



Benefits and Harms of PSA Screening



The Canadian Task Force on Preventive Health Care recommends against screening for prostate cancer with the PSA test

- The CTFPHC found that the potential small benefit from PSA screening is outweighed by the potential significant harms of the screening and associated follow-up treatment.
- Men should understand that PSA screening may result in additional testing if the PSA level is raised.
- To save one life we would need to diagnose an additional 27 men with prostate cancer

RESULTS OF SCREENING 1,000 MEN WITH THE PSA TEST
(age 55–69 years, screened over a 13-year period, and with a PSA screening threshold of 3.0 ng/ml)



What are my risks if I don't get screened?

- Among men who are screened with the PSA test, the risk of dying from prostate cancer is 5 in 1,000
- Among men who are not screened with the PSA test, the risk of dying from prostate cancer is 6 in 1,000

720 men will have a negative PSA test

178 men with a positive PSA in whom follow-up testing does not identify prostate cancer

4 of these 178 will experience biopsy complications such as infection and bleeding severe enough to require hospitalization

102 men will be diagnosed with prostate cancer

33 of these 102 prostate cancers would not have caused illness or death

Because of uncertainty about whether their cancer will progress, most men will choose treatment and may experience complications of treatment

5 men will die from prostate cancer

1 man will escape death from prostate cancer because he underwent PSA screening

Complications of treatment for prostate cancer

- 114–214 will have short-term complications such as infections, additional surgeries, and blood transfusions
- 127–442 will experience long-term erectile dysfunction
- up to 178 will experience urinary incontinence
- 4–5 will die from complications of prostate cancer

Statistics for benefits and harms were calculated from the European Randomized Study of Screening for Prostate Cancer (ERSPC).

*Recommendations are graded according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system.



PSA Screening: Primary Care Practitioner FAQ



The recommendations apply to all men not previously diagnosed with prostate cancer

- For men aged less than 55 years, we recommend not screening for prostate cancer with the prostate-specific antigen test.
(*Strong recommendation; low quality evidence**)
- For men aged 55-69 years, we recommend not screening for prostate cancer with the prostate-specific antigen test.
(*Weak recommendation; moderate quality evidence*)
- For men 70 years of age and older, we recommend not screening for prostate cancer with the prostate-specific antigen test.
(*Strong recommendation; low quality evidence*).

1. Why are there different recommendations for different age groups?

There is no evidence that PSA screening reduces overall mortality for men of any age and consistent evidence that screening and active treatment lead to harm. However there is conflicting evidence suggesting a small and very uncertain potential reduction in prostate cancer mortality in men aged 55-69 years and no convincing evidence of a reduction in prostate cancer mortality for any other age group.

2. Do these guidelines include high-risk groups such as those of black race/ancestry or those with a family history of prostate cancer?

Yes. There was no evidence indicating that men of black race/ancestry or those with a family history of prostate cancer (one or more affected first-degree relatives) should be screened differently from the average-risk population.

3. Does this guideline include screening with digital rectal examination (DRE)?

This guideline recommends not screening with the PSA test, regardless of whether DRE is performed. Although DRE has been used in clinical practice to screen for prostate cancer, there was no evidence showing that DRE reduces prostate cancer mortality when used on its own or with the PSA test.

4. Is it necessary for primary care practitioners to discuss the benefits and harms of screening with their patients?

If patients raise the issue of PSA screening, physicians should discuss the benefits and harms associated with screening. Men should understand that undergoing a PSA test can lead to additional testing if the PSA level is raised. Tools outlining the harms and benefits of screening are available at www.canadiantaskforce.ca

5. Why does the CTFPHC recommend against prostate cancer screening when the death rate has fallen since the introduction of the PSA test?

There is no conclusive evidence to indicate what proportion of the decline in prostate cancer mortality is due to screening, improved treatment, or other factors; it is likely that both screening and treatment have contributed.

However, the CTFPHC found that the potential small benefit that can result from PSA screening is outweighed by potential significant harms of PSA screening and associated follow-up treatment.

KEY POINTS

- The prevalence of undiagnosed prostate cancer at autopsy is high and increases with age (over 40% in men aged 40-49 years to over 70% in men aged 70 to 79 years).
- Only a small proportion of prostate cancer causes symptomatic disease or death whereas the majority is slowly progressive and not life threatening.
- Screening with PSA may lead to a small reduction in prostate cancer mortality but does not reduce overall mortality
- PSA thresholds of 2.5ng/ml to 4.0ng/ml are commonly used for screening, with lower thresholds increasing the probability of false positive results and overdiagnosis, but no value completely excludes prostate cancer
- Harms (such as bleeding, infection, urinary incontinence, false positives and overdiagnosis) are common following PSA screening
- PSA should not be used for screening without prior informed discussion, ideally using decision aids to facilitate comprehension.

*Recommendations are graded according to the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. For explanation of GRADE recommenda-



PSA Screening: Patient FAQ



1. What is the PSA test?

The PSA test is a blood test that is commonly used to detect possible prostate cancer. Elevated PSA levels may indicate the presence of prostate cancer, but can also be caused by other common non-cancer related conditions such as an enlarged prostate (also known as benign prostatic hyperplasia or BPH) or inflammation of the prostate gland (also known as prostatitis) due to an infection or other cause.

2. Why does the CTFPHC recommend against PSA screening for prostate cancer?

The CTFPHC recommends against PSA screening because they found that the potential harms of screening outweigh the benefits.

3. Are there any other tests that can detect prostate cancer?

Currently no other screening tests have been proven to accurately identify prostate cancer. Several tests are being developed to improve the accuracy of PSA screening. However, right now there is not enough evidence to tell us whether or not they are accurate.

4. Why are there harms with PSA screening? Isn't it a simple blood test?

The PSA test is a simple blood test, but if the result is positive, men are likely to then undergo further tests such as a biopsy. There are several harms associated with biopsies, as described in the table. In addition, there is a risk that you will be diagnosed and treated for a slow-growing cancer that would not have caused any trouble in your lifetime.

5. What if I still want the PSA test?

Because of recent efforts to encourage screening for prostate cancer, some men may still be interested in the test. Talk to your doctor about the benefits and harms of PSA screening.

BENEFITS

LOWER RISK OF DYING FROM PROSTATE CANCER

- 1 out of every 1,000 men screened with PSA will escape death from prostate cancer.

HARMS

FALSE-POSITIVE RESULTS

- Most men who have a positive PSA result will undergo a prostate biopsy.
- A false-positive result occurs when a man with a positive PSA result undergoes a biopsy, with the biopsy showing that he does not have prostate cancer.

178 out of every 1,000 men screened with the PSA test will have an unnecessary biopsy to confirm they do not have prostate cancer.

COMPLICATIONS OF PROSTATE BIOPSY

- Prostate biopsy carries a number of complications, including blood in the urine or semen, rectal bleeding, infection and in rare cases, death.

21 out of every 1,000 men who undergo prostate biopsy will have complications severe enough to require hospitalization.

2 out of every 1,000 men who undergo prostate biopsy will die within 120 days of the biopsy, because of complications.

OVERDIAGNOSIS

- Overdiagnosis is the detection of cancers that grow so slowly they would not have caused illness or death during the man's lifetime.

Almost half of all the cancers detected through PSA screening would NOT have caused illness or death in the man's lifetime. However, because of uncertainty about whether their cancer would progress, most men will choose treatment and may experience complications of treatment.

HARMS OF TREATMENT

For every 1,000 men who receive treatment for prostate cancer:

- 114–214 will have short-term complications such as infections, additional surgeries, and blood transfusions
- 127–442 will experience long-term erectile dysfunction
- up to 178 will experience long-term urinary incontinence
- 4 or 5 will die from complications of prostate cancer surgery



RESULTS OF SCREENING 1,000 MEN WITH THE PSA TEST*



WHAT ARE MY RISKS IF I DON'T GET SCREENED?

- Among men ages 55 to 69 who do not get screened, the risk of dying from prostate cancer is 6 in 1,000.
- With regular PSA screening, the risk of dying from prostate cancer among men aged 55 to 69 may be reduced to 5 in 1,000.
- In many cases prostate cancer does not, and will not, pose a threat to a man's life.

ISN'T IT BETTER TO GET SCREENED THAN TO DO NOTHING?

- Screening with the PSA often leads to further testing, which carries with it its own serious risks and problems.
- For example, a biopsy involves a number of potential harms such as infection, blood in the urine, or even death.
- Additionally, if testing leads to treatment, such as a prostatectomy (removal of the prostate gland), the chances of urinary incontinence and erectile dysfunction significantly increase. Other short term post-surgical complications include infections, additional surgeries and blood transfusions and death.

WHAT DOES THE CANADIAN TASK FORCE ON PREVENTIVE HEALTH CARE RECOMMEND?

- Based on the lack of convincing evidence that PSA screening reduces prostate cancer mortality, and based on the consistent evidence that screening and active treatment does lead to harm, the CTFPHC recommends not using PSA testing to screen for prostate cancer.
- For more information on the Canadian Task Force on Preventive Health Care's recommendations please visit: www.canadiantaskforce.ca.

WHAT ARE THE BENEFITS OF SCREENING?

- Reduced risk of dying from prostate cancer – 1 out of every 1000 men will escape death because he underwent PSA screening.