

# **AIDS**

## *Acquired Immune Deficiency Syndrome*

### **Definition**

AIDS is caused by the HIV (Human Immunodeficiency Virus). AIDS is the final and most serious stage of HIV disease. It is characterized by signs and symptoms of severe immune deficiency. AIDS stands for acquired immune deficiency syndrome.

### **Causes, incidence, and risk factors**

This virus attacks the immune system and leaves the body vulnerable to a variety of life-threatening illnesses. These illnesses are often caused by common bacteria, yeast, and viruses that ordinarily do not cause disease.

HIV has been found in blood, semen, saliva, tears, nervous system tissue, breast milk, and female genital tract secretions; however, only blood, semen, female genital tract secretions, and breast milk have been proven to transmit infection to others. Transmission of the virus occurs through sexual contact including oral, vaginal, and anal sex; via blood through transfusions or needle sharing; and from a pregnant women to the fetus or a nursing mother to her baby. Other transmission methods are rare and include accidental needle injury, artificial insemination through donated semen, and kidney transplantation through the donated kidney.

The infection is NOT spread by casual contact such as hugging and touching, by inanimate objects such as dishes or toilet seats, or by mosquitoes. It is not transmitted TO a person who donates blood (although it can be transmitted from the blood to the person receiving the transfusion--this is why blood banks screen donors and test the blood thoroughly); it is also not transmitted TO a person who, for example, donates a kidney for transplantation.

AIDS is preceded by HIV infection, which may produce no symptoms for up to 10 years before a person is diagnosed with AIDS. Acute HIV infection progresses over time to asymptomatic HIV infection and later, to advanced HIV diseases or AIDS. In a study of people infected with the HIV virus from 1977 through 1980, some have no signs or symptoms of HIV infection, and some have only enlarged lymph nodes. It is suspected that all persons infected with HIV will, given enough time, progress to AIDS; this theory has not been definitively proven.

Today AIDS is a major health concern with more than 315,000 people in the U.S. diagnosed with the infection in the last decade. More than half of these people have died, most within 4 years of showing symptoms of the disease. Estimates from the World Health Organization show more than 500,000 cases of AIDS in the world (considered a low estimate because of non-reporting and lack of adequate definition). In some countries, heterosexual transmission of the disease is much higher than in the U.S.

The CDC reports that 2,200,000 (2.2 million) Americans now carry the HIV virus (but are not yet symptomatic).

High risk groups include homosexual or bisexual men, intravenous drug users who share needles, the sexual partners of those in high risk groups, infants born to mothers with HIV, and persons who received blood transfusions or clotting products between 1977 and 1985 (prior to standard screening for the virus in the blood).

The Centers for Disease control (CDC) compile statistics on many different diseases. See the picture for a summary of the AIDS statistics for U.S. states. HIV carrier rate in the United States now is 1 carrier for every 100 to 200 people.

## **Prevention**

AIDS is a fatal, incurable, sexually-transmitted disease (STD). It is transmitted by both heterosexual and homosexual practices. Some sexual practices, such as anal intercourse, carry higher risk of transmission than other sexual practices, such as vaginal intercourse. Transmission occurs more readily from an infected man to a woman than from an infected woman to a man.

The second most common mode of transmission is by contact with infected blood. Sharing needles when using IV drugs is a major cause of HIV transmission. This is very common in some states.

As more women become infected with HIV, the incidence of fetus HIV infection is increasing. One in three infants born to HIV-infected women will be born HIV positive. Some of these infants test positive only because of maternal antibodies, and will become negative by 15 months. Those that do not become negative are actually infected with the virus and will develop AIDS. Breast feeding also transmits the infection to the infant. Mothers who are HIV positive should not breast feed.

Although there may be other modes of transmission, they are extremely rare and none have yet been unquestionably proven.

Prevention of AIDS requires self-discipline and strength of character. The requirements often seem personally restrictive but they are effective and can save lives.

### **1. Do not have sexual intercourse with:**

- people known or suspected to be infected with AIDS
- multiple partners
- a person who has multiple partners
- people who use IV drugs

2. Do not use intravenous drugs. If IV drugs are used, do not share needles or syringes. Avoid exposure to blood from injuries, nosebleeds, and so on, where the HIV status of the bleeding individual is unknown. Protective clothing, masks, and goggles may be appropriate when caring for people who are injured.

3. People with AIDS or asymptomatic individuals who have a positive antibody test may pass the disease on to others and should not donate blood, plasma, body organs, or sperm. From a legal, ethical, and moral standpoint, they should warn any prospective sexual partner of their HIV positive status. They should not exchange body fluids during sexual activity and must use whatever preventative measures (such as a latex condom) that will afford the partner the most protection.

4. HIV positive women should be counseled before becoming pregnant about the risk to their infant and medical advances which may help prevent the fetus from becoming infected.

5. HIV positive women should not breast feed their infant.

Safer sex behaviors may reduce the risk of acquiring the infection. There remains a risk of acquiring the infection even with the use of condoms. Abstinence is the only sure way to prevent sexual transmission of the virus.

### **Symptoms**

- prolonged, unexplained fatigue
- swollen glands (lymph nodes)
- fever lasting more than 10 days
- chills
- excessive sweating especially night sweats
- mouth lesions including yeast lesions and painful, swollen gums
- sore throat
- cough
- shortness of breath
- changes in bowel habits including constipation
- frequent diarrhea
- symptoms of a specific opportunistic infection (such as candida, pneumocystis, and so on)
- tumor (Kaposi sarcoma)
- skin rashes or lesions of various types
- unintentional weight loss
- general discomfort or uneasiness (malaise)
- headache

Additional symptoms that may be associated with this disease:

- speech impairment
- muscle atrophy

- memory loss
- decreasing intellectual function
- joint swelling
- joint stiffness
- joint pain
- cold intolerance
- bone pain or tenderness
- unusual or strange behavior
- slow, sluggish, lethargic movement
- anxiety, stress, and tension
- groin lump
- generalized itching (pruritus)
- genital sores
- blurred vision
- double vision (diplopia)
- light sensitivity
- blind spots in the vision
- decreased vision or blindness
- chest pain
- flank pain or pain in the sides
- back pain
- abdominal pain
- loss of appetite, indigestion, or other gastrointestinal upset
- muscle pain
- bone pain or tenderness
- numbness and tingling
- seizures

Note: Initial infection may produce no symptoms. Some people with HIV infection remain without symptoms for years between the time of exposure and development of AIDS. Many other symptoms may develop in addition to those listed above.

### **Signs and Tests**

Development of characteristic infections and tumors, called opportunistic infections of AIDS and AIDS defining manifestations of immune deficiency (see complications), may occur. Sometimes the presence of one of these disorders is the first sign that AIDS is present.

- HIV antibody test ELISA (Enzyme Linked Immunoabsorbent Assay) and western blot are positive
- absolute CD4 lymphocyte count is less than 200
- p24 antigen is abnormal
- T (thymus derived) lymphocyte count is abnormal

## **Treatment**

There is no cure for AIDS at this time. However, treatments are available that can improve the quality of life of those suffering the infection.

Antiviral therapy suppresses the replication of the HIV infection in the body. Retrovir, also called Zidovudine or AZT, is an antiviral agent most frequently used in treatment for AIDS.

Saquinavir, manufactured under the trade name Invirase, has recently been approved by the FDA for use in the treatment of AIDS. It is the first to be approved in a new group of drugs claimed to be 10 times stronger than existing antivirals used in AIDS treatment. Other antiviral agents are in investigational stages. Hematopoietic stimulating factors are sometimes used to treat anemia and low white blood cell counts associated with AIDS.

Preventive measures to avoid opportunistic infections such as *Pneumocystis carinii* pneumonia is possible with medications and can keep AIDS patients healthier for longer periods of time. Opportunistic infections are treated as they occur.

The emotional stress of devastating illnesses can often be helped by joining support groups where members share common experiences and problems.

## **Expectations (prognosis)**

At the present time, there is no cure for AIDS. It has proved to be a universally fatal illness. Few patients survive 5 years following diagnosis. The average time from diagnosis of AIDS to death is 18 to 24 months although this is increasing with improvements in treatment techniques. Research continues in drug treatments for AIDS and vaccine development.

## **Complications**

AIDS defining manifestations of immune deficiency, also called the opportunistic infections of AIDS, are illnesses that AIDS patients frequently acquire. Sometimes there will be more than one infection at the same time. Many of these infections are difficult to treat in AIDS patients, and therapy is required indefinitely or the infection will relapse.

- protozoal infections
- fungal infections
- bacterial infections
- viral infections
- malignancies
- AIDS related dementia
- wasting syndrome

## **Calling your health care provider**

Call for an appointment with your health care provider if you have any of the risk factors for AIDS; or if symptoms of AIDS are present. By law, AIDS testing and results are kept confidential. Results of your testing will be reviewed with you by your health care provider.