

HPV, cervical dysplasia and cervical cancer

Summary

Cervical dysplasia is an abnormal change in the cells of the cervix in the uterus. Early changes, called low-grade lesions by doctors, may persist and develop into high-grade lesions that can lead to cervical cancer. Mildly abnormal cervical cells will usually clear up on their own. Both cervical dysplasia and cervical cancer can be best treated effectively when they are caught early. A sexually transmitted virus called HPV (human papillomavirus) causes most cervical dysplasia and all cervical cancers. Cervical dysplasia is common in HIV-positive people who have a cervix. However, among HIV-positive people living in high-income countries who get regular gynecological monitoring and care, cervical cancer is not common.

Key messages on HPV for clients are available at the end of this fact sheet.

The words we use here – CATIE is committed to using language that is relevant to everyone. People use different terms to describe their genitals. This text uses medical terms, such as vagina and penis, to describe genitals. Cisgenderⁱ people can often identify with these terms. Some transgenderⁱⁱ people may use other terms, such as front hole and strapless. CATIE acknowledges and respects that people use words that they are most comfortable with.

Dysplasia and cancer of the cervix

The cervix is the opening of the uterus (womb) that leads into the vagina. The cervix can be felt with the tip of a finger inside the vagina.

In cervical dysplasia, abnormal cells develop on the surface of the cervix. These abnormal cells are called lesions. Cervical dysplasia lesions can **regress** (which means they shrink and may even disappear), **persist** (the lesions remain

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Published
2016

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present but don't change), or **progress** to become a high-grade lesion or cervical cancer.

Cervical cancer is an abnormal growth of the cells of the cervix. Over a number of years, abnormal lesions on the cervix can slowly turn into cancer.^{1,2,3}

What causes cervical dysplasia and cancer?

Cervical dysplasia and cancer have been linked to a very common virus called human papillomavirus (HPV). There are over 100 strains of HPV, about 40 of which can be transmitted sexually. Some strains cause warts, including genital warts (abnormal growths on the skin), some lead to cancer of the genitals or anus, the intestines or the lungs, throat and mouth. Some have no known effect.

The immune system helps protect against the development of cervical dysplasia and cancer. People whose immune systems are weakened by transplant drugs or illnesses such as HIV are at greater risk for HPV infection, cervical dysplasia, and cervical cancer. Women and transgender men who have HIV are at higher risk, and this risk seems to increase as the CD4+ counts drop.

Although HPV is necessary for cervical cancer, other factors contribute to the development of cervical dysplasia and cancer. Cigarette smoking has been linked to this condition. Cancer-causing chemicals in cigarette smoke concentrate in cervical fluids and these can affect the health of cervical cells, increasing the risk that these cells become abnormal. Having had a prior sexually transmitted infection (STI), having been pregnant many times, or eating a poor diet can also increase the risk of cervical dysplasia and cancer. Because HPV is sexually transmitted, having multiple sexual partners will increase a person's risk of being exposed to this virus. However, even people with few partners are still at risk of being infected by HPV.^{3,4,5,6}

Symptoms

Usually, there are no symptoms of cervical dysplasia. Genital warts are a sign that someone has been exposed to certain types of HPV, which are different from the types that are most likely to lead to cervical dysplasia and cancer. It is important to note

that people can have HPV and not have genital warts or any other symptoms.

Similarly, there are often no physical symptoms of cervical cancer, especially in the early stages. In advanced stages of cervical cancer, there may be pain in the abdomen or lower back, pain or bleeding while having vaginal intercourse, unusual vaginal discharge, or bleeding between menstrual periods.^{2,3}

Diagnosis—Pap tests and colposcopy

Regular pelvic examinations including Pap tests and HPV testing can help diagnose or monitor HPV, cervical dysplasia or cancer. To do a Pap test, the doctor inserts a tiny brush and a small wooden spatula into the vagina and rubs them over the cervix to loosen and collect cells. The cells are smeared on a glass slide that is sent to the lab for study. The Pap test helps identify abnormal cells. For people with HIV, Pap tests are usually done twice during the first year after HIV diagnosis, followed by once a year if the first two tests showed normal results. However, many physicians with HIV-positive people in their care recommend doing a Pap test every six months.

Although Pap tests are useful, they can produce "false-negative" results. In other words, the lab may report a test result as "normal" when there actually are changes in the cells of the cervix. This is the reason why HPV testing is being used more and more in addition to Pap tests. For HPV testing, doctors can collect a small amount of fluid from the cervix and have it tested for the presence of HPV.

Many doctors recommend that people with a cervix who have been newly diagnosed with HIV have a colposcopy. A colposcope is a microscope that looks into the vagina, which has been opened by a speculum, and allows the doctor to visually examine the cervix. The cervix is lightly washed with a weak vinegar solution before the colposcope is put in place. The vinegar solution makes abnormal cells stand out more clearly against the surrounding tissue.

When a colposcopy is performed, a biopsy (removal of a tiny piece of tissue from the cervix) and sometimes an endocervical curettage (the scraping

of tissue from the cervix) will be done by the doctor. This procedure can be somewhat painful or cause cramps. The biopsy sample allows lab technicians to study the tissue and confirm the status of cervical tissue.

Pap tests are done by family physicians and gynecologists as part of regular medical care. However, colposcopies and biopsies are done mostly, but not exclusively, by gynecologists.

An HIV-positive person with signs of abnormalities on the cervix, vagina, or vulva should also have an anoscopy, or visual inspection of the anus and anal canal using a microscope similar to a colposcope. This is because the cell changes caused by HPV can also occur in the anus and lead to anal dysplasia.^{1,7}

Test results

The results of tests for cervical dysplasia can be described by a variety of medical terms.

Pap test results

Here are some of the most common test results:

- **Normal:** There is no evidence of abnormal changes in the cells sampled.
- **ASCUS (Atypical Squamous Cells of Undetermined Significance):** The cells are abnormal, but no definite diagnosis can be made. This test result can be caused by a yeast infection, using oral contraceptives, or problems with taking the sample. Usually doctors repeat the Pap test in a few weeks or test for the presence of high risk types of HPV.
- **LSIL (Low-grade Squamous Intra-epithelial Lesion):** This result means an acute infection. If it persists for at least two to three visits, it can be assumed that it could lead to cancer.
- **HSIL (High-grade Squamous Intra-epithelial Lesion):** This result means more advanced lesions.
- **AGC (Atypical Glandular Cells):** These abnormal cells are the precursors of about 20% of cervical cancers. These cells are very difficult to detect.

Biopsy Results

- **Normal:** There is no evidence of abnormal changes in the sampled cells.
- **CIN-1 (Cervical Intra-epithelial Neoplasia, grade 1):** This result means mild or low-grade dysplasia. If it persists for at least two to three visits, it can be assumed that it could lead to cancer. For this reason, CIN-1 is usually treated.
- **CIN- 2 or CIN-3:** This result means severe or high-grade dysplasia. All or almost all of the cells in the sample may be pre-cancerous and indicates the need for treatment in most cases.
- **CIS:** CIS stands for carcinoma in situ and means a small area of cancer has been found. Further tests will be done to find out if the cancer is confined to a small area or if it has spread (called invasive carcinoma).

If someone is diagnosed with HPV, partner notification is not required as a public health measure, unlike with a chlamydia, gonorrhea, syphilis or HIV diagnosis.^{3,6,8,9}

Treatment

Treatment for cervical dysplasia and cancer varies from one person to another, depending on the location and size of the lesion or cancer, and whether the lesion is low grade or high grade or whether the cancer has spread to other parts of the body. Whether or not the person wishes to become pregnant also affects treatment decisions. People with cervical cancer may be referred to a gynecologist-oncologist or an oncologist—a doctor who specializes in the treatment of cancer.

There are several ways that cervical dysplasia may be treated:

- **Cryotherapy** destroys the lesion by freezing. This procedure can be done in the doctor's office. There can be some discomfort or pain. After the treatment, spotting and watery discharge are common.

- **Laser treatment** destroys the lesion with an intense beam of light. This procedure is often done in a day-surgery clinic. It can be uncomfortable and can cause spotting and discharge afterward.
- **LEEP** stands for loop electrosurgical excision procedure. The lesion is surgically removed by an electrical current that passes through a very fine wire loop and cauterizes the cervix at the same time so that it does not bleed afterward.
- **Cone biopsy** removes a cone-shaped piece of tissue from the opening of the cervix and can remove a lesion or very small cancer. It is usually done in a hospital with a laser or a scalpel and patients are given an anesthetic. Some bleeding and pain or discomfort is common after this treatment.

There are several treatment options if cancer is confirmed:

- **Surgery** may be used to remove cancerous tissue. If the cancer has spread, surgery to remove the cervix and uterus, called a hysterectomy, may be necessary. Sometimes the fallopian tubes, ovaries and lymph nodes from the pelvis are removed at the same time.
- **Radiation therapy** is often prescribed for cervical cancer that has spread beyond the cervix. In radiation therapy, high-energy rays are used to kill cancer cells.
- **Chemotherapy** may be used by itself or in addition to radiation therapy if the cancer has spread. Anticancer drugs are used in the blood to kill cancer cells.^{3,7,9}

After treatment

Although cervical dysplasia and cancer can be treated successfully, HIV-positive individuals are at high risk for having this cancer reappear. It is important to follow up treatment with regular Pap tests and a colposcopy every three to six months.¹⁰

Cervical dysplasia, HIV and ART

Because HIV and HPV are sexually transmitted, HIV-positive people are often co-infected with both

of these viruses. HIV weakens the immune system and in HIV-positive individuals, cervical dysplasia is common.

Taking ART (HIV antiretroviral therapy) can reduce the production of HIV, improve CD4 cell counts, and greatly lower the risk of developing many AIDS-related illnesses. ART cannot prevent cervical cancer. However, with regular gynecological exams and Pap tests, studies have found that cervical cancer is not common in these individuals in high-income countries.¹¹

Prevention

Practising safer sex by using condoms or having non-penetrative sex can help reduce the risk of becoming infected with HPV. However, condoms do not completely eliminate the risk of HPV transmission because the virus may be present on skin not covered by the condom. Condoms also reduce the risk of other STIs that contribute to the development of dysplasia and cancer. Stopping cigarette smoking can help reduce the risk of cervical dysplasia and cancer.

Three vaccines against HPV genotypes are available in Canada. Gardasil is approved for use in “females and males aged 9 to 26.” It protects against HPV types 16 and 18, which cause approximately 70% of cervical cancers, as well as HPV types 6 and 11, which do not cause cancer but cause approximately 90% of warts on or around the genitals and anus. Gardasil 9 protects against HPV types 6, 11, 16 and 18 as well as types 31, 33, 45, 52 and 58 which can also cause cancer. Cervarix is only approved for use in “females aged 10 to 25.” It protects against HPV types 16 and 18 only.

In clinical trials with cisgender¹ girls and young women, the vaccines have provided a very high level – over 90% – of protection against complications, such as cervical and anal dysplasias and genital warts, related to the HPV genotypes targeted. Indicators of protective effects have lasted for at least 10 years after vaccination in some trials. For either vaccine to work, three doses given over six months are necessary.

The vaccines do not provide protection against HPV that people are already infected with, but provide

excellent protection against HPV the person has not been exposed to. Also the vaccines have *not* been shown to be effective for the treatment of established HPV infection and are not approved in Canada for this use. Gardasil and Cervarix should be avoided in people who are pregnant. Gardasil can be given to people who are breastfeeding, while Cervarix should only be used during breastfeeding when the possible advantages outweigh the possible risks.

It is important to remember that even if someone has received one of the vaccines, they are only protected against the cancer-causing HPV types covered by the vaccine they have received. Regular medical check-ups with pelvic examinations and cervical cancer screening with Pap tests for women and transmen in their 20s and viral testing starting in their 30s are still needed to help all people, regardless of their HIV status, reduce their risk of cervical cancer and watch for signs of cervical dysplasia and cancer.^{1,3,5,12,13,14,15}

The bottom line

Cervical dysplasia is **not** cancer but must be treated to prevent the possibility of it developing into cancer. Cervical cancer is a serious condition, especially for HIV-positive people. The earlier it is found, the better the chances are for successful treatment.

The risk of acquiring HPV, developing cervical dysplasia and cervical cancer may be reduced by:

- getting one of the HPV vaccines
- practising safer sex to reduce the risk of HPV infection
- quitting cigarette smoking
- getting regular Pap tests and, if appropriate, colposcopies and anoscopies
- if HIV positive, taking an effective ART combination^{3,7,10,15}

Footnotes

i Cisgender – someone whose gender identity aligns with the sex they were assigned at birth

ii Transgender – an umbrella term that describes people with diverse gender identities and gender expressions that do not conform to stereotypical ideas about what it means to be a girl/woman or boy/man in society .

(Definitions taken from *Creating Authentic Spaces: A gender identity and gender expression toolkit to support the implementation of institutional and social change*, published by The 519, Toronto, Ontario.)

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This fact sheet was developed in partnership with the Sex Information and Education Council of Canada (SIECCAN).

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Disclaimer

Decisions about particular medical treatments should always be made in consultation with a qualified medical practitioner knowledgeable about HIV- and hepatitis C-related illness and the treatments in question.

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Production of this document has been made possible through a financial contribution from the Public Health Agency of Canada. The views expressed herein do not necessarily represent the views of the Public Health Agency of Canada.

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What you need to know about human papillomavirus (HPV)

Human papillomavirus (HPV) is a sexually transmitted infection (STI) that is most easily passed on during sexual contact. Most HPV infections will go away without treatment, but some types of the virus can cause genital or anal warts or lead to cancer. HPV cannot be cured by medication, but a vaccine is available to prevent some types of HPV. Consistent condom use can reduce but not eliminate the risk of getting or passing on HPV during sex.

The words we use here – CATIE is committed to using language that is relevant to everyone. People use different terms to describe their bodies. This text uses medical terms, such as vagina and penis, to describe genitals. Other people may use other terms, such as private parts or dick or front hole. CATIE acknowledges and respects that people use words that they are most comfortable with.

What is human papillomavirus (HPV)?

HPV is a sexually transmitted infection (STI). There are many different types of HPV, and they can infect different parts of the body. A person with HPV can pass it on to another person during sex.

Most types of HPV do not cause any health problems, and most HPV infections clear up on their own without treatment. However, infection with some types of HPV can lead to genital or anal warts, while some others can lead to cancer of the cervix, anus, penis or throat.

Many people with HPV have no symptoms so they don't know they have an infection. Genital or anal warts are a symptom of HPV infections with certain types of the virus. These warts are painless bumps on the genitals, anus or buttocks. The warts can be different sizes and shapes. It can take a long time (months or years) for symptoms to develop and be noticed.

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Could I get HPV?

Anyone who is sexually active, including people who experience sexual violence, can get HPV.

HPV is most easily passed on during sex without a condom; this includes vaginal intercourse and anal intercourse.

HPV can also be passed on:

- through oral sex
- through oral-anal contact (rimming)
- through sharing sex toys or during a hand job or fingering if infected fluids get onto the toy or hand
- through skin-to-skin contact of the genitals (even if no body fluids are present)

HPV and HIV

People with HIV who have infections with HPV types that can lead to cancer are at increased risk of developing cancer. People with HIV who have infections with HPV types that can cause genital warts are more likely to get genital warts. These warts may be more difficult to treat than in people without HIV and they may come back more frequently.

What can I do to be healthy?

Prevent infection

Get vaccinated against HPV. In Canada, it is recommended that all people get vaccinated by age 12 to prevent getting HPV. Gay youth (older than 9 years) and men and other men who have sex with men should also be vaccinated. The vaccine cannot treat an HPV type that a person currently has. Talk to your healthcare provider about your options.

Use a condom during vaginal intercourse and anal intercourse.

Use a condom or oral dam during oral sex.

Get tested

A Pap test looks at cells of the cervix or anus for changes that could lead to cancer. An HPV test of the cells collected during a Pap test can determine if HPV is present as well as determine if the type of HPV is high risk for developing cancer.

Doctors can perform a digital anal exam (where the doctor uses a gloved finger) or use anoscopy (where the doctor uses a scope) to check for lumps or changes in the anal canal that could be precancerous.

Get treated

HPV cannot be cured with medication. A doctor can treat warts, but the warts may come back and the person will still have HPV until the infection goes away. As long as the person has HPV, they could pass it on to others.

Any tests that indicate the possibility of cancer or precancer need follow-up by a doctor.

This information sheet was developed in partnership with the Sex Information and Education Council of Canada (SIECCAN).



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