Prostate Radiation Oncology Program

Helen Diller Family Comprehensive Cancer Center
University of California, San Francisco
**Radiation Oncology**

Radiation Oncology Main Phone Number ........................................... (415) 353-7175

After hours and on weekends, ask to speak to the resident on call.

Radiation Reception Front Desk (basement level)  (415) 353-9929

Cyberknife ................................................................. (415) 353-9949
Primus B Treatment Machine ................................................ (415) 353-9912
Oncor C Treatment Machine ................................................ (415) 353-9915
Oncor D Treatment Machine ................................................ (415) 353-7453

Nurse’s Station
  phone ............................................................... (415) 353-9966
  fax ............................................................... (415) 353-7068

Prostate Service Nurse – LuDene Wong-Teranishi, RN, MA ............ (415) 353-9938 - option 1
HDR Service Nurse – Jenny Bohm, RN, BSN ............................... (415) 353-9938 - option 3

Administrative Assistants
  For Dr. Roach .............................................................. (415) 353-9895
  For Dr. Gottschalk and I-Chow (Joe) Hsu ............................. (415) 353-9894

Billing Questions ................................................................. (415) 353-9946
Clinical Practice Manager ....................................................... (415) 353-4683

**Other Helpful UCSF Contact Phone Numbers**

Main Hospital ................................................................. (415) 476-1000
Medical Records Department ................................................ (415) 353-2221
Cancer Resource Center ...................................................... (415) 885-3693
Friend to Friend Gift Shop .................................................. (415) 353-7776
Social Worker ................................................................. (415) 353-7982
Oncology Dietitian .............................................................. (415) 885-7608

**Helpful UCSF Internet Sites**

Radiation Oncology ............................................................ www.ucsf.edu/radonc
Cancer Center ................................................................. cancer.ucsf.edu/
Cancer Resource Center ..................................................... cancer.ucsf.edu/crc/
Urologic Cancer Website ..................................................... www.ucsfhealth.org/adult/medical_services/cancer/urologic/index.html
Welcome!

Thank you for choosing the UCSF Prostate Radiation Oncology Program for your care. We look forward to seeing you!

The Prostate Radiation Program is based at UCSF Medical Center at Mount Zion, 1600 Divisadero St., San Francisco. Patients are seen on the basement level and third floor of the UCSF Comprehensive Cancer Center. Radiation treatments are delivered on the basement level.

**Hours of Service:** 7 a.m. to 5 p.m.

**How to contact us:** For new patient appointments call (415) 353-9807. To speak to a nurse, call (415) 353-9943 during normal hours of service. After hours and on weekends, call (415) 353-7175. Ask for the radiation oncology resident on call.

What is Radiation Therapy?

Radiation therapy uses radiation, such as x-rays, to treat abnormal cell growth (such as cancer). It may be combined with chemotherapy and/or hormonal therapy. Radiation can be delivered from outside of the body using an x-ray-generating machine called a linear accelerator. This type of radiation therapy is called external beam radiotherapy (EBRT). Radiation can also be delivered from within the body using radioactive seeds or implants. This type of radiotherapy is called brachytherapy.

The selection of radiotherapy is determined by clinical features of the prostate cancer such as its location, stage, grade/Gleason Score, and a patient’s PSA level. The different forms of radiation can be used alone or in combination. The type of treatment selected affects the length of treatment and whether the treatment will be given on an outpatient or inpatient basis. The stage and location of the cancer will effect which treatment options you will be offered. The treatment also differs if the intent of the treatment is to cure the cancer or to simply provide relief of symptoms cause by the cancer. Prostate brachytherapy can be used alone or in combination with external beam radiotherapy.

How Does Radiation Therapy Work?

Radiation kills cancer cells by damaging the cell’s DNA. After cells die, the body naturally gets rid of them. Normal cells are protected from radiation as much as possible during the treatments.

Types of Radiation Treatments for Prostate Cancer

**External Beam Radiotherapy**

During treatment, beams of radiation are directed at the cancer cells. The exact area to be treated is designed by your physician using information from your medical tests.

Each beam of radiation is divided into hundreds of smaller beamlets. Each of these beamlets can deliver a different amount of radiation (dose).
Brachytherapy

There are two common types of prostate brachytherapy: Permanent Seed Implant and High Dose Rate (HDR) brachytherapy.

For permanent seed implant, physicians use needles to put tiny radioactive seeds into the prostate while the patient is under anesthesia. After the seeds are placed, the needles are removed but the seeds remain and release radiation over a few months.

For HDR brachytherapy, the physician inserts plastic catheters into the prostate. The radiation is delivered using a robot and it is usually given in one to two 10-minute sessions and requires an overnight hospital stay. After the treatments are complete the catheters are removed and nothing radioactive is left in the patient. HDR brachytherapy is a type of temporary brachytherapy.

Stereotactic Body Radiation Therapy

Cyberknife® technology is a type of stereotactic body radiotherapy (SBRT). This means that the radiation machine is placed on a robotic arm which can move around the patient and correct for patient movement. Prostate SBRT can be used alone or in combination with external beam radiotherapy.

The Process

Your New Patient Consultation

Your first appointment starts with meeting your physician, a radiation oncologist. Your physician will review your medical records and history and perform a physical exam. You will be asked to answer some questions about your bladder function. It is important to discuss your symptoms with your physician, since this may influence your treatment course. Once this is done, the physician will discuss your treatment options. You will have plenty of time to ask any questions you may have. Once you have agreed to a plan of care, you will sign a consent for the treatment. You will receive copies of the consent paperwork that you sign.

What Happens Before and During External Beam Radiation Therapy?

Placement of Gold Seed Markers

Small gold seed markers may be placed in and around the prostate gland to serve as an internal marker for radiation. This is done by Transrectal Ultrasound (TRUS) guidance on the 3rd Floor of the Cancer Center in Urologic Oncology. These seeds will be placed 5–7 days before your simulation appointment. When it’s time for your treatments to begin, these seeds will help us position you for your daily treatment.
Simulation

Before your treatment plan is made, a “simulation” is performed. You will receive an enema just before the simulation begins to empty the stool and air from your rectum. A CT scan will be done to take pictures of your prostate and the surrounding area. Sometimes an MRI is also needed.

Tiny tattoos and/or marks will be placed on your skin to help us with your daily treatment position. We will also take a picture of your face for identification purposes. This is a safety measure so that you cannot be confused with another patient.

This planning procedure, or simulation, takes about 1.5 hours to complete.

Treatment Planning

The CT scan obtained during your simulation will be sent to our treatment planning computer. The treatment plan defines the shape of the radiation beam and the number and direction of angles from which radiation will be directed toward your body. Our dosimetrist and physicists, along with your physician, will decide the shape of the area that the radiation will be delivered, and decide how to best direct the radiation toward your body.

New Start/Dry Run/Verification

Within a week of your simulation, you will return to start your therapy. The first day you arrive, you will not receive any radiation. This is the “New Start” or “Dry Run” day. On this day, you will meet the radiation therapists who will deliver your daily treatments. You will be asked to lie on the treatment table and x-ray pictures will be taken. Your physicians will review the x-ray pictures before your first radiation treatment.

Daily Treatments

You will need to check in daily at the reception desk. Once you arrive in our department, please do not empty your bladder until after your radiation treatment. You may change into hospital pajama bottoms provided by our department, or you may wear your own loose fitting pants, such as elastic-waisted sweat pants. For your safety, please keep your shoes on while in the department. In the treatment room, when you are ready to put your feet up on the treatment table, your shoes may be removed.

You will be told what time to arrive for treatment each day (Monday through Friday). A specially trained radiation therapist will give you your treatment. Before each treatment, x-rays will be taken to make sure you are in the right position on the treatment table.

The total radiation dose your physician has prescribed is divided into equal daily doses. These daily doses will be delivered to the treatment area over several weeks. This allows your healthy cells to repair between treatments.

During your treatment you will be asked to lie very still on the treatment table. The head of the treatment machine will move around your body to deliver the radiation from different angles. Each treatment takes approximately 10–20 minutes, depending on the type of treatment you are getting. You can expect to be in the Radiation Oncology department for 30–60 minutes each day.
On Treatment Visits

You will meet with your radiation oncologist at least once every 5 treatments during the course of radiotherapy. This is called the “on-treatment visit.” Each physician has a day of the week set aside for these visits. During these visits, please let your physician know about any new symptoms and feel free to ask any questions you may have. Your physician will also review any lab work or any changes in your treatment plan during these visits.

How Should I Expect to Feel During Radiation Therapy?

Getting external beam radiation therapy is similar to having a routine x-ray. Radiation cannot be seen or smelled or felt. You may, however, experience side effects from the treatment. Usually side effects do not appear until the 2nd or 3rd week of treatment.

You may experience some or all of the following:

• More frequent urination,
• Urinary urgency
• Weak urinary stream
• Difficulty starting urination
• Burning or tingling with urination
• Diarrhea
• Softer and smaller bowel movements
• More frequent bowel movements
• Worsening of hemorrhoids
• Rectal irritation with occasional scant blood.
• Generalized tiredness.

Depending on how bad the side effects are, you may be prescribed medications such as an anti-diarrheal medication (i.e. Imodium AD or Lomotil) or a medication to decrease the frequency of urination (i.e. Flomax or Uroxatral). Most of these symptoms are short-term and will go away after your radiation treatment ends. Patients are usually able to continue with their normal daily activities during treatment.
How Should I Expect to Feel After Radiation Therapy?

After completion of external beam radiation therapy, side effects may continue for 2-6 weeks but they will improve as time passes. You may need to continue taking any medications prescribed during treatment. Some patients report feeling tired for several weeks after finishing treatment. Most patients report that their energy level improves over time.

Other problems may include:

- Dry itchy skin
- A sensation of heaviness low in the pelvic area
- Anal and rectal irritation
- Flare up of hemorrhoids

After brachytherapy, patients may experience:

- Burning with urination
- Increased daytime and nighttime frequency of urination
- Slow or weak urinary stream
- Incomplete emptying of the bladder
- A brief period of blood in the urine (usually in the immediate post procedure period)
- Local pain or soreness
- Scrotal bruising and/or swelling
- Blood spotting from the area of catheter placement
- Nausea from anesthesia
- Tiredness

Most patients continue with their normal daily activities soon after brachytherapy. You should not lift more than about 20 pounds or perform strenuous physical activity such as a bag of groceries for 1-2 days after the implant.

In less than 5% of patients, swelling of the prostate makes patients unable to empty their bladder. If this happens, you may go home with a Foley catheter to drain your urine. You will also be prescribed a medicine to help reduce the swelling and inflammation.

Very rarely, a patient is unable to urinate after going home. If this happens and you are unable to urinate for several hours or for the whole day, you will need to visit your physician or go to the closest emergency room so that a Foley catheter can be placed to drain your bladder. The catheter is usually removed after 3-7 days.

Rectal problems are not common after brachytherapy. You may experience some rectal discomfort after the procedure but rectal bleeding is uncommon.
Radiation safety is a common concern. Patients are given detailed written instructions before going home. There is no need for EBRT and HDR brachytherapy patients to stay away from family and friends. The treatment is not dangerous to others.

For external beam radiation therapy, once a patient’s daily treatment is completed there is no radiation remaining in his body.

For patients treated with permanent seed brachytherapy, the radiation from the seeds is absorbed by the patient’s body. Bodily wastes and items that touch the patient are not radioactive. However, during the first 1-2 months after permanent seed implantation, women who are pregnant or may become pregnant should stay six feet or more from the patient if they will be in the patient’s company for a prolonged period of time. Young children and pets should not sit on the patient’s lap for prolonged time periods. These precautions will be discussed in further detail by your physician if you have permanent seeds placed. Sexual intercourse may be resumed at any time after the seed implant, but a condom should be worn for the first week after the procedure.

**Sexual Function**

Many men experience a change in their ability to have an erection (erectile dysfunction or impotence) after radiation therapy. Patients may also experience:

- A prolonged time to achieve orgasm
- A change in the ejaculate
- A decrease in the quantity or an absence of ejaculate

These are usually more common with EBRT than brachytherapy. Following brachytherapy, the ejaculate may be dark-brown or even black. This is due to “old” blood that may have resulted from the procedure. It is harmless and of no risk to the patient or their sexual partners. The ejaculate will become clear over time.


**Sperm Production**

Sperm is produced in the testicles. During prostate radiation, low levels of radiation can reach the testicles and decrease sperm production.

The dose of radiation that reaches the testicles usually leads to a temporary reduction (months to years) in the sperm count.

It is possible to have a permanent reduction in the sperm count (sterility). If you want to have children, you should talk to your physician about your options.

**Testosterone Production**

Testosterone comes from cells in the testicles. In general, the radiation that reach the testicles is not enough to stop these cells from making testosterone.
What Else Do I Need to Know?

On occasion, the EBRT treatment machines require maintenance and treatment cannot be delivered. This occurs unexpectedly for a variety of reasons. If any of the machine’s normal functions change in any way, a safety feature stops the machine from working and treatments cannot be given. When this happens, you will either be treated on another machine, wait until the problem is resolved, or skip treatment that day. You will only be asked to skip a treatment if the repair time takes that day to complete and another machine is not available. If you miss a treatment, it will be made-up so you receive the total dose of radiation you need by the end of your treatments.

Your physician will be available to answer any questions you may have at any time during your treatment.

What is Hormone Therapy

Hormone therapy (HT) is a treatment that may be used along with radiation therapy to help control prostate cancer. Several studies have shown that this combination may improve outcomes in certain groups of patients.

What are the Side Effects of Hormone Therapy?

The side effects of HT are the result of lowering or blocking your body's ability to make testosterone. Though these are not the only side effects, most men experience:

- Hot flashes
- Loss of sex drive (libido)
- Difficulty getting an erection
- Tiredness
- Mild anemia
- Weight gain
- Increased appetite
- Softer skin
- Increased urinary symptoms
- Diarrhea

In rare instances impaired liver function, breast tenderness and breast tissue growth (gynecomastia) may occur. Rarer still are depression and other mental status changes.

Long-term use of hormone therapy can cause a loss of calcium from the bones. This calcium loss is reversible.

In general, side effects will begin to go away after HT is stopped. However, with longer periods of hormone therapy, treatment recovery may be less complete. As testosterone gradually increases the symptoms gradually go away. On average 8-10 months are needed to “fully” recover from the effects of hormone therapy. Longer periods of HT treatment will require a longer recovery period.
Follow-up: How often will I need to see my doctor?
Following EBRT, you will have an appointment to make sure that treatment-related side effects are diminishing or have gone away. After that, how often you have follow-up appointments will be depend on your risk of the cancer coming back. In general, PSA blood tests will start around the third month after your treatment ends. You will be tested about every 3–4 months during the first 1–2 years after treatment and every 6 months after that. Changes to this schedule may be made during your follow-up evaluations. Patients receiving brachytherapy will have an appointment for a CT scan of the prostate approximately 3–4 weeks after the procedure. This CT scan will be used to evaluate the “quality” of the implant. Generally an appointment in the Urology Department will also be scheduled for the same day. You will be asked to answer some questions about any symptoms you might be having. This is a very important step in helping your health care providers understand how you are feeling and help you with any problems you may be experiencing.

Will I need additional treatment?
Usually no additional treatment is needed after radiation therapy. Regular post-treatment PSA testing Is Important to determine your need for more treatment. If you do need more treatment at a later time, your physicians (radiation oncologist, urologist and medical oncologist) will discuss your treatment options with you.
The Health Care Team in Radiation Oncology

**Radiation Oncologist**
A physician who specializes in the medical use of radiation to treat people with cancer and other conditions. This physician must complete four years of college, four years of medical school, one year of general medical training and four years of residency training in radiation oncology and be certified in therapeutic radiology by the American Board of Radiology.

**Primary Nurse and Advanced Practice Nurse**
A nurse works with the radiation oncologist and radiation therapists to care for you during your treatment. Radiation oncology nurses are licensed registered nurses. Many of them have additional education in oncology nursing. Advanced Practice Nurses (Clinical Nurse Specialists and Nurse Practitioners) have completed a Master’s degree program.

**Resident**
A resident is a physician who is getting extra training in radiation oncology. The resident will help your physician care for you.

**Radiation Physicist and Dosimetrist**
The radiation physicist has a master’s degree or Ph.D. in medical physics.
The physicists make sure that the treatment machines work properly. They also help make treatment plans, and supervise the dosimetrists.
The dosimetrist makes the treatment plan and figures out the dose to be delivered using the physician’s order.

**Radiation Therapists**
Radiation therapists have completed two to four years of special training in the delivery of radiation for medical use and are certified in radiation oncology. They operate your treatment machine.

**Administrative Assistant**
The administrative assistant helps your physician schedule appointments for you, is available to answer your questions and can put you in contact with your physician or primary nurse.

**Social worker**
The social worker is available to help you and your family and provide connections to helpful community resources.

**Oncology Dietitian**
The dietitian is available to provide education and counseling about nutrition. The dietitian sees patients Monday through Friday in the Cancer Resource Center but may be able to see you in our department. The dietitian offers one-on-one and group education sessions. This service is provided free of charge to UCSF patients.
UCSF Resources for Prostate Cancer Patients

Art Therapy Program

Art for Recovery provides a safe environment where adults can express the intense feelings that arise in life-threatening illnesses; nurturing the aesthetic sensibilities of patients, visitors, and medical staff at the various campuses of UCSF Medical Center and in the community, and creating a safe haven for patients and staff to be heard, to express their feelings and find support. Projects include patient-created artwork, open studio, The Firefly project, breast cancer quilts, art support groups, SPIRIT project, murals in the clinics, healing through writing and more; (415) 885-7221.

Cancer Resource Center

The UCSF Ida and Joseph Friend Cancer Resource Center offers a wide variety of resources which promote the wellness of our patients and promote the healing process. Located on the 1st floor of the UCSF Cancer Center, just past the gift shop. Call for more information (415) 885-3693. Services provided include, but not limited to:

- Informational services – assistance with researching medical diagnoses and obtaining information, workshops, audio and video tapes, consultative planning to facilitate effective communication of your needs with your medical providers.
- Cancer Survivorship Program – This program is designed for patients after their initial therapy is completed; cancer.ucsf.edu/survivorship
- Emotional Support Services – Support groups & emotional support workshops. A peer support program is available; (415) 885-7604.
- Prostate Cancer Support Group – 2nd & 4th Wednesdays of the month, 6 – 7:30 pm. Facilitated by Vittorio Cornelli, PsyD; www.vittorioconellipsyd.com; (415) 637-2895. Partners and Friends as welcome.
- Family & Friends Support Group – 2nd & 4th Thursdays, 4:00 – 5:15 pm; (415) 353-7982.
- LGBT Support Group – Lesbian, gay, bisexual, transgender support group for caregivers of persons with cancer or other life-threatening illnesses; (415) 353-7982.

Nutrition Consultation and Services

- Individual Nutrition Counseling Services – Individual patient consultation are available by appointment with our nutritionist. Your physician’s assistant can arrange for an appointment for you.
- Prostate Cancer and Nutrition Seminar – Learn the latest information about prostate cancer and nutrition in a small group format (five patients per group). Offered several times per month; free but registration is required. Call (415) 885-3693.
Social Worker
If you are having financial, social or psychiatric issues that need attention during your care, please let us know and a social worker referral will be made.

Support Groups
There are many support groups offered through the Ida and Joseph Friend Cancer Resource Center. See Cancer Resource Center section. The Cancer Resource Center additionally maintains lists of support groups throughout Northern California.

Financial Information and Assistance
• Radiation Oncology Billing Questions – Call (415) 353-9946

• American Cancer Society – Limited funds are available to assist with cost of transportation and other needs. Applications for funds can be done via the assistance of our social worker.

• UCSF Financial Counselors – Counselors available from 9:00 a.m. – 3:00 p.m. to discuss your billing and payment issues. Call (415) 353-1966.

Obtaining copies of your medical records
Requests for medical records must be received in writing at the Medical Records Department. A fee may be associated with obtaining your records. A copy of the medical records release/request can be obtained from the Radiation Oncology Department or by contacting the medical records department directly at (415) 353-2221.

Transportation
If you have difficulty traveling to your radiation treatments, please let us know. There may be assistance that can be offered to you including volunteer rides through the American Cancer Society, transportation funds or through the Radiation Oncology Department itself. Our social worker can help you find the best options available; (415) 353-7982.
Helpful Internet Sites for Prostate Cancer Patients

**American Cancer Society** – www.cancer.org

The American Cancer Society has community-based offices as well as a great website. The information on prostate cancer is very comprehensive. The website contains information about support groups, online videos, and referral information. A new application available on the website is the “Circle of Caring.” This application allows patients to securely record their cancer diagnosis information. Once this step is processed, you can share this information with your family members so they can offer you more support and get education. Additionally, personalized educational materials will be sent to you based on the information recorded.

**Centers for Disease Control and Prevention** – www.cdc.gov/cancer/prostate

This government-sponsored website includes the latest statistics as well as education materials about prostate cancer.

**National Cancer Institute (NCI)** – www.cancer.gov/cancertopics/types/prostate

The National Cancer Institute is a division of the National Institutes of Health. This is an excellent website with a wealth of information about tests, diagnosis, definitions, and clinical trials.

**National Institutes of Health (NIH)** – www.clinicaltrials.gov

This website is a clearinghouse of information on clinical trials nationally as well as internationally. Education about enrolling in a trial and becoming a “subject” is explained very well.

**Prostate Cancer Foundation** – www.prostatecancerfoundation.org

The Prostate Cancer Foundation (PCF) was founded in 1993 to find better treatments and a cure for prostate cancer. Through its unique model for soliciting and selecting promising research programs and rapid deployment of resources, the PCF has funded more than 1,500 programs at nearly 200 research centers in 20 countries around the world.

**Prostate Cancer Research Institute** – www.prostate-cancer.org/pcricms

The Prostate Cancer Research Institute (PCRI) was founded in 1996 by two medical oncologists. The objective of PCRI is to educate patients and their families about prostate cancer. This includes new advances in diagnosis, staging, treatments, and available resources. PCRI believes that a patient who understands his disease and treatment is empowered to communicate more effectively with his physicians and obtain a better outcome.
Prostate Conditions Education Council – www.prostateconditions.org

A national organization committed to men’s health, the Prostate Conditions Education Council (PCEC)—formally the Prostate Cancer Education Council—is the nation’s leading resource for information on prostate health. PCEC is dedicated to saving lives through awareness and the education of men, the women in their lives, as well as the medical community about prostate cancer prevalence, the importance of early detection, and available treatment options, as well as other men’s health issues. The Council is comprised of a consortium of physicians, health educators, scientists and prostate cancer advocates. It aims to conduct nation wide screenings for men and perform research that will aid in the detection and treatment of prostate and men’s health conditions.

Us TOO – www.ustoo.org

Us TOO International is a grassroots, non-profit prostate cancer education and support network of 325 support group chapters worldwide, providing men and their families with free information, materials and peer-to-peer support so they can make informed choices on detection, treatment options and coping with ongoing survivorship. The organization was founded in 1990 by five men who had been treated for prostate cancer.