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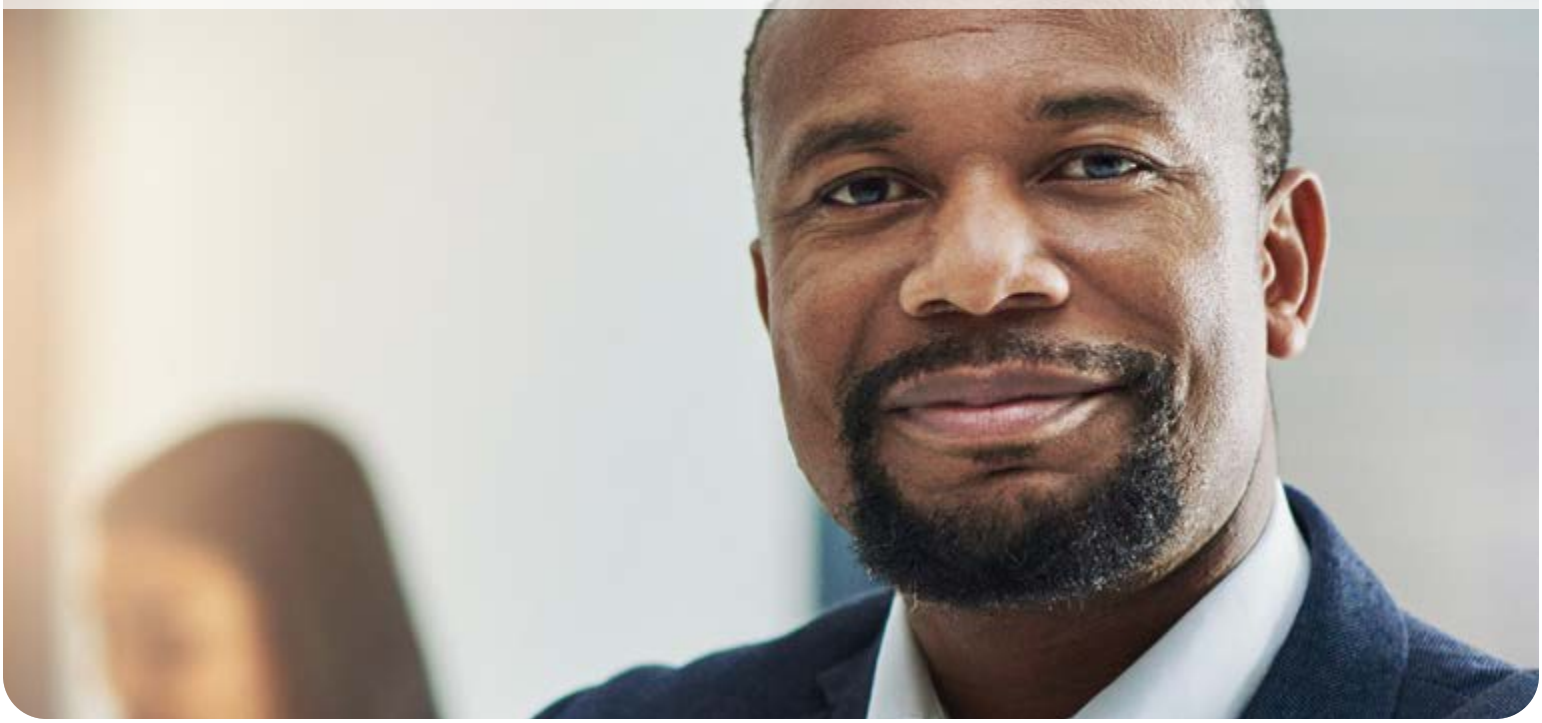
NCCN GUIDELINES FOR PATIENTS®

2020

Prostate Cancer

Early Stage

Presented with support from: NCCN NATIONAL COMPREHENSIVE CANCER NETWORK FOUNDATION Guiding Treatment. Changing Lives.



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It's easy to get lost in the cancer world

Let NCCN Guidelines for Patients® be your guide

- ✓ Step-by-step guides to the cancer care options likely to have the best results
- ✓ Based on treatment guidelines used by health care providers worldwide
- ✓ Designed to help you discuss cancer treatment with your doctors

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National Comprehensive Cancer Network®

NCCN Guidelines for Patients® are developed by the National Comprehensive Cancer Network® (NCCN®)

NCCN

- An alliance of leading cancer centers across the United States devoted to patient care, research, and education

Cancer centers that are part of NCCN:
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- Expert recommendations for cancer screening, diagnosis, and treatment

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- Present information from the NCCN Guidelines in an easy-to-learn format
- For people with cancer and those who support them
- Explain the cancer care options likely to have the best results

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Guiding Treatment. Changing Lives.

and supported by funding from NCCN Foundation®

These NCCN Guidelines for Patients are based on the NCCN Guidelines® for Prostate Cancer (Version 2.2020, May 21, 2020).

NCCN Foundation seeks to support the millions of patients and their families affected by a cancer diagnosis by funding and distributing NCCN Guidelines for Patients. NCCN Foundation is also committed to advancing cancer treatment by funding the nation's promising doctors at the center of innovation in cancer research. For more details and the full library of patient and caregiver resources, visit NCCN.org/patients.

National Comprehensive Cancer Network (NCCN) / NCCN Foundation
3025 Chemical Road, Suite 100
Plymouth Meeting, PA 19462
215.690.0300

Endorsed by

California Prostate Cancer Coalition (CPCC)

CPCC is pleased to endorse this important resource. We believe it to be the most understandable and comprehensive guide for men diagnosed with prostate cancer who want to really understand what the disease is about and what their specific treatment options are. prostatecalif.org

Malecare Cancer Support

Malecare Cancer Support group members know that nothing is more perplexing than prostate cancer treatment choice making. The NCCN Patient Guidelines provide an excellent starting point for discussion, particularly for African Americans who die from prostate cancer at twice the rate as Caucasian men. malecare.org

National Alliance of State Prostate Cancer Coalitions (NASPCC)

NASPCC strongly endorses the NCCN Guidelines for Patients Prostate Cancer Early Stage, as an invaluable resource for patients and others. It is a reliable wealth of important information about prostate cancer in an understandable format. naspcc.org

National Prostate Cancer Awareness Foundation (PCaAware)

A wonderful resource for patients seeking a better and clearer understanding of the journey that lies ahead. pcaaware.org

Prostate Cancer Foundation

The Prostate Cancer Foundation is the world's leading philanthropic organization dedicated to funding life-saving cancer research. The NCCN Patient Guidelines Prostate Cancer Early Stage outlines essential information about diagnosis and treatment in a comprehensible format. They serve as a foundation of knowledge as patients and families begin to discuss treatment options with their health care provider. pcf.org

Urology Care Foundation

The Urology Care Foundation is the world's leading nonprofit urological health foundation – and the official foundation of the American Urological Association. As an organization that strongly believes in providing prostate cancer patients, caregivers, and those impacted by this disease the educational tools and resources necessary to make informed care and treatment decisions, we are pleased to endorse the NCCN Guidelines for Patients. urologyhealth.org

Veterans Prostate Cancer Awareness

Veterans Prostate Cancer Awareness commends the National Comprehensive Cancer Network (NCCN) for developing the Patient Guidelines for use as the standard in education and awareness for prostate cancer patients and providers. On behalf of all Veterans, VPCa thanks NCCN for providing this valuable tool to use as guidance on the journey through prostate cancer. vetsprostate.org

ZERO – The End of Prostate Cancer

Every 16 minutes a man loses his battle with prostate cancer. As the leading national prostate cancer advocacy organization, ZERO is proud to support NCCN Guidelines for Patients, a premiere resource to help patients and families navigate their prostate cancer journey. Additional free resources and support programs for the prostate cancer community can be found at zerocancer.org

With generous support from

Marianne and Donald Green

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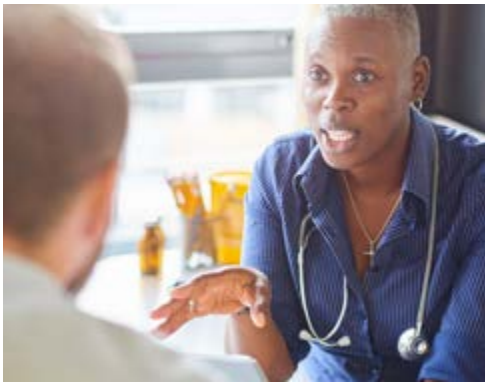
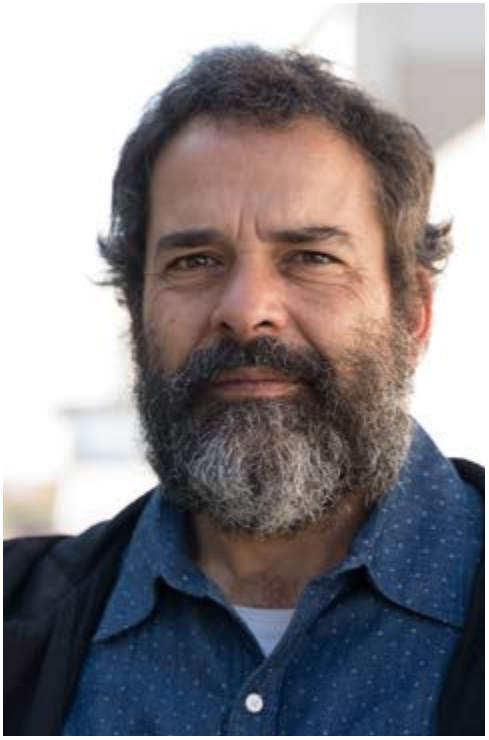
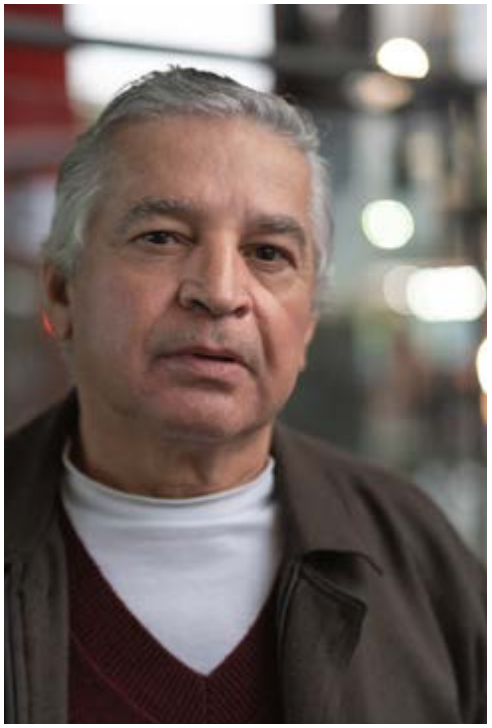
PSA : - +







Contents

1
Prostate cancer basics

The prostate is a gland located below the bladder. In early prostate cancer, cancer is found in the prostate and may be in nearby lymph nodes. This chapter presents an overview of prostate cancer.

The prostate

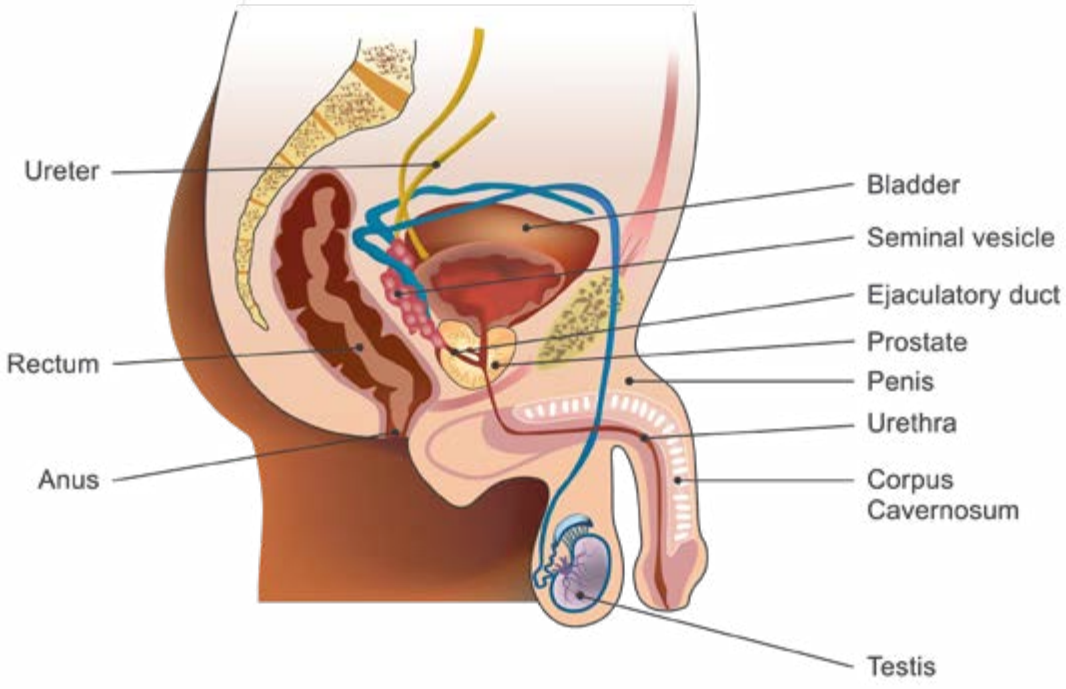
The prostate is a walnut-sized gland. A gland is an organ that makes fluids or chemicals the body needs. The prostate gland produces a white-colored fluid that is part of semen. Semen is made up of sperm from the testicles and fluid from the prostate and other sex glands. During ejaculation, semen is released from the body through the penis.

The prostate is found below the bladder near the base of the penis and in front of the rectum. The prostate can be felt during a rectal exam. As a man ages, the prostate tends to grow larger.

The prostate surrounds the urethra. The urethra is a tube that carries urine from the bladder and out of the body. Above the prostate and behind the bladder are two seminal vesicles. Seminal vesicles are also glands that make a fluid that is part of semen. Semen leaves the body through the urethra.

The prostate

The prostate gland is located below the bladder.



Facts about prostate cancer

A risk factor is anything that increases your chance of cancer.

A few facts:

- All men are at risk for prostate cancer.
- 1 out of 9 men will develop prostate cancer.
- Not all men diagnosed with prostate cancer need treatment. Usually prostate cancer grows slowly and stays in the prostate.
- Age is the most common risk factor. The older a man is, the greater the chance of getting prostate cancer.

African-American men

All men are at risk for prostate cancer, but African-American men are more likely to get prostate cancer and at a younger age. Cancer in African-American men tends to be more aggressive and more advanced. However, once diagnosed, African-Americans have similar treatment results as other men with the same cancer stage.

Family history

Men who have a family member with prostate cancer have a greater chance of getting prostate cancer. Those with a family history of certain cancers are at risk for prostate cancer. If you learn that someone in your family had prostate cancer, ask your doctor about prostate cancer screening.

How prostate cancer spreads

Cancer is a disease that starts in the cells of your body. Prostate cancer starts in the cells of the prostate gland. Almost all prostate cancers are adenocarcinomas. An adenocarcinoma is cancer in the cells that secrete fluids or other substances. Adenocarcinomas of the prostate are the focus of this book.

Unlike normal cells, cancer cells can grow or spread to form tumors in other parts of the body.

Cancer that has spread is called a metastasis.

- Cancer that is contained entirely within the prostate is called localized prostate cancer.
- Cancer that has spread from the prostate gland to nearby lymph nodes, but no further, is called regional prostate cancer.
- Cancer that has spread beyond the prostate or regional lymph nodes is called distant metastasis, and may be referred to as metastatic prostate cancer.

Cancer can spread to distant sites through blood. Although cancer can spread through your blood, you cannot spread your cancer to other people if they are exposed to your blood. Prostate cancer can metastasize in the bones, lymph nodes, liver, lungs, and other organs.

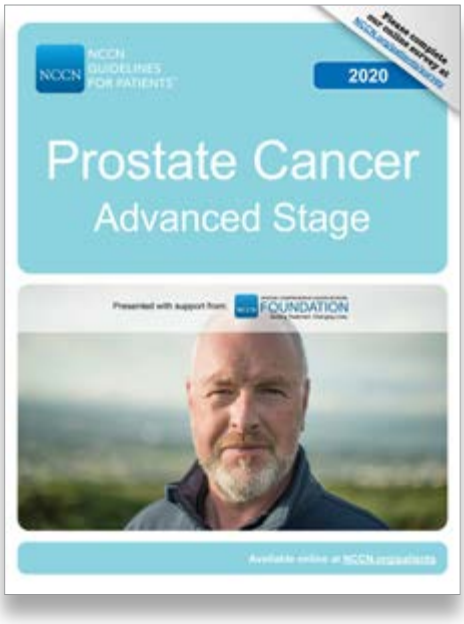
Cancer can also spread through the lymphatic system. The lymphatic system contains a clear fluid called lymph. Lymph gives cells water and food. It also has white blood cells that fight germs. Lymph nodes filter lymph and remove the germs. Lymph travels throughout the body in vessels like blood does. Lymph vessels and nodes are found everywhere in the body.

Early stage

Early-stage prostate cancer is often treated with surgery or radiation. It might be followed by treatment to reduce the amount of testosterone in the body or blocking what testosterone does in the body. The goal of treatment is a cure.

Advanced stage

More information on advanced prostate cancer, can be found at *NCCN Guidelines for Patients: Prostate Cancer, Advanced Stage* at NCCN.org/patientguidelines.



Review

- The prostate gland makes a fluid that is part of semen.
- Prostate cancer starts in the cells of the prostate gland.
- Cancer cells can spread to other body parts through blood or lymph.
- Usually prostate cancer grows slowly and stays in the prostate.
- All men are at risk for prostate cancer, but African-American men are more likely to get prostate cancer. However, once diagnosed, African-Americans have similar treatment results as other men with the same cancer stage.
- Not everyone diagnosed with prostate cancer needs treatment.

2
Prostate cancer tests

Testing is used to find and treat prostate cancer. A biopsy is needed to confirm cancer. This chapter presents an overview of the tests you might receive and what to expect.

Test results

Results from blood tests, imaging studies, and biopsy will be used to determine your treatment plan. It is important you understand what these tests mean. Ask questions and keep copies of your test results. Online patient portals are a great way to access your test results.

Whether you are going for a second opinion, test, or office visit, keep these things in mind:

- Bring someone with you to doctor visits, if possible.
- Write down questions and take notes during appointments. Don't be afraid to ask your care team questions. Get to know your care team and let them get to know you.
- Get copies of blood tests, imaging results, and reports about the specific type of cancer you have.
- Organize your papers. Create files for insurance forms, medical records, and test results. You can do the same on your computer.
- Keep a list of contact information for everyone on your care team. Add it to your binder or notebook. Hang the list on your fridge or keep it by the phone.

Create a medical binder

A medical binder or notebook is a great way to organize all of your records in one place.

- Make copies of blood tests, imaging results, and reports about your specific type of cancer. It will be helpful when getting a second opinion.
- Choose a binder that meets your needs. Consider a zipper pocket to include a pen, small calendar, and insurance cards.
- Create folders for insurance forms, medical records, and tests results. You can do the same on your computer.
- Use online patient portals to view your test results and other records. Download or print the records to add to your binder.
- Organize your binder in a way that works for you. Add a section for questions and to take notes.
- Bring your medical binder to appointments. You never know when you might need it!

General health tests

Medical history

A medical history is a record of all health issues and treatments you have had in your life. Be prepared to list any illness or injury and when it happened. Bring a list of old and new medicines and any over-the-counter medicines, herbals, or supplements you take. Tell your doctor about any symptoms you have.

Family history

Some cancers and other diseases can run in families. Your doctor will ask about the health history of family members who are blood relatives. This information is called a family history. It is important to ask members from both your mother's and father's side of the family about all cancers, not just prostate cancer. Ask about other health issues like heart disease and diabetes, at what age they were diagnosed, and if anyone died from their cancer. Share this information and any changes to family history with your health care provider.

Physical exam

During a physical exam, a doctor will check your body for signs of disease.

A health care provider will:

- Check your temperature, blood pressure, pulse, and breathing rate
- Weigh you
- Listen to your lungs and heart
- Look in your eyes, ears, nose, and throat
- Feel and apply pressure to parts of your body to see if organs are of normal size, are soft or hard, or cause pain when touched. Tell your doctor if you feel pain.
- Feel for enlarged lymph nodes in your neck, underarm, and groin. Tell the doctor if you have felt any lumps or have any pain.
- Perform a digital rectal (prostate) exam to check your prostate

Imaging tests

Imaging tests take pictures of the inside of your body. These tests are used to detect and treat prostate cancer. Imaging tests show the primary tumor, or where the cancer started, and look for cancer in other parts of the body. Those with very early stages of localized prostate cancer may not need any imaging tests.

A radiologist, an expert who reviews test images, will write a report and send it to your doctor. Your doctor will discuss the results with you. Feel free to ask as many questions as you like.

CT scan

A computed tomography (CT or CAT) scan uses x-rays and computer technology to take pictures of the inside of the body. It takes many x-rays of the same body part from different angles. All the images are combined to make one detailed picture.

A CT scan of your abdomen and/or pelvis may be one of the tests used to look for cancer that has spread to other areas (metastasized). CT scans are good at seeing lymph nodes and the area around the prostate.

Before the CT scan, you may be given contrast. Contrast materials are not dyes, but substances that help certain areas in the body stand out. Contrast is used to make the pictures clearer. The contrast is not permanent and will leave the body in your urine.

Tell your doctors if you have had bad reactions to contrast in the past. This is important. You might be given medicines, such as Benadryl® and prednisone, for an allergy to contrast. Contrast might not be used if you have a serious allergy or if your kidneys aren't working well.

MRI scan

A magnetic resonance imaging (MRI) scan uses radio waves and powerful magnets to take pictures of the inside of the body. It does not use x-rays. Like a CT scan, a contrast material may be used to make the pictures clearer.

An MRI might be used for more detail about the cancer within the prostate. It can also be used to see if cancer has spread to nearby lymph nodes or the bones in your pelvis.

mpMRI

A multiparametric MRI (mpMRI) is a special type of MRI scan. In an mpMRI, multiple scans are performed without contrast followed by another MRI with contrast.

You might have more than one mpMRI during the course of treatment. It might be done to learn more about your prostate cancer or to look for bleeding after a biopsy. An mpMRI might help detect certain types of tumors. It also might help determine risk group for active surveillance.

Bone scan

A bone scan uses a radiotracer to make pictures of the inside of bones. A radiotracer is a substance that releases small amounts of radiation. Before the pictures are taken, the tracer will be injected into your vein. It can take a few hours for the tracer to enter your bones.

A special camera will take pictures of the tracer in your bones. Areas of bone damage use more radiotracer than healthy bone and show up as bright spots on the pictures. Bone damage can be caused by cancer, cancer treatment, or other health problems.

This test may be used if you have bone pain, are at high risk for bone metastases, or if there are changes in certain test results. Bone scans might be used to monitor treatment.

TRUS

A TRUS is a transrectal ultrasound. In this procedure, a probe is inserted into the rectum where high-energy sound waves are bounced off internal tissues to form an image called a sonogram. A TRUS is used to look for tumors in the prostate and nearby areas. A TRUS is also used to guide biopsies.

Blood tests

Blood tests check for signs of disease, how well organs are working, and treatment results.

PSA

A prostate-specific antigen (PSA) measures a protein made by the fluid-making cells that line the small glands inside the prostate. These cells are where most prostate cancers start. You will have this test often. An elevated PSA test value does not necessarily mean that you have prostate cancer.

Complete blood count

A complete blood count (CBC) measures the number of red blood cells, white blood cells, and platelets in your blood. Red blood cells carry oxygen throughout your body, white blood cells fight infection, and platelets control bleeding.

Blood chemistry

A blood chemistry test measures the levels of different chemicals in the blood. Cancer or other diseases can cause levels that are too low or too high.

Biopsy

A biopsy is a procedure that removes samples of fluid or tissue. It is needed to confirm (diagnose) prostate cancer. Prostate cancer treatment often begins after biopsy.

A core biopsy or a core needle biopsy is the most common type of prostate biopsy. A hollow needle is used to remove one or more samples. Core samples will be taken from different parts of your prostate.

Biopsy samples will be sent to a pathologist. A pathologist is an expert who will test the biopsy and write a report called a pathology report. The pathologist may perform other tests to see if the cancer cells have specific genes or proteins. This information will help choose the best treatment plan for your type of cancer.

Genetic tests

Genes are coded instructions for the proteins your cells make. A mutation is when something is different in your genes than from most other people. Mutations can be passed down in families or can occur spontaneously. In other words, they may be present before you are born (inherited) or arise by genetic damage later in life (acquired).

Sometimes, genes inherited from your parents can increase the risk of different cancers. Depending on your family history or other features of your cancer, you might be referred for genetic counseling and testing to know if you have an inherited cancer risk.

There are 2 types of genetic tests:

- Genetic testing for inherited cancer risk
- Biomarker testing for cancer treatment planning

Genetic testing

Genetic testing is done using blood or saliva (spitting into a cup). The goal is to look for germline (inherited) mutations. Some mutations can put you at risk for more than one type of cancer. You can pass these genes on to your children. Also, family members might carry these mutations.

Examples of germline mutations for prostate cancer include *BRCA1, BRCA2, ATM, CHEK2, PALB2, MLH1, MSH2, MSH6,* and *PMS2* (for Lynch syndrome). Germline mutations like *BRCA1* or *BRCA2* are related to other cancers such as breast, ovarian, pancreatic, colorectal, and melanoma skin cancer.

If a germline mutation is suspected, you should be recommended for genetic counseling and follow-up germline testing. A genetic counselor is an expert who has special training in genetic diseases.

Germline testing is recommended for those with prostate cancer and any of the following:

- High-risk, very-high-risk, regional, or metastatic prostate cancer regardless of family history
- Ashkenazi Jewish ancestry
- A family history of high-risk germline mutations such as *BRCA1, BRCA2,* or Lynch mutation
- A strong family history of prostate cancer and certain other cancers
- Talk to your medical providers and/or a genetic counselor about your family history of cancer

Biomarker testing

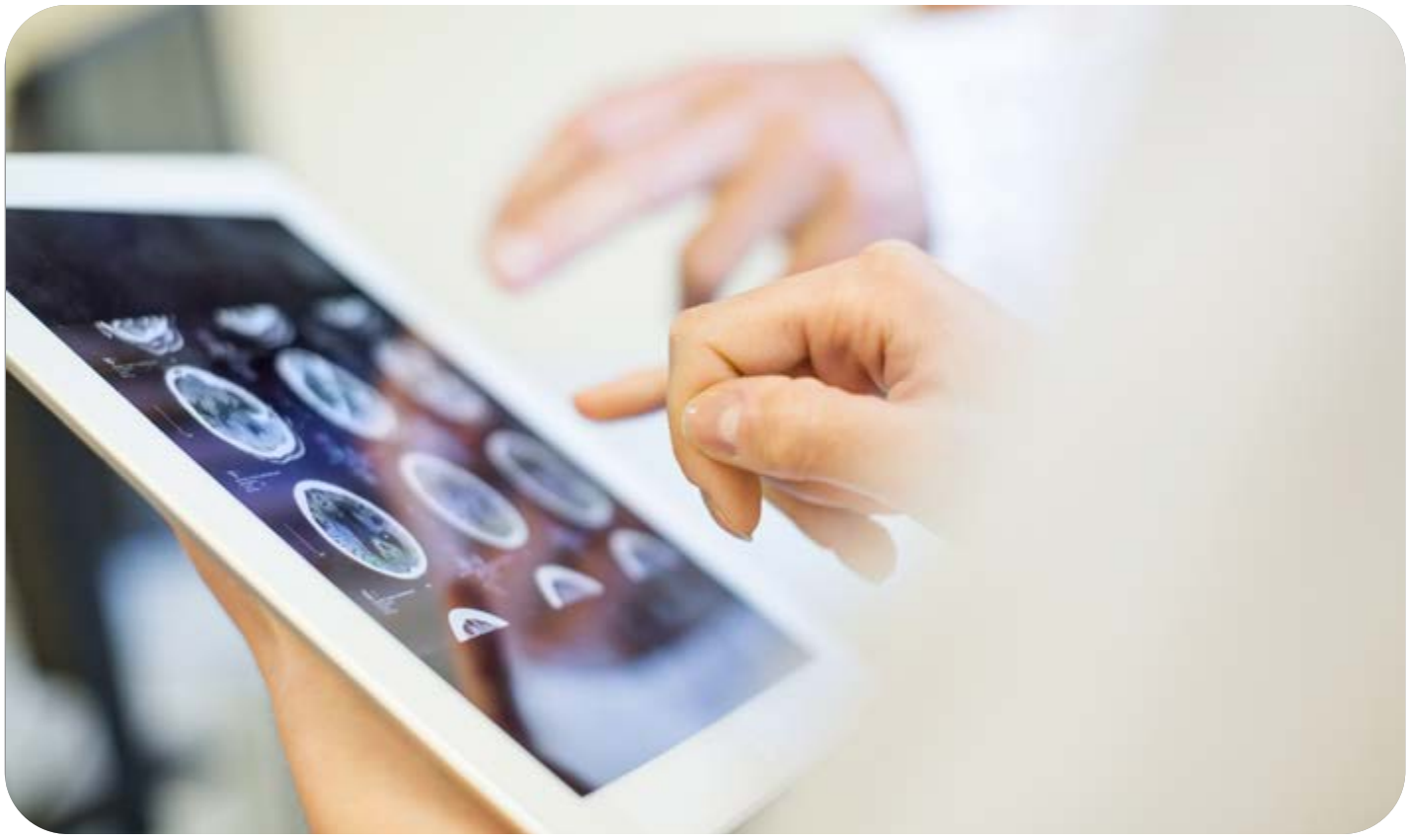
In biomarker testing, a sample from a biopsy of your tumor or cancer material will be tested to look for biomarkers or proteins. This information is used to choose the best treatment for you. Biomarker testing can be considered for those with localized, regional, or metastatic prostate cancer. Biomarker testing is sometimes called gene profiling or molecular testing.

Review

- Tests are used to plan treatment and check how well treatment is working.
- Online portals are a great way to access your test results.
- Blood, imaging, and tissue tests check for signs of disease.
- Imaging tests may be used to see if the cancer has spread beyond the prostate.
- A biopsy is used to confirm (diagnose) prostate cancer.
- A sample from a biopsy of your tumor might be tested to look for biomarkers or proteins.
- Your health care provider might refer you for genetic counseling and testing to learn more about if you have inherited risk for cancer.

Bring a list of any medications, vitamins, over-the-counter drugs, herbals, or supplements you are taking.

3
Prostate cancer staging



Cancer staging describes how much cancer is in your body, where it is located, and what subtype you have. Doctors use cancer staging to plan which treatments are best for you.

Staging is based on a combination of factors listed below:

- Digital rectal exam
- PSA
- Biopsy
- Gleason score
- Grade Group
- TNM score

Digital rectal exam

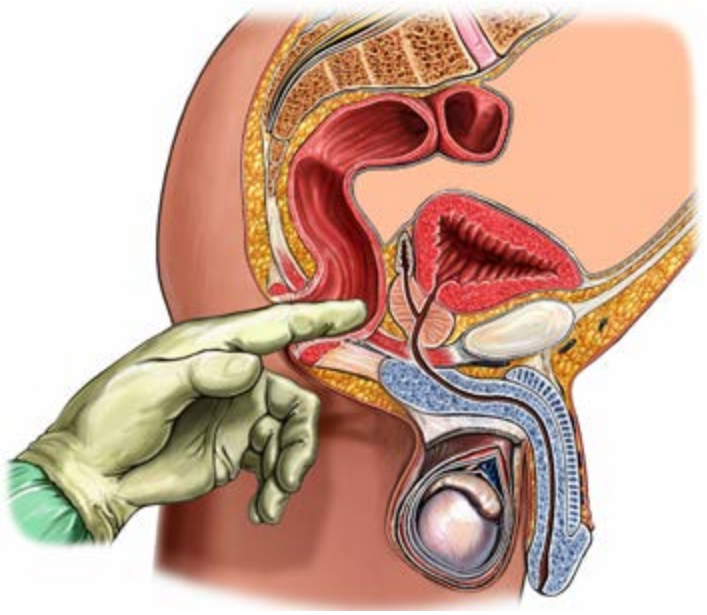
A digital rectal exam is used to screen for cancer, rate the cancer stage, and assess how your cancer is responding to treatment. For this exam, your doctor will insert a lubricated, gloved finger into your rectum to feel your prostate for abnormalities. Not all parts of the prostate can be felt during this exam. It is more commonly called a prostate exam.

PSA

Prostate-specific antigen (PSA) is a protein made by the fluid-making cells that line the small glands inside the prostate. These cells are where most prostate cancers start. PSA turns semen that has clotted after ejaculation back into a liquid. Normal prostate cells, as well as prostate cancer cells, make PSA.

Digital rectal exam

Your prostate can be felt through the wall of your rectum. A digital rectal exam is a procedure during which your doctor will insert a finger into your rectum to feel your prostate.



A small amount of PSA is made by all cells, even in women. PSA test results are one piece of information used for cancer staging, treatment planning, and checking treatment results.

PSA level

Serum PSA level is measured using a blood sample. PSA level is the number of nanograms of PSA per milliliter (ng/mL) of blood. Normal PSA levels vary by age and other conditions.

The larger the prostate, the more PSA it can make. Large prostates can be a result of cancer or other health issues. Some medicines, herbals, and supplements can also affect the PSA level. PSA increases after ejaculations and vigorous exercise, especially running or bicycling. Therefore, your doctor may recommend you refrain from sex and exercise before a PSA test. This will allow the PSA test to be more exact.

PSA density

PSA density (PSAD) is the amount of PSA compared to the size of the prostate. It is calculated by dividing the PSA level by the size of the prostate. The size of the prostate is measured by digital rectal exam, ultrasound, or an MRI scan.

PSA recurrence

When PSA levels rise after prostate cancer treatment with surgery or radiation therapy, it is called a PSA recurrence. This could mean that the cancer has returned (recurrence) or that the treatment did not succeed in reducing the amount of cancer in the body (persistence).

PSA velocity and PSA doubling time

PSA velocity measures how fast PSA levels change over a period of time. How quickly this level increases could be a sign of prostate cancer and may help find a fast-growing prostate cancer. PSA doubling time (PSADT) is the time it takes for the PSA level to double.

Prostate biopsy

A biopsy removes a sample of tissue for testing. Rising PSA levels and abnormal digital rectal exam may suggest cancer is present. However, the only way to know if you have prostate cancer is to remove tissue from your body and have a pathologist look at it under a microscope.

Types of biopsies

There are different types of biopsies used for prostate cancer. It is common to have more than one biopsy. A biopsy can be guided with an ultrasound, an MRI, or both.

Core biopsy

A core biopsy or a core needle biopsy uses a hollow needle to remove a tissue sample. Core samples will be taken from different parts of your prostate.

Transperineal biopsy

In a transperineal biopsy, a needle is placed into the prostate through the skin behind the testicles, an area known as the perineum.

TRUS-guided biopsy

A transrectal ultrasound (TRUS)-guided biopsy is the most common type of prostate biopsy. A sample of tissue is removed using a hollow needle that is inserted through the rectum (transrectal) and into the prostate. To ensure the best samples are removed, a TRUS is used to guide the needle. The TRUS uses sound waves to make a picture of your prostate that is seen by your doctor on a screen.

A spring-loaded needle will be inserted through the TRUS. Your doctor will trigger the needle to go through the rectal wall and into your prostate. The needle will remove tissue about the length of a dime and the width of a toothpick. At least 12 samples—called cores—are often taken. This is done to check for cancer in different areas of the prostate. Prostate biopsies aren't perfect tests. They sometimes miss cancer.

MRI-US fusion biopsy

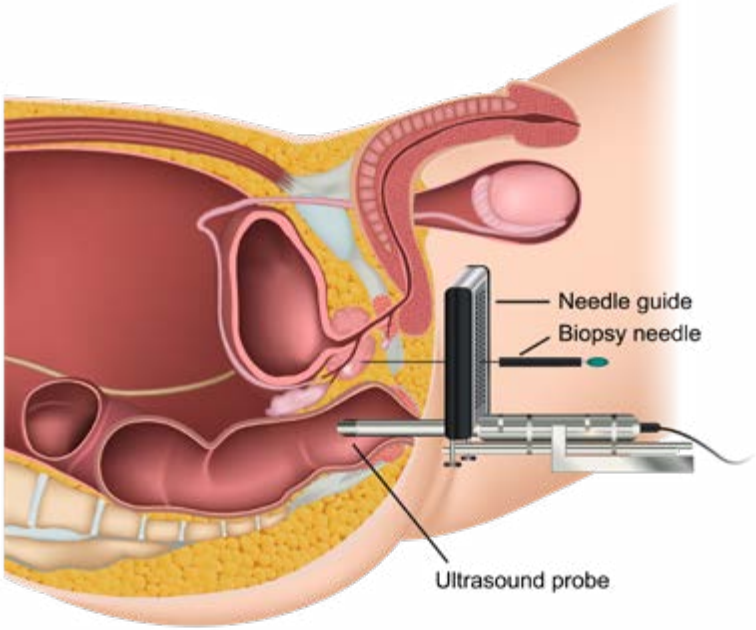
An MRI-US fusion biopsy uses both an MRI and ultrasound. These images are then combined to help guide the biopsy. This will allow for better tracking of the movement of your prostate. It will also help doctors pinpoint which area of tissue to sample. An MRI-US fusion biopsy may help improve finding prostate cancers that are Grade Group 2 or higher.

Prostate bed biopsy

After surgery to remove your prostate, a biopsy might be done of the area to look for signs that prostate cancer has returned or spread. This is called a prostate bed biopsy and might be done after imaging tests suggest cancer recurrence.

Prostate biopsy

There are different types of biopsies used for prostate cancer. It is common to have more than one biopsy. This image is of a transperineal biopsy.



Gleason score

The Gleason score describes how aggressive a prostate cancer is. A pathologist assigns this score after studying your biopsy under a microscope. It can be helpful to have a second pathologist review your biopsy to be sure the Gleason score is the same. The Gleason score is just one factor used by doctors to plan treatment.

A Gleason score is made up of two grades. A Gleason grade ranges from 1 to 5. A low grade of 1 means the cancer cells in your biopsy look very much like normal, healthy tissue. This is called well-differentiated. Cells that look very abnormal under a microscope are called poorly differentiated or undifferentiated, and have a grade of 4 or 5. The higher the grade, the more abnormal the biopsy looks and the more aggressive the cancer is. Most prostate cancers are grade 3 or higher.

Prostate tumors are given two grades. A primary grade is given to describe the cancer cells in the largest area of the tumor. A secondary grade is given to describe cancer cells in the second largest area of the tumor. When these grades are added together, it is called a Gleason score. For example, 3+4= a Gleason score of 7.

Gleason scores range from 2 to 10, but most prostate cancers are scored 6 to 10. A Gleason score in the 8 to 10 range means the cancer is more likely to grow and spread quickly than a lower grade cancer. See Guide 1.

Guide 1
Gleason score summary

6 or less	• The cancer is likely to grow and spread very slowly. • If the cancer is small, many years may pass before it becomes a problem. You may never need cancer treatment. • Also called **low grade.**
7	• The cancer is likely to grow and spread at a modest pace. • If the cancer is small, several years may pass before it becomes a problem. To prevent problems, treatment may be needed. • Also called **intermediate grade.**
8, 9, or 10	• The cancer is likely to grow and spread fast. • If the cancer is small, a few years may pass before the cancer becomes a problem. To prevent problems, treatment is needed now. • Also called **high grade.**

Grade Groups

Gleason scores are organized into Grade Groups. Grade Groups are meant to be simpler and more accurate. This method helps prevent overtreatment for those with low-grade prostate cancer. A Grade Group is just one factor used by doctors to plan treatment.

There are 5 Grade Groups. Grade Group 2 and Grade Group 3 both have a Gleason score of 7. The difference is the cancer in Grade Group 3 is more serious. If you look at the first number in the Gleason pattern (4+3) in Grade Group 3, it is higher than in Grade Group 2 (3+4). Remember, the first number or primary grade is given to rate cancer in the largest area of the tumor. See Guide 2.

Guide 2
Grade Groups

1	• Gleason score 6 or less • Gleason pattern 1+3, 2+3, 3+3
2	• Gleason score 7 • Gleason pattern 3+4
3	• Gleason score 7 • Gleason pattern 4+3
4	• Gleason score 8 • Gleason pattern 4+4, 3+5, 5+3
5	• Gleason score 9 or 10 • Gleason pattern 4+5, 5+4, 5+5

TNM score

The American Joint Committee on Cancer (AJCC) created a way to describe how much cancer is in your body, where it is located, and what subtype you have. This is called staging. Staging is needed to make treatment decisions.

The tumor, node, metastasis (TNM) system is used to stage prostate cancer. In this system, the letters T, N, and M describe different areas of cancer growth. Based on cancer test results, your doctor will assign a score or number to each letter. The higher the number, the larger the tumor or the more the cancer has spread. These scores will be combined to assign the cancer a stage. A TNM example might look like this: T2, N0, M0. See Guide 3.

- **T (tumor)** - Size of the main (primary) tumor and if it has grown outside the prostate
- **N (node)** - If cancer has spread to nearby lymph nodes
- **M (metastasis)** - If cancer has spread to distant parts of the body or metastasized

Cancer staging is often done twice.

- **Clinical stage (c)** is the rating given before any treatment. It is based on a physical exam, biopsy, and imaging tests.
- **Pathologic stage (p)** or surgical stage is determined by examining tissue removed during surgery.

Guide 3
Prostate cancer stage by TNM score

Stage	Primary tumor (T)	Regional lymph nodes (N)	Distant metastasis (M)
Localized	**T1** Tumor cannot be felt during digital rectal exam and is not found on imaging tests, but cancer is present.	**N0** There is no cancer in nearby lymph nodes.	**M0** Cancer has not spread to other parts of the body.
	T2 Tumor is felt during digital rectal exam and is found only in the prostate.	**N0**	**M0**
	T3 Tumor has broken through outside layer of prostate. It may have grown into seminal vesicle(s).	**N0**	**M0**
	T4 Tumor has grown outside the prostate into nearby structures such as the bladder, rectum, pelvic muscles, and/or pelvic wall.	**N0**	**M0**
Regional	**Any T**	**N1** There is cancer (metastasis) in nearby lymph nodes.	**M0**
Metastatic	**Any T**	**Any N**	**M1** Cancer has spread to other parts of the body (metastasized).

T = Tumor

T1 tumors cannot be felt during a digital rectal exam and are not found on imaging tests, but cancer is present. Cancer might be found by chance during a biopsy or surgery for another health issue related to the prostate or bladder. This is called an incidental finding.

- **T1a** means that incidental cancer was found in **5 percent (5%) or less** of the removed tissue.
- **T1b** means that incidental cancer was found in **more than 5 percent (5%)** of the removed tissue.
- **T1c** tumors are found by needle biopsy in one or both sides of the prostate.

T2 tumors can be felt by your doctor during a digital rectal exam. They also may be seen on an imaging test. T2 scores are based on whether the cancer is in one or both sides of the prostate. T2 tumors are found only in the prostate gland.

- **T2a** tumors involve half or less of one side of the prostate.
- **T2b** tumors involve more than half of one side of the prostate, but are not in both sides.
- **T2c** tumors have grown into both sides of the prostate.

T3 tumors have broken through the outside layer of the prostate gland. It might have reached the connective tissue around the prostate or the neck of the bladder.

- **T3a** tumors have grown outside the prostate, but not into the seminal vesicle(s).
- **T3b** tumors have grown outside the prostate and into the seminal vesicle(s).

T4 tumors have grown outside the prostate into nearby structures such as the bladder, rectum, pelvic muscles, and/or pelvic wall.

N = Node

There are hundreds of lymph nodes throughout your body. They work as filters to help fight infection and remove harmful things from your body. Lymph nodes near the prostate include the hypogastric, obturator, internal and external iliac, and sacral lymph nodes. Your doctor might refer to lymph nodes in the pelvis as pelvic lymph nodes. Most often, prostate cancer spreads to the external iliac, internal iliac, or obturator nodes. Cancer that has spread to lymph nodes near the prostate is shown as N1.

M = Metastatic

Cancer that has spread to distant parts of the body is shown as M1. Prostate cancer tends to metastasize in the bones and can spread to the liver, lungs, distant lymph nodes, and other organs.

Prostate cancer stages

There are many ways to describe prostate cancer. This can be very confusing.

Localized prostate cancer

Localized prostate cancer is cancer that is found only in the prostate. It has not spread to lymph nodes or distant organs.

TNM staging for localized prostate cancer might be one of the following:

- T1, N0, M0
- T2, N0, M0
- T3, N0, M0
- T4, N0, M0

Locally advanced prostate cancer

Locally advanced is a term used by some doctors to describe prostate cancer that has spread to nearby lymph nodes or organs like the bladder or rectum. This term may not be used in the same way by all doctors. If your doctor uses this term to describe your cancer, ask what it means.

Regional prostate cancer

Regional means prostate cancer has spread to nearby lymph nodes (N1). Nearby lymph nodes include the hypogastric, obturator, internal and external iliac, and sacral lymph nodes. Most often, prostate cancer spreads to the external iliac, internal iliac, or obturator nodes.

TNM staging for regional prostate cancer is:

- Any T, N1, M0

Advanced prostate cancer

Advanced prostate cancer is cancer that cannot be cured with surgery or radiation. Advanced prostate cancer can be metastatic, but not always. For example, biochemical recurrence refers to a state where PSA is rising and suggests cancer recurrence, but there is no visible cancer on scans.

Metastatic prostate cancer

Metastatic (M1) prostate cancer has spread to distant parts of the body.

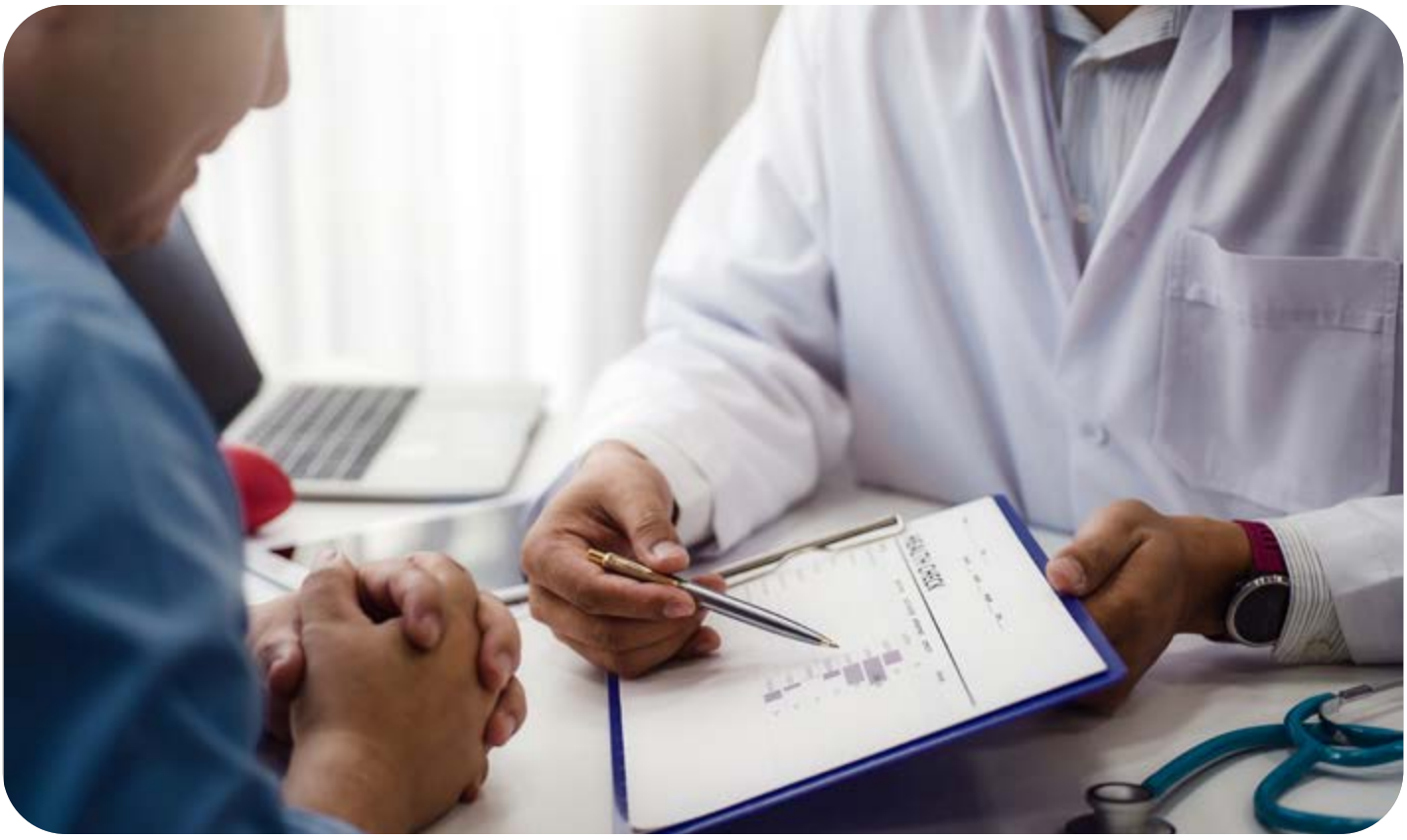
TNM staging for metastatic prostate cancer is:

- Any T, Any N, M1

Review

- Cancer staging describes how much cancer is in the body and where it is located.
- Prostate cancer staging is based on digital rectal exam, PSA, prostate biopsy, Gleason score, Grade Group, and TNM score.
- Digital rectal exam, PSA, and a prostate biopsy help determine the size of a tumor.
- The Gleason score describes how aggressive a prostate cancer is.
- Gleason scores are organized into Grade Groups for more accurate treatment.
- The tumor, node, metastasis (TNM) system is used to stage prostate cancer.

4
Planning your treatment



Many factors go into treatment planning. Your personal needs are important. This chapter discusses life expectancy, risk groups, and other factors that go into treatment planning.

Life expectancy

Life expectancy is the average life span of a person. It is measured in years. An estimate of your life expectancy is an important factor in deciding which tests and treatments you will need.

Prostate cancer often grows slowly. There may be no benefit to having tests or continuing treatment if you don't have any symptoms or if you have other more life-threatening health conditions.

Risk assessment

A risk assessment estimates the overall risk or chance that something will happen in the future. In the case of prostate cancer, a risk assessment will help to plan the best treatment for you. Before and during treatment, information will be collected about you and your cancer. Your risk assessment might change over time.

Your doctors will consider how likely the cancer:

- Might spread, how far, and how quickly
- Will respond to certain treatments
- Will return (called recurrence)

Doctors use these tools in risk assessment:

- Life expectancy
- Risk groups
- Nomograms
- Molecular testing (sometimes)

A risk assessment is not a guarantee. How your disease might progress is uncertain. You might do better or worse than your risk assessment.

Risk groups

Treatment options for prostate cancer are based on your risk group. The following information is used to determine your risk group:

- TNM score
- Gleason score and/or Grade Group
- PSA values
- Biopsy results

When you are first diagnosed, you will be placed into an initial risk group. Risk groups are for localized disease. See Guide 4.

Initial risk groups are:

- Very low
- Low
- Intermediate favorable
- Intermediate unfavorable
- High
- Very high

Guide 4
Initial risk groups

Very low	Has all of the following: • T1c stage • Grade Group 1 • PSA of less than 10 ng/mL • Cancer in 1 to 2 biopsy cores with no more than half showing cancer • PSA density of less than 0.15 ng/mL/g		
Low	Has all of the following: • T1 to T2a stage • Grade Group 1 • PSA of less than 10 ng/mL		
Intermediate	Has all of the following: • No high-risk group features • No very-high-risk group features • 1 or more of the following intermediate risk factors: - T2b or T2c stage - Grade Group 2 or 3 - PSA of 10 to 20 ng/mL	**Favorable**	Has all of the following: • 1 intermediate risk factor • Grade Group 1 or 2 • Less than half of biopsy cores show cancer
		Unfavorable	Has one or more from below: • 2 or more intermediate risk factors • Grade Group 3 • More than half of biopsy cores show cancer
High	Has one from below: • T3a stage • Grade Group 4 • Grade Group 5 • PSA of more than 20 ng/mL		
Very high	Has one from below: • T3b to T4 stage • Primary Gleason pattern 5 • More than 4 biopsy cores with Grade Group 4 or 5		

Regional Nomograms

A nomogram predicts the course your cancer will take, called a prognosis. It uses math to compare you and your prostate cancer to other men who have been treated for prostate cancer. Nomograms might be used to predict the extent of cancer and the long-term results for surgery or other treatment. A nomogram that predicts how likely prostate cancer has spread to your pelvic lymph nodes might be used when making treatment decisions. In addition to risk groups and other factors, nomograms are used to plan treatment.

Molecular tumor tests

Molecules are very tiny particles found in the cells of your body. There are special tests that measure certain molecules and biomarkers. A biomarker may be a molecule secreted by a tumor or a specific response in the body when cancer is present. When biomarkers are found, cancer may be present. PSA is an example of a biomarker used in detecting prostate cancer. This biomarker is found in a blood test.

Some molecular tests are done using prostate or lymph node tissue that was removed during biopsy. Results from these and other tests may help choose a treatment plan that is right for you.

If your doctor recommends molecular testing, it would be in addition to standard tests, such as PSA, Gleason grade, and imaging. You might have this test to see how well your body is responding to prostate cancer treatment. A molecular tumor test is also known as a molecular assay or analysis. If you have any questions about why you are having a test or what it means, ask your care team.

Treatment team

Treating prostate cancer takes a team approach. **It is important to see both a radiation oncologist and a urologist to discuss which treatment approach is right for you.**

Some members of your care team will be with you throughout cancer treatment, while others will only be there for parts of it. Get to know your care team and let them get to know you.

Depending on your diagnosis, your team might include the following:

- **Your primary care doctor** handles medical care not related to your cancer. This person can help you express your feelings about treatments to your cancer care team.
- **A pathologist** interprets tests on cells, tissues, and organs removed during a biopsy or surgery.
- **A diagnostic radiologist** reads the results of x-rays and other imaging tests.
- **An anesthesiologist** gives anesthesia, a medicine so you do not feel pain during surgery or procedures.
- **A urologist** is an expert in the male and female urinary tract and the male reproductive organs.
- **A urologic oncologist** specializes in diagnosing and treating cancers of the male and female urinary tract and the male reproductive organs.
- **An interventional radiologist** performs needle biopsies of tumors.
- **A surgical oncologist** performs operations to remove cancer.

- **A radiation oncologist** prescribes and plans radiation therapy to treat cancer.
- **A medical oncologist** treats cancer in adults using systemic therapy such as chemotherapy. A medical oncologist will often coordinate your care. Ask who will coordinate your care.
- **Advanced practice providers** are an important part of any team. These are registered nurse practitioners and physician assistants who monitor your health and provide care.
- **Residents and fellows** are doctors who are continuing their training, some to become specialists in a certain field of medicine.
- **Oncology nurses** provide your hands-on care, like giving systemic therapy, managing your care, answering questions, and helping you cope with side effects.
- **Nutritionists** can provide guidance on what foods or diet are most suitable for your particular condition.
- **Psychologists and psychiatrists** are mental health experts who can help manage issues such as depression, anxiety, or other mental health conditions that can affect how you feel.
- **Genetic counselors** are experts who can help interpret how your family history may impact your treatment.

You know your body better than anyone. Help other team members understand:

- How you feel
- What you need
- What is working and what is not

Keep a list of names and contact information for each member of your team. This will make it easier for you and anyone involved in your care to know whom to contact with questions or concerns.

Review

Doctors plan treatment using many sources of information.

- Life expectancy is the number of years you will likely live. It is used to plan treatment.
- A nomogram predicts the course your cancer will take, called a prognosis.
- A risk assessment is used to plan treatment. A risk assessment consists of life expectancy, risk groups, nomograms, and possible molecular tumor tests.
- You will be put into an initial risk group. This is based on your TNM score, Gleason score and/or Grade Group, PSA values, and biopsy results. Initial treatment will be based on your initial risk group.
- Side effects of prostate cancer may include urinary retention, urinary incontinence, and erectile dysfunction.

Since surgery and radiation therapy have similar long-term cure rates, it is important to see both a radiation oncologist and a urologist to discuss which treatment approach is right for you.

5
Prostate cancer treatment

There is more than one treatment for prostate cancer. This chapter describes treatment options and what to expect. Discuss with your doctor which treatment might be best for you.

Prostate cancer is usually a slow-growing disease. It is a complex disease with many treatment options. Treatment can be local, systemic, or a combination of both. Local therapies target specific areas of the body that contain cancer cells. Systemic therapies attack cancer cells throughout the body.

There are 2 types of treatment:

- **Local therapy** focuses on a certain area. In prostate cancer, this treatment can include surgery and radiation therapy.
- **Systemic therapy** works throughout the body. It includes hormone therapy, chemotherapy, or other treatments designed to maintain or improve your quality of life.

Treatment options are described next.

Observation

Observation involves monitoring your prostate cancer and watching for symptoms. A rising PSA level or a change in a digital rectal exam might be a sign that you will soon have symptoms. The goal is to prevent symptoms just before they are likely to start. This is so you have a good quality of life. Treatment is focused on palliation or symptom relief rather than to cure the cancer. This is different from active surveillance.

Active surveillance watches for signs that your cancer is progressing in order to cure it before it gets worse.

Active surveillance

Active surveillance is a term used to describe a plan that closely watches your condition. You might hear it called watch-and-wait. During this time you will have tests, including biopsies, on a regular basis to look for changes in tumor growth. You will not have any cancer treatment during active surveillance.

Since small tumors may grow very slowly, it is possible to wait to treat prostate cancer until the tumor grows larger. Surgery and other forms of treatment have side effects. If you can delay treatment, then you can delay the side effects of treatment.

Factors that should be considered if active surveillance is an option for you:

- Your life expectancy
- Your overall health
- Features or unique qualities of your tumor
- Possible side effects of treatment
- Your wishes about treatment

Race should also be considered when thinking about active surveillance. African-American men with apparent very-low-risk prostate cancer may have a high Grade Group tumor that is not found during biopsy. Prostate cancer in African-American men may worsen faster and might have a higher Gleason grade or more cancer cells than in Caucasian-Americans.

To see if you are a good candidate for active surveillance, your doctor should consider:

- mpMRI
- Prostate biopsy

Tests during active surveillance include:

- PSA no more than every 6 months or as needed
- Digital rectal exam no more than every 12 months or as needed
- Repeat prostate biopsy no more than every 12 months or as needed
- Repeat mpMRI no more than every 12 months or as needed

Doctors don't agree on the need for and frequency of repeat biopsies. Some doctors do repeat biopsies each year and others do them based on test results. Examples of such test results include a rise in PSA level, change in a digital rectal exam, or an MRI that shows more aggressive disease.

A decision to do a repeat biopsy should balance the potential benefits and risks. Risks include infection and other side effects. If 10 or fewer cores were removed and the results are not clear, you may have a repeat biopsy within 6 months of being diagnosed with prostate cancer. If you're likely to live less than 10 years and are on observation, you may not have a repeat prostate biopsy.

There is debate over which events during active surveillance should signal the start of treatment. The decision to start treatment should be based on your doctor's judgment and your personal wishes.

Surgery

Surgery is a procedure to remove cancer from the body. The tumor will be removed along with some normal-looking prostate tissue around its edge called the surgical margin. A clear or negative margin (R0) is when no cancer cells are found in the tissue around the edge of the tumor. In a positive margin (R1), cancer cells are found in normal-looking tissue around the tumor. A negative margin (R0) is the best result.

Surgery can be used as the main or primary treatment. This may be only one part of a treatment plan. The type of surgery you receive depends on the size and location of the tumor. It also depends on whether there is cancer in any surrounding organs and tissues.

There are 2 types of surgery:

- Open surgery
- Minimally invasive surgery (laparoscopic or robotic surgery)

Open surgery

Open surgery removes the prostate through one large cut or incision. The large incision lets your doctor directly view and access the tumor to remove it.

Minimally invasive surgery

Minimally invasive surgery uses several small incisions or cuts instead of one large cut. Small tools are inserted through each incision to perform the surgery. One of the tools, called a laparoscope, is a long tube with a video camera at the end. The camera lets your doctor see your prostate and other tissues inside your body. Other tools are used to remove the tumor. Laparoscopic surgery can also be done using robotic arms to control the surgical tools. This is called robot-assisted laparoscopic surgery.

Radical prostatectomy

A radical prostatectomy removes the entire prostate, seminal vesicles, and some nearby tissue. Pelvic lymph nodes may be removed.

A radical prostatectomy is often used when all of the following are true:

- The tumor is found only in the prostate
- The tumor can be removed completely with surgery
- You have a life expectancy of 10 or more years
- You have no other serious health conditions

A radical prostatectomy may be an option for those with high-risk or very-high-risk prostate cancer in certain cases. In these cases surgery will be followed by radiation therapy.

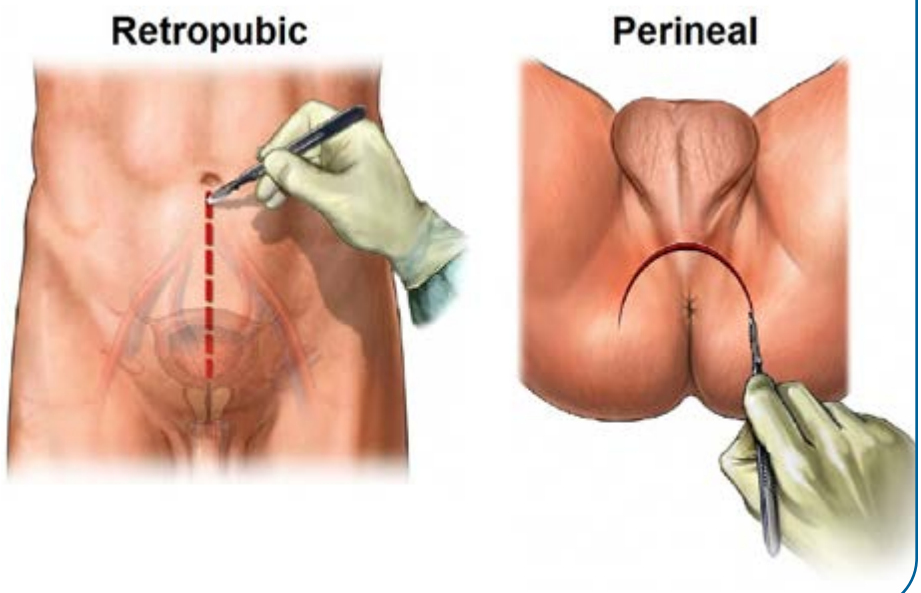
A radical prostatectomy is complex and requires a great deal of skill. Surgeons who are experienced in this type of surgery often have better results.

After a radical prostatectomy, a catheter will be inserted into your urethra to allow your urethra to heal. It will stay in place for 1 to 2 weeks after surgery. You will be shown how to care for it while at home. If removed too early, you may lose control of your bladder (urinary incontinence) or be unable to urinate due to scar tissue.

A radical prostatectomy can be open or minimally invasive surgery. Staging before a radical prostatectomy is called **clinical staging (c)**. After a radical prostatectomy, your prostate will be tested to confirm cancer stage. This is called **pathologic staging (p)**.

Open methods to radical prostatectomy

Your prostate may be removed through one large cut in your pelvis or between your legs.



There are 2 types of open radical prostatectomies:

- Retropubic
- Perineal

Radical retropubic prostatectomy

This surgery removes tissue through a cut that runs from your belly button down to the base of your penis. During the operation, you will lie on your back on a table with your legs slightly higher than your head.

Before removing your prostate, some veins and your urethra will be cut to clear the area. The seminal vesicles will be removed along with your prostate. After removing your prostate, the urethra will be reattached to the bladder.

Your cavernous nerve bundles are on both sides of your prostate. These are needed for natural erections. A nerve-sparing prostatectomy will be done if your cavernous nerves are likely to be cancer-free. However, if cancer is suspected, then one or both bundles of nerves will be removed. If removed, good erections are still possible with the help of medication. You can still orgasm with or without these nerves.

Radical perineal prostatectomy

In a radical perineal prostatectomy a cut is made in your perineum. The perineum is the area between your scrotum and anus.

Your prostate and seminal vesicles will be removed after being separated from nearby tissues. An attempt will be made to spare nearby nerves. After your prostate has been removed, the urethra will be reattached to the bladder. Lymph nodes cannot be removed with this operation.

After surgery

Most men have temporary urinary incontinence and erectile dysfunction after a radical prostatectomy. These two side effects may be short lived, but for some men they are lifelong issues.

There is a higher risk for erectile dysfunction if

- You are older
- You have erectile problems before surgery
- Your cavernous nerves are damaged or removed during surgery

If your cavernous nerves are removed, there is no good proof that nerve grafts will help restore your ability to have erections. Aids, such as medication, are still needed.

Removing your prostate and seminal vesicles will cause you to have dry orgasms. This means there will be no semen and you will be unable to have children.

Pelvic lymph node dissection

A pelvic lymph node dissection (PLND) is an operation to remove lymph nodes from your pelvis. It can be done as open retropubic, laparoscopic, or robotic surgery. PLND is usually part of a radical prostatectomy.

An extended PLND removes more lymph nodes than a limited PLND. An extended PLND is preferred. It finds metastases about two times as often as a limited PLND. It also stages cancer more completely and may cure some men with very tiny (microscopic) metastases.

Radiation therapy

Radiation therapy (RT) can be used as the main or primary treatment instead of surgery. RT uses high-energy radiation from x-rays, gamma rays, and other sources to kill cancer cells and shrink tumors. It is given over a certain period of time. Radiation can be used to cure cancer instead of surgery. Sometimes, it is given after surgery to reduce the chance that your cancer will return. Also, if your PSA begins to rise after surgery, RT might be recommended to try to kill the cancer cells that could have been left behind.

There are 2 main types of radiation treatment:

- **External beam radiation therapy** (EBRT) uses a machine outside of the body to aim radiation at the tumor(s).
- **Internal radiation** is placed inside the body as a solid like seeds. This is called brachytherapy.

EBRT

There is more than one type EBRT used in the treatment of prostate cancer. These allow for safer, higher doses of radiation.

Types of EBRT that may be used to treat your cancer include:

- **Stereotactic body radiation therapy** (SBRT) uses high-energy radiation beams to treat cancers in five or fewer treatments.
- **Proton beam radiation therapy** uses streams of particles called protons to kill tumor cells.
- **Three-dimensional conformal radiation therapy** (3D-CRT) uses computer software and CT images to aim beams that match the shape of the tumor.
- **Intensity-modulated radiation therapy** (IMRT) uses small beams of different strengths to match the shape of the tumor. IMRT is a type of 3D-CRT that may be used for more aggressive prostate cancer.
- **Image-guided radiation therapy** (IGRT) uses a computer to create a picture of the tumor. This helps guide the radiation beam during treatment. IGRT is used with all of the types listed above to ensure that the radiation beams are always hitting the target. This spares normal tissues from radiation damage.

Brachytherapy

Brachytherapy is another standard radiation therapy option for prostate cancer. In this treatment, radiation is placed inside or next to the tumor. Brachytherapy may be used alone or combined with EBRT, androgen deprivation therapy (ADT), or both. You might hear it called brachy (said braykey) for short.

Brachytherapy alone may be an option for men with very-low-, low-, or favorable intermediate-risk prostate cancer depending on life expectancy. Those with high-risk cancers are not usually considered for brachytherapy alone.

There are 2 types of brachytherapy:

- Low dose-rate (LDR) brachytherapy
- High dose-rate (HDR) brachytherapy

LDR brachytherapy

Low dose-rate (LDR) brachytherapy uses thin, hollow needles to place radioactive seeds into your prostate. The seeds are about the size of a grain of rice. They are inserted into your body through the perineum and guided into your prostate with imaging tests.

The seeds usually consist of either radioactive iodine or palladium. They will stay in your prostate and give a low dose of radiation for a few months. The radiation travels a very short distance. This allows for a large amount of radiation within a small area while sparing nearby healthy tissue. Over time, the seeds will stop radiating, but will stay in your body (permanent).

Brachytherapy

In brachytherapy, radiation is placed inside or next to the tumor.

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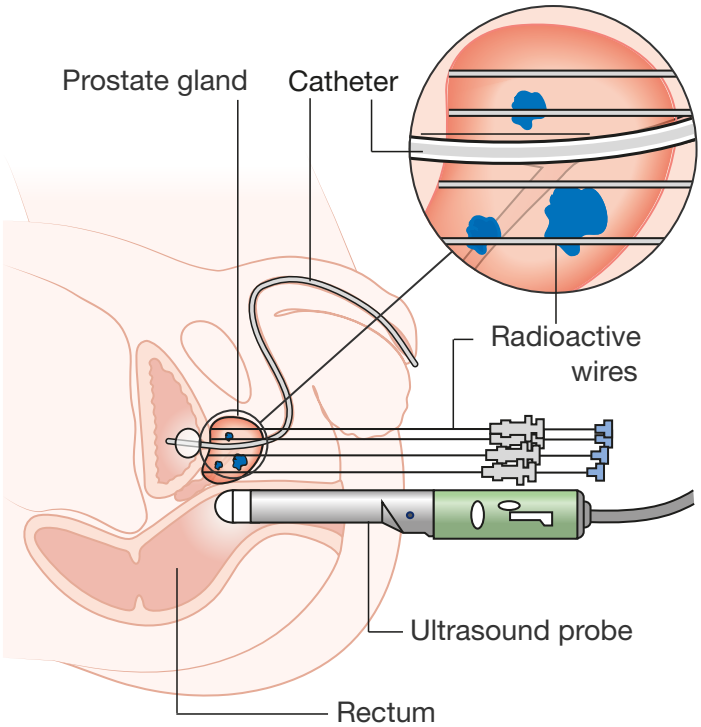

HDR brachytherapy

High dose-rate (HDR) brachytherapy uses thin needles placed inside your prostate gland. These needles are then attached to tubes called catheters. Radiation will be delivered through these catheters. After treatment, the needles and catheters are removed.

Brachytherapy boost

Brachytherapy used with EBRT is called a brachytherapy boost, or brachy boost for short. LDR or HDR brachytherapy can be added as a boost to EBRT plus ADT in men with unfavorable intermediate-, high-, or very-high-risk prostate cancer who are being treated to cure the disease.

Hormone therapy

Hormone therapy is treatment that adds, blocks, or removes hormones. A hormone is a substance made by a gland in the body. Your blood carries hormones throughout your body.

The main male hormone or androgen is testosterone. Most of the testosterone in the body is made by the testicles, but the adrenal glands that sit above your kidneys also make a small amount.

Luteinizing hormone-releasing hormone (LHRH) and gonadotropin-releasing hormone (GnRH) are hormones made by a part of the brain called the hypothalamus. These hormones tell the testicles to make testosterone.

Hormones can cause prostate cancer to grow. Hormone therapy will stop your body from making testosterone or it will block what testosterone does in the body. This can slow tumor growth or shrink the tumor for a period of time. Hormone therapy can be the surgical removal of the testicles (orchiectomy) or it can be systemic drug therapy. The goal is to reduce the amount of testosterone in your body.

You might hear the term “castration” used when describing your prostate cancer or its treatment. This the medical term for some types of hormone therapy. Castration can be temporary, a short-term treatment, or permanent like in an orchiectomy. If you are unsure what your doctor is talking about, ask.

Hormone therapy is rarely used by itself in the treatment of prostate cancer.

There is one type of surgical hormone therapy:

- **Bilateral orchiectomy** is surgery to remove both testicles. Since the scrotum is not removed, implants might be an option.

The following are systemic (medical) hormone therapies:

- **LHRH agonists** are drugs used to stop the testicles from making testosterone. LHRH agonists include goserelin acetate, histrelin acetate, leuprolide acetate, and triptorelin pamoate. LHRH agonists will shrink your testicles over time.
- **LHRH antagonists** are drugs that block or stop the pituitary gland (attached to the hypothalamus) from making LHRH. This causes the testicles to stop making testosterone. Degarelix is an LHRH antagonist.
- **Anti-androgens** are drugs that block receptors on prostate cancer cells from

receiving testosterone. Anti-androgens include bicalutamide, flutamide, nilutamide, enzalutamide, apalutamide, and darolutamide.

- **Corticosteroids** are synthetic hormones made in a lab that can stop the adrenal glands and other tissues from making testosterone. Prednisone, methylprednisolone, hydrocortisone, and dexamethasone are corticosteroids.
- **Estrogen** can stop the adrenal glands and other tissues from making testosterone. One type of synthetic estrogen made in a lab is called diethylstilbestrol (DES). Estrogen can increase the risk for breast growth and tenderness as well as blood clots.
- **Androgen synthesis inhibitors** are drugs that block androgen production. Ketoconazole is an antifungal drug that stops the adrenal glands and other tissues from making testosterone. Abiraterone acetate is similar to ketoconazole. Abiraterone is stronger and less toxic.

Androgen deprivation therapy

Androgen deprivation therapy (ADT) is treatment to suppress or block the amount of male sex hormones in the body. It is the primary or main systemic therapy for regional and advanced disease. ADT might be used alone or in combination with other therapies.

The term “hormone therapy” can be confusing. Some people refer to all hormone therapy as ADT. However, only orchiectomy, LHRH agonists, and LHRH antagonists are a form of ADT.

Get to know your care team and let them get to know you.

Palliative ADT

Palliative ADT is given to relieve (palliate) symptoms of prostate cancer. Palliative ADT can be given to those with a life expectancy of 5 years or less and who have high-risk, very-high-risk, regional, or metastatic prostate cancer. Palliative ADT can also be given to those who will start or have started to develop symptoms during observation.

Side effects of hormone therapy

Hormone therapy has side effects. Many factors play a role in your risk for side effects. Such factors include your age, your health before treatment, how long or often you have treatment, and so forth.

Side effects differ between the types of hormone therapy. In general, ADT may reduce your desire for sex and cause erectile dysfunction. If you will be on long-term ADT, your doctor may consider intermittent treatment to reduce side effects. Intermittent treatment is alternating periods of time when you are on and off ADT treatment. It can provide similar cancer control to continuous hormone therapy, but gives your body a break from treatment.

The longer you take ADT, the greater your risk for thinning and weakening bones (osteoporosis), bone fractures, weight gain, loss of muscle mass, diabetes, and heart disease. Other side effects of ADT include hot flashes, mood changes, fatigue, and breast tenderness and growth. Talk to your care team about how to manage the side effects of hormone therapy.

Before ADT, you should receive a dual-energy x-ray absorptiometry (DEXA) scan to measure your bone density. Denosumab, zoledronic acid, or alendronate are recommended if your bone density is low. Calcium and vitamin D3 taken every day may help prevent or control osteoporosis for those on ADT.

ADT increases the risk for diabetes and cardiovascular disease. Screening and treatment to reduce your risk for these diseases is advised. Tell your primary care physician if you are being treated with ADT.

ADT has been known to increase the risk of death from heart issues in African-American men. Ask your doctor about the risks of ADT treatment for your prostate cancer.

Steroids

Corticosteroids or steroids are drugs created in a lab to act like hormones made by the adrenal glands. The adrenal glands are small structures found near the kidneys, which help regulate blood pressure and reduce inflammation (swelling). Corticosteroids are used alone or in combination with other therapies.

Steroids to treat prostate cancer might include:

- Prednisone
- Methylprednisolone
- Hydrocortisone
- Dexamethasone

Bone-targeted therapy

Medicines that target the bones may be given to help relieve bone pain or reduce the risk of bone problems. Some treatments for prostate cancer, like hormone therapy, can cause bone loss, which put you at increased risk for fractures.

There are 3 drugs used to prevent bone loss and fractures:

- Denosumab (Prolia®)
- Zoledronic acid (Zometa®)
- Alendronate (Fosamax®)

You will be screened for osteoporosis using a bone mineral density test. This measures how much calcium and other minerals are in your bones. It is also called a DEXA scan and is painless. Bone mineral density tests look for osteoporosis and help predict your risk for bone fractures.

If you are at an increased risk for fracture, a baseline DEXA scan is recommended before starting hormone therapy. A follow-up DEXA scan after one year of hormone therapy is recommended.

Denosumab, zoledronic acid, and alendronate

Denosumab, zoledronic acid, and alendronate are used to prevent bone loss (osteoporosis) and fractures caused by hormone therapy. You might have blood tests to monitor kidney function and calcium levels. A calcium and vitamin D supplement will be recommended by your doctor.

Let your dentist know if you are taking any of these medicines. Also, ask your doctor how these medicines might affect your teeth and jaw. Osteonecrosis, or bone tissue death of the jaw, is a rare, but serious side effect. Tell your doctor about any planned trips to the dentist. It will be important to take care of your teeth and to see a dentist before starting treatment with any of these drugs.

Clinical trials

A clinical trial is a type of research study that tests new methods of screening, prevention, diagnosis, or treatment of a disease.

Clinical trials have 4 phases.

- **Phase I trials** aim to find the safest and best dose of a new drug or new combination. Another aim is to find the best way to give the drug with the fewest side effects.
- **Phase II trials** assess if a drug works for a specific type of cancer.
- **Phase III trials** compare a new drug to a standard treatment.
- **Phase IV trials** evaluate a drug's long-term safety and effectiveness after it has been approved.

Those in a clinical trial often are alike in terms of their cancer type or stage and general health. This helps ensure that any change is a result of the treatment and not due to differences between participants.

If you decide to join a clinical trial, you will need to review and sign an informed consent form. This form describes the study in detail, including the risks and benefits. Even after you sign a consent form, you can stop taking part in a clinical trial at any time.

Ask your treatment team if there is an open clinical trial that you can join. Discuss the risks and benefits of joining a clinical trial with your care team. Together, decide if a clinical trial is right for you.

Finding a clinical trial

Enrollment in a clinical trial is encouraged when it is the best option for you.

- ✓ To find clinical trials online at NCCN Member Institutions, go to **nccn.org/clinical_trials/member_institutions.aspx**
- ✓ To search the National Institutes of Health (NIH) database for clinical trials in the United States and around the world, go to **ClinicalTrials.gov**
- ✓ To find clinical trials supported by the National Cancer Institute (NCI), go to **cancer.gov/about-cancer/treatment/clinical-trials/search**

Ask your cancer team for help finding a clinical trial. You may also get help from NCI's Cancer Information Service (CIS). Call 1.800.4.CANCER (1.800.422.6237) or go to **cancer.gov/contact**

Possible treatment side effects

A side effect is a problem or uncomfortable condition caused by treatment. Side effects are part of any treatment.

Possible side effects from prostate cancer treatment are:

- Urinary retention
- Urinary incontinence
- Erectile dysfunction

Often, these side effects are temporary and go away on their own. However, there is always a risk that a side effect may become long term or permanent. Talk with your doctor about your risk for these and other side effects, such as bowel problems, and how they might be prevented or treated.

Urinary retention

Urinary retention is the inability to completely empty the bladder. Your bladder might feel like it is full even after urinating.

Urinary incontinence

Urinary incontinence or the inability to control the flow of urine from the bladder. There are different degrees of incontinence.

Erectile dysfunction

Erectile dysfunction or impotence is the inability to achieve or maintain an erection. Erectile function after surgery could be close to what it was before surgery. But, it may be worse. Prostate surgery that spares the nerves near the prostate can help maintain erectile function and prevent urinary issues.

Review

- Observation looks for signs of cancer in order to treat the symptoms before they start or get worse.
- Active surveillance looks for signs of cancer in order to cure it before cancer progresses.
- Surgery removes the tumor along with some normal-looking tissue around its edge called a surgical margin. The goal of surgery is a negative margin (R0).
- A radical prostatectomy removes the prostate and the seminal vesicles. A pelvic lymph node dissection (PLND) removes lymph nodes near the prostate.
- Hormone therapy treats prostate cancer by either stopping testosterone from being made or stopping what testosterone does in the body. It is the main systemic therapy for regional and advanced disease.
- Radiation kills cancer cells or stops new cancer cells from being made.
- A clinical trial is a type of research that studies a treatment to see how safe it is and how well it works. Sometimes, a clinical trial is the preferred treatment option for prostate cancer.

6

Initial treatment by risk group

Initial treatment options for men with prostate cancer are based on risk group. Together, you and your doctor will choose a treatment plan that is best for you.

Initial prostate cancer diagnosis is your first diagnosis. Your doctor might suspect prostate cancer based on an abnormal digital rectal exam or an elevated PSA. Biopsies of the prostate are needed to confirm prostate cancer. A TRUS-guided biopsy is the most common form. It is usually performed by a urologist. A pathologist will assign a primary and secondary Gleason grade to the biopsy sample.

Risk groups

In addition to blood, imaging, and tissue tests, a family history will be taken. Your life expectancy will be estimated. You may have genetic testing. All of these factors will be used to place you into a risk group.

Initial risk groups are:

- Very low
- Low
- Intermediate favorable
- Intermediate unfavorable
- High
- Very high
- Regional

A preferred treatment option is proven to be more effective.

Life expectancy: 5 years or less
Sometimes, it is advised for those in certain risk groups to wait until symptoms appear before having tests or starting treatment.

If you do not have any symptoms, are expected to live 5 years or less, and are very low, low, or intermediate risk, then treatment and testing can wait.

Those who are high or very high risk and are expected to live 5 years or less should undergo bone imaging. If cancer is suspected in the lymph nodes, then you might have imaging of your abdomen and/or pelvis.

Very low risk

The very-low-risk group is for those who have all of the following:

- T1c stage
- Grade Group 1
- PSA of less than 10 ng/mL
- Cancer in 1 to 2 biopsy cores with no more than half of any core showing cancer
- PSA density of less than 0.15 ng/mL

NCCN experts are concerned about overtreatment of this early cancer. As a result, very-low-risk prostate cancer is not treated with hormone therapy or other types of systemic therapy. Options are based on life expectancy.
See Guide 5.

Tests during observation

- ✓ PSA every 6 to 12 months for 5 years, then every year
- ✓ Digital rectal exam every 12 months, but may be omitted if PSA undetectable

Guide 5
Initial therapy options by life expectancy: Very-low-risk group

Less than 10 years	Observation	
10 to 20 years	Active surveillance	
20 or more years	Active surveillance (preferred)	
	EBRT or brachytherapy	
	Radical prostatectomy →	If adverse features, then one from below: • EBRT • EBRT with ADT • Observation

Life expectancy: Less than 10 years

If your life expectancy is less than 10 years, observation is recommended.

Observation

If your life expectancy is less than 10 years, then observation is recommended. This option is for those who have other more serious health problems and prostate cancer is not causing any symptoms. Observation consists of testing on a regular basis so that palliative ADT can be given if symptoms from the cancer are likely to start.

Life expectancy: Between 10 and 20 years

If your life expectancy is between 10 and 20 years, active surveillance is recommended.

Active surveillance

Active surveillance is advised if you have slow-growing disease and your life expectancy is between 10 and 20 years. Active surveillance consists of testing, including biopsies, on a regular basis so that treatment can be started when and if needed.

To see if you are a good candidate for active surveillance, your doctor should consider an mpMRI and/or prostate biopsy.

Tests during active surveillance can be found in Guide 6.

Life expectancy: 20 or more years

If your life expectancy is 20 or more years, then the options are:

- Active surveillance (preferred option)
- EBRT or brachytherapy
- Radical prostatectomy

Active surveillance

Active surveillance is the preferred option if you have slow-growing disease and your life expectancy is 20 or more years. Tests during active surveillance include PSA, digital rectal exam, mpMRI, and a biopsy. These are done on a regular basis so that treatment can be started when and if needed.

To see if you are a good candidate for active surveillance, your doctor should consider:

- mpMRI
- Prostate biopsy

Guide 6
Tests during active surveillance

PSA no more than every 6 months or as needed
Digital rectal exam no more than every 12 months or as needed
Repeat prostate biopsy no more than every 12 months or as needed
Repeat mpMRI no more than every 12 months or as needed

Radiation therapy

If you will likely live more than 20 years, you may want treatment now instead of active surveillance. In time, the cancer may grow outside your prostate, cause symptoms, or both. Since there is no way to know for sure, radiation therapy is an option. Very-low-risk cancers can be treated with EBRT or brachytherapy.

Radical prostatectomy

Surgery is an option if you will likely live more than 20 years and prefer this treatment over active surveillance. Your pelvic lymph nodes may also be removed if your risk for them having cancer is 2 percent (2%) or higher. Your doctor will determine your risk using a nomogram.

When your prostate is removed, a biopsy will be sent to a pathologist to see how much cancer there is in your prostate. After surgery, your PSA level will be tested. Radiation or systemic therapy might follow surgery.

If you opt for a radical prostatectomy, your doctor will look for signs of disease called adverse features during and after surgery.

If your prostate cancer has adverse features, then there are 3 treatment options:

- EBRT
- EBRT with ADT
- Observation

EBRT or observation is an option for when there are high-risk features. EBRT will target areas where the cancer cells have likely spread. ADT might be added to EBRT. Treatment will be started after you've healed from the prostate operation.

Adverse features

- ✓ Cancer in the surgical margin
- ✓ Cancer outside the layer surrounding the prostate
- ✓ Cancer in the seminal vesicle(s)
- ✓ Certain PSA levels - range varies depending on risk group

If test results do not find high-risk features, then no more treatment is needed.

Follow-up tests

You will be monitored with these follow-up tests:

- PSA every 6 to 12 months for 5 years, then every year after that
- Digital rectal exam every 12 months

Low risk

The low-risk group is for those who have all of the following:

- T1 to T2a stage
- Grade Group 1
- PSA of less than 10 ng/mL

Treatment options are based on life expectancy. For treatment options for men at low risk of recurrence, see Guide 7.

Life expectancy: Less than 10 years

If your life expectancy is less than 10 years, observation is recommended.

Observation

If your life expectancy is less than 10 years, then observation is recommended. This option is for those who have other more serious health problems and prostate cancer is not causing any symptoms. Observation consists of testing on a regular basis so that palliative ADT can be given if symptoms from the cancer are likely to start.

Tests during observation include:

- PSA every 6 to 12 months for 5 years, then ever year
- Digital rectal exam every 12 months, but may be omitted if PSA undetectable

Life expectancy: 10 or more years

If your life expectancy is 10 or more years, the options are:

- Active surveillance (preferred)
- EBRT or brachytherapy
- Radical prostatectomy

Active surveillance

Active surveillance is the preferred option if you have slow-growing disease and your life expectancy is 10 or more years.

To see if you are a good candidate for active surveillance, your doctor should consider:

- mpMRI
- Prostate biopsy
- Tumor analysis

Guide 7
Initial therapy options by life expectancy: Low-risk group

Less than 10 years	Observation	
10 or more years	Active surveillance (preferred)	
	EBRT or brachytherapy	
	Radical prostatectomy →	If adverse features, then one from below: • EBRT • EBRT with ADT • Observation

Radiation therapy

If you will likely live more than 10 years, you may want treatment now instead of active surveillance. In time, the cancer may grow outside your prostate, cause symptoms, or both. Since there is no way to know for sure, radiation therapy is an option. Low-risk cancers can be treated with EBRT or brachytherapy.

Radical prostatectomy

After a radical prostatectomy, you might have adjuvant therapy. Adjuvant therapy is treatment after surgery that helps to stop the cancer from returning. Options are based on the presence of high-risk (adverse) features and cancer (metastasis) in the lymph nodes. Cancer that has metastasized to nearby lymph nodes is called node-positive disease.

If your prostate cancer has adverse features, then there are 3 treatment options:

- EBRT
- EBRT with 6 months of ADT
- Observation

EBRT or observation is an option for when there are high-risk features and there is no cancer in lymph nodes. EBRT will target areas where the cancer cells have likely spread. ADT might be added to EBRT. Treatment will be started after you've healed from the prostate operation.

If test results do not find high-risk features, then no more treatment is needed.

Follow-up tests

You will be monitored with these follow-up tests:

- PSA every 6 to 12 months for 5 years, then every year after that
- Digital rectal exam every 12 months

Intermediate risk

The intermediate-risk group is for those who have no high-risk or very-high-risk group features and 1 or more of the following **intermediate risk factors:**

- T2b or T2c stage
- Grade Group 2 or 3
- PSA 10 to 20 ng/mL

The intermediate-risk group is further divided into favorable and unfavorable.

Treatment will be based on if your prostate cancer is:

- Favorable intermediate risk
- Unfavorable intermediate risk

Favorable intermediate risk

The favorable intermediate-risk group is for those who have all of the following:

- 1 intermediate risk factor
- Grade Group 1 or 2
- Less than half of biopsy cores show cancer

Treatment options are based on life expectancy. See Guide 8.

Life expectancy: Less than 10 years

If your life expectancy is less than 10 years, there are 2 options:

- Observation (preferred)
- EBRT or brachytherapy alone

Observation

Observation is the preferred option for those with a life expectancy of less than 10 years and prostate cancer is unlikely to cause problems. Observation consists of testing on a regular basis so that palliative ADT can be given if symptoms from the cancer are likely to start.

Radiation therapy

Radiation therapy is a treatment option for some with favorable-intermediate risk. This may include EBRT or brachytherapy alone.

Guide 8
Initial therapy options by life expectancy: Favorable intermediate-risk group

Less than 10 years	Observation (preferred)	
	EBRT or brachytherapy alone	
10 or more years	Active surveillance	
	EBRT or brachytherapy alone	
	Radical prostatectomy with or without PLND →	If adverse feature(s) and no lymph node metastases, the options are: • EBRT with or without ADT • Observation
	Radical prostatectomy with or without PLND →	If lymph node metastases, the options are: • ADT with or without EBRT • Observation

Life expectancy: 10 or more years

If your life expectancy is 10 or more years, there are 3 options:

- Active surveillance
- EBRT or brachytherapy alone
- Radical prostatectomy with or without PLND

Active surveillance

Active surveillance consists of testing on a regular basis so that treatment can be started when needed. For favorable intermediate-risk disease, you should be watched closely for any changes. Active surveillance is an option, but should be approached with caution.

To see if you are a good candidate for active surveillance, your doctor should consider:

- mpMRI
- Prostate biopsy

Radiation therapy

A treatment option for some men with favorable-intermediate risk is radiation therapy. This may include EBRT or brachytherapy alone.

Radical prostatectomy

If you are expected to live 10 or more years, a radical prostatectomy may be an option. Your pelvic lymph nodes may also be removed if their risk for cancer is 2 percent (2%) or higher. Your doctor will determine your risk using a nomogram.

When your prostate is removed, a sample will be sent to a pathologist to see how much cancer there is in your prostate. Your PSA will also be tested.

After a radical prostatectomy, you might have adjuvant therapy. Adjuvant therapy is treatment after surgery that helps to stop the cancer from returning. Options are based on the presence of high-risk (adverse) features and cancer (metastasis) in the lymph nodes. Cancer that has metastasized to nearby lymph nodes is called node-positive disease.

If your prostate cancer has adverse features and there are no lymph node metastases, the options are:

- EBRT with or without ADT
- Observation

EBRT will target areas where the cancer cells have likely spread. ADT might be added to EBRT. Treatment will be started after you've healed from the prostate operation.

If test results do not find high-risk features or cancer in the lymph nodes, then no more treatment is needed. You may start observation.

If there are lymph node metastases, then the treatment options are:

- ADT with or without EBRT
- Observation

ADT is used to suppress or block the amount of testosterone in the body. EBRT might be added to ADT. EBRT will target areas where the cancer cells have likely spread. Observation is an option if the cancer isn't causing symptoms.

Unfavorable intermediate risk

The unfavorable intermediate-risk group is for those who have one or more of the following:

- 2 or more intermediate risk factors
- Grade Group 3
- More than half of biopsy cores show cancer

Treatment options are based on life expectancy. For treatment options for men in the unfavorable intermediate-risk group, see Guide 9.

Guide 9
Initial therapy options by life expectancy: Unfavorable intermediate-risk group

Less than 10 years	Observation (preferred)	
	EBRT with 4 to 6 months of ADT	
	EBRT with brachytherapy	
	EBRT with brachytherapy and 4 to 6 months of ADT	
10 or more years	Radical prostatectomy with or without PLND →	If adverse feature(s) and no lymph node metastases, the options are: • EBRT with or without ADT • Observation
	Radical prostatectomy with or without PLND →	If lymph node metastases, the options are: • ADT with or without EBRT • Observation
	EBRT with 4 to 6 months of ADT	
	EBRT with brachytherapy	
	EBRT with brachytherapy and 4 to 6 months of ADT	

Life expectancy: Less than 10 years

If your life expectancy is less than 10 years, there are 5 options:

- Observation (preferred)
- EBRT with 4 to 6 months of ADT
- EBRT with brachytherapy
- EBRT with brachytherapy and 4 to 6 months of ADT

Observation

Observation is the preferred option for those with a life expectancy of less than 10 years. The cancer may not progress quickly enough to cause problems within 10 years. Observation consists of testing on a regular basis so that supportive care with palliative ADT can be given if symptoms from the cancer are likely to start. Tests during observation include PSA and digital rectal exam. Active surveillance is not recommended for patients in this risk group.

Radiation therapy

A treatment option for all men with unfavorable intermediate risk is radiation therapy. LDR or HDR brachytherapy can be used with EBRT for intermediate-risk cancers. Your doctor may want to add ADT to your radiation therapy.

Life expectancy: 10 or more years

If your life expectancy is 10 or more years, the options are:

- Radical prostatectomy with or without PLND
- EBRT with 4 to 6 months of ADT
- EBRT with brachytherapy
- EBRT with brachytherapy and 4 to 6 months of ADT

Radical prostatectomy

If you are expected to live 10 or more years, a radical prostatectomy is an option. Your pelvic lymph nodes may also be removed (PLND) if your risk for them having cancer is 2 percent (2%) or higher. Your doctor will determine your risk using a nomogram.

The tissue that will be removed from your body during the operation will be sent to a pathologist to see how far the cancer has spread within the tissue. After the operation, your PSA level will also be tested. You may receive more treatment after surgery. This is called adjuvant treatment.

Adjuvant treatment helps to stop the cancer from returning. Adjuvant is treatment given after a primary treatment like surgery in this case. Adjuvant options are based on high-risk or adverse features and lymph node metastasis. Adverse features suggest that not all of the cancer was removed during surgery.

If test results find no adverse features, no lymph node metastases, and a low or undetectable PSA, then you may start observation.

If there are adverse features, but no lymph node metastases, then there are 3 adjuvant options:

- EBRT with or without ADT
- Observation

EBRT will target areas where the cancer cells have likely spread. ADT might be added to EBRT. Treatment will be started after you've healed from the prostate operation.

If cancer is found in lymph nodes, options include:

- ADT with or without EBRT
- Observation

If your PSA levels are undetectable, observation is an option. Treatment with ADT and radiation can be started if the levels rise.

Radiation therapy

A treatment option for all men with unfavorable intermediate risk is radiation therapy. LDR or HDR brachytherapy can be used with EBRT for intermediate-risk cancers. Your doctor may want to add ADT to your radiation therapy.

High risk or very high risk

The high-risk group is for those who have one of the following:

- T3a stage
- Grade Group 4
- Grade Group 5
- PSA of more than 20 ng/mL

The very-high-risk group is for those who have one of the following:

- T3b to T4 stage
- Primary Gleason pattern 5
- More than 4 biopsy cores with Grade Group 4 or 5

Treatment for high-risk and very-high-risk prostate cancer is more aggressive. See Guide 10.

Treatment options are based on the following:

- Life expectancy of 5 years or less with no symptoms
- Life expectancy of more than 5 years or you have symptoms

Life expectancy: 5 years or less and no symptoms

There are 3 options when life expectancy is 5 years or less or there are no symptoms:

- Observation
- ADT
- EBRT

Observation

Observation is the option for most people. Observation consists of testing on a regular basis so that palliative ADT can be given if symptoms from the cancer are likely to start.

Hormone therapy

ADT can be considered. Androgen deprivation therapy can be surgical or medical castration. Surgery to remove the testicles is called an orchiectomy. Other forms of ADT are systemic therapies (drugs).

Radiation therapy

EBRT can be considered.

Guide 10
Initial therapy options by life expectancy: High-risk or very-high-risk group

5 years or less with no symptoms	Observation	
	ADT	
	EBRT	
More than 5 years or has symptoms	EBRT with 18 months to 3 years of ADT. If very high risk, then docetaxel may be added.	
	EBRT and brachytherapy with 1 to 3 years of ADT	
	Radical prostatectomy with PLND	→ If adverse feature(s) and no lymph node metastases, the options are: • EBRT with or without ADT • Observation
		→ If lymph node metastases, the options are: • ADT with or without EBRT • Observation

Life expectancy: More than 5 years or has symptoms

If your life expectancy is more than 5 years or you have symptoms, there are 3 options:

- EBRT with 18 months to 3 years of ADT (called long-term ADT)
- EBRT with brachytherapy and 1 to 3 years of ADT (called long-term ADT). If very high risk, then docetaxel may be added.
- Radical prostatectomy with PLND

Radiation therapy

Option 1 is EBRT to the prostate and pelvic lymph nodes and long-term ADT. If you will receive ADT, it will be given before, during, and after radiation therapy for 18 months to 3 years. ADT alone is not enough.

Option 2 is EBRT plus brachytherapy and long-term ADT. If you will receive ADT, it will be given before, during, and after radiation therapy for a total of 1 to 3 years. ADT alone is not enough.

Radical prostatectomy

If you are expected to live more than 5 years, a radical prostatectomy with the removal of your pelvic lymph nodes (PLND) is an option. Your age and overall health will be a factor in deciding if this is a good option.

The tissue that will be removed from your body during the operation will be sent to a pathologist to see how far the cancer has spread within the tissue. After the operation, your PSA level will also be tested. You may receive more treatment after surgery. This is called adjuvant treatment.

Adjuvant treatment helps to stop the cancer from returning. Options for adjuvant treatment after a prostatectomy are based on the presence of adverse (high-risk) features and cancer in the lymph nodes.

If test results find no adverse features or cancer in the lymph nodes, no more treatment is needed. Your cancer will be monitored.

If test results find adverse features but no cancer in the lymph nodes, options are:

- EBRT with or without ADT
- Observation

EBRT will target areas where the cancer cells have likely spread. Treatment will be started after you've healed from the operation. ADT might be added to EBRT.

If cancer is found in lymph nodes, options are:

- ADT with or without EBRT
- Observation

The first option is to start ADT now. EBRT may be given with ADT. If your PSA levels are undetectable, starting observation is an option. Supportive care with ADT can be started if PSA levels rise.

Regional cancer risk

Regional cancer is sometimes referred to as nodal disease because it is prostate cancer that has spread or metastasized in nearby lymph nodes (N1). It has not spread to distant parts of the body (M0). This type of cancer can be any size (any T) and might be found during a radical prostatectomy, PLND, or during other tests. Treatment aims to prevent or delay cancer spreading to other areas of the body. See Guide 11.

Treatment is based on the following:

- Life expectancy is 5 years or less AND you have no symptoms
- Life expectancy is more than 5 years OR you have symptoms

Life expectancy: 5 years or less and no symptoms

If your life expectancy is 5 years or less and you have no symptoms, there are 2 options:

- Observation
- ADT

Observation

Observation consists of testing on a regular basis so that palliative ADT can be given if symptoms from the cancer are likely to start.

Hormone therapy

ADT is an option.

Guide 11
Initial therapy options by life expectancy: Regional risk group

5 years or less with no symptoms	Observation	
	ADT	
More than 5 years or has symptoms	EBRT with ADT (preferred)	Treatment followed by: • Physical exam with PSA every 3 to 6 months • Imaging for symptoms or increasing PSA
	EBRT with ADT and abiraterone	
	EBRT with ADT and fine-particle abiraterone	
	ADT with abiraterone	
	ADT with fine-particle abiraterone	

Life expectancy: More than 5 years or has symptoms

If your life expectancy is more than 5 years or you have symptoms caused by prostate cancer, then you have the following treatment options:

- EBRT with ADT (preferred option)
- EBRT with ADT and abiraterone
- EBRT with ADT and fine-particle abiraterone
- ADT with abiraterone
- ADT and fine-particle abiraterone

Radiation therapy

The preferred treatment option is EBRT with ADT. EBRT is given to the primary tumor located in the prostate.

Hormone therapy

Androgen deprivation therapy (ADT) can be surgical or medical castration. Surgery to remove the testicles is called an orchiectomy. Other forms of ADT are systemic therapies (drugs). Both methods work equally well. ADT may be used alone, with EBRT, and with other hormone therapies.

Monitoring

Treatment is followed by monitoring.

Monitoring includes:

- Physical exam with PSA every 3 to 6 months
- Imaging for symptoms or increasing PSA

Tests during observation

- ✓ PSA every 6 to 12 months for 5 years, then every year
- ✓ Digital rectal exam every 12 months, but may be omitted if PSA undetectable

After initial treatment

After initial treatment is finished you will be monitored for cancer that returns called recurrence. Monitoring will depend on your initial treatment.

If your initial treatment was EBRT, EBRT with ADT that was limited to 4 or 6 months, or a radical prostatectomy, then you will have these follow-up tests:

- PSA every 6 to 12 months for 5 years, then every year after that
- Digital rectal exam every 12 months

You might have a PSA more often. If PSA is not detected, then the digital rectal exam might not be done.

If you have lymph node metastases (N1) and are on ADT, are on observation, or lymph node metastases are found after a radical prostatectomy, then you will have these follow-up tests:

- Physical exam with a PSA every 3 to 6 months
- Imaging for symptoms or increasing PSA

If cancer returns, imaging and other tests will be done.

Review

- Observation is recommended for those with a life expectancy of 5 years or less.
- One option for very-low-, low-risk, and favorable intermediate-risk cancers is not to start treatment since the cancer might never cause problems. Otherwise, radiation therapy and surgery are options.
- For favorable intermediate-risk or unfavorable intermediate-risk cancer, treatment options include observation, radiation therapy, or surgery.
- Treatment for high-risk and very-high-risk cancer is more aggressive. It may be treated with radiation or surgery. For those who choose surgery, radiation therapy is often needed after surgery. Sometimes long-term hormone therapy is added to radiation therapy. Observation is also an option.
- Regional cancer may be treated with observation, hormone therapy, or radiation therapy.

7
Making treatment decisions

It's important to be comfortable with the cancer treatment you choose. This choice starts with having an open and honest conversation with your doctors.

It's your choice

In shared decision-making, you and your doctors share information, discuss the options, and agree on a treatment plan. It starts with an open and honest conversation between you and your doctor.

Treatment decisions are very personal. What is important to you may not be important to someone else.

Some things that may play a role in your decision-making:

- What you want and how that might differ from what others want
- Your religious and spiritual beliefs
- Your feelings about certain treatments like surgery or chemotherapy
- Your feelings about pain or side effects such as nausea and vomiting
- Cost of treatment, travel to treatment centers, and time away from work
- Quality of life and length of life
- How active you are and the activities that are important to you

Think about what you want from treatment. Discuss openly the risks and benefits of specific treatments and procedures. Weigh options and share concerns with your doctor. If you take the time to build a relationship with your doctor, it will help you feel supported when considering options and making treatment decisions.

Second opinion

It is normal to want to start treatment as soon as possible. While cancer can't be ignored, there is time to have another doctor review your test results and suggest a treatment plan. This is called getting a second opinion, and it's a normal part of cancer care. Even doctors get second opinions!

Things you can do to prepare:

- Check with your insurance company about its rules on second opinions. There may be out-of-pocket costs to see doctors who are not part of your insurance plan.
- Make plans to have copies of all your records sent to the doctor you will see for your second opinion.

Support groups

Many people diagnosed with cancer find support groups to be helpful. Support groups often include people at different stages of treatment. Some people may be newly diagnosed, while others may be finished with treatment. If your hospital or community doesn't have support groups for people with cancer, check out the websites listed in this book.

Questions to ask your doctors

Possible questions to ask your doctors are listed on the following pages. Feel free to use these questions or come up with your own. Be clear about your goals for treatment and find out what to expect from treatment.

Questions to ask about testing and staging

1. What tests are needed? What tests do you recommend? Why?
2. When will I have a biopsy? Will I have more than one? What are the risks?
3. Will I have any genetic tests?
4. How soon will I know the results and who will explain them to me?
5. Who will talk with me about the next steps? When?
6. What will you do to make me comfortable during testing?
7. Would you give me a copy of the pathology report and other test results?
8. What is the cancer stage? What does this stage mean in terms of survival?
9. What is the grade of the cancer? Does this grade mean the cancer will grow and spread fast?
10. Can the cancer be cured? If not, how well can treatment stop the cancer from growing?

Questions to ask about treatment

1. What are my treatment choices? What are the benefits and risks?
2. Which treatment do you recommend and why?
3. How long do I have to decide about treatment?
4. How do my age, health, and other factors affect my options?
5. When will I start treatment? How long will treatment take?
6. How much will the treatment cost? How much will my insurance pay for?
7. What are the chances my cancer will return? How will it be treated if it returns?
8. I would like a second opinion. Is there someone you can recommend?
9. Which treatment will give me the best quality of life?
10. What in particular should be avoided or taken with caution while receiving treatment?

Questions to ask your doctors about surgery

1. What type of surgery will I have? How many of these have you done?
2. What will be removed during surgery?
3. How long will it take me to recover from surgery?
4. How much pain will I be in? What will be done to manage my pain?
5. How will surgery affect my bladder? How long will I need the catheter?
6. What will you do to help with the discomfort of the catheter?
7. How will surgery affect my ability to get and maintain an erection?
8. What are my risks for long-term urinary issues?
9. What other side effects can I expect from surgery?
10. What treatment will I have before, during, or after surgery?

Questions to ask your doctors about radiation therapy

1. What type of radiation therapy will I have?
2. Will you be targeting the prostate alone, or will you also treat the lymph nodes?
3. Will you use hormone therapy with radiation? If so, for how long?
4. How many treatment sessions will I require? Can you do a shorter course of radiation?
5. Do you offer brachytherapy here? If not, can you refer me to someone who does?
6. How does radiation therapy differ from surgery in terms of cure?
7. How will radiation affect my bladder?
8. How will radiation affect my bowels?
9. How will radiation affect my sexual function?
10. What other side effects can I expect from radiation?

Questions to ask your doctors about side effects

1. What are the side effects of treatment?
2. What are my chances of experiencing urinary retention, urinary incontinence, bowel problems, or erectile dysfunction from prostate cancer or its treatment?
3. How long will these side effects last?
4. What can I do to lessen or prevent side effects?
5. What medicines can I take to prevent or relieve side effects?
6. What can I do to help with pain and other side effects? What will you do?
7. Will you stop treatment or change treatment if I have side effects? What do you look for?
8. What side effects should I watch for? When should I call? Can I text?
9. What side effects are life-long or irreversible after completing treatment?
10. What medicines may worsen the side effects of treatment?

Questions to ask your doctors about clinical trials

1. What clinical trials are available for my type and stage of prostate cancer?
2. What are the treatments used in the clinical trial?
3. What does the treatment do?
4. Has the treatment been used before? Has it been used for other types of cancer?
5. What are the risks and benefits of this treatment?
6. What side effects should I expect? How will the side effects be controlled?
7. How long will I be on the clinical trial?
8. Will I be able to get other treatment if this doesn't work?
9. How will you know the treatment is working?
10. Will the clinical trial cost me anything? If so, how much?

Websites

American Cancer Society
cancer.org/cancer/prostatecancer/index

California Prostate Cancer Coalition (CPCC)
prostatecalif.org

Malecare Cancer Support
malecare.org

National Alliance of State Prostate Cancer Coalitions (NASPCC)
naspcc.org

National Coalition for Cancer Survivorship
Canceradvocacy.org/toolbox

National Prostate Cancer Awareness Foundation (PCaAware)
pcaaware.org

Nomograms
nomograms.mskcc.org/Prostate/index.aspx

Prostate Cancer Foundation
pcf.org

Prostate Conditions Education Council (PCEC)
prostateconditions.org

Prostate Health Education Network (PHEN)
prostatehealthed.org

Urology Care Foundation
urologyhealth.org

Us TOO International Prostate Cancer Education and Support Network
ustoo.org/Home

Veterans Prostate Cancer Awareness
vetsprostate.org

ZERO - The End of Prostate Cancer
zerocancer.org

Words to know

active surveillance
Frequent and ongoing testing to watch for changes in cancer status so cancer treatment can be started if it's needed.

androgen deprivation therapy (ADT)
A treatment that removes the testes or stops them from making testosterone. Can be achieved through surgery or drugs.

anti-androgen
A drug that stops the action of the hormone testosterone.

bilateral orchiectomy
An operation that removes both testicles.

biopsy
A procedure that removes fluid or tissue samples to be tested for a disease.

brachytherapy
A treatment with radiation from an object placed near or in the tumor. Also called internal radiation.

castration
Surgery that removes the testicles or drugs that suppress the function of the testicles in order to keep testosterone levels low or close to zero.

computed tomography (CT)
A test that uses x-rays from many angles to make a picture of the insides of the body.

digital rectal exam
A study of the prostate by feeling it through the wall of the rectum.

dual energy x-ray absorptiometry (DEXA)
A test that uses small amounts of radiation to make a picture of bones. Also called bone densitometry.

erectile dysfunction
A lack of blood flow to the penis that limits getting or staying hard.

external beam radiation therapy (EBRT)
A cancer treatment with radiation received from a machine outside the body.

flare
An increase in testosterone after starting treatment to reduce its level.

Gleason grade
A rating of how much prostate cancer cells look like normal cells. A score from 1 (best) to 5 (worst) made by a pathologist based on the ability of prostate cells to form glands. The primary grade is the most common pattern, and the secondary grade is the second most common pattern. The two grades are summed to give a Gleason score.

high dose-rate (HDR) brachytherapy
Treatment with radioactive objects that are removed at the end of the treatment session.

hormone therapy
A cancer treatment that stops the making or action of hormones. Also called endocrine therapy when used for women's cancer. Also called androgen deprivation therapy when used for men's cancers.

image-guided radiation therapy (IGRT)
A treatment with radiation that is aimed at tumors using imaging tests during treatment.

intensity-modulated radiation therapy (IMRT)
Treatment with radiation that uses small beams of different strengths.

intermittent treatment
Alternating periods of time on and off treatment.

life expectancy
The number of years a person is likely to live.

low dose-rate (LDR) brachytherapy
Treatment with radioactive objects that are placed in the tumor and left to decay.

luteinizing hormone-releasing hormone (LHRH) agonist
A drug that acts in the brain to stop the testicles from making testosterone.

luteinizing hormone-releasing hormone (LHRH) antagonist
A drug that acts in the brain to stop the testicles from making testosterone.

magnetic resonance imaging (MRI)
A test that uses radio waves and powerful magnets to make pictures of the insides of the body.

metastasis
The spread of cancer from the first tumor to a new site.

multiparametric magnetic resonance imaging (mpMRI)
A test that makes pictures that show many features of body tissue.

nerve-sparing radical prostatectomy
An operation that removes the prostate and one or neither cavernous nerve bundle.

nomogram
A graphic tool that uses health information to predict an outcome.

observation
A period of testing for changes in cancer status while not receiving treatment.

orchiectomy
An operation that removes one or both testicles.

pelvic lymph node dissection (PLND)
An operation that removes lymph nodes between the hip bones.

perineum
The body region in men between the scrotum and anus.

persistent cancer
Cancer that is not fully treated.

positron emission tomography (PET)
A test that uses radioactive material to see the shape and function of body parts.

prostate-specific antigen (PSA)
A protein mostly made by the prostate. Measured in nanograms per milliliter of PSA.

prostate-specific antigen density (PSAD)
The level of PSA—a prostate-made protein—in relation to the size of the prostate.

prostate-specific antigen doubling time (PSADT)
The time during which the level of PSA—a prostate-made protein—doubles.

prostate-specific antigen (PSA) velocity
How much the level of PSA—a prostate-made protein—changes over time.

radiation therapy (RT)
Treatment that uses high-energy rays.

radical perineal prostatectomy
An operation that removes the prostate through one cut made between the scrotum and anus.

radical retropubic prostatectomy
An operation that removes the prostate through one large cut made below the belly button.

recurrence
The return of cancer after a disease-free period.

seminal vesicle
One of two male glands that makes fluid used by sperm for energy.

supportive care
Health care that includes symptom relief but not cancer treatment. Also called palliative care.

surgical margin
The normal-looking tissue around a tumor that was removed during an operation.

testosterone
A hormone that helps the sexual organs in men to work.

three-dimensional conformal radiation therapy (3D-CRT)
A treatment with radiation that uses beams matched to the shape of the tumor.

transrectal ultrasound (TRUS)
A test that sends sound waves through the rectum to make pictures of the prostate.

ultrasound (US)
A test that uses sound waves to take pictures of the inside of the body.

urethra
A tube-shaped structure that carries urine from the bladder to outside the body; it also expels semen in men.

urinary incontinence
A health condition in which the release of urine can't be controlled.

urinary retention
A health condition in which urine can't be released from the bladder.

NCCN Contributors

This patient guide is based on the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Prostate Cancer. It was adapted, reviewed, and published with help from the following people:

Dorothy A. Shead, MS
Director, Patient Information Operations

Laura J. Hanisch, PsyD
Medical Writer/Patient Information Specialist

Erin Vidic, MA
Medical Writer

Rachael Clarke
Senior Medical Copyeditor

Tanya Fischer, MEd, MSLIS
Medical Writer

Stephanie Rovito, MPH, CHES®
Medical Writer

Kim Williams
Creative Services Manager

Susan Kidney
Graphic Design Specialist

The NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Prostate Cancer, Version 2.2020 were developed by the following NCCN Panel Members:

*Edward Schaeffer, MD, PhD/Chair
Robert H. Lurie Comprehensive Cancer Center of Northwestern University

*Sandy Srinivas, MD/Vice Chair
Stanford Cancer Institute

Emmanuel S. Antonarakis, MD
The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins

Andrew J. Armstrong, MD
Duke Cancer Institute

Justin Bekelman, MD
Abramson Cancer Center at the University of Pennsylvania

Heather Cheng, MD, PhD
Fred Hutchinson Cancer Research Center/ Seattle Cancer Care Alliance

Anthony Victor D'Amico, MD, PhD
Dana-Farber/Brigham and Women's Cancer Center | Massachusetts General Hospital Cancer Center

Brian J. Davis, MD, PhD
Mayo Clinic Cancer Center

*Tanya Dorff, MD
City of Hope National Medical Center

Jame A. Eastman, MD
Memorial Sloan Kettering Cancer Center

Thomas A. Farrington
Patient Advocate
Prostate Health Education Network (PHEN)

Xin Gao, MD
Dana-Farber/Brigham and Women's Cancer Center | Massachusetts General Hospital Cancer Center

Celestia S. Higano, MD, FACP
Fred Hutchinson Cancer Research Center/ Seattle Cancer Care Alliance

Eric Mark Horwitz, MD
Fox Chase Cancer Center

Joseph E. Ippolito, MD, PhD
Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine

Christopher J. Kane, MD
UC San Diego Moores Cancer Center

Michael Kuettel, MD, MBA, PhD
Roswell Park Cancer Institute

Joshua M. Lang, MD
University of Wisconsin Carbone Cancer Center

Jesse McKenney, MD
Case Comprehensive Cancer Center/ University Hospitals Seidman Cancer Center and Cleveland Clinic Taussig Cancer Institute

George Netto, MD
O'Neal Comprehensive Cancer Center at UAB

David F. Penson, MD, MPH
Vanderbilt-Ingram Cancer Center

Julio M. Pow-Sang, MD
Moffitt Cancer Center

Sylvia Richey, MD
St. Jude Children's Research Hospital/ University of Tennessee Health Science Center

Mack Roach III, MD
UCSF Helen Diller Family Comprehensive Cancer Center

*Stan Rosenfeld
Patient Advocate
University of California San Francisco Patient Services Committee Chair

Ahmad Shabsigh, MD
The Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute

Daniel Spratt, MD
University of Michigan Rogel Cancer Center

Benjamin A. Teply, MD
Fred & Pamela Buffett Cancer Center

*Jonathan Tward, MD, PhD
Huntsman Cancer Institute at the University of Utah

NCCN Staff

Deborah Freedman-Cass, PhD
Manager, Licensed Clinical Content

Dorothy A. Shead, MS
Director, Patient Information Operations

* Reviewed this patient guide.
For disclosures, visit www.nccn.org/about/disclosure.aspx.

NCCN Cancer Centers

Abramson Cancer Center
at the University of Pennsylvania
Philadelphia, Pennsylvania
800.789.7366 • *pennmedicine.org/cancer*

Fred & Pamela Buffett Cancer Center
Omaha, Nebraska
402.559.5600 • *unmc.edu/cancercenter*

Case Comprehensive Cancer Center/
University Hospitals Seidman Cancer
Center and Cleveland Clinic Taussig
Cancer Institute
Cleveland, Ohio
800.641.2422 • UH Seidman Cancer Center
uhhospitals.org/services/cancer-services
866.223.8100 • CC Taussig Cancer Institute
my.clevelandclinic.org/departments/cancer
216.844.8797 • Case CCC
case.edu/cancer

City of Hope National Medical Center
Los Angeles, California
800.826.4673 • *cityofhope.org*

Dana-Farber/Brigham and
Women's Cancer Center
Boston, Massachusetts
617.732.5500
youhaveus.org

Massachusetts General Hospital
Cancer Center
617.726.5130
massgeneral.org/cancer-center

Duke Cancer Institute
Durham, North Carolina
888.275.3853 • *dukecancerinstitute.org*

Fox Chase Cancer Center
Philadelphia, Pennsylvania
888.369.2427 • *foxchase.org*

Huntsman Cancer Institute
at the University of Utah
Salt Lake City, Utah
800.824.2073
huntsmancancer.org

Fred Hutchinson Cancer
Research Center/Seattle
Cancer Care Alliance
Seattle, Washington
206.606.7222 • *seattlecca.org*
206.667.5000 • *fredhutch.org*

The Sidney Kimmel Comprehensive
Cancer Center at Johns Hopkins
Baltimore, Maryland
410.955.8964
www.hopkinskimmelcancercenter.org

Robert H. Lurie Comprehensive
Cancer Center of Northwestern
University
Chicago, Illinois
866.587.4322 • *cancer.northwestern.edu*

Mayo Clinic Cancer Center
Phoenix/Scottsdale, Arizona
Jacksonville, Florida
Rochester, Minnesota
480.301.8000 • Arizona
904.953.0853 • Florida
507.538.3270 • Minnesota
mayoclinic.org/cancercenter

Memorial Sloan Kettering
Cancer Center
New York, New York
800.525.2225 • *mskcc.org*

Moffitt Cancer Center
Tampa, Florida
888.663.3488 • *moffitt.org*

The Ohio State University
Comprehensive Cancer Center -
James Cancer Hospital and
Solove Research Institute
Columbus, Ohio
800.293.5066 • *cancer.osu.edu*

O'Neal Comprehensive
Cancer Center at UAB
Birmingham, Alabama
800.822.0933 • *uab.edu/onealcancercenter*

Roswell Park Comprehensive
Cancer Center
Buffalo, New York
877.275.7724 • *roswellpark.org*

Siteman Cancer Center at Barnes-
Jewish Hospital and Washington
University School of Medicine
St. Louis, Missouri
800.600.3606 • *siteman.wustl.edu*

St. Jude Children's Research Hospital
The University of Tennessee
Health Science Center
Memphis, Tennessee
866.278.5833 • *stjude.org*
901.448.5500 • *uthsc.edu*

Stanford Cancer Institute
Stanford, California
877.668.7535 • *cancer.stanford.edu*

UC San Diego Moores Cancer Center
La Jolla, California
858.822.6100• *cancer.ucsd.edu*

UCLA Jonsson
Comprehensive Cancer Center
Los Angeles, California
310.825.5268 • *cancer.ucla.edu*

UCSF Helen Diller Family
Comprehensive Cancer Center
San Francisco, California
800.689.8273 • *cancer.ucsf.edu*

University of Colorado Cancer Center
Aurora, Colorado
720.848.0300 • *coloradocancercenter.org*

University of Michigan
Rogel Cancer Center
Ann Arbor, Michigan
800.865.1125 • *rogelcancercenter.org*

The University of Texas
MD Anderson Cancer Center
Houston, Texas
844.269.5922 • *mdanderson.org*

University of Wisconsin
Carbone Cancer Center
Madison, Wisconsin
608.265.1700 • *uwhealth.org/cancer*

UT Southwestern Simmons
Comprehensive Cancer Center
Dallas, Texas
214.648.3111 • *utsouthwestern.edu/simmons*

Vanderbilt-Ingram Cancer Center
Nashville, Tennessee
877.936.8422 • *vicc.org*

Yale Cancer Center/
Smilow Cancer Hospital
New Haven, Connecticut
855.4.SMILOW • *yalecancercenter.org*

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Prostate Cancer

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National Comprehensive Cancer Network®

3025 Chemical Road, Suite 100
Plymouth Meeting, PA 19462
215.690.0300

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