



## BASICS OF RADIATION THERAPY

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Your cancer diagnosis has been made, and following a whirlwind of diagnostic testing and visits to cancer specialist, radiation therapy has been recommended.

### Basic Radiation Therapy Facts:

Radiation therapy is simple the use of high energy x-rays to kill cancer cells by interfering with their ability to reproduce. Radiation therapy can be used to *cure* cancer, *control* the growth or spread of cancer, and to provide *comfort* by alleviating the symptoms cancer can sometimes cause.

Most radiation therapy treatments are delivered by the machine called *linear accelerator* which generates the high energy x-rays used to kill cancer cell. The amount of radiation each patient receives is determined by his or her physician (*radiation oncologist*) and is based on current information about how much radiation is needed to damage and kill the particular type of cancer involved. Also taken into consideration is the location of the tumor and the sensitivity of surrounding normal tissues to radiation. Patient safety and welfare are always top priorities in planning radiation therapy treatments.

Prior to starting radiation therapy treatments a planning session, or *simulation*, is conducted. This involves special x-rays or CAT scan pictures and measurements of the area to be treated, as well as markings being placed on the patient's skin help with positioning for treatment. Positioning devices may also be used. This planning session may take up to an hour to complete, but is essential in providing data for optimal treatment planning.

The total dose of radiation therapy prescribed by the radiation oncologist is broken down into small amounts (fractions) which are given on a daily basis...usually five days in a row with a two day break each week. It has been found that patients tolerate the small daily doses well and still receive the maximum benefit of the treatments. Normally, each daily treatment lasts about 10-15 minutes, with the majority of this time spent making sure the blocking devices, which direct the radiation to the appropriate area, are in place and the patient and machine are properly positioned. The staff members who are responsible for managing the daily radiation therapy treatments have received specialized education and certification and are called *radiation therapists*.

### Side Effects:

Unlike chemotherapy, a systemic treatment which travels throughout the body via the bloodstream, radiation therapy is a localized treatment which is directed toward a specific site. Therefore, patients experience side effects related to the area of the body being given the radiation therapy. Most patients do not experience nausea or vomiting unless the stomach is actually included in the treated area (in this case, there are medications available to minimize discomfort) and loss of scalp hair does not occur unless the patient's head is being treated. Most patients do, however, experience some degree of fatigue during radiation therapy. Your radiation oncologist will discuss specific side effects related to your treatment with you before the radiation begins.

In most situations side effects begin to occur sometime between the second and third week of treatment. Be sure to alert your physician or nurse when side effects occur so that they may monitor them and provide the appropriate interventions. The type and severity of side effects vary from patient to patient and may times patients find that the effects may be a little more pronounced toward the end of the treatment week.

During the two-day break, symptoms usually resolve to some degree so that most patients feel more comfortable by the beginning of the treatment week.

Side effects from radiation are usually caused by irritation of normal tissue in the treatment area. While cancer cells are particularly sensitive to radiation and are irreparably damaged by it, normal tissue cells have the ability to repair themselves after being exposed to radiation. Therefore, most of the side effects caused by radiation therapy resolve within a reasonable time after completion of treatment. Your radiation oncologist will discuss any side effects which have the potential to become chronic or to occur after the treatments are completed.

### **Common Concerns:**

*“Is there any chance I could get too much radiation?”*

You will receive a safe amount of radiation to the appropriate site with little danger of overdose. The amount of radiation each patient receives is determined by the radiation oncologist and is delivered under the physician’s supervision with the support of a medical physicist and a dosimetrist (a person with special education in planning radiation therapy treatments). The prescribed dose of radiation is carefully programmed into the radiation therapy machine (linear accelerator) prior to each patient’s treatment. In addition, each radiation therapy center has quality assurance programs in place to check and double check each patient’s treatment plan and the delivery of the radiation.

*“A friend told me they knew someone who got burned when they had radiation treatments.”*

Fortunately, with today’s technology, we see few cases of damage to normal body tissue such as the skin, particularly when the tumor being treated lies deep within the body (such as the prostate). Treatment planning and delivery techniques allow for the maximum dose of radiation to be given to the tumor itself, while giving the skin surface a minimal amount of radiation. If, however, the treated area is close to the skin surface (such as neck tumors or lymph nodes) or is actually the skin itself (skin cancers), a skin reaction is likely to happen. These reactions are closely monitored and action is taken to minimize patient discomfort. In most cases, skin reactions resolve within a week or two after treatments are completed.

*“I’m concerned about being left alone during the radiation treatment...what if I need assistance?”*

For most of the 10-15 minutes you spend in the radiation therapy room each day, the radiation therapist will be with you making sure that everything is set up appropriately for your treatment. They will step out of the room only when the radiation is being given (usually less than 2 or 3 minutes at a time). During this time you will be continuously observed by the therapists on both audio and video monitors. If for any reason you need assistance, the therapists can immediately discontinue the treatment and be at your side in less than a moment.

*“Will I be able to drive myself to and from my treatments?”*

Most patients who are able to drive prior to starting radiation treatments will be able to continue to do so during treatments. Your radiation oncologist will caution you if there may be a problem with you driving yourself to and from treatments. It’s a good idea to have a backup plan just in case you don’t feel up to driving. If you need help with transportation, speak with your radiation oncologist or radiation oncology nurse so that they can help you with arrangements.

Although many times new patients and their families feel somewhat apprehensive about radiation therapy, they are generally reassured when given the basic information about the treatments and expected side effects. And in my practice I find that most patients and their families are pleasantly surprised at how “easy” radiation therapy actually is.