

PROSTATE CANCER FOUNDATION

PATIENT GUIDE TO LOCALIZED PROSTATE CANCER

A comprehensive resource on diagnosis, treatment, and side effects for patients with localized prostate cancer and their families.



**“Be vigilant, live healthy,
and don’t give up. This disease
can be conquered.”**

— FORMER COMBAT MARINE, KOREAN WAR

About this guide

There are no two ways about it: being diagnosed with cancer is hard and life-changing. Despite increasing optimism about treatment, today's cancer landscape can be challenging, as patients have access to an unprecedented amount of information. There are millions of cancer-related webpages, blogs, and videos available at your fingertips. But it is important to acknowledge that this is not always a helpful thing. A cancer diagnosis can be disorienting, and for many, the overwhelming volume of information available can be more of a burden than an aid.

This guide consolidates the most current, accurate information about localized prostate cancer into one focused resource. This resource is intended for any man who is newly diagnosed with prostate cancer and is considering treatment options, or who is currently receiving treatment, and continues to seek support for side effects or guidance on health practices. This guide is also intended for any loved one or caregiver who wants to cut through the noise and get information essential to help patients navigate through their prostate cancer journey. Lastly, as we are beginning to recognize the genetic underpinnings of cancer, this guide is for any family member who might want to understand how shared genes affect their own short- and long-term risks.

WHICH PCF PROSTATE CANCER PATIENT GUIDE IS FOR ME?

PCF produces two patient guides: one for Localized Prostate Cancer and another for Recurrent and Metastatic Prostate Cancer. If you have been newly diagnosed with prostate cancer and your doctor has told you that your cancer is early stage, still in the prostate, localized, curable with treatment, or low grade, this guide is for you.

If you have been newly diagnosed with prostate cancer that is advanced or metastatic, you have many treatment options. Please consult PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer* to learn more. If you have previously been treated for prostate cancer and your PSA is rising, or your doctor suspects that your cancer may have recurred, please see this companion guide.

We gratefully acknowledge the scholarly expertise and contributions of our medical editors: Leslie Ballas, MD (Cedars-Sinai), Heather Cheng, MD, PhD (University of Washington, Fred Hutchinson Cancer Center), Stacy Loeb, MD, MSc, PhD (hon) (New York University and Manhattan VA), Andrea K. Miyahira, PhD (Prostate Cancer Foundation), Rashid Sayyid, MD, MSc (University of Toronto), Daniel Spratt, MD (University Hospitals Seidman Cancer Center and Case Western Reserve University), and lead reviewer Zachary Klaassen, MD, MSc (Medical College of Georgia at Augusta University, Georgia Cancer Center).

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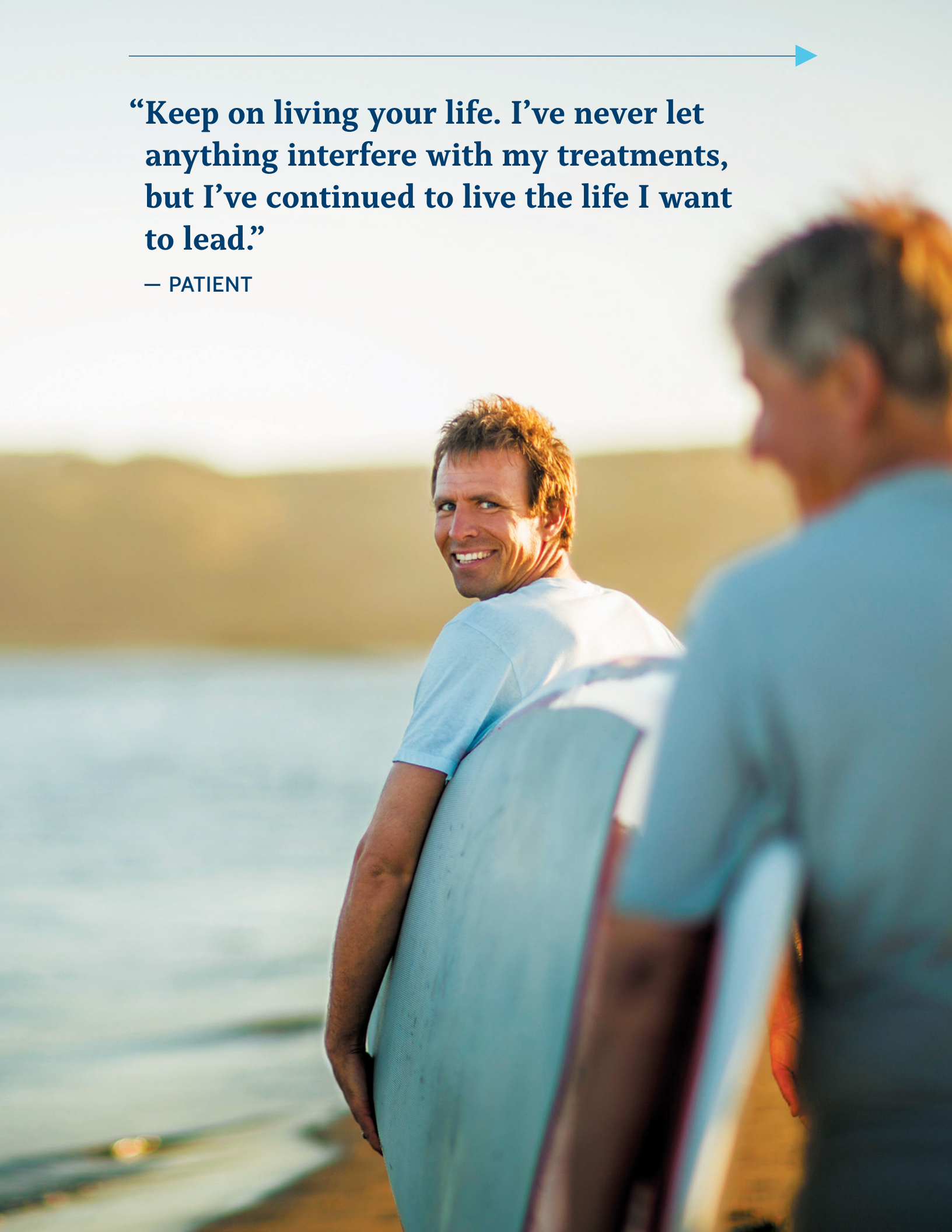
Subjects depicted are models and are used for illustrative purposes only. Prostate cancer standards of practice change regularly. For the most up-to-date information, please register for updates at pcf.org/updates.

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“Keep on living your life. I’ve never let anything interfere with my treatments, but I’ve continued to live the life I want to lead.”

— PATIENT



GENERAL INFORMATION

What is Prostate Cancer?

In general, cancer is a condition in which a normal cell becomes abnormal and starts to grow uncontrollably without having the signals or “brakes” that stop typical cell growth. The prostate is a small gland located below the bladder that is responsible for secreting one of the components of semen.

Prostate cancer occurs when a normal prostate cell becomes altered and starts growing in an uncontrolled way. Prostate cancer cells form masses of abnormal cells known as tumors.

Surviving Prostate Cancer

More than 80% of all prostate cancers are detected when the cancer is in the prostate or the region around it, so treatment success rates are high compared to most other types of cancer in the body. The 5-year overall survival rates in the United States for men diagnosed with local or regional prostate cancer exceed 99%. In other words, the chances of men dying from their prostate cancer is generally low. However, prostate cancer comes in many forms, and some prostate cancers can be aggressive even when they first appear to be confined to the prostate.

Even though there has been much optimism and progress in the last 10 years, it's important to keep in mind that prostate cancer is still a deadly disease for some men. It is the second leading cause of cancer death among men in the U.S., with an average of 95 men dying from it every day.

The three major risk factors for prostate cancer are age, Black race, and family history of the disease.

How Common is Prostate Cancer?

Approximately one in eight men in the U.S. will be diagnosed with prostate cancer during their lifetime. Prostate cancer is the second most commonly diagnosed type of cancer in men, after skin cancer. In 2023, it is estimated that more than 288,000 new cases will be diagnosed in the U.S., and about 1.4 million men were diagnosed globally in 2020.

Risk Factors

There are three well-established risk factors for prostate cancer diagnosis: older age, Black race, and family history. The older you are, the more likely you are to be diagnosed with prostate cancer. The average age of men diagnosed with prostate cancer is 66 years. Nearly 60% of all prostate cancers are diagnosed in men over the age of 65. However, it is important to note that a substantial number of cancers are diagnosed in younger men, who can develop aggressive cancers that require early, aggressive treatment.

One in six Black men will be diagnosed with prostate cancer in their lifetime (compared with one in eight white men), and they are more than twice as likely to die from the disease. Researchers are still working to understand these disparities. They are thought to be related to a complex interplay of factors including environmental exposures, socioeconomic factors, limited access to timely screening and medical care, and inherited genetics. In the meantime, it is important to keep in mind that not every Black man will get prostate cancer, and that all prostate cancer has a better chance of being managed and cured if it is detected early.

Over **20** genes

have been discovered that are linked to inherited prostate cancer.



Prostate cancer can be silent—it's important to get checked, even if you have no symptoms.

Prostate cancer has one of the highest survival rates of any cancer.

1 in 8 U.S. men will develop prostate cancer in his lifetime.



2 minutes

In 2023 in the U.S., one new case is diagnosed every 2 minutes.

10 THINGS TO KNOW

Black men are about 75% more likely to develop prostate cancer.

75%

As men age, their risk of developing prostate cancer increases exponentially.

Transformational research is helping to reduce death and suffering from prostate cancer.



In the U.S., prostate cancer is the **most common** non-skin cancer in men.

2x

Men with relatives with a history of prostate cancer may be twice as likely to develop the disease.

Genes that increase the risk of cancer can run in families. Genetic factors contribute to more than half (58%) of all prostate cancers, which makes prostate cancer one of the most “heritable” of all cancers. Men who have a close relative with prostate cancer, such as a biological father or brother, may be twice as likely to develop the disease, while those with 2 or more relatives may be up to 4 times as likely to be diagnosed. Men may also be at increased risk of prostate cancer if they have a strong family history of other cancers, such as breast, ovarian, colon, or pancreatic cancer.

There are also some individual genes that we now know increase the risk of prostate cancer, and men with these genes may need to undergo genetic counseling, be screened differently, or consider changes in treatment. For more on family risk, see [The Genetics of Cancer Risk, page 49](#).

Prostate cancer rarely causes symptoms; the disease may be silent for many years.

Other risk factors for diagnosis of aggressive prostate cancer and negative outcomes include obesity and smoking. Men who are overweight or obese are at greater risk of ultimately developing an aggressive form of prostate cancer. This is further complicated by research that has shown that in obese men, recovery from surgery tends to be longer and more difficult, and the risk of dying from prostate cancer can be higher. Men who smoke are also more likely to die of prostate cancer. Exposure to toxins such as Agent Orange may increase risk of aggressive prostate cancer.

Symptoms

If you've recently been diagnosed with prostate cancer, you may be asking yourself if there were symptoms you should have noticed earlier. Unfortunately, early warning signs for prostate cancer are rare. The growing tumor usually does not push against anything to cause pain, so the disease may be silent for many years. That's why screening for prostate cancer is such an important topic for all men and their families. Most urinary symptoms that men experience are due to other causes. However, in rare cases, typically when the disease has spread outside the prostate, prostate cancer can cause symptoms that include:

- ▶ A need to urinate frequently, especially at night, sometimes urgently
- ▶ Difficulty starting or holding back urination
- ▶ Weak, dribbling, or interrupted flow of urine
- ▶ Painful or burning urination
- ▶ A decrease in the amount of fluid ejaculated
- ▶ Painful ejaculation
- ▶ Blood in the urine or semen
- ▶ Pressure or pain in the rectum
- ▶ Pain or stiffness in the lower back, hips, pelvis, or thighs

Remember: Symptoms are symptoms, and no matter what's most likely to be causing them, you should get them checked out by a doctor. It is much more likely that such symptoms are caused by non-cancerous enlargement of the prostate gland, as opposed to prostate cancer.

MEDICAL BASICS

The more you know about the normal development and function of the prostate, where it's located, and what it's attached to, the better you can understand how prostate cancer develops and impacts a man's life over time.

Anatomy of the Prostate

The **prostate** is a small gland about the size of a table tennis ball. It sits under the bladder and in front of the rectum. The prostate is only present in people who are biological males. It is not essential for life, but it is important for reproduction, because it supplies fluids needed for sperm to survive. Sperm are not made in the prostate; they are made in the **testes** and travel to the prostate through the vas deferens.

The **seminal vesicles** are rabbit-eared structures that store and secrete a large portion of the ejaculate. These structures sit behind the prostate.

The **neurovascular bundle** is a collection of nerves and blood vessels that run along each side of the prostate, helping to drive erectile function and help

with maintenance of urinary control. They travel from the lower spine forward through the pelvis to the penis.

Because this bundle sits very close to the prostate, it is often disturbed during prostate cancer treatment, and is sometimes directly invaded by more aggressive cancers.

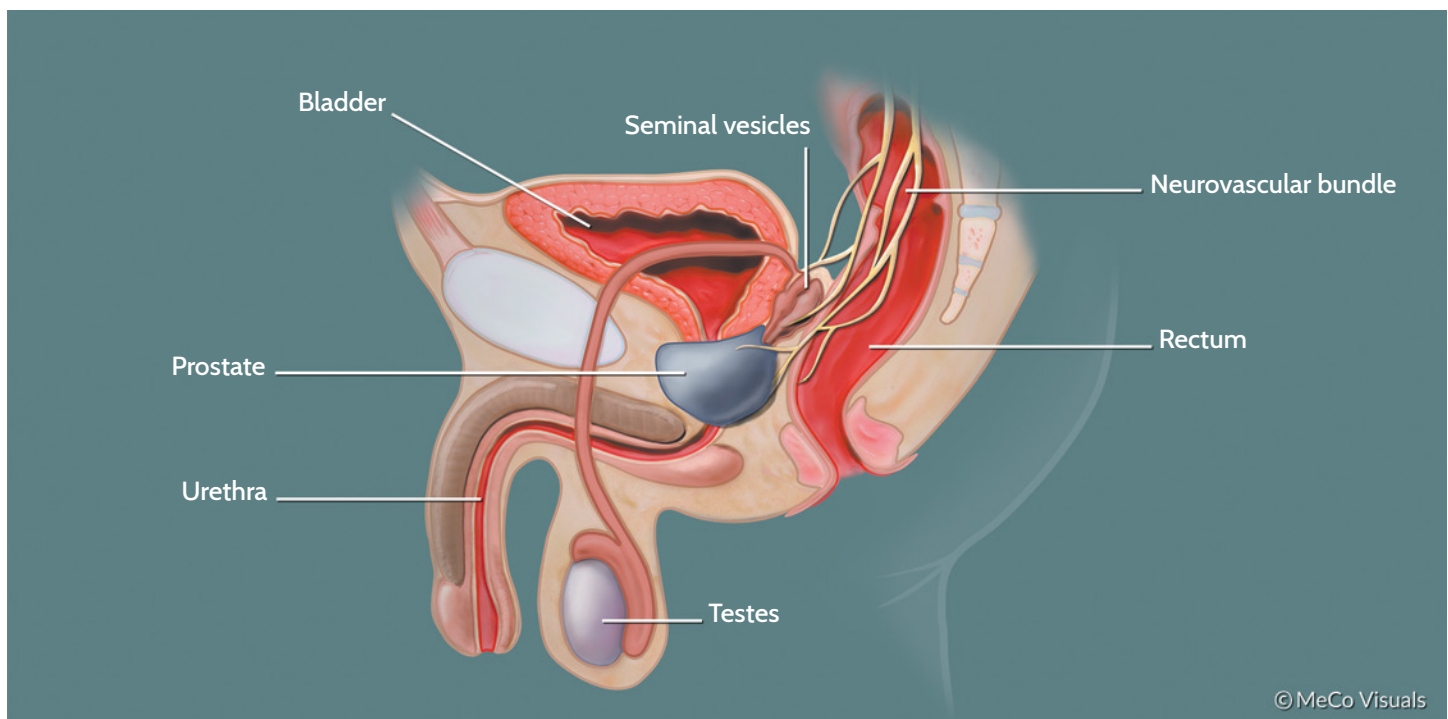
The **bladder** is like a balloon that gets larger as it fills up, holding urine until the body is ready to void. The **urethra**, a narrow tube that connects to the bladder, runs through the middle of the prostate and along the length of the penis, carrying both urine and semen out of the body. It is the hose that drains the bladder.

The **rectum** is the lower part of the intestines that connects to the anus, and it sits right behind the prostate.

The Biology of Prostate Cancer

To understand diagnosis and treatment options, it's important to understand how prostate cancer grows. A normal prostate processes **androgens** (hormones such as testosterone) as part of its everyday function.

Anatomy of the Prostate



© MeCo Visuals

Once prostate cancer forms, the cancer feeds on these same androgens and uses them as fuel for growth. This is why one of the basic treatments for aggressive or advanced forms of prostate cancer is to lower a man's androgen levels with drugs collectively termed "hormone therapy" or "androgen deprivation therapy."

Understanding Metastasis

Sometimes cancer cells will escape the prostate and grow quickly, spreading to nearby tissue. Nearby lymph nodes are often the first place to which cancer spreads. If prostate cancer has spread to your lymph nodes when it is diagnosed, it means that there is a higher chance that it has spread to other areas of the body as well.

Metastasis refers to tumor cells leaving the prostate and forming tumors somewhere else in the body.

If and when prostate cancer cells gain access to the lymphatic system, they can be deposited in various sites throughout the body. Prostate cancer cells can also gain access to the bloodstream and deposit at various sites, most commonly in bones, and sometimes in other organs such as the liver or lungs.

Even cancer that initially appears confined to the prostate may have spread. Studies using newer types of molecular imaging (for example, a [PSMA PET scan—see page 17](#)) show that a substantial proportion of patients who seem to have local prostate cancer actually have small deposits of metastatic disease.

What is PSA?

PSA, or Prostate Specific Antigen, is a protein produced by the prostate and found mostly in the semen, with very small amounts released into the bloodstream. It is used as a "disease marker" to represent prostate cancer. When there's a problem with the prostate—such as the development and growth of prostate cancer—more PSA is released. PSA eventually reaches a level where it can be easily detected in the blood. This can be the first indicator of prostate cancer.

Q: "If my doctor tells me that I have prostate cancer metastases in my bones or my lungs, does that mean I have bone cancer or lung cancer?"

A: This does not mean you have "bone cancer" or "lung cancer." These cells came from the prostate and "metastasized" to other areas, so they are prostate cancer cells that need prostate cancer treatment.

PSA testing is the current test of choice for prostate cancer screening. (Go to pcf.org for more information on prostate cancer screening.) During a PSA test, a small amount of blood is drawn from the arm, and the level of PSA is measured. Doctors look at the PSA level over time, comparing with prior test results, and consider whether there could be another, benign explanation (such as prostate inflammation, benign prostate enlargement, or a urinary tract infection) for a rising PSA. As the PSA number goes up, the chance that cancer is present increases.

Men whose levels are confirmed to be above 4 are often recommended to undergo further testing in the form of imaging and/or genetic tests, often with a diagnostic prostate biopsy. However, this PSA level does not mean that prostate cancer is definitely there, and, conversely, some cancers may be present even when levels are lower, particularly among younger men. It is important to highlight that the PSA test in this setting is a screening, not a diagnostic, test. Your physician will need to perform a diagnostic prostate biopsy to confirm the presence or absence of prostate cancer.

PSA testing is one of the tools used to monitor patients with low-risk (i.e., non-aggressive) prostate cancer who are followed on active surveillance (see [Chapter 3, page 29](#)). PSA testing is also used after treatment for prostate cancer to monitor for disease recurrence.

“My cell phone rang. It was the urologist. I stopped what I was doing and got the news. I still remember. He said, ‘There’s a little bit of cancer.’”

— PATIENT



UNDERSTANDING YOUR DIAGNOSIS

A diagnosis of prostate cancer can be confusing, frightening, and overwhelming. It is important to remember that the word “cancer” refers to an extremely wide spectrum of biology and that, when detected early, prostate cancer tends to be less aggressive than many other cancers.

As a newly diagnosed patient, you might be torn by arguments favoring one treatment plan over another, or you may feel ill-equipped to make the decisions required of you. One of the most important tools you have for managing your diagnosis, both physically and emotionally, is education. The information contained in this guide can help you feel empowered to make an informed decision, appropriate for you and your family.

DETECTION: INTERPRETING THE PSA

A blood test for PSA can be used to detect prostate cancer when no symptoms are present. It can help catch the disease at an early stage when treatment is thought to be more effective and potentially has fewer side effects. During a PSA test, a small amount of blood is drawn from the arm, and the level of PSA is measured. (Read more about PSA screening on page 9.)

After your PSA test, your health care provider may perform a digital rectal exam (DRE), in which a gloved, lubricated finger is inserted into the rectum to examine the prostate for any irregularities in size, shape, and texture, as well as assess for tenderness. Note that the DRE cannot feel prostate abnormalities in the anterior (forward) area of the prostate, away from the rectum, and is often most useful only when the prostate cancer has grown sufficiently to cause cancer that can be felt with a finger.

Your doctor will consider several factors when evaluating your PSA level, including age and other prostate conditions.

Historically, many physicians used a PSA of 3 or 4 as the borderline between “normal” and “abnormal.” We now realize this assessment is more complicated, and a high PSA doesn’t always mean cancer. A high PSA may be due to infection, prostate growth, inflammation of the prostate, or another benign cause. PSA increases with age, and your PSA should be compared with normal values for men in your age group. For example, the average PSA for younger men (aged 40–49) ranges from 0.5–0.7 ng/mL, and men with a PSA above the median are at higher risk of later developing prostate cancer. However, it is important to understand that a PSA above 3 or 4 may suggest the need for further testing, such as imaging, other blood tests, or a biopsy.

A small but important proportion of men are at increased risk of prostate cancer due to them carrying an inherited cancer risk gene mutation (e.g., *BRCA2*) or having a strong family history of cancer. People with at least one first-degree relative (such as a father or brother) who has/had prostate cancer may start PSA screening earlier. You should ask your doctor about this, if you are concerned.

In rare cases, men who have a very low PSA may still have clinically significant prostate cancer. Unfortunately, in most of these cases, disease does not present until it has progressed beyond the prostate and become symptomatic. Your urologist will consider your PSA levels in light of all of these factors.



Newer studies show that performing an MRI prior to a prostate biopsy, using these images in a “fusion biopsy,” can offer more targeted and precise results. Check with your insurance company in advance about coverage.

MAKING THE DIAGNOSIS VIA BIOPSY

Although a high PSA may increase a doctor’s suspicion of prostate cancer, a biopsy is necessary to confirm a diagnosis. A PSA test is used to assess whether or not you should have further testing—usually in the form of imaging and/or biopsy to determine the presence of cancer. Blood and urine tests are available that may provide additional information, helping you and your doctor determine whether a benign condition may be at play, or whether a biopsy is warranted. These include free PSA, Prostate Health Index, 4K Score[®], EPI test, PCA3, MyProstateScore[™] and Select MDx[®]. These tests may be useful in certain cases; routine use in every patient is not currently recommended by clinical guidelines. Some of these tests may also be combined with magnetic resonance imaging (MRI).

HOW MRI SCANS MAY BE USED IN AIDING DIAGNOSIS

MRI may be used in two main ways when a man is found to have an elevated PSA. First, MRI can highlight suspicious areas, indicating the potential presence of cancerous lesions and helping to determine whether a biopsy is needed.

PI-RADS (Prostate Imaging Reporting and Data System) is a structured reporting system to evaluate for the likelihood of prostate cancer based on an MRI scan. The scores range from 1 (very low/clinically significant cancer is highly unlikely to be present) to 5 (very high/clinically significant cancer is highly likely to be present). PI-RADS 4 or 5 lesions have a high probability of being clinically significant disease and typically warrant targeted biopsy for confirmation.

If it is determined that a biopsy is needed, MRI-“targeted” or “fusion” biopsies are increasingly being offered at select centers that use MRI, in addition to the ultrasound, to better visualize tumors within the prostate and help guide biopsy needles to the areas that appear to be most suspicious.

When choosing a location for your MRI, here’s why it matters: MRI technology is like fine photography. Just as excellent photographers will put the subject in focus and the background out of focus, this should happen with an MRI as well. There is variation in the quality of an MRI; if possible, MRI and fusion biopsy should be performed and interpreted at a high-volume center with particular expertise in prostate MRI. Research for the improvement of this technology continues.

There are three main ways men are initially diagnosed:

1. TRUS-guided biopsy: A transrectal ultrasound-guided (TRUS) biopsy using local anesthetic is currently the most commonly used biopsy technique in the U.S. An ultrasound probe is placed in the rectum to allow visualization of the prostate, then multiple needles are used to sample tissue from the prostate. If a patient had an MRI before the biopsy, needles may be directed into areas that looked suspicious on the MRI. (The MRI itself provides useful information, but cannot currently diagnose prostate cancer.)

2. Transperineal biopsy: The prostate can also be biopsied under local or general anesthetic by placing needles through the skin between the scrotum and anus (perineum). An ultrasound probe is still placed in the rectum, as this allows for visualization of the prostate. However, as opposed to transrectal biopsies, the needles are directed through the perineal skin and not through the rectum. This method has a lower risk of infection, because the biopsy area is not directly contaminated with feces. While not yet widely used in the U.S., it is expected to become more commonly available.

Both of these methods of biopsy have some inherent risks of infection, bleeding, and pain. You may see blood in your urine, semen, or feces. This typically resolves within seven days; however, blood in the semen may last for up to 30 days. Some men may experience temporary difficulty having an erection and/or an increased difficulty with urination after their prostate biopsy.

3. Incidentally: Some men are diagnosed when prostate cancer is found incidentally during an unrelated surgical procedure of the prostate or bladder (e.g., a TURP: scraping of the prostate for men with difficulty urinating due to benign prostatic hyperplasia).

The tissue samples taken during the biopsy are examined under a microscope by a pathologist to determine whether prostate cancer cells are present, and, if so, how abnormal and aggressive they appear. This is the **grade** of your prostate cancer (see page 14).

TALKING WITH YOUR INSURANCE PROVIDER

Health care systems are sometimes slow to make advances in diagnosis and treatment accessible and affordable to all. It is important to speak with your insurance company directly about what is needed. Find out if there is a staff member who specializes in cancer-related insurance claims.

If you need to talk to your insurance company about paying for a procedure that they consider to be outside the standard of care, it is important to be ready to provide the reasons why this test or procedure is critical for your health. Some tests may actually reduce overall costs if used in the appropriate setting by removing the need for later, unnecessary tests. In other words, when speaking to insurance, make sure to speak their language.

Let's take MRI fusion biopsy as an example. There is evidence that performing an MRI prior to prostate biopsy is useful for assessing risk and allows targeting of the biopsy in patients with suspected prostate cancer. Studies have shown that using the MRI images in combination with real-time ultrasound imaging ("fusion" biopsy) is better than ultrasound alone in distinguishing between higher-grade cancer and low-grade, non-aggressive cancer.

Sometimes, insurance companies are hesitant to pay for a prostate MRI. The key when speaking to your insurance company is to let them know that since your PSA or DRE indicates the likely presence of disease, MRI-targeted biopsy will provide a superior map of your cancer, and may save money on future testing. What is FDA-approved versus what is covered by insurance is constantly changing. It is important to be an informed patient and to advocate for yourself.

STAGING: HOW SERIOUS IS MY PROSTATE CANCER?

The goal of staging your cancer is to provide an estimate of your prognosis (the likely course and outcome) and guide you to the most appropriate treatment. Almost all other cancers in the body use “stages” to describe the cancer, such as stage 1 breast cancer, or stage 3 colon cancer. This is not usually done in prostate cancer. “Risk groups” (see Chapter 3, page 29) have been the most common method to describe a patient’s prognosis.

There are 5 main components to risk-stratifying prostate cancer:

Your PSA level	When performed pre-diagnosis: How likely is it that you have prostate cancer? When performed post-diagnosis: How likely is it that your cancer has spread beyond the prostate?
The grade of your tumor (done via biopsy)	How aggressive is your cancer?
The extent of the cancer revealed by the biopsy	For example, in a typical prostate biopsy which includes at least 12 needle core samples, a cancer found in 9 of the 12 cores is more advanced than a cancer found in just 2 of the cores.
The T-stage of your tumor	For example, is the prostate cancer contained completely within the prostate?
The spread of the cancer	Based on imaging, has the cancer spread to lymph nodes (termed the “N-stage” for nodes) or bones or other organs (termed the “M-stage” for metastasis).

Let’s look at each component in more detail:

1. PSA: A blood test

Your doctor should have your most recent PSA tests and, if outdated, may order a newer one. PSA can also be considered in relation to the size of the prostate, since a bigger prostate will normally make more PSA. Your PSA density (PSAD) score is calculated by taking your PSA level and dividing it by the volume (size) of your prostate in grams or milliliters. PSAD values under 0.15 (e.g., a PSA of less than 7.5 for a 50-mL prostate) are usually considered less worrisome.

2. Grade: How aggressive is the cancer?

If prostate cancer is found when looking at biopsy tissue under a microscope, the pathologist assigns a grade to the cancer. There are 2 grading systems, which can be confusing for patients.

The original grading system for prostate cancer is called the Gleason score, which ranges from 6 to 10 (6 is low grade, 7 is intermediate grade, and a score of 8 to 10 is high grade). The newer Grade Group system ranges from 1 (low) to 5 (very high).

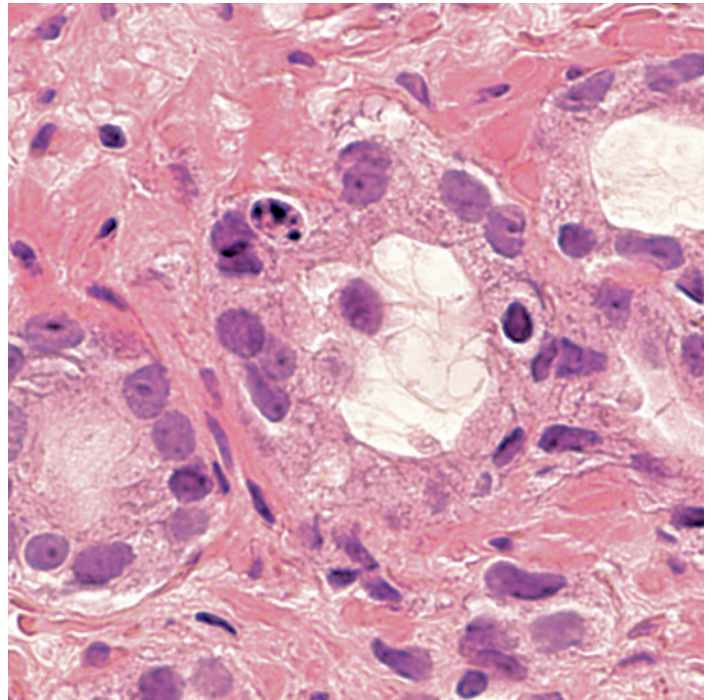
Many hospitals report both the Gleason score and the Grade Group, but there may be hospitals that still report only the Gleason score.

Gleason Score and Grade Group Comparison

Gleason Score	Grade Group
Gleason Score 6	Grade Group 1
Gleason Score 7 (3+4)	Grade Group 2
Gleason Score 7 (4+3)	Grade Group 3
Gleason Score 8	Grade Group 4
Gleason Score 9-10	Grade Group 5

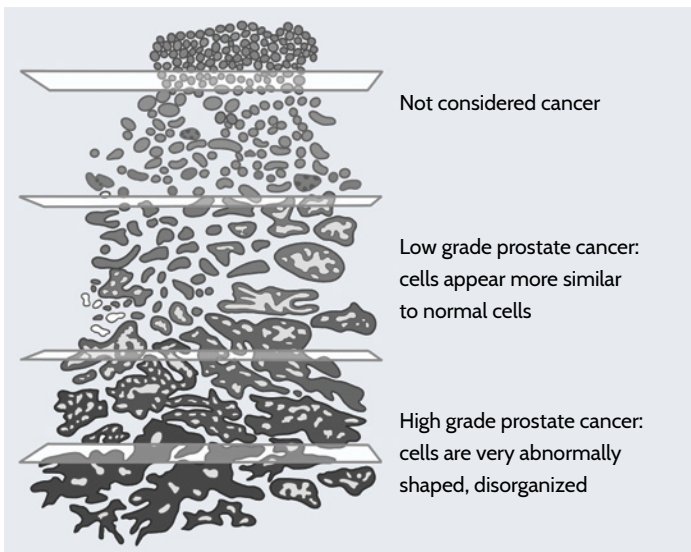
GLEASON 3+3

Today, pathologists do not assign a grade below Gleason 3+3 (Gleason 6, or Grade Group 1) when grading prostate cancer tumors. If you have prostate cancer, the lowest Gleason score you will receive is a 6. The vast majority of Gleason 6 prostate cancers are slow-growing with a limited ability to spread. Patients with Gleason 6 disease are appropriate candidates for active surveillance.



The grade of a cancer refers to how abnormal the biopsy tissue appears. Low-grade cancers more closely resemble normal prostate tissue. Higher grades mean more aggressive cancer.

How Pathologists Consider Gleason Patterns



3. Biopsy cores: How many were positive?

In addition to the grade of your cancer, your physician will consider the percentage of positive cores from the pathology report. This is the number of biopsy needle cores that contain cancer, divided by the total number of cores sampled. In general, the higher the percentage, the more aggressive the disease. For example, if 12 biopsy cores were taken, and 4 were involved with cancer, then you would have 4/12, or 33% positive cores.

SIZE VS. GRADE

The size and grade of your tumor don't always predict its behavior over time. A small, high-grade cancer is much more likely to spread to other parts of the body than a large, low-grade cancer. In some cases, tests of your tumor's genetic material and/or proteins may be better predictors of growth over time (see page 18). Consult with your healthcare provider to find out if further testing might be right for you.

4. Tumor staging (T-stage): The local extent of the prostate cancer

The digital rectal exam (DRE) gives information on how extensive the prostate cancer is within the area of the prostate reachable in that exam. If there is suspicion that the cancer extends outside the prostate, your doctor may order a prostate MRI (which is more accurate for staging than a DRE). Staging is classified as follows:

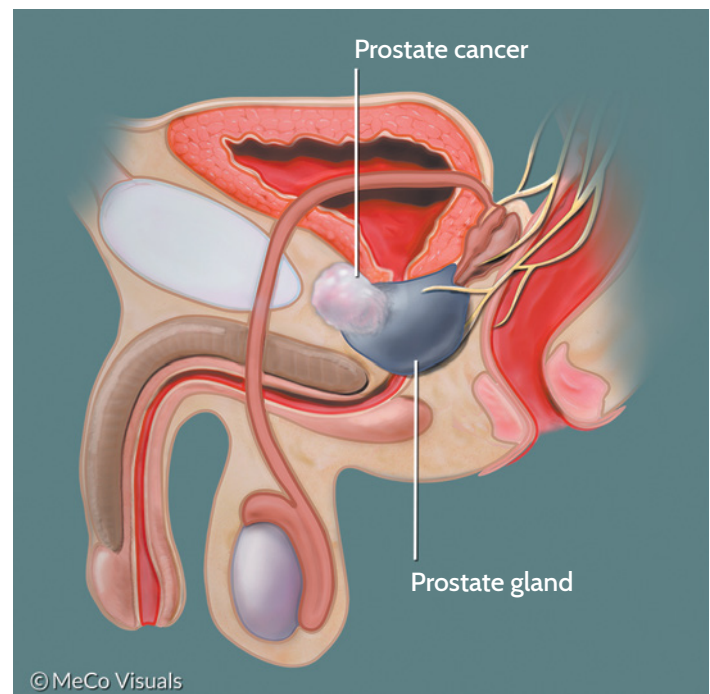
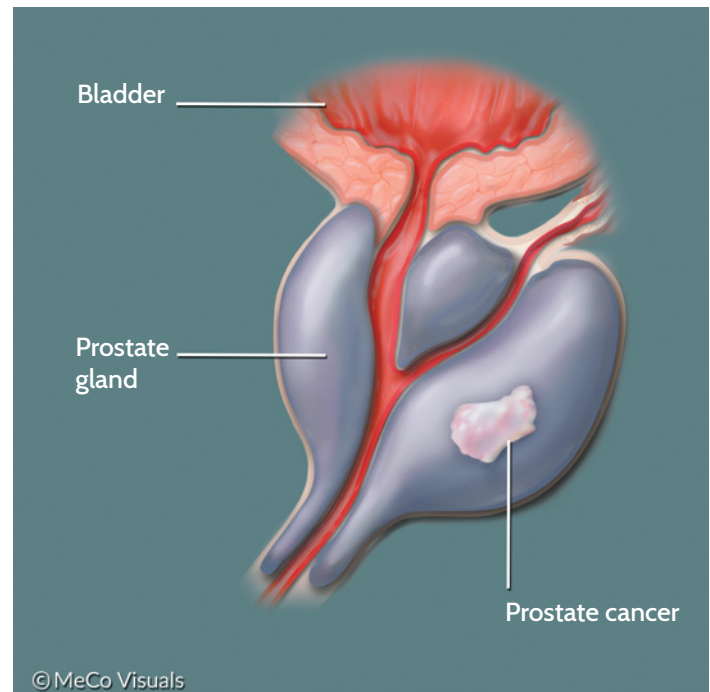
- ▶ T1: The tumor was found solely by a biopsy done due to an elevated PSA (i.e., was not detectable by DRE or imaging) or was found incidentally during an unrelated procedure
- ▶ T2: The health care provider felt a nodule(s) on your prostate during the rectal exam, or the cancer was seen on MRI within the prostate
- ▶ T3: The tumor extends out of the prostate capsule
- ▶ T4: The tumor has invaded the rectum or bladder (advanced)

5. Evaluating for metastatic disease: Has the tumor spread beyond the region around the prostate?

Aggressive cancers (e.g., PSA greater than 20, Grade Group 4 or 5 [Gleason score 8-10], or stage T3-4) usually warrant imaging scans to determine the presence of metastatic disease. Some men whose cancer appears less aggressive may benefit from further imaging and they should discuss this with their doctor. In the U.S., this is most commonly done with a computed tomography (CT) scan or an MRI and a bone scan. Newer and more sensitive imaging technologies include molecular PET imaging, such as PSMA PET (see box on the next page). Ask your doctor what type of imaging would be right for you.

It is important for your doctor to know if your cancer has spread to lymph nodes, bones, or other body sites, since that will influence their treatment recommendations. If you are diagnosed with metastatic disease, please make sure to read PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer*.

Tumor Stage: Extent of Local Prostate Cancer Involvement



Top: The cancer has not spread outside the prostate.

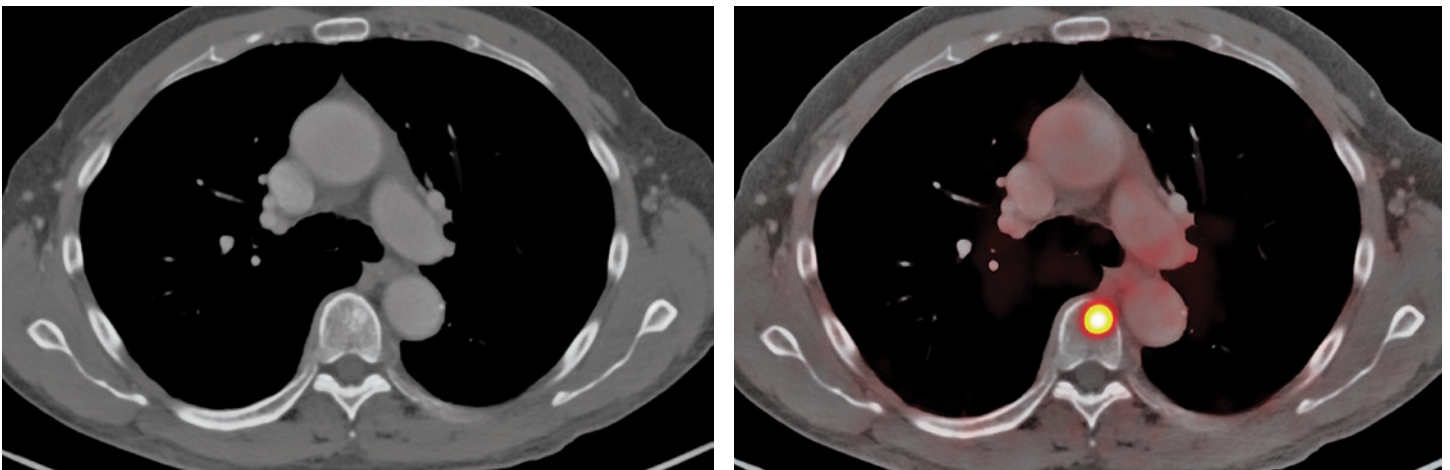
Bottom: The cancer has spread to nearby structures outside the prostate.

PSMA PET IMAGING

PSMA PET is a newer, highly sensitive imaging scan that can detect prostate cancer metastases much earlier, when they are much smaller. It is approved for two types of patients: 1) patients with suspected prostate cancer metastasis who are potentially curable by surgery or radiation therapy (for example, patients newly diagnosed with high-risk prostate cancer), and 2) patients who were previously treated for prostate cancer and now have a suspected recurrence, based on elevated PSA levels.

How does it work? PSMA, short for Prostate Specific Membrane Antigen, is a protein found on the surface of prostate cancer cells. The “imaging agent” consists of a chemical that binds to PSMA, honing in on prostate cancer cells wherever they are in the body. Attached to this binding chemical is a radioactive “reporter.” Patients are given a one-time injection of this combination molecule into the bloodstream, “tagging” prostate cancer cells. The patients are then given a scan with an imaging camera that “lights up” areas where the molecule has accumulated—i.e., sites of prostate cancer (see photo below).

PSMA PET imaging may help guide your treatment plan. Researchers continue to study how best to use this technology to improve patient outcomes.



PSMA Imaging. A traditional CT scan (left) does not clearly show metastasis in the spine. In the “fused” PSMA PET/CT image (right), the prostate cancer metastasis “lights up.”

Knowing the risk features of your cancer provides information about your prognosis (the likely course and outcome) and treatment options.

A Closer Look: Newer Tests of Genes and Proteins

Doctors can see cancer under a microscope or on an imaging scan; you might think of this as being able to see boats floating on a lake. Today, newer tests can look “under the water” at features that are millions of times smaller: the genetic material of your biopsy tissue or of your blood, saliva, or urine. This “deeper look” may provide additional information to help guide your treatment plan, or to inform your family members’ risk for cancer.

TUMOR BIOMARKER TESTING

Tests of biopsy tissue examine your prostate tumor’s genetic material, gene expression, or proteins (called “biomarkers”). In some situations, these tests help provide further assessment of the aggressiveness of your cancer beyond the Gleason score/Grade Group, PSA, and T-stage, including:

Decipher® Prostate Biopsy, Opko 4K®, Oncotype DX Prostate®, Prolaris®, and ArteraAI Prostate Test.®

Medicare usually covers the use of these risk-assessment tools, but not all private insurance plans cover them. Ask your physician if these tests would be right for you.

GENETIC TESTING FOR INHERITED MUTATIONS

Genetic testing for inherited cancer risk uses a sample of your blood or saliva. These tests examine your inherited DNA for changes (called “mutations”) that might signal a higher risk for cancer that is passed down through families. Talk to your doctor about referral to a genetic counselor if you have one or more of the following risk factors:

- ▶ Diagnosis of high-risk, regional, or metastatic prostate cancer
- ▶ Biopsy shows intraductal carcinoma or cribriform pattern (see your pathology report)
- ▶ Blood relative with a known cancer risk gene mutation
- ▶ Strong family history of prostate or other cancers

SELECTING YOUR TREATMENT

There is no “one size fits all” approach for treatment of localized prostate cancer. For some men, this feels liberating; for others, it can be confusing and frustrating. It is important to learn as much as possible about the options available and, in conjunction with your healthcare team, make a shared decision about what’s best for you. Fortunately, in many cases, prostate cancer is fairly slow-growing, and patients are able to take time to explore their options and make a careful decision.

Because men diagnosed with localized prostate cancer today may live for many years or decades, it is important to discuss not only cure, but also the effects of treatment on your quality of life.

Your decision-making process will likely include a combination of clinical and personal factors, including:

- ▶ The medical need for treatment
- ▶ Your level of risk based on biopsy, imaging, and exam
- ▶ Your personal circumstances
- ▶ Your family genetics
- ▶ Your desire for a certain treatment option based on risks, benefits, and quality of life

The vast majority of prostate cancers are diagnosed by urologists, who perform the biopsies along with radiologists. After a diagnosis of prostate cancer, you

should see both a urologist (preferably a urologic oncologist) and a radiation oncologist to review all your treatment options. In some cases, a medical oncologist should also be seen to review additional systemic therapy options.

A multidisciplinary prostate cancer care team will give you the most comprehensive assessment of the available treatments and expected outcomes, because each specialist physician has expertise in different areas. Many hospitals and universities have multidisciplinary prostate cancer clinics that can provide a consultation on what team of practitioners might be right for you.

In general, for nearly all cases of newly diagnosed localized prostate cancer, the chance of “cure” is the same whether you have radiation therapy or surgery.

In the U.S., the 5-year survival rate for all men newly diagnosed with early-stage prostate cancer is greater than 99%. This means that more than 99% of newly diagnosed men are still alive 5 years later.

However, you may prefer one treatment over another based on associated side effects, logistics, or personal desire. Your team of doctors will evaluate your type of prostate cancer to develop a treatment plan that may include surgery, radiation, some combination of both, or neither. The main difference between surgery and radiation therapy relates to quality of life, side effects, and treatment logistics (e.g., radiation requires multiple sessions).

ERECTILE FUNCTION

If preserving your ability to have erectile function is a priority for you, make sure to discuss this with your doctor before selecting a treatment plan. It is also essential to realize that many interventions are available to help with sexual function after prostate cancer treatment. See [Possible Side Effects: Sexual Function](#).



Every patient has different priorities and concerns about quality of life. Take time to understand and process your diagnosis as well as the therapy options available to you.

For high-risk or aggressive cancers, most patients will have the best outcomes from receiving “multi-modal” therapy, that is, more than one treatment (e.g., surgery and post-operative radiation therapy with hormone therapy, or radiation therapy with hormone therapy). These combination treatments provide the best chance of long-term disease control. See [Combination Treatments for High-Risk Prostate Cancer](#).

Your doctor will use information from many sources to determine how aggressive your cancer looks and whether it has spread outside the prostate.



“Looking back, I wish I’d gotten more perspectives. It would have been better to really talk about all of my options.” – Patient

Remember, it is always okay to get a second opinion, whether or not treatment is needed. If possible, choose urologic oncologists, radiation oncologists, and medical oncologists at high-volume, prostate-focused cancer centers. If you need treatment for localized prostate cancer, do not rush into a treatment plan without feeling comfortable that all of your questions and concerns have been addressed.

ASSEMBLING YOUR TEAM

Decisions about how to treat your prostate cancer can’t be made in a vacuum. A new diagnosis can come with a lot of confusing information and feelings. Yet, even at this chaotic time, you’ll be asked to make some important decisions based on your doctors’ recommendations. To help you along the way, it’s important to seek support from family, friends, and doctors.

Doctors and Practitioners

Where possible, select a physician who specializes not just in cancer, but in prostate cancer specifically. How do you find such a doctor? If you are newly diagnosed, start by consulting your diagnosing doctor, that is, the one who found your prostate cancer.

Other factors to consider when selecting a doctor:

- ▶ Are they affiliated with a reputable university or research hospital?
- ▶ Did they seem rushed, or do they seem interested in what is important to you?
- ▶ Are you able to communicate with them with ease?
- ▶ Are they covered by your health insurance? If not, can you change insurance?

Remember:

- ▶ Take your time
- ▶ Get second or even third opinions if you don’t feel comfortable
- ▶ Be careful of advice that seems highly opinionated, e.g., “surgery is the best” or “radiation is the best” or “eat this herb and your cancer will be cured”
- ▶ Avoid any health care provider who seems like he or she is “selling” something. For accurate information, use reputable websites like pcf.org and those that your doctor recommends
- ▶ Once you have selected a doctor, trust is key. You are partners in this process
- ▶ Continue to be your own advocate: ask questions, do research, and remain curious

If you have a good relationship with your primary care provider, you may opt to stay in close touch about your diagnosis, treatment, and decision-making. Primary care providers can assist in maintaining the “bigger picture” perspective, considering your overall health, and can help you work through complicated decisions.

Friends and Family

Your family wants to support you. Feelings of powerlessness are a common concern around a cancer diagnosis; your loved ones want—or even need—to do something to feel like they are helping. Normally, this may seem like a fantastic offer. But after a cancer diagnosis, you may feel confused about how much support to accept, request, or reject. Keeping open channels of communication is key.

Tips for Spouses, Partners, Caregivers, and Adult Children:

- ▶ Agree on how you will make decisions
- ▶ Get ready for changes in routine
- ▶ Ask how treatments may affect moods, physical ability, and body functions
- ▶ Understand that changes can trigger emotions in both the patient and family members
- ▶ It is normal to experience loneliness and fear—seek out support groups for partners and caregivers, in addition to encouraging the patient to attend a support group

With friends and family who have volunteered their assistance, let them know a few specific things that would be helpful. Examples might include rides to treatment, preparing meals, caring for young children, or performing difficult chores during recovery. When things feel overwhelming, don't be afraid to reach out for support, but also don't be shy about politely saying “no” to help you don't want, however generous.

Work with your network of family, friends, and practitioners to set expectations and seek support where appropriate.



“I needed and expected my spouse to be my advocate and help me hear the doctors. I needed my friends to listen and laugh, and not give me platitudes.” – Patient

You

Sadness, fear, sleeplessness, and anger are all normal early emotions after receiving a cancer diagnosis. Coping with these emotions is an important part of your treatment and recovery. Seeking professional help, whether from an online community, clergy, a group at your house of worship, a cancer support group, or a private mental health professional is not a sign of weakness. Taking care of your mental health is akin to the kind of psychological training that a quarterback goes through to make sure they can keep their head in the game: it is vital. To join an online support group, please visit [pcf.org/support-groups](https://www.pcf.org/support-groups). For more information on counseling resources, visit [cancercare.org](https://www.cancercare.org).



It may be helpful to enlist a family member or friend to act as a health advocate, helping you review and process all the new information.

The final decision on treatment is yours and may be informed by a variety of psychological, physical, and medical factors. Sometimes, when a man is diagnosed, the first instinct is to choose the first treatment or doctor who promises to eradicate the disease. Many men experience a strong desire to just “get it out” surgically. But it is important to take the time to investigate your options. For example, depending on the features of your cancer, and your age, overall health, and personal family circumstances, active surveillance—which has no direct physical side effects—may be the right choice for you.

Taking care of your emotional and mental health is a vital part of prostate cancer treatment and recovery.

Side effects of each treatment (Chapter 3, page 36) are also important to consider, and only you can know what is most important to you. Regardless of which treatment you choose, it’s important to observe any recommended changes to your health habits from the moment you are diagnosed (Chapter 4, page 45).

For men who are sexually active, remember that stress can affect erectile function, too. In fact, a diagnosis of any type of cancer can disrupt sexual function for men and women. The maximum sexual function you could potentially regain after treatment will be based on your levels before diagnosis. Seek counseling for you and your partner on how to support each other through therapy and recovery.

Treatment decisions are unique to each person; what was the right choice for your brother or your neighbor may not be the right choice for you. It is okay to feel overwhelmed at first. Use this guide to begin to understand your options.

PAYING FOR CANCER TREATMENT

Undergoing cancer treatment is challenging enough, but it can also be expensive. You may worry about your ability to pay for treatment along with other necessities, like food, housing, and travel. Ask your healthcare provider to direct you to patient advocates and social workers. Do not let financial constraints deter you from getting the care or treatment you deserve and need. Here are some resources that may help:

Paying for treatment

- ▶ U.S. government programs include Medicare (for age 65 or older) and Medicaid (depending on your income)

- ▶ Organizations such as CancerCare and the Patient Advocate Foundation offer some direct financial assistance and can help you navigate through insurance and other financial assistance programs
- ▶ Speak with your doctor and hospital's billing department early, so that you do not have unexpected bills. You may be able to arrange a payment plan

Housing

- ▶ Your cancer treatment center might be far from home, making it difficult for your family to remain with you. The American Cancer Society Hope Lodge and the Healthcare Hospitality Network provide low-cost or free housing for families of cancer patients
- ▶ Medical bills can put a strain on other costs like mortgage or rent payments. Speak with your creditor or landlord to explain your situation and see if they can make accommodations. You can also explore programs for affordable rental housing sponsored by the government
- ▶ If you are a Veteran, check with your local VA about possible resources

Travel

- ▶ Mercy Medical Angels provides free medical transportation for patients in need. Your Medicaid office might also offer some reimbursement for treatment-related travel

Food

- ▶ The Supplemental Nutrition Assistance Program (SNAP) provides electronic credits to allow families in need to shop for groceries. Go to www.fns.usda.gov/snap to learn more. Feeding America also helps families find food banks near them

Do not let financial constraints deter you from getting the care or treatment you deserve and need.



Proactively reach out to your insurance company, providers' billing departments, patient advocates, and social workers about available resources.

Caregiver expenses

- ▶ Depending on your stage of cancer, type of treatment, and overall health status, you might benefit from having a designated paid caregiver. Contact your local Medicaid office to learn about social services programs that can help you pay for in-home care

Men who:

- ▶ Are Black
- ▶ Have a family history of prostate cancer
- ▶ Have a strong family history of other cancers
- ▶ Have a known gene mutation (e.g., *BRCA*)

Everyone else

Age 40

Age 45

Conversation with doctor to discuss prostate cancer screening frequency

Screen

Screen Later

PSA Test

PSA not elevated

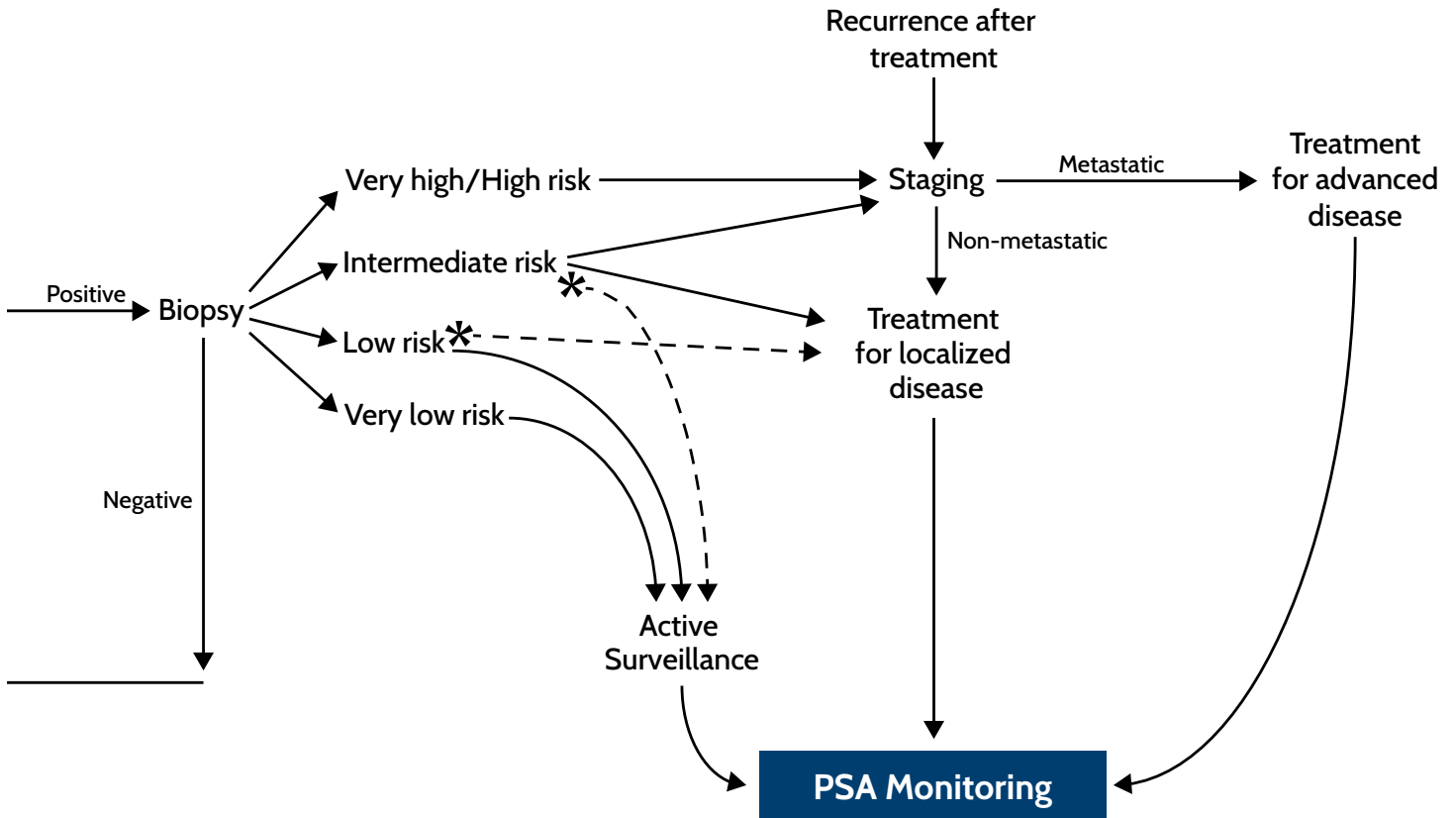
Rapid rise
-or-
Elevated
PSA

DRE/
other
tests/
MRI

Negative

PROSTATE CANCER PATIENT TREATMENT PATHWAYS

No two patients are exactly the same, and every man's prostate cancer journey is a little bit different. This chart (above) details some of the most common paths followed in diagnosis and treatment of prostate cancer. All men are encouraged to have a conversation with their doctor about when to begin prostate cancer screening, especially if you have a history of prostate cancer in your family. If you are diagnosed with prostate cancer, talk with your doctor about what tests and treatments might be right for you.



*For select patients; consult your doctor

Find more information about each of these topics on the pages listed below:

- ▶ Screening: page 9
- ▶ Diagnosis: page 11
- ▶ Staging: page 14
- ▶ Risk groups: page 29
- ▶ Active Surveillance: page 29
- ▶ Treatment for localized disease: Chapter 3
- ▶ PSA monitoring: page 41
- ▶ Treatment for recurrent and advanced/metastatic disease: See PCF's companion guide

TOOL: BUILDING YOUR TEAM

Many medical specialists may be involved in the treatment of your prostate cancer.

Urologists specialize in problems affecting the urinary tract (kidney, bladder, prostate, testis, urethra, penis, and related organs). They are trained surgeons, but may have no formal dedicated training in cancer.

Urological Oncologists are also urologists, but who specialize in the treatment of cancers of the urinary tract (kidney, bladder, prostate, testis, penis, and related organs).

Radiation Oncologists specialize in treating cancer patients with radiation therapy (external, internal, and systemic forms of radiation therapy).

Medical Oncologists specialize in treating cancer with medical therapies, such as chemotherapy, hormone therapy, immunotherapy, and targeted therapies. Your urologic oncologist and/or radiation oncologist may also be equipped to provide systemic therapies, based on their level of expertise.

Nuclear Medicine Physicians specialize in interpreting your imaging scans and may also perform specialized biopsies or deliver radioactive medical therapies.

Pathologists specialize in interpreting the results from your biopsy or surgery to determine the type, extent, and grade of your cancer.

Sexual Medicine Specialists are clinicians, often urologists, with additional training in sexual and hormonal conditions.

Nurse Practitioners (NPs) and Physician Associates (PAs) are advanced practice providers (i.e., “physician extenders”) who work closely with physicians to help you with your care. They are often the first line of response for your questions and concerns and also manage some aspects of routine follow-up care. Patients may be assigned a nurse case manager who will be their primary contact with their care team.

Oncology Nurses assist in administering therapies and monitoring your overall health as you progress through your treatment.

Dietitians and Nutritionists counsel patients on nutrition and wellness issues to maximize health during and after treatment.

Naturopathic Doctors support patients with complementary medicine and mind-body awareness related to cancer and treatment.

Physical Therapists create and execute rehabilitation programs to restore function and minimize disability following treatment.

Occupational Therapists work with patients to help them develop, recover, and improve the skills needed for daily living and working.

Genetic Counselors specialize in understanding and counseling you about inherited risks of cancer for you and your family.

Social Workers, Therapists & Counselors help patients and their families cope with the emotional, social, financial, and practical aspects of cancer.

TOOL: QUESTIONS TO ASK YOUR DOCTOR

Men who are diagnosed with prostate cancer today have many options available to them. Here are a few questions to help guide conversations with your treatment team.

Your Cancer:

- ▶ What is my PSA level? If the test has been repeated over time, how fast has it risen, and what does this mean for me?
- ▶ What is my prostate cancer Grade Group/risk group? What does this mean in terms of our approach to my treatment?
- ▶ Has my cancer spread beyond the prostate? Can it be cured?
- ▶ Are there additional tests I need to have to gain a more precise understanding of the stage and aggressiveness of my cancer and which may affect subsequent treatment decisions?
- ▶ How likely is my cancer to come back based on what you know today?

Your Treatment Options:

- ▶ Can I avoid treatment at this time and be monitored under active surveillance? How does it work?
- ▶ What treatment options exist for my cancer? Which treatment do you think is better for me?
- ▶ What would be the benefit of getting a second opinion in terms of treatment options?
- ▶ When will I see a radiation oncologist and/or medical oncologist to understand all my options? If I speak to other specialists for second opinions before making a final decision on my plan of action, how do we coordinate it?
- ▶ What will my pre/post-treatment rehabilitation plan look like?
- ▶ Should I join a clinical trial?

Side Effects:

- ▶ What side effects can I expect from the treatments available to me? To what extent should I worry about impotence, urine leakage, or bowel problems, and are the risks different with different treatments?
- ▶ How do my baseline urinary, sexual, or bowel function affect my treatment decisions, if at all?
- ▶ What is the effect of the treatments on my fertility? Should I consider sperm banking or other measures before I undergo any treatments?

Other Considerations:

- ▶ How can I improve the success of my therapy? Are there dietary changes I need to make? What about exercise?
- ▶ What can my family learn from my diagnosis? Do they have a higher chance of being diagnosed with cancer, as well?

Remember, you want to be a partner in your own care. The more informed and proactive you are, the better.

“A lot of men are numbers guys. They know their Gleason score down to every biopsy core. I didn’t react that way. For me, it is what it is. Every man is different.”

— PATIENT



CHOOSING A TREATMENT OPTION

A man diagnosed with localized prostate cancer generally has 3 major treatment options:

- ▶ Active surveillance
- ▶ Surgery
- ▶ Radiation therapy

Choosing a treatment is generally based on many factors, including how aggressive the cancer is, how far it has spread, your age and general health, and the risks and benefits of each treatment option.

Your doctor will assign your cancer into a “risk group,” meaning your risk of developing recurrent, aggressive prostate cancer. The most common system is defined by the National Comprehensive Cancer Network (NCCN) and is based on the PSA, rectal exam, and biopsy results (see Chapter 2, page 14). Your risk group guides your treatment options, as shown in the table (right). Higher-risk cancers are at increased risk of spread outside the prostate at diagnosis and usually require more than one type of treatment (see page 34).

Note: if you have been diagnosed with metastatic prostate cancer that has spread to distant organs or bones, please see PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer*. You will need to consider different types of treatment.

Each treatment plan has different risks and side effects. Ask your doctor to outline your risk for all possible outcomes of all possible treatment options before you select your path. For example, while one man might be more concerned about how quickly he can get back to work, another man might be more interested in maintaining long-term erectile function or urinary continence.

Ask your doctor which risk group your cancer is in and what your treatment options are.

Risk Groups and Treatments

Risk Groups	Treatments
Very Low/ Low	Active surveillance Surgery or radiation therapy may be appropriate for very select patients
Favorable- Intermediate	Surgery or radiation therapy Active surveillance may be appropriate for select patients
Unfavorable- Intermediate*	Radiation therapy with hormone therapy or: Surgery with or without radiation therapy
High*/ Very High*	Radiation therapy with hormone therapy or: Surgery with or without radiation therapy, with or without hormone therapy

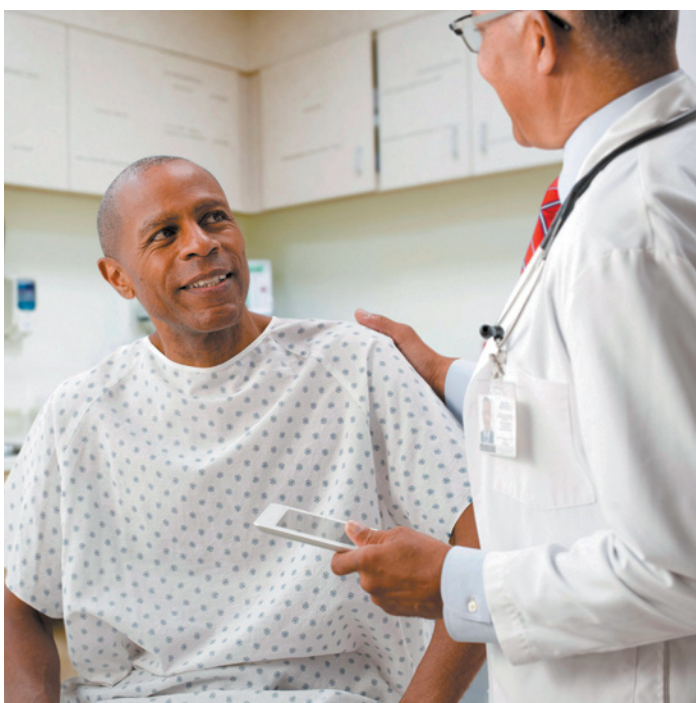
*These are higher-risk cancers. See Combination Treatments for High-Risk Prostate Cancer.

ACTIVE SURVEILLANCE

For men with very low- or low-risk disease, **active surveillance** is now the preferred standard of care. Over 30% of men diagnosed with prostate cancer have slow-growing tumors that are best managed with active surveillance rather than undergoing immediate treatment.

Active surveillance is not “never treatment,” but rather a way to follow the cancer closely so that treatment is started only if—and when—it may be needed.

Active surveillance is based on data showing that low-risk prostate cancer grows slowly, with low rates of metastasis (spread), and is unlikely to cause harm within a man's lifetime. This is important because both surgery and radiation—which are the most common treatments for localized prostate cancer—can have side effects that decrease a man's quality of life.



Over 30% of men diagnosed with prostate cancer have slow-growing or “lazy” tumors that are best monitored with active surveillance vs. immediate treatment.

Men on active surveillance will usually have a PSA blood test done twice per year, an annual DRE, and repeat biopsies generally every 1 to 5 years. The frequency of biopsies can vary based on patient age, how fast the PSA is rising, and other factors. MRI may also be used to help monitor the cancer and guide timing and decision for repeat biopsies. Generally, MRIs are performed every two years to monitor any changes in the prostate.

The advantage of active surveillance is that you may be able to maintain quality of life while being sure to identify high-risk prostate cancer if it develops. A man with low-risk cancer may be able to stay on active surveillance for many years, thus delaying bowel, bladder, and sexual treatment-related side effects. If—or when—test results indicate that your cancer has begun to progress, you still have surgery or radiation therapy as treatment options. Choosing active surveillance entails accepting that you will undergo repeat biopsies and/or MRIs in the future.

Remember: the key to successful outcomes is to make sure you are monitored regularly and carefully for signs of progression.

For men who might have a shorter life expectancy, either because of older age or because of other medical problems, active surveillance, which involves frequent testing, may actually be unnecessary. For these men, a more passive approach called **watchful waiting** may be more appropriate: non-curative or palliative treatment is begun only if the cancer starts to cause symptoms.

QUESTIONS TO ASK YOUR DOCTOR IF YOU ARE CONSIDERING ACTIVE SURVEILLANCE

- ▶ What type of testing will be required if I do active surveillance?
- ▶ How frequently will I be tested?
- ▶ What is my baseline PSA number, and what number would be concerning?
- ▶ When will I need a repeat prostate biopsy, and will we need an MRI beforehand to help guide biopsy targeting?
- ▶ What are my options if a future test indicates that the disease has become aggressive?
- ▶ What are the chances that my cancer will progress in the next 10 years if I defer immediate treatment?
- ▶ How does my family history of cancer factor into this decision and the risk of progression? Should I have genetic testing for an inherited mutation?
- ▶ Are there other tests I should have that would help us make a decision?
- ▶ Are there proactive changes to my health habits that I should consider?

The bottom line: if you are diagnosed with very low- or low-risk prostate cancer, talk to your doctor about active surveillance.

SURGERY

Removing the entire prostate gland and seminal vesicles through surgery, known as a **radical prostatectomy**, is an option for men with low, intermediate, or high-risk cancer that has not widely spread.

Open radical prostatectomy has been the traditional way of surgically removing the prostate. In this procedure, the surgeon makes an incision in the lower abdomen, or through the perineum (between the scrotum and anus).

Today, **robot-assisted laparoscopic radical prostatectomy** is more common in the U.S., with more than 90% of radical prostatectomies performed robotically. Small incisions, often five in total, are made in the abdomen. The robotic arms are connected to trocars (tubelike devices) that are inserted through the incisions. The surgeon controls the robot's arms, which control a camera and surgical instruments.

After surgery, request a copy of your pathology report and speak with your doctor about what it means.

Compared with open surgery, robot-assisted surgery may have less bleeding, a bit less pain, fewer short-term complications, and equivalent cancer cure rates. Recovery of urinary and sexual function depends more on the extent of the cancer, surgeon's skill, and patient baseline function, rather than the method of surgery.

Whether open or laparoscopic/robotic surgery is chosen, patients typically go home after an overnight stay in the hospital with a bladder catheter to help drain urine for 7 to 14 days. Increasingly, select patients are being discharged on the same day as their robotic procedure, with safe results. ([Remember to consider side effects, page 36.](#))

After surgery, a pathologist will examine the cells under a microscope and determine a final grade (how aggressive your cancer is) and whether the sampled lymph nodes have prostate cancer in them (how far it has spread). Ask for a copy of your pathology report and talk with your doctor about what it means. If it appears that some cancer was left behind (called **positive margins**), or if the cancer is more aggressive than what was seen in your initial biopsy, you may need more treatment.

About 6 to 8 weeks after surgery, your PSA will be checked. Based on your PSA and pathology report, you and your doctor will decide whether more treatment is needed with radiation therapy and/or hormone therapy. See page 34 for more information on combination treatment.

RADIATION THERAPY

Radiation therapy uses beams of high-energy radiation (photons) to kill cancer cells. Radiation damages the cancer cells' **DNA** (the genetic material of the cancer cell), ultimately causing them to die. Healthy cells are also exposed to radiation, but they are able to repair their DNA, and so are less affected. Radiation therapy is very effective at killing localized prostate cancer and has the same cure rate as surgery.

With radiation therapy, the entire prostate gland is treated. Modern technology has evolved to minimize damage to surrounding non-cancerous cells; this is important because the prostate lies near the bladder and the rectum. Still, some normal tissue may be affected, causing side effects. Just as surgical skill can play an important role in determining outcomes from surgery, the technical skill of your radiation oncologist can affect your radiation therapy outcomes. If possible, choose a radiation oncologist with expertise in treating prostate cancer.



There are many different types of radiation therapy available today. Be sure to use this guide to talk to your physician about which option might be best for your prostate cancer.

There are a few different approaches and techniques in radiation therapy.

External Beam Radiation Therapy (EBRT)

EBRT is the most common type of radiation therapy. This is when the radiation comes from the outside of the body. Your doctor will do a “mapping” scan to precisely locate your prostate, rectum, and bladder, and use this information to design a personalized radiation therapy plan. Some physicians use gold markers or electromagnetic beacons that track the position of the prostate gland.

Radiation therapy is done on an outpatient basis over time (between 5 and 45 days – see box below). You will come to the treatment center daily, and each appointment typically lasts less than an hour. The radiation is non-invasive, and you will not feel pain during the treatment.

You may experience some fatigue and/or have mild increased frequency of urination or bowel movements during the weeks of treatment. [For more information, see Possible Side Effects, page 36.](#)

For men with higher-risk prostate cancer, radiation therapy is often combined with hormone therapy. See page 34.

EBRT Treatment Durations

There are 3 treatment durations (number of treatments) that are used in EBRT. These are simply different schedules; all are effective in treating prostate cancer, but may have some different side effect profiles. Ask your doctor which option(s) are best for you.

Conventional: Patients come to the treatment center each weekday, for a total of 40–45 treatments over 8–9 weeks. This method has become less common.

Moderate hypofractionation: Radiation therapy is delivered in 20–28 treatments over 4–6 weeks. This is considered by national guidelines to be the current standard of care for many men with localized prostate cancer.

Ultra-hypofractionation: Also known as **stereotactic body radiation therapy (SBRT)**, this approach is delivered in about 5 treatments, using higher doses per day than moderate hypofractionation. This strategy is rapidly becoming more common because it may have equal cure rates, similar side effects and increased convenience. At many centers of excellence this is the standard of care. However, not all centers can safely provide this treatment, and not all patients are good candidates, so make sure to consult your doctor.

Brachytherapy

Brachytherapy involves a minimally-invasive procedure under anesthesia to place radiation therapy “seeds” or catheters (small tubes) inside the prostate. Think of it as internal radiation therapy, rather than external radiation therapy. The seeds/catheters give off high doses of radiation to the area immediately around them, thus killing the prostate cancer cells. Over weeks to months, the radioactive material degrades, and the seeds that remain are harmless.

Brachytherapy by itself is usually used only for low-risk or favorable intermediate-risk patients. It can be used in combination with EBRT in intermediate- or high-risk patients. See page 34 on combination treatments for higher-risk cancer. The success of brachytherapy, like surgery or EBRT, is dependent on the skill of your practitioner. Ask your doctor to help you find an experienced radiation oncology team who can perform brachytherapy.

Brachytherapy is less common than it used to be. Some patients prefer it because it doesn't require daily visits to the treatment center. Brachytherapy may have increased urinary side effects compared to EBRT. Ask your doctor about safety precautions after the procedure, such as those pertaining to sexual activity and holding children in your lap (specifically for seed brachytherapy).

If you are considering radiation therapy, ask your doctor about the benefits, risks, and logistics involved with each type.

OTHER THERAPIES

Surgery and radiation therapy are the current guideline-approved “definitive treatments” for localized prostate cancer, but other options are also available. These may be considered for carefully selected patients with low-risk and favorable intermediate-risk cancers (i.e., patients with Gleason 6/Grade Group 1 disease who do not elect active surveillance, and some patients with Gleason 7(3+4)/Grade Group 2 prostate cancer).

- ▶ **Cryotherapy** is rarely used, and rates of side effects are high when it is applied to the entire prostate. Prostate cancer cells are frozen to death via probes inserted into the prostate through the perineum (between the scrotum and anus). Cryotherapy may be used for prostate cancer that has come back (see PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer*).
- ▶ **High Intensity Focused Ultrasound (HIFU)**. In HIFU, the prostate cells are “heated” to death via a probe that is inserted into the rectum and produces high-intensity ultrasound energy waves.
- ▶ **Proton Beam Radiation Therapy**. Protons are a type of radiation treatment similar to photons (traditional x-ray radiation therapy) in many ways. However, in prostate cancer, proton beam therapy has not been shown to improve outcomes over other forms of radiation therapy. There have been no completed head-to-head trials comparing proton beam radiation therapy to either surgery or photon beam radiation therapy. Insurance companies often do not cover it (unless you are participating in a research study) and it is typically very expensive.

Hormone therapy alone is not an effective treatment for localized prostate cancer. This treatment stops testosterone from being produced or prevents it from acting on the prostate cells. For unfavorable intermediate-risk and high-risk prostate cancer, it may be used in combination with radiation therapy (see next section).

FOCAL THERAPY

“Focal” therapies are treatments that target just a region of the prostate thought to have the tumor, instead of treating the entire prostate gland. None of these therapies have yet been proven to have the same long-term success as surgery or radiation therapy in large clinical trials and are still considered investigational treatments.

The likelihood of recurrence is high with focal therapy, due to the fact that in over 80% of cases, prostate cancer is actually “multi-focal,” meaning even if the biopsy and/or MRI showed the cancer to be in only one area, there is likely tumor in many areas of the prostate.

If considering focal therapy, it is recommended to seek care at a high-volume center of excellence with extensive expertise in focal therapy. Appropriate patient selection is key to minimizing treatment failure, and patients are encouraged to enroll in clinical trials given the still-experimental nature of these procedures.

COMBINATION TREATMENTS FOR HIGH-RISK PROSTATE CANCER

High-risk prostate cancer means that the cancer is more aggressive, and there is a higher chance that the cancer will spread to other parts of the body or recur. Surgery or radiation therapy are still effective, but more than one type of treatment may be required to give the patient the best chance of cure.

If you are told that your cancer is in the unfavorable intermediate, high, or very high-risk group, make sure to talk to your doctor about your options for combination treatment. The table on the next page lists the most common combinations. See box on page 35 for more information about hormone therapy.

Another option to consider may be a **clinical trial**. These are research studies that evaluate the effectiveness and/or safety of new medical, surgical, or behavioral interventions or existing ones within new settings. Clinical trials are available for all stages of prostate cancer, from low risk to metastatic. Patients are highly monitored for safety along the way, and information generated from these trials can help you and other patients in the future. The non-experimental (i.e., control) group typically involves “standard of care” treatment—that is, they receive the same care they would get if they were not part of the trial. You can search for prostate cancer clinical trials on clinicaltrials.gov. Speak to your doctor so you can make an informed decision.

The key is to keep informed about all treatment options and ask questions to understand the best treatment plan for you.

Common Combinations

Surgery + radiation therapy	<p>With or without hormone therapy</p> <p>For men with high-risk prostate cancer that has spread into nearby areas, radiation therapy may be started 4–6 months post-surgery, even if the PSA has not risen. This is called adjuvant radiation therapy. It may reduce the risk of recurrence but may also increase the risk of side effects.</p> <p>Another strategy is to use radiation therapy only if PSA levels rise to 0.1 or 0.2 ng/mL; this is referred to as early salvage radiation therapy, which should be done soon after the first PSA becomes detectable. Hormone therapy may also be given concurrently. Your doctor can order a test of your tumor tissue from surgery, called the Decipher® Prostate RP test, to help guide these decisions.</p>
Surgery + hormone therapy	Hormone therapy (+/- radiation therapy) may also be recommended for men who have cancer found in their lymph nodes at the time of surgery.
Radiation therapy + hormone therapy	Hormone therapy has been shown to improve cure rates of prostate cancer for men receiving radiation therapy. It is part of the standard of care for men with unfavorable intermediate-risk prostate cancer and nearly all high-risk prostate cancer. It is often given for unfavorable intermediate-risk cancer for 4–6 months and for 1.5–3 years in men with high-risk disease.
Brachytherapy + EBRT* + hormone therapy	Patients with unfavorable intermediate and high-risk prostate cancer may receive a combination of EBRT plus brachytherapy and should also receive the addition of hormone therapy.

*EBRT, External Beam Radiation therapy (see page 32).

ABOUT HORMONE THERAPY

Because androgens, such as testosterone, fuel prostate cancer growth, treatment regimens for higher-risk cancers may include some form of hormone therapy—which is really “anti-hormone therapy”—that deprives tumor cells of androgens. There are different forms of hormone therapy that work in different ways in your body. Most are given as regular injections, sometimes in combinations. Hormone therapy has some side effects, such as fatigue, weight gain, increased blood sugar, loss of bone density, sexual dysfunction, and mood changes. These may affect each man to varying degrees, so be sure to talk to your doctor. You may need additional monitoring and care for these conditions while you are taking hormone therapy.

Types of hormone therapy used in combination with radiation therapy include:

- ▶ LHRH agonists: goserelin (Zoladex), leuprolide (Lupron, Eligard), triptorelin (Trelstar)
- ▶ LHRH antagonists: degarelix (Firmagon), relugolix (Orgovyx)
- ▶ Anti-androgens: bicalutamide (Casodex), flutamide (Eulexin), nilutamide (Nilandron)
- ▶ Androgen receptor signaling inhibitors: Newer medications such as abiraterone (Zytiga, Yonsa) may be used for very high-risk prostate cancer or when the prostate cancer is seen in the lymph nodes. Clinical trials to study the benefit of these medications are ongoing.

For more detailed information on the different types of hormone therapy, their uses, and side effects, see PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer*.

POSSIBLE SIDE EFFECTS

Because the prostate is close to several vital structures, prostate cancer and its treatments can disrupt normal urinary, bowel, and sexual functioning. This section reviews side effects of treatments for localized prostate cancer. For side effects of treatment for metastatic prostate cancer, see PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer*.

Things to Consider About Side Effects:

- ▶ Many of the side effects that men fear most after radiation therapy or surgery are less frequent and severe than they have been in the past
- ▶ Talk with your doctor about your lifestyle and what is most important to you when choosing among treatment options
- ▶ Ask about any changes you can make to your health habits to help reduce or avoid specific side effects
- ▶ If you receive more than one type of treatment (e.g., surgery, then radiation therapy), you will be exposed to the side effects of both treatments, which is likely to be cumulative and have a greater effect than either treatment alone
- ▶ There are options to treat the side effects themselves. Early management of side effects has been shown to help patients live longer, better lives

Urine Leakage

Urinary sphincters are bands of muscle that prevent urine from leaking out. During prostate cancer surgery, the sphincter at the base of the bladder may be damaged, and urinary incontinence or leakage may occur.

Nearly all men will have some form of leakage immediately after the surgery, but typically improves over time. Strengthening exercises of the pelvic floor

muscles (also known as “Kegel exercises”) can shorten the time to regaining continence. Most men regain urinary control within a year; about 1 in 5 men will have mild leakage requiring the use of one or more pads per day long-term.

If you have persistent incontinence, there are options to help. You may benefit from seeing a urologist who specializes in incontinence. If the problem persists past a year, a **urethral sling**, **artificial urinary sphincter**, or a **urethral bulking agent** can potentially correct the leakage. There are also non-surgical treatments available.

With radiation therapy, long-term urine leakage is rare (less than 1 in 100). However, during and for months after radiation therapy, you may have an increase in urinary frequency and urgency, such as waking up more at night to urinate.

For more information, visit PCF's Leaky Bladder resource page at pcf.org/leaky-bladder.

Beyond side effects, adopting or continuing healthy habits will give you more energy and help you feel better during and after treatment.

Bowel Function

After prostate cancer surgery it is very rare (less than 1%) for men to have problems with bowel function.

With modern radiation therapy, it is very rare to have moderate or severe bowel problems (1%–3%). With use of a temporary rectal spacer or gel, this rate is reduced further. Rectal spacer or gel is a substance injected into the tissues between the prostate and the rectum. It blocks radiation from passing through to the rectum.

During radiation therapy you may experience softer stools. This typically resolves within a few weeks of completing radiation therapy.

With modern radiation, about 2% of men will have bothersome rectal bleeding that may occur months or years after treatment. With a rectal spacer, this rate is reduced to less than 1%.

Be your own advocate: Talk with your doctor about the types of radiation therapy that are appropriate for you. Older forms of radiation therapy can increase rectal side effects significantly. Ask your doctor if they offer a rectal spacer or gel at their practice and if your insurance covers it.

Sexual Function

Erectile dysfunction (difficulty getting and/or maintaining an erection) remains the most common side effect after treatment. This is because the very delicate nerves and blood vessels that control the physical erection are in close proximity to the prostate, and any trauma to the area can result in damage. Other less common side effects that can influence function include releasing a small amount of urine during ejaculation. Fortunately, there are many excellent treatments for managing erectile function (see page 39).

Prostate cancer grows over years and decades. Consider short- and long-term quality of life factors when you make treatment decisions.

Additionally, men with erectile dysfunction before treatment will have a more difficult time returning to pre-treatment function. It's important to remember that your maximum erectile function after treatment can, at best, only be as good as it was before treatment.



Although some erectile function may be lost in some patients during treatment, many options exist for managing side effects (see box on page 39).

Four main components of sexual function may be affected by prostate cancer treatment:

1. Libido (sex drive) is commonly decreased by hormone therapy that lowers your testosterone. This may return once your testosterone increases after completing hormone therapy. Normal feelings of sadness, anger, and anxiety related to your diagnosis can also lower your sex drive. Do not be shy about seeking individual or couples counseling during treatment.
2. Mechanical ability—the ability to achieve a firm erection—is most affected by surgery or radiation therapy.



Be an informed patient: investigate all choices that apply to your cancer, compare treatment options and side effects, and discuss decisions with your family as appropriate.

3. Orgasm/climax can be more difficult after treatment, especially if libido is low or your erections are not as firm as they used to be. There can be some discomfort initially after treatment when you climax. This usually is transient and will resolve.

4. The quantity of ejaculate may be minimal after treatment, particularly after surgery, which involves removal of the prostate and seminal vesicles. You may continue to have the pleasure sensation of orgasm without ejaculation. Initially, you may ejaculate blood, which will improve over time.

For more information, visit PCF's Sexual Health resource page at pcf.org/sexual-health.

Surgery

Depending on the location, volume, and grade of disease, you may be a candidate for a “nerve sparing” radical prostatectomy. The goal of the procedure is to remove the prostate and seminal vesicles while sparing the nerves adjacent to the prostate. It is important to be aware that these nerves are difficult to visualize for your surgeon and, despite his/her best efforts to spare them, these nerves may still be damaged. Immediately after surgery, men will not be able to have an erection, as the nerves need time to heal. Within 1–2 years after treatment, most men with intact nerves will see some improvement. However, sexual function may not return to “normal.” 30%–60% of men who have the ability to have an erection before surgery will maintain this ability 2 years post-surgery. This is affected by patient age, obesity, surgeon expertise, and extent of cancer. In general, men with lower-risk prostate cancer have higher than average rates of erectile function because the nerves are more likely to be spared.

If you receive radiation therapy after surgery, your likelihood of erectile dysfunction will increase, since you are being exposed to the cumulative side effects of both treatments.

Radiation Therapy

Similar to surgery, damage to blood vessels and nerves after radiation therapy can result in decreased erectile function. However, the timing of the effects is delayed. In general, radiation therapy has less of an impact on erectile function in the first 5–10 years after treatment compared with surgery. Approximately 60%–85% of men who have baseline erectile function before treatment will keep erectile function after treatment. However, within 15 years after treatment, men who had radiation therapy may have similar loss of function as men who had surgery.

IMPORTANT: FERTILITY

Fertility—the ability to father a child—is different from sexual desire, erection, and orgasm. Fertility requires functional sperm, which can be collected and frozen before treatment. After surgery, radiation therapy, or hormone therapy, you are unlikely to be fertile via natural means. If you are hoping to father a child in the future, discuss fertility preservation with your doctor before you begin treatment.

MANAGING ERECTILE DYSFUNCTION

Remember: Erectile dysfunction is not a disease. It's a side effect that can be managed. You and your doctor have many options to choose from, and some can be combined. Talk to your doctor about the pros and cons of each approach. If the first option you try doesn't work for you, don't suffer in silence. You may want to see a sexual medicine specialist. The urologist or urologic oncologist who takes care of your prostate cancer may not have formal training for treating sexual issues.

Ask about other approaches....but beware of any supplements or experimental treatments that promise miraculous results. Below is a list of U.S. FDA-approved medications and devices.

- ▶ **Oral medications** such as sildenafil (Viagra®), tadalafil (Cialis®), and vardenafil (Levitra®) relax the vessels in the penis, allowing blood to rapidly flow in. Consult your doctor to see if these medications might be right for you. Individuals taking medicines that contain nitrates, such as those for angina or heart problems, may not be candidates for these medications
- ▶ **Alprostadil (MUSE®)** is a medicated pellet about half the size of a grain of rice that is inserted into the urethra through the opening at the tip of the penis. Like oral medications, it also stimulates blood flow into the penis
- ▶ **Alprostadil (Caverject®)** uses the same drug that is in the MUSE pellets but is delivered via an injection directly into the penis
- ▶ A **vacuum erection device**, or “penis pump”, creates an erection mechanically, by forcing blood into the penis using a vacuum seal. It does not require surgery and can be used with other methods. Note that the constriction ring at the base of the penis is effectively cutting off fresh circulation. Because of this effect, it is crucial that the ring be removed immediately after intercourse, or the tissue can be damaged due to lack of blood flow
- ▶ A **penile implant** is an internal device that can be placed via a surgical procedure

CHOOSING BETWEEN SURGERY AND RADIATION THERAPY

If you and your medical team have decided that active surveillance is not right for you, you may be having a hard time making a choice between surgery and radiation therapy.

For nearly all cases of newly diagnosed localized prostate cancer, the chance of “cure” is the same whether you have radiation therapy or surgery. The main differences relate to quality of life and side effects. Every patient has different priorities, so it’s important to have a candid conversation with your doctor. Although many patients have good long-term urinary and bowel function after treatment, the truth is you may have side effects; surgery and radiation therapy are serious interventions.

In general, surgery is more likely to lead to urinary incontinence and erectile dysfunction early on after treatment. Radiation is more likely to cause urinary frequency (both during the day or at night), urgency, or a greater potential risk of rectal toxicity (this may be decreased with use of a rectal spacer or certain image-guidance techniques), and a later decline in erectile function. The risk of a second cancer developing after radiation therapy is low (approximately 0.1%–4% based on most studies), and the risk is limited to the areas that receive radiation (e.g., bladder and colorectal area).

Go to pcf.org for Dr. Dan Spratt’s common considerations when choosing a therapy.

If you have the option, choose to be treated at a high-volume center, where outcomes tend to be better.

BE PROACTIVE: PLAN FOR RECOVERY BEFORE STARTING TREATMENT

“Prehabilitation” means optimizing your health before treatment to potentially improve your outcomes. Studies suggest that using multiple approaches, both before and after treatment, may support recovery, although more research is needed.

- ▶ **Adopt Healthy Habits:** What’s good (or bad) for your heart is good (or bad) for your penis. Factors such as cardiovascular disease, diabetes, obesity, smoking, and high cholesterol can affect erectile function. They can also affect recovery of erectile function after surgery
- ▶ **“Kegels”/Pelvic Floor Muscle Training:** Kegel exercises involve squeezing your pelvic floor muscles for a few seconds, then relaxing. They are part of treatment for incontinence, and may improve time to recovery of urinary function if done before surgery
- ▶ **Early Intervention:** If you are planning to have surgery, talk to your doctor about how soon it is safe for you to start using erectile aids such as medication, a vacuum pump, and/or penile injections. There is growing evidence that early use of interventions may improve recovery of erectile function

Early management of side effects has been shown to help patients live longer, better lives. Ask for help if you need it.

MONITORING FOR RECURRENCE

After initial treatment for localized prostate cancer is complete, the next phase in the process is monitoring for a recurrence, or a regrowth of the cancer cells somewhere in your body.

Monitoring for recurrence typically involves PSA testing, which is repeated every 3–6 months for the first 3–5 years, then yearly after that. This may vary based on extent of disease and physician preference. It may be tempting, if you feel fine after treatment, to begin to skip your PSA monitoring appointments. Imaging, such as MRI and/or PSMA PET, may be useful in confirming and detecting sites of disease recurrence. It is typically performed only if your PSA level rises.

If your PSA starts to rise, it could be a sign of your cancer returning, or it could be a sign of something else. See PCF's *Patient Guide to Recurrent and Metastatic Prostate Cancer*.

Do not skip your PSA monitoring appointments.

Remember: Every patient is unique. Be sure to take these general guidelines and discuss all available options, information, and questions with your physician.



Many men will live a long time after a prostate cancer diagnosis. Adopt (or continue) healthy habits and follow up with your provider.

EVERY PATIENT'S EXPERIENCE IS UNIQUE

Special topics are available for download at pcf.org/guides:

- ▶ Patients Aged 50 and Younger
- ▶ Additional Facts for Black Men and Their Families
- ▶ Gay/Bisexual Men and Trans Women

TOOL: TRACKING YOUR INFORMATION

If you're a numbers guy, here's a place for you to record where you were at the time of initial diagnosis, and any notes from your doctor or outstanding questions about treatment options.

Age at diagnosis: _____

PSA #1: _____

Date: _____

PSA #2: _____

Date: _____

Biopsy Date: _____

Stage: _____

Grade Group: _____

Gleason Grade: _____

Number of positive cores in biopsy: _____

Risk Group: _____

SHIM score before treatment: _____ (Go to pcf.org/SHIM to find your score)

Other tests or test results your doctor may have recommended:

Pre-Biopsy	Post-Biopsy

Notes and questions about treatment:

Treatment option	Schedule/frequency/side effects/questions

Other notes:

TOOL: TAKING CARE OF YOURSELF DURING CANCER

Being diagnosed with cancer is tough—at any age, at any stage, at any time. Often, patients experience a bit of brain fog at diagnosis. There’s a lot to process, and self-care can fall to the bottom of the priority list.

No matter what stage of the cancer journey you are at, your body will perform better if you take good care of it. For example, quitting smoking before cancer surgery lowers complications and speeds recovery time. During cancer treatment, yoga can reduce symptoms of pain and fatigue. Long-term, regular exercise can reduce your risk of cancer recurrence or death from cancer.

PCF’s guide, *The Science of Living Well, Beyond Cancer*, empowers you with the knowledge to make small, daily choices that boost your wellness. Here’s a quick checklist:

- ▶ Know what’s coming. Talk to your doctor to see if any of the treatments you’ve chosen, or might choose, could affect your appetite or energy levels
- ▶ Don’t be afraid to ask. If you’re not sure what your doctor recommends in terms of rest, exercise, and nutrition during treatment, ask for details, or even a referral to a registered dietician or nutritionist who specializes in cancer
- ▶ Prepare for what’s before you. Carve out time in your schedule (or solicit help) to get to treatment, shop for healthy food, exercise daily, and rest

Talk to your doctor before starting any new or “in-treatment” routine. As much as your treatment protocol and recovery instructions allow, stick with PCF’s three pillars of healthy living:

RELAX

- ✓ Try yoga or meditation to help calm your body and mind. There are lots of online classes for free.
- ✓ Get lots of sleep, since this is the time when recovery happens. If you’re struggling to get your shut-eye, check with your doctor about what the options might be.
- ✓ Cut yourself some slack. It’s normal to have a lot of emotions around this experience. Don’t hesitate to lean on someone you love or seek the help of a professional.

EXERCISE

- ✓ Walk. The world’s oldest form of exercise is truly the greatest. Try to fit in some walking each day, as briskly as you are able.
- ✓ Move. If you can’t walk or otherwise exercise because of fatigue or an injury, find another way to get off the couch.
- ✓ Pump some iron. As allowed, a little resistance training will help keep your muscles toned and supportive and promote positive biochemical changes in your cells.

EAT REAL FOOD

- ✓ Eat brightly colored, nutrient-dense foods. You want everything you eat to support your recovery and pack the most “punch.”
- ✓ Skip the fast food and processed meat. Inflammation and prostate cancer go hand in hand.
- ✓ Limit or eliminate refined sugar. Next time you have a craving, grab a piece of fruit instead.

“I’m going to do everything I can do at each stage. Nothing heroic. Just whatever I can, I do.”

— PATIENT



WELLNESS IS ESSENTIAL

From the moment you are diagnosed with prostate cancer, it's important to make mindful decisions about your diet and exercise habits. Your everyday choices are vital to the success of your treatment and your recovery from the disease, and it is a great way to take back some of the control that cancer and its treatment may have had on your life.

Scientific evidence strongly suggests that healthy habits, such as good nutrition and regular exercise, may actually slow the growth and progression of prostate cancer. While it may seem as though the latest news on specific foods and exercise regimens changes constantly, in fact, many studies converge on a few basic principles. For example, choose vegetables, whole grains, and a modest amount of healthy added fat (e.g., olive oil), while minimizing your intake of packaged “junk” foods and processed meat. To stay up to date on the latest research, subscribe to the Health and Wellness newsletter at pcf.org.

NUTRITION

Just a few simple changes in your daily eating habits can help support healthier living as you recover from prostate cancer. These changes may decrease your time to return to normal function and may even decrease risk of your cancer coming back or getting worse. All these recommendations also apply to maintaining overall health, for you and your family. An anti-inflammatory, heart-healthy diet gives every prostate cancer survivor a better chance to maximize longevity through health practices.

1. Brightly colored vegetables. Incorporate cooked tomatoes (preferably cooked with olive oil) and cruciferous vegetables (like broccoli and cauliflower) into most of your weekly meals. Certain fruits and vegetables contain large amounts of antioxidants.

Antioxidants benefit the body by removing free radicals. Free radicals can attack healthy cells and permanently disrupt their operation.

2. Fat and Protein. Try to keep the amount of fat that you get from red meat and dairy products to a minimum. Several studies have reported that saturated fat intake is associated with an increased risk of developing advanced prostate cancer. Consuming whole milk is linked to increased risk of prostate cancer progression and lethal disease. Avoid processed meats (lunch meats) that contain nitrates, and charred meat, which have been shown to have cancer-promoting properties. Choose fish, lean poultry, or plant-based proteins such as nuts and beans instead.

3. Vitamins. Try to get your vitamins from food sources, that is, eating a diet rich in brightly colored vegetables and whole grains, rather than relying on vitamin supplements. (Vitamin D may be the exception; talk to your doctor about your specific health needs). For example, plant-based sources of calcium include tofu, dark leafy greens, and almonds. For more on supplements, see PCF's guide, *The Science of Living Well, Beyond Cancer*.

As much as possible, choose minimally-processed, nutrient-dense foods. Go for high fiber and low added sugars.



Fish, berries, cooked tomatoes, and broccoli may act as anti-inflammatory foods to help protect your prostate health.

EXERCISE

Exercise is an essential healthy habit. For prostate cancer survivors, exercise as much as you are physically able to, at a pace that matches your personal fitness.

More research is emerging to suggest that exercise during cancer treatment can improve long-term survival when combined with traditional therapies. For those who are able to exercise, walk as briskly as you can, and try to add bouts of more vigorous activity like jogging, swimming, or biking as you are able. Include strength training or resistance exercises to help prevent the muscle and bone loss that happens with aging. Start with simple body-weight resistance exercises such as squats and push-ups. Check with your doctor about what types of exercise are safe for you.

Even moderate exercise has been shown to both reduce risk of prostate cancer recurrence and improve survival. Exercise also improves quality of life in patients with prostate cancer, supporting better sleep and cognition, and reduced depression and anxiety.



Improving health
with diet & exercise

PROSTATE 8

1. Build up to 3+ hours/week of vigorous aerobic exercise
2. Consume 1 serving/day of oil-based salad dressing or nuts
3. Consume 1 serving/day of cruciferous vegetables
4. Consume 2+ servings/week of cooked tomatoes or tomato products
5. Consume 2+ servings/week of fish
6. Avoid all processed meat
7. Do not consume single vitamin or mineral supplements unless a doctor prescribes them
8. Avoid all tobacco products

Prostate 8 is an easy-to-remember set of eight recommendations. Rigorous research has shown that following each one decreases a man's risk of dying of prostate cancer. Learn more at ucsfhealth.org. Consult your health care provider or nutritionist.

How does it work? Research suggests that exercise affects energy metabolism, oxidative stress, immunity, and androgen signaling pathways, and is therefore beneficial for men with prostate cancer. Exercise also reduces levels of inflammation that can contribute to prostate cancer growth. The key is consistency: exercise as regularly as you can, most days of the week, and increase the intensity of your exercise as you are able.

OTHER HEALTH FACTORS

In addition to diet and exercise, other health factors may be associated with prostate cancer risk and progression.

Smoking

Quitting smoking may reduce the risk of dying from prostate cancer and reduces the risk of dying from any cause. The health benefits from quitting begin on the first day after smoking ceases, so it is never too late to quit. Why is this important? Evidence suggests that smoking is associated with more aggressive prostate cancer at the time of diagnosis. Smokers have a higher risk of prostate cancer progression, as well as an increased likelihood of death. Importantly, when compared with current smokers, men who quit smoking more than 10 years ago had prostate cancer mortality risk similar to those who had never smoked. Quitting smoking is also associated with improved penile blood flow and erections.

Body Mass Index (BMI)

Body mass index is a measure of body fatness calculated by dividing an individual's weight (in kilograms) by height (in meters)-squared. A BMI of 18.5–24.9 is considered a healthy weight, a BMI of 25–29.9 is considered overweight, and a BMI of 30 or higher is considered obese. High BMI is associated with increased risk of developing lethal prostate cancer, and growing evidence suggests that obesity (either before or at the time of diagnosis) is associated with increased risk for prostate cancer recurrence, progression, and mortality. Furthermore, obesity has been shown to



Maintaining a positive attitude along with healthy diet and regular exercise will help during recovery, as well as for the rest of your life.

increase the rates of urinary incontinence after surgery. Eating a nutritious diet and keeping up your exercise routine will go a long way towards maintaining a healthy weight. Speak with your doctor about other approaches.

For more detailed information on nutrition, exercise, rest, and the relationship between health practices and cancer, visit pcf.org to download a free copy of *The Science of Living Well, Beyond Cancer*.

Quitting smoking reduces the risk of dying from any cause. If you need help to quit, speak to your doctor about options.

“I needed my children to be well and live their lives happily, while at the same time being aware of what was going on.”

— PATIENT



THE GENETICS OF CANCER RISK

In the last 25 years, several hereditary mutations (genetic mutations that run in families) have been discovered that may increase the risk of developing certain cancers. For example, you may have heard the *BRCA1* and *BRCA2* gene mutations increase risk for not only breast and ovarian cancers, but also for prostate, pancreatic, gastrointestinal cancers, and others.

There are three important things you should know about prostate cancer and your family:

1. Prostate cancer is one of the most hereditary cancers. This means that of many of the major cancers out there—breast cancer, lung cancer, kidney cancer, and others—more cases of prostate cancer are a result of being passed down through the generations. See also Chapter 1, page 5 to understand other factors that increase risk.
2. The same genes that cause prostate cancer to be passed down through the generations can increase risk for many other cancers. This means that if you have prostate cancer in your family, your family members—men and women—are also at higher risk for other cancers, particularly breast, colon, ovarian and pancreatic. The opposite is also true. For example, if colon cancer runs in your family, the men in the family are also at a higher risk for prostate cancer.
3. More and more, science is discovering that health habits can play a significant role in cancer outcomes. PCF-funded research has shown that even if you are more genetically predisposed to prostate cancer, eating healthy and exercising can help decrease your risk for more aggressive disease.

More than 20 genes are linked to inherited prostate cancer. Some of these genes may overlap with other types of cancer.

For years, a diagnosis of cancer was seen as something to hide—a sign of weakness, to be kept to yourself. Stories exist of wives who didn't know their husbands had prostate cancer until after they had already had surgery for it. Needless to say, in those days, once a man was through his recovery, it was never talked about again. Now, we know more, and this is a very important point to remember:

Talking openly about your health and conditions is the key to keeping your whole family safe.

HOW GENES CAN CAUSE PROSTATE CANCER

In school, you may have learned that genes from each parent combine when a child is conceived, giving children a blend of their parents' traits and characteristics. We now know that your body contains over 20,000 genes that you inherited from your parents. Together, these genes are like instructions that tell your body how to grow and operate.

When a gene's instructions change, that is called a genetic mutation (mutation means change). Changes can happen at any stage—from immediately after conception in the womb to late in life due to environmental factors (for example, smoking).

So far, scientists have identified over 20 genes that are linked to inherited prostate cancer. We now also know that combinations of certain gene mutations increase risk for prostate cancer. Researchers are developing a “polygenic risk score” that will someday look across many (“poly”) genes to assess a man's risk of prostate cancer.



We now know: some of the same genes that are responsible for prostate cancer in men are also responsible for cancers in their daughters.

UNDERSTANDING YOUR RISK: TAKE ACTION

If you've been diagnosed with prostate cancer, this can present an opportunity to open up a conversation with family members—both male and female—about what this may mean for their health. Based on what you and your family discover together, there are several proactive steps you can take related to cancer screening and genetic testing.

1. Have a conversation with your family

Male health issues, especially ones that may affect sexual organs, can be a taboo and unwelcome conversation. Men who are still sexually active may

fear the potential of being perceived as “less of a man;” others may be shy to speak with their sons and daughters. While this is understandable, it is not a good approach. It is important to speak with family and friends about the importance of early detection for prostate cancer. This disease should not be swept under the rug: the later it is found, the harder it is to treat. By starting a conversation about cancer, you could be saving a life—possibly even your own or someone in your family.

2. If recommended by your doctor, seek genetic counseling

Genetic counselors specialize in the inherited risk of cancer in families. If this guide has alerted you to the fact that your genetic profile may mean you are at a higher risk of developing cancer, the first place to start is with your primary care physician. Talk to your doctor about a referral to a genetic counselor if you have any of the following risk factors. Ask family members for more information if needed.

You

- ▶ Diagnosis of high-risk, regional, or metastatic prostate cancer
 - > Biopsy shows intraductal carcinoma or cribriform pattern
- ▶ Diagnosis of one or more of the following cancers: breast, gastrointestinal, colorectal, pancreatic, brain, urinary tract, biliary tract, or melanoma
- ▶ Ashkenazi Jewish ancestry

Your Family

- ▶ One or more close blood relatives with prostate cancer diagnosed at age 60 or younger, or with high-risk, regional, or metastatic prostate cancer at any age
- ▶ 2 or more close blood relatives with prostate or breast cancer

- ▶ One or more close blood relatives with breast, colorectal, or endometrial cancer diagnosed at age 50 or younger, or with male breast cancer, ovarian cancer, or pancreatic cancer
- ▶ Blood relative with a known cancer risk gene mutation (e.g., *BRCA1*, *BRCA2*, Lynch syndrome)
- ▶ 3 or more family members on the same side of the family with one or more of the following cancers: colorectal, urinary tract, brain, gastric or multiple other cancers

3. Get tested

“Cascade genetic testing” is a specialized form of screening that identifies whether family members share a genetic mutation. For example, if a man discovers that he is a carrier of inherited genes that increases the risk for prostate cancer, this has critical implications for all his family members, who may have inherited the same mutation. Men who find they are gene mutation carriers should talk with a genetic counselor to encourage “cascade” (i.e., setting off a cascade of events) genetic counseling and testing for male and female family members, to assess whether they, too, are carriers of the mutation and are at increased risk for certain cancers.

Family members who learn that they are carriers need to discuss their findings with genetic counselors and their doctors to better understand their cancer risks, options for early detection, and how to reduce risk for various other forms of cancer. For some genes that are better studied, there may be clear screening recommendations and risk-reduction strategies. However, even these decisions must be made with a well-informed genetic counselor and physician.

The National Society for Genetic Counselors has a list of members at nsgc.org. There are also telehealth genetic counseling services available. If you do not have medical insurance, ask your doctor about research studies you may be eligible for. Testing may be paid for by the study.



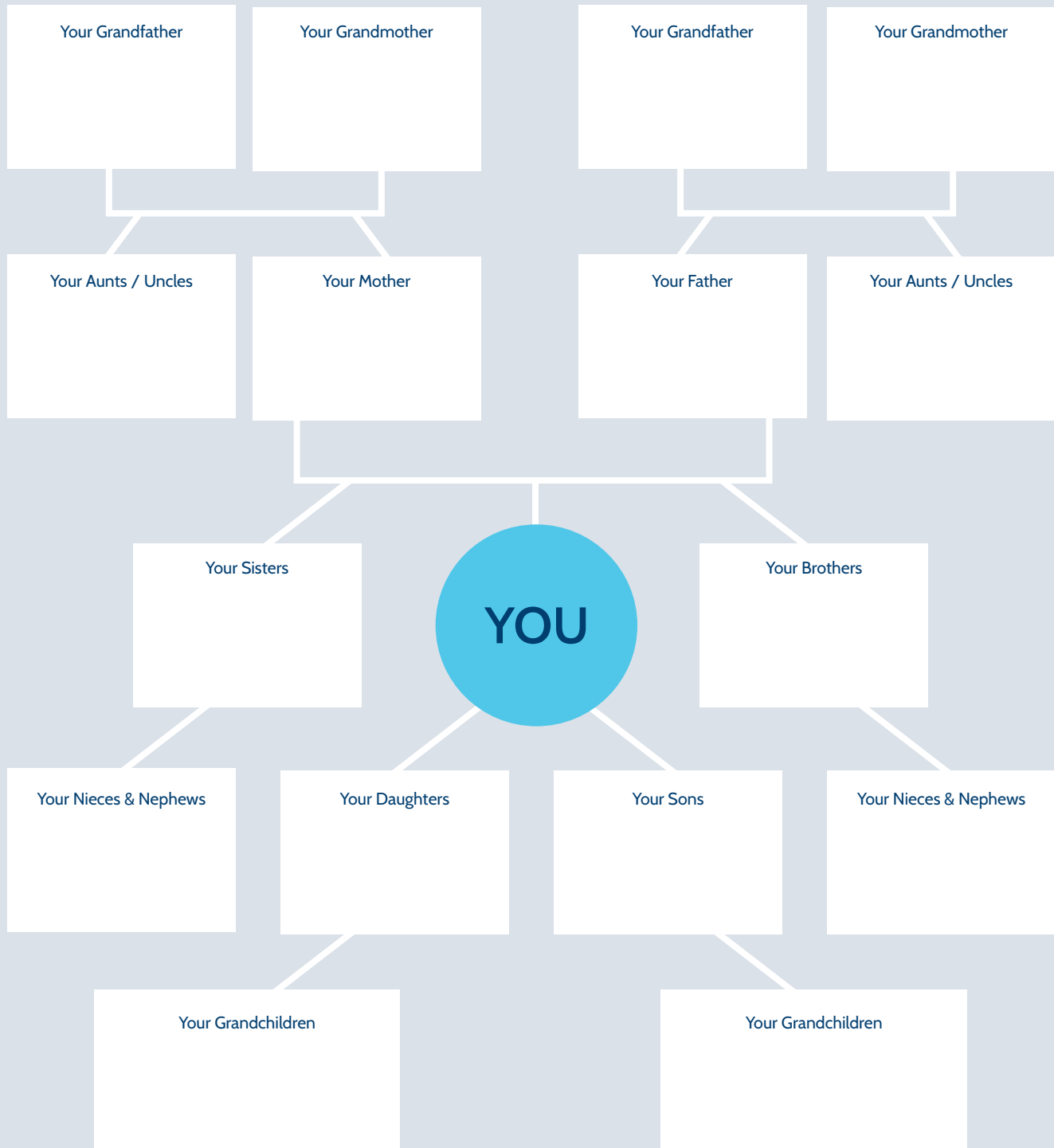
Learning more about your genetic profile today may make a difference in the lives of your children and grandchildren as they grow and age.

Note that recreational tests (such as 23andme) are not FDA approved for health-related screening use, and should not be considered an adequate substitute for comprehensive genetic testing for inherited cancer risk mutations.

4. Have another conversation with your family

One conversation—the one where you tell everyone you have prostate cancer—is not enough. As more information becomes available, either because of additional test results or because of new circumstances, such as another diagnosis in the family, it is important to update everyone. You can use the Family Tree tool on the next page to keep track. This is most important for your sons and daughters. Why? Because cancers that run in families are often the most aggressive types of cancer. Your adult children may need to consider screening at an earlier age to have a greater chance of catching cancer earlier.

TOOL: CANCER FAMILY TREE



If you have a family history of prostate, breast, colon, ovarian, pancreatic, or multiple other cancers, begin talking to your doctor about screening at age 40. Otherwise, start the conversation at age 45.

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1250 Fourth Street, Santa Monica, CA 90401 | 800.757.CURE (2873)

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