

Welcome!

You have been referred to one of the most innovative radiation oncology programs in the region. The University of Maryland Greenebaum Cancer Center (UMGCC) provides cutting-edge therapies and individualized care for thousands of cancer patients each year. Our internationally recognized experts work together to offer hope to cancer patients through the latest approaches to prevention, detection and treatment of all types of cancers.

Your referral is for a consultation and possible treatment with radiation therapy.

The information in this booklet will help answer many questions you may have about radiation therapy including how to get started, the actual treatment process and what happens after treatment is complete. We encourage you to read this information carefully and use it as a future reference.

The daily operation of our department is designed to be efficient and attentive to your individual needs. In addition to our highly qualified radiation oncologists, our staff includes residents, nurse practitioners, licensed radiation therapists, dosimetrists, registered nurses, physicists and researchers dedicated to offering care in a compassionate and professional manner. Our administrative staff works with the medical staff to ensure that our services function smoothly and that information is promptly and accurately exchanged between your referring physician, your insurance provider and our staff.

Please feel free to use our staff as a resource and advocate as your treatment plan evolves.

What is Radiation Therapy?

Radiation therapy, also referred to as radiation oncology, radiotherapy and therapeutic radiology, is a branch of medicine that specializes in the use of high energy x-rays to treat patients with a cancer diagnosis.

X-rays have a long history in the treatment of cancer dating back to the turn of the 20th century when they were discovered. X-rays injure malignant cells so that they cannot divide and grow and can also alter normal tissue around the cancer, sometimes causing side effects. Radiation therapy clinics have historically used low energy x-rays, also known as “orthovoltage,” and machines with radioactive sources such as cobalt to administer treatment. In recent years many cancer centers, like ours, began using high energy or megavoltage linear accelerators that generate radiation by using electricity and do not contain cobalt or any other radioactive elements. Linear accel-

erators produce x-rays by generating electrons from a metal coil and pushing those electrons down a long tube where they interact with a target that produces the actual x-rays. Linear accelerators (sometimes referred to as linacs), like the ones used at UMGCC, generate treatment beams at different energies and different angles. This flexibility allows us to design a customized treatment for your specific diagnosis.



The Treatment Process

Step 1 – Consultation

The first step of the treatment process is a consultation, during which you will be interviewed and examined by a radiation oncologist, and in some cases, a resident (a physician

who has graduated from medical school but is still in training) and/or a nurse practitioner. A nurse may assist in both the interview and exam. Family members may be asked to remain in the waiting area during the physical examination but are

strongly encouraged to participate in the consultation visit with your approval.

You may be asked to bring reports from referring doctors, especially x-rays, CT scans, MRI scans, nuclear medicine scans, operative notes and pathology reports pertaining to your diagnosis. Our staff will use this information to evaluate your medical condition and assess the role of radiation therapy in the treatment of your specific disease. An overall plan will be outlined, including potential benefits, side effects, opportunities to participate in clinical trials and possible complications of treatment. We will address any questions you may have in detail.

Do not worry if you forget to ask all relevant questions at the

initial consultation. We will be available to answer your questions at any time before, during or after treatment. After the initial consultation, our physicians may confer with your referring physician. If treatment is recommended and you agree to proceed, an appointment will be made for simulation. In some cases, additional diagnostic tests may be requested prior to your simulation.

Step 2 – Simulation

Simulation is the process used to plan radiation therapy so that the target area is precisely located and marked. Your radiation treatment is planned on a CT simulator and/or a conventional simulator. A CT simulator is much like a diagnostic CT and differs only in its ability to send scanned images directly to a treatment planning system for radiation treatment plan development. A conventional simulator is a machine that resembles a linear accelerator—it has fluoroscopic

Myth:
Fact:

Radiation therapy will cause me to miss out on my

While fatigue is often common during radiation treatment, most patients are able to maintain their normal daily schedule including work and school. As treatment nears the end, the fatigue may increase. That does not mean you should stop your routine; just be sure to get the rest you need.



capabilities that allow us to produce images used in the treatment planning process.

The goals of the simulation are to assist you in achieving and maintaining the proper position which

will be used for treatment planning and the delivery of radiation therapy. The radiation therapist uses immobilization devices to help you gain a comfortable and reproducible position.

Once the radiation treatment area has been identified, the radiation therapist will then make pen marks on your skin as a reference to pinpoint the location of treatment. You will be instructed by the radiation therapist to keep these marks and not to wash them off. The marks will be used as a map to duplicate the treatment position each day. The radiation therapist may also mark the skin with tiny permanent tattoos (these look like very tiny dots on your skin). These are actual pinpricks made under the surface of the skin using India ink. This procedure feels like a bee sting or needle stick to most patients. The radiation therapist will also take digital photographs for identification purposes and to document your treatment position.

Step 3 – Computerized Treatment Planning

Customized information from the simulation is directly transferred to the treatment-planning computer. This system displays your body shape and shows how the radiation will enter and exit your body. It will also show how the radiation dose will be distributed around the tumor or treatment volume. Your physician will work with the dosimetrist to select single or multiple beams for treatment delivery.

Step 4 – Treatment Verification

On the day of your simulation the radiation therapist or nurse will give you a time to come back for verification films. This day is a “dress rehearsal” and is used to verify treatment fields

and check positioning. This is done before any radiation is delivered. The radiation therapist will assist you back to the treatment room and reproduce the position used the day of your simulation. The therapist will take port films to verify beam placement and accuracy,

Myth: Fact:

Radiation therapy is painful.

You do not feel the radiation at any time that you are on the table receiving treatment. In fact, you will feel no sensation when the machine is on.

based on the customized treatment plan (see Step 3).

Port films are actual films taken on the treatment machine that allow the therapists and your physician to verify that the radiation is being delivered according to the treatment plan. These films are compared to films obtained during the simulation and treatment planning process. Port films are taken at the beginning of treatment and weekly thereafter or as requested by your physician. These are not diagnostic x-rays and do not allow your physician to evaluate changes in your tumor or the success of the treatment.

Step 5 – Radiation Treatment

Before you begin treatment, you or a family member will be asked to read and sign an informed consent form. We cannot administer treatment without your signed consent.

Treatments are usually given daily, Monday through Friday, at the same time every day. The treatment often begins a day or two following the treatment verification process.

How radiation affects normal tissues varies greatly. Your physician will advise you during and after your radiation treatment regarding the potential side effects of your treatment. Your physician will also talk with you about how to manage and control these side effects.

It is essential that you arrive promptly for your treatment. You can help maintain our schedule by arriving on time. The radiation therapists do their very best to keep appointments on time for all patients. Occasionally a very sick patient or a problem with a machine will cause deviations in the schedule. Every effort will be made to advise you of these inconveniences. If you know you cannot keep an appointment, please call and let the radiation therapist know and every accommodation will be made to change your appointment. Your treatment course can take 1-8 weeks depending on your diagnosis and treatment plan. You will be scheduled to see your physician once a week (or more if necessary) to evaluate progress, manage your side effects and address any concerns you may

ny daily routine.

treatment, many patients can still work and school. As treatment isn't mean you have to give up ed.

Myth: Fact:

Radiation therapy will make me radioactive.

If your treatment involves external radiation, you are not radioactive. The radiation is delivered in doses to treat the abnormal tissue and once the machine is turned off, the radiation does not linger within you. You can maintain a normal routine and go near or be around anyone, including pregnant women and babies.

have. The clinical and administrative staff are here to assist you at anytime. Remember that staff members are trained to deal with you or your family's concerns. Just ask!

Step 6 – Last Day of Treatment

The radiation nurse and/or your physician will meet with you on

the last day of treatment to give you discharge instructions and answer any questions you may have. The receptionist will schedule a follow up appointment for you to come back and see your physician. Follow up appointments are usually

scheduled two to four weeks after the last day of treatment. You should feel free to contact us with questions at any time even after treatment is complete.

Follow up appointments will continue for up to, and sometimes beyond, a one-year period. Your physician will determine the frequency of these visits.

Additional Types of Treatment

The treatment process outlined is for traditional radiation therapy. The University of Maryland Greenebaum Cancer Center offers many advanced types of radiation treatment to for patients who may not be candidates for traditional radiation therapy. Some of these treatments are described below. Ask your physician or nurse for more information.

BAT – B-mode Acquisition and Targeting, or BAT, is an external ultrasound procedure that may be used to help localize your treatment area.

Brachytherapy – Brachytherapy, also called internal radiation therapy, uses radioactive material that is placed directly into or near the tumor. Some examples of high and low dose rates of brachytherapy include prostate and gynecology seed implantation, SIR-Spheres implantation, GliSite for brain cancers and MammoSite® for breast cancer.

Gamma Knife – For patients diagnosed with brain cancer, Gamma Knife radiotherapy may be a treatment option. No incision is used to expose the brain; rather, hundreds of beams of gamma radiation precisely target the cancerous cells.

Grid – Spatially Fractionated Radiation Therapy, or Grid, is sometimes used to attack large tumors when traditional radiotherapy fails. In Grid therapy, pencil sized beams direct five to ten times greater the doses of radiation to the cancer site.

IMRT – Intensity Modulated Radiation Therapy (IMRT) is considered one of the most advanced radiation treatments available to destroy cancer while reducing damage to normal tissue. By using computer-generated plans, IMRT delivers high doses of radiation directly to the disease area. This type of radiation may be an option for patients who may not be candidates for traditional radiation therapy because their tumor is located near vital organs.

TBI – Total Body Irradiation is a treatment usually used along with chemotherapy to treat the entire body in preparation for a bone marrow transplant. This treatment, performed on a specially designed treatment couch that allows patients to be comfortable, is usually done on an inpatient basis.

