



Your Health Matters

Breast Radiation Therapy Program

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

The Breast Radiation Program is based at UCSF Medical Center at Mount Zion, 1600 Divisadero St., San Francisco. Patients are seen on the basement level and second floor of the UCSF Comprehensive Cancer Center. Radiation treatments are typically delivered in our office 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 is an effective means of treating cancer and, in some cases, non-cancerous conditions. Radiation therapy uses high-energy beams to kill cancer cells. Radiation for breast cancer treatment can be given after lumpectomy or mastectomy depending on the circumstances. It may be combined with chemotherapy and/or hormonal therapy.

Why Radiation Therapy?

The use of radiation for cancer treatment began at the turn of the 20th century, shortly after Marie Curie purified radium from pitchblende (one of the main mineral ores of uranium) in 1898.

Radiation kills cancer cells by causing the production of “free radicals”. This process changes the DNA of the cancer cells and prevents them from reproducing. The cancer cells die when they can no longer multiply and the body naturally eliminates them. Healthy tissues are spared the effects of radiation because they can repair the DNA changes unlike the cancer cell. In addition, normal tissues are shielded as much as possible while targeting the radiation to the cancer site.

What to Expect

Your initial consultation

Your first visit to a radiation oncologist is called a consultation. Its purpose is for the physician to assess your medical condition and perform a physical examination. Your diagnostic X-ray studies, pathology slides and/or reports will be reviewed to determine if you will benefit from a course of radiation. Other treatment options that may be appropriate for you to consider may also be discussed.

The radiation oncologist will confer with your referring physicians. The expected benefits, risks and outcome of your treatment will be explained.

The initial consultation typically takes one to one and a half hours. It is important that you bring a list of medications you are currently taking (including over-the counter medicines and dietary supplements) with you as well as the health questionnaire that you were asked to complete.

For patients who do not speak English, an interpreter will be provided by UCSF.

At the time of the consultation, you will meet with the attending radiation oncologist and his or her primary nurse. A resident, who is a physician training to become a board-certified radiation oncologist, may also see you.

You may want to have a family member or friend accompany you to assist in talking with the doctor and help you remember what is discussed. If a decision is made to proceed with radiation, you will receive an appointment to return for the next step- a treatment simulation prior to beginning actual treatment.

The consent

Before you begin radiation therapy and after your questions have been answered, you will be asked to sign a consent form. Signing the consent form indicates that you understand the risks and benefits associated with the radiation treatment and that you agree to proceed with the proposed treatment course. This will give you an additional opportunity to ask questions of your physician and review the possible side effects and outcome of treatment.

Simulation

The simulation is the first step in planning your radiation treatment. The purpose is to identify the area to be treated. Before simulation begins, a photograph of your face will be taken for identification purposes. During simulation you will be positioned on a table, usually lying on your back. Custom molds or casts may be used to help you keep this position on a daily basis. The simulation may take up to an hour. Several medical professionals will be present. They include your physician and his or her resident and the simulation therapist(s).

Measurements and X-rays of the area to be treated will be taken to determine the direction of the X-ray beams. The simulator is a machine that mimics the movements of the actual treatment machine but produces diagnostic quality X-rays. The simulation may be performed on a modified X-ray machine called a simulator or a dedicated CT scan simulator or both.

Once the simulation is completed, your skin will be marked with small dots of permanent ink (tattoos) to outline the area of radiation and ensure that the therapists are able to treat you accurately each day. The dots are made with a drop of India ink and a small pinprick. They look like small freckles. Since they will not wash off, you may bathe and shower normally during the course of your treatment. If their appearance is bothersome to you, they can be removed by a dermatologist at a later date. However, they serve as a record of your treatment for future reference should you ever need radiation treatment again. We prefer that you do not have them removed.

Treatment planning

The information obtained during the simulation will be used to design a unique treatment for you. Dosimetrists and physicists who specialize in the medical use of radiation are responsible for the planning. Treatment plans are usually very complex and must take into account the area to be treated, the surrounding normal tissues and your specific shape and size. Several plans may be generated and your physician will select the best one. This process may take several days to a week.

The set-up

Once the best treatment plan has been determined and selected, you will return for a trial run or practice session on the actual treatment machine. This process, called a set-up, will take approximately one half hour on a weekday afternoon.

You will be directed to one of four treatment machines. The set-up usually occurs several days to one week after the simulation. At the time of the set-up, you will be placed on the treatment machine in your simulation position.

Several X-rays called port films will be taken to document the path of the X-ray beams. These will be compared to the plans generated by the dosimetrist or physicist. If these are approved by your physician, you will usually begin treatment the following day.

Daily treatment

The specific number of treatments you will receive is determined by your physician based on your type of cancer, its location and what other treatments are planned. Most patients are treated 5 days a week, Monday through Friday, for 5-6 weeks. The weekend rest permits the recovery of normal cells between radiation treatments. You will be able to come by yourself for the daily treatments and you should be able to continue with your normal activities.

Appointment times

You will generally have your appointment for treatment at the same time every day. Routine treatments are scheduled between 7 am and 4:30 pm except for holidays.

We try to schedule treatments at times that are convenient for you. If your preferred time is not immediately available, you may take an alternate time or wait until your preferred time becomes available (provided this does not delay your treatment too long). If you must reschedule an appointment, please call us as soon as possible. We understand that emergencies and occasional conflicts may occur. However, it is important that you do not skip any treatments. The dose of radiation is cumulative; each successive dose builds on the previous one. The total dose of radiation and the time over which it is given are extremely important. Once treatments have begun, it is important not to stop or interrupt them unless otherwise medically indicated.

Checking in

When you arrive in the Radiation Oncology Department, check in at the reception desk. The receptionists will let the therapists at your treatment machine know you are here.

You will need to change into a special gown for treatment. We recommend wearing comfortable clothes that are easy to change. Lockers with keys are located in the dressing area for your security and convenience. Once you have changed into your gown, you will be escorted into the treatment room by a radiation therapist who operates the treatment machine. Each machine has two therapists and you will usually have the same team of therapists each day.

Your treatment session

Your therapist will place you in the proper position on the treatment table. For the actual treatment, which only takes 10 minutes, you will not see or hear the radiation and will not feel anything. The process is like having an X-ray. It is important to lie still and breathe naturally unless otherwise directed. The treatment machines are fairly large and they move in different directions to deliver your treatment.

Your therapists will not be in the room during your treatment, but they can see and hear you at all times through a TV monitor. Your treatment is also monitored by a “record and verify” system, which makes sure that you receive only the treatment that was designed for you. This system assures the quality and accuracy of your treatment.

Once the treatment session is completed, your radiation therapist will help you off the table and you can get dressed and resume your normal schedule. You are not radioactive and do not need to avoid other people because of your treatment.

Overall you will spend about one half hour in the radiation department on a daily basis. On some days your appointment will be longer than others- for example when you are seeing your physician.

Every five to seven treatments you will have an X-ray called a port film. It is taken during the treatment session to verify your treatment position and the direction of the X-ray beams. It does not evaluate the status of the tumor.

Weekly visits

You will see your physician and your primary nurse every week during treatment. They will monitor your progress, help you manage any side effects you may experience and address any of your concerns. This is called an on treatment visit and will occur on a specific day of the week. If you are having a problem and need to see the nurse or physician on a day other than your regularly scheduled day, stop at the nurse’s station.

Side Effects of Breast Cancer Treatment

Radiation will not make you feel sick or nauseated like chemotherapy can. The side effects are generally limited to the area of the body that is treated and usually don’t begin until the second or third week of treatment. The most common side effect of radiation to the breast area is a sunburn, redness, tanning or dryness and peeling of the skin. Your skin changes will be monitored weekly and we will supply you with the creams and lotions you need to care for your skin. You may feel tenderness or experience some swelling in the breast. The radiation may cause inflammation but this is only temporary. Most of the skin changes resolve within a few weeks after the treatment is over.

You may also experience fatigue. It is usually not severe. It does not start until the third or fourth week of treatment and not everyone experiences this. It usually disappears once the treatment is over. It is possible to work during treatment. Whenever possible take time to rest and relax.

Long term side effects or complications of radiation are unusual and usually are related to the area(s) of the body that are treated. Your physician will discuss the risks particular to your case. You may be concerned that radiation will cause another cancer. The risk of developing another cancer because of radiation is very low. The benefit of treatment outweighs the very small risk of another cancer. However, if you smoke it is extremely important that you quit smoking to reduce your risk of lung cancer.

What Will My Schedule for Radiation Be Like?

Typically, breast radiation is delivered every day, Monday through Friday, for 5 to 6 weeks. There are no interruptions except for weekends & holidays. We discourage taking vacations and other time off during the treatment. We try our best to find a time of the day for your treatment that works best for you.

Do's and Don't During Treatment

Things you should do include:

- Go about your life as usual. If you notice that you are having more fatigue, pace your activities.
- Eat well. There is no special diet for radiation.
- Have social contact with friends and family members.
- Arrive to your radiation appointments as scheduled.
- If you are having any problems, please tell our staff. We are very concerned about your comfort and experience.
- Do your exercises if indicated.
- Bathe and shower as usual but use a mild soap such as Dove or Ivory. Avoid deodorant soaps and products that are heavily perfumed or contain alcohol.
- Wear loose-fitting clothing preferably cotton, over the treatment area.
- You may need to wear a different bra or no bra during treatment. Switching from an underwear bra to one with a soft band is recommended.
- Keep a cotton T-shirt handy for sleeping. This is especially good when you are applying heavy moisturizers to the area before bedtime.
- Avoid extreme temperatures in the treatment area. Do not use heating pads, ice packs, whirlpools, hot tubs since they can enhance skin reactions.
- Avoid sun exposure. If you must go out in the sun, wear a hat and sun screen lotion. An SPF of 30 is the minimum recommended.

Things you should not do include:

- Do not use deodorant on the side of your radiation treatment. Many of these products contain aluminum, which interferes with the radiation treatment. If this is a problem for you, we can prescribe a special deodorant that you use once a week.
- Do not take large doses of anti-oxidants or vitamins. Anti-oxidants can decrease the effectiveness of radiation. You may take one multi-vitamin a day and your calcium supplements. If you would like to take other products, please bring them to your doctor's appointment so that we can review them. We will advise you if it is safe to take them during your treatment.
- Do not use your own lotions on the area being treated. We will give you all the lotions you need during your treatment. In general, please do not put any lotions on your breast area in the 3 hours right before your treatment. This intensify your skin reaction.

- Do not shave or use hair removing creams under the arm on the side of your treatment. This can cause irritation. If you feel you must shave, use an electric razor and be very careful.
- Do not smoke. Smoking increases your risk of lung cancer, especially when radiation is given.

Follow-up Appointments

At the end of your treatment, you will receive instructions for further care and a follow-up appointment to see your physician. It is important for you to have regular exams and X-rays to check the results of your treatment. Reports of your treatment will be sent to your other doctors.

The Health Care Team in Radiation Oncology

Radiation oncologist

- He or she is your physician who specializes in the medical use of X-rays to treat people with cancer and various 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

- Your nurse works with the radiation oncologist and radiation therapists to care for you during your treatment. He or she assists your physician by focusing on education, assessment and symptom management and quality of life issues. Radiation oncology nurses are licensed registered nurses. Many of them have additional accreditation in oncology nursing. Advanced Practice Nurses (Clinical Nurse Specialists and Nurse Practitioners) have completed a Master's degree program.

Resident

- Your resident, a physician in training in radiation oncology, may also assist your physician.

Radiation physicist and dosimetrist

- The radiation physicist has a master's degree or Ph.D. in medical physics. The physicists are responsible for the treatment machines as well as the design and implementation of complex treatment plans. Under the supervision of the physicist, the dosimetrist plans the actual treatment and calculates the dose to be delivered as prescribed by the physician.

Radiation therapists

- Your radiation therapists have completed two to four years of specialized 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 and is available to answer your questions and direct you to the appropriate person at UCSF. He or she can help to facilitate communication with your physician or primary nurse.

Social worker

- The social worker is available to help you and your family cope with the diagnosis and treatment of cancer and provide connections to helpful community resources.

What Are the Possible Complications of Breast Radiation?

The short-term and long-term complications are unusual but sometimes do happen. Because of this, it is important for you to know about any potential problems. Your doctor will talk to you about the potential of these risks happening in your particular case. These potential problems include:

Common issues:

- **Permanent loss of hair under the arm on the side of treatment**
- **Darker skin or change in the feeling of the breast.**
The skin of your treated breast may appear to have a slightly darker pigment or feel a bit firmer than the nontreated breast
- Radiation will not increase your risk of a swollen arm unless you receive treatment to the lymph node area

Rare issues:

- **A nerve injury called brachial plexopathy on the treated side.** This appears as a sensation of pins and needles in the affected arm and possibly some weakness. It may occur with radiation to the lymph nodes
- **Irritation of the lung called pneumonitis.** This is like pneumonia but is treated differently. It is not caused by infection
- **A rib fracture sometime in the future.** The ribs under your breast will receive some dose of radiation during your treatment. This can make the bone more brittle. The rib won't usually break on its own. It usually happens if you have an accident like take a fall or have a car accident.
- **Development of a rare cancer called sarcoma many years in the future.**
- **Cancer in the opposite breast.** Some particles of the radiation will touch your other breast. This is called scatter. The dose of radiation your other breast will receive is minimal
- **Development of lung cancer.** The risk of this is reduced if you do not smoke.

