

Prostate Cancer

Information for people with cancer

This information should not be used to diagnose yourself or in place of a doctor's care.

The prostate is a gland that produces a milky fluid. This fluid makes up a large portion of semen that men ejaculate.

The prostate is located under the bladder. The urethra, which is the tube that carries urine (pee) from the bladder to the penis, runs through the prostate.

Image of prostate:

visualsonline.cancer.gov/retrieve.cfm?imageid=4280&dpi=150&fileformat=gif

Prostate cancer is the most common form of cancer in Canadian and American men (See note below, Statistics)

Note: Available statistics do not have information about the inclusion of transgender and gender diverse participants. It is unknown how these statistics apply to transgender and gender diverse people. Patients are advised to speak with their primary care provider or specialists about their individual considerations and recommendations.

Diagnosis and Staging

What are the signs and symptoms of prostate cancer?

In early-stage prostate cancer, you may have no symptoms.

However, as you age, your prostate can get larger for many reasons. This can make it hard for you to urinate (pee).

The symptoms below do not mean you have prostate cancer but they can be signs of prostate cancer. Talk to your doctor if you have any of these symptoms:

- Trouble starting or stopping urination (peeing).
- Slow urine stream.
- Painful urination or ejaculation.



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- Dribbling of urine.
- Needing to urinate more than normal for you.
- Blood in your urine or ejaculate (semen).
- Waking up in the middle of the night with a need to urinate.

In advanced-stage prostate cancer, you may have these symptoms:

- Weight loss.
- Fatigue (extreme tiredness).
- Back pain or sciatica-like pain (sudden, “shooting” pain that goes from your lower back and down your leg).
- Swelling in your legs that does not go away.

If you have any signs or symptoms that you are worried about, please talk to your family doctor or nurse practitioner.

How is prostate cancer diagnosed?

Prostate cancer is usually found during a physical exam by a doctor or nurse practitioner.

Sometimes prostate cancer is found after surgery for an enlarged prostate gland (when your prostate is bigger than normal). Before the surgery, your health care team does not think there is cancer in your prostate. However, cancer is then found after the surgery.

These are tests that can help diagnose prostate cancer:

- **Digital rectal examination (DRE):** a doctor or nurse practitioner puts their finger through your anus (opening to your bum) and into your rectum. Your rectum lies right behind your prostate. This allows the doctor or nurse practitioner to feel for any irregular texture (such as a lump) in your prostate. A lump may be a sign of cancer. Your doctor or nurse practitioner may recommend this exam if you have symptoms of a prostate problem.

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- **PSA blood test:** this measures the amount of Prostate Specific Antigen (PSA) in your blood. Normal levels of PSA are between 4 and 7 ng/mL (nanograms per milliliter). You may need a PSA test if your DRE is suspicious for cancer. If you are over 40 years old, you may want to ask your doctor or nurse practitioner if they recommend you get this test.

If the DRE or PSA blood test is suspicious for cancer, your doctor or nurse practitioner may then refer you to a urologist. A urologist is a doctor who specializes in the urinary system.

- **Transrectal ultrasound (TRUS):** a doctor puts an ultrasound transducer (a probe that uses sound waves to give an image) through your anus into your rectum. This lets the doctor look at your prostate and the tissues around it. An ultrasound is also used during a prostate biopsy to guide the needle that will take small pieces of tissue from your prostate.
- **Biopsy:** a doctor uses an ultrasound transducer to guide a needle to your prostate. The needle will be put into your prostate 10-12 times to take tiny pieces of the prostate. These pieces will be checked for cancer by a specialist (pathologist). Your doctor will give you some local anesthetic (numbing agent) to help with the discomfort during the biopsy.

If any of these tests are suspicious for cancer or find cancer, you may need more tests. These tests are only done if your cancer is high risk (see risk types below).

- **Bone scan:** this is a type of imaging that checks to see if cancer has spread to your bones. You will have this scan if your PSA is more than 10 ng/mL or if your biopsy shows a high risk cancer (a cancer that is growing more quickly and is more likely to spread).
- **CT (computed tomography) scan:** this is a type of imaging that checks to see if your cancer has spread outside of your prostate into tissues or organs in your chest, abdomen or pelvis.

For more information on tests used to diagnose cancer, see our Recommended Websites - Screening and Diagnosis section: bccancer.bc.ca/our-services/services/library/recommended-websites/screening-and-diagnosis-websites

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What are the types of prostate cancer?

More than 95% (95 out of 100) of prostate cancers are adenocarcinomas. These are cancers that start in gland cells. In the prostate, gland cells make mucus and prostatic fluid.

The other types of prostate cancer are rare and they start in other cells of the prostate.

Risk groups

Prostate cancer is divided into three risk groups: low risk, intermediate risk and high risk. The risk groups are based on:

- **PSA**
- **Gleason score:** This describes the cancer based on how it looks and acts. A pathologist gives a number after looking at the prostate cancer biopsy. The number can be 1, 2, 3, 4 or 5. The lower the number, the closer the cancer cells look and act like normal cells. The higher the number, the more they look and act like cancer cells. The pathologist will give a number for each pattern of cells they see in the biopsy.

The first number is the most common pattern they see. The second number is the second most common pattern they see. The pathologist will add the two scores to give the total Gleason score. Higher scores mean the cancer is higher risk.

For example, if the most common pattern is 3 and the second most common pattern is 4, the Gleason score is $3 + 4 = 7$.

If the most common pattern is 4 and the second most common pattern is 3, the Gleason score is $4 + 3 = 7$. However, this cancer is a higher risk than the cancer above because the most common pattern (first number) is a higher grade than the second number.

- **Stage:** Staging is based on how much cancer is in the body, where it was first diagnosed, if the cancer has spread and where it has spread to.

The stage of the cancer can help your health care team plan your treatment. It can also tell them how your cancer might respond to treatment and the chance that your cancer may come back (recur).

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- **Stage T1:** doctor cannot feel the tumour during a digital rectal exam.
- **Stage T1a:** cancer is found in 5% or less of the tissue removed from the prostate.
- **Stage T1b:** cancer is found in more than 5% of the tissue removed from the prostate.
- **Stage T2:** doctor can feel a nodule (lump) during digital rectal exam. Cancer is only in the prostate.
 - **Stage T2a:** tumour is in half or less of one side of the prostate.
 - **Stage T2b:** tumour is in more than half of one side of the prostate.
 - **Stage T2c:** tumour is in both sides of the prostate.
- **Stage T3:** tumour has grown through the capsule (outside layer) of the prostate.
 - **Stage T3a:** tumour has grown outside of the prostate but not grown into the seminal vesicles (glands that make fluid that is added to semen).
 - **Stage T3b:** tumour has grown outside of the prostate and into the seminal vesicles.
- **Stage T4:** tumour has grown outside the prostate and into nearby organs such as the bladder, rectum, pelvic muscles or pelvic wall.

Your PSA, Gleason score and stage determine your risk group. Your risk group helps your health care team plan your treatment.

Low risk - must have **all** of the following:

- PSA less than or equal to 10 ng/mL
- Gleason score less than or equal to 6
- Stage T1 or T2a

Intermediate risk - Not low or high risk, any of:

- PSA more than 10 ng/mL
- Gleason score is 7
- Stage 2B

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High risk – has **any** of the following:

- PSA more than 20 ng/mL
- Gleason score is higher than or equal to 8
- Stage T3a or higher

For more information on staging, see our About Cancer page:

www.bccancer.bc.ca/health-info/types-of-cancer/about-cancer

Treatment

What is the treatment for prostate cancer?

Your treatment depends on the risk group of your prostate cancer.

Cancer treatment may be different for each person. It depends on your particular cancer.

Treatment for prostate cancer can include surgery, radiation therapy, androgen deprivation therapy or a combination of these treatments. Some prostate cancers do not need treatment.

The type of treatment you get depends on your age, medical condition, and what you want.

Below is information about treatments for prostate cancer that has not spread outside of the prostate (also called localized disease).

Active Surveillance

- This is an option for people who have low risk or intermediate risk prostate cancer.
- If you are on active surveillance, your doctor will monitor you closely. You will get PSA blood tests and DRE's regularly. You may also get MRI's (magnetic resonance imaging).
- Active surveillance lets people with low risk cancer avoid many side effects of treatment.

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Watchful Waiting

This is slightly different than active surveillance.

Watchful waiting is for people who:

- Are elderly and we do not expect their prostate cancer to shorten their life.
- Have other health issues and cannot have treatment for prostate cancer.

If you are on watchful waiting and start to have symptoms from your prostate cancer, your doctor or nurse practitioner will talk with you about managing your symptoms.

Surgery: Radical Prostatectomy

- This is when a urologist takes out your prostate and seminal vesicles.
- This treatment is for localized prostate cancer.
- There are a few types of radical prostatectomy:
 - **Open prostatectomy:** a surgeon makes a cut just below your belly button and removes the prostate and other tissues. This is called a radical retropubic prostatectomy. It is the most common type. The surgeon can also make a cut in the perineum (area of tissue between your scrotum and anus). This is called a radical perineal prostatectomy.
 - **Robotic prostatectomy:** a surgeon controls robotic arms that make small cuts near your belly button. The surgeon uses robotic arms to remove the prostate and other tissues through the cuts.
 - **Laparoscopic prostatectomy:** a surgeon uses a laparoscope (a tube that has a light and video camera on the end) and other surgical tools. The laparoscope and tools are put through small cuts near your belly button. The surgeon removes the prostate and other tissues through the cuts.

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Radiation Therapy (high-energy x-rays that kill or shrink cancer cells)

- If your cancer is localized, you may have radiation therapy. Radiation therapy may be an option instead of surgery. You may also have radiation therapy plus surgery if your cancer has spread outside of the prostate or your health care team thinks it has spread.
- You may need radiation after a prostatectomy if your health care team is concerned about any leftover cancer.
- For more advanced cancers that have spread to other parts of the body (metastatic prostate cancer), radiation therapy is used to control the growth of the cancer. It cannot cure advanced prostate cancer but may help with symptoms from the cancer.

There are different types of radiation therapy for prostate cancer:

External Beam Radiation Therapy (EBRT)

- A machine called a linear accelerator directs a beam of radiation through your skin to the cancer.

Brachytherapy

- Radioactive seeds are put inside your prostate. This is done in a similar way to a prostate biopsy.
- The seeds are permanent (they will never come out of your prostate). They lose their radioactivity over time.

Intensity Modulated Radiation Therapy (IMRT)

- This is a type of external beam radiation therapy.
- The dose of radiation is more focused on the cancer.
- The machine that delivers the radiation moves around your body during treatment.
- The prostate gets a higher dose of radiation.
- Other things, like the bladder, get less radiation. This can lower side effects.

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RapidArc™

- This is a type of IMRT.
- Before treatment, 3 gold seeds are put into your prostate. This allows the radiation therapists to put you in the most accurate position for treatment.

Androgen Deprivation Therapy (often called hormone therapy)

- Prostate cancers usually need testosterone so they can grow. Testosterone is a type of hormone called an androgen. It is made by your testicles.
- If we lower the amount of testosterone in your body, the tumour may stop growing.
- There are two ways to lower androgen in your body:
 - **An orchiectomy** (surgical castration) to remove your testicles since they make most of the testosterone. This is rarely done now since we can lower testosterone with drugs.
 - **Medical castration** is when you take drugs that lower your testosterone level.
- Androgen Deprivation Therapy may be used with radiation therapy for better treatment results.

There are different drugs used for androgen deprivation therapy.

LHRH agonists

- Luteinizing hormone-releasing hormone (LHRH) agonists stop your pituitary gland from secreting a hormone called luteinizing hormone.
- If no luteinizing hormone is secreted, your testicles do not make androgens.
- These drugs can be injected or implanted under your skin.
- Common LHRH agonists are leuprolide (Lupron), goserelin (Zoladex) and triptorelin (Trelstar).

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LHRH antagonists

- These drugs stop your pituitary gland from making luteinizing hormone.
- If no luteinizing hormone is made, your testicles do not make androgens.
- The most common LHRH antagonist is degarelix (Firmagon). It is injected once per month.

Androgen synthesis inhibitors

- These drugs block the enzymes your body needs to make testosterone.
- A common drug is abiraterone (Zytiga).

Anti-androgens

- These drugs attach to cancer cells and stop them from using testosterone to grow.
- Not usually used alone. Used with LHRH antagonists or LHRH agonists.
- Usually used in the first month of taking an LHRH agonist. This stops the tumour flare reaction (when you first start taking an LHRH agonist, your body may make more testosterone than normal. This lasts for about a month).
- Common anti-androgens are bicalutamide (Casodex), flutamide, and nilutamide (Anandron)

Systemic Therapy (chemotherapy)

- Used to help with symptoms of advanced prostate cancer.
- Will not cure the cancer but may help someone with advanced prostate cancer live longer.
- Not used to treat low risk or localized prostate cancer. There is not much benefit and the side effects bother people.

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What is the follow-up after treatment?

- Follow-up testing and appointments are based on your type of cancer.
- Guidelines for follow-up after treatment are on our website: www.bccancer.bc.ca/health-professionals/clinical-resources/cancer-management-manual/genitourinary/prostate#Follow-up-Prostate
- These guidelines are written for your doctor, nurse practitioner or specialist. You can look at them to see what appointments and tests you might need after treatment.
- After treatment, you may return to the care of your family doctor or specialist for regular follow-up. If you do not have a family doctor, please talk to your BC Cancer health care team.
- If you are treated for prostate cancer, you will get follow-up PSA tests. After cancer treatment, your PSA should be much lower than before treatment. Follow-up PSA tests will help your health care team know how well the cancer treatment worked. PSA tests can also show if your cancer comes back.
- Depending on your treatment, you may need regular DREs and PSA tests.
- The BC Cancer Life after Cancer page has information on issues that cancer survivors may face: bccancer.bc.ca/lifeaftercancer

More Information

What causes prostate cancer and who gets it?

These are some of the risk factors for prostate cancer. Not all of these risk factors below may cause this cancer, but they may help the cancer start growing.

- Being over the age of 70.

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- The risk of this cancer is twice as high in black men as it is in white men. North American Asian men have a lower risk than North American white men [See note below, Statistics].
- Family history of prostate cancer. If relatives in your family had prostate cancer, you may be at a higher risk. There is no single test for hereditary risk of prostate cancer.
- High levels of testosterone during your lifetime.
- Being overweight or obese.

Statistics for prostate cancer

- B.C. statistics: www.bccancer.bc.ca/health-info/disease-system-statistics/statistics-by-cancer-type
- Canada: www.cancer.ca/en/cancer-information/cancer-type/prostate/statistics/?region=bc

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Can I help prevent prostate cancer?

- **Eating healthy, nutritious foods can lower your cancer risk.**
 - Follow Canada's Food Guide: www.canada.ca/en/health-canada/services/canada-food-guides.html
 - Visit BC Cancer's Food Choices and Cancer Prevention page: www.bccancer.bc.ca/health-info/prevention/food-choices

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- **Regular physical activity can reduce your cancer risk.**
 - Visit BC Cancer's Physical Activity and Cancer Prevention page: www.bccancer.bc.ca/health-info/prevention/physical-activity
- **Do not smoke or use tobacco.** Support is available to help you successfully quit.
 - Visit BC Cancer's Tobacco and Cancer Prevention page: www.bccancer.bc.ca/health-info/prevention/tobacco

Is there screening for prostate cancer?

There is no screening program for prostate cancer.

Regular PSA tests are not recommended for everyone. However, if you do have PSA tests, the important things are the change in the PSA level over time and how fast it is changing.

Speak to your family doctor or nurse practitioner about whether you should get a PSA test. The decision to have a PSA test depends on your age, medical conditions, if you are at risk of getting prostate cancer and if you want the test.

Where can I find more information?

- If you have questions about prostate cancer, please talk to your health care team.
- Our librarians can help you find the information you need. Visit our Library page: bccancer.bc.ca/our-services/services/library
- BC Cancer Library Recommended Prostate Cancer Websites: bccancer.bc.ca/our-services/services/library/recommended-websites/types-of-cancer-websites



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- Managing Your Symptoms: <http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects>
- Emotional Support: www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support