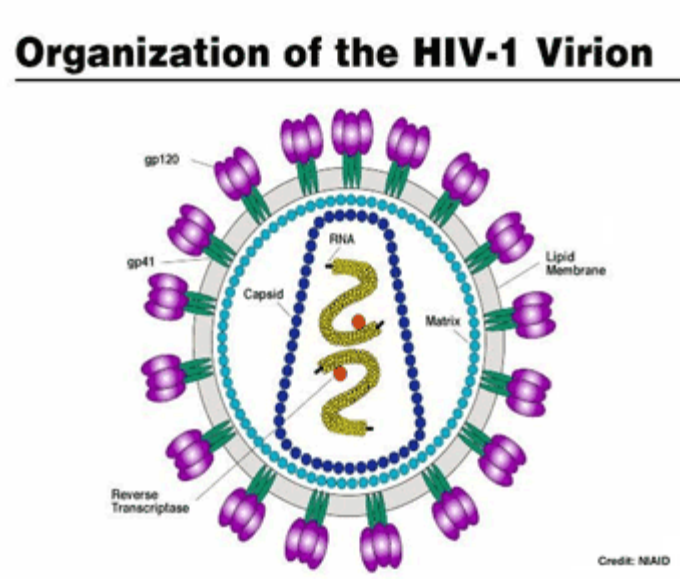
HIV

HIV stands for human immunodeficiency virus. This is the virus that causes AIDS. HIV is different from most other viruses because it attacks the immune system. The immune system gives our bodies the ability to fight infections. HIV finds and destroys a type of white blood cell (T cells or CD4 cells) that the immune system must have to fight disease.



Structure of the Human Immunodeficiency Virus, courtesy of NIAID.

For more information view our questions and answers on HIV science.

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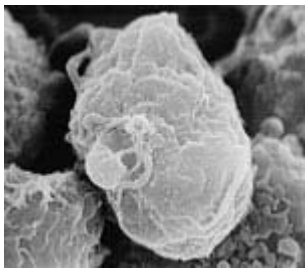
AIDS

AIDS stands for acquired immunodeficiency syndrome. AIDS is the final stage of HIV infection. It can take years for a person infected with HIV, even without treatment, to reach this stage. Having AIDS means that the virus has weakened the immune system to the point at which the body has a difficult time fighting infection. When someone has one or more specific infections, certain cancers, or a very low number of T cells, he or she is considered to have AIDS. For more information view our questions and answers on HIV science.



Electron microscope image of HIV, seen as small spheres on the surface of white blood cells.

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Origin of HIV

Scientists identified a type of chimpanzee in West Africa as the source of HIV infection in humans. The virus most likely jumped to humans when humans hunted these chimpanzees for meat and came into contact with their infected blood. Over several years, the virus slowly spread across Africa and later into other parts of the world. For more information view our question and answer on the origin of HIV.

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Brief History of HIV in the United States

HIV was first identified in the United States in 1981 after a number of gay men started getting sick with a rare type of cancer. It took several years for scientists to develop a test for the virus, to understand how HIV was transmitted between humans, and to determine what people could do to protect themselves.

In 2008, CDC adjusted its estimate of new HIV infections because of new technology developed by the agency. Before this time, CDC estimated there were roughly 40,000 new HIV infections each year in the United States. New results shows there were dramatic declines in the number of new HIV infections from a peak of about 130,000 in the mid 1980s to a low of roughly 50,000 in the early 1990s. Results also shows that new infections increased in the late 1990s, followed by a leveling off since 2000 at about 55,000 per year. In 2006, an estimated 56,300 individuals were infected with HIV.

AIDS cases began to fall dramatically in 1996, when new drugs became available. Today, more people than ever before are living with HIV/AIDS. CDC estimates that about 1 million people in the United States are living with HIV or AIDS. About one quarter of these people do not know that they are infected: not knowing puts them and others at risk.

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How HIV Is and Is Not Transmitted

HIV is a fragile virus. It cannot live for very long outside the body. As a result, the virus **is not transmitted** through day-to-day activities such as shaking hands, hugging, or a casual kiss. You cannot become infected from a toilet seat, drinking fountain, doorknob, dishes, drinking glasses, food, or pets. You also cannot get HIV from mosquitoes.

HIV is primarily found in the blood, semen, or vaginal fluid of an infected person. HIV is transmitted in 3 main ways:

- Having sex (anal, vaginal, or oral) with someone infected with HIV
- Sharing needles and syringes with someone infected with HIV
- Being exposed (fetus or infant) to HIV before or during birth or through breast feeding

For more information view our questions and answers on transmission.

HIV also can be transmitted through blood infected with HIV. However, since 1985, all donated blood in the United States has been tested for HIV. Therefore, the risk for HIV infection through the transfusion of blood or blood products is extremely low. The U.S. blood supply is considered among the safest in the world. For more information view our question and answer on blood safety.

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Risk Factors for HIV Transmission

You may be at increased risk for infection if you have

- injected drugs or steroids, during which equipment (such as needles, syringes, cotton, water) and blood were shared with others
- had unprotected vaginal, anal, or oral sex (that is, sex without using condoms) with men who have sex with men, multiple partners, or anonymous partners
- exchanged sex for drugs or money
- been given a diagnosis of, or been treated for, hepatitis, tuberculosis (TB), or a sexually transmitted disease (STD) such as syphilis
- received a blood transfusion or clotting factor during 1978–1985
- had unprotected sex with someone who has any of the risk factors listed above

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Preventing Transmission

Your risk of getting HIV or passing it to someone else depends on several things. Do you know what they are? You might want to talk to someone who knows about HIV. You can also do the following:

- Abstain from sex (do not have oral, anal, or vaginal sex) until you are in a relationship with only one person, are having sex with only each other, and each of you knows the other's HIV status.

    - If both you and your partner have HIV, use condoms to prevent other sexually transmitted diseases (STDs) and possible infection with a different strain of HIV.
    - If only one of you has HIV, use a latex condom and lubricant every time you have sex.

- If you have, or plan to have, more than one sex partner, consider the following:
    - Get tested for HIV
        - If you are a man who has had sex with other men, get tested at least once a year.
        - If you are a woman who is planning to get pregnant or who is pregnant, get tested as soon as possible, before you have your baby.
    - Talk about HIV and other STDs with each partner before you have sex.
    - Learn as much as you can about each partner's past behavior (sex and drug use), and consider the risks to your health before you have sex.
    - Ask your partners if they have recently been tested for HIV; encourage those who have not been tested to do so.
    - Use a latex condom and lubricant every time you have sex.
    - If you think you may have been exposed to another STD such as gonorrhea, syphilis, or *Chlamydia trachomatis* infection, get treatment. These diseases can increase your risk of getting HIV.
    - Get vaccinated against hepatitis B virus.
- Even if you think you have low risk for HIV infection, get tested whenever you have a regular medical check-up.
- Do not inject illicit drugs (drugs not prescribed by your doctor). You can get HIV through needles, syringes, and other works if they are contaminated with the blood of someone who has HIV. Drugs also cloud your mind, which may result in riskier sex.
- If you do inject drugs, do the following:
    - Use only clean needles, syringes, and other works.
    - Never share needles, syringes, or other works.
    - Be careful not to expose yourself to another person's blood.

    - Get tested for HIV test at least once a year.
    - Consider getting counseling and treatment for your drug use.
    - Get vaccinated against hepatitis A and B viruses.
- Do not have sex when you are taking drugs or drinking alcohol because being high can make you more likely to take risks.

To protect yourself, remember these ABCs:

A=Abstinence

B=Be Faithful

C=Condoms

For more information view our questions and answers on HIV prevention.

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Symptoms of HIV Infection

The only way to know whether you are infected is to be tested for HIV. You cannot rely on symptoms alone because many people who are infected with HIV do not have symptoms for many years. Someone can look and feel healthy but can still be infected. In fact, one quarter of the HIV-infected persons in the United States do not know that they are infected. For more information view our question and answer on symptoms.

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HIV Testing

Once HIV enters the body, the body starts to produce antibodies—substances the immune system creates after infection. Most HIV tests look for these antibodies rather than the virus itself. There are many different kinds of HIV tests, including rapid tests and home test kits. All HIV tests approved by the US government are very good at finding HIV. For more information view our questions and answers on testing.

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Finding a Testing Site

Many places offer HIV testing: health departments, doctors' offices, hospitals, and sites specifically set up to provide HIV testing.

You can locate a testing site by visiting the CDC HIV testing database or by calling CDC-INFO (formerly the CDC National AIDS Hotline) at 1-800-CDC-INFO (1-800-232-4636) 24 Hours/Day. You do not have to give any personal information about yourself to use these services to find a testing site.

The following general principles apply to most questions CDC receives about sterilization or disinfection of patient-care equipment in relation to HIV. However, this information is not comprehensive. Therefore, it is advisable to obtain a copy of the reference material listed at the end of this document.

HIV Related

1. Standard chemical germicides at concentrations much lower than commonly used in practice can rapidly inactivate HIV.

2. Chemical germicides that are registered as "sterilants" with the U.S. Environmental Protection Agency (EPA) and cleared for marketing for use on medical devices by the Food and Drug Administration (FDA) may be used either for sterilization or high-level disinfection of medical devices, depending on contact time.

3. In general, reusable instruments or devices that enter sterile tissue, including the vascular system of any patient, and devices through which blood flows should be sterilized before reuse.

4. Reusable devices or items that contact intact mucous membranes should be sterilized or receive high-level disinfection before reuse.

5. Medical devices that require sterilization or disinfection should be thoroughly cleaned to reduce material/bioburden before being exposed to the germicide, and the germicide and device manufacturers' instructions should be closely followed.

6. Extraordinary attempts to disinfect walls, floors, or other environmental surfaces are not necessary. However, cleaning and removal of soil should be done routinely. An inexpensive environmental surface germicide effective against HIV is a solution of sodium hypochlorite (1 part household bleach to 99 parts water or 1/4 cup bleach to 1 gallon of water) prepared daily. Bleach, however, is corrosive to metals (especially aluminum) and should not be used to decontaminate medical instruments with metallic parts.

Chemical germicides that are EPA-approved for use as "hospital disinfectants" and that are tuberculocidal/virucidal when used at recommended dilutions and contact times can be used to decontaminate spills of blood or other body fluids that contain blood in the following areas:

1. In patient-care areas, visibly soiled areas should first be cleaned and then chemically decontaminated. For disinfection, the precleaned areas should be moistened with the appropriate germicide and allowed to air dry.

2. In the laboratory, large spills of cultured or concentrated infectious agents should be flooded with a liquid germicide before cleaning, then decontaminated with fresh germicidal chemical after organic material has been removed. It is not necessary to flood spills of blood or other body fluids with germicide before cleaning.

Gloves should always be worn during cleaning and decontaminating procedures.

If you have questions about a particular germicidal product, contact your local or state health department, or the Antimicrobial Program Branch, Registration Division, EPA. The EPA regulates the use of chemical germicides.

If you have questions about cleaning, disinfecting, or sterilizing a particular medical device, first contact the manufacturer of the device. If sufficient information cannot be obtained in this manner, contact the FDA regional office or the FDA Center for Devices and Radiological Health, Division of Compliance Program, telephone 301-443-4690. The FDA regulates the use of medical devices and of liquid chemical germicides used to disinfect or sterilize medical devices.

Overview of HIV in Healthcare Settings

Healthcare personnel are at risk for occupational exposure to bloodborne pathogens, including hepatitis B virus (HBV), hepatitis C virus (HCV), and human immunodeficiency virus (HIV). Exposures occur through needlesticks or cuts from other sharp instruments contaminated with an infected patient's blood or through contact of the eye, nose, mouth, or skin with a patient's blood. Important factors that influence the overall risk for occupational exposures to bloodborne pathogens include the number of infected individuals in the patient population and the type and number of blood contacts. Most exposures do not result in infection.

Transmission of HIV to patients while in healthcare settings is rare, however proper sterilization and disinfection procedures are required.

Background/General Information

These resources may be of use to healthcare professionals:

> Exposure to Blood - What Health-Care Workers Need to Know, 1999
> Updated: July 2003PDF (10 pages / 371KB) A published booklet with important information about occupational exposures to blood, the risks of infection and important measures that should occur after an exposure.

Sterilization or Disinfection of Patient-Care Equipment