Radiation Therapy
To the Brain

Types of Tumors Treated with Radiation
- Brain tumors, both benign and malignant.
- Metastatic brain lesions. These are cancers that start in another part of the body and spread to the brain.
- Vestibular schwannomas or acoustic neuromas.
- Meningiomas.
- Pituitary tumors.

Before your Treatment
Before treatment can begin, you will need a facemask and a CAT (CT) scan. This process takes about 30 minutes.

The Face Mask
The facemask takes about 10-15 minutes to make. You lie back on the table with a head mold in place. A mesh film is placed across the top of your head, forehead, and nose, ending below your chin. The mesh is flexible plastic that is placed in warm water. As it molds to your face, it becomes stiff. The facemask will be molded to fit the contours of your eyes and your nose. It is important that the mask fit snugly around these features. The mask takes about 10-15 minutes to harden around your face. As it hardens you will feel the mask tighten slightly. It will not hurt, but you will notice it. We need to lightly press on your eyes and mold the mask to the bridge of your nose. If you are claustrophobic or afraid of being in confined spaces, please let us know.

The CAT (CT) Scan
If IV contrast is needed, an IV will be placed before the facemask is made.

The CT scan will be done right after the facemask is made. About midway thru the CT scan, the contrast will be injected. Some people feel a warm flush or have a strange taste in their mouth. This is normal and will go away after the CT is finished.

If you have never had a CT scan before please let your nurse know so they can explain it. The scan is the final step before we can begin planning your treatment. If IV contrast is needed, a blood test called a creatinine level may be done before the CT. This is to make sure that your kidneys are working well. Your local doctor can do the test or it can be done here.

If you have an allergy to the CT contrast or are allergic to shellfish or iodine products please let your doctor or nurse know.

If you have IV contrast during your CT scan and take certain oral medicines for your diabetes, please let your nurse or doctor know. If you take Glucovance®, metformin, Metaglip®, Avandamet® or
Glucophage® please let us know. You will be told if you should not take this the day of your scan and for 48 hours after the injection of contrast. We may need to find a short-term plan to manage your blood sugars until you can resume this medicine. This may involve talking to your primary doctor. If you do not need the CT contrast, you will not need any changes in your medicines.

If you have diabetes and use insulin, please let your nurse or doctor know. We may need to adjust your medicine if you are told not eat or drink prior to your CT scan.

Remember: You should have nothing to eat or drink for 4 hours before the CT scan. If IV contrast is used, once the MRI and CT are finished, we ask you to drink extra fluids that day. This will help flush the dye out of your system.

The mask will be removed once the CT scan is done. If you have an MRI after the CT, the IV will be left in. If not, it will be removed at this time.

Radiation Treatment
You will receive 2 – 7 weeks of radiation treatments based on the type of tumor you have.

Your first treatment will take about 45 minutes. The therapists will position you on the treatment table and put marks on your facemask. The rest of your treatments will take about 15 minutes. If you receive TomoTherapy® or re-treatment radiation, these treatments can take up to 60 minutes for each treatment. Your doctor will discuss the type of treatment you are receiving and how long it will take.

During your treatments you will see your doctor or nurse once a week to watch for side effects. If you have questions at any time during your treatment, please let the therapist know. He or she will arrange for you to meet with a doctor. During the last weeks of treatment you will discuss follow-up care.

Side effects
Most of the time there are few side effects. Some may appear shortly after starting treatment. Others may takes months or years to develop. The most common side effects are listed below.

- **Brain swelling/brain edema** - patients may have brain swelling during treatment or weeks to months after treatment is over. If you develop swelling, you will be treated with a steroid medicine. If you have issues with brain swelling or are taking steroids, please ask your nurse or doctor for a handout (HFFY #6382). This will have more information about the side effects of steroids.

Symptoms of brain swelling can vary based upon the location and type of tumor or lesion you have. A few of the more common things to watch for are listed below. If you have any of these, tell your doctor

- Increasing or severe headaches that are not relieved by Tylenol®.
- Headaches that occur daily or several times a day, even if relieved by Tylenol®.
- Headaches with nausea and vomiting.
- Nausea or vomiting.
- Any change in strength or sensation (numbness or tingling).
- Clumsiness or coordination problems of a hand or leg.
- Vision, hearing or speech changes or problems.
- Balance or walking problems.
- Dizziness.
- New onset of confusion.
- New seizures or worsening of seizures.
• **Skin irritation** - Red, dry skin, like a sunburn, may occur. While you are having treatments we will check your skin. We can give you a cream and talk with you about ways to protect and maintain your skin. Pay special attention to the tops of the ears or areas where hair loss has occurred.

Remember to keep your head covered when you are outside. You want to limit the sun exposure to the head as much as possible. We strongly suggest you use a sunscreen with an SPF of at least 30.

Remember: Your skin needs to be clean and dry before each treatment. Moisturizers and creams should be applied 2 – 3 times per day, but only AFTER the day’s treatment. If your treatment is late in the day, you may apply moisturizer before your treatment if it will be fully absorbed by the time your treatment is given. As a guide, we ask you not to apply creams for 4 hours before treatment.

• **Hair loss** – hair loss can occur to the whole scalp (if you receive whole brain radiation) or in patches. Often hair loss starts around the 2nd week of treatment for whole brain radiation. Others will notice hair loss around the 4th or 5th week of treatment. Sometimes, with our newer techniques, people may not notice loss until the final week of treatment or the week after treatment ends.

For most people hair will begin to re-grow about 3 months after radiation treatment has finished. It may come back thinner or a different texture than before. In some cases, hair loss may be permanent. Use a mild shampoo and avoid daily washing, hot rollers, curling irons etc., if you can.

You may want to use scarves, turbans or caps during and after your treatment. You can make an appointment with our specialists to discuss what options are available at 608-266-6025.

• **Fatigue (tiredness)** – Fatigue does not mean that your tumor is getting worse. It can be a side effect of treatment. Many find that they are able to carry on their normal routines with little problem. Some find that they begin to feel more tired about week 3 of treatment and near the end of treatments and may need to rest. Taking rest breaks is very important. You will need to listen to your body and rest as needed. For most people the fatigue begins to go away 2-6 weeks after treatment. Weight loss can make this worse. Many people find that rest and exercise can help with this symptom.

• **Taste Changes** – Sometimes radiation can change how foods taste. This can be a side effect of radiation. It will improve after radiation is finished. Sometimes, the taste changes are because you have thrush. See the information below about thrush.

• **Thrush** – You should look at your tongue and the inside of your mouth daily. It should be pink and smooth. If you notice any red or white patches on your tongue or develop a “funny or strange” taste in your mouth, please let your doctor or nurse know. Sometimes a yeast infection (thrush) occurs. This will be treated with medicine.

• **Cognitive and Memory Changes:** People living with a brain tumor can have many kinds of mental changes. Sometimes these are called “chemo brain,” yet they occur in people who have never had chemotherapy.
Some of these changes are a result of injury by the tumor on normal tissue. This may be why you went to your doctor in the first place. Some changes are caused by the treatments to remove or destroy the tumor, such as surgery, chemotherapy or radiation.

You may have some of these issues:
- Trouble concentrating or focusing on things
- Feeling “foggy”
- Problems multitasking
- Slower thinking speed or processing of information
- Trouble remembering things
- Trouble completing tasks or following instructions
- Mood or behavior changes

When do they appear and how long will they last?
- Some of these changes appear during or shortly after treatment. They may be temporary and will improve over time. Some may be permanent.
- Some changes may occur many months to years afterward.
- Along with the tumor treatments, there can also be non-tumor causes, like medicines, dehydration, nutritional imbalances, aging, depression, stress and hormone imbalances.
- We will discuss these issues with you as they may occur.

How do I deal with these changes?

Here are a few things we suggest to help you cope with these changes:
- Review medicines.
- Keep notes and set alarms to remind you when important things are due.
- Use a daily calendar.
- Place sticky notes around the house with reminders or instructions.
- Play games such as Sudoku or puzzles that engage your memory.
- Get plenty of rest.
- Keep hydrated and drink plenty of water.
- Seek health psychology as stress and coping can make some problems worse.
- You can also find more information on dealing with these issues at:
  - American Brain Tumor Association- www.abta.org - Memory and Cognitive Changes
  - American Cancer Society - www.cancer.org – What is Chemo Brain
  - Livestrong.org- www.livestrong.org - Cognitive changes after cancer treatment
  - Cancer.net- www.cancer.net - Attention, Thinking, or memory problems

- **Nausea and Nutritional Needs** – Although rare, some patients may have nausea or vomiting during treatment. If you do, please let your doctor or nurse know. Medicines can be ordered to help you. Nutrition is very important. Avoid alcohol and smoking. We do not want you to lose weight at this time. Try to eat 3 servings of protein and drink at least 6-8 glasses of water every day. Fatigue (tiredness) can decrease your appetite and you may want to eat 6 small meals a day rather than 3 large meals. Good eating and drinking habits will help lessen the side
effects of treatment. If you have further questions about nutrition please discuss them with your nurse. A dietician can help with any questions or concerns.

- **Hearing Problems** – Some people with tumors near the ear or those receiving whole brain radiation may develop hearing problems. These symptoms may be caused by earwax or excess skin shedding from the radiation. They usually go away after time.

- **Changes in vision** – Radiation given for tumors near the eye or tumors that require whole brain radiation can produce eye irritation. This can cause tearing, redness, or dryness. These often go away or at least get better after several weeks. If the tumor is on or near the eye nerves, vision loss can occur and eye dryness may be permanent. In rare cases, some people can get cataracts after radiation. Please discuss these issues with your doctor.

- **Other Concerns** – A diagnosis of cancer brings concerns other than the need to manage the acute side effects of treatment. It can affect many other areas of your life. You may feel its impact on your emotions, marriage, family life, jobs, finances, thoughts, and feelings about the future. The nurses and social workers can help you cope with these issues. They can suggest support services and resources. Feel free to speak to them at any time.

**Risks**

Your doctor will discuss the immediate and long-term risks of this treatment with you. The risks vary from patient to patient and depend on a number of factors.

**Questions or Concerns**

While you are having treatments, you will see your doctor or nurse weekly. If you have any questions at any time during your treatments, please let the therapist working with you know. They will arrange for you to meet with your doctor.

If you have any questions or problems, please feel free to call the Radiotherapy Clinic at **608-263-8500**. If the clinic is closed, your call will transfer to the hospital paging operator. Ask for the radiotherapy doctor on call. Leave your name and phone number with the area code. The doctor will call you back.

If you live outside of the area, call **1-800-323-8942**

**Cancer Resource Services**

**Cancer Connect** is a service of the UW Comprehensive Cancer Center. The staff can answer your questions about local treatments. Cancer Connect can also connect you with community resources and support services. The number is **(608) 262-5223**.

**Cancer Information Service** is a phone service of the National Cancer Institute. It is a resource for local cancer care as well as cancer care around the country. The toll free number is **1-800-422-6237**.

**American Brain Tumor Association**

ABTA is a complete source of information about brain tumors, treatment options, clinical trials, and living with a brain tumor. A variety of social work resources and services are also available. **1-800-886-2282**

Email: info@abta.org
Website: http://abta.org

**National Brain Tumor Society**

NBTS offers information about benign and malignant brain tumors, treatment centers, treatment options, the latest clinical trials and a survivors’ network **1-800-934-2873**

Email: info@braintumor.org
Website: www.braintumor.org/
Madison Area Brain Tumor Support Group
All brain tumor survivors and their family or support persons are invited to share their brain tumor experiences in an effort to provide a supportive and educational experience. Meetings take place at UW Hospital on the third Tuesday of the month. 1-608-265-1192
Website: www.uwhealth.org search for “Brain Tumor Support group” for a list of dates and times.