Anal cancer is a disease in which cancer cells are present just inside or immediately outside the anus.

Most cases of anal cancer are linked to human papillomavirus (HPV), a very common infection that can be passed on during sex. HPV is not a single virus – there are about 150 types of HPV that have different effects. Some types of HPV don’t seem to do any harm, other types cause anal and genital warts, while others can cause anal and cervical cancer. HPV16 and HPV18 are the types most likely to cause cancer.

Most adults have had HPV infection. Very often, the body can get rid of the virus without you ever knowing you had it. In people living with HIV, the body seems to be less able to get rid of HPV on its own.

A minority of people who have HPV develop abnormal cell changes in or around the anus. This is not cancer. Moreover, most people who have these abnormal cells do not go on to have cancer. It is important to distinguish between:

- Infection with HPV.
- Abnormal cell changes that don’t seem to be linked to cancer. They don’t need treatment. Doctors may refer to these abnormal cells as low-grade anal intraepithelial neoplasia (AIN) or low-grade squamous intraepithelial lesion (SIL). In this factsheet, we call them low-grade AIN.
- Abnormal cell changes that are associated with a small risk of developing cancer.

Key points

- Rates of anal cancer are higher in people with HIV than other people.
- Most people who have abnormal cell changes in their anus do not go on to have anal cancer.
- Guidelines don’t recommend screening for anal cancer in people who don’t have symptoms.
- Younger people with HIV should get the HPV vaccine to prevent anal and other cancers.
in the future. Often these abnormal cells will go away on their own, but in case they don’t, many doctors would recommend treatment. These abnormal cells may be called \textit{high-grade} anal intraepithelial neoplasia (AIN) or \textit{high-grade} squamous intraepithelial lesion (SIL). In this factsheet, we call them high-grade AIN.

- Anal cancer. Cancer cells grow and multiply out of control. They may form a mass (tumour) and invade nearby tissues. Anal cancer can be life threatening.

It’s not clear whether it’s a good idea to be screened for AIN when you don’t have any symptoms. Some doctors believe that finding and treating high-grade AIN promptly will prevent cases of anal cancer that would be much harder to treat later on, so they think it is worth getting tested regularly.

On the other hand, other doctors argue that current treatments aren’t good enough to make screening worthwhile in people who haven’t got symptoms. The treatments can be uncomfortable, have side-effects and don’t always stop high-grade AIN from recurring. It could be worrying to find out that you have AIN, but if you didn’t know you had it, it’s possible that it would go away on its own or cause you no harm.

Current guidelines don’t recommend widespread screening for AIN or anal cancer. Cases are usually picked up when people have symptoms. There’s more information on symptoms below.

\textbf{Preventing HPV and anal cancer}

\textbf{You can reduce your risk of HPV and cancer by getting vaccinated.} HPV vaccination can prevent several cancers (including anal and cervical cancer) and also genital and anal warts.

The younger you are, the more likely you are to benefit. If you are older, it is more likely that you have already been exposed to several types of HPV, making the vaccine less effective.

The British HIV Association recommends that the following groups of people living with HIV receive the HPV vaccine: women up to the age of 40, gay men and other men who have sex with men up to the age of 40, and heterosexual men up to the age of 26.

Vaccination involves taking a course of three injections, over a six-month period. You can ask your HIV or sexual health doctor about getting vaccinated.

Using a condom during sex can also help to prevent HPV infection.

\textbf{Who is at risk?}

High-grade AIN and anal cancer are rare in the general population, but rates are much higher in people with HIV and other individuals with weakened immune systems.

People who have had receptive anal sex, more sexual partners or genital warts are more
likely to be infected with multiple types of HPV. This makes high-grade AIN and anal cancer more likely.

Nonetheless, high-grade AIN and anal cancer can develop in people who have never had anal sex or HIV.

Smoking makes abnormal cell changes happen more quickly. Stopping smoking can reduce your risk of anal cancer and may help prevent high-grade AIN progressing to cancer.

The risk of high-grade AIN and anal cancer increases as you get older.

Women who have previously had abnormal cervical screening results have a higher risk of anal cancer than other women. This is because HPV can spread between the genitals and the anus.

**Anal cancer in people living with HIV**

People living with HIV are at much greater risk of having high-grade AIN or anal cancer than other people. It seems that HIV’s effect on the immune system reduces the body’s ability to keep HPV infection under control.

Taking HIV treatment and maintaining a high CD4 count help protect against AIN and anal cancer, but anal cancer can occur in people taking effective HIV treatment. Because people with HIV are living longer, cancers like this have more time to develop.

A large study tracked around 35,000 Americans living with HIV. It confirmed that rates of anal cancer were much higher than in people who don’t have HIV. It also showed different rates between gay men, heterosexual men and women:

- In a group of 1000 gay men living with HIV, followed for 10 years, around 13 will develop anal cancer during that time.
- In a group of 1000 heterosexual men living with HIV, followed for 10 years, around 5 will develop anal cancer.
- In a group of 1000 women living with HIV, followed for 10 years, around 3 will develop anal cancer.

You may hear about other research findings on anal cancer in people with HIV which sound worrying. These research findings need to be carefully interpreted. In particular, it’s important to take note of whether the results are about low-grade AIN, high-grade AIN or anal cancer, as described at the beginning of this factsheet. It’s unclear how many people with AIN will go on to have anal cancer.

If you are diagnosed with anal cancer but haven’t been tested for HIV, your doctor will discuss HIV testing with you. This is because people who have anal cancer sometimes have HIV without realising it.
Symptoms

Anal cancer can cause symptoms in the anal area, including bleeding, pain, discomfort, itching, small lumps or ulcers on or inside the anus, a discharge, and difficulty controlling your bowels.

People with low or high-grade AIN often have no symptoms, but it sometimes causes similar symptoms to anal cancer.

Similar symptoms can be caused by common health problems like haemorrhoids. It’s worth having them checked by a sexual health doctor or your GP. While some people are embarrassed or uncomfortable discussing this area of their body, it’s not unusual for doctors to examine the anus.

Diagnosis and monitoring

If you have had any of the symptoms mentioned above, a first check could be a rectal examination. This involves your doctor inserting a gloved finger into your back passage to feel for any lumps or swellings.

Some clinics use anal smear tests to check for AIN. A small swab is passed just inside your anus to collect cells, which are suspended in fluid, stained and examined under a microscope (a process called cytology).

A different technique to check for AIN is anoscopy. Its results seem to be more accurate in people living with HIV than the smear test. A small magnifying device is inserted into the anus in order to visually examine the cells of the anal canal. This should take a few minutes and is not painful.

If necessary, a biopsy will be taken during the anoscopy. Tiny samples of tissue are removed, under local anaesthetic to minimise any discomfort. These cells will then be examined under the microscope in a process called histology in order to see whether they are normal cells, abnormal cells or cancerous cells.

Other examinations can include proctoscopy, which is similar to anoscopy but can also examine the rectum. Again, biopsies may be taken of what seems to be abnormal tissue. This is necessary to check if cells are cancerous.

If you have anal cancer, you will need further scans to find out more about the position of the cancer and to see if it has begun to spread. These include a CT (computerised tomography) scan and an MRI (magnetic resonance imaging) scan.

Treatment and management

If you have low-grade AIN, no treatment is needed. You may be asked to come back in six or twelve months for another screen.
If you have high-grade AIN, one of the following treatments may be offered:

- Surgery to remove lesions that cover only a small area.
- A cream that you apply yourself to the affected area, such as imiquimod (Aldara) or 5-flourouracil (Efudix). You'll do this two or three times a week for three or four months. This works best for wide areas of AIN, especially in the external skin.
- Ablative therapies. Various techniques are used to destroy the affected areas with heat or by freezing them. Some of the names of these techniques are electrocautery, laser ablation, infrared coagulation and cryotherapy.

None of these treatments has a 100% success rate – in many cases, the problem recurs. This may be because the treatments do not get rid of the underlying HPV infection. We still do not know whether prompt treatment of high-grade AIN really does prevent anal cancer. Studies are currently being done in order to find out.

The treatments can also have side-effects (such as skin irritation, pain and bleeding). For these reasons, some doctors would recommend ‘watchful waiting’ to people with high-grade AIN. This involves regular monitoring to check that the problem isn’t getting worse.

If you have anal cancer, the recommended treatment is chemoradiotherapy, in other words a combination of chemotherapy and radiotherapy, usually over a period of five weeks. Chemotherapy uses strong drugs to destroy cancer cells and prevent the cancer from spreading. Radiotherapy uses beams of radiation to destroy the cancer cells, in a localised area only.

Chemoradiotherapy is usually successful but does sometimes cause long-term complications. These can include problems in relation to your bladder, bowels and sexual function.

Chemotherapy and radiotherapy both suppress the immune system, which may result in a significant drop in your CD4 count. You should be given drugs to prevent opportunistic infections (this is known as prophylaxis). Your CD4 count may be checked more often after cancer treatment than it would be normally.

If chemoradiotherapy doesn’t get rid of all the cancer or if there are signs that it has come back, surgery may sometimes be used.

You need to see specialist doctors for the monitoring and treatment of both AIN and anal cancer. Depending on where you are, your local hospital may not have the necessary experience in this area. Also, it’s important that the doctors you see about anal cancer work together with your HIV doctor.

**Information and support**

For more information, you may find the website of Macmillan Cancer Support helpful:
Find out more

Human papillomavirus (HPV) and genital warts Simple factsheet
Sexual health check-ups Simple factsheet
Cancer and HIV Simple factsheet