



Santa Clara

# Prostate Cancer Care Multidisciplinary Clinic

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# Introduction

Upon learning you have cancer, your world changes. You and those close to you will have many questions. Your Kaiser Permanente Cancer Care Team understands and is committed to helping you. Our skilled specialists and support staff perform thousands of treatments every year. Our advanced equipment and techniques help ensure that you receive the highest quality of care. Treatment breakthroughs develop frequently, and Kaiser Permanente brings the benefits of those treatments to our patients every day.

We hope this booklet will help to support you and those close to you during this

journey. It provides information about prostate cancer, what to expect, and how we can work together to make your treatment as comfortable and successful as possible. The booklet includes a glossary to define terms that are not explained in the text.

Our Kaiser Permanente Cancer Care website and our internet site, My Doctor Online, link you to many other resources. We direct you to some of these resources in this booklet. Please ask questions and discuss any concerns you may have with members of your Cancer Care Team. We are here to help.

*Your Kaiser Permanente  
Cancer Care Team*



# The Prostate Gland



The prostate gland is an organ of the male reproductive system that produces part of the fluid that makes up a man's semen. It is located in the pelvis, directly under the bladder. The gland surrounds the urethra, the tube that carries urine from the bladder, out of the body through the penis.

The size of the prostate varies. It is typically the size of a walnut and can grow larger with increasing age. Prostate enlargement is called Benign Prostatic Hyperplasia (BPH). BPH is not cancer, nor does it increase the risk of developing prostate cancer. BPH can present with symptoms similar to those associated with prostate cancer and other lower urinary tract problems, such as low urine stream, trouble starting urination, a sense of incomplete bladder emptying, and frequent urination. While these symptoms do not directly indicate cancer, they often provide reason for the doctor to screen the patient for BPH and sometimes, prostate cancer is found during that process.

*This booklet is provided to help explain prostate cancer and its treatment. It is not intended to provide medical advice and does not replace any information or advice provided by your doctors and medical staff.*

## My Doctor Online [kp.org/mydoctor](http://kp.org/mydoctor)

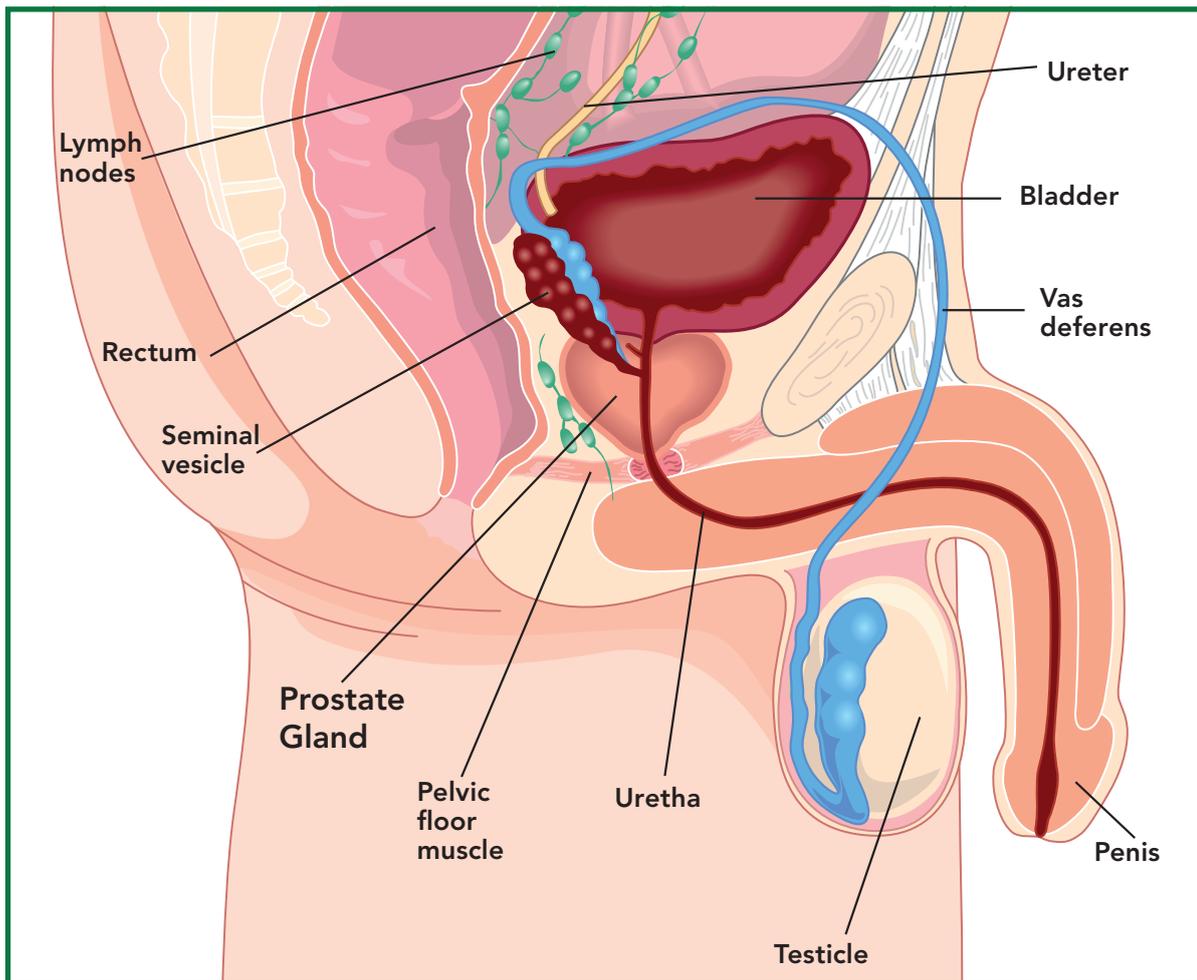
Kaiser Permanente's My Doctor Online website makes it easier for you to manage your own health care. Online programs and health information is reviewed or written by our own doctors and staff. My Doctor Online exemplifies our commitment to giving you the best quality care.

Take advantage of the many tools and resources available on My Doctor Online. There, you will find information about our services, doctors, and facilities. You can email your doctor, make appointments, and order medications. You can participate in online educational programs and research health topics.

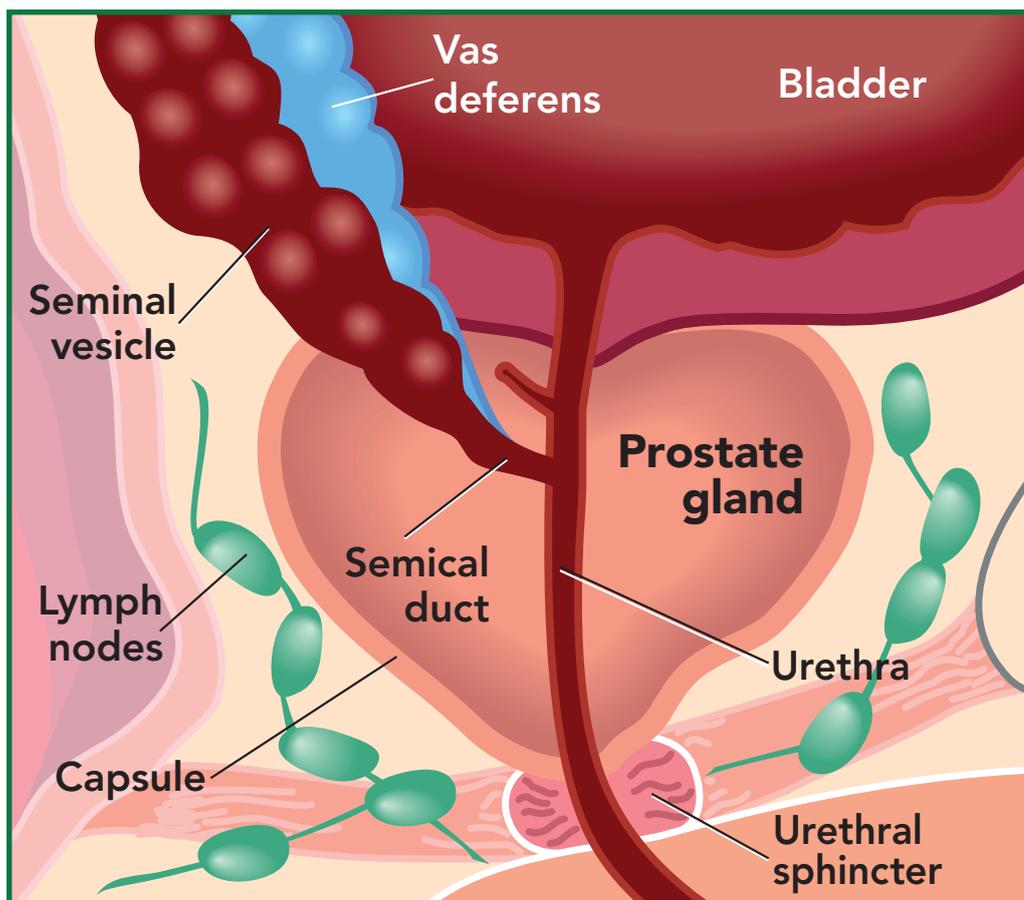
You can view your personal health information by setting up your own secure account. You can do this online at your physician's home page. If you have any questions about registration, please call Member Website Support at **1-800-556-7677**.

# Anatomy of the Prostate Gland

Anatomy of male lower abdomen area, urinary system, and sex organs.



**Detail of prostate gland and nearby organs.**



# Prostate Cancer

Cancer is a term that identifies diseases in which abnormal cells grow and divide out of control and form a mass of tissue known as a tumor. Not all tumors are cancerous; tumors can be benign (not cancerous) or malignant (cancerous). Cancers grow and spread and can invade nearby tissues and other parts of the body. The spread of cancer from one part of the body to another part is called metastasis.

Most cancers are named for the organ in which the tumor originates. Almost all prostate cancers (99%) are of a type called adenocarcinoma (cancers that originate in glandular tissue). Prostate cancer affects one in seven men during their lifetime. Second only to skin cancers, prostate cancer is the most common cancer diagnosed in men. Prostate cancer is the second leading cause of male cancer deaths, following lung cancer. In most cases prostate cancer grows slowly, and most men who have prostate cancer will not die from it. Prostate cancer treatment cures many cases and greatly reduces the likelihood of disease progression for many more.

Prostate cancer diagnoses usually occur among men aged 65 years and older. Having prostate cancer before the age of 50 is uncommon. By the time a man reaches the age of 80 years he has an 80%

chance of being diagnosed with prostate cancer, but this is unlikely to affect his life span. Men with prostate cancer have many treatment options depending on factors such as age, general health, clinical stage, and consideration of potential treatment side effects.

At the time of diagnosis it is important to know the extent of the tumor. The tumor is considered to be local when it is contained within the prostate gland itself, or metastatic prostate cancer if it has spread to other organs or tissues. If cancer cells break away from the primary (original) tumor, they can travel through lymph fluid, or blood, and metastasize to other places in the body, where another tumor may form. If prostate cancer cells spread to bones, the cancer is called metastatic prostate cancer in the bone.

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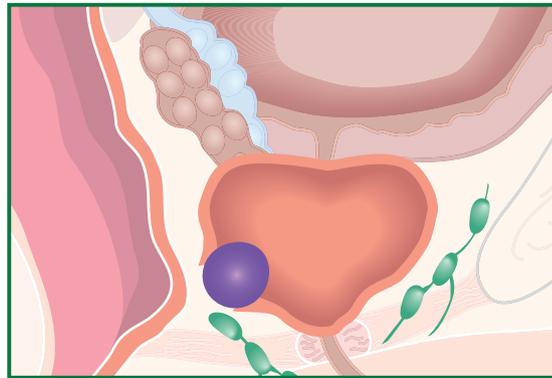
*“Most of all,  
remember there is  
hope. There is life  
after learning you  
have cancer.”*

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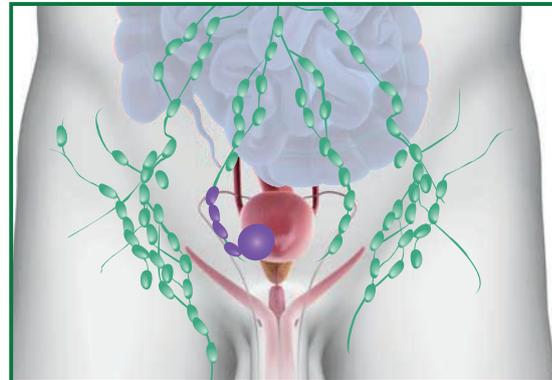


### Three ways that cancer spreads in the body.

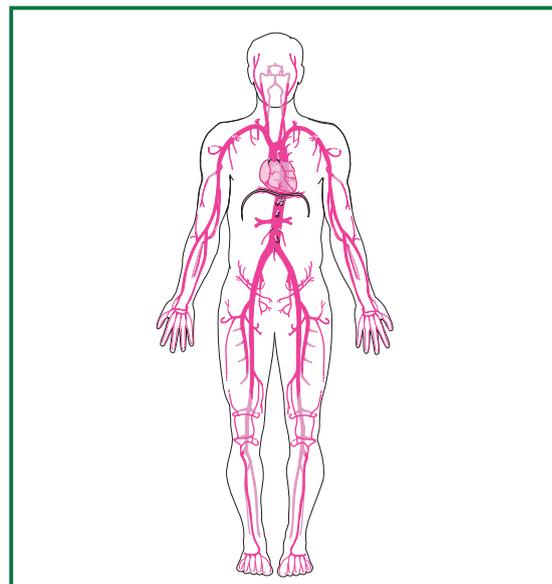
**Through tissue:** Cancer invades the surrounding normal tissue.



**Through the lymph system:** Cancer cells travel in lymph fluid to other lymph nodes in the body.



**Through the blood stream:** Cancer cells travel in the blood to other places in the body.

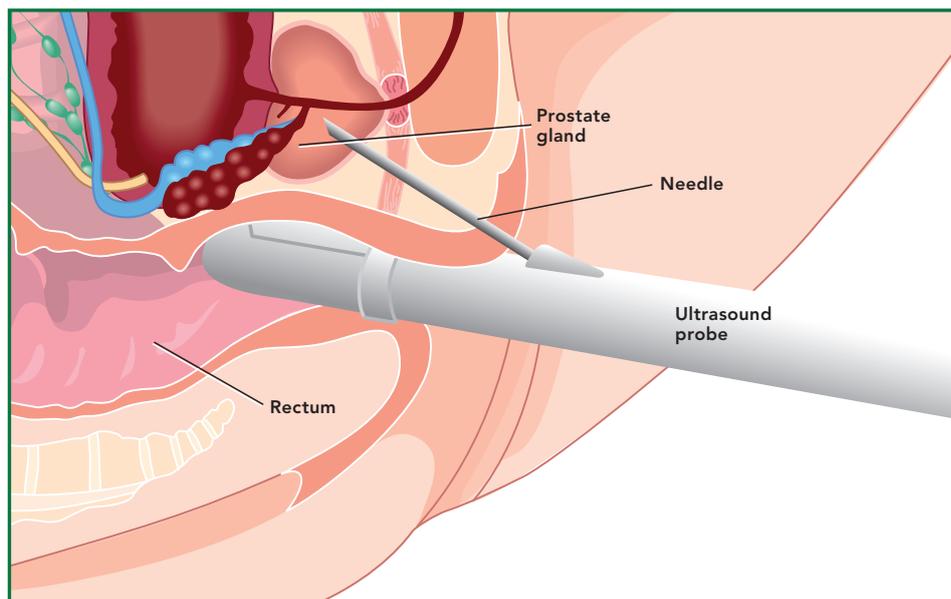


# Diagnosing Prostate Cancer

In order to diagnose prostate cancer, a sample of prostate tissue must be examined under a microscope. The procedure to remove the tissue is called a "transrectal ultrasound guided prostate biopsy." The prostate biopsy is a common office procedure that is performed by your urologist. During the procedure, an instrument called a transrectal ultrasound probe is placed into the rectum. The probe produces sound waves that are recorded to create digital images that guide the procedure. Hollow needles are placed into the prostate gland to withdraw 14 prostate tissue samples. Local anesthesia is used to minimize pain or discomfort during the procedure.

The prostate gland tissue samples are examined under a microscope by a pathologist who looks to determine whether cancer cells are present. If cancer is found, the pathologist determines the amount of cancer found and the severity of the cancer itself. This is reflected in a grade designation assigned to the cancer tissue. Grade refers to what the cancer cells look like under the microscope and predicts how aggressive the cancer might be.

## Transrectal ultrasound guided prostate biopsy.



## Prostate Specific Antigen (PSA) Test

The Prostate Specific Antigen test is a common prostate cancer screening test. PSA is only produced by the prostate gland. The presence of PSA in the blood is normal. By itself, it does not indicate illness or disease. As men age their prostate tends to increase in size. Generally, as the prostate grows larger, PSA levels also increase. Rises in PSA may also be due to other causes, such as inflammation, infection, or cancer. Rapid rises or sustained high PSA results often lead to further investigation or biopsy.

PSA is also an important test for monitoring a patient's response to prostate cancer treatment. A man's PSA should be undetectable following radical prostatectomy surgery, as the prostate gland is completely removed. However, it is possible that some prostate cells may be left behind and they may still produce some PSA.

## The Gleason Grading System

Gleason is the name of a grading system used to describe the prostate cancer cells. Gleason scores are very important in assessing the cancer. The scores help predict how a given cancer will behave, which in turn plays a role in determining which treatment will be recommended by your doctors.

Each biopsy sample containing cancer cells is assigned two numbers (grades) to create a Gleason Score. The first number represents the most common pattern of observed cancer cells, and the second number describes the second most common cancer cell pattern. The two numbers are added together to create the biopsy Gleason Score. Each individual grade number ranges from 1 through 5, so the range of possible Gleason Scores is 2 to 10. If there is only one pattern, then the first and second grade numbers are the same (e.g. 3 + 3). Grade numbers 1 and 2 are rarely used to describe cancer cells because they so closely compare to normal cells. Commonly seen Gleason Scores range between 6 and 10. A high Gleason Score suggests a faster growing cancer that is more likely to spread.

# Staging the Cancer

Stage refers to the extent or spread of the cancer. If doctors suspect the cancer may have spread outside the prostate to other tissues or organs, they may order a CT scan (Computed Tomography Scan), an MRI (Magnetic Resonance Imaging scan), or a bone scan. These tests are not routinely ordered for all patients.

## TNM Staging

TNM is a designation system that represents characteristics of the cancer, including its size and spread. The "T" stage refers to the size and extent of the primary tumor. The "N" stage describes whether the cancer has spread to lymph nodes. The "M" stage describes the extent to which the cancer may have spread to other organs of the body. T and M1 stages can be detailed further with descriptions labeled a, b, and c. This level of detail is not included here, but

if appropriate to your situation, will be explained by your doctors.

- **T Stage** – Refers to the size and extent of the primary tumor.
  - **T1** – The cancer cannot be felt by digital rectal exam but is suggested by high PSA scores.
  - **T2** – The cancer can be felt by digital rectal exam and is confined within the prostate gland.
  - **T3** – The cancer extends through the prostate capsule and into the seminal vesicles.
  - **T4** – The cancer has invaded adjacent organ structures such as the bladder neck, rectum, or pelvic floor muscles.
- **N Stage** – Refers to the extent of cancer spread to lymph nodes.
  - **NX** – It is unknown if there is cancer in the lymph nodes.
  - **N0** – The cancer is not found in lymph nodes close to the prostate.
  - **N1** – Cancer cells are found in nearby lymph nodes.
- **M Stage** – Refers to the extent of cancer spread to other organs of the body.
  - **MX** – It is unknown if cancer has spread to distant sites.
  - **M0** – The cancer has not spread to distant sites.
  - **M1** – Cancer cells are found at distant sites.



# Designating Risk Level



## Risk Levels

Risk level is a designation to describe your individual cancer, how it is likely to behave, and guides treatment recommendations.

Your prostate cancer will be described by risk level based on its Gleason Grade, PSA level, and clinical stage (TNM stage). The lower the risk level, the more favorable your prognosis, and the more likely your cancer is contained within the prostate gland itself. Higher risk levels describe cancers that have a greater chance of spread outside of the prostate. Treatment recommendations are based in part on which risk level is assigned to your cancer. Additional factors taken into account include the size of the prostate, severity of any existing urinary symptoms, your age, weight, whether you smoke, and any existing medical conditions.

- **Very low risk**  
Localized cancer affecting a small portion of the prostate gland.  
Fewer than 3 positive biopsy cores  
Gleason score  $\leq 6$   
Low PSA  $< 10$  ng/ml  
Staged as T1
- **Low risk**  
Localized cancer affects larger portion or numerous sites within the prostate gland.  
Gleason score  $\leq 6$   
Low PSA  $< 10$  ng/ml  
Staged as T1 – T2
- **Intermediate risk**  
Medium sized tumor that can be felt by digital rectal exam.  
Gleason Score of 7  
PSA 10 – 20 ng/ml  
Staged as T2
- **High risk**  
Large tumor that can be felt extending locally  
Gleason Score of 8 – 10  
High PSA level  $> 20$  ng/ml  
Staged as T3
- **Very high risk**  
Gleason Score of 8 – 10 and High PSA level  
Staged as T3 or T4
- **Metastatic**  
A combination of TNM stages indicating cancer found at distant lymph nodes or other sites in the body (e.g., bone).

# Treatment Options

## Multi-disciplinary Cancer Treatment Team

At Kaiser Permanente, we understand the complexity of cancer and how it may affect you. We have brought together a multidisciplinary cancer treatment team to provide you with the best possible care. This team will follow you through treatment and beyond. Our hope is that you will feel comfortable asking any questions and talking about your concerns with your treatment team. The team is usually led by a urologist, who is also a surgeon. Other team members may include a radiation oncologist, a medical

oncologist, registered nurses, registered dietitians, licensed social workers, and radiation technicians.

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*“Embrace the support system being offered. Listen and learn from others who have been through the process.”*

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Your cancer team will meet with you to discuss your cancer risk and recommend treatment options. All cancer treatments have side effects. Some of these side effects can alter your current lifestyle and relationships, as they may affect your sex life. Everyone experiences side effects of cancer treatment differently. We encourage you to take time to fully understand your treatment options and establish your personal goals.



There are many treatment options for prostate cancer. The first one we describe is actually a choice to delay treatment and actively monitor your prostate and possible cancer progression. This is called active surveillance.

Next, we will discuss primary treatments. Primary treatments are treatments that seek to cure prostate cancer by physically removing cancer cells through surgery or destroying cancer cells through the use of radiation therapy. Adjuvant treatment is a term used to describe treatments that are used in combination with primary treatments, when combining treatments is known to be more effective.

After treatment, follow-up care includes ongoing observation and testing to monitor for any recurrence. Should this happen, additional treatments are available which may include surgery, radiation treatment, hormone therapy, or chemotherapy. In this setting, these treatments are called salvage treatments.

### **Active Surveillance**

- An option for patients with very low and low risk cancer.
- Surveillance includes regular PSA tests, digital rectal exams, and repeat prostate biopsies.

### **Surgery**

- Surgery is one of the two most common primary treatments for cancer of the prostate.
- Surgery removes the entire prostate gland, the seminal vesicles, and sometimes lymph nodes.

### **Radiation Therapy**

- Radiation therapy is one of the two most common primary treatments for cancer of the prostate.
- Radiation treatments use high energy beams or radioactive material in the prostate gland to destroy cancer cells.

### **Hormone Therapy – Androgen Deprivation Therapy**

- Hormone therapies include medications that lower testosterone and are given to slow or stop the growth of cancer cells.

### **Treatments for Bone Metastasis**

- Medications, radiation, and some radio-pharmaceuticals treat this specific condition.

### **Chemotherapy**

- When cancer has spread to other parts of the body, anti-cancer drugs are used to kill cancer cells in some select patients.

# Treatment Options

## Active Surveillance

Some men with prostate cancer may not need immediate treatment. An approach called active surveillance refers to close monitoring of patients for disease progression. Some men prefer this to immediate treatment with surgery or radiation therapy, especially those who are active or young men with very low or low risk disease. Delaying treatment avoids the risks and potential side effects of treatment. Some older men, or those with other pressing concerns, may also choose active surveillance. Patients choosing active surveillance live their lives with the knowledge that they have untreated cancer. In choosing active surveillance the patient must commit to regular PSA blood tests, doctor appointments, digital rectal exams, and repeat prostate biopsies. If these recommendations are not followed, the cancer might progress to a point that it cannot be cured. A man can choose to receive curative treatment at any time during active surveillance.

## Surgery

The goal of surgery as a primary treatment is to cure prostate cancer. A radical prostatectomy surgery removes the entire prostate gland, seminal vesicles, and sometimes lymph nodes. The urologist hopes to remove all cancerous cells.

### Radical Prostatectomy

Most prostatectomies are conducted with a minimally invasive surgery called robot-assisted laparoscopic radical prostatectomy. The procedure is performed under general anesthesia and requires a hospital stay of usually one day. Patients go home with a Foley catheter (a flexible tube that drains urine from the bladder into a bag). The catheter is removed by the urologist 1 to 2 weeks after surgery.

To perform the robot-assisted laparoscopic radical prostatectomy, the urologist makes several small incisions in the abdomen (about 0.25 to 2 inches in length). Long-stemmed instruments are placed through the incisions, including a camera that displays the surgical field on a monitor. The entire prostate gland is removed. Since the urethra (the tube that passes urine from the bladder to the penis) passes through the prostate gland, the part of the urethra contained



in the prostate is also removed. The urethra is then surgically reattached to the bladder and urine continues to flow from the bladder through the penis. The surgery also removes the seminal vesicles. Sperm and seminal fluid pass from the seminal vesicles through the penis during ejaculation. Once the seminal vesicles are removed there will no longer be sperm or semen produced during ejaculation. the patient can still have an orgasm, but no sperm or semen will come from the penis.

There are some advantages to completely removing the prostate gland and seminal vesicles. The prostatectomy allows the pathologist to examine the entire gland and fully characterize the cancer. It may also provide psychological benefit knowing that the tumor has been entirely removed. Prostate removal can also simplify PSA interpretation after treatment. After surgery the PSA should be undetectable ( $< 0.1$  ng/ml). Any rise in PSA ( $> 0.2$  ng/ml) is indicative of recurrent disease.

Nerves along each side of the prostate gland control a man's ability to have erections. When possible, the urologist tries to leave the nerves in place to increase the chances of preserving the man's ability to have erections. Not all men are able to have a nerve-sparing radical prostatectomy. Even when the nerves are spared, achieving erections after surgery may not always be possible.

### **Prevention is the key to dealing with side effects.**

Be prepared to deal with side effects before they occur. Take advantage of the experience and knowledge of the clinic staff to help you. Discuss side effects early in your treatment process.



# Treatment Options

## Surgery Side Effects

### Incontinence

Incontinence, or leakage of urine, affects many men immediately after surgery and is typically called stress incontinence. This is urine leakage that occurs when men exercise, cough, laugh, or sneeze. It is caused by weakness in the bladder sphincter. Men are encouraged to do pelvic floor muscle exercises to strengthen the pelvic floor muscles and sphincter before surgery and to resume them after surgery. During the recovery period, it may be necessary to wear pads or adult undergarments to absorb any leakage. Over time, most patients are likely to regain urinary control. There is a small risk (< 5%) of long-term incontinence. Therapies do exist to treat severe incontinence.

### Erectile Dysfunction

Erectile dysfunction (ED) is when a man has trouble getting or keeping an erection. ED is common after a radical prostatectomy. A man's chances of being able to have spontaneous erections after surgery are higher if he is less than 65 years old and had normal erections prior to treatment. Options exist to assist men with erections and your urologist can help you with these therapies. After surgery, men can still have normal sex drives and orgasms, but there will be no ejaculate (semen and sperm), as the prostate gland and seminal vesicles have been removed.

Radical prostatectomy has risks that include infection, bleeding, pain, scarring, hernia, injury to nearby organs, urinary incontinence, difficulty urinating, and erectile dysfunction. Though the risk of cardiovascular complications is low, they can occur. These include heart attack, stroke, and blood clots in the veins of the legs or pelvis that could migrate to the lungs.



## Erectile Dysfunction (ED) Therapies

Numerous treatments are available to assist men with getting or keeping an erection.

1. Medications such as sildenafil can help to promote erections. Side effects may prevent its use.
2. Vacuum erection devices are manual pumps that generate negative pressure which increases blood flow into the penis to create an erection. It is used with a constricting band that traps the
3. Injections of medications into the penis can encourage increased blood flow to the penis.
4. Penile implants are usually effective if other therapies fail. Surgery is performed to implant either silicone rods or inflatable devices into the penis permanently.
5. Sex therapy counseling can help explore intimacy and sexual satisfaction with and without sexual intercourse.



# Treatment Options

## Radiation Therapy

The goal of radiation therapy as a primary treatment is to achieve a cure by destroying all cancer cells. In addition to being used as a primary treatment, radiation therapy is also used in numerous treatment combinations. It is used as an adjuvant treatment and also as a salvage treatment for recurrent disease. It may be used at almost any stage of cancer disease for numerous purposes. At times it is used to help treat symptoms caused by cancer, such as pain or bleeding.

## External Beam Radiation Therapy (EBRT)

External Beam Radiation Therapy is the use of invisible, high-energy rays to destroy cancer cells. The Kaiser Permanente Cancer Treatment Center provides highly specialized external beam radiation treatments. Advances in radiation oncology are allowing external beam treatments to work with increasing precision. Injury to surrounding tissue is much reduced from past experience, which has decreased the severity of potential side effects. Some side effects are still anticipated.

Prior to receiving EBRT, the urologist conducts an outpatient procedure called gold fiducial placement. Similar to the prostate biopsy, using transrectal ultrasound, the urologist inserts needles into the prostate gland and places three small gold pellets (fiducials) that act as place markers to show the exact location of the prostate.

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*“When the urologist directed me to the Cancer Treatment Center, good things began to happen.”*

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Usually 1 week following the gold fiducial placement, and after any inflammation has subsided, an appointment will be made for a CT simulation at the Cancer Treatment Center. You are positioned on the treatment table, and radiation technicians use a CT scanner to map your

body. These planning steps will assure precise positioning during each of your radiation treatment sessions.

During external beam radiation treatment you will be positioned on the linear accelerator (LINAC). High energy rays are focused to the precise treatment area. Great care is given to maximize the dose of radiation to the cancer area only and to minimize radiation exposure to the surrounding normal tissue. However, some nearby healthy cells will be damaged by the radiation and some may not return to normal function. This damage may contribute to side effects.

EBRT treatments last only a few minutes each day and the usual course

of treatment lasts 5 to 8 weeks. The treatments do not hurt and you will be able to walk and drive afterward. When treatment is completed and you leave the Cancer Treatment Center, you will not be radioactive. You will not be a danger to others.

### **Stereotactic Body Radiotherapy (SBRT)**

Stereotactic Body Radiotherapy (SBRT) is a type of external beam radiation therapy where a focal radiation treatment delivers high doses of radiation to the prostate cancer site. Treatment is often completed in as few as five sessions over two and a half weeks. Your radiation oncologist and treatment team can determine if you might benefit from this form of therapy.



# Treatment Options

## Brachytherapy

In prostate cancer, brachytherapy is mostly used for early stage cancers and is a type of radiation therapy that is applied inside the body. The radiation is targeted to directly deliver the dose to the tumor while lessening its effects on nearby tissue. For some patients, brachytherapy may not be an option if problems exist with the urinary tract.

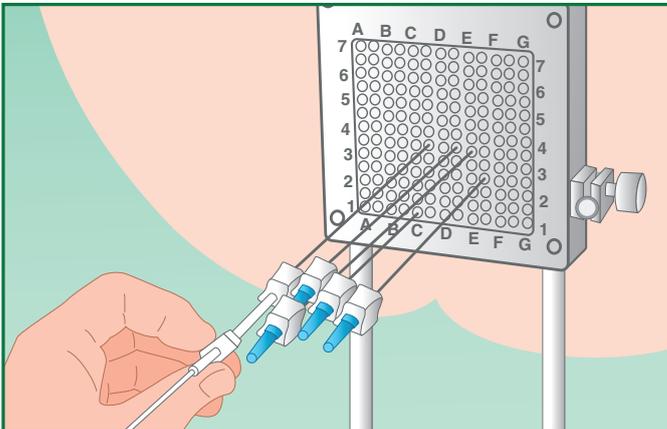
There are two forms of brachytherapy for prostate cancer treatment: High Dose Rate (HDR) brachytherapy and Low Dose Rate (LDR) brachytherapy. Both procedures involve placing radioactive material into the prostate gland. HDR implants are temporary and are removed the same day at the completion of treatment. LDR is also known as permanent seed

implant brachytherapy. Both procedures are conducted in an outpatient clinic with spinal (or rarely general) anesthesia. HDR therapy is delivered at the Santa Clara Medical Center, Cancer Treatment Center. LDR treatments are administered at Kaiser Permanente Roseville Medical Center.

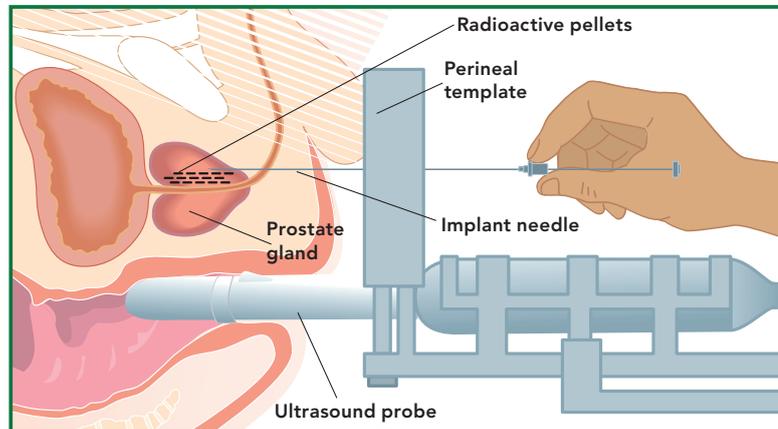
## High Dose Rate (HDR) Brachytherapy

High Dose Rate (HDR) brachytherapy is accomplished by temporarily placing radioactive material into the prostate gland through the use of hollow bore needles. During this procedure, spinal anesthesia will numb the lower half of the body. You will lie on your back on an exam table and your legs will be lifted to provide access to the perineum (the skin area between the

Needle placement through a perineal template and the perineum to reach the prostate gland for brachytherapy.



Placement of radioactive pellets (seeds) into the prostate gland.





anus and the scrotum). The needles are precisely guided through the perineum to your prostate gland. Usually 15 – 20 needles are placed during a single treatment. Because of the anesthesia, you should feel very minimal discomfort.

Sophisticated equipment is used for brachytherapy, including the robotic VariSource iX. The robotic machine uses hollow tubing that connects with the hollow needles inserted into the prostate gland. Small but powerful radioactive pellets travel from the machine into the prostate. The treatment lasts about 10 to 15 minutes. The radioactive pellets are returned to the machine and the needles are removed. Usually, one treatment is performed if done in conjunction with external beam radiation treatment. Two brachytherapy treatments are performed a few weeks apart if HDR treatment is used alone.

**X-ray image of low dose rate radioactive pellets (seeds) in the prostate gland.**



## Low Dose Rate (LDR) Brachytherapy Permanent Seed Implant

Low Dose Rate (LDR) brachytherapy is similar to HDR brachytherapy, except the radioactive material is a much lower intensity and the material is left in the prostate gland permanently.

### **Kaiser Permanente North Valley, Roseville Radiation Oncology Center**

Candidates for Low Dose Rate brachytherapy are referred to and seen at the Kaiser Permanente North Valley Medical Center in Roseville, California. Each candidate's case is reviewed for approval or recommendation for alternate therapy. The treatment involves a minimum of 5 required appointments and is usually accomplished within a 4 week period. The LDR brachytherapy procedure takes about 2 hours, and the full procedure day will last about 6 to 8 hours. A driver will be required to transport you home following the treatment. Transportation to and from Roseville is the responsibility of the patient.

# Treatment Options

The radioactive material placed into the prostate gland degrades over the next several weeks to months. The low dose radioactive material affects tissue only within a very short distance from the seed itself. This allows for dosing over a period of weeks to months and reduces the likelihood of damage to nearby tissue. As many as 40 to 100 seeds may be placed into the prostate and seminal vesicles through hollow bore needles.

## Side Effects of Radiation Therapy

Side effects of radiation treatments vary from person to person. The amount of radiation used and the extent of damage to healthy tissue will affect the likelihood of side effects. The most common side effects from radiation therapy and brachytherapy include:

### Radiation Cystitis

Radiation cystitis is irritation or inflammation of the lining of the bladder caused by treatment. Symptoms may be mild and intermittent. When severe, it can include blood in the urine and frequent need to urinate. These symptoms may resolve quickly or may require further treatment.

### Radiation Proctitis

Radiation proctitis is irritation, or inflammation of the lining of the rectum caused by radiation treatment. This can result in symptoms such as blood

## LDR Brachytherapy Permanent Seed Implant Radiation Safety

Use of radioactive material can cause concern for safety and risks for exposure to others. The exposure risks are well understood and carefully managed to have minimal effect. The radioisotopes used in brachytherapy are low energy and lose their radioactive effect quickly. The energy from the material is intended to be absorbed by the prostate and some surrounding tissue. Low levels of energy may extend outside of the body but only at low dose, and residual radiation effects should be gone within two months. Within those two months:

- Young children and women who are pregnant should avoid spending time being physically close to you. It is safe to be in the same room, but caution should be taken to move about six feet away for extended visiting or time spent in close quarters. Children should not sit on your lap during the two months following the procedure.
- Pets or animals have minimal risk from exposure.
- Sexual intercourse with a condom is safe beginning two weeks after the procedure.
- Generally, body fluids and bodily waste are not radioactive. Rarely, radioactive seeds may pass in the urine soon after brachytherapy treatment. No injuries have been recorded because of this type of situation. You will receive information to manage this, should it occur.



or mucus from the rectum or in stools, diarrhea, or pain when defecating. Side effects can occur any time following treatment over months to years. Usually the problems resolve on their own. If persistent bleeding of the rectum occurs, you may need urgent treatment.

### **Urinary Problems and Incontinence**

Problems with urination are common with prostate cancer treatments. The urethra passes through the prostate gland from the bladder. Damage to the urethra or the bladder sphincter can cause difficulty controlling urination, resulting in mild incontinence. A man may also experience an increase in frequency of urination, and urgency, or difficulty beginning urination. If urination becomes blocked or is not possible, you should seek immediate attention from your doctor or an emergency room. A catheter may be needed to help empty the bladder for a period of time.

When feeling the need to urinate, it may be difficult to tell whether you need to urinate or have a bowel movement. Sit on the toilet whenever you go to the bathroom. This problem usually goes away on its own, but may be experienced for a few months following radiation therapy.

### **Erectile Dysfunction (ED)**

Erections and sexual arousal after radiation therapy vary significantly from one man to another. The problem after radiation therapy tends to come on gradually. The full extent of the problem may not be evident for months to several years after treatment. The cause of ED from radiation therapy is damage to the blood vessels supplying blood to the penis.

Orgasms still occur but will produce little to no ejaculate. There may, at least initially, be some discomfort with orgasm.

### **Fertility**

It is likely that fertility will be impaired due to damage caused by radiation treatment. Plans for fathering children should be discussed with your treatment team before treatment begins.

### **Fatigue**

You may feel more tired than normal during the first few months of treatment and following treatment. This usually improves over time and you can speak with your treatment team about minimizing the effects of fatigue.

# Treatment Options

## Hormone Therapy

### Androgen Deprivation Therapy (ADT)

Hormone therapy, also known as androgen deprivation therapy (ADT) or androgen suppression therapy, is used to reduce levels of male hormones called androgens. The primary male androgen is testosterone. Ninety percent of testosterone comes from the testicles. The adrenal glands also produce a small amount. Testosterone stimulates prostate cancer cells to grow. Thus, lowering testosterone levels or stopping testosterone production (called medical castration) can stop the cancer, shrink it, or make it grow more slowly.

When ADT is used with radiation therapy it is called adjuvant therapy. ADT is also a treatment option used in biochemical recurrence (increasing PSA) and is a standard treatment for metastatic prostate cancer.

It is important to understand that in advanced or metastatic stages, reducing or eliminating testosterone is not a cure. At some point, cancer cells may become resistant to the effects of hormone treatment. This is called castration resistant or hormone refractory cancer.

### Leuprolide, or Lupron

Leuprolide, or leuprolide acetate, is the most common ADT treatment. Leuprolide is a type of drug called Luteinizing

Hormone-Releasing Hormone Analog (LHRH), also called LHRH agonists. The ultimate effect is to stop the production of testosterone by the testicles. Leuprolide is injected intramuscularly. Depending on the dosage used, leuprolide is given from once a month down to once every six months. Goserelin acetate (or Zoladex) is another drug in this category.

When leuprolide is first given, the testosterone level briefly increases before falling to very low levels. This effect is called "flare." Before starting leuprolide treatment, patients are given bicalutamide (Casodex) to prevent the flare.

### Anti-androgens

Anti-androgen medications, like bicalutamide (Casodex) and flutamide (Eulexin), work at the cellular level to prevent the effects of androgens by binding to androgen receptors. The





drugs stop testosterone from stimulating the growth of cancer cells. Enzalutamide (Xtandi) is a newer type of anti-androgen and is currently used to treat medical castration resistant prostate cancer. Anti-androgens are often given with leuprolide injections.

### **Abiraterone**

Abiraterone (Zytiga) aims to block an enzyme called CYP17 and prevent androgen production by the testicles, adrenal glands, and the cancer itself. This medicine is used in addition to leuprolide for castration resistant prostate cancer. Prednisone or another steroid is given together with anti-androgen medications.

### **Androgen Deprivation: Surgical Castration**

A surgical method to achieve androgen deprivation is called orchiectomy, or surgical castration. In this rarely performed operation, the testicles are removed from the scrotum. Although the idea of removing testicles may be unpopular, it is a one-time treatment for permanent removal of most testosterone from the body.

### **Ketoconazole**

Ketoconazole (often thought of as a treatment for fungal infections) is used to block production of androgens, similar to abiraterone, in the treatment of prostate cancer.

There are other, more rarely used hormone therapies such as degarelix (Firmagon). These options will be discussed with your oncologist if their use is indicated.

### **Side Effects of Hormone Therapy**

Remember that different people experience side effects differently. Changing hormone levels causes side effects. Some of these side effects may remain for a few months to several years. Many therapies are available to treat side effects. Side effects can include:

- Hot flashes
- Fatigue
- Reduced or absent libido (sex drive)
- Erectile dysfunction
- Shrinking of testicles and penis
- Tenderness and growth of breasts
- Loss of muscle mass
- Anemia (low red blood cell counts)
- Increased cholesterol
- Weight gain
- Osteoporosis (thinning of the bone)
- Decreased mental sharpness
- Depression

# Treatment Options

## Treatments for Bone Metastasis

When prostate cancer metastasizes to the bone, treatments may include medications, radiation, and perhaps radio pharmaceuticals. Androgen deprivation therapy and bisphosphonate drugs, like zoledronic acid (Zometa) and pamidronate, are used to relieve bone pain and possibly decrease the risk of bone fracture caused by the cancer.

Side effects can include flu-like symptoms, joint pain, and decreased kidney function. Some rare side effects can include osteonecrosis of the jaw, which may result

in tooth loss, infections, and sores of the jaw bone. Oral hygiene is emphasized with use of these drugs.

Other drugs include Denosumab, which inhibits osteoclast cell activity, resulting in less bone destruction. Corticosteroids can help to relieve bone pain and may lower PSA levels.

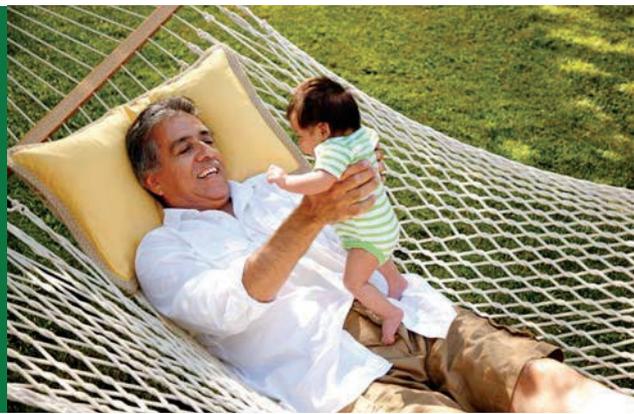
External beam radiation therapy, targeted at the bone metastasis, may also reduce bone pain and shrink tumors.

Radiopharmaceuticals are drugs that contain radioactive elements. When injected into a vein, the drugs settle in areas of bones with active cancer cells. The radiation then kills the cancer cells. Unlike external beam radiation, this treatment allows all the bones affected by cancer to be treated at the same time.

## Chemotherapy

Chemotherapy is used to treat prostate cancer when it has metastasized and hormone therapy is unsuccessful, meaning the cancer has become castration resistant. Chemotherapy uses anti-cancer drugs in the bloodstream to kill cancer cells that spread around the body to distant organs. The drugs may slow the cancer's growth and reduce symptoms with the goal of improving the quality of life. The Federal Drug Administration has approved Doctoxel, Cabazitoxel





(Tevanna), and Micoxatenzone for use in treating advanced prostate cancer.

Side effects of chemotherapy depend on the type and dose of drugs given and the length of time they are used. Side effects can include hair loss, mouth sores, loss of appetite, nausea and vomiting, diarrhea, lowered resistance to infection, easy bruising or bleeding, and fatigue. Your cancer care team will do their best to minimize these side effects.

### **Alternative Medicines and Treatments**

You may encounter complementary and alternative medicines during treatment for your prostate cancer. We advise caution before using any of them.

Many herbal supplements, for instance, have potential interactions with medications, chemotherapy, and radiation therapy. We advise you to be an informed consumer rather than trying treatments based on commercial advertisements for products in stores or online. Discuss any supplements with your doctor before starting treatment.

### **Clinical Trials**

Clinical trials are cancer research studies that involve people. The studies test new ways to prevent, detect, diagnose, or treat cancer. People who take part in cancer clinical trials have an opportunity to contribute to scientists' knowledge about cancer and to help in the development of improved cancer treatments.

Kaiser Permanente participates in numerous clinical trials with national and international clinical trial organizations. All of our oncologists are investigators on our Cancer Research Team. Doctors can discuss the possibility of enrolling you in a clinical trial, depending on your eligibility.

For more online information about clinical trials, go to:  
**[kp.org/santaclara/cancercare](http://kp.org/santaclara/cancercare).**

# Survive and Thrive

## Cancer Survivor Program

The Survive and Thrive Program at Kaiser Permanente Santa Clara will nourish and strengthen your mind, body, and spirit in all stages of cancer treatment and survivorship. This unique program is a collaborative partnership of the Mind-Body Wellness Center, the Health Education Department, and the Santa Clara Cancer Treatment Center. Our classes and workshops are open to all patients with any type of cancer. Several classes are open to family members and caregivers as well. Classes include:

- **Survivor... Now What?** Moving forward with your new identity as a "Survivor."
- **Mind-Body Stress Management:** Reduce stress, discover new thinking patterns, and enhance your quality of life.
- **Nutrition Basics:** Healthy eating, as well as the powerful benefits that nutritional changes can have on survivorship.
- **Restorative Yoga:** Gentle, supported, resting postures, along with breath work and guided meditation, will improve circulation and reduce stress. This may be especially beneficial during treatment.
- **Strength Training Body & Mind:** Strengthen the body and inspire your mind.

For more information call the **Mind-Body Wellness Center**, at **1-408-366-4284**; or email at [mindbodywellness@kp.org](mailto:mindbodywellness@kp.org).

### Cancer Survivor's Day Seeds of Hope

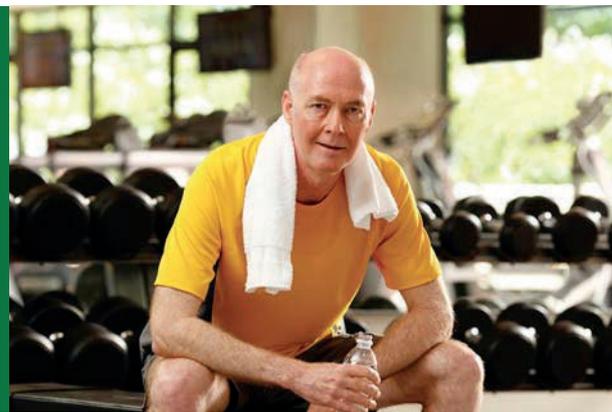
Kaiser Permanente Cancer Survivor's Day is held every June to celebrate cancer survivors. The goal is to help them and their families to continue healthy lifestyle habits. Activities and educational programs include: exercise, stretching, healthy eating demonstrations, and more!

Ask your cancer care team for more information.



**Kaiser Permanente  
Santa Clara and San Jose**

# Self Care



You are a survivor when you learn you have cancer. There is no mistake: your life has changed. And that means you will probably be learning to live your life differently than you did before your diagnosis.

One of the most important aspects of cancer therapy is to take care of yourself throughout the treatment period and beyond. Take time for yourself. Pay attention to reducing stress in your life. Try to improve your general health habits before treatment begins. Taking good care of yourself can help avoid treatment side effects, encourage more rapid healing, and increase the likelihood of successful outcomes.

Use of external beam radiation therapy may cause skin at the site of treatment to become more sensitive. If the therapists place marks or tape on your skin, do not wash them off or remove them. Do not shave any skin in the treatment area. Skin in the treatment areas should not be exposed to extreme temperatures (hot tubs, saunas, steam, ice packs, or heating pads). Before swimming in chlorinated pools or the ocean, please ask the nurse or doctor for advice.

## Physical Activity

Staying active is important for mind-body wellness before, during, and after cancer treatment. Stay as active as you can, or as you feel comfortable. Don't over-do it. Walking even 10 minutes a day will help maintain your strength and lift your mood. Talk with your doctor about appropriate activity for you.

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*"My lifestyle had changed for the better. I was eating more healthy foods and my body and mind responded positively."*

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# Self Care

## Pain Management

Pain can affect all parts of your life, but having cancer does not mean living with pain. There are many methods, both with and without medicine, to manage pain. We are committed to pain management for our patients with cancer.

## Stress Management

Concerns about cancer and cancer treatment can cause stress and anxiety

for many men. Negative effects of stress can affect your health, your sense of wellbeing, and your relationships. The Kaiser Permanente Mind-Body Wellness Center offers numerous programs to help identify the sources of stress and anxiety in your life. The classes provide practical methods for reducing stress and increase your sense of wellbeing. Other programs include managing depression, improving your sleep, and introduction to meditation

## Pelvic Floor Muscle Exercises

Exercises for the pelvic floor muscles can help improve bladder control and urinary incontinence. Pelvic muscles are attached to the area between your pelvic (hip) bones. These muscles act like a strong floor that helps hold your pelvic organs in place.

The muscles to be exercised hold back urine or prevent passing gas. To find these muscles, sit on the toilet or stand in front of the toilet when passing urine. Tighten your muscles to stop the flow of urine. Do this several times until you know how it feels to tighten these muscles. Do not hold your breath while exercising.

Once you have found the muscles to use, you can exercise when you are not urinating, and you can exercise anytime, anywhere. It can be done

when standing, sitting, or lying on your back. Always urinate (empty your bladder) before starting your exercise.

Do these exercises each day:

1. Slowly contract the muscles around your anus. Hold these muscles tense for a count of 10.
2. Slowly release these muscles and relax for a count of 10 and repeat the cycle, gradually increasing the length of time you hold the muscles to a count of 20 and then 30.
3. Do 10 – 20 contractions, three times a day.
4. Do 20 – 30 quick, strong contractions after you are finished with the slow contractions.

If you feel that you cannot contract your bladder and anus muscles, try to hold them for only 4 or 5 seconds each. Gradually increase the time that you can tighten the muscles. Remember to breath during the contractions.



and relaxation. Numerous programs are also available on Kaiser Permanente's website. For further information, call the **Mind-Body Wellness Center** at **1-408-366-4284**, or go to [kp.org/healthylifestyle](http://kp.org/healthylifestyle).

### Emotional Support

Getting through cancer treatment is often an emotional challenge. Schedule changes, relationship stress, physical challenges, and fatigue can all place emotional stresses on your life and affect your physical health. Learn to recognize and work with your emotions as part of maintaining your health.

We encourage you to share and discuss your emotions with those around you and with your cancer care team. There are many people available to support you. Let your care team know how you are feeling. We provide services including counseling, support groups, and psychiatric care to meet your needs.

### Family and Caregivers

Many people around you will be concerned with your physical wellbeing. Communicate what you feel and need so that those around you and your care team can support you. For many people experiencing cancer, reaching out to others with the same experience can be good support.

You may want to bring a family member with you to appointments to help keep track of details. This can help them manage better as well. Keep a diary of treatments, medications, scheduled doctor visits, and side effects. Write questions for your doctor and care team so you won't forget to ask them. Family members and caregivers may also have questions to ask our care team.

### Oncology Supportive Care Clinic

The Oncology Supportive Care Clinic is a counseling service that focuses on the whole person: body, mind, and spirit. The clinic is designed to provide pain and symptom management with the goal of improving quality of life. Good symptom control enables patients to continue with their favorite activities and helps them enjoy the time they spend with their family and friends. Our team provides assistance with treatment choices, personal decisions, planning for future needs, and locating additional resources. The clinic also offers individual and family counseling to provide a sense of meaning, a source of strength, and comfort. For more information, call the **Oncology Supportive Care Clinic**, at **1-408-851-0537**.

# Self Care

## Prostate Cancer Support Group

Kaiser Permanente Santa Clara Medical Center sponsors a support group for men with prostate cancer. Meetings occur on the first and third Wednesday of each month from 12:30 to 1:30 p.m. The group is co-led by a professional oncology social worker and group members. It is an open environment to share experience, information, and support. Topics vary and focus on adjusting to the prostate cancer diagnosis and coping with prostate cancer treatments. For further information, call **1-408-851-8011**.

## Psychiatric Oncology

Psychiatric oncology is the practice of managing emotional and behavioral effects that cancer can have on mental and physical health. It can be included in all stages of active treatment and follow-up care.

Psychiatric medications may be an integral part of your care and treatment. Psychiatrists, psychologists, and licensed clinical social workers are available for consultation at any time during your care.

Be open to asking for help. Medical treatments and physical changes can cause physiological changes in mental health. Speak with your cancer care team if you think you might benefit from this.

## When It's Time to Call for Help

For some people, feelings and emotions can become overwhelming and seem difficult to manage. Please call your care team if you have:

- Loss of appetite or poor sleep that worsens over time
- Unusual difficulty communicating or making yourself understood
- Decreased ability to pay attention to your surroundings
- Prolonged feelings of sadness, grief or hopelessness
- Apathy over an extended period of time
- Wide mood swings between elation and despair
- Frequent or prolonged feelings of isolation or loneliness
- Unusual difficulty in sexual relationships
- Thoughts of hurting yourself

# Long Term Planning



## Palliative Care

Palliative care is specialized medical care for people with serious illness. This type of care is focused on providing relief from symptoms of pain and stress to help patients live as well as possible while facing a serious illness. The goal of palliative care is to improve quality of life for both you and those around you. It is appropriate at any age and at any stage in a serious illness and can be provided together with curative treatments. For further information, call **Palliative Care Services**, at **1-408-851-0537**.

## Hospice Services

Hospice service provides support and care to patients who are approaching the end of life. Services may include those of a doctor, nurse, social worker, home health aides, and volunteers. Hospice services are normally provided in the home or in a licensed care facility where personal caregivers are available around the clock. Visits by Hospice staff are intermittent (i.e., one or more times a week), depending on need. Assistance is provided for bathing, pain management, wound care, counseling, spiritual care, and social support. Kaiser Permanente Health Plan offers hospice services to patients of all ages. For more information, call **Hospice Services**, at **1-408-235-4100**.

## Advance Planning

Life Care Planning is a process for understanding, reflection, and discussion of medical and health care choices for patients when they are unable to communicate their own medical decisions. Effective life care planning is the best way to make sure your views are respected by loved ones and by health care providers.

Life care planning discussions focus on your personal values and defining personal goals for medical treatments and life beyond those treatments. Life care planning is done at any age and is often completed by patients who have continuing critical illnesses or who may be experiencing end-of-life situations. The discussion can also give comfort to those who may need to make difficult, life sustaining treatment decisions for you. If your health changes over time, revisions to existing life care plans may be appropriate.

Kaiser Permanente's life care planning consultants are available to meet with you, your family, and others who may be chosen by you to act as your health care agent. Life care planning classes are open to the community. To register for an appointment or class, call the **Health Education Department #182**, at **1-408-851-3800**.



# Long Term Planning

## Advance Health Care Directive

An advance health care directive is a witnessed, legal document naming a person as your health care agent, and authorizes them to act on your behalf if you are not able to communicate your medical and health care wishes. The advance health care directive includes your personal instructions about your health care and treatment wishes, including choices about life sustaining treatments and end of life.

A copy of the finished advance health care directive is submitted to the Health Education Department, to be included in your medical record. It is then available at the medical center in case of emergencies. Information about advance health care directives can be found online at [kp.org/lifecareplan](http://kp.org/lifecareplan). For further information, call the **Health Education Department #182**, at **1-408-851-3800**.

## Health Education Resources

The Health Education Department addresses your total health. Resources are affordable and accessible. They include classes, online resources, and individual consultation.

Health education resources include:

- Chronic conditions education
- Nutrition and diet consultation
- Life Care Planning and Advance Health Care Directive
- Men's and women's Health
- Tobacco cessation

For more information, call the **Health Education Department #182** at **1-408-851-3800**, or go to [kp.org/santaclara/healtheducation](http://kp.org/santaclara/healtheducation).

# Support Services

## Member Services Department Patient Relations

Member Services Department helps to answer your questions about Kaiser Permanente services and your benefits. They provide copies of useful forms and publications. Member services can assist with:

- Health plan benefits
- Patient enrollment status
- Kaiser Permanente services
- Health plan ID cards
- Patient complaints and grievances
- Travel out of area plan coverage
- Health plan documents

Member outreach specialists in Department 162 assist with selecting or changing primary care doctors and creating a personal account at **kp.org**. Specialists will assist with application forms to California State Disability Insurance (SDI), California Paid Family Leave Program, and Family Medical Leave (FMLA).

Work Status Activity forms are required to specify time off from work for medical reasons, and are obtained from your doctor for placement into your patient record.

For further information, contact the **Member Services Department #162**, or online at **kp.org/memberservices** or call the **Member Services Contact Center**:

**1-800-464-4000** (English)

**1-800-788-0616** (Spanish)

**1-800-757-7585** (Chinese dialects)

**1-800-777-1370** (TTY)

## Release of Information (ROI) – Patient Records

The ROMI Department releases patient medical information by written request of the patient. Assistance is provided with:

- Release of Kaiser Permanente Medical Records
- Miscellaneous forms that require a doctor's signature
- Medical information about you from providers outside of Kaiser Permanente may be placed into your medical record. You obtain the information from the outside service provider and deliver it to your primary doctor. Your doctor will forward the information to your medical record.

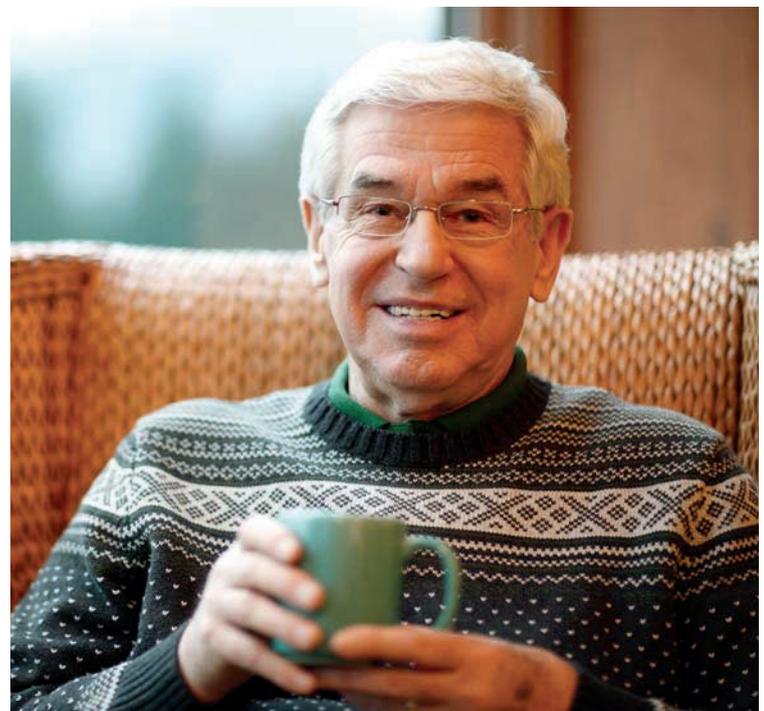
For further information about the Release of Information Department, go to Department 160, in the **Santa Clara Medical Office Building**, or call **1-408-851-1750**.

# Support Services

## Financial Services Department

The Financial Services Department helps Kaiser Permanente Health Plan Members with questions regarding their medical bills, payments to accounts, refunds, and any insurance related issues. The department bills non-Kaiser plans for patients including: Medicare, Medi-Cal, Third Party Liability (TPL), Coordination of Benefits (COB), HMO, and secondary insurance companies. Financial Advisors are available to answer questions regarding alternative payment needs and help in locating resources.

For further information, contact the **Patient Financial Services Department (formerly Business Office) #112, first floor, Santa Clara Hospital building,** or call **1-408-851-5950**.



# Internet Resources



There are many sources of information about prostate cancer and its treatments. If you have questions about prostate cancer, we encourage you to explore some of the websites listed below.

**Kaiser Permanente My Doctor Online**  
[kp.org/mydoctor](http://kp.org/mydoctor) and search for **prostate cancer** or search [kp.org/MDO](http://kp.org/MDO)

**Kaiser Permanente Santa Clara Comprehensive Cancer Care**  
[kp.org/santaclara/cancercare](http://kp.org/santaclara/cancercare)

**Kaiser Permanente North Valley Roseville Cancer Treatment Center Video, Radiation and Brachytherapy**  
[mydoctor.kpnlvly.org/cancer-care/home/prostate-cancer/](http://mydoctor.kpnlvly.org/cancer-care/home/prostate-cancer/)

**National Cancer Institute**  
<http://www.cancer.gov>

**American Cancer Society**  
<http://www.cancer.org>

**National Institutes of Health**  
<http://www.nih.gov>

**National Comprehensive Cancer Network**  
<http://www.nccn.org>

**Cancer Care**  
<http://www.cancercare.org>

## Online Videos at [kp.org](http://kp.org)

The following websites present video programs sponsored by Kaiser Permanente. The videos are designed to provide information for expected procedures.

**Radical Prostatectomy emmi**  
[kpdoc.org/prostatectomyemmi](http://kpdoc.org/prostatectomyemmi)

**Robot-Assisted Radical Prostatectomy emmi**  
[kpdoc.org/robotprostatectomyemmi](http://kpdoc.org/robotprostatectomyemmi)

**Prepare for Radiation Therapy emmi**  
[kpdoc.org/radiationtherapyemmi](http://kpdoc.org/radiationtherapyemmi)

## KP Preventive Care Mobile App

For your Apple and Android mobile device, our apps can help you with appointment reminders, health tips, and personalized alerts about the care you and your family need to stay healthy. Download them for free on your iPhone, iPad, iPod Touch, or Android device.

# Suggested Reading

Some of our patient have found these books to be useful sources of information about prostate cancer and its treatment.

**The Prostate Cancer Treatment Book**

Authors, Peter Grimm and John Blasko  
McGraw-Hill Education; Dec 2003  
ISBN 0071422560

**Dr. Walsh's Guide to Surviving Prostate Cancer** (3rd Edition)

Authors, Patrick Walsh, MD, and Janet Farrar Worthington  
Grand Central Life and Style; June 2012  
ISBN 1455504181

**A Primer On Prostate Cancer:  
The Empowered Patient's Guide**

(2nd Edition)  
Author, SB Strum, MD  
Life Extensions Publications, Inc.;  
Feb 2005, ISBN 0965877779

**The Cancer Fighting Kitchen:  
Nourishing, Big-Flavor Recipes for  
Cancer Treatment and Recovery**

Author, Rebecca Katz  
Ten Speed Press, Aug 2009  
ISBN 1587613441

**Prostate Cancer for Dummies**

Authors, Paul H. Lange and Christine Adamec  
Wiley Publishing, April 2003  
ISBN 0764519743



# Glossary

**Acute** — Symptoms or signs that begin and worsen quickly; not chronic.

**Adrenal gland** — A small gland that makes steroid hormones, adrenaline, noradrenaline, and testosterone. These hormones help control heart rate, blood pressure, and other important body functions. There are two adrenal glands, one above each kidney.

**Androgen** — A type of hormone that promotes the development and maintenance of male sex characteristics.

**Anti-androgen** — A substance that keeps androgens (male hormones) from binding to proteins called androgen receptors, which are found in prostate cells. Treatment with anti-androgens may stop prostate cancer cells from growing. Examples of antiandrogens used to treat prostate cancer are flutamide, bicalutamide, enzalutamide, and nilutamide.

**Anus** — The opening of the rectum to the outside of the body.

**Asymptomatic** — Having no signs or symptoms of disease.

**Benign** — Not cancerous. Benign tumors may grow larger but do not spread to other parts of the body. Also called nonmalignant.

**Benign prostatic hyperplasia (BPH)** — A benign condition in which an overgrowth of prostate tissue pushes against the urethra and the bladder, blocking the flow of urine. Also called benign prostatic hypertrophy and BPH.

**Biochemical recurrence** — After prostate cancer treatment with surgery or radiation, a rise in PSA level of at least 0.4 ng/ml, followed by a further increase, may indicate return of, or metastatic cancer.

**Chronic** — A disease or condition that persists or progresses over a long period of time.

**Cryosurgery** — A procedure in which an extremely cold liquid or an instrument called a cryoprobe is used to freeze and destroy abnormal tissue. Also called cryoablation and cryotherapy.

**CT scan** — A procedure that uses a computer linked to an X-ray machine to make a series of detailed pictures of areas inside the body. The pictures are taken from different angles and are used to create 3-dimensional (3-D) views of tissues and organs. A dye may be injected into a vein or swallowed to help the tissues and organs show up more clearly. A CT scan may be used to help diagnose disease, plan treatment, or find out how well treatment is working. Also called

## Glossary *(continued)*

CAT scan, computed tomography scan, computerized axial tomography scan, and computerized tomography.

**Degarelix** — A drug that is used to treat advanced prostate cancer. Degarelix binds to gonadotropin-releasing hormone (GnRH) receptors in the pituitary gland. This causes the body to stop making testosterone. Degarelix is a type of GnRH antagonist. (Also called Firmagon.)

**Differentiation** — In cancer, this term describes how similar or not similar tumor tissue looks compared to the normal tissue the tumor came from. Well-differentiated cancer cells look more like normal cells and tend to grow and spread more slowly than poorly differentiated or undifferentiated cancer cells. Differentiation is used in tumor grading systems.

**Ejaculatory duct** — One on each side of the prostate gland, ejaculatory ducts are short vessels created where the seminal vesicle's duct merges with the vas deferens. These ducts travel through the prostate and drain into the urethra. Semen flows through each ejaculatory duct during ejaculation and travels through the penis to exit the body.

**Fibrosis** — Development of excess fibrous connective tissue, sometimes due to scarring.

**Flare** — In prostate cancer, it is a temporary increase in testosterone levels in the body caused by certain types of hormone therapy used to treat prostate cancer. When first given, these drugs cause the testicles to make more testosterone (testosterone flare) which then subsides.

**Gland** — An organ that makes one or more substances, such as hormones, digestive juices, sweat, tears, saliva, or milk. Endocrine glands release the substances directly into the bloodstream. Exocrine glands release the substances into a duct or opening to the inside or outside of the body.

**GY, Gray unit** — A measurement stating the absorption of one joule of radiation energy by one kilogram of matter.

**High-intensity focused ultrasound therapy (HIFU)** — A procedure in which high-energy sound waves are aimed directly at an area of abnormal cells or tissue in the body. The waves create heat that kills the cells.

**Hormone** — One of many substances made by glands in the body. Hormones circulate in the bloodstream and control the actions of certain cells or organs.



**Immune system** — A complex network of cells, tissues, organs, and substances in the body that comprise the body's ability to fight infections and other diseases. The immune system includes white blood cells and organs and tissues of the lymph system, such as the thymus, spleen, tonsils, lymph nodes, lymph vessels, and bone marrow.

**Immunotherapy** — A type of biological therapy that uses substances to stimulate or suppress the immune system to help the body fight cancer, infection, and other diseases. Types of immunotherapy include cytokines, vaccines, bacillus Calmette-Guerin (BCG), and some monoclonal antibodies.

**Impotence** — The inability to have an erection of the penis adequate for sexual intercourse. Also called erectile dysfunction.

**Inflammation** — Redness, swelling, pain, and/or a feeling of heat in an area of the body. This is a protective reaction to injury, disease, or irritation of the tissues.

**LH-RH agonist** — A substance that causes the testicles to stop making testosterone to treat prostate cancer. Also called GnRH agonist, gonadotropin-releasing hormone agonist, and luteinizing hormone-releasing hormone agonist.

**Libido** — Sexual desire or the mental energy or emotion related to sex.

**Luteinizing hormone** — A hormone made in the pituitary gland. In males, it acts on the testes to cause cells to grow and make testosterone. Also called interstitial cell-stimulating hormone, LH, and lutropin.

**Lymph node** — A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic) fluid, and they store lymphocytes (white blood cells). They are located along lymphatic vessels. (Also called lymph gland.)

**Malignant** — Cancerous. Malignant cells can invade and destroy nearby tissue and spread to other parts of the body.

**Margins** — The edge or border of the tissue removed in cancer surgery. The margin is described as negative or clean when the pathologist finds no cancer cells at the edge of the tissue, suggesting that all of the cancer has been removed. The margin is described as positive or involved when the pathologist finds cancer cells at the edge of the tissue, suggesting that all of the cancer has not been removed.

**Medical oncologist** — A doctor who specializes in diagnosing and treating cancer using chemotherapy, hormonal therapy, biological therapy, and targeted therapy.

## Glossary *(continued)*

**MRI** — (Also called magnetic resonance imaging, NMRI, and nuclear magnetic resonance imaging). A procedure in which radio waves and a powerful magnet linked to a computer are used to create detailed pictures of areas inside the body. These pictures can show the difference between normal and diseased tissue.

**Nuclear medicine** — A method that uses radioactive substances to make pictures of areas inside the body. The radioactive substance is injected into the body and locates and binds to specific cells or tissues, including cancer cells. Images are made using a special machine that detects the radioactive substance (e.g., bone scan). Also called radio-imaging.

**Oncology nurse** — A nurse who specializes in treating and caring for people who have cancer.

**Palpable** — Describes cancer that can be felt by touch, usually present in lymph nodes, skin, or other organs of the body.

**Partin tables** — A system of measure using clinical features of prostate cancer, including the Gleason score, serum PSA, and clinical stage, to predict whether the tumor will be confined to the prostate.

**Pathologist** — A doctor who identifies diseases by studying cells and tissues under a microscope.

**Perineum** — The area of the body between the anus and the scrotum.

**Prognosis** — The likely outcome or course of a disease; the chance of recovery or recurrence.

**Proton radiation therapy** — A type of radiation therapy that uses streams of protons (tiny particles with a positive charge) to kill tumor cells. This type of treatment can reduce the amount of radiation damage to healthy tissue near a tumor. Proton beam radiation is different from X-ray radiation.

**PSA density** — A measure to show levels of PSA being produced by the prostate gland. The prostate gland volume is measured via trans-rectal ultrasound. The PSA level is then divided by the size of the prostate to calculate the PSA density. A high PSA density means that a relatively small volume of prostate tissue is making a lot of PSA; a low PSA density means that a large volume of prostate tissue is making relatively little PSA.

**PSA velocity** — A measurement of how fast PSA levels in the blood increase over time. A high PSA velocity may be a sign of prostate cancer and may help find fast-growing prostate cancers.

**Radiation oncologist** — A doctor who specializes in using radiation to treat cancer.



**Rectum** — The last several inches of the large intestine closest to the anus.

**Recurrence** — Cancer that has recurred (come back), usually after a period of time during which the cancer could not be detected. The cancer may come back to the same place as the original (primary) tumor or to another place in the body. Also called recurrent cancer, or relapse.

**Refractory** — Cancer that does not respond to treatment. The cancer may be resistant at the beginning of treatment or it may become resistant during treatment. Also called resistant cancer.

**Registered dietitian** — A health professional with special training in the use of diet and nutrition to keep the body healthy. A registered dietitian may help the cancer care team improve the nutritional health of a patient.

**Scrotum** — In males, the external sac that contains the testicles.

**Semen** — The fluid that is released through the penis during orgasm. Semen is made up of sperm from the testicles and fluid from the prostate and seminal vesicles.

**Seminal vesicle** — A gland that helps produce semen.

**Social worker** — A professional trained to talk with people and their families about emotional or physical needs and to find them support services

**Sperm** — The male reproductive cell, formed in the testicle. A sperm unites with an egg to form an embryo.

**Sperm banking** — Freezing sperm for use in the future. This procedure can allow men to father children after loss of fertility.

**Steroid** — Any of a group of lipids (fats) that have a certain chemical structure. Steroids occur naturally in plants and animals, or they may be made in the laboratory. Examples of steroids include sex hormones, cholesterol, bile acids, and some drugs.

**Systemic** — Affecting the entire body.

**Testicle** — One of two egg-shaped glands inside the scrotum that produce sperm and male hormones (plural, testes).

**Testosterone** — A hormone made mainly in the testes (part of the male reproductive system). It is needed to develop and maintain male sex characteristics such as facial hair, deep voice, and muscle growth.

## Glossary *(continued)*

**Tumor** — An abnormal mass of tissue that results when cells divide more than they should or do not die when they should. Tumors may be benign (not cancer) or malignant (cancer). Also called neoplasm.

**Transurethral resection of the prostate (TURP)** — Surgery to remove tissue from the prostate using an instrument inserted through the urethra.

**Ureter** — The tube that carries urine from the kidney to the bladder.

**Urethra** — In men, the tube that empties urine from the bladder, carries it through the prostate gland, and delivers it out of the body through the penis

**Urethritis** — An inflammation of the urethra. The most common symptom is painful or difficult urination.

**Urinary incontinence** — Inability to hold urine in the bladder (leakage).

**Urination** — The release of urine from the urinary bladder leakage through the urethra to outside of the body.

**Urologist–surgeon** — A medical doctor and surgeon who specializes in diseases of the urinary and male sex organs.

**Vaccine** — A substance or group of substances meant to cause the immune system to respond to a tumor or to microorganisms.

**Vas deferens** — A coiled tube that carries the sperm out of the testes.

**Void** — The release of urine from the urinary bladder through the urethra (urination).

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