

Urology in Practice

Dinesh Patel – Urological Surgeon



PSA testing in prostate cancer detection continues to be a controversial, misused and misunderstood area of urological practice. Despite the limitations of this test, it remains the most valuable tool in detecting early stage prostate cancer. However, a thorough understanding of PSA is critical if you are going to offer this investigation to your patients.

What is PSA? Prostate specific antigen (PSA) is a protein produced by both benign and malignant prostatic tissue, and secreted in seminal fluid. Its function is to liquefy seminal ejaculate. Therefore all men who still have their prostate gland (ie who haven't had it surgically removed) will express PSA in their blood. In most men, PSA levels increase very gradually with age, due to benign prostatic enlargement (BPE). However, in the majority of men with clinically significant prostate cancer, PSA levels will tend to be persistently higher than average or will rise at a rate greater than that seen (increased PSA velocity) in patients with simple BPE.

What factors affect PSA? BPE and ageing are the main causes of PSA increase over time. However, prostatic inflammation (bacterial and sterile) can cause sudden increases in PSA. In addition, recent ejaculation, acute urinary retention and catheterisation and possibly, vigorous or prolonged bicycling may result in transient PSA increases. Conversely, BPE drugs such as dutasteride (Avodart, Duodart) and finasteride (Proscar) can cause up to a 50 percent decrease in PSA levels with sustained usage. It's also important to remember that if these medications are ceased, PSA levels will rise again to pretreatment levels. Transurethral prostate resection (TURP) usually results in a significant decrease in PSA level. Digital rectal examination (DRE) of the prostate does not cause PSA levels to increase.

Which men should have PSA testing? PSA testing should be undertaken yearly from age 40, after informed consent. If there is a very strong family history (2 or more first degree relatives with prostate cancer) it is reasonable to perform one PSA test at age 35 years, but if it is less than 0.5 ng/ml, the next test can be deferred until the individual turns 40. The upper age cut-off for testing is harder to define. If a man is in good health (life expectancy >5yrs) then it is reasonable to be tested yearly until at least the age of 75 years, and if the PSA has been very stable up until then, regular testing could probably cease, and yearly DRE would suffice.

PSA testing should be undertaken yearly from age 40, after informed consent. Testing should continue until at least age 75 years, if the patient has a reasonable life expectancy (greater than 5 years)

Contact Details

Consulting Suites
Sydney Southwest Private Hospital
40 Bigge St Liverpool 2170

Suite 205, Level 2
308-312 Beamish St Campsie 2194

For all appointments:

Tel: 8197 1900

Fax: 9011 5251

reception@urologicalsurgeon.com.au
urologicalsurgeon.com.au

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The decision to have a PSA test should always involve a detailed discussion between the practitioner and the individual patient, and therefore, it is very hard to make steadfast rules about when to stop testing. However, common sense should always prevail. For example, in a very elderly patient (>80 years), with a benign feeling prostate on rectal examination, the likelihood of prostate cancer ever causing clinical symptoms or affecting life expectancy, would be close to zero!

Is Digital Rectal Examination (DRE) of any value? DRE is a simple and worthwhile test to estimate prostate size and assess for the presence of irregular or hard areas in the gland. It is not as sensitive as PSA testing but occasionally a significant cancer may be detected in a patient who has a normal PSA level. Patients with an abnormal DRE (nodularity, asymmetry, induration) should be referred to a urologist for evaluation. I recommend that my patients have DRE every 1-2 years, in addition to PSA testing. However, many GPs don't feel comfortable with performing DRE, and therefore the emphasis should be on regular yearly PSA testing as this will help to pick up the majority of prostate cancers at a relatively early, and treatable, stage.

Informed consent in PSA testing

All patients who undergo the test should provide informed consent. Critical points to mention include:

- PSA is used to help detect cancer at an early and curable stage in men who will benefit from diagnosis and treatment. However, many prostate cancers are slow growing, and therefore not all prostate cancers need to be treated.
- PSA does not diagnose prostate cancer - it helps to identify men who may have prostate cancer, and therefore further investigation (prostate biopsy) may be indicated if an abnormal result is found.
- PSA elevation is NOT specific for prostate cancer, and other conditions (BPH, prostatitis) can affect PSA readings.
- In some cases of prostate cancer, PSA may not be elevated.
- By agreeing to have a PSA test, an individual is NOT agreeing to any further investigations or treatment. However, if an abnormal PSA is detected, a referral to a urologist may be indicated for further discussion.

Important points about PSA testing

PSA levels can fluctuate, so always repeat the test to verify an abnormal result. In an asymptomatic patient, it is usually quite safe and appropriate to recheck the PSA about 4-6 weeks later before referring to a urologist.

Always check MSU if a PSA level is abnormal. Infection or inflammation (sterile pyuria) can often cause increased PSA levels.

Patients should *abstain from vigorous bicycling or ejaculation for about 72 hours prior* to PSA testing to obtain the most accurate result.

Try to use a *reputable pathology laboratory* for PSA testing. I find the readings to be more consistent. Also be aware that PSA interpretation can vary between pathology laboratories because they may be using different assay kits.

PSA velocity (the rate of PSA change over time) is an important indicator of prostate cancer risk. A *PSA increase of 0.5µg/L or more over a 12 month period is clinically significant*.

Free to total PSA ratio increases the specificity of PSA testing, however it has only been validated for PSA levels between 2.5-10µg/L. It is important to remember that prostatitis often causes a transient decrease in free to total ratio.

The information provided above is only intended as a guide to PSA testing. If you require any further advice or would like an opinion on one of your patients, please contact my office on 8197 1900 or email reception@urologicalsurgeon.com.au. I am now using secure transmission for all correspondence with ARGUS.