

# HPV, anal dysplasia and anal cancer

## Summary

Anal cancer typically develops over a period of years, beginning with a precancerous condition called anal dysplasia.

Anal dysplasia occurs when clusters of abnormal cells form lesions in the mucosa lining of the anal canal (between the anus and the rectum). The lesions typically form inside the anal canal or just outside the anal opening.

Although there are over 100 different types of the human papillomavirus (HPV), anal dysplasia is usually caused by certain strains of HPV which can be transmitted sexually. HPV can shut off the proteins that help prevent dysplasia and cancer cells from developing, therefore leading to HPV-associated diseases such as anal dysplasia.

It is difficult to screen for anal dysplasia since the lesions are not detectable by routine examinations. As a result, anal dysplasia is often not detected until it has developed into anal cancer, which can be difficult to treat depending on the severity.

Specific screening tests can detect dysplasia or precancerous changes. If these precancers are treated, anal cancer may be prevented. Anal cancer is usually treated with radiation and chemotherapy or with surgery.

Although anal dysplasia may be treated successfully, individuals with HIV are at increased risk of it recurring and may need to be monitored closely by a trained physician.

Consistent condom use reduces, but does not eliminate, the risk of transmitting HPV. Avoiding unprotected receptive anal

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intercourse (bottoming) can help reduce the risk of acquiring anal HPV.

Quitting smoking can also help reduce the risk of anal dysplasia and anal cancer.

Getting regular anal Pap smears and digital rectal exams may also help reduce the risk for those who engage in receptive anal intercourse.

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

## What are anal dysplasia and anal cancer?

Anal cancer starts as a precancerous condition called anal dysplasia, which is the result of abnormal changes in the cells that make up the lining (mucosa) of the anal canal or anus. Over time, these abnormal cells can develop into anal cancer, which can spread to other parts of the body if it is malignant.

Anal dysplasia begins when abnormal cells cluster together to form a visible pattern (lesions) inside the anal canal, which extends from the anal opening (anus) to about 4 cm inside the body where it joins the rectum. The lining of the anal canal has pink tissue called mucosa, similar to the inside of the cheek. In anal dysplasia, abnormal cellular changes in the anal mucosa can result in dysplastic lesions.

Lesions typically occur in two places: in the “junction,” where the anal canal meets the rectum and in the perianal skin, just outside of the anal opening. Anal cancer can develop at the site of the lesions.

Some lesions form but then shrink or disappear, some lesions return after disappearing, some remain present without changing, and other lesions progress from low-grade to high-grade precancerous lesions, which may progress to cancer. Anal cancer develops when high-grade changes travel into deeper tissue layers.<sup>1,2,3</sup>

## What causes anal dysplasia and anal cancer?

Abnormal cell changes can occur in the absence of an anal HPV infection, but anal dysplasia is often caused by HPV.

HPV is a very common virus with over 100 different strains, some of which can be transmitted sexually. Most sexually active people will acquire HPV at some point in their lives. In most cases, an HPV infection will clear from the body. The human body produces cells that make proteins, which help prevent dysplasia and cancer. In some cases HPV can shut off these proteins, allowing dysplasia (and ultimately cancer) to develop.

Specific strains of HPV (especially 16 or 18) can lead to anal and cervical cancer so they are called high-risk or oncogenic (cancer-producing) strains. (Non-oncogenic HPV strains 6 and 11 are responsible for most cases of genital/anal warts.)<sup>1,4,5</sup>

## Who is at risk?

Since anal dysplasia can lead to anal cancer, the two conditions share many risk factors.

People who have receptive anal intercourse are at increased risk for HPV infection of the anus, anal dysplasia and anal cancer.

Because cancer of the cervix, vagina and vulva is associated with HPV infection, people with a history of these cancers are at increased risk of anal cancer.

In addition to infection with HPV, other risk factors for potentially developing anal dysplasia and anal cancer include: poor immunity (such as resulting from organ transplants), being over age 50, cigarette smoking and injection drug use.<sup>1,4,6,7,8</sup>

## Symptoms

There are often no specific symptoms of anal dysplasia until it is quite advanced, at which point it can develop into anal cancer. A doctor may not be able to detect the signs of anal dysplasia during a digital exam.

Anal warts, however, may be associated with lumps in and around the anus, although many warts inside

the anal canal produce no symptoms. The presence of anal warts is a sign that there is an HPV infection present and a possible cancer risk if other HPV strains are also present.

In advanced anal cancer, there may be lumps, anal pressure or pain, anal itching or bleeding, abnormal discharge from the anus, or change in bowel habits (changes to bowel size or constipation and/or diarrhea). Because not all of these symptoms are specific to anal cancer, it can be difficult to detect.

When anal cancer has spread, there may be lumps in the groin where the cancer has reached the lymph glands.<sup>3,5,9</sup>

## Complications

The lesions that develop as a result of anal dysplasia can develop into precancerous lumps and eventually develop into anal cancer if not detected and treated. Because anal dysplasia is hard to detect with routine screening, it may not be diagnosed until anal cancer has fully developed.

If the cancer has spread deeply into the tissues of the anal canal and/or rectum, removing the cancer may impair the function of the bowels.

If anal cancer is not diagnosed and treated early, the cancer may spread to other parts of the body and more aggressive cancer treatments may be required (such as radiation or chemotherapy).<sup>1,4,5</sup>

## Testing and diagnosis (screening)

Regular medical check-ups with anal examinations by your doctor will help detect early cancers, but not anal dysplasia. Anal Pap smears can help detect precancerous changes, such as the early signs of dysplasia, but may not be able to identify lesions (which may or may not develop into precancerous formations). A person with ongoing problems with anal pain, bleeding or other discomfort should have an anal canal examination.

An anal canal examination can take several forms. A digital rectal exam is when the doctor places a gloved finger in the anal canal to feel for lumps. If anal cancers are detected when they are small, for example by anal exam with a finger, then the treatments are easier and the outcomes are better.

Another way to screen for anal dysplasia is through anoscopy. This is a visual examination of the anal canal mucosa using an anoscope with a bright light. An anoscope is a small hollow plastic tube that is inserted a few centimetres into the anal canal to inspect for abnormal cells. The anoscope is inserted with lubricant to prevent any discomfort. There is a special kind of anoscopy called high-resolution anoscopy (HRA), which uses a magnifier to provide more detailed images of the mucosa. During the HRA procedure, lesions are enhanced by first applying a thin layer of dilute vinegar to the mucosa and then iodine to highlight any abnormal or precancerous areas. A biopsy is taken of an abnormal area to confirm a high-grade lesion is present. Pain is rare. No bowel preparation is necessary before this procedure. HRA is not widely available as it must be performed by a trained and specialized healthcare professional.

A digital exam usually cannot detect anal dysplasia because these high-grade lesions cannot be felt. Also, CT (computed tomography) scans or MRIs (magnetic resonance imaging) do not detect dysplasia, but may detect cancer. Other examinations, such as sigmoidoscopy and colonoscopy, do not adequately examine the anal canal. Do not assume you have been screened for anal cancer if you have had a colonoscopy.

Dysplasia and cancer can also be diagnosed in the anal canal with a Pap smear similar to that used to detect cervical cancer. This screening takes around five minutes to complete. An anal Pap smear involves putting a cotton swab into the anus. Cells collected from a swab inserted in the anus are examined under a microscope for precancerous or cancerous changes. In people at high risk for anal cancer, the anal Pap smear and HRA should be done yearly where facilities exist.

Although Pap smears are useful, they can produce “false-negative” results, which means that the report result may be “normal” when there really is dysplasia found in the anal canal by HRA. The Pap smear can also give a “false-positive” result, which means that the report result may state that signs of dysplasia are present when there is no dysplasia present.

If a lesion or other abnormality is detected in the anal canal, the doctor may refer the person to an anorectal specialist known as an anoscopist. As part of the investigation, the specialist may take a piece of tissue (anal biopsy) from the anal canal. Pathologists can look at this tissue under a microscope to confirm a diagnosis or rule out dysplasia or cancer. If the cancer has spread outside of the anus, it can be detected by a CT (computed tomography) scan or an MRI (magnetic resonance imaging).

Some anal cancers occur just outside of the anal canal (perianal area). These can be visible by spreading the buttock cheeks. A biopsy of the perianal skin will confirm the diagnosis.<sup>1,5,7</sup>

## Notification of partners

HPV, anal dysplasia and anal cancer are not reportable in Canada.<sup>10</sup> Partner notification is not required as a public health measure, unlike with a diagnosis of chlamydia, gonorrhoea, syphilis or HIV.

## Treatment

Treatment procedures vary based on whether or not signs of anal dysplasia or signs of precancerous changes are present.

For anal dysplasia, treatment varies with the size of the lesion(s) and whether or not they are low-grade (typically monitored for signs of progression) or high-grade lesions, which may be treated by the following:

- *Laser Treatment or Treatment by IRC (Infra-Red Coagulator)*: This destroys the lesion with an intense beam of light and heat. It can be uncomfortable and can cause pain (so the area must be “frozen” with a local anesthetic) and there may be slight bleeding afterwards. However, it can be done in a day-surgery clinic and one treatment may be enough.
- *Electrocautery (EC)*: The lesion is destroyed with a gentle brushing technique and the dead tissue is removed with an instrument called forceps. This is the same instrument that takes the biopsy. EC may also cause some discomfort and pain; however, a numbing agent is used

prior to the procedure and one treatment session is often enough.

- *TCA (trichloroacetic acid)*: The lesion is treated by being touched with acid-soaked cotton. This is simple and painless but four or more treatments may be needed over several weeks.
- *Surgery*: The lesion is cut out by a surgeon.
- *Watch and wait*: Sometimes the dysplasia is too widespread to remove without causing damage to the anus. In this case, your doctor may just observe it for months or years. If cancer does develop, it can be treated very early and with good results.

For precancerous areas, treatment may be laser therapy, by applying acid to the abnormal area, or by surgical removal of part of the lining of the anal canal. These precancerous changes have a high risk of recurring.

If cancer is present, treatment usually involves a combination of radiation and chemotherapy. Surgical removal of the tumour may be done when possible; if the cancer is small, this may be enough. If the cancer has already spread more deeply into the tissues, trying to remove just the cancer may impair the function of the anus (which is to help regulate the passage of your stools). In this case, the anus and part of the rectum are removed and stool is diverted to a bag attached to the body (this procedure is called a colostomy). Early diagnosis and treatment is important, because people with advanced forms of anal cancer are at increased risk if the cancer spreads to other areas of the body.<sup>3,5,7</sup>

## What about HIV?

People with HIV may be at higher risk of developing anal cancer because their immune system is compromised and their cells may not be able to successfully fight an HPV infection. It is recommended that individuals with HIV who are treated for anal dysplasia be monitored regularly in case of a recurring HPV infection.

Using an effective HIV treatment regimen (also known as antiretroviral therapy or ART) can lower the risk of developing some AIDS-related cancers

and infections. However, ART does not specifically prevent anal cancer.<sup>1,3</sup>

## Prevention

HPV infections are very common. They are frequently temporary; however, it is important for people to have a regular medical checkup and screen for anal dysplasia especially if they are at risk for HPV infection.

Because HPV can be transmitted via skin-to-skin contact, it can be passed even when bodily fluids are not shared. The correct and consistent use of condoms can reduce the risk of transmitting HPV, but does not eliminate the risk completely because HPV may be present on the skin not covered by a condom.

Using condoms when using sex toys so that bodily fluids are not exchanged can reduce the risk of HPV transmission and other sexually transmitted infections.

Reducing tobacco use can help reduce the risk of anal dysplasia and subsequently anal cancer.

HPV vaccines are very effective in preventing genital HPV cancers and precancers, especially for someone who has never been infected with the HPV 16 or 18 strains. The HPV vaccine only covers some of the strains of HPV. However, it does cover those that most commonly cause cancers. People who have had many sexual partners may have already been infected with certain HPV types and the vaccine may not work.

HPV vaccines are safe but expensive; only certain provinces provide the vaccine through government funding and the vaccines are only covered by some private insurance plans.<sup>1,12,13,14</sup>

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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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# 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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