

POSITION STATEMENT

Prostate cancer screening



Background

The prostate is a gland found only in men. It sits just below the bladder and surrounds the urethra. The prostate gland produces a fluid that forms part of the semen.

Impact (prevalence, incidence, mortality)

Prostate cancer is the most commonly diagnosed cancer in Australian men (apart from non-melanoma skin cancers) and is the second-leading cause of cancer death in Australian men.¹ It is estimated that there are over 61,000 Australian men currently living who have had a diagnosis of prostate cancer.² In 2010, more than 19,000 men are expected to be diagnosed with prostate cancer and 3366 to die from the disease.³

Risk factors

Increasing age is the most significant risk factor for prostate cancer. Prostate cancer affects mostly men in older age groups with over 85% of new cases and over 96% of deaths occurring in men over 60 years.⁴ It is rare in men under 45 years of age.⁵ If younger men are diagnosed with prostate cancer, they are more likely to die prematurely from the disease as there is more time for the cancer to progress and they are less likely to die from other causes. A family history of prostate cancer is also a risk factor for the disease although less significant than age. There is some evidence that environmental and lifestyle factors may also increase the risk of prostate cancer, however more research is required before any conclusions can be drawn.

Cancer Council Australia position

The benefits of population screening for prostate cancer are, at this time, unproven. The central concern is that many prostate cancers will not progress sufficiently to cause harm in the man's lifetime, while others will progress and be lethal. No current test (including the PSA test) adequately differentiates between these types of cancer.

Evidence does not support population-based screening of asymptomatic men for prostate cancer. Recent research confirms that the harms of screening with the PSA test (see below) outweigh the benefits.

- In the absence of evidence showing a clear benefit of population-based screening for prostate cancer, a patient centred approach for individual decisions about testing is recommended.
- Ideally this takes the form of an informed, shared, decision-making process between the doctor and man, discussing the benefits, risks and uncertainties of testing, and discussion about treatment options and side effects.
- Screening discussions and decisions should always include and take into account, age and other individual risk factors such as a family history of the disease.
- Research into prostate cancer diagnosis and treatment must continue to be a high priority. In particular, the development of an accurate test to detect the potentially lethal form of prostate cancer.
- Education and resourcing of GPs and other relevant health professionals needs to occur to enable them to adequately inform men of the benefits and risks of testing for prostate cancer and to enable men to make an informed decision as to whether or not they should be tested.

Tests for prostate cancer

There are two tests commonly used to detect possible signs of prostate cancer: the prostate specific antigen (PSA) blood test, and digital rectal examination (DRE).

The prostate specific antigen (PSA) test

Prostate specific antigen (PSA) is a protein produced by the cells of the prostate gland. When the prostate gland enlarges, PSA levels in the blood tend to rise. PSA levels can rise due to cancer or benign (not cancerous) conditions. Benign prostatic enlargement, urinary tract infections and prostatitis are examples of non-cancer conditions, which can cause PSA levels to rise.⁵

PSA levels do not give enough information to differentiate between benign prostate conditions and cancer, or between cancers, which, while present, would never cause harm, and those with the potential to cause death. A low PSA result does not always mean that cancer does not exist. Similarly, PSA elevations do not always mean cancer.⁶ PSA testing may identify very slow growing cancers that are unlikely to cause death. Conversely, PSA testing may lead to the early detection of a fast growing or aggressive cancer that has the potential to spread to other parts of his body before being identified.⁷

A test result that falsely indicates the presence of cancer (“false positive”) may lead to additional medical procedures, with significant financial costs and anxiety for the individual. A positive test will generally lead to a prostate biopsy. Based on the results of the biopsy, the Gleason score (which indicates how aggressive the cancer is), age and other health factors, will be considered, and surgery, radiotherapy or other treatments may be the outcome. All treatments have associated risks and benefits. The majority of men with an elevated PSA test turn out not to have cancer.⁵

Recent research on the PSA test

Early evidence from two large randomised controlled trials of PSA testing in Europe and the US was published in March 2009.^{6,7} The studies included men from ages 55 to 69, and 55 to 74, respectively. The European study reported a reduction in mortality of 20% attributable to screening, whereas the US study found no benefit. The European study showed that 48 additional cases of prostate cancer would need to be treated to prevent one death from prostate cancer.^{6,7}

Both studies reported harms attributable to screening. Harms as well as benefits need to be considered in recommendations about population screening. On the basis that the harms of PSA screening outweigh the benefits, the intergovernmental Australian Health Ministers’ Advisory Council and Cancer Council Australia do not support PSA as a population screening tool.⁸

Consequently, either alone or combined with digital rectal examination (see below), the PSA test does not form the basis of a population-based screening program.

Digital Rectal Examination (DRE)

A DRE is a manual examination of the prostate gland by the insertion of a gloved finger into the patient’s rectum to check any abnormality in size, shape or texture in the prostate.

Like PSA, there are mixed findings in relation to the sensitivity of the examination for detecting prostate cancer. There is no direct evidence that screening with DRE reduces mortality from prostate cancer.¹¹ If PSA testing is performed, a DRE is also recommended. However, on the basis that the harms of PSA screening therefore outweigh the benefits (see results of large international trials, above), the Australian Health Ministers’ Advisory Council and Cancer Council Australia do not support PSA as a population screening tool, either with or without DRE.⁸

Benefits of prostate cancer screening

For many types of cancer, finding and treating the disease early has benefits. In terms of years of life saved, men in their 50s and 60s may benefit more from prostate cancer screening than men in their 70s and 80s.

Early death from prostate cancer is more likely to occur in men diagnosed in their 50s compared with men diagnosed in their 70s because older men are more likely to develop other life threatening health problems and younger men have a longer life expectancy.¹² Like all cancers, prostate cancer is more likely to be cured if it has not spread. Men choosing to have a test to maximise their chance of early detection will need to discuss with their GP when they should commence testing, how regularly to be tested and at what point testing is no longer required.

Treatments and side effects

The treatments following diagnosis of prostate cancer consist of watchful waiting, surgical removal of the prostate, radiotherapy or hormonal treatments. Men undergoing treatments may experience adverse side effects. Research findings for adverse effects across different studies are particularly varied, making it difficult to accurately predict the level of harms associated with treatments. It has been found that erectile dysfunction occurs in 20-70% of men, between 15-50% of men develop urinary incontinence and between 6-25% develop bowel problems.⁹ Considerable information and discussion is required to enable men to make an informed decision about treatment.¹³

Population-based screening

Population-based screening of asymptomatic men for prostate cancer cannot be supported until more information is available about the natural progression of the disease and there is evidence showing a net benefit of screening. PSA and DRE do not have appropriate sensitivity and specificity to be used as screening tools for prostate cancer.

Latest evidence shows that the harms of population screening with the PSA test outweigh the benefits.⁸ Consequently, either alone or combined with DRE (see 'Recent research on PSA', above), the PSA test does not form the basis of a population-based screening program.

Cancer Council Australia and the Australian Health Ministers' Advisory Council therefore recommend that men considering being tested for prostate cancer do so with information on both the benefits and harms of testing and treatment.⁸ We encourage men to speak to their doctor so they can make an informed choice about prostate cancer testing.^{8,13}

Men at above-average risk

While increasing age is the most significant risk factor for prostate cancer, it has been suggested that between 5 and 10% of prostate cancers may be caused by inherited genetic defects.¹⁵ While researchers have not yet confirmed the specific gene mutations that increase the risk of prostate cancer, it is known that men with a family history of prostate cancer in a first degree relative (father, son, brother) have a higher (2–3 times) lifetime risk of developing the disease.^{15,16} There is some evidence to suggest that this risk is higher if the relative was diagnosed before the age of 60 years.^{15,17}

Other people at above-average risk include those who have had elevated PSA tests or abnormal biopsies in the past. Men at above-average risk of prostate cancer should discuss the risks and benefits of prostate cancer screening with their doctor, taking age and other individual risk factors into account. They also should be given adequate objective information about the potential benefits and harms of screening, diagnostic procedures and treatment for prostate cancer to allow them to make a fully informed decision on whether to be tested or not.

Further information

- Cancer Council Australia – www.cancer.org.au
- Cancer Council's Cancer Helpline – 13 11 20 (cost of a local call)
- Visit: www.prostatehealth.org.au
- Visit: www.urosoc.org.au

Published April 2005. Updated June 2010, to include latest incidence and mortality projections, summary interpretation of large randomised controlled trials of PSA screening and joint statement with Council of Australian Governments' Australian Health Ministers' Advisory Committee on PSA screening.

References

1. Australian Institute of Health and Welfare (AIHW) & Australasian Association of Cancer Registries (AACR) 2008. Cancer in Australia 2008. AIHW cat. no. CAN 42. Canberra: AIHW (Cancer Series no.46).
2. Thursfield V 2004 (unpublished material or personal communication) Cancer Epidemiology Centre, The Cancer Council Victoria.
3. Australian Institute of Health and Welfare and Australasian Association of Cancer Registries (AIHW & AACR), 2008. Cancer in Australia: an overview, 2008.
4. Australian Institute of Health and Welfare and Australasian Association of Cancer Registries (AIHW & AACR) 2003. Cancer in Australia 2000. Canberra, AIHW.
5. Australian Institute of Health and Welfare and Australasian Association of Cancer Registries (AIHW & AACR) 2003. Cancer in Australia 2001. Canberra, AIHW.
6. Andriole G, Crawford E et al, Mortality Results from a Randomized Prostate-Cancer Screening Trial, New England Journal of Medicine, Vol. 360:1310-1319, 2009.
7. Schröder F, Hugosson J et al, Screening and Prostate-Cancer Mortality in a Randomized European Study, New England Journal of Medicine, Volume 360:1320-1328, 2009.
8. Cancer Council Australia, Australian Health Ministers' Advisory Council, Prostate cancer screening: joint key messages, May 2010. http://www.cancer.org.au/File/PolicyPublications/Position_statements/PS-Prostate_Cancer_Screening_Joint_key_messages_%20published_May2010.pdf
9. Ciatto S, Bonardi R, et al 2001. Predicting prostate biopsy outcome by findings at digital rectal examination, transrectal ultrasonography, PSA, PSA density and free-to-total PSA ratio in a population-based screening setting. Int J Biol Markers 16(3):179–82.
10. Harris R & Lohr KN 2002. Screening for prostate cancer: an update of the evidence for the US Preventive Services Task Force. Ann Intern Med 137(11):917–29.
11. The Prostate lung, Colorectal and Ovarian Cancer Screening Trial (PLCO) accessed on 25/10/04 <http://www3.cancer.gov/prevention/plco/>
12. Screening for Prostate Cancer. Systematic Evidence Review. Number 16 Prepared for: Agency for Healthcare Research and Quality U.S. Department of Health and Human Services. October 2002 <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat3.chapter.3159>
13. Baade P, Steginga S et al Communicating prostate cancer risk: what should we be telling our patients? MJA Vol 182 no.9 May 2005
14. Australian Institute of Health and Welfare and Australasian Association of Cancer Registries (AIHW & AACR) 2003. Cancer in Australia 2000. Canberra, AIHW.
15. Johns LE, Houlston RS 2003. A systematic review and meta-analysis of familial prostate cancer risk. BJU Int 91(9):789–94.
16. Ibid.
17. Ibid.

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