inject blood from any previous person. The only thing that a mosquito injects is saliva, which acts as a lubricant and enables it to feed more efficiently.

The results of experiments and observations of insect biting behavior indicate that when an insect bites a person, it does not inject its own or a previously bitten person's or animal's blood into the next person bitten. Rather, it injects saliva, which acts as a lubricant so the insect can feed efficiently. Diseases such as yellow fever and malaria are transmitted through the saliva of specific species of mosquitoes. However, HIV lives for only a short time inside an insect and, unlike organisms that are transmitted via insect bites, HIV does not reproduce (and does not survive) in insects. Thus, even if the virus enters a mosquito or another insect, the insect does not become infected and cannot transmit HIV to the next human it bites.

There also is no reason to fear that a mosquito or other insect could transmit HIV from one person to another through HIV-infected blood left on its mouth parts. Several reasons help explain why this is so. First, infected people do not have constantly high levels of HIV in their blood streams. Second, insect mouth parts retain only very small amounts of blood on their surfaces. Finally, scientists who study insects have determined that biting insects normally do not travel from one person to the next immediately after ingesting blood. Rather, they fly to a resting place to digest the blood meal.

Should I be concerned about getting infected with HIV while playing sports?

Ans. There are no documented cases of HIV being transmitted during participation in sports. The very low risk of transmission during sports participation would involve sports with direct body contact in which bleeding might be expected to occur.

If someone is bleeding, their participation in the sport should be interrupted until the wound stops bleeding and is both antiseptically cleaned and securely bandaged. There is no risk of HIV transmission through sports activities where bleeding does not occur.

What are the chances of becoming infected with HIV if he doesn't come inside me?

Whilst research suggests that high concentrations of HIV can some times be detected in pre-cum, it difficult to judge whether HIV is present in sufficient quantities for infection to occur. To guard against the possibility of infection with HIV or any other STD it is best to practice safer sex i.e. sex with a condom.

Does 'fingering' during sex carry a risk of HIV transmission?

Inserting a finger into someone's anus or vagina would only be an HIV risk if the finger had any cuts or sores on it and if there was any direct contact with any HIV infected blood, vaginal fluids or semen from the other person.

If a person has received a blood transfusion, is it likely that s/he is likely to be infected with HIV?

HIV infection is likely to be transmitted to another person if the individual has received blood from an HIV infected person. National AIDS Control Organization have made HIV test of all the blood units to be used for transfusion purposes compulsory in all centres. The risk remain if some blood banks do not follow the test precisely. Therefore, the chance of acquiring HIV infection from blood transfusions is very, very low. All the blood units are subjected once to ELISA Test for HIV-1 & -2. However, we know that the ELISA test has a window period of three weeks to three months. Hence, the ELISA test may turn out to be negative in a small number of blood units, if the donor was in window period for HIV infection.

Can sharing of shaving blade lead to HIV infection?

During shaving minor injuries are likely to occur. Even very small micro-injuries, which may be invisible to the naked eye, may occur. HIV is present in

the blood of a HIV – infected person. If a razor is used on an HIV-infected individual, a small amount of blood is likely to remain on the blade after use. Once the blood dries, HIV becomes inactive and loses its infectiousness. However, the razors at the barer shops may be used immediately on another person. If a razor used to shave an HIV-infected person has not been sterilized before reuse, there will be a small theoretical risk of acquisition of HIV infection through such a route. Not a single case of such a transmission has however been reported in the world yet. Shared razors increase the risk of contracting other contagious skin diseases and also a type of jaundice (hepatitis B). Hence it is advisable to use a separate blade for shaving instead of sharing it to reduce the risk of acquiring various skin diseases and hepatitis B, which can be easily transmitted through this route.

Does kissing or manual handling of breasts lead to HIV infection?

No, kissing or manual handling of breasts does not lead to HIV infection. The quantity of HIV in breast milk is very low. The sexual stimuli may hinder the flow of breast milk. Hence, there is no risk of acquiring HIV infection through handling or kissing the breasts of an HIV-infected woman.

Do tattooing and pricking of ears or nose help to spread HIV infection?

Some of the professionals involved in tattooing and pricking of ears and nose do not sterilize their needles. The needles used for these activities are solid and not hollow. Therefore, the quantity of blood left over these needles will be very small. Naturally, the amount of HIV on these needles will be small. The risk of acquiring HIV infection through such needles is very low. The chance of transmission by hollow injection needles, previously used on HIV infected individuals, ranges between one in 250 injections to one in 1000 injections. The chance of acquiring HIV infection through solid bore needles as in tattooing or ear/nose pricking is further lower-almost negligible. Despite the low risk of acquisition of HIV through such activities, it is always advisable to advocate sterilization of needles before reuse under present circumstances, to prevent certain highly contagious diseases like a type of jaundice (Hepatitis B.)

If an HIV-infected person bites another person, can it lead to development of HIV infection?

The concentration of HIV is very low in saliva. Hence, bite a HIV-infected person to a non-infected individual will not result in transmission of infection as the amount of HIV that can get mixed with blood can be almost negligible.

Can mosquito bites transmit HIV infection?

No. Usually mosquitoes consume human blood in a single sitting. So a mosquito at the most may bite a person once, unless disturbed in between. After the bite, the mosquito first injects its saliva in the human body and then starts

sucking. HIV cannot multiply in the salivary gland of mosquitoes. Hence, HIV cannot be transmitted through mosquito's bite.

The prevalence of Malaria is high in African countries like any other country in the equatorial region including India. HIV prevalence is also high in African countries. It is also noticed that HIV infection does not occur in Non-sexual partners despite the presence of an HIV-infected person in the households. If such bites would have transmitted HIV, the infection could have spread at an alarming rate and in all age groups equally.

Do the urine or stools of an infected person transmit HIV infection?

No Urine and stools of the infected person have a very low concentration of HIV and the chances of transmitting HIV infection are almost non-existent. Not a single case has been ever reported due to handling of the urine and stools during nursing care of an HIV-infected person. There is no reason to nurture any anxiety while administering nursing care to HIV- infected persons.

If a person indulges in sexual intercourse every day with a woman, are there any chances of acquiring HIV infection?

If one has a sexual relationship with a trustworthy, uninfected partner, then there are almost no chances of contracting HIV infection through the sexual route. It is important that both the partners should be loyal to each other. However, one could still acquire HIV infection through the other non-sexual modes of transmission e.g. receiving HIV contaminated blood transfusion, needle sharing in intravenous drug use etc.

Is it safe to work with someone infected with HIV?

Ans. Yes. Most workers face no risk of getting the virus while doing their work. If they have the virus themselves, they are not a risk to others during the course of their work.

Q. Why are people safe from HIV infection during work?

Ans. As explained already, in adults, the virus is mainly transmitted through the transfer of blood or sexual fluids. Since contact with blood or sexual fluids is not part of most people's work, most workers are safe.

Q. What about working every day in close physical contact with an infected person?

Ans. There are no risks involved. You may share the same telephone with other people in your office or work side by side in a crowded factory with other HIV infected persons, even share the same cup of tea, but this will not expose you to the risk of contracting the infection. Being in contact with dirt and sweat will also not give you the infection.

Who is at risk while at work?

Ans. Those who are likely to come into contact with blood that contains the virus are at risk. These include health care workers - doctors, dentists, nurses, laboratory technicians, and a few others. Such workers must take special care against possible contact with infected blood, as for example by using gloves.

Q. If a worker has HIV infection, should he or she be allowed to continue work?

Ans. Workers with HIV infection who are still healthy should be treated in the same way as any other worker. Those with AIDS or AIDS-related illnesses should be treated in the same way as any other worker who is ill. Infection with HIV is not a reason in itself for termination of employment.

Q. Does an employee infected with the virus have to tell the employer about it?

Ans. Anyone infected, or thought to be infected, must be protected from discrimination by employers, co-workers, unions or clients. Employees should not be required to inform their employer about their infection. If good information and education about AIDS are available to employees, a climate of understanding may develop in the workplace protecting the rights of the HIV-infected person.

Q. Should an employer test a worker for HIV?

Ans. Testing for HIV should not be required of workers. Imagine that you are a worker with HIV infection and are healthy and able to work. As far as your work is concerned, the information about the infection is private. If it is made public,

you could be a target for discrimination. If AIDS-related illness makes you unfit for a particular job, you should be treated in the same way as any other employee with a chronic illness. A suitable alternative job can often be arranged by the employer. The Employers in different parts of the world are beginning to deal with these problems more humanely. Their associations and workers' unions can be consulted for advice.

Q. Should a traveler or tourist be concerned about AIDS?

Ans. Travelers should know about HIV and AIDS because AIDS is a reality throughout the world today. Concern about AIDS, however, should not be an obstacle to travel. Avoiding HIV infection depends mainly on each individual. You can easily protect yourself against HIV infection during your travels by knowing and following some simple rules - the same rules which protect you in your home surroundings.

Q. Can a traveler become HIV-infected just by casual contact in a foreign country?

Ans. No. HIV is not transmitted through casual contact or daily routine activities, either at home or in a foreign country. For example, it is not spread by sitting next to someone who is infected, shaking hands, coughing, or sneezing. HIV is not spread by public transportation, public telephones, restaurants, food, cups, glasses, plates, drinking water, air, toilets, swimming pools or insects.

Sexual intercourse with a virgin will cure AIDS

Virgin cleansing is a myth that has occurred since at least the 16th century, when Europeans believed that they could rid themselves of a sexually transmitted disease by transferring it to a virgin through sexual intercourse. Although the exact prevalence of this is unclear it is believed to occur worldwide. There is no evidence that this cures the infection. Doing so does not cure the infected person. Rather, it exposes the victim to the risk of HIV infection and increases the spread of the disease.

Can HIV be transmitted outside of the body?

Whilst HIV may live for some time outside of the body, HIV transmission has not been reported as a consequence of

contact with spillages of blood, semen or other bodily fluids. Just because someone comes into contact with tiny quantities of HIV in dried blood, it does not follow that infection will occur. Scientists agree that HIV does not survive well in the environment, making the possibility of environmental transmission remote. To obtain data on the survival of HIV, laboratory studies have required the use of artificially high concentrations of laboratory-grown virus. Although these concentrations of HIV can be kept alive for days or even weeks under controlled conditions, studies have shown that drying of these high concentrations of HIV reduces the amount of infectious virus by 90 to 99 percent within several hours. Since the HIV concentrations used in laboratory studies are much higher than those actually found in blood or other specimens, drying of HIV-infected human blood or other body fluids reduces the theoretical risk of environmental transmission to that which has been observed, essentially zero. Incorrect interpretation of conclusions drawn from laboratory studies have unnecessarily alarmed some people. AVERT.org has additional information about AIDS

Does circumcision protect against HIV?

Research has shown that circumcised men are up to 70% less likely to contract HIV through sex. This is because the inner lining of the foreskin is thought to be particularly vulnerable to HIV. However, circumcision does not mean you cannot get HIV, it just means it's less likely. Circumcised men can also pass on the virus just as easily as those whose foreskin has not been removed.

If I am on antiretroviral drugs and have an 'undetectable' viral load; am I still infectious?

Even if you are on treatment or your tests show that you have very low levels of HIV in your blood, the virus is never totally eradicated and you are therefore still capable of infecting others. Some drugs do not penetrate the genitals and disable HIV as easily as they do in the blood. This means that while you may have little active virus showing up on

tests, there may still be quite a lot of HIV in your semen or vaginal fluids. Transmission may be less likely when you have a low viral load, but it is still possible so you should always use appropriate contraception

