



## FACTS ABOUT PROSTATE CANCER

**Prostate cancer is the most common cancer in American men. The American Cancer Society estimates that one in every six men will develop prostate cancer in his lifetime. According to the American Cancer Society, about 240,890 men were diagnosed with prostate cancer in 2011. Prostate cancer is very manageable and often curable. More than 98 percent of men with prostate cancer will live more than five years after diagnosis.**

## TREATING PROSTATE CANCER

If you find out you have cancer, you should discuss your treatment options with a radiation oncologist, a cancer doctor who specializes in treating disease with radiation therapy, and a urologist, a surgeon who specializes in the genitourinary system. Prostate cancer treatment options include:

**Surgery** – a urologist surgically removes the entire prostate.

**External beam radiation therapy** – a radiation oncologist directs high energy radiation to noninvasively kill the cancer cells.

**Brachytherapy** – a radiation oncologist surgically implants high energy radiation seeds within the prostate.

**Hormone therapy** – a doctor prescribes medication to stop the production of hormones that help prostate cancer grow. The prescribing doctor may be a urologist, radiation oncologist or medical oncologist.

**Chemotherapy** – a medical oncologist prescribes medication to kill cancer cells.

**Cryosurgery** – doctor, usually a urologist or interventional radiologist, freezes the tumor within the prostate.

Sometimes a combination of treatments is best for your cancer, such as surgery followed by external beam radiation.

Some men can safely postpone treatment and watch their cancer closely until treatment is needed. Often called active surveillance, this approach allows men with low-risk prostate cancer to avoid the potential side effects of treatment or to delay them if treatment becomes necessary. Ask your doctors about the risks and benefits of all treatment options compared to active surveillance.

## EXTERNAL BEAM RADIATION THERAPY

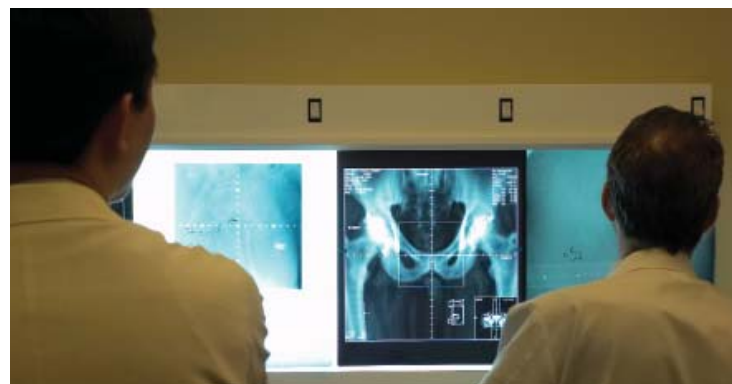
External beam radiation therapy (also called radiotherapy) involves a series of daily treatments to accurately deliver radiation to the prostate. Recently completed research trials have shown that higher doses of radiation can improve cure rates. With modern techniques, radiation therapy is as effective as surgery to cure prostate cancer.

Before treatment begins, your treatment plan will be designed. A CT scan is done in the position you will be treated, often with a supportive device to keep you comfortably in the same position for treatment. Using information from your pathology, imaging and exam, your doctor will design a treatment plan to treat the prostate gland. Sometimes, this will also include treatment of the seminal vesicles (glands on the back of the prostate) and lymph nodes. Ask your doctor to explain what treatment area is appropriate for you.

With CT scans, three dimensional plans (called 3D-CRT) can be created to fit the shape of the treatment areas. These treatment plans focus radiation beams on the prostate while limiting radiation to healthy tissues around it. As higher radiation doses have been used to improve cure rates, more sophisticated forms of 3D-CRT, intensity modulated radiation therapy (IMRT) and imaging guided radiation therapy (IGRT), have been used. These treatment approaches allow the radiation beams to treat the cancer and lessen the risks of side effects.

External beam radiation therapy can be delivered using a variety of conformal techniques such as intensity modulated radiation therapy (IMRT). In most cases, external radiation is in the form of high-energy photons, or X-rays. In a few clinics in the country, proton beam therapy is used to treat prostate cancer. Proton therapy is a form of external beam radiation therapy that uses protons rather than photons to treat cancer cells. Both forms of external beam radiation therapy appear to be equally effective.

With all external beam therapy, treatment is delivered in a series of daily sessions, each about 15 minutes long, Monday through Friday, for several weeks. Each treatment is painless, noninvasive, and similar to a long X-ray: you hear noise but will feel nothing. Each day, you will feel the same when you leave as you did when you came.



The duration of your treatment will depend on your health and the type of radiation used.

The use of even shorter schedules of external beam radiation therapy is being studied for patients with early stage prostate cancer. Hypofractionated radiation is a form of daily treatment giving higher doses over four to six weeks compared to more standard seven to nine weeks of treatment. Stereotactic body radiation therapy (SBRT) is a technique for treating cancers in five or fewer treatments at substantially higher doses each treatment. Neither hypofractionated nor stereotactic radiation is yet considered a standard treatment option for prostate cancer. It is the subject of ongoing investigations. If you are interested in newer treatment schedules, ask your radiation oncologist whether you are a good candidate for clinical trials.

## PROSTATE BRACHYTHERAPY

Brachytherapy (meaning “close treatment” in Greek) involves treating the cancer by inserting radioactive sources directly into the gland. Minimally invasive, permanent brachytherapy requires anesthesia and is done as an outpatient surgical procedure. (Outpatient surgery means you can go home the same day as the implant.)

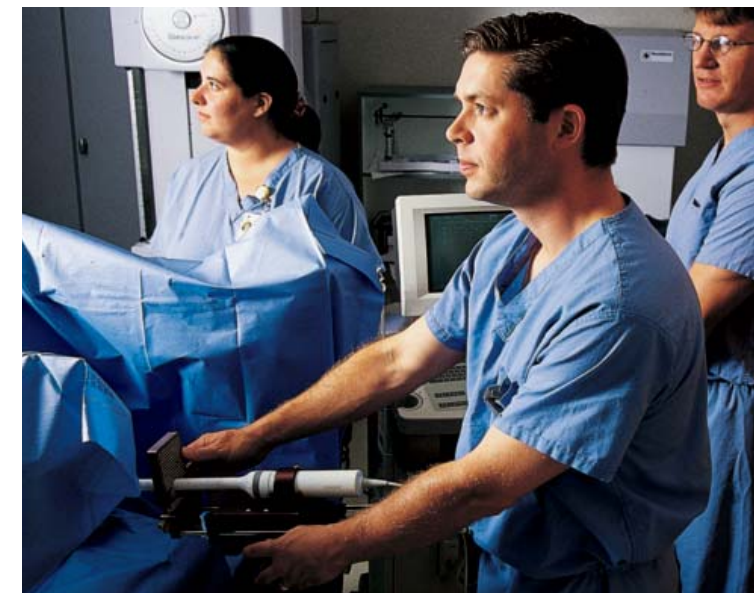
**1. Permanent seed brachytherapy** consists of inserting small metal seeds of radioactive metal “seeds” directly into the prostate gland. Sometimes, it is called a prostate seed implant or low-dose-rate (LDR) brachytherapy. The seeds, typically iodine or palladium, are temporarily radioactive and deliver the radiation to the prostate over several months. After losing their radioactivity, the seeds remain in the prostate. The seeds are then harmless and should not bother you. For the short time that the seeds are giving off radiation, men are asked not to be in close proximity to children or pregnant women because of the very small chance that the radiation may harm the children or fetuses. Ask your radiation oncologist or oncology nurse for specific instructions about radiation safety and exposure for pets or family members.



Comparative size of radioactive seeds

**2. Temporary high-dose-rate (HDR) brachytherapy** delivers radiation to the prostate with a few treatments using a single small radioactive source given through narrow tubes called catheters inserted into the prostate by your radiation oncologist. You will be under anesthesia and will not feel any pain. The tubes remain in place for only one or two days. Once the treatment is complete, the tubes and the radioactive source are taken out. Because HDR brachytherapy is temporary and there is no radioactivity in your body, you will not need to take special precautions around others after treatment. Often multiple treatments are planned to give an effective dose to treat prostate cancer.

Brachytherapy may treat prostate cancer alone or may be combined with external beam radiation therapy. Ask your doctor whether either approach is a reasonable treatment option for you.



## HORMONE THERAPY

Depending on your cancer, you may benefit from adding hormone therapy to radiation. Hormone therapy decreases testosterone production, which plays an important role in prostate cancer progression. It may be used together with radiation therapy or before radiation to shrink the tumor. Hormone therapy may be given by your radiation oncologist, medical oncologist or urologist.

Side effects of hormone therapy may include hot flashes, mild breast tenderness, diarrhea, nausea and tiredness. The length of time you will receive hormone therapy depends on your cancer. Ask your doctor for more information.

