**International prostate cancer screening guideline synthesis.**

### Key

- **Supportive of offering prostate screening only if there is fully informed decision making and informed consent.**
- **No recommendation for prostate cancer screening made due to insufficient evidence.**
- **Not supportive of prostate cancer screening.**
- **Supportive of prostate cancer screening.**

**PSA**
- Prostate-specific antigen test

**DRE**
- Digital rectal exam

### Table: Organisations' Recommendations

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Year</th>
<th>Recommendation</th>
<th>Summary</th>
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<tbody>
<tr>
<td>American Cancer Society¹</td>
<td>2003</td>
<td><strong>Opportunistic screening, Average risk men &gt; 50 years</strong></td>
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<tr>
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<td>- The PSA test and the DRE should be offered annually beginning at age 50 to men who have a life expectancy of at least 10 years.</td>
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<td>- Prior to testing, men should have an opportunity to learn about the benefits and limitations of testing for early prostate cancer detection and treatment so that they can make an informed decision with a clinician’s assistance.</td>
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<td>- Men who ask their clinician to make the testing decision on their behalf should be tested.</td>
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<td>- A policy of not discussing testing or discouraging testing in men who request early prostate cancer detection tests is inappropriate.</td>
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### Population screening, High-risk men (including family history)

- Men at high risk, including men of African descent and men with a first-degree relative diagnosed at a younger age should begin testing at age 45.
- Men at even higher risk of prostate cancer due to multiple first-degree relatives diagnosed with prostate cancer at an early age could begin testing at age 40. However, if PSA is less than 1.0 ng/mL, no additional testing is needed until age 45. If PSA is greater that 1.0 ng/mL, annual testing is recommended. If PSA is 2.5 ng/mL or greater, further evaluation with biopsy should be considered.
- Men at high risk also should be informed about the benefits and limitations of testing for early prostate cancer detection and treatment so that they can make an informed decision with clinician's assistance.

### American College of Preventive Medicine

**1998**

Population screening

- The American College of Preventive Medicine recommends against routine population screening with DRE and PSA.

Opportunistic screening, Men > 50 years with life expectancy > 10 years

- Men age 50 or older with a life expectancy of greater than 10 years should be given information about the potential benefits and harms of screening and limits of current evidence and should be allowed to make their own choice about screening, in consultation with their physician, based on personal preferences.
- Methods and tools for helping patients review this information are available; however, the ACPM recommends further research be conducted in optimizing the process of patient education and informed consent.

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### American Urological Association

**2009**  
**Opportunistic screening, Men > 40 years with life expectancy > 10 years**

- The American Urological Association (AUA) and the AUA Foundation believe that early detection of and risk assessment for prostate cancer should be offered to asymptomatic men 40 years of age or older who have a life expectancy of at least 10 years.
- Men who wish to be screened should have both a prostate-specific antigen (PSA) test and a digital rectal exam (DRE).
- The decision to proceed to prostate biopsy should be based not only on PSA and DRE results, but should take into account multiple factors including free and total PSA, patient age, PSA velocity, PSA density, family history, ethnicity, prior biopsy history and comorbidities.
- The AUA strongly supports informed consent before screening is undertaken and the option of active surveillance, in lieu of immediate treatment, for certain men found to have prostate cancer.

### Australian Health Technology Advisory Committee

**1996**  
**Population screening**

- Current evidence does not support population screening of well men for prostate cancer.

Recommendations of the Australian Health Technology Committee report included that:

- Men being offered or requesting the PSA test be fully informed of the limitations of the available tests and the possible further diagnostic and treatment choices they may face if they have the test.

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Research into prostate cancer continues to be targeted as a high priority funding area by the National Health and Medical Council and other funding bodies.

A mechanism be established to ensure that new technologies for screening, diagnosis and treatment of prostate cancer are rigorously trialled before being introduced into routine clinical practice or, alternatively, that they are introduced under trial conditions involving appropriate professional bodies.

A monitoring mechanism be put in place to ensure that the Australian Health Technology Advisory Committee position on screening is reviewed when significant developments occur.

A comprehensive education program on the risks and benefits of prostate cancer testing be introduced for GPs, their patients and the community.

**Opportunistic screening**

- PSA testing in asymptomatic men is not recommended for routine clinical use; after request it should only be offered following full counselling about the implications.
- Counselling prior to PSA estimation should include the following information:
  - the test may detect a cancer and a stage where curative treatment can be offered; that the test may detect early prostate cancer in around 5% of men aged 50 to 65 years old
  - the test will fail to detect some early tumours
  - PSA testing and subsequent treatment of early prostate cancer may incur risk and may not improve life expectancy in all men.

**Opportunistic screening, Men aged 50-70 years**

- Fit men (men with at least 10 years life expectancy) between the ages of 50 and 70 should be made aware of the availability of PSA as a detection test for prostate cancer.
- They should be aware of the potential benefits and risks of early detection so they can make an informed decision as to whether to have the test performed.

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### Rationale

Serum PSA is of unknown value as a population screening test. Although there is good evidence that it increases the detection rate of early stage clinically significant prostate cancers, there is little evidence to date that such early detection leads to reduced mortality; the "gold standard" for evaluating screening tests.

#### Canadian Cancer Society

**2008**  
*Opportunistic screening, Men > 50 years (including family history)*

- All men over the age of 50 years should discuss with their doctor the potential benefits and risks of early detection of prostate cancer using PSA and DRE so that they can make informed decisions about the use of these tests.

- Men at higher risk because of family history or those of African ancestry should discuss the need for testing at an earlier age.

#### Canadian Task Force on Preventive Health Care

**1994**  
*Opportunistic screening, Men > 50 years*

- Fair evidence to exclude routine screening with PSA from the periodic health examination on asymptomatic men over 50 years of age.

Exclusion is recommended on the basis of low positive predictive value and the known risk of adverse affects associated with therapies of unproven effectiveness.

- Opportunistic screening with DRE, Men > 50 years

- Poor evidence to include or exclude DRE from periodic health examination for men over 50 years of age.

#### Canadian Urological Association

**2008**  
*Opportunistic screening (Previous recommendation)*

- Men should be made aware of the potential benefits and risks of early detection so that they can make an informed decision as to whether to have this test performed.

The DRE and PSA measurements increase the early detection of clinically significant prostate cancer.

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| Cancer Council Australia | 2008 | • The Cancer Council Australia does not support population-based screening of asymptomatic men for prostate cancer, because as yet there is no direct evidence showing a net benefit of screening in terms of reduction in mortality rates.  
• In the absence of direct 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.  
• 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.  
• Screening discussions and decisions should always include and take into account age and other individual risk factors such as family history of the disease. |
| Cancer Society of New Zealand | 1999 | • The Cancer Society does not recommend the testing of men who do not have symptoms.  
• The Cancer Society recommends that men who have no symptoms should be informed of the potential risks as well as the lack of proven benefit that it will reduce their chances of dying from prostate cancer before undergoing a test for prostate cancer. |
| National Cancer Institute | 2009 | • The evidence is insufficient to determine whether screening for prostate cancer with prostate-specific antigen (PSA) or digital rectal exam (DRE) reduces mortality from prostate cancer. |

Rationale

Benefits

Screening tests are able to detect prostate cancer at an early stage, but it is not clear whether this earlier detection and consequent earlier treatment leads to any change in the natural history and outcome of the disease.

Observational evidence shows a trend toward lower mortality for prostate cancer in some countries, but the relationship between these trends and intensity of screening is not clear, and associations with screening patterns are inconsistent.

The observed trends may be due to screening, or to other factors such as improved treatment. Results from two randomized trials show no effect on mortality through 7 years but are inconsistent beyond 7 to 10 years.

Harms

Based on solid evidence, screening with PSA and/or DRE detects some prostate cancers that would never have caused important clinical problems. Thus, screening leads to some degree of over-treatment.

Based on solid evidence, current prostate cancer treatments, including radical prostatectomy and radiation therapy, result in permanent side effects in many men. The most common of these side effects are erectile dysfunction and urinary incontinence.

Whatever the screening modality, the screening process itself can lead to adverse psychological effects in men who have a prostate biopsy but do not have identified prostate cancer.

Prostatic biopsies are associated with complications, including fever, pain, hematospermia/hematuria, positive urine cultures, and rarely sepsis.
The National Screening Advisory Committee does not recommend screening for prostate cancer.

NSAC intends to consider the issue of informed consent in prostate cancer screening by making suggestions for how the informed decision making process can be improved.

**Rationale**

This advice is based on the current state of evidence of prostate screening effectiveness which demonstrates that the harms outweigh the benefits. The European trial on prostate cancer screening reported a small benefit of screening every four years, whereas the U.S. trial reported no screening benefit. Both trials, however, reported significant screening harms associated with over treatment and over diagnosis including: infection, urinary incontinence and impotence.

The screening benefit observed in the European trial applied to the core age group of men aged 55 to 69 years. There was no screening benefit observed for younger men aged 50 to 54 years. Both trials are ongoing and reported interim results after approximately 10 years. Since the natural history of prostate cancer is approximately 15 years, a longer follow-up period may produce different results.

The National Health Committee recommends that population-based screening for prostate cancer by PSA and/or DRE is not introduced for asymptomatic men in New Zealand at present.

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Opportunistic screening

- Opportunistic screening of asymptomatic men for prostate cancer using PSA and/or DRE is not offered in New Zealand at present.
- Men who request a PSA test and/or DRE should be provided with information which clearly explains the possible harms and benefits of screening and subsequent treatment. This is to ensure that men reach a fully informed decision.

Royal Australian College of General Practitioners

- Routine screening for prostate cancer with digital rectal examination (DRE), prostate specific antigen (PSA) or transabdominal ultrasound is not recommended.

UK National Screening Committee (NSC)

- Patients should make their own decision about being tested for prostate cancer after being fully informed of the potential benefits, risks and uncertainties of prostate cancer testing.
- Where a patient chooses to be tested, both PSA and DRE should be performed.

* High-risk men
  - Men with one or more first degree relatives diagnosed before the age of 65 years
  - Men with a first degree relative with familial breast cancer (BRAC1 or BRAC2) should be informed of the risks and benefits of screening.

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While there is currently good evidence that PSA screening can detect early stage prostate cancer when curative treatment can be offered, it can also lead to 'over detection', i.e. detection of disease which will not impact on the health of a man during his lifetime. There is inconclusive evidence that such early detection can reduce mortality. (There are two large studies currently designed to address this question due to report in the next 5 years.) Testing and treatment for prostate cancer can cause substantial harm, including erectile dysfunction (20−70%) and urinary incontinence (15−30%).

Population screening

The UK NSC does not recommend screening men for prostate cancer.

Opportunistic screening, Patient requested

PSA (prostate specific antigen) testing can, however, be performed on request. Information is provided on the risks and benefits by the Prostate Cancer Risk Management Programme.

Although evidence does not yet support population screening for prostate cancer there is considerable demand for the PSA test amongst men worried about the disease.

Population screening, Average-risk men < 75 years

The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of prostate cancer screening in men younger than age 75 years. Grade: I Statement.

Where "Grade I" means the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined. If the service is offered, patients should understand.
the uncertainty about the balance of benefits and harms

**Population screening, Average-risk Men > 75 years**

- The USPSTF recommends against screening for prostate cancer in men age 75 years or older.
  Grade: D Recommendation.

Where ‘Grade D’ recommends against routinely providing [the service] to asymptomatic patients. The USPSTF found at least fair evidence that [the service] is ineffective or that harms outweigh benefits.

**Opportunistic screening, High-risk men (including family history)**

- Older men, African-American men, and men with a family history of prostate cancer are at increased risk for diagnosis of and death from prostate cancer. Unfortunately, the previously described gaps in the evidence regarding potential benefits of screening also apply to these men.

**Rationale**

**Benefits**

In men age 75 years or older, the USPSTF found adequate evidence that the incremental benefits of treatment for prostate cancer detected by screening are small to none.

**Harms**

The USPSTF found convincing evidence that treatment for prostate cancer detected by screening causes moderate-to-substantial harms, such as erectile dysfunction, urinary incontinence, bowel dysfunction, and death. These harms are especially important because some men with prostate cancer who are treated would never have developed symptoms related to cancer during their lifetime.

There is also adequate evidence that the screening process produces at least small harms, including pain and discomfort associated with prostate biopsy and psychological effects of false-positive test results.
The use of mass population-based PSA screening as public health policy is not recommended as published studies to date have not taken into account the cost-effectiveness of screening, nor the full extent of over-detection and over-treatment.

Opportunistic screening, Men aged 55-69 years

Therefore PSA based testing, together with digital rectal examination, should be offered to men in this age group, after providing information about the risks and benefits of such testing.

Rationale

Based on recent data from one of two large randomized screening studies, there was a reduced risk of prostate cancer death with PSA testing and treatment in those patients in the 55-69 year age group after 7-8 years.

Opportunistic screening, Men < 55 years

Men interested in their prostate health in these younger age groups could have a single PSA test and DRE performed at or beyond 40 to provide an estimate of their prostate cancer risk over the next 10-20 years based on age-specific median PSA values, with the intensity of subsequent monitoring being individualised accordingly.

Rationale

Men under 55 years of age are less likely to be diagnosed with prostate cancer, but if they are diagnosed, they are more likely to die from prostate cancer than men greater than 55 years of age due to a reduced likelihood of dying from co-morbid illnesses.
**Opportunistic screening, Other reasons (including family history)**

Prostate cancer can be detected at all levels of PSA.

- However, those men with PSA levels above age-specific median levels should be carefully monitored and considered for biopsy.
- Other factors including family history, ethnicity, digital rectal exam findings, PSA velocity and PSA derivatives such as the free/total ratio should also be considered.

<table>
<thead>
<tr>
<th>World Health Organization</th>
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<tr>
<td>Mass screening should not be introduced at the national level unless supportive evidence is available from the ongoing screening or treatment trials.</td>
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<td>Fully informing men of testing implications may reduce the number of men testing and ensure that those proceeding have given fully informed consent.</td>
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