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## HIV Infection, AIDS, and Cancer

People with HIV infection or AIDS are at higher risk for some types of cancer than people who are not infected. Here we will discuss the risks of certain cancers in people with HIV infection or AIDS, what tests these people might need to look for cancers early, and how these cancers are generally treated.

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## What are HIV and AIDS?

Acquired immune deficiency syndrome, better known as AIDS, is caused by infection with the human immunodeficiency virus (HIV). AIDS is the most advanced stage of HIV infection.

Over time, the virus attacks and destroys the body's immune system (the system that protects the body from disease). Without a fully working immune system, a person is at risk for getting other infections that usually don't affect healthy people. These are called *opportunistic infections*. People with HIV also have a greater risk of getting certain types of cancer, such as [Kaposi sarcoma](#)<sup>1</sup>, [lymphoma](#)<sup>2</sup>, and [cervical cancer](#)<sup>3</sup>, as well as other

health problems. Many of these problems can threaten life.

More than 1 million people in the United States are now living with HIV infection, and nearly 500,000 are living with AIDS. Women account for about 1 out of 4 people infected with HIV in this country. Each year, about 50,000 people become newly infected with HIV in the United States.

Worldwide, about 35 million people are living with HIV/AIDS. More than half of these people live in sub-Saharan Africa. About half are women.

## **Spread of HIV infection**

HIV can spread from one person to another when blood or certain body fluids (semen, vaginal secretions, or breast milk) from an infected person get into an uninfected person. Routes of spread include:

- Unprotected vaginal, anal, or oral sex with an infected person
- Sharing needles or drug equipment with injection drug users who have HIV
- Prenatal (before birth) and perinatal (during and right after birth) exposure of infants whose mothers are infected with HIV
- Breastfeeding by mothers with HIV
- Transfusion of blood products containing the virus
- Organ transplants from HIV-infected donors
- Penetrating injuries or accidents of health care workers (usually needle sticks) while caring for HIV-infected patients or handling their blood

HIV is *not* spread by mosquitoes, ticks, or other insects. It can't be spread by casual contact such as talking, shaking hands, hugging, sneezing, sharing dishes, sharing bathrooms, sharing telephones or computers, or through water. It is not spread through saliva, tears, or sweat.

Transfusions of blood and blood products caused some of the HIV infections in the early 1980s. With new precautions and careful testing at blood banks, this risk has been almost eliminated.

## **Preventing HIV infection and AIDS**

Because of how HIV is spread, there are ways to avoid HIV infection and prevent AIDS.

Most HIV infections throughout the world are passed to other people through sex. This means that not having unprotected sex with infected persons can prevent most HIV infections. If both partners are uninfected, and both carefully avoid activities that might result in getting HIV (both partners have sex only with each other and do not share needles with others), unprotected sex can be safe. If you do have sexual contact with a partner whose HIV status is uncertain, using latex or plastic condoms every time, from start to finish, can greatly lower your risk.

The second most common cause of HIV infection is sharing used needles or drug equipment with injection drug users who have HIV. For people who inject drugs, the safest way to avoid HIV is to quit. However, some people are unable to quit on their own or get help in quitting, and they may not be able to stop using drugs right away. For these people, using clean, sterile needles and injection supplies can help protect them. In some areas, there are programs to make sure that drug users can get sterile needles and syringes. Nearly everywhere these programs have been started, they have reduced the number of new HIV infections in users who inject drugs.

For people who are at high risk of HIV infection, such as injection drug users and people whose partners have HIV, taking medicine (as a pill every day) is another way to help lower your risk of infection. This is known as *pre-exposure prophylaxis*, or PrEP. People who use PrEP need to be willing to take the pill every day and to see their health care provider every few months for repeat HIV tests, prescription refills, and follow-up.

In case of a single possible exposure to HIV, such as from a broken condom or another type of exposure from a person who might have HIV, one option might be “morning-after” treatment to try to reduce the risk of infection. This treatment consists of taking anti-HIV drugs every day for 4 weeks. They are likely to work best if they are started within 24 hours of the exposure and are rarely started more than 72 hours afterward.

HIV-infected mothers can pass the virus to their babies during pregnancy, delivery, or breastfeeding. Treating the mothers and infants with anti-HIV drugs, delivering the baby by C-section, and avoiding breastfeeding can greatly reduce the risk of these infections.

Organ and tissue transplants from human donors carry a very small risk of HIV and other infections. But donors are carefully screened and tested to reduce the risk as much as possible.

## **How is HIV infection diagnosed?**

Because HIV infection often has no symptoms for years, a person can have HIV for a long time and not know it. People often believe that if they have had a physical exam,

the doctor has checked for HIV. This is often not true. Although the US Centers for Disease Control and Prevention (CDC) recommends that everyone between the ages of 13 and 64 be tested for HIV at least once, HIV testing is often not done unless you have certain medical problems, are pregnant, or ask to be tested.

Most of the time, a person who is tested will know it, although there are a few cases where people may not be told they are getting an HIV test, such as people entering military service and some people who apply for individual health or life insurance policies.

If you have any doubt about your HIV status, talk with your doctor or visit a health department clinic where testing is offered. To have the HIV test done without giving your name and address (anonymous testing), you can buy a home collection kit at the drugstore or online, or go to a special anonymous testing site. Some state health departments also offer anonymous HIV tests.

People who do not seek HIV testing might not learn that they have HIV until they develop early symptoms or even AIDS. But with testing, HIV infection can be detected and treatment started before a person gets seriously ill.

### **Tests to detect HIV infection**

HIV is most often found using screening tests that look for anti-HIV antibodies (immune system proteins) in the blood. Other tests look for antibodies in fluid in the mouth. When the body is infected with HIV, it starts to make antibodies against the virus to try to fight it. Although these antibodies can't get rid of HIV, they can usually be found in the blood and some other body fluids within several weeks after infection. HIV screening tests look for these antibodies, not the virus itself. The virus is harder to detect than the antibodies.

You can get tested for HIV in many settings (doctors' offices, hospitals, neighborhood clinics, and health department clinics). And there are HIV test kits you can buy at the drugstore that let you collect samples at home. You then either test the sample yourself or send it off to a lab to be tested.

### **Tests in doctors' offices and clinics**

In doctors' offices and clinics, testing is often done on a blood sample collected from a vein or a finger stick, although mouth fluids may be tested as well.

Some types of samples are sent off to a lab for testing, and results are available in as little as a few days up to a couple of weeks. Testing locations usually prefer that you

return in person for your test results.

Some doctors' offices and clinics offer quick HIV tests. These screening tests use blood or oral fluid and offer preliminary results within half an hour.

### **Testing at home**

There are 2 types of at-home tests as well. For one type of test kit, you swab the inside of your mouth to get a fluid sample and test it by placing it in a special tube. This test can give you results in about half an hour. For the other type of test, you collect a small sample of blood from your finger and mail it off to a lab for testing. You can then get the results by phone within a few days.

You can buy home test kits from most drugstores or similar stores. While you can buy legitimate home test kits from some online retailers, other tests being sold online may not be reliable, so be sure to get one from a place you trust.

### **Test results**

If the first result with any type of screening test is positive (that is, if it finds something that may be anti-HIV antibodies), it does not always mean that you are infected with HIV. Other tests of blood samples will need to be done to confirm the infection. If you are using an at-home test kit, you should see a doctor, who will do more tests to be sure of the diagnosis.

If the first test result is negative (that is, if it does not find anti-HIV antibodies), in most cases no further testing is needed. But it's important to know that a negative test result does not mean for sure that a person does not have HIV. It often takes several weeks after becoming infected with HIV (and sometimes longer) before enough antibodies are in the blood or other body fluids to be detected. Tests done before this may be negative, even if a person is infected. To be sure that the person doesn't have HIV, the person should be tested at least 3 months after the most recent suspected exposure.

### **How is AIDS defined?**

A person can have HIV infection and not have AIDS. AIDS happens when the HIV infection has badly damaged the immune system, a process that may take years. In the United States and other developed countries, the average time from getting infected with HIV to advanced AIDS is about 10 years if the person gets no treatment, but in some people this can happen faster.

HIV damages the immune system by infecting and killing a type of white blood cell known as a CD4 cell (or helper T-cell). In the later stages of HIV infection, the loss of these cells leads to a weakened immune system, which allows opportunistic infections (infections that the healthy body would usually fight off), some types of cancer, and other disorders to occur.

- The CDC defines AIDS as having a positive HIV blood test, along with either: A blood CD4 count of less than 200 cells per cubic millimeter of blood ( $200/\text{mm}^3$ ). A normal CD4 count is about  $500/\text{mm}^3$  to  $1,600/\text{mm}^3$ .
- A major opportunistic condition, which includes certain infections, cancers, and syndromes that are often linked to AIDS, regardless of the CD4 count.

## How are HIV infections and AIDS treated?

The treatment of HIV infection and AIDS is complex, and sudden illnesses can cause serious and even life-threatening problems. Because of this, it is very important to be treated by a doctor or clinician who has experience in treating people with HIV and AIDS.

Treatment for HIV/AIDS has 3 main goals:

- Restore and preserve immune function
- Keep the amount of HIV in the body as low as possible for as long as possible
- Prevent, cure, or control opportunistic infections

All of these can help support a person's quality of life by improving health and lowering the chance of serious illnesses and their long-term effects. Effective treatment also prolongs life.

The main treatment for HIV at this time uses 3 or more anti-HIV drugs taken each day to help block the virus from reproducing (making more viruses). Treating HIV with drugs is often called *anti-retroviral therapy* (ART) because HIV is a type of retrovirus. Combinations of anti-HIV drugs that are very good at stopping HIV growth are sometimes called *highly active anti-retroviral therapy* (HAART).

There are dozens of anti-HIV drugs that can be used in different combinations. The best combination varies with the person, disease stage, whether the person's infection is resistant to any of the drugs, and other factors. Different combinations might need to be tried, and over time the drugs may need to be changed. Each drug carries some risks

for certain side effects, which need to be discussed before starting. As part of caring for patients on anti-HIV drugs, doctors see the patients and check labs often.

By slowing viral growth and keeping the immune system as healthy as possible, treatment helps reduce the risk of some types of infections, AIDS-related cancers, and other health problems. With effective treatment, the disease progresses more slowly and people live longer. Still, no combination of drugs can actually cure the infection, so it's important that people being treated keep taking their medicines. Sometimes 2 or even 3 HIV drugs are put together into just one or two pills to make the drug treatment easier to remember and take. Whether the medicines are taken together or separately, close follow-up and testing are needed to make sure the treatment is still working.

People infected with HIV may not need to start treatment right away. The best time to start is not always clear, because HIV infection usually progresses slowly, and anti-HIV drugs can have some fairly serious side effects over time. But doctors have found that outcomes are usually better if the anti-HIV drugs are started before the immune system has been seriously damaged. Most doctors agree that anti-HIV treatment should begin when the infection is causing serious symptoms or a person's CD4 count falls below a certain level. There may be other reasons for thinking about starting treatment as well.

Other measures that can be taken to support the immune system involve good self-care, such as:

- Eating well and getting regular exercise
- Managing stress
- Avoiding infections (which may include staying away from people who are sick, practicing food safety, getting certain vaccines, taking antibiotics, using safer sex practices, and other measures)
- [Stopping tobacco](#)<sup>4</sup> or other drug use

## Hyperlinks

1. [www.cancer.org/cancer/kaposi-sarcoma.html](http://www.cancer.org/cancer/kaposi-sarcoma.html)
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# How are HIV and AIDS related to cancer?

People with HIV infection or AIDS can get cancer, just like anyone else. They are actually more likely to get some types of cancer than people who are not infected. In fact, some types of cancer occur so often in people with AIDS that they are considered *AIDS-defining conditions* – that is, their presence in a person infected with HIV is a clear sign that full-blown AIDS has developed.

Some other cancers are also more common in people with HIV or AIDS than people who are not infected, but the reasons for the increased risk aren't clear. It may be that some of these cancers are able to develop and grow more quickly because of a weakened immune system brought on by the infection itself. In other cases it may be because people with HIV infection or AIDS are more likely to have certain other risk factors for cancer, such as [being smokers](#)<sup>1</sup>.

Many cancers are no more or less common in people with HIV infection or AIDS than in people who are not infected.

In developed countries like the United States, the cancer picture in HIV has been changing as HIV treatment has improved. For example, some AIDS-defining cancers have become less common as more people have gotten effective anti-HIV treatment. As people with HIV infection have been living longer, they are also developing other types of cancer that are more common in older people. The use of anti-HIV drugs has also led to better cancer survival rates for people with HIV, as many people are now able to get full doses of chemotherapy and other standard cancer treatments, which may not have been possible in the past.

## AIDS-defining cancers

The cancers that define a person with HIV as having AIDS include:

- [Kaposi sarcoma](#)<sup>2</sup>
- [Non-Hodgkin lymphoma](#)<sup>3</sup> (especially primary central nervous system lymphoma)
- Invasive [cervical cancer](#)<sup>4</sup>

## Kaposi sarcoma



Kaposi sarcoma (KS) is a cancer that develops from the cells that line lymph or blood vessels. It was once an uncommon cancer that mainly affected older men of Mediterranean, Eastern European, or Middle Eastern ancestry, organ transplant patients, or young men in Africa. But in the past few decades, most KS cases in the United States have been linked to HIV infection in men who have sex with men. These cases are called *epidemic KS* (or *AIDS-related KS*).

KS is related to a second viral infection. This virus is called *human herpesvirus 8* (HHV-8), also known as *Kaposi sarcoma-associated herpesvirus* (KSHV). HHV-8 does not seem to cause disease in most healthy people. The HHV-8 virus is found in saliva, which may be one of the ways it is passed to others. In the United States, infection with HHV-8 is common among men who have sex with men, but it can also be shared between men and women.

In most cases, epidemic KS causes dark purplish or brownish spots (called *lesions*) on the skin or in the mouth. KS may also affect the lymph nodes and other organs, such as the digestive tract, lungs, liver, and spleen.

When they are first diagnosed, some people with HIV and KS have no other symptoms, especially if their only lesions are on the skin. But some – even those with no skin lesions – can have other symptoms, such as swollen lymph nodes, unexplained fever, or weight loss. Over time, epidemic KS spreads throughout the body. If KS involves a lot of the lung or intestine, it can be fatal.

To learn more about this type of cancer, see [Kaposi Sarcoma](#)<sup>5</sup>.

## **Non-Hodgkin lymphoma**

Non-Hodgkin lymphoma (NHL) is a cancer that starts in lymphoid tissue and may spread to other organs. It is more likely to occur in people with HIV infection or AIDS than in people who are not infected, but most people with NHL are not infected with HIV. Fewer people with HIV are developing NHL since anti-HIV drugs have been in common use.

There are many different types of NHL, but certain types are more common in people with AIDS. One of these is primary central nervous system (CNS) lymphoma, which starts in the brain or spinal cord. Symptoms of CNS lymphoma can include seizures, facial paralysis, confusion, memory loss, and feeling tired. AIDS-related NHL can also include certain types of fast-growing lymphomas, including diffuse large B-cell lymphoma and Burkitt lymphoma.

The outcome for patients with AIDS-related NHL depends on the type of lymphoma and

on the person's immune function, as well as other factors. People with advanced NHL, a low CD4 (helper T-cell) count, and/or who don't get anti-HIV drugs don't usually do as well as people without these factors.

To learn more about this type of cancer, see [Non-Hodgkin Lymphoma](#)<sup>6</sup>.

### **Pre-cancerous cervical changes and invasive cervical cancer**

Cervical cancer is a cancer of the cervix, the lower part of the uterus (womb). Like Kaposi sarcoma, cervical cancer is strongly linked to infection with a virus. In this case, the virus is the [human papilloma virus \(HPV\)](#)<sup>7</sup>. HPV can be spread from person to person through skin-to-skin contact, including through sex.

HIV-infected women are at high risk for getting cervical intraepithelial neoplasia (CIN). CIN is the growth of abnormal, pre-cancerous cells in the cervix. Over time, CIN can progress to invasive cervical cancer, in which the cancer cells grow into deeper layers of the cervix.

CIN must be treated to keep it from invading. This is done by removing or destroying the outer layers of cervical cells. Untreated CIN is more likely to progress to invasive cervical cancer in HIV-infected women than in women who don't have HIV. The standard treatments for CIN do not work as well in HIV-infected women as they do in women without HIV. The chance of the disease coming back after treatment is high, especially in women with very low CD4 (helper-T cell) counts.

HIV-infected women with invasive cervical cancer and good immune function tend to do well with surgery and the same treatments that women without HIV get. Women tend to fare better if they do not have AIDS, and those with high CD4 (helper T-cell) counts have better outcomes.

To learn more about this type of cancer, see [Cervical Cancer](#)<sup>8</sup>.

### **Non-AIDS-defining cancers**

Other types of cancer are also more likely to develop in people with HIV than in people who are not infected, including:

- [Anal cancer](#)<sup>9</sup>
- [Hodgkin disease](#)<sup>10</sup> (Hodgkin lymphoma)
- [Melanoma skin cancer](#)<sup>11</sup>
- [Liver cancer](#)<sup>12</sup>

- [Lung cancer](#)<sup>13</sup>
- [Mouth and throat cancers](#)<sup>14</sup>
- [Testicular cancer](#)<sup>15</sup>
- [Squamous cell and basal cell skin cancers](#)<sup>16</sup>

Some other, less common types of cancer may also be more likely to develop in people with HIV.

The link between HIV and these cancers is still not fully understood.

Some of these cancers have been linked to infections with different viruses. These viruses can cause cancer in people with and without HIV, but the risk might be higher in people with HIV because their immune systems are less able to control the viral growth. For example, anal cancer and some mouth and throat cancers are linked to infection with HPV, the same virus that causes cervical cancer. Liver cancer is known to be more common in people infected with the hepatitis B or C viruses. Some types of lymphoma have been linked with viral infections as well.

For some cancers, the higher risk in people who have HIV may be because of other risk factors these people are more likely to have, rather than the HIV infection itself. For example, mouth, throat, and lung cancers are strongly linked with smoking, which is more common in people with HIV, and the link with HIV becomes much weaker if smoking status is taken into account. Cancers of the liver, mouth, and throat (as well as some other cancers) are linked with heavy alcohol use, which is also more common in people with HIV.

Of course, as people with HIV are now living longer, they are also developing other cancers that are not clearly linked to HIV but are more common in older people, such as [breast](#)<sup>17</sup>, [colorectal](#)<sup>18</sup>, and [prostate cancer](#)<sup>19</sup>.

## Hyperlinks

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## What can people with HIV or AIDS do to try to lower their risk of cancer or find it early?

People with HIV infection or AIDS are at higher risk for certain types of cancer than those who are not infected. They also share the same risks for many other types of cancer. People with HIV or AIDS may be able to lower their risk of some cancers or find them early, when they are more likely to be treated effectively.

### Lowering cancer risk

Certain cancers are more common in people with HIV, but even among different people with HIV, the risk of developing many types of cancer is higher if the infection is not well controlled – that is, if the CD4 (helper-T cell) count is low. This is one reason why it is important for people with HIV to stay on their medicines to help keep the infection under control.

The risk of some of types of cancer that are more common in people with HIV may be lowered by avoiding certain cancer risk factors. For example, [not smoking](#)<sup>1</sup> or using injection drugs and [avoiding or limiting alcohol](#)<sup>2</sup> may help lower the risk of some

cancers. Some types of cancer linked with HIV and AIDS are caused by viruses that can be spread through sex, so using safer sex practices may also help protect against those cancers.

Vaccines against the [hepatitis B virus](#)<sup>3</sup> may help protect against one possible cause of liver cancer. Vaccines are also available to help protect against certain [human papillomavirus \(HPV\) infections](#)<sup>4</sup>, which may help prevent some [cervical](#)<sup>5</sup>, [anal](#)<sup>6</sup>, and other cancers. But the [HPV vaccines](#)<sup>7</sup> are only effective if they are given before a person becomes infected with HPV, so they are typically recommended before a person becomes sexually active. Some screening tests that find pre-cancerous changes caused by HPV (see below) may actually help prevent some cancers if these pre-cancers are removed.

People with HIV are also at risk for other cancers, just like people who are not infected. There are some things all people can do that can help lower their overall cancer risk. For example, [staying at a healthy weight](#)<sup>8</sup>, [getting regular physical activity](#)<sup>9</sup>, [eating a healthy diet rich in plant-based foods](#)<sup>10</sup>, and [avoiding or limiting alcohol](#)<sup>11</sup> may all help lower a person's risk of cancer.

## Finding cancer early

Screening is the process of looking for cancer in people who do not have any symptoms. While people with HIV are at higher risk for certain cancers, for most of these cancers there are no screening tests proven to help lower the risk of dying from them. For example, there are no tests commonly used to screen for either [Kaposi sarcoma](#)<sup>12</sup> or [non-Hodgkin lymphoma](#)<sup>13</sup>. Still, careful, regular medical checkups are important to look for possible signs or symptoms of these cancers in people with HIV.

In people who have a cervix, [cervical cancer](#)<sup>14</sup> can often be found early or even prevented by getting regular screening tests. The tests are done more often if a person has HIV. Experts recommend that women with HIV have a Pap test as soon as possible after being diagnosed with HIV. Depending on the results of the Pap test, more testing may be needed. How often women with HIV have a Pap test depends on the results of the first Pap test.

Other special screening tests for cancer in people with HIV are being studied. For instance, because people with HIV are also at high risk of anal cancer, some experts recommend they get a screening test very much like the Pap smear (sometimes called an *anal Pap test*).

Otherwise, the same [cancer early detection tests that are recommended](#)<sup>15</sup> for people

without HIV, such as screening tests for [breast](#)<sup>16</sup> or [colorectal cancer](#)<sup>17</sup>, can also help detect cancers in people with HIV. (For a list of current recommended tests, see [American Cancer Society Guidelines for the Early Detection of Cancer](#).<sup>18</sup>) Your doctor and dentist should also take extra care during your regular checkups to keep a close watch for any early signs of cancer. If you are interested in more cancer screening options, ask your doctor about clinical trials for cancer detection in people with HIV.

## Hyperlinks

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17. [www.cancer.org/cancer/colon-rectal-cancer.html](http://www.cancer.org/cancer/colon-rectal-cancer.html)
18. [www.cancer.org/healthy/find-cancer-early/cancer-screening-guidelines.html](http://www.cancer.org/healthy/find-cancer-early/cancer-screening-guidelines.html)

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# How is cancer treated in people with HIV or AIDS?

Before effective anti-HIV drugs became available, the outlook for people with HIV or AIDS who developed cancer usually was not nearly as good as it was for people with similar cancers who were not infected. People with HIV were often already sick, or at least had a weakened immune system, before they even started cancer treatment.

A weak immune system itself may allow some cancers to grow and spread faster than they normally would. Another problem is that cancer treatments such as [chemotherapy](#)<sup>1</sup> and [radiation therapy](#)<sup>2</sup> can also weaken the immune system. People who already have a weak immune system might not be able to get the full course of cancer treatment without risking severe side effects such as possible life-threatening infections.

Today, people with HIV and cancer are usually treated much like people without HIV infection. The cancer treatment itself is based on the type and stage (extent) of the cancer. Treatment typically includes anti-HIV drugs along with standard cancer treatments. At the same time, any other needed treatments for HIV (such as antibiotics to help prevent infections) are used.

Some aspects of treatment may need to be adjusted in people with HIV. For example, cancer treatment may sometimes need to be changed because of other conditions in people with HIV. Some anti-HIV drugs can also interact with many other drugs in the body, which can complicate cancer treatment. Anti-HIV drugs can also have their own side effects, some of which can be the same as those caused by chemotherapy.

Treatment of both HIV and cancer can be complex, so it is very important that both treatments are coordinated by doctors who have experience with these diseases.

Anti-HIV drugs allow many people with cancer to get full doses of chemotherapy and other standard cancer treatments. This has led to better survival with anti-cancer treatment. But even with standard treatments, people with HIV may still have slightly lower success rates with certain types of cancer, depending on the state of their immune systems and other factors. Because of this, doctors are studying various cancer treatments and their outcomes in people HIV infection.

For more information on different types of cancer and their treatment, please visit our website at [www.cancer.org](http://www.cancer.org) or call us at 1-800-227-2345.

## Treatment of AIDS-defining cancers

Treatment with anti-HIV drugs is an important part of treating cancers that define a person with HIV as having AIDS.

**Kaposi sarcoma:** In general, people with HIV who are diagnosed with Kaposi sarcoma (KS) are started on anti-HIV drugs if they are not already on them. For some people, this may be the only treatment they need. KS lesions, which are caused by a virus, often shrink as the immune system gets stronger.

Other people may need treatment directed at the cancer itself. If there are only a few skin or mouth lesions, local treatments may be used, such as radiation directed at the lesions. Chemotherapy may be needed if there are many lesions, if they are inside the body, or if they are causing bothersome symptoms.

For more information about KS and its treatment, see [Kaposi Sarcoma](#)<sup>3</sup>.

**Non-Hodgkin lymphoma:** There are many types of non-Hodgkin lymphoma (NHL), but those linked with HIV and AIDS tend to be fast-growing types that require intensive chemotherapy treatment. The best treatment for AIDS-related NHL is much like the treatment of NHL in those without HIV infection.

The major problem in the past was that patients with HIV tended to have low blood cell counts to begin with, which made it hard to treat them with full courses of chemotherapy. This problem has been relieved somewhat by the use of highly active anti-retroviral therapy (HAART) and by the use of drugs to help the patient's body make new blood cells. Still, doctors give chemotherapy cautiously and monitor blood counts closely during treatment.

The outcome for patients with AIDS-related NHL depends on the type of lymphoma and on the person's immune function, as well as other factors. People with advanced NHL, a low CD4 (helper T-cell) count, and/or who don't get anti-HIV drugs don't usually do as well as people without these factors.

For more information on the different types of NHL and their treatment, see [Non-Hodgkin Lymphoma](#)<sup>4</sup>.

**Cervical cancer:** HIV-infected women with invasive cervical cancer and good immune function tend to do well with surgery and the same treatments that women without HIV get. Those who have more advanced disease tend to respond poorly to radiation therapy alone. Chemotherapy can be used in women with advanced or recurrent disease. Women with HIV need to be watched closely after treatment to be sure the cancer doesn't come back.



During cancer treatment, the woman's immune status must be watched and her HIV infection treated. Anti-HIV drugs are usually given to improve the treatment outcome for HIV-infected women with cervical cancer, no matter what her CD4 (helper T-cell) counts are.

Women with cervical cancer tend to fare better if they do not have AIDS, and those with high CD4 counts tend to have better outcomes.

For more detailed information on cervical cancer and its treatment, see [Cervical Cancer](#)<sup>5</sup>.

## Hyperlinks

1. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html)
2. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation.html)
3. [www.cancer.org/cancer/kaposi-sarcoma.html](http://www.cancer.org/cancer/kaposi-sarcoma.html)
4. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)
5. [www.cancer.org/cancer/cervical-cancer.html](http://www.cancer.org/cancer/cervical-cancer.html)

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## To learn more

We have a lot more information that you might find helpful. Explore [our](#) website or call our National Cancer Information Center toll-free number, 1-800-227-2345. We're here to help you any time, day or night.

### Other organizations and websites\*

Along with the American Cancer Society, other sources of information and support include:

**AIDSinfo** (US Department of Health and Human Services AIDS Information) Toll-free number: 1-800-HIV-0440 (1-800-448-0440), 1 pm to 5 pm Eastern time Website:

[www.aidsinfo.nih.gov](http://www.aidsinfo.nih.gov)<sup>2</sup>

Has fact sheets and other HIV health topics, HIV clinical trials information and treatment guidelines. Phone information and many fact sheets also available in Spanish.

**AIDS InfoNet** New Mexico AIDS Education and Training Center Website:

[www.aidsinfonyet.org](http://www.aidsinfonyet.org)<sup>3</sup>

Internet-only service with easy-to-read fact sheets on most HIV/AIDS topics, which can be printed free of charge. Fact sheets are also available in Spanish, Russian, Bulgarian, Indonesian, Nepali, Bengali, Hindi, Oriya, Tamil, and Telugu.

**US Department of Agriculture Food Safety and Inspection Service** Website:

[www.fsis.usda.gov](http://www.fsis.usda.gov)<sup>4</sup>

Offers a fact sheet, Food Safety for Persons with AIDS:

[www.fsis.usda.gov/shared/PDF/Food\\_Safety\\_for\\_People\\_with\\_HIV.pdf](http://www.fsis.usda.gov/shared/PDF/Food_Safety_for_People_with_HIV.pdf)<sup>5</sup>.

**American Sexual Health Association (ASHA)** Toll free number: 1-800-227-8922

Website: [www.ashasexualhealth.org](http://www.ashasexualhealth.org)<sup>6</sup>

Offers facts and answers about sexually transmitted diseases (STDs) including HIV and AIDS. Includes information on preventing the spread of HIV and STDs.

**Centers for Disease Control and Prevention (CDC)** Toll-free number: 1-800-232-4636 (1-800-CDC-INFO) Website: [www.cdc.gov/hiv](http://www.cdc.gov/hiv)<sup>7</sup>

Information about HIV prevention and transmission; phone questions 24 hours a day. In English or Spanish.

**National Cancer Institute** Toll-free number: 1-800-4-CANCER (1-800-422-6237)

Website: [www.cancer.gov](http://www.cancer.gov)<sup>8</sup>

For reliable information on cancer and clinical trials.

**Project Inform** Toll-free number: 1-800-822-7422 Website: [www.projinf.org](http://www.projinf.org)<sup>9</sup>

Answers HIV-related questions; offers an information packet for people newly diagnosed with HIV; has live answers from 10 am to 4 pm Pacific time. Includes information on prevention concerns for HIV-infected people, pregnancy and HIV.

*\*Inclusion on this list does not imply endorsement by the American Cancer Society.*

## Hyperlinks

1. <http://www.cancer.org/>
2. [www.aidsinfo.nih.gov/](http://www.aidsinfo.nih.gov/)
3. <http://www.aidsinfonet.org/>
4. <http://www.fsis.usda.gov>
5. [www.fsis.usda.gov/shared/PDF/Food\\_Safety\\_for\\_People\\_with\\_HIV.pdf](http://www.fsis.usda.gov/shared/PDF/Food_Safety_for_People_with_HIV.pdf)
6. <http://www.ashasexualhealth.org/>
7. <http://www.cdc.gov/hiv/>
8. <http://www.cancer.gov/>
9. <http://www.projinf.org/>

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