How is prostate cancer diagnosed?

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There is no single, simple test to detect prostate cancer. Two commonly used tests are the prostate specific antigen (PSA) blood test and the digital rectal examination. However these tests, used separately or in combination, can only indicate changes in the prostate gland. They are not diagnostic tests. If either test shows an abnormality your GP will refer you to a urologist for further evaluation.

Prostate specific antigen (PSA) blood test

PSA is a protein made by both normal prostate cells and cancerous prostate cells. PSA levels are measured using a blood test. The PSA test does not specifically test for cancer. A PSA reading above the typical range for your age may indicate the possibility of prostate cancer.

However only an average of one in three men with an elevated PSA level has cancer. The amount of PSA in blood can be raised even when a man does not have cancer. Other factors can increase PSA levels including benign prostate hyperplasia (BPH), recent sexual activity or an infection in the prostate. In addition some men with prostate cancer have normal PSA levels.

Because PSA levels can be variable, your doctor will often use results from more than one blood test, over time, to help determine your risk of prostate cancer. Your doctor will also compare your PSA result against other men the same age as you.

Other tests your doctor may suggest include:

- Free PSA test – measures the PSA molecules in your blood that are not attached to other blood proteins (free PSA). This test may be suggested if your PSA score is moderately raised and your doctor is not sure if you need a biopsy. A low level of free PSA may indicate prostate cancer.
- Prostate health index (PHI) – a blood test that measures three different forms of the PSA protein. This test is not widely used in Australia.

Digital rectal examination (DRE)

In a digital rectal examination (DRE) a doctor inserts a gloved finger into your rectum to feel the back of the prostate gland. The doctor feels the size of the prostate and checks for abnormalities. The DRE may be uncomfortable, but is rarely painful.
If your doctor feels a hardened area or an odd shape, further tests may be done. Abnormalities do not always indicate prostate cancer and a normal DRE does not rule out prostate cancer, as the test is unlikely to pick up a small cancer or one the finger can’t reach.

Digital rectal examination is no longer recommended as a routine test for men who do not have symptoms of prostate cancer. For men who wish to be tested for the presence of prostate cancer, the DRE is still useful. The test may help doctors assess the prostate prior to biopsy.

**Biopsy**

If the PSA test or DRE show an abnormality, a biopsy is often the next step.

During a biopsy, small amounts of tissue are taken from different parts of the prostate using a special needle. The samples are sent to a lab where a pathologist examines the tissue to see whether cancer cells are present. Multiple tissue samples are taken so that the pathologist can indicate the extent of the tumour in the prostate.

A biopsy is usually done with the help of a transrectal ultrasound (TRUS) probe. The ultrasound shows the shape and size of the prostate on a screen. The image helps guide the doctor to insert a thin, hollow needle into the prostate. The TRUS probe is inserted through the rectum (transrectal biopsy) or the skin between the anus and the scrotum (transperineal biopsy). Transperineal biopsies may allow better sampling of the whole prostate and reduce the risk of infection. However the procedure takes longer, and is performed in an operating theatre under a general or regional anaesthetic.

A biopsy can be uncomfortable and for a few days there may be a small amount of blood in your urine, semen or bowel motions. You may be given antibiotics to reduce the possibility of infection.

**Further tests**

If the biopsy shows you have prostate cancer, other tests may be done to determine the stage of the cancer.

**Blood tests**
Blood samples may be taken regularly to monitor your PSA level, check your general health and monitor prostate cancer activity.

**Bone scan**
This scan can show whether the cancer has spread to your bones. It can be used for later comparison if needed. A small amount of radioactive material (technetium) is injected into a vein. After 1–2 hours you will have a body scan. This scan is painless.

**Computerised tomography (CT) scan**
A CT scan uses x-ray beams to take pictures of the inside of your body. The scan can show whether cancer has spread to lymph nodes in the pelvis and abdomen.

A dye is injected into a vein, probably in your arm, to help make the scan pictures clearer. The dye may make you feel flushed or hot for a few minutes. You will lie still on a table that moves slowly through the CT scanner. The scanner is large and round like a doughnut. The CT scan itself takes a few minutes and is painless but the preparation takes 10–30 minutes. You should be able to go home after the scan.

**Magnetic resonance imaging (MRI) scan**
An MRI scan uses a magnetic field to build up detailed cross-section pictures of the body. A dye may be injected into a vein during the scan to make the pictures clearer. You will lie on an examination table inside a magnetic cylinder that is open at both ends. The MRI is sometimes performed using a probe inserted into the rectum.
An MRI can help show whether the cancer has spread locally outside the prostate gland. This can help with management and treatment decisions. An MRI scan can be very noisy and some people can feel claustrophobic while lying in the cylinder. Talk to your doctor or nurse before the scan if you feel anxious in confined spaces. You will not be able to have an MRI if you have a pacemaker or another iron-based metallic object in your body, because the scan may damage these devices.

**Multi-parametric Magnetic Resonance Imaging (mpMRI)**

This is a type of MRI scan in which three pulse sequences are used with the results combined and analysed together. An mpMRI cannot diagnose prostate cancer however if cancer is suspected, your doctor may recommend this test to identify which areas of the prostate may be abnormal. This may reduce the need for a biopsy.

At the time of publication this test is not covered by Medicare and is available only at some hospitals. Ask your doctor for more information.

**Positron emission tomography (PET) scans**

These specialised scans are much more sensitive and specific in detecting recurrent or metastatic cancers. The prostate specific membrane antigen (PSMA) PET scan is the most commonly used. At time of publication the scan is available in a few facilities in Australia. However it is not available at all hospitals with PET facilities and there is no Medicare rebate.

**Which health professionals will I see?**

If your GP suspects you have prostate cancer you may be referred to a urologist who can arrange further tests and advise you about your options. After a diagnosis of prostate cancer, you will be cared for by a range of health professionals who specialise in different aspects of your treatment. This multidisciplinary team (MDT) may include the following:
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<thead>
<tr>
<th>Health professional</th>
<th>Role</th>
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<tbody>
<tr>
<td>general practitioner (GP)</td>
<td>provides general health care and treatment, may also monitor PSA levels and administer treatment</td>
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<tr>
<td>urologist</td>
<td>specialises in treating diseases of the urinary system and male reproductive system as well as performing prostate surgery and biopsies</td>
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<tr>
<td>radiation oncologist</td>
<td>specialises in prescribing and coordinating the course of radiotherapy</td>
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<tr>
<td>medical oncologist</td>
<td>specialises in treating cancer using drug treatments such as chemotherapy</td>
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<tr>
<td>endocrinologist</td>
<td>specialises in hormones, body chemistry and bone density</td>
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<tr>
<td>cancer care coordinator / prostate cancer specialist nurse</td>
<td>supports patients throughout treatment and liaises with other care providers</td>
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<tr>
<td>oncology nurses</td>
<td>administer treatments and support and assist you through all stages of your management and/or treatment</td>
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<tr>
<td>continence nurses</td>
<td>specialise in helping you manage continence (urinary and bowel) issues</td>
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<tr>
<td>Health professional</td>
<td>Role</td>
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<tr>
<td>urology care coordinator</td>
<td>supports patients who are experiencing bladder and bowel problems after cancer treatment</td>
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<tr>
<td>exercise physiologist</td>
<td>assists people with medical conditions to exercise and improve their overall health, fitness, strength and energy levels</td>
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<tr>
<td>sexual health physician or sex therapist</td>
<td>can help you and your partner with sexuality issues before and after treatment</td>
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<tr>
<td>continence physiotherapist</td>
<td>provides exercises to help rehabilitate your pelvic floor muscles and improve continence</td>
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<tr>
<td>social worker, psychologist and counsellor</td>
<td>advise you on support services, provide emotional support and help manage depression and anxiety</td>
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<tr>
<td>occupational therapist</td>
<td>assists with physical rehabilitation and practical solutions for physical limitations</td>
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<tr>
<td>dietitian</td>
<td>recommends an eating plan to follow while you're in treatment and recovery</td>
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<tr>
<td>palliative care specialist</td>
<td>specialises in pain and symptom control to maximise wellbeing and improve quality of life</td>
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This website page was last reviewed and updated April 2017.

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