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Prostate Cancer

Prostate cancer is a [cancer](#) which develops from cells in the prostate. It is the most common cancer in men in the UK. Each year, about 40,000 men are diagnosed with prostate cancer in the UK. It affects about 1 in 8 men in the UK at some point in their lives. Most cases develop in men over the age of 65 years.

Prostate cancer is often slow-growing, does not reduce life expectancy, and may not need treatment. In some cases it is more aggressive, spreads to other parts of the body and may benefit from treatment. In general, the more advanced the cancer (the more it has grown and spread), the less chance that treatment will be curative. However, treatment can often slow the progress of the cancer.

Prostate cancer is different to most other cancers because small areas of cancer within the prostate are actually very common, especially in older men. These may not grow or cause any problems for many years (if at all).

Causes

Although the exact cause is unclear, certain risk factors increase the chance that prostate cancer may develop. These include:

- Ageing. Most cases occur in older men.
- Family history and genetic factors. If your father or brother had prostate cancer at a relatively early age (before the age of 60 years) then you have an increased risk. Also, if the type of breast cancer which is linked to a faulty gene runs in your female relatives then you are at increased risk of prostate cancer. These factors point towards a faulty gene which may occur in some men.
- Ethnic group. Prostate cancer is more common in African-Caribbean men and less common in Asian men.
- Diet is possibly a risk factor. As with other cancers, a diet high in fats and low in fruit and vegetables may increase the risk.
- Exposure to the metal cadmium may be a risk.

Prostate cancer symptoms

Prostate cancer is often slow-growing. There may be no symptoms at first, even for years. As the tumour grows, it may press on and irritate the urethra, or cause a partial blockage to the flow of urine. Symptoms may then develop and can include one or more of the following:

- **Poor stream.** The flow of urine is weaker, and it takes longer to empty your bladder.
- **Hesitancy.** You may have to wait at the toilet for a while before urine starts to flow.
- **Dribbling.** A bit more urine may trickle out and stain your underpants soon after you finish at the toilet.
- **Frequency.** You may pass urine more often than normal.
- **Urgency.** You may have to get to the toilet quickly.
- **Poor emptying.** You may have a feeling of not quite emptying your bladder.

Note: all the above symptoms are common in older men. Most men who develop the above symptoms do **not** have prostate cancer but have a non-cancerous (benign) enlargement of the prostate. However, it is best to have any new symptoms checked out by a doctor.

Other symptoms such as pain at the base of the penis or passing blood occasionally occur. (These do not occur with benign prostate enlargement.)

If the cancer spreads to other parts of the body, various other symptoms can develop. The most common site for the cancer to spread is to one or more bones, especially the pelvis, lower spine and hips. Affected bones can become painful and tender. Sometimes the first symptoms to develop are from secondary tumours in bones.

How is prostate cancer diagnosed?

Initial assessment

If a doctor suspects that you may have prostate cancer, he or she will usually:

- Examine the prostate. They do this by inserting a gloved finger through the back passage (anus) into the rectum to feel the back of the prostate. An enlarged-feeling gland, particularly if it is not smooth to feel, may indicate prostate cancer. However, a normal-feeling prostate does not rule out prostate cancer.

- Do a blood test to measure the level of [prostate specific antigen \(PSA\)](#). PSA is a chemical which is made by both normal and cancerous (malignant) prostate cells. Basically, the higher the level of PSA, the more likely that you have cancer of the prostate. However, a mild-to-moderately raised PSA can occur in conditions other than prostate cancer. (If you have confirmed prostate cancer, the PSA blood test is also used to monitor treatment. If treatment is working and cancer cells are killed then the level of PSA falls.)

Biopsy

A [biopsy](#) is not always necessary to confirm a diagnosis of prostate cancer. Your doctor will be able to discuss the reasons for you to have a biopsy, if appropriate, with you in more detail.

A small biopsy of the prostate is taken by using a fine needle. This is usually done with the aid of a special ultrasound scanner. The probe of the scanner is about the size and shape of a finger. It is passed through the anus into the rectum to lie behind the prostate. This finds the exact position of the prostate. The doctor then pushes a fine needle into the back of the prostate from within the rectum to obtain the biopsy. Several samples are usually taken from different parts of the prostate.

Having a prostate biopsy can be uncomfortable. Therefore, local anaesthetic is used to reduce the pain as much as possible.

Editor's Note

Danny Buckland December 2018. A non-invasive scanning technique can now be used to potentially avoid the need for biopsies. The magnetic resonance imaging (MRI) scan, which has been approved by the National Institute for Health and Care Excellence (NICE), produces a detailed image of the prostate and could prevent unnecessary biopsies for those with low-risk cancer. It is hoped the system will make it easier to identify cancers earlier and reduce the need for further treatment. It is recommended as a first-line investigation for people with suspected clinically localised prostate cancer. You can find out more in the 'Further reading' section, below.

Assessing the severity and spread of prostate cancer

The severity of the disease is mainly based on three factors - the grade of the cancer cells, the stage of the cancer, and the blood PSA level.

Grade of the cancer

Samples of tissue (taken in the biopsy procedure) are looked at under the microscope to assess the cancer cells. By looking at certain features of the cells, the cancer can be graded. The common grading system used is called the Gleason Score.

A Gleason score of between 2 and 6 is a low-grade prostate cancer. It is likely to grow very slowly. A Gleason score of 7 is an intermediate grade that will grow at a moderate rate. A Gleason score of 8 to 10 is a high-grade cancer that is likely to grow more quickly.

Staging

If you are confirmed to have prostate cancer, further tests may be advised to assess if it has spread. These tests are not advised in all cases. It depends on factors such as your age and the grade of the tumour cells. Tests which may be done include [a bone scan](#), [a computerised tomography \(CT\) scan](#), [an MRI scan](#), [a tummy \(abdominal\) ultrasound scan](#) or other tests. This assessment is called staging of the cancer. The aim of staging is to find out:

- How much the tumour has grown and whether it has grown through the wall of the prostate and into nearby structures such as the bladder wall.
- Whether the cancer has spread to local lymph nodes.
- Whether the cancer has spread to other areas of the body (metastasised).

[See the separate leaflet called Stages of Cancer for more details.](#)

Treatment

Editor's Note

Dr Sarah Jarvis, 18th May 2019.

NICE Quality Standard on treatment of prostate cancer

The National Institute for Health and Care Excellence (NICE) has set out standards of treatment for care options for all people referred to hospital for possible prostate cancer or followed up with their GP for prostate cancer care.

They have published five standards that all doctors should try to provide for their patients. They depend on the stage of your cancer. They are:

1. Before you decide on treatment, you should have the opportunity to discuss your treatment options, and any possible side-effects these treatments may cause, with a cancer nurse specialist.
2. If you have been diagnosed with low-risk cancer which hasn't spread and your doctor and you have agreed that it would be possible for you to have radical treatment, you should be offered a choice of active surveillance and radical surgery or radiotherapy (you can find out more about these below).
3. If your cancer has not spread but has been judged to be intermediate- or high-risk, you may be offered surgery. Otherwise, you should be offered a combination of hormone treatment and radical radiotherapy.
4. You should be able to see a specialist if you have side-effects from cancer treatment.
5. If your cancer returns after hormone treatment, a specialist multidisciplinary team including urologists and cancer doctors should discuss your treatment options.

The treatment of prostate cancer is complicated. It varies tremendously between different cases. In addition, different men may choose to have different treatments compared to others with a similar type of prostate cancer.

Treatment options which may be considered include: surgery, radiotherapy, hormone treatment and, less commonly, chemotherapy. Often a combination of two or more of these treatments is used.

Treatment may aim to cure the cancer. In particular, the earlier the stage of the cancer, the better the chance of a cure. (Doctors tend to use the word remission rather than the word cured. Remission means there is no evidence of cancer following treatment. If you are in remission, you may be cured. However, in some cases a cancer returns months or years later. This is why doctors are sometimes reluctant to use the word cured.)

Treatment may aim to control the cancer. If a cure is not realistic, with treatment it is often possible to limit the growth or spread of the cancer so that it progresses less rapidly. This may keep you free of symptoms for some time.

Treatment may aim to ease symptoms. Even if a cure is not possible, treatments may be used to reduce the size of a cancer, which may ease symptoms such as pain. If a cancer is advanced then you may require treatments such as:

- Nutritional supplements.
- Painkillers.
- Other techniques to help keep you free of pain or other symptoms.

Treatment options for prostate cancer

- Active surveillance: in some cases it may be best not to have any active treatment but to see how the cancer develops. This is called watchful waiting.
- Surgery.
- Radiotherapy.
- Hormone treatment: two groups of medicines are available:
 - Medicines which work on the pituitary gland - for example, [goserelin](#), leuprorelin and triptorelin. (Your pituitary gland makes a hormone which circulates in the bloodstream to stimulate the testicles to make testosterone. These medicines stop your pituitary gland from making this stimulating hormone.) Goserelin is an implant that is injected under the skin. Leuprorelin and triptorelin are given by injection.
 - Medicines which block the action of testosterone (anti-androgen medicines) - for example, [flutamide](#) and [cyproterone](#). These medicines are tablets.
- Chemotherapy.

Other treatments

Cryotherapy (also known as cryosurgery) is an alternative treatment for men with early prostate cancer and recurrent prostate cancer. It is not yet available in all hospitals in the UK. It involves placing a number of metal probes through the skin and into the affected area of the prostate. The probes contain liquid nitrogen, which freezes and destroys the cancer cells.

High-intensity focused ultrasound (HIFU) treatment may be offered to some men, again with early prostate cancer. As this is still a relatively new procedure, it is not yet available in all hospitals in the UK. HIFU involves inserting a probe into the rectum. It is then pushed through the wall of the bowel into the prostate. The probe produces a high-energy beam of ultrasound which then heats and destroys the cancer. The probe is surrounded by a cooling balloon to protect the normal prostate tissue from damage.

What is the outlook (prognosis)?

The outlook for prostate cancer is very variable. Some prostate cancers are slow-growing and do not affect life expectancy. On the other hand, some have already spread to other parts of the body when they are diagnosed. The response to treatment is also variable.

The treatment of cancer is a developing area of medicine. New treatments continue to be developed and the information on outlook above is very general. The specialist who knows your case can give more accurate information about your particular outlook and how well your type and stage of cancer are likely to respond to treatment.

Screening for prostate cancer

Screening for prostate cancer is controversial. A routine blood test which shows a high PSA **may** indicate that you have prostate cancer. However, there are other causes of a high PSA. Also, many prostate cancers are slow-growing and do not cause problems, particularly in older men. Some experts believe that if all men were screened then there may be many men found with a raised PSA level. Many men may then be investigated and treated unnecessarily with all the possible risks and side-effects of the investigations and treatment. Put simply, some people believe that screening for all men may do more harm than good.

Currently there is no national screening programme in the UK. However, you can decide for yourself if you would like a PSA test. It is best to discuss the pros and cons of the test with your GP. After counselling, if you decide that you would like the test, many GPs will do the test on request. [See the separate leaflet called Prostate Specific Antigen \(PSA\) Test for more details.](#)

Further reading & references

- [Prostate cancer: diagnosis and treatment](#); NICE Clinical Guideline (January 2014)
- [Guidelines on Prostate Cancer](#); European Association of Urologists (2018)
- [Cancer of the prostate: ESMO Clinical Practice Guidelines for diagnosis, treatment and follow-up](#); European Society for Medical Oncology (2015)
- [Prostate Cancer Treatment](#); National Cancer Institute
- [NICE recommends non-invasive MRI scan for prostate cancer](#); NICE, December 2018
- [Quality standard on care of men followed up in primary care or referred to secondary care for suspected or diagnosed prostate cancer](#)

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