Choosing your prostate cancer care

Through a multidisciplinary approach, Cleveland Clinic specialists in the Taussig Cancer Institute work with urologists in the Glickman Urological & Kidney Institute to explore all medical and surgical options to ensure that our prostate cancer treatment program will result in a successful outcome for each patient.

While there are many prostate cancer treatment options, you should also consider the experience of the cancer program. Cleveland Clinic’s urology program is ranked No. 2 in the nation by U.S. News & World Report. Cleveland Clinic’s cancer program is the top ranked in Ohio and among the top 10 in the country, according to the same survey. Many prostate treatment methods were pioneered here, giving us one of the world’s largest experiences in treating localized cancer using surgical and non-surgical methods.

Please use this guide as a resource as you examine your treatment options. Remember, it is your right as a patient to ask questions, and to seek a second opinion.

Using this guide

Cleveland Clinic prostate cancer specialists tailor prostate cancer treatment plans to their patients’ needs, taking into account the type of cancer, the age of the individual, the degree to which the cancer has spread and the general health of the patient.

This guide provides an overview of the prostate cancer treatment options offered at Cleveland Clinic.
Prostate Cancer

Prostate cancer is the most common cancer in men, and the second leading cause of cancer death among men in the United States. Every year, about 185,000 new cases of prostate cancer will be diagnosed nationally. About one in six men will be diagnosed with prostate cancer during his lifetime, but only one in 35 will die of it. More than two million American men alive today have been diagnosed with prostate cancer at some point.

Prostate cancer is a malignant tumor that usually begins in the outer part of the prostate. In most men, the cancer grows very slowly. In fact, many men with the disease will never know they have the condition. Early prostate cancer is confined to the prostate gland itself, and the majority of patients with this type of cancer can live for years without any problems.

Prostate cancer is characterized by both “grade” and “stage.” The size and extent of the tumor determine its stage. Early stage prostate cancer, Stages T1 and T2, are limited to the prostate gland. Stage T3 prostate cancer has advanced to tissue immediately outside the gland. Stage T4 prostate cancer has spread to other parts of the body.

What if prostate cancer is diagnosed?

Here is a look at the tools a physician will use to determine the aggressiveness of a prostate cancer. Fortunately, most prostate cancers have not spread at the time they are diagnosed, and the cancer is most often confined to the prostate gland.

Prostate-specific antigen (PSA) is a protein produced by the prostate gland. A screening test that measures the amount of PSA in the bloodstream has been in use since the late 1980s. Elevated PSA levels may indicate prostate cancer or other non-cancerous condition, such as prostatitis or benign prostatic hyperplasia (BPH).

A Gleason score, on the other hand, is used to estimate the aggressiveness of a tumor in an individual diagnosed with prostate cancer. A pathologist assigns a Gleason score after reviewing the prostate biopsy. The pathologist will assign a primary and a secondary score of 1 to 5 each, and the final score is the sum of these scores. In general, Gleason scores below 5 are not considered cancer; 6 are low-grade; 7 are intermediate-grade; and 8 to 10 are high-grade (the most aggressive cancers).

The tumor-nodes-metastasis (TNM) is used to estimate the extent of a cancer. The tumor (T) portion of the score describes the primary tumor status, ranging from T0 (no evidence of a primary tumor) to T4 (tumors that have spread and involve structures other than the seminal vesicles). The node (N) portion of the score describes lymph node status, ranging from NO (no regional node metastasis, or disease spread) to N3 (metastasis larger than 5 cm in any node). The metastasis (M) portion describes the level the disease has spread from MO (no metastasis) to M1 (distant metastasis).

The most appropriate treatment plan for a patient is created using a combination of PSA levels, Gleason score and TNM score.

General guidelines to prostate cancer screening:

Begin talking to your primary care physician or a urologist about the risks and benefits of prostate cancer screening around age 40. A single PSA value in men in their 40s can predict lifetime risk of prostate cancer and help determine how intensively a man should be screened.

Black men in the U.S. are 30 to 50 percent more likely to develop prostate cancer than men of other races. They also should talk to their doctors beginning around age 40.

If you reach age 60 and your PSA is below a 1 or 2, there is evidence to suggest that you have a very low risk of ever developing a life-threatening prostate cancer and it may be possible to stop screenings.
Who should be screened for prostate cancer with a PSA test?

Recently, there has been some controversy regarding the effectiveness of routine PSA screening. Here’s the reasoning:

**PSA doesn’t tell the whole story.** It is important to understand that the PSA test is not perfect. Many men who do not have prostate cancer have elevated PSA levels. False-positive tests may lead to unneeded biopsies. Also, low levels of PSA don’t necessarily rule out the possibility of cancer. Recent research has shown that the majority of men who are diagnosed with prostate cancer live just as long and with the same quality of life as if they hadn’t been screened.

**Other risk factors also are important.** PSA is not the only factor in prostate cancer risk. Other factors include family history, age, race and free PSA (the percent of PSA in the bloodstream that is unattached to protein).

**PSA isn’t the only test.** PCA3 is a new innovative screening test for a prostate cancer-specific marker that also is available.

While it’s probably true that not every man needs to be screened every year, we disagree with a recent national recommendation against these screenings. Here’s why: When a cancer is aggressive, the benefits of screening outweigh the costs. Case in point: Since PSA testing was introduced in 1987, deaths from prostate cancer have dropped 40 percent. At least half of this reduction likely can be attributed to the screening test.

Until a more reliable test is available, we continue to encourage PSA testing in select groups. (See General guidelines to prostate cancer screening)

**PCA3: a better alternative to PSA?**

Cleveland Clinic urologists are now offering a new screening test for prostate cancer called PCA3, which detects a prostate cancer-specific marker. PCA3 is measured in urine following a digital rectal exam (DRE). In clinical trials, it has shown the ability to detect prostate cancer more accurately, with fewer false-positive readings. For men with an elevated PSA and prior negative biopsy, PCA3 may assist in the decision of whether or not to have additional biopsies. PCA3 also is being tested in a clinical trial in patients undergoing radical prostatectomy to test its predictive value for pathologic outcomes.

To learn more about your personal prostate cancer risk, try our free, interactive risk calculator at clevelandclinic.org/prostatecancerrisk.
What you can expect if you are diagnosed with prostate cancer

At Cleveland Clinic, we tailor care to each patient, factoring in the type of cancer, age, whether the tumor has spread and overall health. However, the process of evaluation and treatment decision is similar for all men. Here is a general look at what you can expect if you are diagnosed with prostate cancer:

Your doctor will review your PSA levels, Gleason score and TNM score and meet with you to create an individualized treatment plan and arrange any additional testing that may be needed. If it is unlikely the cancer has spread outside the gland, staging studies such as bone scans and computed tomography scans may not be needed. If your cancer has a higher likelihood of spreading, you may need these studies to determine where the cancer may have spread.

Your doctor will discuss the plan and next steps with you and your family. Options may include active surveillance, surgery, radiation therapy, brachytherapy, cryotherapy, hormone therapy or chemotherapy (see the treatment portion of this guide for more information on each).

Consider your options carefully. Unlike many cancers, prostate cancer usually allows a significant window of time to weigh your decision. (Your doctor will let you know if your cancer is aggressive, and if you need to begin treatment immediately). Take notes and ask questions. Make sure you understand all of the information before you and your physician agree on a course of treatment.

Once you have started treatment, you will have regular follow-ups with your doctor. The frequency of visits will depend on the aggressiveness of the cancer. In patients with no evidence of cancer after initial treatment, the usual recommendation is PSA testing every six months. Those with metastatic disease need more frequent PSA tests and office visits to monitor their ongoing response to therapy.

The Glickman Tower, named after philanthropists Carl and Babs Glickman, is the 200,000 square-foot home of the Glickman Urological & Kidney Institute. The 12-story tower includes state-of-the-art treatment facilities including an expanded dialysis unit with scenic views, a rooftop helipad for critically ill patients, and a chapel and meditation room.
Treatment Options for Early Stage Disease

WATCHFUL WAITING OR ACTIVE SURVEILLANCE

Watchful waiting, now more commonly called “active surveillance with selective delayed intervention,” requires no treatment for a discovered prostate cancer until your doctor detects signs that the cancer is growing more aggressively. This option is reserved for patients who have cancer that is confined to the prostate gland and that is defined as low to medium in aggressiveness. It is most often offered as an option to older men who are in poor health because it avoids the risks and side effects of treatment. Active surveillance can be an option for younger men who want to avoid the side effects of treatment or postpone it as long as possible. The debate on the risk associated with this approach in younger men is ongoing.

What are the risks of active surveillance?

There is a chance that the slow-growing cancer could suddenly speed up in growth and spread beyond its original site or no longer be curable. Treatment can be riskier in older patients, increasing the chance of side effects and lengthening the recovery period. Also, patients have to be willing to return to the doctor’s office more frequently for blood tests, rectal exams and biopsies to check on disease progression. Worry about having cancer and knowing that it isn’t being treated may become emotionally overwhelming.

What are the benefits of active surveillance?

There is a good chance that a prostate cancer patient may never develop symptoms or require treatment. Even if the cancer grows, most prostate cancers grow very slowly. Newer treatments may be developed while cancer is under surveillance. Research has shown that at least for the first eight years, the life expectancy of men who choose this option may be no different than those who choose to treat their cancer aggressively. The risk of impotence and incontinence associated with treatment also is avoided with active surveillance.

Using Genomics to Improve Active Surveillance

The current risk of being diagnosed with prostate cancer in the U.S. is 17 percent, while the lifetime risk of death is only 3 percent. This finding suggests that the majority of newly diagnosed prostate cancers do not require treatment, and active surveillance is an appropriate approach.

Despite this knowledge, surveillance is currently underutilized. More than 90 percent of men diagnosed with low-risk prostate cancer continue to undergo immediate treatment with radiation or surgery. There are several reasons why surveillance hasn’t been more widely adopted, including patients’ fear of leaving cancer untreated and the lack of a way to distinguish slow-growing from aggressive tumors at the time of diagnosis.

Now, a new genetic-based test, developed at Cleveland Clinic with manufacturer Genomic Health, Inc. called the Oncotype DX Prostate, can help your doctor more accurately determine just how aggressive your cancer is – and whether surgery or radiation therapy is truly necessary. The test measures the level of expression of 17 genes across four biological pathways to predict a man’s prostate cancer risk.
aggressiveness. The test results, which are individual to each person based on his genetic information, create a Genomic Prostate Score (GPS) that ranges from 0 to 100. This score is combined with other factors to help doctors further determine prostate cancer risk before starting treatment. The test must be ordered by a physician, who will then get a report of the GPS, and can meet with you to share the results, discuss the implications and help you decide on the best options for you.

**RADIATION THERAPY**

Radiation therapy is the use of high-energy X-rays, electron beams or radioactive isotopes to kill cancer cells and shrink tumors. Radiation ionizes or damages the chromosomes in the cell so that they cannot multiply. Radiation can be produced from a machine outside the body (external radiation) or by putting materials that produce radiation (radioisotopes) through thin plastic tubes into the area where the cancer cells are found (internal radiation).

Radiation therapy is a local treatment — aimed directly at the cancer. Even though the radiation is aimed only at the cancer, it must often pass through skin and other organs to reach the tumor. Thus, some healthy cells may become damaged. The body, however, is able to repair the healthy cells that have been damaged and restore them to their proper function. Successful radiation therapy depends on delivering the proper amount of radiation to the cancer in the best and most effective way.

Here is a closer look at the different types of radiation therapy:

**BRACHYTHERAPY**

In this form of radiation therapy, radioactive pellets — each the size of a grain of rice — are implanted in the prostate. These pellets can be temporary (removed after the proper dose is reached) or left permanently. The number of pellets implanted (up to 200) depends on the size and location of the cancer. The implant procedure takes about one hour and is done on an outpatient basis. Although the pellets deliver a higher dose of radiation than the external beam procedure, the radiation travels only a few millimeters and is, therefore, unlikely to extend far beyond the prostate.

Who is eligible for brachytherapy?

This therapy may work best in low- to intermediate-risk cancers and may not be a good option for men with more aggressive forms of prostate cancer, or cancer that has spread just outside the prostate.

What are the risks of brachytherapy?

Even though radiation does not travel far with this form of therapy, because of the prostate’s proximity to the urethra, brachytherapy may cause more acute urinary irritation than external beam therapy. Some patients (one in 10) need a catheter at times to help them urinate while the radiation remains most active, but this is rarely needed for more than a few weeks. Also, despite a low risk, because pregnant women and small children are more susceptible to the effects of radiation, patients undergoing brachytherapy are advised to minimize extended contact with these types of individuals for the first few months after therapy.
What are the benefits of brachytherapy?
Cleveland Clinic began its prostate brachytherapy program in 1996. More than 3,000 patients have been treated since then. Our cure rates, as defined by PSA, are identical for up to 10 years as patients treated at Cleveland Clinic with radical prostatectomy.

Unique features of our Brachytherapy Program
• The first group to publish the improvements gained by treating patients within one session where the treatment planning and treatment occurs on the same day. This also results in lower cost and greater convenience for the patient since one less visit is necessary
• The first prostate brachytherapy program in the country to use the Memokath® prostate stent to help reduce side effects after brachytherapy
• The lowest rectal side effect profile of any published series

EXTERNAL BEAM RADIATION THERAPY

External beam radiation therapy is the most common form of radiation therapy. Before treatment begins, detailed planning or simulation is performed. During simulation, the specialists will use measurements from scans and calculations to determine the precise location to aim the radiation. Simulation may take up to an hour. During the treatment, the patient is positioned on a table so that a beam from a machine outside of the body may be aimed at the tumor. The radiation treatment itself lasts only a few minutes and is generally given five times a week for several weeks.

Some technical variations of external beam radiation are:
• High-dose, three-dimensional radiation therapy (3-DCRT)
• Intensity-modulated radiation therapy (IMRT)
• Image-guided radiation therapy (IGRT)
• Four-dimensional radiation therapy (Calypso®)

What are the benefits of external beam therapy?
The benefits of this focused-beam therapy are that it minimizes damage to nearby tissue and structures, the treatment is not painful and it is less debilitating than surgery. Beam therapy can be used as an alternative to surgery to treat cancers that have spread into the pelvis and cannot be surgically removed, or to help reduce pain and shrink tumors in advanced disease that can’t be cured. Compared with surgery, incontinence is a less common occurrence and preservation of sexual function may be slightly higher. Cleveland Clinic pioneered hypofractionated intensity-modulated radiotherapy, in which large daily doses of radiotherapy precisely target the tumor while sparing surrounding healthy tissue. This may shorten the duration of prostate cancer treatment by several weeks. Cure rates as defined by PSA are identical for up to 10 years to those of patients treated at Cleveland Clinic with radical prostatectomy.

What are the side effects of external beam therapy?
The side effects of radiation therapy are, for the most part, specific to the area of the body being radiated. In the case of prostate cancer, the most common side effects are:

SBRT: New radiation therapy option may improve outcomes
A new, focused therapy being used at Taussig Cancer Institute — called stereotactic body radiation therapy (SBRT) — may prove a better option for prostate cancer patients than the gold standard of external beam radiation.

SBRT administers a series of five stronger, well-targeted doses of radiation to the prostate, with less radiation to surrounding tissue. This is quite simpler for patients than the roughly 40 treatment sessions required over an up to nine-week period required with external beam therapy.

Patients also benefit from SBRT’s ability to target certain parts of the prostate with higher doses of radiation and its real-time tracking during treatment, which increases precision.

Nearly all newly diagnosed prostate cancer patients are candidates for SBRT; however, this treatment may be most appropriate for intermediate- and high-risk patients.
effects requiring treatment are rectal bleeding and urinary stricture. General side effects of radiation may include skin irritation and fatigue. Radiation therapy as a treatment for prostate cancer also can cause erectile dysfunction and changes in urinary frequency and urgency.

There are medications and techniques that can be used to control side effects. Side effects should be discussed with the radiation oncologist so that they can be managed properly.

What about follow-up care?
After radiation therapy sessions are complete, patients visit the doctor for periodic follow-up exams and tests.

Why does organ motion during radiation therapy matter?
Internal organs move naturally during therapy and the prostate occasionally moves outside of the intended radiation field during treatment. Since doctors can't predict which way — or how much — organs will move, the tumor may not get the right amount of radiation. In addition, other nearby tissue and organs may receive radiation they shouldn't receive.

The Calypso System uses radiofrequency waves that allow very accurate alignment of the prostate before each treatment session. This technology now makes it possible to determine the position of the prostate at all times during treatment delivery and make adjustments, as needed, to optimize external beam treatment delivery.

What are the advantages of the Calypso System?
Calypso allows the doctor to know exactly where the tumor is at all times. This means radiation therapy is more precise — making sure all the necessary radiation gets to the tumor and minimizing side effects, such as impotence, incontinence and rectal bleeding. Currently, no other realtime method for precisely tracking tumor location during radiation therapy exists.

What about proton beam therapy?
A handful of sites nationwide are now offering proton beam therapy, a type of radiation therapy that uses protons (positively charged particles) to deliver radiation directly to tumors. These protons (versus the X-ray beams used in traditional radiation therapy) precisely target and kill the tumor cells, while minimizing damage to surrounding healthy tissue.

At Cleveland Clinic, we have chosen not to offer proton beam therapy. There is no long-term data to show that this option is any better than standard radiation therapy. Recently published research also suggests that complication rates with proton beam therapy are actually higher, not lower, than with standard radiation therapy.* At this time, we want to offer our patients only those therapies that have proven to be effective and have the fewest side effects.

SURGERY
Complete removal of the prostate — radical prostatectomy — is one of the most common treatments for prostate cancer.

Most of the surgical procedures for prostate cancer are done in ways that attempt to spare the nerves that control erections. These nerve-sparing surgeries reduce, but do not eliminate, the risk of incontinence and impotence.

What should a prostate cancer patient know about surgery?
A review of prostate cancer patients treated at Cleveland Clinic with robotic-assisted laparoscopic surgery, open radical prostatectomy, brachytherapy, cryotherapy and active surveillance found no difference in the rate of sexual function at all time points following treatment. The rates of urinary continence were similar with all treatments at six months, with patients treated with robotic-assisted laparoscopic surgery experiencing a slightly slower return to continence.

This underscores the fact that the best indicator of surgical outcomes is the experience of the surgeon, not the technique used. Cleveland Clinic surgeons have a large experience with all methods of prostatectomy, and many new approaches have been developed here. Whether a patient has an open, laparoscopic or robotic prostatectomy, pain and recovery time are similar. Patients should learn their surgeon's level of experience when examining treatment options.

OPEN PROSTATECTOMY
During an open radical prostatectomy, the entire prostate is removed through an incision in the lower abdomen. Since the prostate wraps around the urethra, once it is removed the surgeon must reconnect the bladder with the urethra.

ROBOT-ASSISTED SURGERY
Robot-assisted surgery, a type of minimally invasive surgery (MIS), uses robotic equipment to imitate surgical movements. MIS procedures allow surgeons to operate through small ports rather than large incisions, resulting in shorter recovery times, fewer complications and reduced hospital stays. Surgical robotics combines minimally invasive techniques with highly advanced clinical technology.

“The most important factor in a good outcome after surgery for prostate cancer is the experience of the surgeon. Cleveland Clinic's urological surgeons are among the most experienced in the world, which greatly benefits our patients because it translates into increased likelihood of a cure and return of continence and potency.”

Eric Klein, MD, Chairman, Glickman Urological & Kidney Institute
How does the new technology assist the surgeon?
The 3-D vision system magnifies the surgical field up to 15 times and improves the surgeon's ability to perform precise dissection of tissue, thereby reducing blood loss. Robot arms remain steady at all times and robot wrists make it easier for surgeons to manipulate tissue and work from all kinds of angles and positions they would have difficulty reaching otherwise.

What happens after surgery?
Following surgery, patients typically stay one or two days in the hospital. During this time, the staff checks patients daily and provides detailed post-operative instructions at discharge. Patients are able to continue follow-up either at Cleveland Clinic or with their local physician.

SURGERY FOR MORE ADVANCED DISEASE
Traditional treatment for high-grade or locally advanced prostate cancer (Gleason score eight or above) or tumors that have minimal spread beyond the prostate gland (clinical stage T3) has been a combination of hormones and high-dose external beam radiation. While this remains a good choice for many men, especially if they are older or have associated medical issues, Cleveland Clinic surgeons have gained substantial experience with surgery for more advanced cancer in the past 10 years. Potential advantages of surgery include the ability to perform an extended lymph node dissection, which can yield important information about prognosis and may be curative in men with minimal disease in the lymph nodes; complete pathologic staging of the removed prostate, allowing an informed decision based on the potential benefits of post-surgical (adjuvant) radiation; avoiding or delaying the need for hormone therapy and avoiding the potential late side effects of external radiation. Some men may be eligible for participation in clinical trials of medication given prior to surgery (neoadjuvant therapy), an approach pioneered by physicians working in tandem in the Taussig Cancer and Glickman Urological & Kidney institutes.

CRYOTHERAPY
In this treatment, four to eight small needle-shaped probes are inserted into the prostate in order to freeze the gland to temperatures lethal to prostate cancer cells. This minimally invasive, incision-free procedure is performed either as an outpatient procedure or one-night hospital admission. With this treatment, patients recover in a matter of days and usually experience minimal after effects. Cleveland Clinic urologists have extensive experience in using cryotherapy for treatment of prostate cancer both as initial therapy and for recurrence of cancer following radiation therapy. This treatment can be used in three ways:

- For treatment of the entire prostate upon first diagnosis of prostate cancer
- For “salvage” therapy to treat cancer that has recurred in the prostate following prior therapy such as radiation or brachytherapy
- For treatment of only the affected portion of the prostate, called “focal therapy.” Focal therapy can be used in select men whose cancer is small enough that it may be controlled with less widespread freezing
How does cryotherapy work?
Cryosurgeons use 3-mm or smaller diameter cryoprobes (needles) supercooled with argon gas, inserted through the skin into the prostate under ultrasound guidance. The target tissue is repeatedly frozen to -40 degrees Celsius, resulting in tumor destruction.

What are the risks associated with cryotherapy?
As with any prostate cancer therapy, cryotherapy can potentially cause side effects or damage to adjacent organs. Damage to the urethra is minimized by the use of a urethral warming catheter that circulates warm fluid through its chambers. Damage is also minimized by precise monitoring of temperature using probes placed near vital areas.

How is the procedure performed?
Primary cryotherapy Four or more cryoprobes are placed into position. Freezing begins slowly under ultrasound and computer monitoring. When the ice ball reaches a lethal chill, the argon is turned off and helium is turned on to thaw the gland. The process is repeated as soon as it is thawed, and the entire procedure is completed within two hours. Following surgery most men are permitted to return home within 24 hours, usually on the day of the procedure. A catheter may remain in place for seven to 10 days.

Focal cryotherapy Traditional treatment of prostate cancer targets the entire gland because at least 80 percent of men have small "satellite" tumors in various sites throughout the prostate. In selected patients in whom a dominant or solitary tumor can be identified, cryotherapy can be limited to this one area. Focal therapy is most commonly used for men wishing to minimize the likelihood of impotence.

Salvage cryotherapy Although external beam radiation and brachytherapy are highly effective, some patients will experience recurrence of cancer following treatment. Primary and focal cryotherapy, described above, can be used to treat patients whose cancer recurrence is limited to the prostate.

In addition to urethral slough (shedding dead cells), incontinence and impotence can occur after cryotherapy. A very rare complication is a fistula, a hole that develops between the urethra and rectum and that requires surgical repair. These complications are more common for salvage cryotherapy.

Who is eligible for cryotherapy?
The most important requirement for cryotherapy is having cancer limited to the prostate or its immediate vicinity. Like other local therapies (prostatectomy and radiation), cryotherapy works only if cancer is contained in its targeted site. Men with large prostates — measuring greater than 70 to 90 grams on ultrasound — may require hormone therapy to shrink the gland prior to treatment.
What are the Treatment Options for Metastatic Disease?

When disease spreads, or metastasizes, the following therapies are commonly used:

**HORMONE THERAPY**

Hormone therapy is a prostate cancer treatment that decreases the level of the male hormone testosterone to slow the growth of the tumor. This may be accomplished with drugs that cause the cells that make testosterone to stop, or with surgery that removes the testes, where most testosterone is produced. Hormone therapies can’t cure advanced prostate cancer, but can be given alone or in combination with other forms of treatment in the hopes of improving quality of life, extending survival or both.

Research on the value and effects of hormonal therapies is ongoing. The most common form of hormone therapy uses drugs referred to as leutinizing hormone releasing hormone agonists, or LHRH agonists. Examples of these drugs include triptorelin (Trelstar®), leuprolide (Lupron®, Eligard®, Vantas®) and goserelin (Zoladex®). Blocking testosterone slows the rate of cancer growth. A different class of drugs, the antiandrogens flutamide (Eulexin®), bicalutamide (Casodex®) and nilutamide (Nilandron®), work by preventing the body — and thus the cancer cells — from using testosterone.

A new class of drugs called androgen biosynthesis inhibitors are oral agents that interrupt the production of testosterone in a different way than LHRH agonists. These are important drugs that were recently approved by the FDA. The first drug in this class is abiraterone acetate (Zytiga®).

What are the risks of hormone therapy?

Hormone therapies that decrease testosterone are associated with many side effects including lowered libido, impotence, hot flashes, weight gain, breast tenderness and enlargement, loss of muscle and bone mass, and fatigue. Hormone therapy has been associated with increased risk of metabolic syndrome, diabetes, reduction in HDL (“good” cholesterol) and cardiovascular disease. While it’s possible that hormone therapies may delay death, they cannot prevent it. Eventually, advanced prostate cancer can become resistant to hormone therapy and that therapy no longer works.

What are the benefits of hormone therapy?

Hormone therapy can shrink tumors, thus reducing symptoms and pain, and possibly extending the lives of men with prostate cancer. It can also shrink the prostate and improve the outcome with radiation therapy.

When is hormone treatment used for prostate cancer?

Hormone treatment does not cure cancer. The purpose of hormone therapy is first to delay the progression of the cancer, and second to increase survival while maximizing quality of life. If the patient doesn’t respond to initial hormone treatment, the doctor might try other hormonal methods before recommending another form of treatment.

Who is a candidate for hormone treatment?

Hormone treatment is often used in men receiving radiation to the prostate. Men whose disease has spread to the bone or lymph nodes will typically receive hormone...
therapy. Patients and their physicians must consider the effects on quality of life, cost of the treatment, and how effective and safe the treatment is likely to be for that individual.

**CHEMOTHERAPY**

Chemotherapy involves the use of drugs to kill cancer cells. Chemotherapy may be taken orally or injected into a vein. Chemotherapy is usually a systemic treatment, meaning the drugs enter the bloodstream, travel through the body and can kill cancer cells anywhere in the body, including the prostate.

Chemotherapy is given in cycles of treatment followed by a recovery period. The entire chemotherapy treatment generally lasts three to six months, depending on the type of medications given.

**When is chemotherapy given?**

Chemotherapy may be used in cases of recurrent or advanced prostate cancer that has not responded to hormone treatment, but it is not usually used to treat early stage disease. Chemotherapy is given to cause the cancer to shrink and/or disappear. Even if the cancer is not eliminated, symptoms may be relieved. Metastatic disease may be present at diagnosis or, in some cases, cancer can return in a distant location months or years after initial treatment.

**What are the side effects?**

Because chemotherapy acts to kill rapidly dividing cancer cells, it also kills other rapidly dividing healthy cells in our bodies, such as the membranes lining the mouth, the lining of the gastrointestinal tract, the hair follicles and the bone marrow. As a result, the side effects of chemotherapy relate to these areas of damaged cells. The good news is that the damaged non-cancerous cells will be replaced with healthy cells, so the side effects are only temporary.

The specific side effects depend on the type and amount of medicines given and for how long. The most common, temporary side effects of chemotherapy include nausea and vomiting, loss of appetite, hair loss, mouth sores and diarrhea.

There are medications available to control certain side effects, such as nausea and vomiting, or diarrhea. Although it may take some time, side effects related to chemotherapy will resolve when chemotherapy is stopped.
IN THEIR OWN WORDS:
Here is what our patients have to say about their prostate cancer care at Cleveland Clinic:

EDWARD CHUHNA
Edward Chuhna wasn’t particularly alarmed when his routine physical revealed inconsistencies in his PSA level. But his primary care physician recommended a biopsy, which came back positive for cancer.

He and his wife decided that surgery offered the simplest route to a cure. Unfortunately, he came out of the operating room with his prostate intact.

“The surgeons found that several nerves were wrapped around the prostate,” he remembers. “They told me that if they removed it, there was a high likelihood of me having severe problems with incontinence.”

At just 56 years old, Mr. Chuhna was not willing to take the chance. That’s when his wife saw an article in the newspaper about the Calypso 4-D Localization System, available in Ohio only at Taussig Cancer Institute. The system uses permanently implanted wireless transponders that work like a GPS system, tracking the targeted tumor continuously from the start of treatment throughout all radiation sessions.

“The Calypso System is an exciting breakthrough,” says John Suh, MD, Taussig Cancer Institute Radiation Oncology Chairman. “It enables us to deliver more effective therapy with fewer side effects.”

“My wife called nurse Rick Thousand at Cleveland Clinic and he got me right in,” says Mr. Chuhna. “We learned that because my cancer had been diagnosed early, radiation offered the same likelihood of a cure as surgery.”

Mr. Chuhna traveled to Taussig every weekday morning for eight weeks to undergo treatment. Two months after radiation therapy ended, Mr. Chuhna says he had no adverse effects from his brush with cancer. His most recent PSA tests indicate that he is out of the woods.

“I benefited from early detection and from a team of medical professionals who were able to explain what was going on and what the risks were in clear but detailed terms. I was able to make an informed choice and tackle this disease in a way that was relatively straightforward and non-disruptive,” he says. “I would recommend the procedure. In terms of impact, it was far less than I expected.”

BRYAN KING
Bryan King wasn’t sure what scared him more: being diagnosed with prostate cancer in his early 40s or the treatment he would have to undergo. A radical prostatectomy (removal of the prostate gland) might leave him incontinent and impotent. His concern was that a prostatectomy involved a surgeon deftly trimming the prostate gland away from surrounding bundles of nerve fibers that control urinary and sexual functions. And if they are severed, problems result. “I knew I had to stop the cancer before it spread to my lymph nodes,” says Mr. King of Las Vegas. “I talked to four or five guys who’d had a prostatectomy and they all had problems with incontinence. I thought, ‘I’m too young to have to deal with that.’”

Mr. King searched the Internet for a surgeon who was greatly experienced with robotics. Of the four he located, he says “I was very impressed with my surgeon at Cleveland Clinic and the amount of time he took explaining the procedure in depth to me. I went to him with a list of 30 questions, and he answered them all.”

The result: “From the first day after surgery, I’ve never had to wear [adult incontinence] pads, and I’m maintaining my sexual function,” Mr. King says. And, he no longer lives in fear. “I feel lucky that I was able to catch the cancer so early.”

FRANK SIDARI
Driving to a business meeting in downtown Cleveland, Frank Sidari learned he had prostate cancer. “Dr. [Eric] Klein actually called me. I knew I was in trouble,” says Sidari, 51, of Hinckley about that fateful day in 2009. “Then he calmed me down by telling me there are many treatment options. I hung up, I called my wife, and she burst into tears.”

With two-thirds of cases diagnosed in men 65 or older, the cancer hit Mr. Sidari at 49. Thankfully, while one in six men will be diagnosed in their lifetime, only one in 35 will die from the cancer.

After diagnosis, Mr. Sidari, who is president of sales and marketing for a Medina, Ohio-based food manufacturing company, looked to Dr. Klein and Cleveland Clinic for help.

“I ended up going to Cleveland Clinic because it’s trusted. I wanted to feel confident. I wanted the best,” he says.

In early 2009, a physical exam showed his PSA levels to be slightly elevated. Three months later, a work-related health-insurance physical showed rocketing PSA levels. Mr. Sidari immediately scanned the region for a specialist and chose Dr. Klein. They met to discuss options.

Days later, Mr. Sidari underwent an open radical prostatectomy. Through a belly incision, Dr. Klein removed the prostate, which is wrapped around the urethra, and reconnected the urethra to the bladder.

Today, Mr. Sidari is cancer-free and has become a dedicated member of the Volunteer Patient Advisory Committee at Cleveland Clinic. He has full function and bladder control, and is able to have intercourse with minimal assistance.

“I would say I’m the best-case scenario,” he says.
Contacting Cleveland Clinic

Still have questions about prostate cancer?
If after reviewing this guide, you have additional questions, Cleveland Clinic’s Cancer Answer Line can help. Two oncology clinical nurse specialists and their staff can provide information and answer questions about cancer. The Cancer Answer Line is operational from 8 a.m. - 5 p.m., ET, Monday - Friday. Please call toll-free 866.223.8100.

Ready to schedule an appointment with a specialists?
If you would like to set up a consultation with a Cleveland Clinic specialist, please call the toll-free Cancer Answer Line at 866.223.8100. Same-day appointments are available.

Need a second opinion?
Our MyConsult service offers secure online second opinions for patients who cannot travel to Cleveland. Through this service, patients enter detailed health information and mail pertinent test results to us. Then, Cleveland Clinic experts render an opinion that includes treatment options or alternatives and recommendations regarding future therapeutic considerations. To learn more about MyConsult, please visit clevelandclinic.org/myconsult.

MyChart®
Cleveland Clinic MyChart® is a secure, online personal healthcare management tool that connects patients to their medical record. Patients can register for MyChart through their physician’s office or by going online to clevelandclinic.org/mychart.

For more information about our staff, including complete profiles, visit clevelandclinic.org/staff.
If you would like to set up a consultation with a Cleveland Clinic prostate cancer specialist near you, call toll-free 866.223.8100.