

# HIV WHAT YOU SHOULD KNOW

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## WHAT IS HIV?

Human immunodeficiency virus, or HIV, is a sexually transmitted disease that, if left untreated, can lead to acquired immunodeficiency syndrome (AIDS). What makes HIV particularly difficult to control is that it infects and kills cells of the immune system, decreasing the infected person's ability to fight off HIV as well as other infections, such as pneumonia and herpes.

## HOW COMMON IS HIV?

Each year, about 30,000 to 40,000 people in the United States become infected with HIV. It is estimated that more than 1.2 million people in the U.S. are infected with HIV. Of those, about 1 in 10 people do not know they are infected. Worldwide, about 39 million people are infected with the virus.

## HOW IS HIV SPREAD AND WHO IS AT RISK OF INFECTION?

HIV is spread through bodily fluids, in most cases via sexual transmission, but it can also occur following exposure to the blood of an infected person, such as through the use of contaminated needles. While anyone can become infected with HIV, in the United States, about 7 of 10 new infections are diagnosed in men who have sex with men. Likewise, many new infections are diagnosed in adolescents and young adults. In fact, more than half of new infections are in people ages 13 to 34 years old.

## CAN HIV BE TREATED?

Yes, HIV can be treated. A wide variety of drugs (more than 30) are available to inhibit the replication and spread of the virus. Most people with HIV are on a treatment plan commonly called antiretroviral therapy, or ART. These treatment plans typically include at least three different drugs from at least two different categories. Currently, seven categories of drugs are used to treat people with HIV, including non-nucleoside reverse transcriptase inhibitors (NNRTIs), nucleoside reverse transcriptase inhibitors (NRTIs), protease inhibitors (PIs), fusion inhibitors, CCR5 antagonists, integrase strand transfer inhibitors (INSTIs) and post-attachment inhibitors.



By using multi-drug cocktails, treatment plans are more effective in protecting against the frequent viral mutations that HIV undergoes. In order to be successful, a person must remain on ART for the rest of their life, making it not only costly but also labor intensive and difficult to adhere to. If left untreated, an HIV infection will progress to AIDS.

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### IS THERE A CURE FOR HIV?

The only effective treatment at this time is ART. While this treatment plan helps delay progression to AIDS, it is not a cure.

In a small number of cases, people have overcome their infection; the situations have varied and are rare. A small number of people overcame their infection after receiving stem cell transplants to treat blood-based cancers, like leukemia or lymphoma. However, in these instances, the stem cells originated from individuals with a natural resistance to HIV infection due to the absence of certain cell receptors that HIV uses to bind to cells.

### IS THERE AN HIV VACCINE?

No. Although many researchers are working on an HIV vaccine, there is no licensed vaccine to date.

### WHY HAS DEVELOPMENT OF AN HIV VACCINE BEEN DIFFICULT?

An HIV vaccine has been difficult to develop because of the rapid changes (or mutations) of HIV, causing immune responses to earlier versions of the virus to quickly become ineffective. Everyone is familiar with the changes of influenza virus that require a new vaccine annually; however, where influenza virus mutates from one season to the next, HIV mutates during a single infection, making it almost impossible to eliminate.

Some people with HIV are able to mount an immune response that controls infection without ongoing use of ART therapy. Work to understand how the immune response in these people differs from that of most of HIV-infected individuals and whether this understanding can translate to treatments or cures is ongoing.

### WHAT IS PRE-EXPOSURE PROPHYLAXIS (PrEP) AND WHO SHOULD TAKE IT?

Pre-exposure prophylaxis (PrEP) offers a way to prevent HIV infection in people at high risk of exposure to the virus. While the therapy reduces a person's risk of infection, it does not prevent other sexually transmitted infections (STIs). In addition, in order to be most effective, the medications must be taken as prescribed — usually one pill daily. Decreased adherence will lead to a decrease in effectiveness and an increase in the likelihood for infection. PrEP is often covered by insurance and may be available through medication assistance programs for qualified individuals. If you think you might benefit from PrEP, check with your healthcare provider or local health department.



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