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## About prostate cancer

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## The PSA Test

PSA measures the level of Prostate Specific Antigen, a protein found mostly in the semen, but with small amounts secreted naturally into the bloodstream. When prostate cancer growth is present more PSA is released into the bloodstream. A PSA blood sample is normally taken at a GP surgery, it is not primarily a direct test for prostate cancer but is simply a measure of the health of your prostate. At present it is the best simple test we have.

Not all prostate cancers are aggressive and need treatment, and PSA screening has, in the past, led to invasive investigation and 'over diagnosis' followed by 'over treatment' through radical surgery or radiotherapy and their associated side effects of impotence, incontinence and bowel disturbance.

It is equally true, however, that many thousands of men have avoided a slow and painful death through early treatment of prostate cancer that was detected by PSA screening. Early detection is most important.

In the last few years there have been some developments:

**The PROMIS trial** showed that if an mpMRI scan of the prostate was normal in a man with a raised PSA, a biopsy was unnecessary and surveillance was all that was required. This is now saving many unnecessary biopsies and preventing 'over diagnosis' of non-aggressive prostate cancer; this has reduced the risk of 'over treatment' to 4% and falling (National Prostate Cancer Audit 2018 report).

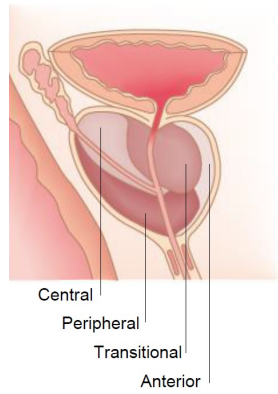
Secondly, **the ProtecT study** showed that for men actually found to have apparent non-aggressive prostate cancer, Active Surveillance alone was a safe treatment strategy.

### The DRE

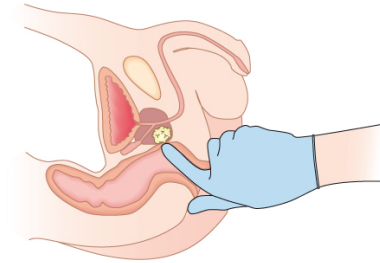
If your PSA reading is raised your doctor may give you a Digital Rectal Examination (or DRE). Although not a completely reliable test for prostate cancer, because not all of the prostate can be felt, it is however a useful check of your prostate.

The prostate is divided into several 'zones'. Most prostate cancers start in the peripheral zone, at the back of the prostate, which is why the DRE can be a useful screening test. It is done by feeling it with a gloved finger in the back passage. This only takes a few seconds and generally causes only a little discomfort. Your prostate should feel smooth and soft, not hard and lumpy. If any abnormalities are felt, it may be a sign of a problem.

*Prostate zones*



*The DRE examination*



### GP guidelines

The UK relies upon GPs to deliver PSA testing, both for symptomatic (with symptoms) and asymptomatic (without symptoms) men, in line with the recommendations of the **Prostate Cancer Risk Management Programme** (2016).

This Prostate Cancer Risk Management Programme (PCRMP) sheet helps GPs give clear and balanced information to asymptomatic men who ask about prostate specific antigen (PSA) testing. The PSA test is available free to any well man aged 50 and over who requests it. GPs should use their clinical judgement to manage asymptomatic men and those aged under 50 who are considered to have higher risk for prostate cancer.

PSA screening decisions should be made on an individual basis between the doctor and patient, based on a full examination of risk factors. Testing from age 40 onwards for those with higher risk is advised.

### PSA after diagnosis

The PSA test is not 100% perfect, as elevated levels can be caused by other benign prostate problems. But the PSA test is widely accepted as an invaluable tool for monitoring prostate cancer disease activity and remission from prostate cancer after treatment.

### What can cause an elevated PSA reading?

Sometimes a raised PSA level can be a sign of prostate cancer. It can also often point to something less serious, such as:

- an inflamed or infected prostate (prostatitis)
- an enlarged prostate that often comes as men age
- a medical condition called Benign Prostatic Hyperplasia, or BPH (sometimes now called BPE, standing for Benign Prostate Enlargement)
- an infection within the urinary tract
- ejaculation within the previous 48 hours before the test
- vigorous exercise within the previous 48 hours (particularly bike riding)

Some drugs may artificially lower PSA, such as finasteride (Proscar or Propecia) or dutasteride (Avodart).

### Some facts

Your GP consultation and the PSA Test

- The PSA test may reassure you if the reading is normal
- It can be an early indication of prostate problems
- It can find cancers earlier than is possible by a DRE alone
- It may lead to treatment at an early stage and provide long-term remission

**But:**

- A raised PSA level may lead to further tests when you have no cancer
- A mildly elevated PSA could lead to a diagnosis of prostate cancer which may be harmless and never need treatment
- Most men (typically two out of three) who have a raised PSA level may turn out not to have prostate cancer
- Around 15% of men with a 'normal' PSA result may actually have a rare form of prostate cancer that doesn't elevate the PSA reading

**What is a normal reading?**

The older you are, the higher your PSA level is likely to be (whether or not you have prostate cancer), as PSA naturally seeps into the bloodstream with age. It is measured in nanograms per millilitre (ng/mL), and can range from less than 1.0ng/mL to readings in the 1000s. Readings from 1 to 3 (depending on age) are generally normal. A single reading is of little value, unless it is high (say over 10.0ng/mL).

**What if my PSA is higher than normal?**

If the reading is marginal or borderline (say between 3.0 and 5.0ng/ml), a repeat test should be requested, normally after a few weeks. This is because the rate at which the PSA level may be increasing (called PSA velocity) can be a more reliable indicator of the presence of prostate cancer than a one-off test result. Most leading urologists recommend that all men over 50 or at special risk know and monitor their PSA regularly, and action should be taken when any substantial increase is noted. Any increase above 0.75ng/ml in one year should be a warning signal.

Because expert opinions vary, there is no clear consensus regarding the optimal PSA threshold for recommending referral for further investigations. The Prostate Cancer Risk Management Programme (2016) issued by Public Health England, recommends PSA levels greater than 3.0ng/ml for men in the 50-69 age group should be referred. There are no recommended referral levels for men aged 70 and over, or men aged under 50. Your GP and/or urologist should advise you on this. The chart below gives generally accepted guidelines that some NHS Hospitals use.

A particularly high reading (i.e. above 10ng/mL) is more likely to be an indication of the presence of cancer in the prostate rather than other causes, such as prostate enlargement or prostate infection.

If the PSA reading is high, or the rate of increase is higher than expected, or there are other indications, your GP should refer you to a urologist for further tests in order to determine if cancer is present. These tests are outlined in the next section.

Age	Normal	Marginal	High
<b>Under 50</b>	less than 2.0	2.0–3.0	over 3.0
<b>Under 60</b>	less than 3.0	3.0–4.0	over 4.0
<b>Under 70</b>	less than 4.0	4.0–5.0	over 5.0
<b>70 and over</b>	less than 5.0	5.0–6.0	over 6.0

**If a man has a diagnosis of prostate cancer, the PSA test is useful, because it can track prostate cancer growth well before any clinical signs or symptoms.**

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