Cancer Treatment Centers of America created the *Prostate Cancer Kit* to help you manage your cancer treatment decision-making process. In these pages, you will find the knowledge you need to help you make the most important decision of your life. And, you will find tools to help you in your search for the best prostate cancer treatments available.

You will find five sections in this kit:

1. **Understanding Prostate Cancer**
2. **Overview of Treatment Options**
3. **Questions to Ask Your Doctor**
4. **Selecting Your Treatment Hospital**
5. **Decision Guide**

The “Decision Guide” is a workbook we designed to help you take a more active role in the decision-making process. As with everything related to our cancer treatment program, the “Decision Guide” requires you to begin asking questions – often, hard questions – that ask what you are looking for in a hospital and a physician. Use the Decision Guide to help you identify the goals and expectations you bring to the treatment process. Your answers will serve as the steps you need to take to make your goals a reality.

Before you make any treatment decision, we recommend you use three guideposts to help steer your thinking:

1. **Time is on your side.**
2. **You can manage this disease.**
3. **Talk to a Urologist, a Medical Oncologist and a Radiation Oncologist before making a treatment decision.**

At Cancer Treatment Centers of America, we believe you must be a key player and decision-maker. At a minimum, the Prostate Cancer Kit contains useful information about hospitals, treatment options, and questions you may use to assess the doctors and hospitals you visit throughout this process.

Everyone at Cancer Treatment Centers of America wishes you the best on your journey ahead. We’ve spent more than 25 years helping men fight prostate cancer. If we can be of service to you on your journey, please call us at (800) 851-1810.

**UNDERSTANDING PROSTATE CANCER**

According to the American Cancer Society, a number of lifestyle factors ranging from diet to inactivity, along with increasing longevity, combine to make prostate cancer the second most common cancer in men, after skin cancer.

To understand prostate cancer, you must become familiar with some *basic* information regarding *how* and *why* this disease develops in the body. Like all cancers, prostate cancer originates at the cellular level. Your body consists of *countless* numbers of cells. Generating new cells to replace old or damaged cells allows the body to continually restore itself through this natural maintenance process.
For many reasons such as hormones, diet and genetics, normal cells change and begin growing, and dividing, at uncontrollable rates. This uncontrolled cellular growth creates tumors. Benign tumors are not cancerous. Benign prostate enlargement is called \textit{benign prostatic hyperplasia (BPH)}. Nearly all men develop some level of BPH as they age. Unlike benign tumors, \textit{malignant} tumors \textit{are} cancerous. \textit{Metastasis} occurs when cancerous cells move from the malignant tumor to other parts of the body.

### The Prostate: An Overview

To provide some perspective on how and why prostate cancer develops, you first need insight into the \textit{anatomy}, or the structure, of the prostate.

The prostate is a small, muscular, walnut-sized male sex gland that produces a white, thick seminal fluid, which transports sperm. Situated below the bladder and in front of the rectum, the prostate surrounds the urethra, the tube that carries urine and sperm out of the body. When a man achieves orgasm during sex, the prostate contracts to push semen through the urethra out the penis. The prostate helps control urine flow via its muscle fibers surrounding the urethra.

The prostate is part of the \textit{genitourinary} system. Male testosterone hormones in the mother's uterus stimulate prostate development in the fetus. It continues to grow through adulthood. As long as a man continues to produce male hormones, the prostate gland functions normally. It cannot function without male hormones produced by the testicles and the adrenal glands.

This information gives you a basic understanding of how the prostate functions. Moving forward, it's essential for you to build upon this foundation of knowledge by learning how environmental, genetic and lifestyle risk factors may contribute to the development of the disease.
Prostate Cancer Risk Factors

Seven factors increase a man’s prostate cancer risk – age, diet, race, family history, lifestyle, personal medical history, and Prostatic Intraepithelial Neoplasia (PIN). What follows is a brief description of each risk factor. While the seven risk factors do not provide absolute evidence to decipher exactly when or if a man will develop prostate cancer, population studies illustrate a strong link between each risk factor and increased risk for disease.

1. **Age** – As a man ages, his immune system diminishes, reducing its ability to recognize, attack, and kill damaged or abnormal cells. Left untouched, these abnormal cells can take root and multiply, resulting in cancer. In prostate cancer, the incidence, or rate at which the disease is diagnosed, significantly increases in men over age 55. Most doctors believe that if a man lives long enough, he will probably develop prostate cancer. It is important to note that practically every male autopsy shows some form of prostate cancer. Most often, though, the prostate cancer was not the cause of death.

2. **Diet** – Diet, too, plays a role in prostate cancer risk. Studies link a diet high in saturated fats to a greater frequency of prostate cancer. Also, high levels of complex carbohydrates typically found in an American diet, including white bread, refined flour, etc., lead to abdominal fat that, in turn, increases a man’s risk of developing prostate cancer. Eating a diet low in fat, and high in vegetables, fruits and grains lowers this risk factor.

3. **Race** – African-American, followed by Hispanic, men are more likely to develop prostate cancer than men of other races.

4. **Family History** – Some studies have shown that a family history of prostate cancer increases a man’s chance of developing the disease. In addition, there is some evidence that if a man had a sister or mother with breast cancer, he has an increased risk of prostate cancer. Genetic researchers are investigating how the DNA you inherit from your parents can affect your prostate cancer risk. Some researchers believe genetics may cause up to 10 percent of all prostate cancers.

5. **Lifestyle** – If a man neglects general good health through regular exercise and weight control, he is more likely to develop prostate cancer than a man who exercises regularly and is not obese.

6. **Personal Medical History** – A man who fought prostate cancer in the past carries an increased risk of experiencing a recurrence, or a return, of the disease. Also, men with prostatitis have an increased risk of prostate cancer.

7. **Prostatic Intraepithelial Neoplasia (PIN)** – A pre-malignant change in prostate cells, PIN can appear in men as early as age 20. Nearly one-half of men have PIN by the time they are 50. PIN causes microscopic changes to prostate cells. If you have a high-grade PIN diagnosed through a prostate biopsy, there is a 30 to 50 percent chance you also have prostate cancer, according to the American Cancer Society.

Risk factors provide general guidelines to assess some of the contributing factors behind the onset of this disease. Experts develop risk factors based upon studies of large segments of the general population. Since each man’s body presents a unique set of variables, it is inaccurate to flag one or more of these risk factors as “the reason” cancer developed in your body.

As you begin researching your treatment options, it’s important to pay attention to the type of doctor with whom you choose to work. A medical specialist, typically a Urologist, can perform an initial in-depth assessment of your situation. Your Urologist will diagnose and stage your prostate cancer. If you are considering non-surgical treatment options, you
should speak with a Radiation Oncologist and a Medical Oncologist. A Radiation Oncologist is a doctor who specializes in planning and administering radiation therapy. A Medical Oncologist specializes in diagnosing and treating cancer using chemotherapy and other drugs.

Remember, for you to stay in control of your situation, it’s important to talk with your doctor and ask questions to build your understanding of your disease. If you have questions about any of the risk factors listed in this kit, review the listing with your doctor.

**Prostate Cancer**

Prostate cancer occurs when malignant cells form and spread in the prostate gland. In fact, according to the American Cancer Society, more than 99 percent of prostate cancers develop from the glandular cells that make the seminal fluids the prostate secretes. Adenocarcinoma is the medical name for cancer that forms in glandular cells.

The American Cancer Society estimates about 90 percent of men with prostate cancer will survive at least five years after diagnosis, and two-thirds live 10 years or more. Most cases of prostate cancer are discovered through routine screening such as **prostate-specific antigen (PSA)** blood test or a **digital rectal exam (DRE)**.

Prostate cancer is what’s known as an *indolent cancer*. This means the tumor grows very slowly, sometimes taking up to four years to double in size. In fact, autopsy studies reveal many older men had prostate cancer, even though they died of something else. In nearly all cases, neither men nor their doctors knew they had prostate cancer.

A small number of prostate cancers can aggressively spread to other body parts, especially the lymph nodes and the bones. When detected early, and with proper treatment, prostate cancer may be cured. The problem with most prostate cancers is there may be no early warning signs.

Now, you know the basics – you know prostate cancers are generally slow growing, you know the risk factors associated with the disease and you know it’s important to seek a spectrum of medical opinions from doctors who specialize in surgery, radiation therapy and chemotherapy. Don’t forget the three decision guideposts outlined earlier:

1. **Time is on your side.**
2. **You can manage this disease.**
3. **Talk to a Urologist, a Medical Oncologist and a Radiation Oncologist before making a treatment decision.**

**An Important Note on Prostate Cancer Staging**

Deciding upon a course of treatment may be the hardest, yet most important, decision you make right now. Making educated treatment decisions begins by learning about the **stage**, or **progression**, of prostate cancer in the body. A properly staged prostate cancer, backed by second or third opinions from different Medical Oncologists, presents you with a more clear-cut picture of where the cancer exists in your body. It is the first important step you can take to determine the best treatment options available to help you beat prostate cancer.

Since the stage of the disease plays such a large role in shaping both the treatment **type** and the potential treatment **options** you may choose from, it is **critical** that you understand the latest methods for accurately staging prostate cancer.

The American Joint Commission on Cancer (AJCC), in collaboration with the International Union Against Cancer (IUAC), recommend the **TNM System** to stage cancer. TNM stands for “Tumor,” “Node” and “Metastasis.” Properly staged
prostate cancer requires the know-how of a **Pathologist**, a doctor with special training and expertise in analyzing human cell structure. Using a variety of techniques, the Pathologist closely examines your tissue samples, documenting cell structure, tumor size, and evidence of lymph node involvement.

The Pathologist will also grade the tumor. The tumor grade reflects the **appearance** of the cancer cells under the microscope. A cancer cell that appears very similar to a normal, healthy cell is said to be **well-differentiated (G1)**. In contrast, a poorly or **undifferentiated (G4)** cancer cell might have an altogether different size, shape, or appearance than a normal cell. As a result, these poorly differentiated or undifferentiated cancer cells cannot complete normal, healthy cell functions. More aggressive tumors generally contain a high number of poorly differentiated cancer cells.

This pathologic information, when combined with data obtained from biopsy surgery and other scans, helps the physician determine the overall progression, or **stage**, of cancer in your body. Inserting the information reflecting **Tumor**, **Node**, **Metastasis**, and **Grade** into a comparative table helps your physician consolidate this information into a Roman numeral staging system that indicates the extent of your disease. The Roman numerals 0, I, II, III and IV represent the various stages of cancer, with Stages 0 and I representing **early stage** cancers and Stages III and IV representing **late stage** cancers. Different stages of cancer call for different treatments.

For prostate cancer patients, staging typically follows this course:

**Stage I** – Cancer causes no symptoms and cannot be detected by a **digital rectal exam** (DRE). Stage I prostate cancer is usually discovered during surgery to relieve another problem or through a PSA blood test. While Stage I tumors may be present in more than one prostate location, there is no evidence it has spread outside the prostate gland.

**Stage II** – The tumor can be detected through DRE or a blood test. There is still no evidence it has spread outside the prostate. There are often still no symptoms.

**Stage III** – The cancer has spread from the prostate to nearby tissues.

**Stage IV** – The cancer has spread to the lymph nodes or to adjacent body parts like the rectum or bladder.

**Metastatic** – At different stages, cancer may metastasize. This means the tumor has spread to the lymph nodes, bones, or other body parts. Symptoms such as bone pain, weight loss, and fatigue are common.

For prostate cancer, staging is commonly graded in the United States using the “Gleason” system. Named after pioneering prostate cancer researcher Donald Gleason, M.D., the Gleason system provides pathologists with standards for how the cells look and are arranged. Each aspect is graded on a scale from one to five. The two scores are added together for a **total Gleason score**. A score of 2 indicates the cells look like normal prostate cells, with 5-7 being intermediate with well-differentiated cells that do not look like normal prostate cells, and 8-10 suggesting a more aggressive cancer.

Researchers are working to refine how prostate cancers are graded. New research suggests using a set of reference images to grade prostate cancer cells can improve the standard Gleason test up to 70 percent. Additional research is attempting to use biochemistry to predict which prostate cancers are more aggressive. Using an enzyme called **cathepsin B** and its inhibitor **stefin A**, researchers determined that a high ratio of cathepsin B to stefin A means the cancer is likely to grow and spread aggressively.
Diagnostic Testing for Prostate Cancer

A listing of the tools needed to diagnose and stage prostate cancer follows:

**Screening Tests**

Screening tests are used to determine a general physical state. The idea is to uncover differences between what your health should be and its current status. If symptoms exist, your physician will move to diagnostic testing for a better picture.

- **Case History** – A physical exam consists of a one-on-one examination between you and your physician. Throughout the exam, the physician will ask questions designed to clarify your current health status and identify any symptoms and/or risk factors pointing to potential areas requiring further examination. These questions present the doctor with your case history.

- **Digital Rectal Exam (DRE)** – A digital rectal exam allows your physician to manually feel for any hard or lumpy areas that may exist on the surface of the prostate within reach of the examining finger. DRE screening is recommended for all men over 50 years old.

**Diagnostic Tests**

Diagnostic tests provide images of the human body utilizing x-rays, high-power magnets, radioisotopes, special video equipment, or actual tissue samples to present physicians with an “inside” view of the prostate and surrounding organs.

- **Transrectal ultrasonography** – An ultrasound probe inserted into the rectum uses ultrasound waves to create a picture (or sonogram) of the prostate. TRUS is used mostly to guide the doctor during a prostate biopsy. Radiation Oncologists also use TRUS to guide them as they place brachytherapy needles in the prostate gland. (Brachytherapy as a treatment option is explained in more detail later in this guide.)

- **Intravenous pyelogram** – This utilizes a series of x-ray images to get a complete picture of what is happening with the urinary tract.

- **Cystoscopy** – An examination performed by looking at the urethra and bladder through a thin, lighted tube.

- **ProstaScint Scan** – This unique approach uses a radioactive isotope attached to an antibody injected into the bloodstream. Four days later, prostate cancer patients are scanned with a special camera that detects gamma radiation emitted from the isotope. This detects specific cancer antibodies associated with prostate cancer.

- **Biopsy** – If lab tests suggest cancer is present, a 12-point biopsy will be performed. Since many non-cancerous prostate diseases can produce an irregular lab result, a 12-point biopsy is the only way to verify prostate cancer as the true culprit behind irregular lab results. During a 12-point biopsy, a small amount of prostate tissue is removed with a needle from 12 different sites on the prostate. A Pathologist then checks the tissue under a microscope to see if cancer cells are present. If cancer is present, the Pathologist usually “grades” the tumor. A 12-point biopsy is preferred to a standard biopsy because the more tissue samples available to the Pathologist, the greater the chance the cancer will be uncovered.

- **Bone Density** – Bone mineral density is an important test that indicates whether or not prostate cancer has spread to the bones. It is a painless test that can be repeated annually or semi-annually depending upon your particular circumstances.

- **QCT** – Quantitative CT (QCT) bone density measures bone mineral density. It is preferred to the traditional DEXA scan as it provides a truer picture of bone density.

- **Three Dimensional Planning** – A CAT scan provides physicians, such as Radiation Oncologists, a computer-generated outline of the prostate and the surrounding organs that make-up the radiation treatment field. Because the computer reconstructs the prostate in three dimensions, this highly accurate scan gives the Radiation Oncologist the ability to plan the radiation therapy session and simulate the delivery of the radiation beams before actually administering therapy.
Blood Tests
A small amount of blood can provide physicians with enormous amounts of information. The most common blood tests related to prostate cancer are:

- **Prostate-specific Antigen (PSA)** – Even though prostate cells contain PSA, in normal, healthy cells, it does not leak into the bloodstream. PSA is only made in the prostate. The level of PSA increases in men who have prostate cancer, benign HP, or a prostate infection. For that reason, the PSA is usually a “first step” test. Since its introduction in the 1980s, the PSA test has accurately diagnosed prostate cancer in millions of men worldwide. It is recommended that all men over 50 years old, and African-American men over 40, have a PSA annually.

- **Free PSA** – High Free PSA levels in the bloodstream are associated with benign prostate problems such as prostatitis. Low Free PSA levels often indicate prostate cancer.

- **Prostatic Acid Phosphates** – The PAP level increases for men who have prostate cancer, benign HP, or a prostate infection. PAP tests were commonly used prior to the PSA test. Today, the most common reason for a PAP test is to determine if a patient has metastatic prostate cancer.

- **Testosterone** – This male hormone feeds prostate cancer cells. A serum testosterone level provides your physician with an indication of elevated testosterone. Often, a testosterone test is used to make sure certain medications are having the desired result.

- **NSE** – Neuron-specific aenolase (NSE) is an enzyme produced by neuroendocrine cells found in more aggressive prostate cancers. Elevated NSE helps your doctor understand prostate cancer activity, especially when the PSA is low, but the Gleason score is high.

- **CEA** – Carcinoembryonic antigen (CEA) is an aggressive fetal antigen or protein that is a marker for prostate cancer. CEA is used mostly as a tumor marker. If CEA increases, it can mean that a tumor is becoming more aggressive or that it has returned after a remission period. CEA can also be elevated by non-cancerous illnesses.

- **Chromogranin A** – Tracking serum Chromogranin A (CGA) is especially important for patients with a high Gleason score. Progressively increasing CGA levels usually indicate an aggressive androgen-independent prostate cancer tumor. It is important to note that CGA levels can be elevated in men with impaired kidneys.

- **DHEA-S** – Measuring DHEA-S blood levels gives your physician information about how to treat the prostate cancer tumor. DHEA-S is an adrenal androgen precursor.

Urine Tests
A simple urine test helps physicians check for blood or infection. In addition, urine provides other important information:

- **Pyrilinks D** – A laboratory test using second-voided urine specimen to detect excessive bone breakdown. Pyrilinks D is also called Dpd. Elevated Dpd can indicate distant metastases, even when the tumor appears to be encapsulated in the prostate gland.

OVERVIEW of TREATMENT OPTIONS

Today, more than ever, you have access to an array of prostate cancer treatment options. The sheer number of available options makes understanding the basic treatments an extremely important component of your decision-making process. Exploring this wide range of treatment options requires a general understanding of three traditional treatment modalities – surgery, radiation therapy and chemotherapy. New, emerging therapies constitute a fourth group of therapies you may examine prior to selecting a treatment option that’s right for you.

Remember, to understand all of your treatment options, it’s important to consult a Urologist, a Medical Oncologist and a Radiation Oncologist before making a treatment decision. In most cases, prostate cancer is a slow growing malignancy allowing you time to make a carefully researched decision.
Here is some basic information about the four treatment categories. Keep in mind, selecting a treatment is not only important, but a highly personal decision. Taking appropriate time to review treatment options with family members or close friends may help you feel more comfortable and confident before proceeding with treatment.

- **Prostatectomy** – Surgery removing the prostate is the oldest and the most common form of prostate cancer treatment. Nearly sixty percent of all cancer patients undergo some form of surgical treatment. Surgery is often used in conjunction with radiation therapy and/or chemotherapy. While open radical prostatectomy has been the traditional standard of care, laproscopic radical prostatectomy is gaining acceptance.

  *Nerve sparing techniques* can be used to remove the cancer without sacrificing surrounding nerves. In cases when nerve-sparing techniques are not possible, *nerve grafting* should be considered. Both of these techniques help maintain erectile function. Currently, it is not possible to determine whether either technique is viable until surgery is underway.

While nerve-sparing techniques are not appropriate for all prostatectomy patients, new drugs such as Viagra™, have shown great success in helping men maintain erectile function.

Quality of life issues such as erectile dysfunction need to be thoroughly discussed with your physicians. Urinary incontinence is another quality of life issue to consider. Surgical damage to the muscles that control urination can result in temporary or permanent urinary incontinence. Sometimes, stress incontinence – releasing urine when sneezing, coughing or lifting – is an ongoing side effect. Other times, incontinence occurs during sexual arousal.

Before pursuing surgical treatment, you should always obtain a second medical opinion from a different specialist. Surgery is permanent – therefore, it is critical for care providers to conduct thorough laboratory and diagnostic work to ensure the cancer is confined to the surgical area. Since prostate cancer is typically a slow growing cancer, it is important to take the time to get a second, or even a third, opinion.

The three most common prostate cancer surgical procedures are:

  - **Radical Prostatectomy** – Removal of the entire prostate.
  - **Retropubic Prostatectomy** – The prostate and nearby lymph nodes are removed through an abdominal incision. If the Pathologist finds cancer cells in the lymph nodes, it may mean the cancer has spread to other parts of the body.
  - **Perineal Prostatectomy** – The prostate is removed through an incision between the scrotum and the anus. Nearby lymph nodes are sometimes removed through an abdominal incision. If the Pathologist finds cancer cells in the lymph nodes, it may mean the cancer has spread to other body parts.

- **Radiation Therapy** – Radiation therapy works by utilizing high-powered x-rays, gamma rays, or electron beam radiation to target and destroy rapidly dividing cancerous cells located in a very specific, localized body site.

Recent technological advances in diagnostic imaging machinery allow *Radiation Oncologists* – doctors who specialize in the planning and delivery of radiation therapy – to map a cancerous site and deliver precise beams of radiation right where you need it most. **Quality differences do exist in radiation equipment; therefore, you should always look for a treatment facility with the latest diagnostic equipment and radiation machinery.** Radiation therapy is often used in conjunction with surgery and/or chemotherapy.

A brief listing of prostate cancer radiation therapy options follows:

  - **Conventional Radiation Therapy** – The original radiation treatment, Conventional Radiation Therapy
utilizes standard radiation beams to attack cancer cells in a general area.

- **3-D Conformal Radiation Therapy** – A CT scan of both the prostate gland and the surrounding area helps Radiation Oncologists arrange radiation to treat the prostate while avoiding surrounding organs. The radiation beam can be shaped, but the intensity is constant.

- **Proton Beam Radiation Therapy** – A low energy, external beam radiation therapy, Proton Beams offer a radiation dose that can be programmed to stop at a particular depth. This allows Radiation Oncologists to deliver specified radiation doses to irregular-shaped tumors. The programmable nature of Proton Beams is a special weapon for prostate cancer patients with unusually shaped tumors.

- **Intensity Modulated Radiation Therapy (IMRT)** – IMRT allows very precise external beam radiotherapy resulting in a high dosage to the tumor and a lower dosage to the surrounding healthy tissue. This helps protect healthy tissues by spreading out the dose of radiation.

- **Brachytherapy** – There are two types of implants: temporary or permanent.

Temporary implants, called **High Dose Rate (HDR) brachytherapy**, deliver a controlled amount of radiation to a specific location in the prostate. HDR needles are easily placed in extracapsular tissues and seminal vesicles, allowing high-intensity radiation treatment for Stage T1 and Stage T2 prostate cancers. The radioactive source is only in the body for a limited length of time per session, usually less than 15 minutes. When temporary HDR needles are removed, typically after a 24-hour in-patient series of treatments, no radioactive source remains in the body.

Permanent implants, or **Low Dose Rate (LDR) brachytherapy**, do not require in-patient treatment. It is a convenient and cost-effective one-day treatment for early stage cancers. Numerous radioactive seeds are implanted directly into the prostate gland. The LDR seeds’ radioactivity slowly decreases for approximately six months after implantation. The key concern with LDR is the seeds can migrate from their original placement region to another area in the prostate, or outside of the prostate.

If the seeds migrate after placement, a “cold” area may develop around the cancerous portion of the prostate gland, resulting in under-radiation of the cancerous prostate tissue and over-radiation of healthy prostate tissue. Seeds can also migrate through blood vessels near the prostate into other areas such as the lungs.

More long-term follow-up information is available for LDR permanent seeds as they have been used longer than temporary seeds. While the radiation emitted from permanent seeds is not generally harmful to other people, you may be advised to avoid prolonged close contact with small children and pregnant women for a period of time.

- **Chemotherapy** – Chemotherapy is a broad term relating to a group of medications designed to damage a cancer cell’s ability to grow. **Medical Oncologists** – doctors who specialize in treating cancer with different types of drugs and chemotherapy – oversee this aspect of cancer treatment. Patients may receive chemotherapy orally or through an intravenous (IV) administration. Chemotherapy may be administered throughout your treatment process. Likewise, chemotherapy administered **after a** primary treatment, called **adjuvant chemotherapy**, can reduce the likelihood of tumor spread or cancer recurrence.

Unlike radiation therapy, conventional chemotherapy is a **systemic** treatment carried throughout your entire body by the bloodstream. New medications help to control side effects and, with the proper comprehensive team of experts, the side effects can usually be managed and minimized. Chemotherapy is often used in conjunction with surgery and/or radiation therapy. Typically chemotherapy is used in more advanced cases that no longer respond to hormone therapy.
Chemotherapy can also be delivered differently to enhance effectiveness:

- **Fractionated Dose Chemotherapy** – This method of delivering chemotherapy utilizes a standard dose of chemotherapy and divides this standard dosage over a three-to-five day period. The smaller dosages minimize the side effects of this powerful medicine while maximizing the intensity of the treatment by exposing cancerous cells to chemotherapy for a longer period of time.

- **Watchful Waiting** – Despite what the name implies, watchful waiting is an active treatment in which you and your doctors establish health benchmarks to measure the progression of the disease. Should the disease advance beyond your established health threshold, a more aggressive conventional treatment plan will ensue.

Why would you choose watchful waiting as a treatment option? Often, the choice comes down to a **risk-reward decision**. Since prostate cancer usually grows slowly, the risk of surgery, chemotherapy or any other “invasive” form of therapy may be too high for an older man. If the risks associated with conventional therapy outweigh the reward, watchful waiting may be the best option.

Successful watchful waiting requires you and your doctors to determine your motivation behind pursuing a watchful waiting program and ask you to establish the benchmarks you will use to transition from watchful waiting to a conventional therapy. A strict monitoring program, combined with lifestyle changes that encompass a refined diet and exercise program, also play critical roles in determining the success of any watchful waiting program.

- **Cryosurgery** – Also called cryotherapy or cryoablation, this procedure uses extremely cold temperatures to strategically freeze prostate tissues. Hollow probes are inserted into the prostate with ultrasound guidance. Liquid nitrogen or argon gas is used to freeze the prostate. Ice balls form in the frozen tissue near the probe tips. The ice balls destroy both cancerous and noncancerous tissues near the probe’s tip.

You should remember that cryosurgery carries many of the same risks and side effects associated with other prostate surgeries. As with other prostate surgeries, **nerve preserving cryosurgery** is available in certain cases.

- **Bone Metastases** – Men with prostate cancer that has spread, or metastasized, into their bones require special treatments. Most physicians agree that the best way to eliminate bone metastases is to treat the primary cancer with systemic therapies like chemotherapy or hormonal therapies. Specific therapies like radiation therapy can be used to destroy cancer in specific bone areas. In some cases, special drugs called **radiopharmaceuticals**, can attack bone metastases by homing in on pockets of cancer cells that may exist on the bones. Examples of radiopharmaceuticals include Sumarian and Strontium.

If you’ve been diagnosed with bone metastases, be sure to ask your doctor if bone-building drugs, like those used to fight osteoporosis, are right for you. These drugs can help make bones stronger and help prevent fractures.

- **Emerging Therapies** – In the hands of a skilled physician, emerging therapies represent promising new treatment options available in select hospitals across the country. Immunotherapies, including **Monoclonal Antibody Technology (MoAb)**, represent prominent emerging therapies now available to prostate cancer patients. Other therapies are working to cut off vital hormone supplies to starve prostate tumors.

Typically, you and your physicians may turn to an emerging therapy in three different situations: after exhausting all surgical, radiation and/or chemotherapy options; when your physician determines traditional therapies will no longer improve your condition; or when you may benefit from an emerging therapy used in conjunction with other conventional treatments.
Monoclonal Antibody Technology (MoAb) – Monoclonal antibody technology represents one prominent immunotherapy aimed at leveraging the body’s natural immune response to recognize, attack and kill cancer cells.

Triggering this immune response requires the presence of a special protein called an antibody. Antibodies work like biological “fingerprints.” Upon detecting an antigen – a virus, a bacterium, or a cancer cell – your immune system responds, deploying white blood cells, or lymphocytes, to mark the antigen with an antibody. The antibody clearly identifies the antigen as “FOREIGN” allowing the body to quickly and efficiently target and destroy the abnormality.

Using a laboratory process, scientists can bioengineer large quantities of pre-programmed antibodies to recognize and bind to a specific antigen, like a cancer cell. These laboratory-produced monoclonal antibodies can be used alone, or in combination with other therapies to deliver drugs, toxins, or radioactive material directly to the cancer cell.

Anti-Angiogenesis Agents – Cancer tumors create connections with existing blood vessels for nourishment. Researchers have found that certain medications prevent blood vessels from forming. This prevents tumors from growing, and in some cases, causes tumors to die. Anti-Angiogenesis Agents have also been used successfully with radiation therapy or cryosurgery to improve outcomes.

Hormone Therapies – Hormones play a central role in the growth and development of prostate cancer. Hormone therapies are designed to slow or halt the production of the male hormones testosterone and dihydrotestosterone (DHT). Without these hormones, prostate cancer cells will die, tumors will shrink, and the PSA will drop. For other types of cancer, such as breast cancer, hormone sensitivity tests exist to measure the impact of the hormone treatment. However, there are no tests to determine the hormone sensitivity of prostate cancer cells.

The drop in hormone levels can affect all prostate cancer cells, even if they have spread to other parts of the body. The end result of hormone therapies is known as chemical castration where chemicals prevent testosterone and dihydrotestosterone (DHT) from forming. Either is necessary for most prostate cancers to grow.

A number of studies demonstrate the benefit of hormone therapy prior to, during and for about six months following radiation therapy. Often, hormone therapy is used, along with either surgery or radiation therapy, to shrink the prostate gland. Using hormones to shrink the prostate gland can make surgery easier for the Surgeon and it may help shrink the prostate, providing the Radiation Oncologist with a clearer target for radiation therapy.

Hormone therapy is a systemic therapy, meaning it affects the entire system. Some prostate cancer cells may survive hormone therapy. If this happens, they will eventually grow with very little or no male hormones. When this happens, other forms of treatment may be suggested.

A brief listing of hormone therapies follows:

- **LHRH** – Luteinizing hormone-releasing hormone agonist prevents the testicles from producing testosterone.
- **Estradiol** – Patients take the female hormone estrodial to stop the testicles from producing testosterone.
- **Antiandrogen** – Even after treatments to stop testosterone production, the body produces small amounts of the male hormone androgen. Patients may also be given an antiandrogen to block any remaining male hormones. When combined with LHRH or Estradiol, the treatment is known as a total androgen blockade.
- **5-Alpha-Reductase Inhibitor** – 5-alpha-reductase is an enzyme responsible for converting testosterone into dihydrotestosterone (DHT), a male hormone that is five times more powerful than testosterone. Researchers
have identified a special inhibitor molecule that prevents 5-alpha-reductase from producing DHT, thus slowing prostate cancer cell growth.

Special Services

Apart from standard main treatment modalities, some hospitals offer special services such as Guided Nutritional Support and Pain Management programs designed to enhance the effectiveness of a person's therapy.

• Guided Nutritional Support — Guided Nutritional Support is a clinical nutrition program designed to accomplish three main objectives:
  1. Address malnutrition — Studies show fifty percent of people diagnosed with cancer have already lost weight at the time of diagnosis.
  2. Prevent loss of lean muscle mass — More than simply losing fat stores, people with cancer often lose lean muscle mass. Losing lean muscle mass can impact your ability to tolerate chemotherapy and may reduce the body's ability to eliminate the toxicities associated with powerful cancer therapies like chemotherapy and radiation.
  3. Enhance strength and quality of life — Length of hospital stay, response to chemotherapy, wound healing, and immune function can be directly linked to your nutritional status.

Malnutrition and the loss of lean muscle mass associated with undernourishment account for more than one-third of the annual cancer deaths in the United States. To reverse this trend, the nation's leading healthcare standards-setting organization, the Joint Commission on the Accreditation Healthcare Organizations (JCAHO), recommends a team approach for administering nutritional support to people living with cancer.

Under JCAHO guidelines, a dietician, together with a nurse and a Medical Oncologist, should work collaboratively to ensure your nutritional needs are met. For prostate cancer patients, decreasing the amount of animal protein and saturated fats in the diet is a good start. Replace these high-risk foods with plant-based, prostate cancer-fighting nutrients such as fiber, and lycopenes from foods such as tomatoes, grapefruit, and watermelon. In addition, garlic and onions from the allium family have been shown to support prostate health. All these foods work together to change the chemical environment inside the body where prostate cancer develops.

• Pain Management — Pain Management is a specialized form of medicine that focuses upon alleviating pain, nausea, and other side effects you may experience during treatment. Effectively managing any pain you may experience during therapy is necessary for optimal treatment. Unmanaged pain can interfere with your sleep patterns, lower your appetite, and alter your treatment schedule.

Ask your doctor to discuss the Pain Management programs available at your current hospital or at the hospital where you are considering receiving a second opinion consultation.