



# RADIATION THERAPY FOR CHILDREN WITH CANCER

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## A Family Guidebook

Baystate  Regional Cancer Program

SADOWSKY CENTER FOR CHILDREN

*Experts in Cancer, Every Step of the Way*



## ABOUT RADIATION THERAPY

Radiation therapy is the use of x-rays for the treatment of cancer. It destroys the ability of tumor cells to grow and multiply. There are many forms of radiation. Your child's therapy will depend on the type of cancer your child has and its location in the body. Various types of cancer react to radiation in different ways, so treatments are different for each case.

Radiation therapy is designed to kill the tumor cells, but allow normal cells to heal. Although the normal or healthy cells may be affected by the radiation therapy, they can repair themselves more easily than tumor cells. In addition, with careful treatment planning,

the radiation treatment can be directed to the cancer (tumor) while keeping it away from most normal tissues.

Your child will not become radioactive after receiving radiation therapy from a machine. There are no special precautions to take for dressings or for body waste products. There is no danger to you or to others who come in contact with your child.

A team of health care professionals will work together to give the radiation therapy to your child. The information that follows describes the team members and explains their individual roles.



## YOUR HEALTH CARE TEAM

Pediatric Radiation Oncologists are doctors specially trained in the use of radiation for the treatment of cancer. Michael Yunes, MD, and Seth Kaufman, MD, are radiation oncologists who care for all of the children receiving radiation therapy through the Baystate Regional Cancer Program at the D'Amour Center for Cancer Care. This specialized team works in close coordination with the pediatric oncologists (cancer specialists) at the Sadowsky Center for Children, also within the D'Amour Center for Cancer Care. The radiation oncologist will communicate with all members of the health care team as they plan the treatment for your child,

and is the person referred to as "your doctor" throughout this guide.

Radiation Oncology Nurses are registered nurses (RNs) trained in the use of radiation to treat cancer. They work with the pediatric radiation oncologists and will see your child at least once a week and often daily during treatment. They will weigh your child, ask questions about your child's health history, and monitor your child's progress during radiation therapy. You can reach the radiation oncology nurses at the D'Amour Center for Cancer Care at 413-794-5819.

Radiation Therapists are the professionals who actually deliver the radiation therapy prescribed by the radiation oncologist. Radiation therapists are specially trained to understand the operation of the treatment machine and will conduct your child's treatment daily. Doctors and nurses are readily available if needed.

Pediatric Anesthesiologists are doctors trained in the use of anesthesia and sedation for children. Many children have a difficult time remaining still for the radiation treatment planning and treatment delivery. General anesthesia is often employed on a daily basis for younger and more anxious patients in order to provide safe and accurate radiation treatments.

Social Workers are available to help you and your child when you may have personal or financial questions. The

social worker may be able to help you with counseling, support, community resources, transportation, and housing while your child is being treated at the D'Amour Center for Cancer Care. The phone number for the pediatric social worker is 413-794-9744.

Clinical Dietitians are specially trained and experienced with nutritional problems associated with cancer and cancer treatments. You may consult with the dietitian about special dietary problems related to your child's treatment or disease. Ask your child's doctor or nurse if you wish to see a dietitian.

Child Life Specialists are skilled in assisting children and teenagers cope with treatment at their own developmental level, and are available to help children and their families to reduce anxiety and concerns during treatment.

## YOUR FIRST VISIT

Before your child begins radiation therapy, the doctor will talk with you about your child's treatment. This visit will include a discussion about the expected results of treatment, the possible side effects from radiation, and any treatment alternatives. You will also be asked to sign a consent form before your child's treatment begins. Please read it carefully and ask your doctor any questions you may have about treatment and possible side effects. We may also ask you to meet with a

pediatric anesthesiologist to discuss your child's sedation needs. Your child may or may not be sedated. Although you are not allowed to be in the treatment room during the treatment, your child will be with well-trained professionals who care about his or her emotional and physical needs. During treatment, your child is constantly monitored by closed-circuit television and a two way intercom system. At your request, you may tour the treatment area before your child's first treatment.



## SIMULATION

Before the actual radiation therapy begins, we will perform a pre-treatment procedure called a simulation on your child. A radiation therapist will do a computerized tomography (CT) scan of the area on your child to be treated. Your child will be placed in the treatment position during the simulation, and will get an idea of what to expect during the actual treatments.

For many treatments, we may use special techniques to make sure your child is accurately positioned for all of their daily treatments. For example, we may create a special mask for your child to wear during testing, or make permanent marks on the skin near the treatment area. After the doctor identifies the area to be treated, colored lines may be drawn on your child's skin. The marking fluid will stain clothing, so old clothing should be worn. Please do not wash these lines off as they are used to assist accurate radiation field placement on a daily basis.

## THERAPY VISITS

Your doctor will give you a scheduled appointment for your child's treatment from Monday through Friday. The doctor will examine your child and review his or her progress with you once a week, or daily if anesthesia is used. The radiation oncology nurse will also see your child as frequently as necessary. Your child's doctor and nurse will also be available during the week if you have any questions or concerns.

When you arrive each day for therapy, a nurse will take your child right to a private radiation therapy room. The radiation therapist will position your child on the treatment table. It is important that your child not move during the set-up or during the treatment itself.

If your child requires anesthesia before treatment, it is important that they have nothing to eat from midnight the night before until after the treatment. When you arrive for treatment, you will first go to the nursing area for pre-anesthesia preparation, and we will then bring your child to the radiation therapy room for positioning and treatment.

Actual testing time takes only a few minutes, but the set-up and preparation may take an additional 15 to 20 minutes. Your child will be alone in the treatment room during treatment, but will be watched closely through closed-circuit television or mirrors and will be able to talk to the staff through a two-way intercom system.

## SPECIAL INSTRUCTIONS

Depending on the type of cancer your child has, and its location, we may provide you with special instructions to follow during the treatment period, in addition to the following:

### ACTIVITY LEVEL

Some tiredness is expected during treatment and your child should take naps. Your child may want to rest immediately after treatment. Allow your child to be as active as he or she wants. If there are any exceptions, your child's doctor will tell you.

### EATING

You may find that your child is no longer interested in eating foods they normally like, or we may ask that you avoid certain foods. For example, they may not be able to eat rich, fried, acidic, or spicy food.

If your child experiences nausea or vomiting, small, frequent meals, or foods like toast or crackers may help. Try to give your child high calorie, high protein foods, and plenty of fluids. If you have any questions about your child's diet, let us know so you can speak to the dietitian.

### BATHING

You may have to rely on sponge baths for your child during the course of treatment because it is important to leave the ink marks outlined on the treatment area. Your child may use a mild soap such as Dove® (non-perfumed) during his or her treatment. Rinse your child's skin well and gently pat dry with a soft towel.

### SHAMPOOING

If radiation is being given to the head, we ask that your child shampoo only occasionally with a mild shampoo (such a baby shampoo).

### SUN EXPOSURE

Avoid exposing your child's treated area to the sun. If your child goes outside, make sure that he or she wears protective clothing and applies sunscreen (SPF 15 or higher). Even after completion of your child's treatment, the treatment areas are more sensitive to sunlight and should be covered during sun exposure. Ask your child's doctor about using a sunscreen lotion.

## POSSIBLE SIDE EFFECTS

Even though most of the damage to healthy cells is repaired, there are some side effects of treatment that cannot be avoided. The side effects vary with each child, and may be mild or severe.

The following are examples of the types of side effects that commonly occur during and immediately following treatment to the various parts of the body. We will discuss specific side effects with you in detail during your first consultation visit, as well as possible delayed complications of treatment.

The side effects from radiation will only occur in the area of radiation treatment. However, if your child is receiving chemotherapy and radiation therapy at the same time, it may be difficult to determine which therapy is causing the side effects. The side effects of chemotherapy may be very similar to those of radiation therapy. Your child's doctor will be watching him or her very closely and looking for signs of side effects, and your child's entire health care team will work with you to control any side effects.

### MOUTH OR NECK

Radiation to the mouth or neck may cause dryness or soreness of the mouth, loss of taste, sore throat, hoarseness, or difficulty in swallowing. Medication may be prescribed for any soreness that develops. We may ask you to limit certain foods during your child's treatment.

Your child's teeth should be routinely checked by a dentist. Radiation to the mouth may cause your child to get dental cavities more easily. Regular brushing with a soft toothbrush and good oral hygiene are very important. If chewing is a problem, the dietitian may suggest a soft diet. A mouthwash made up of one teaspoon of salt and 1 teaspoon of baking soda in two quarts of water can be used as often as needed.

Sugarless gum and sugarless hard candy may be helpful in making saliva flow. Popsicles, cool beverages, or ice cream may be soothing to the mouth. Your child may not be able to tolerate citrus fruits (like oranges or lemons) or spicy foods.

### CHEST

Radiation to the chest area may cause difficulty in swallowing due to irritation of the esophagus (throat). This can usually be relieved by medication. Patients may develop a temporary dry cough, and breathing very cold air may make this condition worse. Using cool air humidifiers and staying away from pollutants may relieve these symptoms.

If your child develops a fever, notify the doctor. Your child should avoid the use of deodorants or perfumes and shaving in the underarm region if this is in the area of treatment. This area may be more sensitive to radiation. If skin soreness occurs, please let us know.

### ABDOMEN

Abdominal radiation may cause nausea, vomiting, or diarrhea. Medications can be prescribed to help control these symptoms. Avoid foods that make your child feel nauseated. You may find that the best time for your child to eat is three to four hours before or after radiation.

If your child has nausea or vomiting, it is important to give him or her plenty of fluids to replace those lost from his or her body. Beverages such as Gatorade® or ginger ale may be given. Prolonged nausea is not good for your child and close observation by your doctor is necessary.

### PELVIS

Pelvic radiation may also cause nausea, vomiting, or diarrhea. These symptoms are discussed in the Abdomen section above. Girls may have a delay in their menstrual period. This delay may or may not be permanent, depending upon the dose of radiation. The doctor will discuss this with you. Occasionally, an irritation of the urethra or bladder may occur. We recommend that you give your child increased amounts of fluids to prevent urinary tract or bladder infections.

Also, if your child is receiving chemotherapy at the same time as radiation treatment, he or she may have a decrease in blood counts. Therefore, we will check your child's blood counts at regular intervals and closely monitor for any important changes.

### SPINE

Radiation to the spine and head may also result in a lowered blood count. Again, we will check your child's blood counts regularly to closely monitor for any important changes. Therapy may be temporarily stopped if your child's blood counts drop below a safe number.

### HEAD

Cranial (head) radiation usually results in a loss of hair in the treatment area. If your child wants to, we suggest the use of wigs, scarves, or caps. Hair loss usually occurs after the second week of treatment. The hair will generally begin to grow back three months after completing cranial radiation.

Some children become sleepy when they are receiving radiation to the head. This period of sleepiness is temporary and may continue to occur up to six weeks after completion of therapy. If this happens, please tell your doctor or nurse.

### SKIN

Skin reactions may be mild, such as drying or darkening of the skin in the treatment area. If skin reactions become severe, tell your child's nurse or doctor. Sometimes a special cream can be prescribed.

Remember to leave any ink marks we make on your child until therapy is completed. Please do not use any products on your child's skin unless prescribed by his or her doctor or nurse.

## THE SUPPORTIVE CARE CLINIC

The clinicians and staff throughout the Baystate Regional Cancer Program believe that children with cancer and their families require special support throughout the entire treatment process. This need begins at the time of your child's initial diagnosis and continues through the course of treatment and

into long-term follow-up. To provide this support, we offer a weekly clinic that is composed of providers from many specialties all available to help address the individual needs of your child and your family during and after radiation therapy.

## LATE EFFECTS CLINIC

Cancer treatment in children can cause many changes that may not be evident for months or even years following completion of the treatment. An example of this is potential growth disturbances. The Late Effects Clinic is a group of physicians who continue to follow your

child's progress on an annual basis even after recovery from any immediate problems from the treatment. This provides you and your physician with an opportunity to discuss any changes that may or may not impact your child into adolescence and adulthood.

## OUR LOCATION

Radiation therapy is provided at the D'Amour Center for Cancer Care, at 3350 Main Street in Springfield. Free valet parking is available at the entrance.

**I-91 Southbound:** Take Exit 11. Take a sharp right off the exit and continue straight down Birnie Avenue. The D'Amour Center for Cancer Care is one block up on your right.

**1-91 Northbound:** Take Exit 10. At the lights turn left onto Main Street. Go straight through the next set of lights. The D'Amour Center for Cancer Care is the second building on the left.

## CONTACT INFORMATION

Baystate Medical Center Emergency Room: 413-794-3233

Baystate Regional Cancer Program (main number): 413-794-9338

Radiation Oncology Nursing: 413-794-5819

Pediatric Hematology/Oncology: 413-794-9338

Your Child's Radiation Oncologist is: \_\_\_\_\_

Your Child's Radiation Oncology Nurses are: \_\_\_\_\_

Your Child's Social Worker is: \_\_\_\_\_

Other Members of Your Child's Care Team: \_\_\_\_\_

Additional Information:

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## GRIFFIN'S FRIENDS

CHILDREN'S CANCER FUND

at Baystate Children's Hospital

Griffin's Friends is a group of community volunteers who raise charitable gifts in partnership with Baystate Health Foundation to support local children afflicted with cancer and life-threatening blood disorders. Named for Griffin D. Kelleher, Griffin's Friends brings "moments of joy to courageous kids" receiving care at the Sadowsky Center for Children. For more information, visit [baystatehealth.org/bhf](http://baystatehealth.org/bhf).

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3350 Main Street, Springfield, MA 01107

413-794-9338

[baystatehealth.org/brcp](http://baystatehealth.org/brcp)