

PSA Screening for Prostate Cancer Information for Care Providers

All men should know they are having a PSA test and be informed of the implications prior to testing.

This booklet was created to help primary care providers offer men information about the risks and benefits of PSA screening and treatment for prostate cancer.

Men who are concerned about the risk of prostate cancer should have access to clear and balanced information on the advantages and disadvantages of the PSA test. This will help them make more informed decisions about PSA testing, as there can be potentially serious consequences associated with their choices. Research on PSA testing is still controversial and unclear, so it is important that men receive a concise and transparent message from their primary health care providers.

Prostate cancer incidence and mortality

- Prostate cancer is the leading type of cancer diagnosed in men.
- Prostate cancer is the third most common cause of cancer-related deaths in men.
- Prostate cancer is rare in men under the age of 50.

What to consider before doing a PSA test

Evidence indicates that PSA is stable in whole blood for up to 16 hours at room temperature. When taking blood you should ensure that the specimen will reach the laboratory and be separated within this time frame.

Before having a PSA test, men should NOT have:

- an active urinary infection
- ejaculated in the previous 48 hours
- had a prostate biopsy in the previous 6 weeks

If possible, do the PSA test before a digital rectal examination (DRE). If not, the recommendation is to delay the PSA test for one week after the DRE.

Risks and benefits of PSA testing

- Currently there are no evidence-based guidelines for prostate cancer screening in Canada.

- To date, there is no consistent, clear evidence that screening for prostate cancer using PSA testing reduces mortality.
- PSA testing is controversial; professionals disagree on the usefulness of the test for population screening.
- PSA testing aims to detect localized prostate cancer when potentially curative treatment can be offered.

What other organizations say about PSA testing

- The Canadian Cancer Society recommends that all men over 50 discuss potential benefits and risks of early detection methods with their doctors. Men with a family history of prostate cancer or black men may wish to ask about testing before age 50.
- The Canadian Task Force on Preventative Health Care recommends against PSA screening.
- The U.S. Preventative Services Task Force says it cannot recommend for or against routine PSA or DRE testing because of lack of evidence.
- The National Cancer Institute (U.S.) says there are no standard or routine tests to screen for prostate cancer.
- The World Health Organization says it is not clear if screening for prostate cancer with the PSA test reduces the number of deaths from the disease.

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There are significant gaps in knowledge about the PSA test, prostate cancer and treatment options. The potentially harmful effects of prostate cancer treatments are particularly significant. Screening can cause some men with indolent cancer to choose treatments that can lead to impotence, incontinence and even death. For this reason there are currently no recommended screening tests for men at average risk and with no symptoms of prostate cancer.

Research into prostate cancer screening

Scientists are studying the effectiveness of testing for prostate cancer. Two major studies are currently being conducted to review the effectiveness of PSA testing alone or in combination with the DRE.

They are:

- The U.S. Prostate, Lung, Colorectal & Ovarian Cancer (PLCO) Screening Trial

The PLCO trial includes over 75,000 men. Half are assigned to have a regular DRE, PSA test or both. The other half is the control group and will not be tested. The purpose of the study is to see if testing for prostate cancer will save lives. The men must be monitored for several years, so initial results are not expected until 2010.

- The European Randomized Study of Screening for Prostate Cancer (ERSPC)

The ERSPC study includes over 250,000 men in 8 centres across Europe. Half the men were assigned to have an initial DRE and PSA test (including the ratio of free-to-total PSA). At some centres, men also underwent TRUS (transrectal ultrasound). Repeat testing was done every 1 to 4 years. The other men are the control group, and received no testing. Some countries have issued preliminary results of their portions of the study, however, complete results are not expected for two years.

What men should know before having a PSA test

PSA screening issues:

- Some men with clinically significant prostate cancer (up to 20%) will not have a raised PSA.
- About 2/3 of men with a raised PSA will not have prostate cancer.
- The PSA test is not diagnostic. If the PSA is raised, a prostate biopsy is required to diagnose cancer.
- Some men with potentially aggressive tumours detected following PSA testing may benefit from treatment.
- Some cancers detected following PSA testing will be slow growing and may never cause any symptoms or shorten life expectancy. Some men who are tested may therefore face unnecessary anxiety, medical tests, and treatments with side effects.
- PSA testing is not usually recommended for an asymptomatic man with less than 10 years life expectancy.

Transrectal ultrasound (TRUS) guided prostate biopsy

A TRUS biopsy involves taking several samples of prostate tissue from the prostate gland using an ultrasound guided needle. This examination is performed to determine what type of abnormality is present within the prostate gland.

TRUS limitations:

- Most men describe the biopsy as an uncomfortable experience and some describe it as painful.
- The biopsy procedure can cause significant anxiety.
- Some clinically significant prostate cancers (up to 20%) will be missed by biopsy.

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- Management of men with a negative biopsy but a persistently elevated PSA is very difficult. Prolonged periods of follow-up, with the possibility of re-biopsy may cause considerable anxiety.

TRUS complications:

- Blood in the semen
- Blood in the urine
- Rectal bleeding
- Pelvic discomfort
- Pain during urination
- Fever

Grading the tumor

When a biopsy confirms cancer, the next step (“grading”) is to determine how aggressive the cancer is. The most common cancer grading scale, the Gleason score, runs from 1 to 5 (1 being the least aggressive form). These numbers refer to the appearance and activity of cancer cells, and may help determine the best treatment option. The Gleason score adds the grades of the 2 most prevalent patterns of cells, so scores may range from 2 (non-aggressive) to 10 (very aggressive). The eventual spread of a tumour depends on the aggressive nature of the prostate cancer cells.

Treatment

To date, data from randomized controlled trials have not proven:

- the **optimal treatment** for localized prostate cancer
- whether any treatment option **reduces overall mortality** in men with localized prostate cancer

There are consequences associated with prostate cancer treatment. Men who have been screened may be diagnosed with cancer that never shows

symptoms or affects life expectancy. These men then face the unnecessary anxiety and side effects associated with a biopsy and treatment.

Decisions about treatment depend on a number of factors, including age, life expectancy, overall health, PSA level, Gleason score, and the growth and spread of the tumour. Treatment options should be carefully discussed with the patient.

Watchful Waiting

During active monitoring, a urologist follows up regularly with the patient. This approach is based on the premise that some men with prostate cancer will die from other causes (due to age, co-morbidity, or having slowly progressing tumours) and will not suffer significant morbidity from their prostate cancer.

Watchful waiting is often the treatment option for men with an estimated life expectancy of less than 10 years. However, it is also an option for men with greater life expectancies who wish to avoid the unpleasant side effects of surgery or radiation therapy.

Watchful waiting should be discussed with all patients whose cancer is considered localized.

Benefits:

- Watchful waiting is non-invasive.
- There are no unpleasant side effects.

Risks:

- Some men will develop metastatic disease.
- It may be difficult to cope with the uncertainty associated with this approach.

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Radical Prostatectomy

Surgery can be used to treat localized prostate cancer. It is usually offered as a good option to fit, healthy men under the age of 70. Surgery is not usually recommended for men with less than 10 years life expectancy.

The aim of surgery is to remove the prostate gland and stop the cancer from spreading to other parts of the body.

Complete tumour clearance is not always achieved. Up to 40% of patients who undergo surgery are found to have capsular penetrance or positive resection margins. About half of these develop biochemical or clinical recurrence of the disease. However, recurrence does not necessarily equate with either significant health problems or death from prostate cancer.

Benefits:

- A patient may be cured if the cancer is contained within the prostate gland and completely removed.
- The doctor will find out exactly how far the cancer has developed.
- Surgery will also treat BPH and its symptoms.

Risks:

- Prostate surgery carries the same risks as any major operation, such as: bleeding and the need for a blood transfusion, injury to nearby tissues and nerves, chest infection, blood clots in the lower legs that could travel to the lung, and wound infection.
- If the cancer has broken out of the prostate gland, it may not be possible to remove all of it and some cancer cells may be left behind. These can be treated at a later date with radiation therapy, hormone therapy or a combination of both if the PSA starts to rise.

- The operation carries a risk of specific side effects such as; erectile dysfunction, infertility and urinary incontinence.

Radiation Therapy

Radiation therapy can be used to treat men with localized prostate cancer, and a small number of men whose cancer has spread to the area just outside the prostate gland. Radiation therapy is not usually recommended for men with less than 10 years life expectancy. The two most common types of radiation therapy are:

1. External Beam Radiation

High energy X-ray beams are directed at the prostate from outside the body. Radiation damages the cells and stops them from dividing and growing. Cancer cells are not able to recover from this damage and die, but normal healthy cells can repair themselves more easily. The whole prostate is treated including the area surrounding the gland to make sure that any stray cancer cells are treated.

2. Brachytherapy

Brachytherapy can be used to treat cancer that has not spread outside the prostate gland. Brachytherapy appears to be as effective as radical prostatectomy or external beam radiation therapy in men who are suitable candidates for the treatment.

Radioactive seeds are implanted directly into the prostate gland. Each seed is the size and shape of a small grain of rice. The radioactive seeds give off a higher dose of radiation than external beam radiation because the seeds are inside the prostate. The seeds give off radiation over several months, with most of the radiation being released in the first three months after the implant.

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Side effects:

- short-term bowel and bladder problems related to the radiation
- long-term impotence and urinary problems

Benefits:

- Radiation therapy is as effective as surgery.
- It has no risks associated with anaesthesia.
- It has better sexual function outcomes in the early post-treatment period than radical prostatectomy.
- Recovery is quick so patients can return to normal activities soon after treatment.

Risks:

- It can have a delayed effect on sexual function.
- Cancer can recur if all cancer cells aren't killed.
- It carries a risk of bowel problems such as diarrhea and urinary problems.
- It may cause a temporary decrease in energy.
- Radiation can damage the healthy tissue near the prostate.
- It doesn't clarify the status of a tumour immediately after treatment.
- PSA test results are not as accurate after treatment.

Hormone Therapy

The male body produces a hormone called testosterone, which controls the development and growth of male sexual organs, including the prostate gland. Normal levels of testosterone do not usually cause any problems, but if there are cancer cells in the prostate gland, testosterone can cause them to grow faster.

Hormone therapy attempts to suppress growth of the cancer by reducing circulating androgen levels. It is used in different ways depending on the stage of the cancer.

Localized prostate cancer may be monitored (watchful waiting) or treated with radical prostatectomy or radiation therapy. Hormone therapy may be offered in several situations:

- For patients who are having radiation therapy, hormone therapy may be administered for about 3 months before treatment starts. This shrinks the tumour and makes it easier to treat. Hormone therapy does not benefit men with localized disease who are having a radical prostatectomy.
- Some men who are having radiation therapy may have hormone therapy at the same time. If there is a high risk of the cancer spreading, therapy may continue.
- Hormone therapy can be used alone as a second line of treatment, if the first treatment is no longer controlling the cancer.

Because locally advanced cancer is not contained within the prostate gland, it is not possible to remove it completely with radical prostatectomy or radiation therapy. Hormone therapy treats prostate cancer wherever it is in the body and is the standard treatment for locally advanced prostate cancer.

Side effects of hormone therapy include impotence, loss of libido, breast swelling and hot flashes.

Conclusion

Prostate cancer is a significant health concern for men.

There are issues surrounding early diagnosis and treatment options. Currently, there is no solid evidence supporting PSA screening for prostate cancer.

Due to the uncertainties surrounding PSA testing it is important that men who request a test receive balanced information to assist them in making an informed decision.