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Prostate cancer: English

Prostate cancer

This fact sheet is about how prostate cancer is diagnosed and treated.

We also have fact sheets in your language about chemotherapy, radiotherapy, surgery, side effects of cancer treatment, what you can do to help yourself, claiming benefits and end of life.

We hope this fact sheet answers your questions. If you have any more questions, you can ask your doctor or nurse at the hospital where you are having treatment.

If you would like to talk to our cancer support specialists about this information in your language, we have interpreters for non-English speakers. You can call the Macmillan Support Line free on **0808 808 00 00**, Monday–Friday, 9am–8pm. If you have problems hearing you can use textphone **0808 808 0121**, or Text Relay. Or you can go to our website **macmillan.org.uk**

This fact sheet is about:

What is cancer?

The organs and tissues of the body are made up of tiny building blocks called cells. Cancer is a disease of these cells.

Cells in each part of the body are different but most mend and reproduce themselves in the same way. Normally, cells divide in an orderly way. But if the process gets out of control, the cells carry on dividing and develop into a lump called a tumour.

Not all tumours are cancer. Doctors can tell if a tumour is cancer by removing a small sample of tissue or cells from it. This is called a biopsy. The doctors examine the sample under a microscope to look for cancer cells.

In a benign (non-cancerous) tumour, the cells may grow but cannot spread anywhere else in the body. It usually only causes problems if it puts pressure on nearby organs.

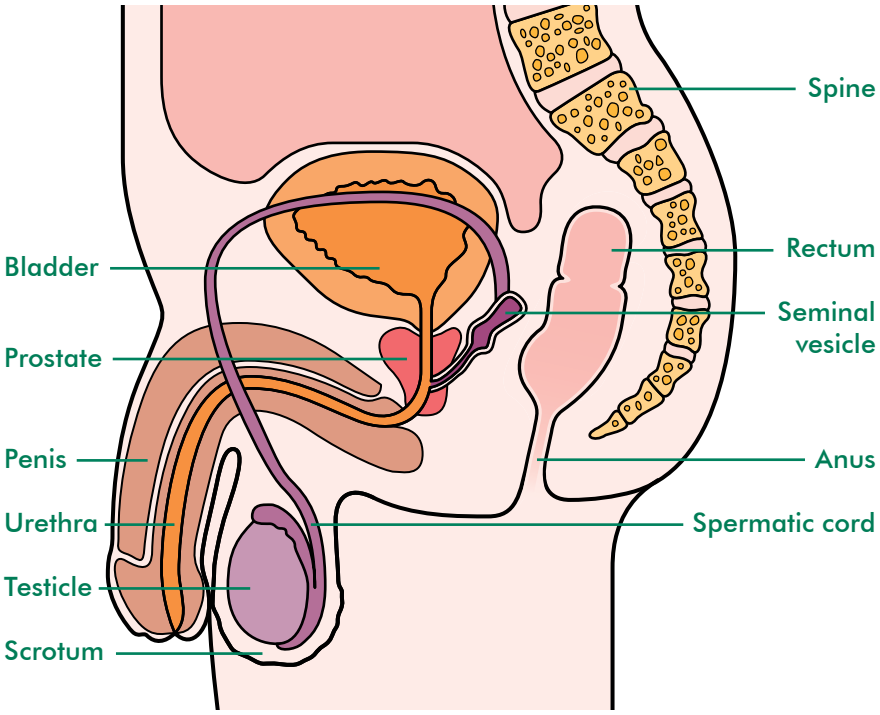
In a malignant (cancerous) tumour, the cells grow into nearby tissue. Sometimes, cancer cells spread from where the cancer first started (the primary site) to other parts of the body. They can travel through the blood or lymphatic system.

The lymphatic system helps to protect us from infection and disease. It's made up of fine tubes called lymphatic vessels. These connect to groups of bean-shaped lymph nodes (glands) all over the body.

When the cells reach another part of the body they begin to grow and form another tumour. This is called secondary cancer or a metastasis.

The prostate

All men have a small gland called the prostate. It surrounds the first part of the tube (urethra) that carries urine from the bladder along the penis. The prostate is about the size of a walnut and gets bigger with age.



The male sex organs and surrounding structures

The prostate produces a thick, white fluid. This mixes with the sperm produced by the testicles to make semen. It also produces a protein called prostate-specific antigen (PSA) that turns the semen into liquid.

The back of the prostate gland is close to the rectum (back passage). Near the prostate are collections of lymph nodes. These are small glands, each about the size of a baked bean.

What is prostate cancer?

Prostate cancer is the most common type of male cancer in the UK - around 41,000 men are diagnosed with it each year.

It is different from most types of cancer because small areas of cancer within the prostate gland are very common. These may stay dormant (inactive) for many years.

In a small number of men, prostate cancer can grow more quickly. It may spread to other parts of the body, like the bones.

Prostate cancer is divided into three sub types:

- **Early (localised) prostate cancer** – the cancer is only in the prostate gland and has not begun to spread.
- **Locally advanced prostate cancer** – the cancer has spread into the tissues around the prostate gland.
- **Advanced (metastatic) prostate cancer** – the cancer has spread beyond the prostate gland to other parts of the body (most commonly the bones) where it has formed a new tumour called a metastasis or secondary.

Prostate cancer is usually diagnosed in the early stages. In some men, it will be advanced when it is first diagnosed. Advanced prostate cancer can also occur in men who have already been treated for prostate cancer but their cancer has come back (relapsed or recurred).

Causes and risk factors

We don't know the cause of prostate cancer in most men. There are some risk factors that can increase your chances of getting it.

- **Age** – The risk of developing prostate cancer increases with age. Men under 50 have a very low risk.
- **Ethnicity** – Black African and black Caribbean men are more likely to develop prostate cancer than white men. Asian men have a lower risk.

- **Family history** – Men who have close relatives (father, brother, grandfather or uncle) who have had prostate cancer are more likely to develop it themselves. A faulty gene found in some men whose mothers or sisters have had breast cancer may also increase the risk. Only about 5–10% (or less than 1 in 10) prostate cancers are thought to be caused by an inherited faulty gene. Talk to your doctor if you are worried about your family history.
- **Exercise** – Being more physically active may help to reduce the risk of prostate cancer.
- **Diet** – Men from western countries, such as the UK, Europe and USA, have a higher rate of prostate cancer than men from eastern countries, such as China and Japan. This might be because their diet tends to be higher in animal fat and lower in fresh fruit and vegetables.

Asian men tend to eat more soy in their diet. This might reduce the risk of prostate cancer, but more research is needed to confirm this.

Eating lots of calcium (for example, from dairy foods) may increase the risk.

Tomatoes and tomato products (such as ketchup) may help to protect against prostate cancer.

Symptoms

Early prostate cancer often doesn't cause any symptoms. The cancer often grows slowly and you may not get symptoms for many years.

In men over 50, the prostate gland often gets larger due to a non-cancerous condition called benign prostatic hyperplasia or hypertrophy (BPH).

The symptoms of BPH and prostate cancer are similar and include:

- difficulty passing urine
- passing urine more often than usual, especially at night
- pain when passing urine (this is not common)
- blood in the urine (this is not common).

The symptoms of advanced prostate cancer will depend on where in the body the cancer has spread to. Prostate cancer often spreads to the bones and this can be painful.

Other general symptoms of advanced cancer include:

- being more tired than usual
- feeling generally unwell
- loss of appetite.

If you notice any new symptoms that last for a couple of weeks or more, you should discuss them with your GP.

These symptoms can be caused by other conditions, but it is important that you always have them checked by your GP.

How is prostate cancer diagnosed?

Most men begin by seeing their GP. They will examine you and ask you about your general health. The GP will do a digital rectal examination (DRE) and a PSA blood test.

Digital rectal examination

The rectum (back passage) is close to the prostate gland. Your doctor can feel for any abnormalities in the prostate by inserting a gloved finger into the rectum. This may be uncomfortable but should not be painful.

PSA blood test

A sample of blood is taken to check for PSA (prostate-specific antigen). PSA is a protein produced by the prostate and a small amount is normal. Men with cancer of the prostate tend to have raised levels of PSA in their blood. However, the PSA test is not always reliable. Some men who have prostate cancer have a normal PSA and some men with a raised PSA won't have prostate cancer.

The PSA level can also be raised by:

- urine infections
- prostate infection (prostitis)
- recent prostate biopsies
- having a urinary catheter (a tube to drain urine)
- prostate or bladder surgery
- prostatic massage.

The PSA level will also get higher as men get older.

PSA levels higher than normal could be due to a prostate cancer. Men with abnormal levels of PSA are usually referred for further tests.

At the hospital

If you need further tests you will be referred to a doctor or specialist nurse in the urology department at your local hospital.

The following tests can help to diagnose prostate cancer. You may not need to have all of them. The doctor will explain which tests you need.

Trans-rectal ultrasound scan (TRUS)

This uses sound waves to build up a picture of the prostate. To scan the prostate gland, a small probe is passed into the back passage. The scan may be uncomfortable but it only takes a few minutes.

Biopsy

Several samples of tissue (biopsies) are taken from the prostate to be looked at under a microscope. The biopsies are usually taken using a needle that is passed through the wall of the back passage (rectum). This is called a TRUS biopsy. The biopsy is normally done at the same time as the ultrasound.

Sometimes the biopsy is taken through the skin behind the testicles (the perineum). This is called a transperineal biopsy.

Having a biopsy is often uncomfortable but is not usually painful. You may be given a local anaesthetic to reduce the discomfort. Antibiotics are given to reduce the risk of infection.

Unfortunately, even if there is cancer in the prostate it may not be found by biopsy. This will happen in approximately 1 in 10-20 men (5–10%). If a biopsy is negative you may be given an MRI scan to look for cancer that the biopsy may have missed. The biopsy may then need to be repeated. Sometimes the PSA may be measured again after a few months. If the PSA level starts to rise, the biopsy may be repeated.

MRI scan

This test uses magnetism to build up a detailed picture of areas of your body. The scanner is a powerful magnet so you may be asked to complete and sign a checklist to make sure it's safe for you. Your doctor or nurse will explain the scan to you.

Further tests

If the biopsy shows that cancer is present, further tests may be needed to check whether it has spread beyond the prostate gland. These may include:

- a bone scan
- x-rays of your chest and bones
- a CT scan

Your doctor or nurse will explain which tests you need and what will happen.

Waiting for test results can be an anxious time for you. It may help to talk about your worries with a relative or friend. You could also speak to one of our cancer support specialists in your language on **0808 808 00 00**.

Staging and grading

Staging

Knowing the stage of your cancer helps doctors decide the best treatment for you. Prostate cancer is divided into four stages:

- **Stage 1** – The cancer is very small and only in the prostate.
- **Stage 2** – The cancer can be felt as a hard lump during a rectal examination, but it's still within the prostate gland.
- **Stage 3** – The cancer has started to break through the outer capsule of the prostate gland and may be in the nearby tubes that transport semen (seminal vesicles).
- **Stage 4** – The cancer has spread beyond the prostate gland to nearby structures such as the lymph nodes, bladder or back passage (rectum), or to more distant organs such as the bones or liver.

Grading

The grade of a cancer gives an idea of how quickly it might grow. Prostate cancer is graded according to the appearance of the cancer cells when looked at under a microscope.

The Gleason system is the most common way to grade the cells. It looks at the pattern of cancer cells in the prostate. There are five patterns, graded from 1–5. Grade 1 means the prostate cells look normal, whereas grade 5 is the most abnormal. The biopsy samples are each graded and the two most commonly occurring patterns are added together to give a Gleason score. For example, if the most common pattern is a grade 4 and the second most common a grade 3, the Gleason score will be 7. It's sometimes written as 4+3.

The lower the Gleason score, the lower the grade of the cancer. Low-grade cancers (6) usually grow slowly and are less likely to spread.

A score of 7 is a moderate grade. High-grade tumours (8-10) are likely to grow more quickly and are more likely to spread. High-grade tumours are sometimes called aggressive tumours.

Treatment

Deciding on the best treatment isn't always easy. Your doctor will need to think about a lot of things. The most important of these are:

- your general health
- the stage and grade of the cancer
- your PSA level
- the likely side effects of treatment
- your views about the possible side effects.

It's important to talk about any treatment with your doctor, so that you understand what it means. It's a good idea to take someone with you who can speak both your language and English. Interpreters may be available if you need one, but try to let the hospital know before if you would like one to be there.

You will be asked to sign a consent form to show that you understand and agree to the treatment. You will not have any treatment unless you have agreed to it.

We have explained the different treatment options here:

Early Prostate Cancer	**Locally advanced prostate cancer**	**Advanced prostate cancer**
Active surveillance	Radiotherapy	Hormonal therapy
Watchful waiting	Hormonal therapy	Surgery – orchidectomy
Surgery – prostatectomy	Watchful waiting	Chemotherapy
Radiotherapy	Surgery – prostatectomy, or orchidectomy	Palliative radiotherapy
Hormonal therapy		Symptom control

Active surveillance

Your doctors or specialist nurse will see you regularly to check if the cancer is growing significantly.

Most low-grade, early-stage prostate cancers grow very slowly and may never cause any symptoms. Some men decide with their specialists to wait and see whether the cancer is getting bigger or more fast growing (progressing) before starting any treatment.

You will have regular appointments at the hospital or with your GP. Your PSA level will be checked every 3–4 months and you will have a digital rectal examination every 6–12 months. After a year you may also have a prostate biopsy. Your doctor or specialist nurse will explain how often you need to have the tests.

If the cancer isn't growing or developing, it's safe to continue with active surveillance. Each year you will have fewer tests and checks.

If these tests show that the cancer is starting to grow, your doctors will recommend treatment that aims to cure the cancer, such as surgery or radiotherapy.

Watchful waiting

This is a way of avoiding treatment for as long as possible. It's usually offered to older men, or those who aren't fit enough for surgery or radiotherapy, who have a slow-growing prostate cancer that's unlikely to affect their natural life span.

You'll be monitored to see if you have developed any new symptoms. You'll also have regular PSA blood tests and may have digital rectal examinations. You will usually have fewer tests than in active surveillance.

If you develop symptoms or your PSA level rises, you may be offered hormone therapy. If there's no sign that the cancer is progressing, it's safe to continue with watchful waiting.

Surgery

There are different types of surgery. Your doctor will discuss the operation they think is best for you and its possible side effects. Prostate surgery is done in specialist centres so you may have to travel to the hospital.

Prostatectomy

Radical prostatectomy – the whole prostate gland is removed, either through a cut made in the tummy area (abdomen) or through a cut made between the scrotum and the back passage. The operation aims to get rid of all of the cancer cells. It's only done when the cancer is thought not to have spread beyond the prostate gland.

Laparoscopic prostatectomy (keyhole surgery) – four or five small cuts (about 1cm each) are made in your tummy area (abdomen). The surgeon can then remove the prostate gland using instruments that can be put through these small cuts.

This surgery can be done using a machine with robotic arms that move very delicately, steadily and precisely. This is called a **robotic-assisted laparoscopic radical prostatectomy.**

Supcapsular orchidectomy

An operation to remove part of the testicles to reduce the levels of the male hormone testosterone in the body.

Radiotherapy

Radiotherapy treats cancer by using high-energy x-rays to destroy the cancer cells, while doing as little harm as possible to normal cells. If you have radiotherapy you will also be given hormone therapy.

The radiotherapy is usually given from outside the body (external beam radiotherapy). The aim is to destroy all the cancer cells. This treatment is called radical radiotherapy and may last up to 8 weeks. Normally treatment is given every week day (Monday to Friday). Treatment takes a few minutes each day.

Some men with early or locally advanced prostate cancer have internal radiotherapy **(brachytherapy)**. This is when small radioactive seeds are inserted into the prostate. External radiotherapy and brachytherapy appear to be equally effective in curing prostate cancer. Your doctor may suggest that you have hormonal therapy before or after your radiotherapy.

Men with advanced prostate cancer may be offered radiotherapy if the cancer is causing symptoms, such as pain, or if it has spread to other parts of the body, such as the bones. Radiotherapy can be very effective at relieving symptoms. This is known as **palliative radiotherapy**.

Radical radiotherapy for prostate cancer can cause side effects. You may need to pass urine more frequently or urgently, have diarrhoea and problems getting an erection. These side effects will be explained to you before you start treatment.

We have more information in your language about how radiotherapy is planned and given, and some side effects you may have.

Hormonal therapy

Hormones help to control how cells grow and what they do in the body. Prostate cancer depends on the hormone testosterone to grow. This is produced by the testicles. Hormonal therapies either reduce the amount of testosterone in the body or block the cancer cells from connecting with the hormone. They can be given as injections or tablets.

In men with early prostate cancer, hormonal therapy may be given on its own for men who aren't well enough for surgery or radiotherapy. It may also be given to men who have been monitored using watchful waiting and whose cancer has started to progress. Hormonal therapy may also be given before a course of radiotherapy.

In men with locally advanced prostate cancer hormonal therapy is given before radiotherapy (called neo-adjuvant therapy) as it can make radiotherapy more effective. It is sometimes given after radiotherapy (adjuvant therapy) to reduce the risk of the cancer coming back. Hormonal therapy can also be given as a treatment on its own.

Hormonal therapy is the main treatment for men with advanced prostate cancer. It can shrink the cancer, delay its growth, and reduce symptoms.

Hormonal therapies can cause side effects, such as:

- difficulty getting an erection (erectile dysfunction)
- low sex drive
- bone thinning
- hot flushes and sweating
- breast swelling and tenderness
- weight gain
- thinning of the bones
- heart problems.

Chemotherapy

Chemotherapy is a treatment that uses anti-cancer (cytotoxic) drugs to destroy cancer cells. In advanced prostate cancer, it's used to treat cancer that is no longer being controlled by hormonal therapy.

It aims to shrink and control the cancer, and relieve symptoms, with the aim of prolonging a good quality of life.

We have more information in your language about how chemotherapy is given and some of the side effects you may have.

Controlling symptoms

Advanced prostate cancer may cause unpleasant symptoms, such as:

- pain
- tiredness
- constipation.

These may be relieved by treating the cancer itself. Sometimes treatments work quickly and you may feel better within a few days. Other treatments may take longer to work, so it can be a couple of weeks before you begin to feel any benefit.

Apart from treating the cancer itself, there are many other ways to help relieve symptoms. Your doctor or specialist nurse can give you more information.

Clinical trials

Cancer research trials are carried out to try to find new and better treatments for cancer. Trials that are carried out on patients are known as clinical trials. Many hospitals now take part in these trials. Speak to your doctor about current prostate cancer research.

Follow up

After your treatment has finished you will have regular check-ups and PSA blood tests. These will probably continue for many years.

Some men may see their cancer specialist while others may have a PSA test at their GP surgery. It can be useful to speak to your cancer specialist about how you will be looked after after treatment, and who you can talk to about any problems.

Coping with prostate cancer

Treatment can cause unpleasant and distressing side effects.

Sexual problems – you may not want to have sex or find it hard to get or keep an erection. This is called erectile dysfunction (ED). If you find the effect on your sex life difficult to deal with you could talk to your doctor. Doctors who deal with prostate cancer are very used to talking about these issues and will be able to give you advice. There are practical ways to help overcome ED and your nurse or doctor can give you more information. Most hospitals also have specialist nurses who you can talk to.

Urinary incontinence – this can be caused by the cancer and some treatments. There are different ways of coping with the problem. You can talk to your doctor or nurse if you are worried about this. Some hospitals have medical staff that give advice about incontinence.

Breast swelling – this can sometimes happen with the hormonal therapy bicalutamide (Casodex). Taking a low dose of another hormonal drug called tamoxifen, may prevent breast swelling. Your doctor may suggest you have a short course of low-dose radiotherapy to your breasts before you start taking bicalutamide. This often prevents any swelling and causes very few, if any, side effects.

Your feelings

You may feel overwhelmed when you are told you have cancer and have many different emotions. The can include anger, resentment, guilt, anxiety and fear. These are all normal reactions and are part of the process many people go through in trying to come to terms with their illness. There is no right or wrong way to feel. You'll cope with things in your own way.

More information in your language

- Breast cancer fact sheet
- Chemotherapy fact sheet
- Claiming benefits fact sheet
- Large bowel cancer fact sheet
- Lung cancer fact sheet
- Radiotherapy fact sheet
- Side effects of cancer treatment fact sheet
- Surgery fact sheet
- What you can do to help yourself fact sheet

This fact sheet has been written, revised and edited by Macmillan Cancer Support's Cancer Information Development team. It has been approved by our medical editor, Dr Tim Iveson, Consultant Clinical Oncologist.

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We have used information from many reliable sources to write this fact sheet. These include:

- DeVita, et al. *Cancer: Principles and Practice of Oncology*. 8th Edition. 2008. Lippincott Williams and Wilkins.
- Hogle, W. *Prostate Cancer*. 2009. Oncology Nursing Society.
- Kirby R, et al. *Prostate Cancer: Principles and Practice*. 2006. Taylor and Francis.
- The British Association of Urological Surgeons. Guidance for managing Prostate Cancer. www.baus.org.uk (accessed July 2011).
- National Institute for Health and Clinical Excellence (NICE). Prostate cancer: Diagnosis and treatment. www.nice.org.uk (accessed July 2011).
- NCCN Clinical Practice Guidelines in Oncology: Prostate Cancer. 2011.