

Cancers ^[1]

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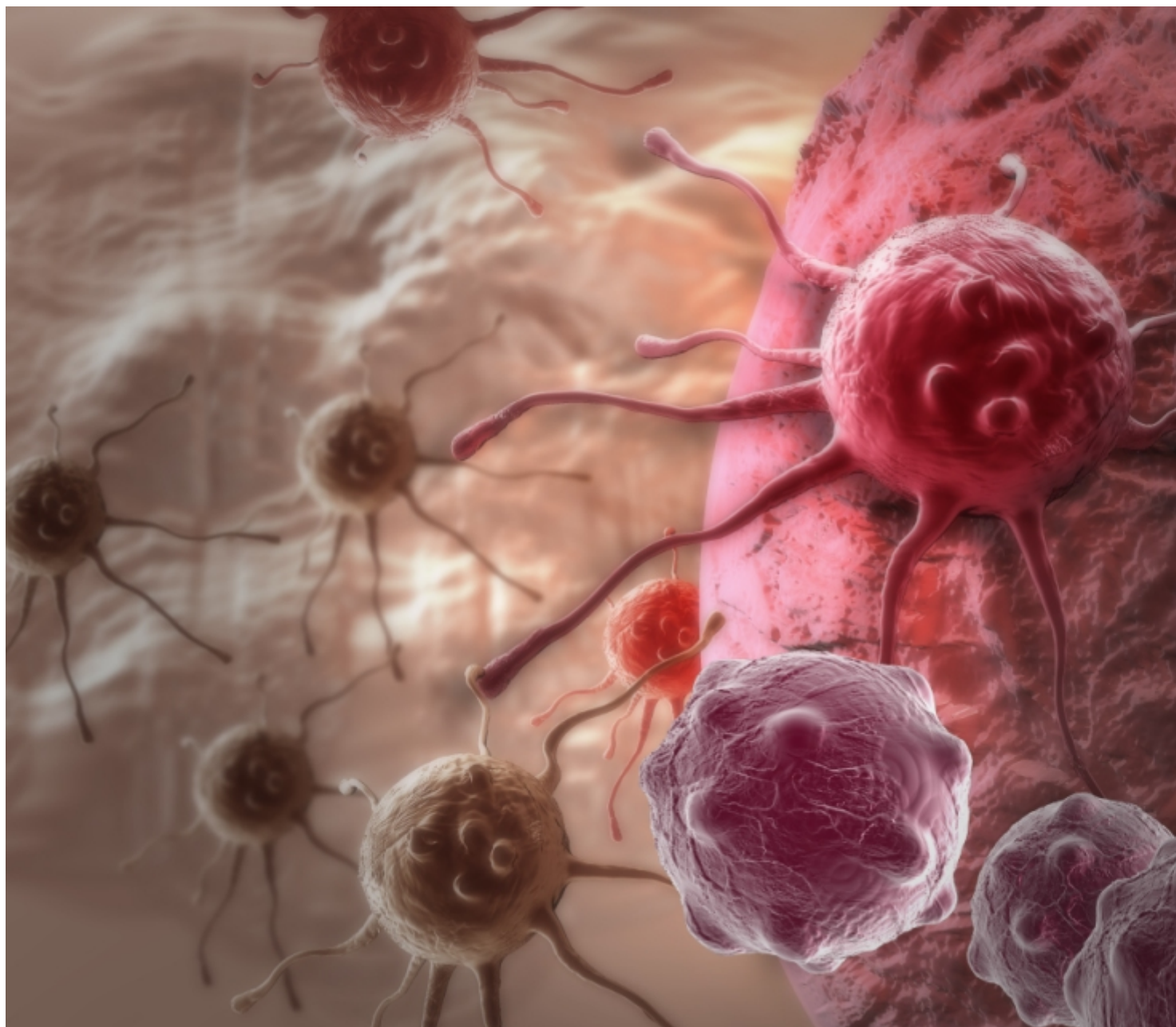


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What Is Cancer?

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

A healthy [immune system](#) [2] helps to prevent cancer. Because those living with HIV (HIV+) have weakened immune systems, it is easier for HIV+ people to become ill with several kinds of cancer. HIV+ people are more likely to be infected with viruses that can lead to cancer. These viruses include:

- [Human papilloma virus](#) [3] (HPV): there are several types of HPV; certain types can cause cervical and anal cancer, as well as vaginal, vulvar, penile, and head and neck cancers
- Epstein Barr Virus (EBV): EBV can cause both non-Hodgkin's and Hodgkin's lymphomas
- [Hepatitis B](#) [4] and [Hepatitis C](#) [5] viruses: these can cause liver cancer
- Human herpesvirus 8 (HHV-8), which can cause Kaposi's sarcoma

The following types of cancer lead to an [AIDS diagnosis](#) [6]: Kaposi's sarcoma, certain types of lymphoma, and cervical cancer. Other non-AIDS defining cancers for which HIV+ people are at increased risk include anal, liver, and lung cancer. All of these are explained in detail below.

Kaposi's Sarcoma (KS)

KS was one of the most common [opportunistic infections](#) [7] (OIs) in the early days of the AIDS epidemic.

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

A recent study found that some HIV+ people with KS find that their KS gets worse after starting HIV drugs. This is most likely due to IRIS (immune reconstitution inflammation syndrome [8]), which happens when your immune system acts so strongly and so quickly that it causes lots of inflammation that can actually make your symptoms worse. KS-IRIS usually happens more often in HIV+ people with higher HIV viral loads, higher KS viral loads, and more advanced KS disease.

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 factors such as the size, number, and location of KS tumors. However, the first treatment for KS is to begin HIV drugs. Your HIV provider and other specialists (e.g., radiation oncologist, dermatologist) may be involved as well.

Symptoms (by location)

- Skin (most common site of KS):
 - 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 tumors:
 - Diarrhea (loose or frequent stools)
 - Cramping
 - Bleeding
- Lung tumors:
 - Breathing problems
 - Bad cough

Diagnosis

- Usually made by biopsy (sample of tissue taken and examined under microscope)

Treatment

- HIV drug therapy alone may make lesions or tumors shrink or disappear (go into remission)
- Skin treatment with cryotherapy (freezing) or Panretin (alitretinoin gel) if there are only a few lesions
- Injection of medication into the lesion(s), such as interferon or vinblastine
- Radiation therapy to the lesions, especially if lesions or tumor are large or have ulcers
- Oral or IV (inside the veins) chemotherapy drugs ? used for more widespread KS or KS inside the body

Lymphoma

Lymphoma involves the uncontrolled growth of lymph 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 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 HIV+ people, 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

- Imaging of the affected area (e.g., CT scan, PET scan, or MRI), especially for GI or CNS lymphoma
- Biopsy of affected part of the body (e.g., lymph node, lung, intestine, etc.)

Treatment

- NHL: Chemotherapy
- CNS lymphoma: Combination of radiation and chemotherapy
- GI lymphoma: Combination of surgery to remove tumor and chemotherapy

Cervical Cancer

Cervical cancer is strongly linked to the human papilloma virus (HPV) [3]. HPV is the most common sexually transmitted infection [9] in the US. Different strains of HPV cause warts or abnormal cell growth (dysplasia) near the anus or cervix (entrance to the womb).

Dysplasia 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. Tests like the Pap smear or VIA (visual inspection with acetic acid) are used to look for changes in the cervix, including dysplasia and cervical cancer. Cervical cancer usually takes years to develop, and it does not usually have symptoms until it is quite advanced. This is why getting screened for cervical cancer on a regular basis is important; screening can catch potential problems before they get worse. For more information on getting a gynecologic exam, see our article on [Caring for a Woman's Body](#) ^[10].

Prevention

The other good news is that there are two widely used HPV vaccines: Gardasil (made by Merck; also known as Silgard) and Cervarix (made by GlaxoSmithKline). Both vaccines protect against the types of HPV that cause the most cervical cancers and genital warts. Pregnant women should not receive the vaccine, although it is safe to get the vaccine while breastfeeding.

Both vaccines have been approved by the US Food and Drug Administration (FDA) and are also licensed in many other regions, including Canada, the United Kingdom (UK), and Europe. In the US, Gardasil is approved for females and males ages 9 to 26, while Cervarix is approved for females ages 10 to 25. The same is true in Canada.

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).

In Canada, the National Advisory Committee on Immunization (NACI) recommends Gardasil vaccination for females and males ages nine through 26, or vaccination with Cervarix for girls and young women ages nine through 26. In the UK, vaccination with Gardasil is offered to girls ages 12 and 13 through the National Health Service.

Symptoms

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

Diagnosis

- Pap smears
 - A Pap smear is a screening test your health care provider does to check for changes in the cervix
 - It is very important for HIV+ women to have regular gynecologic exams and Pap smears. The CDC recommends that:
 - HIV+ women have a complete gynecological examination, including a Pap smear, when they are first diagnosed and when they first seek prenatal care
 - HIV+ women have another Pap smear six months after diagnosis
 - If both tests are normal, a repeat Pap smear should be done every year
 - An abnormal Pap smear can indicate inflammation, infection, dysplasia, or cancer
 - HPV testing can be done in combination with Pap smears to detect the presence of the types of HPV that are higher risk for the development of cancer

- VIA tests or tests for HPV DNA: Because Pap tests require laboratories and people skilled in reading them, resource-limited countries offer different tests to screen for dysplasia and cervical cancer. One method is called visual inspection with acetic acid, or VIA. When using VIA, health care providers swab acetic acid (also known as vinegar) on the cervix and look directly at it to see if any areas need treatment. Other countries use HPV tests, which test samples taken from your cervix for the presence of HPV's DNA (its genetic material).
- Colposcopy
 - If you have an abnormal test, you may need a colposcopy (an exam of your cervix using a microscope to look at the tissue more closely)
 - During the colposcopy, your health care provider may remove a tissue sample (biopsy) for laboratory examination to determine if the abnormal cells are cancerous

Treatment for dysplasia or cancer that that is very localized

- 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
- In cases of mild dysplasia, your health care provider may just monitor the cervix by repeat Pap or HPV test

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.

- Surgery: Hysterectomy (removal of the uterus, including the cervix)
- Chemotherapy: Drugs (pills and/or intravenous medications) are used to shrink 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 as well as women. It is also tied to specific strains of HPV. An anal Pap smear and physical examination are the best ways to detect anal dysplasia. It is important to ask your health care provider to perform these tests on a regular basis. Because some of the same strains of HPV that cause cervical cancer can cause anal cancer, getting vaccinated with one of the two FDA-approved HPV vaccines can help to 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 HIV+ people receive 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, you may need an anoscopy (an exam of your anus using a microscope to look at the tissue more closely)
 - During the anoscopy, your health care provider may remove a tissue sample (biopsy) for laboratory examination to determine if the abnormal cells are cancerous

Treatment for dysplasia or cancer that that is very localized

- 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

Treatment for anal cancer

- Chemotherapy with radiation

Liver Cancer

The increased risk for liver cancer among HIV+ people is strongly linked to infection with the hepatitis B ^[4] and/or hepatitis C ^[5] viruses (HBV and HCV, respectively). Researchers have also shown a direct link between having a low CD4 cell count and having an increased risk for liver cancer. Other factors involved in damaging the liver include opportunistic infections ^[7] (e.g., Mycobacterium avium complex, tuberculosis, cytomegalovirus, and cryptosporidium), excessive alcohol and recreational drug use, and even some HIV drugs.

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 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. In the US, it is the leading cause of cancer-related deaths among both women and men.

An increased risk of developing lung cancer is also strongly tied to smoking. Both the duration (how long) and amount (how much or how many per day) of smoking contribute to the risk for lung cancer. Second-hand smoke exposure (breathing smoke in the environment) also contributes to an increased risk for lung cancer. The best way to prevent lung cancer is to avoid or stop smoking. For more information, see our article on [Smoking and Tobacco Use](#) ^[11].

Symptoms

- Cough, with or without phlegm or mucus
- Coughing up blood
- Shortness of breath
- Chest pain
- Fatigue
- Loss of appetite

Diagnosis

- Sputum sample for microscopic examination, which shows if abnormal cells are present in the lungs. Sometimes a person can cough up the sputum (mucus or phlegm). If not, a procedure known as bronchoalveolar lavage (BAL) can be done. In this procedure, sputum is obtained by placing a small scope down the windpipe.
- Bronchoscopy: insertion of 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: removal of 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 HIV+ people. On-going medical care allows for early diagnosis and treatment, or even prevention, in the case of cervical and anal cancers.

Seeing your health care provider on a regular basis and taking your HIV drugs regularly can help keep your immune system strong and your CD4 cell counts up. This also helps fight off cancers.

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Additional Resources

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[HIV and AIDS-related cancer \(American Society of Clinical Oncology\)](#) [34]

[Cancer and HIV/AIDS \(The Body\)](#) [35]

[How Are HIV and AIDS Related to Cancer? \(ACS\)](#) [36]

[Cancer Vaccine Proves Effective in HIV Patients \(NYT\)](#) [37]

[KS-associated IRIS common among people starting HIV therapy in Africa \(AIDSmap\)](#) [38]

[Cervical Cancer and HIV in Women \(SAfAIDS\)](#) [39]

[HIV-Positive Females Have High Anal Cancer Rates \(Medical News Today\)](#) [40]

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- [37] http://www.nytimes.com/2014/04/22/health/cancer-vaccine-proves-effective-in-hiv-patients.html?_r=0
- [38] http://www.aidsmap.com/KS-associated-IRIS-common-among-people-starting-HIV-therapy-in-Africa/page/2605674/?utm_source=NAM-Email-Promotion&utm_medium=hiv-weekly&utm_campaign=hiv-weekly
- [39] <http://www.saf aids.net/content/cervical-cancer-and-hiv-women>
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