

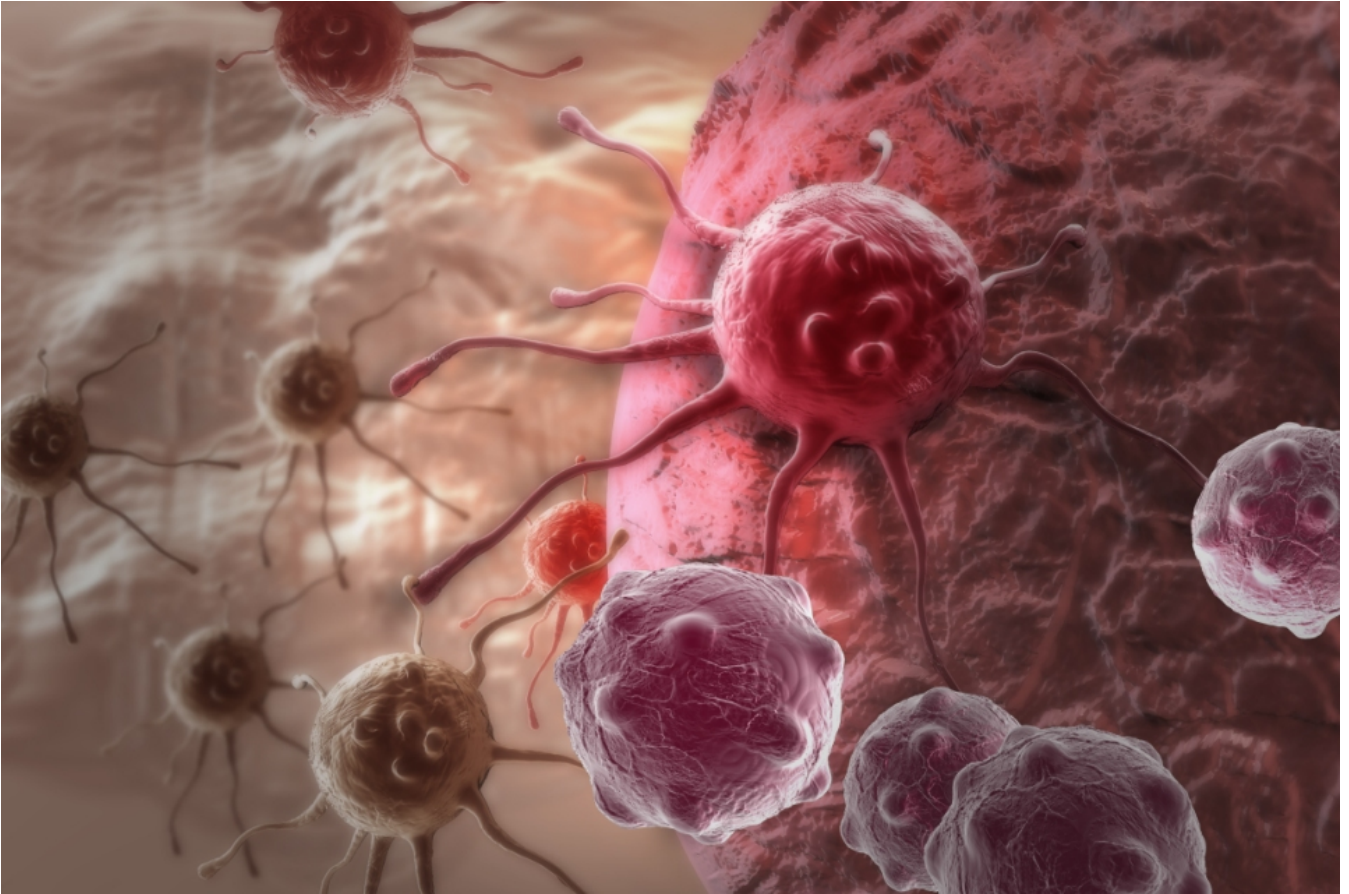


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## Cancers

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## What Is Cancer?

Cancer refers to the abnormal and uncontrolled growth of certain cells that can get in the way of normal body functions. It can spread (metastasize) from where it started to other organs and parts of the body. Cancer can destroy healthy cells and cause illness and death.

A healthy [immune system](#) helps to prevent cancer. People living with HIV can keep their immune systems healthy by taking HIV drugs exactly as they are prescribed. For those living with HIV who have weakened immune systems, it is harder to control viruses that can lead to cancer. These viruses include:

- [Human papilloma virus](#) (HPV): there are several types of HPV; certain types can cause cervical and anal cancer, as well as vaginal, vulvar, penile, head and neck cancers
- Epstein Barr virus (EBV): EBV can cause both non-Hodgkin's and Hodgkin's lymphomas
- [Hepatitis B](#) and [Hepatitis C](#) viruses: these can cause a certain type of liver cancer (hepatocellular carcinoma)
- Human herpesvirus 8 (HHV-8), which can cause Kaposi sarcoma

Certain types of cancer lead to an [AIDS diagnosis](#): Kaposi sarcoma, certain types of lymphoma, and cervical cancer. People living with HIV are also at greater risk for other cancers, especially anal, liver, and lung cancer. All of these are explained in detail below.

It is important to note that an AIDS diagnosis is NOT a death sentence now that effective HIV drugs are available. Starting to take HIV drugs before HIV becomes bad enough to cause AIDS can keep your immune system strong, and is more likely to avoid complications, such as cancers.

## Kaposi Sarcoma (KS)

KS was one of the most common [opportunistic infections](#) (OIs) in the early days of the AIDS epidemic. Kaposi sarcoma is also called Kaposi's sarcoma (named for the doctor who first described the condition).

Human Herpes Virus 8 (HHV-8) is the virus that causes KS. It is likely transmitted through sexual contact or blood products. KS has always been less common in women than in men but has become less common in all people living with HIV since the use of newer, more effective HIV drug combinations.

Research shows that some people living with HIV who have KS find that their cancer gets worse after they start HIV drugs. This is most likely due to IRIS ([immune reconstitution inflammatory syndrome](#)), which happens when your immune system acts so strongly and so quickly that it causes lots of inflammation, which can actually make your symptoms worse. KS-IRIS happens more often in people living with HIV who have higher HIV viral loads, higher KS viral loads, and more advanced KS disease.

**Human Herpes Virus 8 (HHV-8) is the virus that causes KS. It is likely transmitted through sexual contact or blood products.**

KS on the skin is not life threatening. However, if KS spreads to other parts of the body, especially the lungs, it can cause serious problems. An oncologist (a doctor who specializes in cancer) usually suggests treatment options based on the size, number, and location of KS tumors and other factors. However, the first treatment for KS is to start taking HIV drugs. Your HIV provider and other medical specialists (e.g., radiation oncologist, dermatologist) may be involved as well.

## Symptoms (by location)

- Skin (most common place where KS occurs):
  - Flat or raised, and usually painless lesions that do not itch or drain
  - Lesions may be pink, red, purple, or brown – or resemble "blood blisters"
  - There may be swelling, especially in the legs (lymphedema)
- Oral cavity (inside the mouth):
  - Lesions as described above
  - Trouble eating and swallowing
- Gastrointestinal tract ("guts"):
  - [Diarrhea](#) (loose or frequent stools)
  - Cramping
  - Bleeding
- Lungs:
  - Breathing problems
  - Bad cough

## Diagnosis

- Usually made by biopsy (a sample of the affected tissue is taken and examined under a microscope)

## Treatment

- HIV drug therapy alone may make lesions or tumors shrink or disappear (go into remission)
- Depending on the location of the KS, cancer specialists will recommend some combination of chemotherapy, radiation therapy, skin treatment and/or surgery.

## Lymphoma

Lymphoma involves the uncontrolled growth of immune cells that may spread to other organs, including bone marrow, the brain or spinal cord (central nervous system, or CNS lymphoma), and the gastrointestinal tract (GI lymphoma). The lymphatic system is a key part of the immune system and is also part of the circulatory system (the system that moves blood and other fluids through your body). The Epstein-Barr virus (EBV) may play a role in the development of lymphomas.

The two major types are:

- Non-Hodgkin's lymphoma (NHL)
- Hodgkin's lymphoma (also called Hodgkin's disease)

Lymphomas can be more advanced and harder to treat in people living with HIV, especially CNS lymphoma.

## Symptoms

- Swollen lymph nodes
- Fever, chills, sweats
- Weight loss
- Belly pain or swelling; nausea; gassy or bloated stomach (GI lymphoma)
- Headache; changes in vision, alertness, or personality; confusion; problems with balance (CNS lymphoma)

## Diagnosis

- Biopsy of affected part of the body (e.g., lymph node, lung, intestine, etc.)

## Treatment

- Depending on the size, type, and location of the lymphoma, cancer specialists will recommend some combination of chemotherapy, radiation therapy, and/or surgery

## Cervical Cancer

Cervical cancer is strongly linked to the [human papilloma virus \(HPV\)](#). HPV is the most common [sexually transmitted infection](#) in the US. Different strains of HPV cause warts or abnormal cell growth (dysplasia) in the anus ("butt") or cervix (entrance to the womb).

### When dysplasia is found and treated early, cervical cancer can be prevented.

Abnormal cell growth is more common in women with advanced HIV disease and low CD4 cell counts. It is often more severe and difficult to treat than in HIV-negative women. Untreated dysplasia can lead to cervical cancer, which can be life threatening. HPV may also cause cancer in the vagina, vulva, and anus.

The good news is, when dysplasia is found and treated early, cervical cancer can be prevented. Cervical screening tests are used to look for changes in the cells of the cervix, including dysplasia and cervical cancer. Cervical cancer generally takes years to develop and does not usually have symptoms until it is quite advanced. This is why getting screened regularly for cervical cancer is important; screening can catch potential problems before they get worse. For more information on getting a gynecologic exam, see our fact sheet on [Caring for a Woman's Body](#).

## Prevention

The other good news is that there are three HPV vaccines: Gardasil (also known as Silgard), Gardasil-9, and Cervarix. These vaccines protect against the types of HPV that cause the most common cervical cancers and genital warts. [Pregnant women](#) should not receive the vaccine, although it is safe to get the vaccine while breastfeeding.

All three HPV vaccines have been approved by the US Food and Drug Administration (FDA), Health Canada, and the European Medicines Agency (EMA). In the US, Gardasil and Cervarix are no longer distributed, but Gardasil-9 has been approved for girls/women and boys/men ages 9 to 45. Demonstration projects now bring HPV vaccines to girls and women in low-income countries as well.

It is best if young people get all doses of the vaccine before their first sexual contact. This helps them develop an immune response before they are exposed to HPV. People who are living with some types of HPV will still benefit from the vaccine's effects against other types of HPV. The US Centers for Disease Control and Prevention (CDC) recommends HPV vaccines for all girls and young women ages 11 through 26 and all boys and young men ages 11 through 21 (even if they have already become sexually active). It also recommends vaccination for men who have sex with men, transgender people and those living with HIV who are 26 years old or younger. HIV Medicine Association guidelines for primary care of people living with HIV recommend HPV vaccination for all people living with HIV up to age 45 who have not been previously vaccinated.

In Canada, the National Advisory Committee on Immunization (NACI) recommends Gardasil vaccination for girls/women ages nine through 45 and boys/men ages nine through 26, or vaccination with Cervarix for girls/women ages nine through 45. In the UK, HPV vaccination is offered to girls and

boys ages 12 and 13 in school through the National Health Service. People who missed the vaccine in school can get it up to their 25th birthday.

## Symptoms

- Many women do not experience symptoms
- Bleeding between periods and bleeding after sexual intercourse are two signs of advanced cervical dysplasia

## Diagnosis

Screening for dysplasia and cervical cancer is essential to find and treat early pre-cancerous changes and to prevent cervical cancer. Traditionally, the Papanicolaou test (Pap test or Pap smear) has been done. This test uses a small brush to collect a few cells, which are then checked for changes in the cervix. Newer liquid-based systems to screen samples of cervical cells are now much more common and are effective for finding abnormal cells.

## Treatment for cervical cancer

Treatment depends on the type of cervical cancer and how far it has spread. Often, more than one kind of treatment is used.

- LEEP (loop electrosurgical excision procedure): Using a thin wire loop with an electrical current to cut away abnormal tissue
- Cryotherapy: Freezing the cells with liquid nitrogen
- Laser therapy: Using an intense light to destroy the cells
- Cold-knife cone biopsy (conization): Cutting the cells out (an operation)
- In cases of mild dysplasia, your health care provider may just monitor the cervix by colposcopy, repeat cervical screening tests, and/or an HPV test
- Surgery: Hysterectomy (removing the uterus [womb], including the cervix)
- Chemotherapy: Drugs (pills and/or intravenous medications) are used to shrink (make smaller) or kill the cancer
- Radiation: High-energy rays (similar to X-rays) are used to kill the cancer cells

## Anal Cancer

Anal cancer is on the rise in men and women. It is also tied to specific types of HPV. An anal Pap smear and physical examination are the best ways to detect anal dysplasia, which can develop into anal cancer. It is important to ask your health care provider to perform these tests regularly. Because some of the same strains of HPV that cause cervical cancer can cause anal cancer, getting vaccinated against HPV can help prevent anal cancer, too.

## Symptoms

- Anal bleeding or discharge
- Itching, pain, or pressure in the anal area
- A lump or swelling in the anal area
- Changes in bowel movements, including changes in the diameter of stool

## Diagnosis

- Anal pap smear
  - Anal pap smears check for changes to the anus; some experts recommend that people

- living with HIV get regular anal pap smears
- Your provider may also perform a digital rectal exam (DRE). During this test, the provider inserts a gloved and lubricated finger into the anus to feel for lumps or abnormalities.
- Anoscopy
  - If you have an abnormal anal Pap smear, you may need an anoscopy (an exam of your anus using a special tool called a high resolution anoscope to look at the tissue more closely)
  - During the anoscopy, your health care provider may remove a tissue sample (biopsy) for examination in a laboratory to determine if the abnormal cells are cancer

## Treatment

- Infrared coagulation (IFC): Using short bursts of infrared light to cut off the blood supply to the affected area
- Laser therapy: Using an intense light to destroy the cells
- Electrocautery: Burning off the cells with an electrical current
- Trichloroacetic acid: Burning off the cells with acid
- Surgery (operation)
- Chemotherapy (medications) with radiation

## Liver Cancer

The increased risk for a type of liver cancer among people living with HIV is strongly linked to infection with the [hepatitis B](#) and/or [hepatitis C](#) viruses. Researchers have also shown that having a low CD4 cell count increases a person's risk for liver cancer.

People living with HIV should be routinely tested for the hepatitis B and C viruses to help prevent liver cancer. There is also a vaccine against hepatitis B, and hepatitis C can be effectively treated.

## Symptoms

- Many people have no symptoms until the disease is very advanced
- Weight loss
- Nausea and vomiting
- Upper belly pain
- Loss of appetite
- White, chalky stool
- Swelling of the belly
- Jaundice (yellowing of the eyes and/or skin)

## Diagnosis

- Blood tests to check liver function
- Imaging tests (e.g., CT scan, ultrasound, MRI) to look for masses
- Biopsy: Removing a tissue sample by inserting a needle through the skin and into the liver

## Treatment

Depending on the size, type, and location of the liver cancer, your provider will suggest treatment, which may include:

- Chemotherapy

- Radiation
- Surgery to remove a part of the liver
- Liver transplant surgery to remove the liver and replace it with a healthy liver from a donor
- Radiofrequency ablation: Using electrical current to heat and kill cancer cells

## Lung Cancer

Although lung cancer is not an AIDS-defining cancer, people living with HIV have a greater chance of developing lung cancer than HIV-negative people. This difference is likely due to the weakened immune systems of those living with HIV. Unfortunately, lung cancer is one of the deadliest cancers.

If you smoke, you also have a much greater risk of developing lung cancer. The longer you smoke and the more cigarettes per day, the greater your risk. Exposure to second-hand smoke (breathing smoke in the environment) also increases your risk for lung cancer.

Smoking is the single biggest risk factor for non-AIDS-defining cancers among people living with HIV in the US. It affects the risk of a person living with HIV for getting cancer more than having a low CD4 count, a viral load above detectable levels, hepatitis C, or even an AIDS diagnosis.

The best way to prevent lung cancer is to avoid or stop smoking. For more information, see our fact sheet on [Smoking and Tobacco Use](#).

## Symptoms

- Cough, with or without phlegm or mucus
- Coughing up blood
- Shortness of breath
- Chest pain
- Fatigue (extreme tiredness)
- Loss of appetite
- Unexplained weight loss

## Diagnosis

- Sample of your spit (sputum) for examination under a microscope. This shows whether there are abnormal cells in the lungs.
- Bronchoscopy: Inserting a thin, flexible tube with a light on the end into the windpipe to look inside the lungs and possibly take a sputum or tissue sample for examination under a microscope
- Biopsy: Removing a tissue sample for examination under a microscope
- Imaging tests: Chest x-ray, CT scan, PET scan, or MRI

## Treatment

Depending on the size, type, and location of the lung cancer, cancer specialists will recommend some combination of chemotherapy, radiation therapy, and surgery.

## Conclusion

Cancers can be very serious for people living with HIV. If you see a health care provider regularly, cancer can be diagnosed and treated early, or may even be prevented. Taking your HIV drugs regularly can help keep your immune system strong and your CD4 cell counts up. This also helps lower your risk of cancers.



## Additional Resources

Select the links below for additional material related to cancers.

- [HIV Infection and Cancer Risk \(US National Cancer Institute\)](#)
- [HIV and Cancer \(American Cancer Society\)](#)
- [HIV and Cancer \(TheBody.com\)](#)
- [HIV & Cancer Risk: Expert Interview \(Infectious Disease Advisor\)](#)
- [Low CD4 Cell Count Linked to Increased Risk of Cancer Among People with HIV in ...](#)
- [The Little-Known Links Between Cervical Cancer and HIV \(UNAIDS\)](#)
- [What You Need to Know About Anal Cancer \(Medical News Today\)](#)
- [HIV and Cancer: Risks, Types, and Treatment Options \(HealthLine\)](#)
- [HIV/AIDS-Related Cancer: Introduction \(American Society of Clinical Oncology\)](#)
- [Can Infections Like EBV & HIV Cause Cancer? \(Cancer Research UK\)](#)
- [Cancer \(Terrence Higgins Trust, UK\)](#)
- [HIV and Cancer: What is the Link? \(New York State Department of Health\)](#)
- [Cervical Cancer Basics \(US Centers for Disease Control and Prevention\)](#)
- [What Is Kaposi Sarcoma? \(American Cancer Society\)](#)
- [Lymphoma \(American Cancer Society\)](#)
- [HIV and Cancer \(National LGBT Cancer Network\)](#)
- [HIV and Cancer \(i-base\)](#)



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