

Prostate Cancer Screening

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Background

About prostate cancer screening

The Prostate Cancer Foundation and Cancer Council Australia guidelines on prostate cancer screening and management state that medical practitioners should: "offer evidence-based decisional support to men considering whether or not to have a PSA test, including the opportunity to discuss the benefits and harms of PSA testing before making the decision."¹

Practitioners should be able to provide balanced information to patients.

Since PSA testing was introduced in the 1990s there has been a 50% reduction in presentations of prostate cancer with metastases and a 38% reduction in mortality.^{2,3}

Assessment



Practice point

Do not offer screening to men with co-morbidities whose life expectancy is < 7 years.

1. Consider any factors that **increase risk** of prostate cancer.

Increase risk factors

- Family history:
 - If first degree relative, double the baseline risk.
 - If second or third degree relative, less significant increase.
- Presence of BRCA gene
- Elevated PSA
- Abnormal **digital rectal examination (DRE)**
 - Abnormal digital rectal examination (DRE)**
 - Investigate abnormal DRE in all patients, even when PSA is normal. Not all patients with prostate cancer have an elevated PSA.
 - Prostate cancer may cause asymmetrical, hard areas, or nodules.
 - Benign prostatic hyperplasia may cause smooth, firm, symmetrical enlargement.

2. Consider factors that will affect **results of test**.

Factors that will affect results

- PSA is increased by [benign prostatic hyperplasia](#), urinary tract infection, or prostatitis.
- PSA is halved by some [benign prostatic hyperplasia](#) medications e.g., alpha reductase inhibitors.
- Short-lived increases in PSA (48 hours) can occur with cycling, heavy exercise, intercourse, and ejaculation.

Discussion

1. Inform about benefits of screening e.g:
 - prevents one death for every 1000 men screened.
 - reduces incidence of presentations with metastases.
 - reduces mortality.
2. Inform about potential harms of screening e.g:
 - high false positives rates – 1 in 4 men with elevated PSA have cancer.
 - some men experience **side effects** from the biopsy.

Prostate biopsy side effects

- *Biopsy of the prostate is undertaken transrectally or transperineally.*
- *Both methods can lead to urinary retention and/or bleeding e.g., urethral, rectal, or haematospermia.*
- *Rates of sepsis vary significantly between the two:*
 - *2% with transrectal biopsy*
 - *< 0.01% with transperineal biopsy*
- false negatives – 8 to 10% of prostate cancers have normal PSA level. Some of these cancers can be detected on digital rectal examination (DRE).
- overdiagnosis – 28 in 1000 (2.8%) men receive a diagnosis of cancer that may remain asymptomatic for life.
- overtreatment – 25 in 1000 (2.5%) men choose to undergo treatment that they may not have needed.

3. Advise patient that diagnosis of prostate cancer does not mandate **treatment**.

Treatment options

Not all prostate cancer that is diagnosed requires treatment and some can be observed:

- *42% of cancers diagnosed go on to surveillance, not treatment*
- *58% will be treated*

Of prostate cancers that are treated with surgery:

- *50% risk of developing lasting impotence*
- *5 to 10% risk of developing lasting urinary incontinence*

Follow-up

If the patient chooses to go ahead with screening after being counselled about the benefits and risks, continue as below with appropriate frequency and follow-up of tests.

1. If the patient has an increased risk, offer testing every 2 years to patients aged:
 - 40 to 69 years.
 - > 69 years, if life expectancy > 7 years.
2. If the patient has no increased risk, offer testing every 2 years to patients aged:
 - 50 to 69 years.
 - > 69 years, if life expectancy > 7 years.

3. PSA abnormal:
 - If 3 to 10 ng/mL, **repeat test** in 1 to 3 months. Include free-to-total ratio. If the repeat test is above the **repeat test threshold**, arrange [urgent urology referral](#) and consideration of **biopsy**.

Prostate biopsies

There are two types of prostate biopsy approaches. Urologist will prescribe antibiotics before both procedures.

Transperineal biopsy:

- *Done under general anaesthetic.*
- *< 0.1% risk serious infection.*
- *Higher risk of urinary retention.*
- *Risk of blood in ejaculate, urine, and stool.*
- *Yields more accurate biopsy results. Negative biopsies require yearly PSA monitoring.*

Transrectal biopsy:

- *Done under sedation or awake under local anaesthetic.*
- *2% risk of serious infection.*
- *Risk of urinary retention.*
- *Risk of blood in ejaculate, urine, and stool.*
- *Negative biopsies require yearly PSA monitoring.*

Repeat-test threshold

- *Men aged 50 to 69 years whose repeat PSA test is:*
 - *> 5.5 ng/mL*
 - *3.0 ng/mL to 5.5 ng/mL with a free-to-total ratio < 25%*
- *Men aged 45 to 69 with an increased risk of prostate cancer whose PSA is 2.0 ng/mL to 3.0 ng/mL with a free-to-total < 25%*

Repeat test

Advise patient to avoid cycling, heavy exercise, intercourse, and ejaculation for 48 hours before test.

- If initial PSA > 10 ng/mL, arrange [urgent urology referral](#) and consideration of **biopsy**.
4. Advise that DRE:
 - is offered to men presenting with symptoms.
 - is not recommended as a routine examination for asymptomatic men who wish to be screened for prostate cancer with a PSA test. But is still an important part of assessment upon referral to a urologist.
 5. **MRI** is not recommended before referral.

MRI

- *MRI is now being used by urologists to assess risk for patients with PSAs between 4 and 10.*
- *It locates a targetable lesion to refine biopsy technique.*
- *MBS rebate available, if ordered by a urologist or oncologist.*
- *A tissue diagnosis is still required if MRI is used.*
- *MRI assists in the planning of surgery, if required.*

Referral

In all requests, include **information for triage of suspected prostate cancer**.

Information for triage

Must provide:

- Initial PSA result of concern.
- Repeated PSA result 1 to 3 months after initial test.
- Midstream specimen of urine.

If available, provide urinary tract ultrasound.

In all requests, include **standard patient and referrer details**.

Standard referral information

- History and comorbidities
- BMI – essential if obstetric or surgical referral
- Examination findings
- Investigations carried out and results
- Options already pursued
- Current medications
- Allergies
- Other important information e.g., social factors, other services involved

Arrange [urgent urology referral](#) if:

- **clinically significant PSA** elevation on repeat test.

PSA referral guidelines

- Any man with a PSA > 10 ng/mL
 - Men aged 50 to 69 years whose repeat PSA test is:
 - > 5.5 ng/mL
 - between 3.0 ng/mL and 5.5ng/mL, with a free-to-total ratio < 25%
 - Men aged 45 to 69 years with an increased risk of prostate cancer whose PSA is between 2.0 ng/mL and 3.0 ng/mL, with a free-to-total < 25%
 - A significant PSA rise in any man whose PSA has previously been low
 - Any men with a palpable abnormality in the prostate on DRE
 - Any man with bone pain
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- an abnormal prostate or suspicion of malignancy on DRE is detected.
 - there is a significant PSA rise (> 1.5 ng/mL/year) with previously low PSA values.
 - PSA < 3 ng/mL on second test, with a free-to-total ratio < 20%.
 - suspicion of metastatic disease.

Information

For health professionals

Clinical information

- Australian Department of Health – [Prostate Cancer Screening](#)
- Cancer Council Victoria:
 - [Implementing PATHways for Cancer Early Diagnosis: I-PACED Prostate Cancer Resource Card](#)
 - [Optimal Care Pathway for Men with Prostate Cancer: Quick Reference Guide](#)
- Prostate Cancer Foundation of Australia – [PSA Testing and Early Management of Test-detected Prostate Cancer](#)

For patients

- Andrology Australia – [PSA Test](#)
- Better Health Channel – [Prostate Cancer Testing](#)
- Cancer Council – [Prostate Cancer](#)
- Royal Australian College of General Practitioners – [Should I have Prostate Cancer Screening](#)

Sources

References

1. [PSA Testing and Early Management of Test-Detected Prostate Cancer](#). [place unknown]: Prostate Cancer Foundation of Australia and Cancer Council Australia; 2016.
2. Schroder FH, Hugosson J, Roobol MJ, Tammela TL. [Prostate-cancer mortality at 11 years of follow-up](#). New England Journal of Medicine. 2012 Mar;366(11):981-990.
3. van Leeuwen PJ, Connolly D, Gavin A, Roobol MJ, Black A, Bangma CH, et al. [Prostate cancer mortality in screen and clinically detected prostate cancer: Estimating the screening benefit](#). European Journal of Cancer. 2010;46(2):377-383.

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