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## HUMAN IMMUNODEFICIENCY VIRUS (HIV) / ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

### What Is HIV/AIDS?

Acquired Immunodeficiency Syndrome (AIDS) is caused by the Human Immunodeficiency Virus (HIV). This virus damages the body's immune system. Patients with AIDS, which is the final stage of HIV infection, have unusual diseases found in people with impaired immune systems such as Kaposi's sarcoma, a type of cancer, and *Pneumocystis carinii* pneumonia. The HIV virus infects only selected cells in the body. The most important are infection-fighting white blood cells known as lymphocytes, specifically those lymphocytes known as CD4 T cells. HIV can also infect certain cells in the nervous system.

### How Can You Get It?

HIV is transmitted by contact with blood or bodily fluids (such as semen, vaginal secretions, breast milk, wound exudates or saliva) of a person who is infected with the virus.

Occupational exposure can occur by:

- Being stuck with a needle or another sharp object that contains the blood of an infected person.
- Contact between broken skin, wounds or mucous membranes and HIV-infected blood or blood contaminated body fluids.
- Being bitten by a person who has HIV. These cases occurred when there was severe trauma to the skin and the presence of blood. There is no risk of transmission if the skin remains intact.

Importantly, studies of health care workers have shown that the risk of becoming infected with HIV after a needle stick is very small, less than 1 percent, and the risk of transmission by splashing of mucous membranes is even less.

Non-Occupational exposure can occur by:

- Not using protection when having sex with a person who has HIV
- Having multiple sexual partners
- Having another sexually transmitted disease, which can increase the risk of contracting the infection during sex

# DISPATCH



- Sharing needles, syringes, rinse water or other equipment that is used to prepare illicit drugs for injection
- Being born to a mother who has the virus (This transmission can occur during pregnancy, birth or while breast-feeding)
- Receiving a blood transfusion, blood products or organ transplants from a person who is infected with HIV (This risk is very small because blood products have been tested for HIV since 1985)

Please note that although theoretically transmission of HIV by saliva may occur, it is extremely rare. It is also important to note that HIV is not transmitted via tears, sweat, or insects.

## What Are The Symptoms?

The symptoms of HIV may range from an asymptomatic (which means that the person has no symptoms of a disease) carrier state to debilitating and even fatal disorders. Typically, the first symptoms of HIV include "flu-like" symptoms such as fever, fatigue, sore throat, and headache. Because the symptoms are not very specific, the only way to know for sure if you are infected or not is to be tested.

## How Do You Prevent It?

There is currently no HIV vaccine for clinical use. The best way for fire fighters and other first responders to prevent exposure to HIV is to become educated about the safety procedures in their workplace and consistently use universal precautions. These are part of a comprehensive OSHA required program for bloodborne pathogen exposure.

You can help prevent the spread of HIV through:

- Sharps Safety
  - Training and consistent use of safer needle techniques and devices
  - Proper sharp disposal
- Using Universal Precautions
  - Hand hygiene (wash with soap and water or using an alcohol based hand rub)
  - Personal protective equipment (PPE) (gloves, gowns, masks and goggles that offer mouth, nose and eye protection)
  - Proper handling and disposal of contaminated PPE

# DISPATCH



- Know the safety procedures in your department
  - Ask your supervisor to see the written Exposure Control Plan, which should outline all the steps taken in your department to protect workers from blood borne pathogens
  - Attend the bloodborne pathogens training provided by your department

## What should you do if you are exposed to HIV infected blood or bodily fluids?

If you are stuck by a needle or other sharp or get blood or other potentially infectious materials in your eyes, nose, mouth, or on broken skin:

- Immediately flood the exposed area with water
- If skin contact with blood or bodily fluid occurs, even if skin is not visibly soiled, wash your skin with antibacterial soap and water or use an alcohol-based sanitizer immediately
- Flush splashes to the nose, mouth, or skin with water
- Irrigate eyes with clean water, saline or sterile irrigants
- Report the exposure to your supervisor
- Seek immediate medical attention

## Medical evaluation for HIV

- You will be evaluated for [bloodborne pathogen exposure](#).
- If you are exposed to HIV, you should have blood drawn as soon as possible after the exposure to determine your baseline status and periodically for at least 6 months after the exposure (e.g. at 6 weeks, 12 weeks, and 6 months)
- Post-exposure prophylaxis (PEP) is currently recommended by the CDC to reduce the risk of HIV infection.
- PEP should be started immediately after an exposure (within hours)
- A 4-week course of two antiretroviral medications is recommended for most HIV exposures
  - Three or more antiretroviral medications are recommended for exposures that pose a greater risk of transmitting HIV
- Differences in the side effects associated with the use of the drug may influence which combinations are given
  - Your health care provider can discuss the side effect profiles with you
- If you take antiretroviral drugs for PEP, you should have a complete blood count, kidney and liver tests done when starting treatment and 2 weeks after starting treatment.

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To read more about the CDC PEP guidelines, follow these links:

- [http://www.mpaetc.org/downloads/PEP%20final%20\(2006\).pdf](http://www.mpaetc.org/downloads/PEP%20final%20(2006).pdf)
- Updated U.S. Public Health Service [Guidelines for HIV](#). (2005, September)

## What kinds of treatment are available for HIV?

Although there is no cure for HIV if a person is confirmed to have the infection, there are treatment options that can help people with HIV live long and productive lives. The CDC publishes new guidelines on the treatment guidelines for people with HIV. With appropriate medications, the HIV infection is not eradicated, it is suppressed. Therefore, the primary goals for initiating antiretroviral therapy are to:

- Reduce HIV- associated morbidity and prolong the duration and quality of survival
- Restore and preserve immunologic function
- Maximally and durably suppress HIV viral load
- Prevent HIV transmission to others

## How does it progress?

HIV infection progresses through several stages. The most widely used classification includes the following stages: acute HIV infection, asymptomatic HIV infection, symptomatic HIV infection and AIDS. During acute HIV infection, the symptoms may be mild and flu-like, so that they may not be detected by the infected patient. HIV antibody tests may not be positive yet. In asymptomatic HIV infection, patients also do not have symptoms, but their HIV antibody test will be positive and they can infect others. Once a person develops symptomatic HIV infection, they will show signs of the disease, which can vary greatly. As the disease progresses further, people are considered to have full-blown AIDS, the most severe form of the infection, when their T-cell count drops below 200 or they develop an AIDS-defining illness.

For More Information and Frequently Asked Questions (FAQs), check out:

- Occupational Safety & Health Administration (OSHA), Bloodborne Pathogen and Needlestick Prevention: <http://www.osha.gov/SLTC/bloodbornepathogens/index.html>
- National Institute for Occupational Safety and Health (NIOSH), Bloodborne Infectious Diseases: <http://www.cdc.gov/niosh/topics/bbp/>
  - NIOSH, Occupations Affected by Bloodborne Infectious Diseases: <http://www.cdc.gov/niosh/topics/bbp/occupations.html>

# DISPATCH



- NIOSH, First Responders: Protect Your Employees with an Exposure Control Plan: <http://www.cdc.gov/niosh/docs/2008-115/>
- Centers for Disease Control and Prevention (CDC): <http://www.cdc.gov/hiv/default.htm>
  - CDC, Occupational HIV Transmission and Prevention among Health Care Workers: <http://www.cdc.gov/hiv/resources/factsheets/hcwprev.htm>
  - CDC, Exposure to Blood: What Healthcare Personnel Need to Know: [http://www.cdc.gov/HAI/pdfs/bbp/Exp\\_to\\_Blood.pdf](http://www.cdc.gov/HAI/pdfs/bbp/Exp_to_Blood.pdf)
  - CDC, HIV and AIDS: Are You at Risk? <http://www.cdc.gov/hiv/resources/brochures/at-risk.htm>
- Department of Health and Human Services (HHS), Guidelines for the Use of Antiretroviral Agents in HIV-1-Infected Adults and Adolescents: <http://aidsinfo.nih.gov/contentfiles/lvguidelines/adultandadolescentgl.pdf>
- National Institute of Allergy and Infectious Diseases (NIAID): <http://www.niaid.nih.gov/topics/HIVAIDS/Pages/Default.aspx>
- Canadian Centre for Occupational Health and Safety (CCOHS): <http://www.ccohs.ca/oshanswers/diseases/aids/emergency.html>
- Public Health Agency of Canada (PHAC): <http://www.phac-aspc.gc.ca/aids-sida/fi-if/index-eng.php>