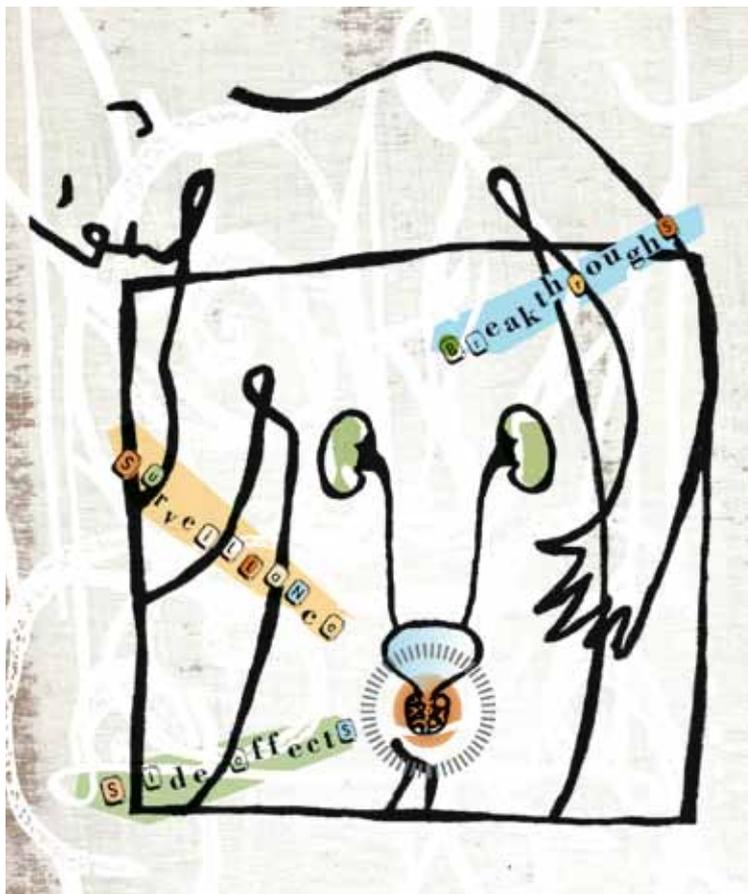


# A Patient's Guide to Prostate Cancer



**Prevention** ■ Screening and Diagnosis ■ **Treatment Options** ■ Side Effects  
**A Patient's Patience Pays Off** ■ Questions and Resources

[ THIRD EDITION ]

**cure**

CANCER UPDATES, RESEARCH & EDUCATION

Combining science with humanity,  
**CURE** makes cancer understandable.

# **JUMPSTART** **YOUR IMMUNE SYSTEM** TO FIGHT ADVANCED **PROSTATE CANCER**



**PROVENGE**<sup>®</sup> is the only personalized treatment that is clinically proven to extend life in certain men with advanced prostate cancer.

PROVENGE is an immunotherapy that takes your own immune cells and reprograms them to attack your advanced prostate cancer. This process ensures that you get a treatment designed just for you, so this time, you can take the fight into your own hands.

## TALK TO YOUR DOCTOR TO FIND OUT IF PROVENGE IS RIGHT FOR YOU.

**INDICATION:** PROVENGE<sup>®</sup> (sipuleucel-T) is approved by the FDA as an autologous cellular immunotherapy for the treatment of asymptomatic or minimally symptomatic metastatic castrate resistant (hormone refractory) prostate cancer.

**IMPORTANT SAFETY INFORMATION:** PROVENGE is made from your own immune cells. Your cells will be collected at a cell collection center approximately 3 days before each scheduled infusion of PROVENGE. There can be risks associated with the cell collection process, which you should discuss with your doctor before deciding to begin treatment with PROVENGE.

**PROVENGE** can cause serious reactions. In controlled clinical trials for the treatment of prostate cancer, serious reactions reported in patients in the PROVENGE group included reactions resulting from the infusion of the drug, which occurred within 1 day of infusion, and strokes. Severe infusion reactions included chills, fever, fatigue, weakness, breathing problems (shortness of breath, decreased oxygen level, and wheezing), dizziness, headache, high blood pressure, muscle ache, nausea, and vomiting. Tell your doctor right away if you have breathing

problems, chest pains, racing heart or irregular heartbeats, dizziness, nausea, or vomiting after getting PROVENGE, because any of these may be signs of heart or lung problems.

The most common side effects reported with PROVENGE were chills, fatigue, fever, back pain, nausea, joint ache, and headache.

These are not all the possible side effects of PROVENGE treatment. For more information, talk with your doctor.

Tell your doctor about all your medical problems, including heart problems, lung problems, or a history of stroke.

Tell your doctor right away if you get a fever over 100°F, or redness at the cell collection or infusion sites, because any of these may be signs of infection.

Tell your doctor about all the medicines you take, including prescription and nonprescription drugs, vitamins, and dietary supplements.

Tell your doctor about any side effect that concerns you or does not go away.

For more information on PROVENGE, please see the full Prescribing Information or call **1-800-707-0912**.

**Please see Important Patient Information about PROVENGE on the next page.**

For more information,  
or to find a **PROVENGE** treatment center near you,  
visit **PROVENGE.com** or call **1-800-707-0912**

**PROVENGE**<sup>®</sup>  
(sipuleucel-T)

**Helping you help yourself**

# IMPORTANT INFORMATION FOR PATIENTS

## Important safety information about PROVENGE® (sipuleucel-T)

This brief summary does not contain all the information that may be of interest to you and does not take the place of talking with your doctor or healthcare professional about your medical condition or your treatment. If you have any questions, speak with your doctor.

This information is designed to help you understand treatment with PROVENGE (*pronounced PROH-venj*).

### What is PROVENGE?

PROVENGE is a prescription medicine that is used to treat certain patients with advanced prostate cancer. PROVENGE is made from your own immune cells. The typical course of treatment is 3 infusions.

### What should I tell my doctor before getting PROVENGE?

Tell your doctor about all your medical problems, including:

- heart problems
- lung problems
- history of stroke

Tell your doctor about all the medicines you take, including prescription and nonprescription drugs, vitamins, and dietary supplements.

### What are the possible or reasonably likely side effects of PROVENGE?

The most common side effects of PROVENGE include:

- chills
- back pain
- nausea
- fatigue
- headache
- joint ache
- fever

PROVENGE infusion can cause serious reactions. Tell your doctor right away if you have any of the following reactions after getting PROVENGE because they may be signs of heart or lung problems:

- breathing problems
- dizziness
- chest pains
- nausea or vomiting
- racing heart or irregular heartbeats

Tell your doctor right away if you get a fever over 100°F, or redness or pain at the infusion or collection sites, because any of these may be signs of infection.

Tell your doctor about any side effect that concerns you or does not go away.

These are not all the possible side effects of PROVENGE treatment.

For more information, talk with your doctor.

### What are safety concerns from treatment with PROVENGE?

Each manufactured dose of PROVENGE is checked for quality prior to infusion. Once manufactured, PROVENGE has a strict expiration time and must be infused within a certain number of days. Infusion of PROVENGE typically occurs before a final test result for product sterility is available. There is a risk that you may receive an infusion that is later found not to be sterile. Your doctor would be contacted if this occurs and determine how best to treat you.

If you have questions or concerns or want more information on PROVENGE, contact your doctor.

Additional information can be found at [www.PROVENGE.com](http://www.PROVENGE.com)  
or you may call 1-800-707-0912.

You are encouraged to report negative side effects of prescription drugs to the FDA.  
Visit [www.fda.gov/medwatch](http://www.fda.gov/medwatch) or call 1-800-FDA-1088.

Rx Only

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*Targeting Cancer, Transforming Lives®*

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**PROVENGE®**  
(sipuleucel-T)  
**Helping you help yourself**



# A Patient's Guide to Prostate Cancer

**THE GOOD NEWS ABOUT PROSTATE CANCER:** The vast majority of time, cancer is detected when the tumor is still confined to the prostate, with a five-year survival rate of close to 100 percent.

**THE BAD NEWS:** The prostate doesn't age well.

Studies suggest as many as nine out of 10 men could develop prostate cancer by their 80th birthday, although many will never know it. (Cancer is not to be confused with benign prostatic hyperplasia, BPH, which is a non-cancerous enlargement of the walnut-sized prostate gland.) Prostate cancer is usually not fast-growing, taking sometimes years to become dangerous—meaning men are more likely to die of something other than their cancer. It also means that many men do not need active treatment, only “active surveillance,” in which doctors monitor the cancer for change. For those requiring therapy, techniques for surgery, radiation and treatment with drugs are improving, offering hopes of treatment with fewer side effects.

An estimated 238,590 men are expected to receive a prostate cancer diagnosis this year. It's unknown why some men get prostate cancer and others don't, and why sometimes tumors become aggressive. Also for unknown reasons, African-American men are both more likely to receive a prostate cancer diagnosis at a younger age, and to die of the disease sooner.

Research into factors including diet, weight and exercise hasn't provided a clear

strategy for prevention. Men with close family members who have had prostate cancer appear to be at higher risk of developing the disease. Prostate cancer may also be more aggressive among younger men: One study found that men between the ages of 35 and 44 with advanced prostate cancer had shorter survival rates than older men.



## Prevention

**THE LARGEST KNOWN risk factors for getting prostate cancer—such as age, family history and race—aren't something men can change. But studies are offering hints of other ways they can lower their odds.**

Obesity may increase the chance of aggressive disease, so controlling weight is important. A recent study found that men who were overweight or obese had a cancer risk 57 percent higher than men of normal weight. Tobacco is also thought to be a contributor: One study found that smokers who had



## Screening and Diagnosis

prostate cancer also had a greater risk of disease recurrence and of dying from the disease than if they had not quit at least 10 years earlier.

A current debate centers on whether drugs used to treat prostate enlargement might also prevent prostate cancer. The drugs Proscar (finasteride) and Avodart (dutasteride) treat BPH by blocking the body's ability to convert testosterone into a similar hormone called dihydrotestosterone (DHT). Because male hormones fuel the growth of prostate cells, the theory is that reducing DHT might also prevent tumor growth.

Using BPH drugs to prevent prostate cancer is a provocative idea, but the track record in clinical trials has been complex and controversial. In 2011, the Food and Drug Administration (FDA) decided against recommending the drugs for prostate cancer prevention, and even changed the drugs' label to reflect an increased risk of high-grade prostate cancer. This decision met with some resistance from healthcare professionals, who suggested that the drugs did not cause the high-grade cancers but that the tumors were detected after the drugs shrank the prostate. Clinical trials are still examining the connections between BPH treatment and prostate cancer prevention, as well as possible side effects.

What about supplements? So far, studies have not been encouraging. The combination of selenium and vitamin E was thought to help prevent prostate cancer, but a large study published in 2010 found no reduction in prostate cancer, and even a slight increased risk in men taking vitamin E. Although soy, which was once suspected of helping prevent recurrence after surgery, has proven ineffective.

**PROSTATE CANCER is usually a tortoise, not a hare—a fact that is both good and bad for screening. It's good because it means most men can have it for a long time without symptoms, providing plenty of opportunity for detection. It's bad because it means that the disease, once detected, may pose such a low threat, that the complications of treating it could actually create medical problems that wouldn't otherwise have existed.**

Some healthcare professionals recommend that men be offered screening beginning in their 50s. It's also recommended that men with a family history of prostate cancer and African-American men (who have a higher incidence of the disease) be screened at a younger age. But the pros and cons of screening are complicated. The decision to be tested should be discussed with a healthcare provider. Screening has a benefit when it detects cancer early and makes treatment more effective. It can provide peace of mind.

But screening also has a downside. It can lead to treatment of cancers that would never have posed a danger to a man's health, sometimes causing long-term (and lifelong) side effects.

The two common ways to check for prostate cancer are the digital rectal exam (DRE) and the prostate-specific antigen (PSA) test. During a DRE, the doctor will insert a gloved, lubricated finger into the rectum and check for any physical abnormalities of the gland, which sits next to the rectum. The PSA test looks for the presence of a protein in the blood that is generated by the prostate gland. In general,

the higher the number, the more likely it is to signal cancer. Medicare covers the expense of the test for men older than 50 who are Medicare-eligible.

PSA numbers are expressed as nanograms of PSA per milliliter of blood, or ng/ml. Doctors prefer a number lower than 4, but the number isn't an arbitrary cutoff. It's not like common tests, such as those for cholesterol or blood pressure, where there's an agreed-upon level for normal. Healthy men can have an elevated PSA level, and men with cancer can have a low PSA level. (In one study, 15 percent of men with a PSA level of 4 or below actually had cancer.) For example, PSA levels increase when a man has an enlarged prostate, even though there is no evidence that BPH causes prostate cancer. Drugs to treat BPH can also lower PSA test results.

Because of potential confusion that could result from a PSA test, recommendations for screening also have undergone a sea change. The American Urological Association made a major shift to its screening recommendations in May. While once strongly backing PSA tests, the organization now says that "men ages 55 to 69 who are considering prostate cancer screening should talk with their doctors about the benefits and harms of testing and proceed based on their personal values and preferences." The organization does not recommend routine screening for younger men, as well as older men at average risk.

Why all the fuss? Because screening has drawbacks. In some small number of cases, the PSA test can miss cancers, leaving men to falsely think they do not have cancer when they actually do. It can

also lead to unnecessary tests in an effort to rule out cancer, causing additional anxiety and expense—and exposing men to the possibility of side effects such as bleeding and infection. It can lead to overtreatment—with consequences of surgery or radiation, such as impotence and urinary incontinence—in patients who may never have died of the disease or even developed symptoms of prostate cancer in their lifetime. But it can also detect potentially fatal cancers early, which is the ultimate payoff. All of these are facts to consider before taking the test.

Studies suggest that without screening, about five men out of 1,000 will die from prostate cancer within the next 10 years. With screening, one of them could be saved—but the other four will still die of the disease. However, for every 1,000 men screened, 29 will end up with erectile dysfunction, 18 will develop urinary incontinence, two will suffer serious cardiovascular complications and one will develop a serious blood clot as a result of treatment.

As such, if a man's PSA level arouses suspicion but he has no sign of cancer, his doctor may recommend waiting and repeating the PSA test and the DRE. If his PSA continues to rise or symptoms appear, the patient might undergo further testing to determine the cause. There are several follow-up procedures for an abnormal test. One is called a transrectal ultrasound, a brief outpatient procedure in which sound waves are used to create an image of the prostate.

Doctors are trying to improve screening methods. One proposed variation on the PSA test is to follow the rate of change in the level—a number that rises quickly over time

could be cause for concern. Researchers are also looking for ways to detect prostate cancer using more precise methods instead of (or even with) the PSA test and DRE. For example, doctors might one day be able to examine genetic changes in prostate cancer cells that appear in the urine. And new blood tests are being developed that look for other

indicators of cancer.

Ultimately, doctors cannot determine whether cancer is present until a biopsy is performed, even if the ultrasound is normal. During a biopsy, doctors will use a needle to remove small amounts of tissue from the prostate to view under a microscope. A diagnosis of cancer is made based on the

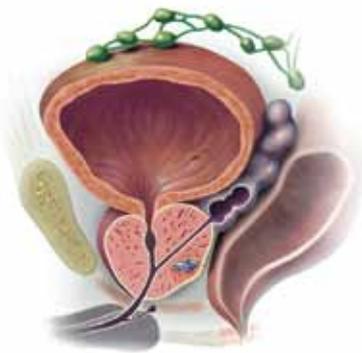
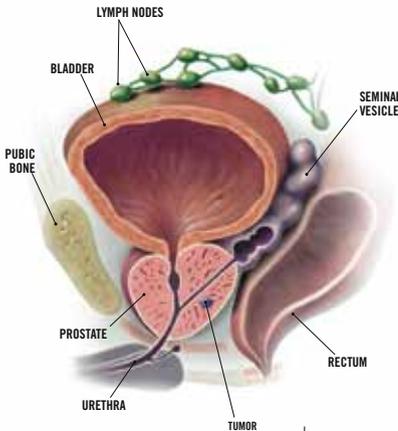
WHEN DIAGNOSING prostate cancer, doctors consider stage and grade. In grading, a score is assigned based on the Gleason grading system.

**Stage 1:**

The cancer is located on one side of the prostate. The tumor is very small and generally found by accident, possibly during surgery or by an elevated prostate-specific antigen (PSA) level. The Gleason score is low.

**Stage 2:**

The cancer is located only in the prostate but can be seen on imaging scans or felt during a digital rectal exam. The Gleason score may range from 2 to 10.



**The Gleason grading system** defines prostate cancer by grade based on the pathologist's review of a biopsy or surgical specimen, with 1 being the least aggressive and 5 being the most aggressive. The grade of the most common tumor pattern is added to the grade of the second most common tumor pattern in the tissue examined to create the Gleason score. A Gleason score of 2 to 4 is considered low-grade, 5 to 7 is intermediate-grade, and 8 to 10 is high-grade.

biopsy results.

If doctors ultimately determine a man does have prostate cancer, the tumor will be categorized by stage. The stage of the cancer tells how far advanced it is, and is one of the most important questions in determining treatment and predicting survival. The numbers are scaled from 1 to 4, with

stage 1 being the least advanced. The stages are determined by a variety of factors, including whether lymph nodes are involved, PSA level and Gleason score, which is a number that a pathologist assigns based on the cells' appearance under a microscope.

The more advanced the disease, the more involved treatment is likely to be.

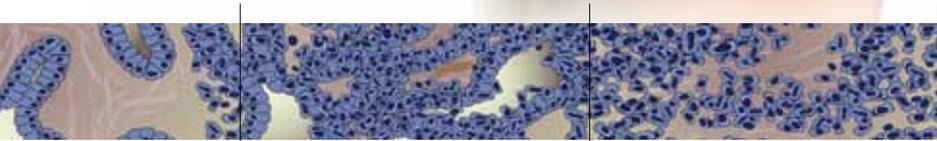
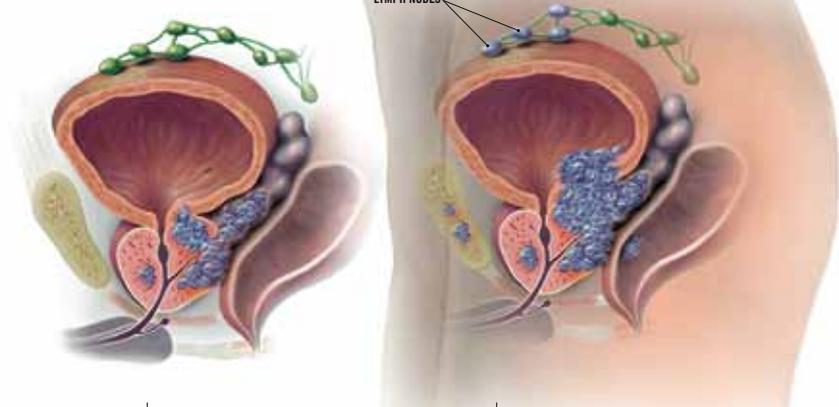
**Stage 3:**

The cancer has spread through the outer layer of the prostate and into surrounding tissue, and might be found in the seminal vesicle but not in the lymph nodes. The Gleason score may range from 2 to 10.

**Stage 4:**

The cancer has spread to the lymph nodes adjacent to or away from the prostate, or has spread to distant tissue or organs, such as the liver or bones. The Gleason score may range from 2 to 10.

CANCEROUS LYMPH NODES



GRADE 4

GRADE 5



# Treatment Options

**CHOOSING A TREATMENT for prostate cancer requires a decision based on the stage of cancer, age, overall health and even the patient's fears and expectations. Different types of treatment can also be used alone or together. Researchers continue experimenting to determine the best order and combination of cancer therapies.**

## ACTIVE SURVEILLANCE

Active surveillance is the option with the fewest side effects. During active surveillance, doctors closely follow a man's PSA level and regularly check for signs that the cancer is growing. Active surveillance follows the cancer through tests, examinations and biopsies until a result indicates the need for treatment. Researchers are also exploring whether magnetic resonance imaging (MRI) scans might be useful in monitoring low-grade tumors and identifying candidates for active surveillance.

A recent scientific review concluded that postponing treatment does not affect mortality and could help a majority of men avoid overtreatment. A study published in 2010 reported that men with low-risk tumors who chose active surveillance had higher measures of quality of life than men who chose treatment, such as radiation or removal of the prostate (radical prostatectomy).

## SURGERY

Younger men, as well as men who have more advanced cancer or who believe knowledge of their cancer without action would cause them too much anxiety, often choose more aggressive treatment. Surgery to remove the prostate (along with surrounding tissue that may include nearby lymph nodes

and seminal vesicles) is an option for men whose cancer has not spread. The two most common side effects of prostatectomy are incontinence, caused from damage to nerves or muscles that control bladder function, and impotence, caused from damage to the nerves that control erections. However, if the cancer is not too entangled with the nerves that control erections, doctors can remove the prostate using a "nerve-sparing" technique.

Many surgeries are laparoscopic, in which surgeons make several small incisions and remove the prostate, aided by a small video camera and special instruments. Some estimates say more than 80 percent of prostate removals are now performed using a surgical robot. However, laparoscopic techniques still rely on the skill of a surgeon, who uses a machine with robotic arms to perform the operation.

## HORMONE THERAPY

The male hormones (androgens), such as testosterone, promote cancer cell growth. This is why, as a part of treatment for more advanced cancer, doctors will often prescribe drugs that can starve cancer cells of this fuel; a process known as androgen deprivation therapy. This can be used in combination with radiation or surgery. Hormone therapy can also be used with radiation as initial treatment in men who have a higher risk of recurrence; when surgery or radiation isn't an option for men with advanced disease; or if the cancer has recurred after the first treatment. Several types of drugs are available for hormone therapy.

One of the most recently approved drugs is Zytiga (abiraterone), an oral drug that has been found to improve survival in men with

advanced prostate cancer whose disease has progressed after treatment with the chemotherapy drug docetaxel. Another new hormone therapy drug approved in 2012, Xtandi (enzalutamide), blocks the action of male hormones in cancer cells. In clinical studies, Xtandi increased median overall survival by almost five months, compared with a placebo.

### **RADIATION THERAPY**

Radiation can be used after surgery to destroy stray cancer cells that remain, or be used with hormone therapy. Radiation can also be used by itself. Techniques for radiation therapy are evolving, allowing doctors to focus more radiation on the tumor, which lowers the risk of side effects. The most traditional form of radiation is called external beam radiation therapy, or EBRT, in which radiation is delivered by a computer-guided machine that targets the tumor. There are several types of EBRT.

An internal form of radiation, brachytherapy, relies on radioactive pellets inserted into the tumor. With this treatment, the radiation does not travel as far, reducing potential exposure to healthy tissues. How many seeds and where they are implanted is determined individually for each patient.

Other traditional forms of radiation rely on X-rays, but a newer option is proton beam therapy, which uses proton particles to kill the cancer cells. Many experts believe that proton particles can be more precisely delivered into the tumor, lowering the risk of side effects. However, studies are still determining whether this theoretical advantage actually plays out. In 2012, a large study using population data found that proton beam therapy

offered no clinical advantage over EBRT.

In the end, the exact type of radiation might not make a difference in disease treatment. A study published in 2013 found that both newer and older forms of radiation therapy were associated with similar outcomes.

### **CHEMOTHERAPY**

Chemotherapy is used for cancer that has spread beyond the prostate and is resistant to hormone therapy. Many types of chemotherapy drugs can be used in different combinations. Though these drugs don't cure the cancer, they can slow the progression of the disease and control symptoms, such as pain. The mainstay of chemotherapy, docetaxel, is used with the steroid prednisone in advanced cancers that do not respond to hormone therapy.

Another chemotherapy drug, Jevtana (cabazitaxel), was approved by the FDA in 2010 for use in combination with prednisone for treating metastatic cancer that has already been treated with docetaxel. In a clinical trial, the median overall survival rate was 15.1 months for patients treated with Jevtana and 12.7 months for patients treated with mitoxantrone, another chemotherapy drug, and prednisone.

### **IMMUNOTHERAPY**

In 2010, the FDA approved Provenge (sipuleucel-T) for advanced prostate cancer with minimal or no symptoms. Studies showed that men receiving Provenge lived a median of four months longer than those who did not receive it. Provenge works by encouraging the patient's immune system to attack the cancer. The drug has sparked controversy, however, because of its expense.



## Side Effects

### BONE-RELATED THERAPIES

Bisphosphonates inhibit bone mineral loss, reducing bone pain and preventing or delaying damage caused by metastatic tumors.

Zoledronic acid, approved to treat bone tumors caused by prostate cancer, is considered the standard of care for bone metastases from prostate cancers that resist therapies—such as surgery or hormone therapy—that are aimed at quelling the impact of male hormones. Bisphosphonates, especially when given intravenously, have been linked to a rare but serious condition known as osteonecrosis of the jaw (meaning that the jawbone dies).

Xgeva (denosumab), while not a bisphosphonate, also helps protect bone tissue in patients with metastatic prostate cancer or those who lose bone density due to hormone therapy.

Radiopharmaceuticals, which contain radioactive elements, can alleviate pain in the bones from metastases. These injections target cancer that has spread to the bones, delivering radiation directly to tumors. Strontium-89 and Quadramet (samarium-153) are both often used for bone pain from metastases. In 2013, the FDA approved Xofigo (radium-223) to treat bone metastases.

### INVESTIGATIONAL APPROACHES

Future treatment options could include:

- Prostvac and Yervoy, vaccines which enlist a patient's immune cells to target the cancer;
- Cometriq (cabozantinib), an oral drug for advanced prostate cancer that is currently used for metastatic medullary thyroid cancer; and
- Orteronel, an oral drug that inhibits a steroid involved in androgen production.

**MOST MEN LEARN** they have prostate cancer when it is still highly curable. **Problem is, the cure could cause serious problems and not extend the patient's life. The risks can be significant: A recent study found that 15 years after prostate cancer treatment using surgery or radiation, about 90 percent of men reported problems with erections. (Most men were between 55 and 74 years old when treated and had localized cancer.) Bowel and urinary problems were also fairly common.**

Treating prostate cancer isn't always an emergency. Yet no solution is perfect, and what's right for one man may not be right for another.

### ACTIVE SURVEILLANCE

**Short-term side effects:** Very few, but some men may experience anxiety at having an untreated cancer.

**Long-term side effects:** Some doctors fear that delaying treatment could allow the cancer to grow to a stage that is more difficult to treat. However, many studies have found that men who follow active surveillance before moving on to treatment do just as well as men who start treatment right away.

### SURGERY

**Short-term side effects:** The prostate is surrounded on all sides by sensitive tissues. Surgery to remove the gland can damage nearby nerves and muscles even when performed by a skilled surgeon. That means two of the most serious, and dreaded, side effects of surgery are impotence and incontinence. The risk of impotence is

smaller when doctors can remove the tumor without traumatizing the nearby nerves. The degree and speed of recovery are difficult to predict because they depend on the patient's level of function before the surgery, age and nerve damage. Furthermore, men with vascular problems or conditions, such as diabetes, tend to have a more difficult time regaining function. But while many men experience these side effects, they usually go away after some months.

**Long-term side effects:** In a study published this year examining the long-term side effects of surgery, approximately 18 percent of respondents reported urinary incontinence 15 years after treatment, and approximately 22 percent reported bowel urgency. Men with persistent problems should talk to their doctors about medical options for help. Patients can perform exercises to strengthen the bladder muscles and help with bladder control.

## RADIATION

**Short-term side effects:** As with surgery, the most common side effects of radiation are also impotence and incontinence, for the same reasons—tumors can be wedged against nerves and muscles that receive some of the radiation. Incontinence seems to occur more often in men treated with brachytherapy than external beam treatment.

Because the prostate lies next to the rectum, it, too, can also be a victim of friendly fire during radiation. Damage to the rectum can lead to diarrhea and rectal bleeding.

**Long-term side effects:** In a recent study of long-term effects, bowel urgency was found to be more common after radiation than surgery, affecting 36 percent of men in

the study 15 years after treatment. (At 15 years, the incidence of impotence was about the same between surgery and radiation.) Urinary incontinence was not as common, at 9 percent. Few medical options exist to help manage diarrhea, but some men find their symptoms improve by making dietary changes.

## HORMONE THERAPY

### **Short-term and long-term side effects:**

The goal of hormone therapy is to lower androgens, including testosterone. But male hormones can be quite active in the body. The list of possible side effects of hormone deprivation include impotence, loss of sex drive, hot flashes, decrease in muscle mass, fatigue and even depression. Breast tissue may become larger, and bones could weaken. Men also can experience cardiovascular side effects, such as an increase in cholesterol levels, weight gain and an increased risk of diabetes, hypertension, heart attack and stroke. Kidney toxicity, one of the biggest—but infrequent—long-term concerns, requires close monitoring of renal function.

Hormone therapy side effects and their severity depend on the drug used and the patient. Still, it's almost impossible to undergo hormone therapy scot-free. Some studies suggest that intermittent treatment (as opposed to continually receiving the drugs) could lead to fewer side effects and not compromise the benefits of treatment. However, results from a large phase 3 trial indicated that median survival was better for men with minimal disease spread receiving continuous therapy than for those on intermittent therapy. Researchers agree that additional study is necessary.

Doctors say the best way men can manage side effects is by maintaining as healthy a lifestyle as possible while taking the drugs, including exercising, eating a good diet and getting plenty of rest. If those measures aren't helping—or aren't helping enough—patients can also talk to their doctor about prescriptions, such as the drug FARESTON (toremifene), which is under investigation to help reduce the risk of bone fractures. Antidepressants may help with depression and mood swings.

## CHEMOTHERAPY

**Short-term side effects:** The side effects of chemotherapy include gastrointestinal problems, such as nausea, diarrhea and loss of appetite; an increased risk of infection and bruising; and unusual fatigue. The degree to which an individual will be affected depends on the dose, the drug combination and frequency.

Jevtana, a newer drug for cancer that does not respond to hormone therapy, also has significant side effects, including neutropenia (low levels of certain white blood cells that protect against infection), diarrhea, vomiting and fatigue. Some patients may have an allergic reaction, such as itching or flushing.

**Long-term side effects:** Most chemotherapy side effects go away when treatment ends. However, some side effects might linger after treatment or occur long after treatment is finished. Nerve damage caused by certain chemotherapy drugs can sometimes last beyond treatment and other drugs can damage heart muscles or increase the risk of secondary cancers.

## IMMUNOTHERAPY

**Short-term side effects:** Because the drug Provenge removes and stimulates patients'

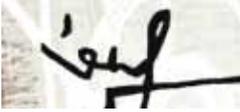
own immune cells to recognize and attack prostate cancer cells, many of the side effects are moderate and similar to what one might expect when fighting a common illness: fatigue, chills, fever, nausea and pain. Most side effects subside in a day or two. Rare side effects include allergic reactions, increased risk of stroke and high blood pressure.

**Long-term side effects:** Provenge is a newer therapy, so long-term side effects are not yet known and require follow-up study.

## BONE-RELATED THERAPIES

**Short-term side effects:** Bisphosphonates can cause fatigue, nausea, low red blood cell count and even bone and joint pain. Xgeva, which is not a bisphosphonate but helps with bone pain from metastases, has similar side effects, including fatigue, nausea and diarrhea. The most common side effects with the radiopharmaceutical Xofigo include nausea, vomiting, some swelling and low red and white blood cell and platelet counts.

**Long-term side effects:** Both bisphosphonates and Xgeva can cause osteonecrosis of the jaw, a rare side effect. Bisphosphonates and Xofigo can also cause kidney damage, whereas Xgeva is safe for patients with kidney problems. Xofigo can also cause damage to the bones by potentially suppressing the bone marrow and causing dangerously low blood cell counts.



# A Patient's Patience Pays Off

**ROGER CARNELL was living the life of a content retiree in Porter, Ind., when a spike in his PSA level gave his doctor pause. In 2009, the day before Carnell turned 67, his urologist decided to take a biopsy of his prostate. The result: It was cancer.**

Carnell and his wife, Stephanie, did what a lot of patients do: They conducted a Google search. Scouring the Internet, they found scientific research, support groups and a source for a second opinion.

He learned about an option he hadn't considered—active surveillance, which is not aggressive treatment, but regular monitoring until some change in a patient's condition signals a need for action. He embraced the idea almost immediately, and his urologist agreed. "I have family members and friends with prostate cancer who have been totally devastated by side effects of treatments," he says. "Their lives were changed."

Not that he's ignoring his prostate. Every six months, Carnell returns for a checkup and a repeat PSA test. He'd heard about men who opted for surgery or radiation because they wanted to be done thinking about their cancer. Carnell turned that philosophy upside down. Rather than putting the thought of cancer to rest, any side effects of treatment would make him obsess over it, wondering if he'd made a mistake. "This may not be the choice for all men, but it was a good choice for me," he says.

And here's the surprise: Carnell feels great. "It was a springboard to action," he says. "It made me think more about my overall health." So, he became more active; rather than casually walking the dogs, he made sure those

daily walks were a 10,000-step workout. He rejoined a local health club. He cut out fast food and unhealthy snacks.

Today, four years after receiving his diagnosis, Carnell's health has improved so much that his doctor recently cut back on his medications for diabetes and high blood pressure. "I have more energy than I've had in years," he says, and odd as it sounds, he has cancer to thank for it.

## Questions and Resources

### ASK YOUR DOCTOR:

- What type, stage and grade of prostate cancer do I have?
- How will my age affect my cancer, treatment options and chance of recovery?
- What are the treatment options for my specific cancer?
- What are we hoping to achieve with this treatment method? What are the short- and long-term side effects? How will this treatment affect the odds of my cancer spreading or death from cancer?

### RESOURCES:

**Prostate Awareness Foundation**  
prostateawarenessfoundation.org  
415-675-5661

**Prostate Cancer Foundation**  
pcf.org  
800-757-2873

**Us TOO International, Inc.**  
ustoo.org  
800-808-7866

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