Prostate-specific antigen (PSA) testing for prostate cancer

This information is for men aged 50 and over who are having one of our health assessments and are considering a PSA test. We understand that people will rank the pros and cons of testing differently. The purpose of this leaflet is to provide you with all the information and resources you need to help you decide whether or not to have a PSA test.

**What is the prostate?**
The main function of your prostate gland is to produce fluid that makes up part of your semen. It surrounds the tube that carries urine from the bladder (the urethra) and for this reason problems affecting the prostate can cause changes in how you urinate or may cause erectile dysfunction.

**About prostate cancer**
In the UK, prostate cancer is the most common cancer in men and the second most common cause of cancer deaths in men. Prostate cancer is less common below 50 years of age. It’s more common in those with a family history and in black African and black Caribbean men.

**What is a PSA test?**
As you’re now aged 50 years or older, your health assessment offers you the opportunity to have a screening test for prostate cancer. This involves a blood test that measures the level of a substance produced by your prostate gland called prostate-specific antigen (PSA). Around 17 out of every 100 men who have PSA test get an abnormal result. About 82 out of every 100 men who have an abnormal result will go on to have a biopsy.

Sometimes a raised PSA level can be a sign of prostate cancer. However, more often it’s caused by something less serious such as an inflamed prostate (prostatitis) or a condition that comes on with ageing that leads to enlargement of the prostate gland. This condition is called benign prostatic hyperplasia.

It’s important to understand that the PSA test isn’t always reliable at showing whether or not you have prostate cancer. If you have a raised PSA level, you would usually need more tests to find out the cause.

About 75 out of every 100 men who have an abnormal PSA test result do not have prostate cancer. This is called a false positive result.

About 15% of men with a negative PSA test have prostate cancer, although it’s not known what proportion of these cancers eventually require treatment.

**Before your PSA test**
When you have a PSA test you should not have:
- an active urinary infection
- ejaculated in the last 48 hours
- exercised heavily in the last 48 hours
- had a prostate biopsy in the last six weeks; or
- had a DRE (digital rectal examination) in the last week.

Each of these factors may produce an unusually high PSA result. A DRE will usually be offered by the doctor during your health assessment, but this shouldn’t affect your PSA level as this is normally performed after the blood sample is taken.

**How worthwhile is PSA testing?**
A considerable amount of research has been carried out to determine the value of prostate cancer screening in the population. However, results from different studies provided contradictory evidence over whether or not PSA testing reduces deaths from prostate cancer.

Screening for prostate cancer using PSA testing can detect cancers in many men that may never cause any symptoms during their lifetime. Many men die with prostate cancer rather than from it, and finding out about it may cause unnecessary worry. At present it isn’t possible to determine whether or not a cancer is clinically significant or will spread from a PSA test alone. Further tests are needed.
What happens if my PSA test result is raised?

Normal age related values

- If you're aged 50-69, your PSA level is considered raised if it's 3ng/ml or higher.

However this is just a guide. As you get older your prostate gets bigger and your PSA level rises. If your PSA test result was above the normal level for your age, your doctor may recommend that you have a referral to see a specialist for further investigation. Up until recently in 2016, this usually involved a transrectal biopsy (TRUS biopsy) of the prostate gland. A TRUS biopsy involves passing an ultrasound probe into your rectum (back passage). Ultrasound uses sound waves to create an image of your prostate gland; needles can then be passed through the wall of the rectum to take samples of tissue from your prostate gland. This procedure has been found to be inaccurate as the standard form of ultrasound can’t see cancers accurately.

A recent UK study found it missed about half of clinically important cancers. It can also discover the harmless form of cancer that wouldn’t cause problems in the long term, but might get treated unnecessarily. A TRUS biopsy might also be uncomfortable, can cause bleeding in the urine and semen and also serious urine infections.

In many centres, an MRI scan of the prostate is now performed before the TRUS biopsy. MRI stands for magnetic resonance imaging. MRI imaging uses magnetic waves to create an image of the prostate rather than radiation. Only centres that have the right equipment and the right expertise can do these scans in the UK. The advantage of an MRI is that 1 in 4 men with an elevated PSA have a negative MRI scan and can avoid an immediate prostate biopsy. This is because the chance of clinically important cancers still being present is about 1-2 in 20. If the MRI looks suspicious then targeted biopsies can be carried out to improve the detection of clinically important prostate cancers. This strategy leads to fewer and better biopsies. It also leads to fewer diagnoses of low risk cancers that don’t need to be treated. In those that have important cancers, it detects over 90% of them. Like any test in medicine, it isn’t perfect and your doctor will advise what the MRI means in your case.

If early prostate cancer is found what is the treatment?

Treatment will be tailored to the individual and may involve active surveillance or watchful waiting. Where intervention is indicated this may involve surgery, radiotherapy, minimally invasive therapies (high intensity focused ultrasound (HIFU), cryotherapy) hormone therapy or chemotherapy. Treatment for prostate cancer can lead to other problems. The side effects can include urinary incontinence and erectile problems. These side effects vary between the different treatments and between different types of men.

Making your choice about PSA testing

Decide how important each of these pros and cons is to you. Think about any more questions you want to ask your doctor before deciding whether to have the PSA test.

Where can I find more information?

Prostate Cancer UK Charity
http://prostatecanceruk.org/prostate-information/getting-diagnosed/psa-test

Cancer research
http://www.cancerresearchuk.org/about-cancer/type/prostate-cancer/about/screening-for-prostate-cancer

The pros and cons of PSA testing

It's important that you think carefully about the following issues before making a decision about whether or not to have a PSA test.

Pros

- A PSA test can help detect prostate cancer before symptoms develop.
- PSA testing might improve survival by detecting prostate cancer early.
- If a PSA test leads to you having successful treatment for early prostate cancer, you may be less likely to develop spread of the disease and advanced cancer.
- An elevated PSA doesn’t mean an immediate invasive prostate biopsy; a number of centres now perform an MRI scan before the biopsy to decide whether or not it is necessary. This improves the accuracy of the biopsy if it’s needed.
- Minimally invasive treatments that are suitable cause fewer side effects than traditional surgery and radiotherapy.

Cons

- A normal PSA test may still miss prostate cancer.
- In many centres, men with an elevated PSA are offered a prostate biopsy as standard care. You may have a transrectal needle biopsy for no reason. Out of 20 men with raised PSA levels only four will turn out to have prostate cancer after further tests.
- A high PSA test might reveal a slow-growing cancer that wouldn’t have caused problems during your lifetime and this may lead to unnecessary treatment.
- The main treatments (surgery and radiotherapy) for prostate cancer can sometimes have serious side effects, including incontinence and erectile problems.