Questions?
Your questions are important. Call your doctor or health care provider if you have questions or concerns. UWMC clinic staff are also available to help at any time.
During normal clinic hours, call the Cancer Center Reception Desk and have the Breast Brachytherapy Nurse paged.
UWMC Cancer Center
206-598-4100
After Hours and Weekends, call the UWMC Paging Operator at 206-598-6190 and have the Radiation Oncology Resident on call paged.

This pamphlet will:
- Explain the difference between brachytherapy and standard radiation treatments.
- Describe breast brachytherapy, the procedure and treatment, as well as post treatment care.
- Provide information on expected side effects.

Interstitial Breast Brachytherapy
* A new treatment option for breast cancer being offered by UWMC Cancer Center

Notes:

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**What is brachytherapy?**

The word “brachy” comes from the Greek word for short or close. Brachytherapy is a form of radiation treatment that involves placing a radioactive substance close to the area to be treated. The dose of radiation can then be delivered to a highly localized area, avoiding surrounding normal tissues.

Brachytherapy has commonly been used to treat cancers of the prostate, cervix, lung, and oral cavity. It has also been used in the past as a supplemental treatment for breast cancer.

Using interstitial breast brachytherapy as the sole treatment after lumpectomy is a relatively new concept.

**Why treat breast cancer with radiation?**

Radiation therapy involves using high-energy rays to kill microscopic cancer cells that may remain in the breast after surgery. If left untreated, these cells can grow and cause the cancer to return.

The combination of surgery, followed by radiation treatment has been studied and shown to greatly decrease the chance that the cancer will return locally in the same breast.

**Long-term Effects**

Some complications can occur later, after you have finished your treatment and gone home. Talk to your doctor about these potential problems before treatment.

- **Pockmark scars** – Small scars can form on the outside of the breast where the catheters enter or exit the skin. Most times, they become less noticeable or disappear over the period of a year.

- **Scar tissue formation** – Scar tissue is always a possible consequence of radiation treatment. In the breast, scar tissue can form as a thickened area in the high radiation dose area.

- **Fat necrosis** – If fat cells near catheters become damaged by the radiation, fatty acids can enter the breast tissue and cause irritation. This inflames that part of the breast and results in a red, swollen, and tender area, which mimics infection. Unlike infection, which occurs within weeks of the implant, fat necrosis appears 4 to 12 months later. Treatment of this problem usually starts with non-steroidal anti-inflammatory medications. If this doesn’t help, steroids may be prescribed. Drainage or surgical removal of the damaged tissue is very rarely required.
Potential Side Effects and Complications

Interstitial breast brachytherapy allows more localized radiation treatment than standard external beam radiation. It allows treatment of the local tumor site with less radiation exposure to other healthy tissues. The possible short- and long-term risks or side effects are listed below.

Short-term Side Effects

• **Activity** – You may have decreased arm motion while the catheters are in place. Avoid heavy lifting.

• **Pain and discomfort** – As with any surgical procedure, some pain and discomfort is to be expected, especially for the first 24 hours after catheter placement. Take your pain medications as told. In most cases, pain lessens after the first 24 hours, and becomes more manageable throughout the treatment. Very few patients have pain after treatment has been completed.

• **Infection** – Any time a catheter is placed into the body, such as in a vein or the bladder, there is a risk of infection. Using sterile technique during placement, appropriate cleaning and care of the entry site, and checking your temperature as told can minimize this risk. You may be placed on antibiotics if any problems are noted during or after treatment.

• **Bleeding and bruising** – Bleeding is minimal due to the local anesthetic mixture and because the catheters themselves compress the blood vessels and stop the bleeding. Some bruising may occur, but will fade over time.

Options for Treating Breast Cancer with Radiation

**External beam radiation therapy** after lumpectomy has been a standard treatment for patients with early stage breast cancer. With this treatment, the radiation comes from a source outside the body and is directed to cover the entire breast.

With careful treatment planning, it is possible to limit the amount of normal tissue exposed to radiation. However, exposure of some normal tissue to radiation is unavoidable with this form of treatment. This radiation exposure can be linked with a small risk of long-term problems, such as pneumonitis and rib fractures.

External beam radiation therapy for breast cancer treatment is given daily, 5 days a week for 6 to 7 weeks, to achieve the most benefit.

**Interstitial brachytherapy** is an outpatient treatment. It involves the placement of a radioactive source directly into the region of the tumor. Temporary plastic tubes, called catheters, are placed into the breast around and through the lumpectomy cavity. These catheters are not radioactive. They are connected to a machine during treatment that sends a radioactive seed through the catheters to the treatment area. This procedure allows the radiation to be delivered around the lumpectomy cavity or seroma, and results in decreased radiation exposure to other normal tissue (see diagram on page 4). The treatment occurs twice a day for 4 or 5 days. After the last treatment the catheters are removed, you are then allowed to return to your normal routine.

**Interstitial breast brachytherapy** is now being offered at University of Washington Medical Center (UWMC).
After Treatment

After your last treatment, the catheters are removed with very little discomfort. There is usually little or no bleeding. Your nurse will cleanse the breast and apply antibiotic ointment to the catheter entry and exit sites.

Your nurse will send you home with all the skin care supplies you will need to care for yourself after treatment. The nurse will review instructions for your care at home and when to call your nurse or doctor.

You will need to:

- Keep checking your temperature twice a day.
- Call us if your temperature exceeds 100.5 degrees F.
- Call us if you notice increased redness, tenderness, or cloudy drainage from any holes.

You will follow up 1 month after treatment. If you come from out of state, your local doctor can monitor you for the first 6 months. You should return to the UWMC Cancer Center 6 months after brachytherapy for your first post-treatment mammogram and physical examination.
Starting Monday, you will receive 2 treatments a day, 6 hours apart, for 5 days.

Daily Treatments

On the following Monday, your radiation treatments will begin. You will be treated twice a day, with 5 to 6 hours between treatments. When you arrive, a receptionist will page your nurse who will escort you to the brachytherapy treatment room and help you to get comfortable on a stretcher. The nurse will remove your surgical bra and dressings and check your skin for any infection or irritation. Your doctor and a physicist will connect the numbered catheters to a flexible cable. Each cable will then be connected to the treatment machine. Your treatment will be delivered and monitored from outside the room.

During the treatment, a radioactive seed will slide inside each catheter and stay there for the proper amount of time. You will not feel the radiation treatment as it is given. You will hear a clicking noise from the treatment machine.

Your nurse will then apply new dressings and you will be allowed to leave the clinic until your next scheduled treatment. There will be no radiation left inside your body after treatment. Expect the entire process to take about 1 hour each time.

Initial Screening for Treatment Options

Every patient and every cancer is different. So, each patient’s treatment needs to be individualized. Our breast cancer patients are first seen at an appointment at the Multidisciplinary Breast Clinic, which meets twice a week at Seattle Cancer Care Alliance (SCCA).

At this visit, all clinical information, films, surgical and pathology reports are reviewed and discussed with a team of specialty doctors. Included are a medical oncologist, a surgical oncologist, a radiation oncologist, a radiologist, a pathologist, and, if appropriate, a plastic surgeon. After this conference, the recommended treatment options are discussed with you and your family.

If you are thought to be a candidate for interstitial breast brachytherapy, and you want to pursue this option, another appointment will be coordinated with the radiation oncologist at UWMC Cancer Center. This is the doctor who will insert the catheters and perform the treatments. A repeat mammogram or breast MRI may be ordered to assure that no other disease is present within the breast before breast brachytherapy is started.
Your Radiation Oncology Assessment

Your visit with the radiation oncologist will be a time to review treatment information, ask questions, and sign consent for treatment. You will also discuss specific instructions with the brachytherapy nurse. At this visit you will receive prescriptions for some medications you will need to take. This is our standard list of medications:

- **Valium 5 mg.** Take 1 tablet 30 to 45 minutes prior to your procedure. This is a medication to help you relax.
- **Vicodin 5/325 mg or Percocet 5/325 mg.** Take 2 tablets 30 to 45 minutes prior to your procedure, and every 4 to 6 hours as needed for pain. Take these with food if possible.
- **Celebrex 200 mg.** Take 2 tablets 30 to 45 minutes prior to your procedure. Continue to take 1 tablet daily until gone. This is a non-steroidal, anti-inflammatory medication that will help with pain and swelling.
- **An anesthetic cream will be prescribed** for you to apply 1 hour prior to the procedure to numb the skin. The cream will not rub into your skin, but sits on the surface to make your skin numb. Cover the cream with plastic wrap to avoid getting it all over your clothing.

Treatment Planning

The day after your catheter placement, you will return to UWMC Cancer Center, where the rest of your treatment will be planned and completed. In some cases, this appointment will occur the same day as your catheter placement.

The planning process involves several steps and takes about 2 hours to complete.

You are scheduled for your CT (computed tomography) scan at UWMC Cancer Center on _________________ at __________.

At this time, each catheter is measured and numbered. A CT scan of the breast and X-rays of the catheters are taken. This is done to calculate the dose of radiation.

The brachytherapy nurse will assess your skin, discuss problems and concerns, and apply ointment and new dressings to the catheter sites. You will also receive a schedule for your treatments, which most times will start the following Monday.

You do not need to change your dressing over the weekend unless it becomes wet or soiled with drainage. You will be given some extra dressings to take home with you.
Home Care

Here are some guidelines for your home care.

- Keep your support bra on at all times.
- Keep the dressings and catheter insertion sites dry. Do not shower. Bathe only from the waist down so the dressings do not get wet. Your nurse will send you home with some extra gauze in case your dressing becomes wet.
- If the gauze gets soaked with drainage, replace it with clean, dry gauze and report this to your nurse or doctor.
- Take your temperature 3 times a day. Record your temperatures on the table below. Report any temperatures of 100.5 degrees or greater to your nurse or doctor. Contact numbers are on the back of this pamphlet.

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Preparation for Treatment

The initial catheter placement for interstitial breast brachytherapy is performed at SCCA. You will need to bring your medications with you to take as instructed by your nurse.

Your Appointment

You have been scheduled to arrive at SCCA Breast Center for your implant placement on ____________________ at _____________.

The Center is on the third floor of SCCA.

Transportation

Make sure you have arranged transportation home after your procedure. You will not be able to drive yourself because of the sedating effects of the medications. Your nurse will have more specific information on these medications during your radiation oncology visit.

Diet

You can eat a light breakfast or lunch 1 hour prior to arrival, but you may want to limit fluid intake until after the procedure.

What to Wear

Loose fitting clothing that buttons down the front will make it easier to get dressed after your procedure.

Aspirin or Anticoagulants

Do not take aspirin or anticoagulation medicines prior to your procedure. Discuss this with your doctor.

Herbal Supplements

Stop herbal supplements 1 to 2 weeks prior to your procedure.

Thermometer

You will need an oral thermometer to check your temperature 3 times a day.

Call your doctor or nurse if you have any signs or symptoms of infection. These signs include fever, chills, skin reddening, breast swelling, tenderness, or milky discharge around the catheters.
Placement of the Treatment Catheters

When your procedure starts, your breast will be numb from the Emla cream. First, an ultrasound will be performed to identify the lumpectomy cavity. Fluid will be drawn from the cavity with a syringe and a contrast dye will be injected. Tell the nurse or doctor if you have had any previous reactions to contrast dye. Contrast dye helps your doctor to see the area of needle placement more accurately under mammography.

Next, you will be taken to the mammography room for placement of the brachytherapy catheters. Your breast will be cleaned with an antibacterial solution to help prevent infection. Then you will be positioned face down on the table, with your affected breast lying through a hole in the table. The medication you took should help you to feel relaxed and as comfortable as possible while in this position for the procedure. A plastic template is then applied to the breast. This template has many little holes that help your doctor to guide the needles in the correct location around the lumpectomy cavity. A mammogram is taken with the template in place to ensure that it is in the right location for placement of the catheters. Once the doctor is sure that the template is in the right location, a mixture of medications will be injected into the breast that will numb the skin and tissue before placement of the needles.

After the breast is thoroughly numb, the needles are placed. Another film is taken to be sure that the needles are all in the correct location. Then the plastic catheters are threaded through the needles and the needles are removed.

You will be assisted to a sitting position, and little plastic buttons will be applied to the ends of the catheters to secure them in place (see figure below). Your nurse will apply antibiotic ointment to the skin at the catheter entrance and exit sites. This will help to prevent infection. A surgical bra and additional sterile dressings will help keep everything clean and the catheters in place.

Finally, you will be allowed to be driven home. Take your pain medications as instructed by your nurse. You will return the next day to UWMC Cancer Center for filming and a dressing change.

Example of catheter placement