Low Dose Rate (LDR) Brachytherapy For the Treatment of Prostate Cancer

This information will help you prepare for your low dose rate (LDR) brachytherapy (BRAY-kee-THAYR-uh-pee) treatment to your prostate at Memorial Sloan Kettering (MSK).

Read through this resource at least once before you start your brachytherapy, and then use it as a reference in the days leading up to your treatments to help you prepare.

About Your Prostate

Your prostate is a walnut-sized gland that lies below your bladder, in front of your rectum. It surrounds your urethra, which is the tube that drains the urine from your bladder (see Figure 1). Your prostate adds fluid to your semen (ejaculatory fluid).

Figure 1. Your prostate anatomy
About Brachytherapy

Brachytherapy is a type of radiation therapy that’s used to treat prostate cancer. Radiation therapy kills cancer cells with high-energy rays. It works by damaging the cancer cells and making it hard for them to multiply. Your body is naturally able to get rid of the damaged cancer cells.

With brachytherapy, your doctor will place tiny radioactive implants, each about the size of a sesame seed, inside your prostate gland. They will give off radiation for a period of time and then stop. They will remain in your prostate for the rest of your life.

About the radioactive implants

The radioactive implants, also known as seeds, will be made of either radioactive iodine (I-125) or palladium (Pd-103). Your radiation oncologist will tell you which is the best choice for you. Both types of implants are covered with titanium.

Your doctor will implant 50 to 125 seeds, depending on how big your prostate is.

A radiation safety officer will give you a card to carry with you after your procedure. The card states that you’re receiving radiation therapy and has the date when the radioactivity will be done. If you must go to a hospital for any reason before the date on the card, tell the doctor that you have had seeds implanted.

Your Role on Your Radiation Therapy Team

You will have a team of healthcare providers working together to provide the right care for you. You are a part of the team, and your role includes:

- Arriving on time for your procedure.
- Asking questions and talking about your concerns.
- Letting someone on your radiation therapy team know when you have side effects.
- Telling your doctor or nurse if you’re in pain.
- Caring for yourself at home.
Quitting smoking, if you smoke. If you want to quit, call our Tobacco Treatment Program at 212-610-0507.

Drinking liquids as instructed.

Eating the foods suggested by your radiation therapy team.

Maintaining your weight.

Before Your Procedure

Help us keep you safe during your procedure by telling us if any of the following statements apply to you, even if you aren’t sure.

- I take a blood thinner. Some examples are heparin, warfarin (Coumadin®), clopidogrel (Plavix®), enoxaparin (Lovenox®), dabigatran (Pradaxa®), apixaban (Eliquis®), and rivaroxaban (Xarelto®). There are others, so be sure your doctor knows all the medications you’re taking.

- I take any prescription medications, including patches and creams.

- I take any over-the-counter medications, herbs, vitamins, minerals, or natural or home remedies.

- I have a pacemaker, automatic implantable cardioverter-defibrillator (AICD), or other heart device.

- I have sleep apnea.

- I have had a problem with anesthesia in the past.

- I am allergic to certain medication(s) or materials, including latex.

- I am not willing to receive a blood transfusion.

- I drink alcohol.

- I smoke.

- I use recreational drugs.

Presurgical testing (PST)

Before your procedure, you will have an appointment for presurgical testing (PST). The date, time, and location of your PST appointment will be printed on the appointment reminder from your doctor’s office. You can eat and take your usual medications the day of your PST appointment.
During your appointment, you will meet with a nurse practitioner (NP) who works closely with anesthesiology staff (doctors and specialized nurses who will give you medication to put you to sleep during your surgery). They will review your medical and surgical history with you, including your medications. You will have tests, including an electrocardiogram (EKG) to check your heart rhythm, a chest x-ray, blood tests, and any other tests necessary to plan your care. Your NP may also recommend you see other healthcare providers.

Your NP will talk with you about which medications you should take the morning of your procedure.

Bring the following with you to your PST appointment:

- A list of all the medications you’re taking, including patches and creams.
- Results of any tests done outside of MSK, such as a cardiac stress test, echocardiogram, or carotid doppler study.
- The name(s) and telephone number(s) of your doctor(s)

**About drinking alcohol**

The amount of alcohol you drink can affect you during and after your procedure. It’s important that you talk with your healthcare providers about your alcohol intake so that we can plan your care.

- Stopping alcohol suddenly can cause seizures, delirium, and death. If we know you’re at risk for these complications, we can prescribe medication to help prevent them.
- If you drink alcohol regularly, you may be at risk for other complications during and after your procedure. These include bleeding, infections, heart problems, and a longer hospital stay.

Here are things you can do to prevent problems before your procedure:

- Be honest with your healthcare provider about how much alcohol you drink.
- Try to stop drinking alcohol once your procedure is planned. If you develop a headache, nausea, increased anxiety, or can’t sleep after you stop drinking, tell your doctor right away. These are early signs of alcohol withdrawal and can be treated.
• Tell your healthcare provider if you can’t stop drinking.

Ask us any questions you have about drinking and your procedure. As always, all of your medical information will be kept confidential.

About smoking
People who smoke can have breathing problems when they have a procedure. Stopping even for a few days before your procedure can help. If you smoke, your nurse will refer you to the Tobacco Treatment Program. You can also reach the program at 212-610-0507.

About sleep apnea
Sleep apnea is a common breathing disorder that causes a person to stop breathing for short periods of time while sleeping. The most common type is obstructive sleep apnea (OSA). With OSA, the airway becomes completely blocked during sleep. It can cause serious problems during and after your procedure.

Please tell us if you have sleep apnea or if you think you might have it. If you use a breathing machine (such as a CPAP) for sleep apnea, bring it with you the day of your procedure.

Arrange for someone to take you home
You must have someone 18 years or older take you home after your procedure. If you don’t have someone to do this, call one of the agencies below. They will send someone to go home with you. There’s usually a charge for this service, and you will need to provide transportation.

**Agencies in New York**
- Partners in Care: 888-735-8913
- Caring People: 877-227-4649

**Agencies in New Jersey**
- Caring People: 877-227-4649

Complete a Health Care Proxy form
If you haven’t already completed a Health Care Proxy form, we recommend you complete one now. A health care proxy is a legal document that identifies the person who will speak for you if you’re unable to communicate for yourself. The person you identify is called your health care agent.
If you’re interested in completing a Health Care Proxy form, talk with your nurse. If you have completed one already, or if you have any other advance directive, bring it with you to your next appointment.

**Exercise**

Try to do aerobic exercise every day, such as walking at least 1 mile, swimming, or biking. If it’s cold outside, use stairs in your home or go to a mall or shopping market. Exercising will help your body get into its best condition for your procedure and make your recovery faster and easier.

**Eat a healthy diet**

You should eat a well-balanced, healthy diet before your procedure. If you need help with your diet, talk to your doctor or nurse about meeting with a dietitian.

**10 days before your procedure**

**Stop taking vitamin E**

If you take vitamin E, stop taking it 10 days before your surgery, because it can cause bleeding. For more information, read *Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs)* ([www.mskcc.org/pe/common_meds](http://www.mskcc.org/pe/common_meds)). You can search for it on [www.mskcc.org/pe](http://www.mskcc.org/pe) or ask your nurse for it.

**Buy your supplies**

You will need to buy the following supplies:

- **Bisacodyl (Dulcolax®) 5mg tablets.** These are usually sold as a box of 10 tablets, but you’ll only need to take 1 tablet.

- **NuLYTELY® solution and flavor packs** (cherry, lemon-lime, orange, and pineapple). This comes in a 1-gallon (128 ounces) bottle, but you’ll only need to drink 1/2 gallon (64 ounces). Your doctor will give you a prescription for this.

This is also a good time to stock up on clear liquids to drink the day before your procedure. See the table in the “Follow a clear liquid diet” section for examples of liquids to buy.
7 days before your procedure
Stop taking certain medications
If you take aspirin, ask your surgeon if you should continue. Aspirin and medications that contain aspirin can cause bleeding. For more information, read Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs) (www.mskcc.org/pe/common_meds).

Stop taking herbal remedies and supplements
Stop taking herbal remedies or supplements 7 days before your procedure. If you take a multivitamin, ask your doctor or nurse if you should continue. For more information, read the resource Herbal Remedies and Cancer Treatment (www.mskcc.org/pe/herbal_remedies) or ask your nurse.

2 days before your procedure
Stop taking certain medications
Stop taking nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen (Advil®, Motrin®) and naproxen (Aleve®). These medications can cause bleeding. For more information, read the resource Common Medications Containing Aspirin and Other Nonsteroidal Anti-inflammatory Drugs (NSAIDs) (www.mskcc.org/pe/common_meds)

1 Day Before Your Procedure
Note the time of your procedure
A clerk from the Admitting Office will call you after 2:00 PM the day before your procedure. If you’re scheduled for your procedure on a Monday, you’ll be called on the Friday before.

The clerk will tell you what time you should arrive at the hospital for your procedure. They will also remind you where to go on the day of your procedure.

If you don’t receive a call by 7:00 PM, call 212-639-5014.

If you have any changes in your health or you need to cancel your procedure for any reason, call your radiation oncologist.
Prepare your NuLYTELY bowel preparation solution

On the morning of the day before your procedure, add lukewarm water to the NuLYTELY, filling it to the top of the line on the bottle. Add a flavor pack, if you choose. Use only a flavor pack that was provided with your NuLYTELY.

With the cap on, shake the NuLYTELY bottle until the powder is dissolved. The mixture will be clear, even if you used a flavor pack. If you prefer, you can place the bottle in the refrigerator to chill it. Many people have told us that NuLYTELY tastes better cold. Don’t mix the NuLYTELY earlier than the morning before your procedure.

Follow a clear liquid diet

- You can have solid food for breakfast. Aim to finish your breakfast by 10:00 AM.
- After breakfast, start the clear liquid diet.
  - A clear liquid diet includes only liquids you can see through. Examples are listed in the table below.
  - Be sure to drink plenty of liquids other than water, coffee, and tea. Try to drink at least 1 (8-ounce) glass of clear liquid every hour while you’re awake.
- Drink 4 (8-ounce) glasses of clear liquids for lunch. Do not drink milk or any milk products.
- Don’t drink more than 2 cups (16 ounces) of liquids with caffeine. Do not drink alcohol.
- Do not drink diet liquids, even if you have diabetes. If you do, you may feel weak or dizzy.
## Clear Liquid Diet

<table>
<thead>
<tr>
<th>Drink</th>
<th>Do Not Drink</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soups</strong></td>
<td>Clear broth, bouillon, or consommé</td>
</tr>
<tr>
<td><strong>Sweets</strong></td>
<td>Gelatin, such as Jell-O®</td>
</tr>
<tr>
<td></td>
<td>Flavored ices</td>
</tr>
<tr>
<td></td>
<td>Hard candies, such as Life Savers®</td>
</tr>
<tr>
<td><strong>Drinks</strong></td>
<td>Clear fruit juices, such as apple, cranberry, lemonade, or grape</td>
</tr>
<tr>
<td></td>
<td>Soda, such as 7-Up®, Sprite®, ginger ale, or seltzer</td>
</tr>
<tr>
<td></td>
<td>Gatorade®</td>
</tr>
<tr>
<td></td>
<td>Black coffee</td>
</tr>
<tr>
<td></td>
<td>Tea</td>
</tr>
<tr>
<td></td>
<td>Water</td>
</tr>
</tbody>
</table>

### Take your Nulytely bowel preparation

**At 1:00 PM on the day before your procedure**, swallow 1 bisacodyl tablet with a glass of water.

**At 3:00 PM on the day before your procedure**, start drinking the NuLYTELY. Drink 1 (8-ounce) glass of the mixture every 15 minutes. **Drink only half of the NuLYTELY solution (64 ounces). Throw out the other half.** Then, continue drinking clear liquids.

The NuLYTELY® will cause frequent bowel movements, so be sure to be near a bathroom when you start drinking it. To help prevent irritation, you can apply petroleum jelly (Vaseline®) or A&D® ointment to the skin around to your anus after every bowel movement.

### The Night Before Your Procedure

- You may take any medications that your nurse or doctor have told you to take. Take them with a small sip of water.
- Shower using soap and water the night before or the morning of the procedure.
Instructions for eating and drinking before your procedure

- Do not eat anything after midnight the night before your procedure. This includes hard candy and gum.
- Between midnight and up until 2 hours before your scheduled arrival time, you may drink a total of 12 ounces of water (see figure).
- Starting 2 hours before your scheduled arrival time, do not eat or drink anything. This includes water.

The Day of Your Procedure

Things to remember

- Take your medications the morning of your procedure as instructed by your doctor. Take them with a few sips of water.
- Don’t put on any lotion, cream, deodorant, powder, or cologne.
- Don’t wear any metal objects. Remove all jewelry, including body piercings. The equipment used during your procedure can cause burns if it touches metal.
- Leave all valuables, such as credit cards, jewelry, or your checkbook at home.
- If you wear contact lenses, wear your glasses instead. If you don’t have glasses, bring a case for your contacts.

What to bring

- A pair of loose-fitting pants, such as sweatpants.
- Brief-style underwear that’s 1 to 2 sizes larger than you normally wear.
- Sneakers that lace up. You may have some swelling in your feet, and lace-up sneakers can accommodate this swelling.
Parking when you arrive

MSK’s parking garage is located on East 66th Street between York and First Avenues. For questions about prices, call 212-639-2338.

To reach the garage, enter East 66th Street from York Avenue. The garage is located about a quarter of a block in from York Avenue, on the right-hand (north) side of the street. There is a pedestrian tunnel that you can walk through that connects the garage to the hospital.

There are also other garages located on East 69th Street between First and Second Avenues, East 67th Street between York and First Avenues, and East 65th Street between First and Second Avenues.

Where to go

Your procedure will take place at Memorial Hospital at 1275 York Avenue, between East 67th and East 68th Streets. Take the B elevator to the 6th floor to get to the Presurgical Center.

What to expect

You will be asked to state and spell your name and date of birth many times. This is for your safety. People with the same or a similar name may be having a procedure on the same day as you.

When it’s time to change for your procedure, you’ll get a hospital gown, robe, and nonskid socks to wear.

You will meet with your nurse before your procedure. Tell them the dose of any medications (including patches and creams) you took after midnight and the time you took them.

Your nurse will place an intravenous (IV) catheter into a vein, usually in your hand or arm. The IV line will be used to give you fluids and anesthesia (medication to make you sleep) during your procedure.

When it’s time for your procedure, you will either walk into the operating room or be taken in on a stretcher. A member of the operating room team will help you onto the operating bed. You will have compression boots placed on your lower legs. These gently inflate and deflate to help the circulation in your legs.
Once you’re comfortable, your anesthesiologist will give you anesthesia (medication to make you sleep) through your IV. When you’re fully asleep, a breathing tube will be placed through your mouth into your windpipe to help you breathe. You will also have a urinary (Foley®) catheter placed to drain urine from your bladder.

After the Foley catheter is in place, your doctor will use rectal ultrasound to see your prostate. They will insert tiny needles into your prostate through your perineum, which is the area of skin between your scrotum and anus (see Figure 1).

Your doctor will use a computer to determine the best place in your prostate to place the seeds. They will place the seeds through needles in your prostate.

You will have a computed tomography (CT) scan to make sure that all the seeds are in the right place. Then, your doctor will remove the needles and the Foley catheter.

**After Your Procedure**

**In the hospital**

You will wake up in the Post-Anesthesia Care Unit (PACU). A nurse will be monitoring your body temperature, pulse, blood pressure, and oxygen levels. They will also make sure that you can urinate on your own.

You may have some pain after your procedure. Your doctor and nurse will ask you about your pain often. You will be given medication to treat your pain as needed. If your pain isn’t relieved, please tell your doctor or nurse.

Your nurse will discuss your discharge instructions with you and your caregiver.

**Meet with your radiation safety officer**

You will meet with a radiation safety officer from the Radiation Safety Service. They will check the level of radiation in your body. They will also give you a wallet card to keep with you for 6 months after your procedure that explains the radiation. It will have the date when the radioactivity will be done. If you must go to a hospital for any reason before the date on the card, tell the doctor that you have had seeds implanted.
The radiation safety officer may also give you instructions about any radiation precautions you need to take around your family and friends.

At home
Straining your urine

Although it’s very rare, you may pass a seed with your urine. Losing a seed won’t affect your treatment.

For the first 4 days after your procedure, strain your urine with the strainer that your nurse gave you. If you pass a seed, don’t touch it with your hands or fingers. Instead, pick it up with a spoon or a pair of tweezers. Place it in a small covered container, such as an empty jar. Store it away from people. Call your radiation oncologist or the Radiation Safety Service at 212-639-7391 for more instructions.

If you lose a seed during the first 4 days, keep straining your urine for another 4 days.

Other instructions

- If you have any bleeding on your perineum, apply steady pressure with a clean, dry washcloth or gauze for 5 minutes. If the bleeding becomes heavy or doesn’t stop, call your doctor.

- You can resume your regular diet. You may want avoid things that may irritate your bladder. These include caffeine (such as coffee and tea), alcohol, citrus juices, and spicy foods.

- You can shower 24 hours after you are discharged from the hospital.

- Don’t lift anything over 20 pounds (9.1 kilograms) for at least 1 week after your procedure.

- Most people can return to work 48 hours after the procedure. If your job requires heavy lifting, ask your doctor when you can return to work.

Side Effects

Urinary symptoms

Urinary symptoms are the most common side effects of brachytherapy. After your procedure, you may have some of the following symptoms.
• Some people are unable to urinate after the procedure, or may only be able to urinate a few drops at a time. **This is an emergency.** Call your doctor right away if you’re unable to urinate.

• You may need to urinate more often than usual, as many as 1 or more times an hour. This usually begins 2 to 4 weeks after the seeds have been implanted and can last several months or longer.

• You may have some burning during urination. This usually begins 2 to 4 weeks after the seeds have been implanted and can last for about 4 to 12 months.

• You may notice blood in your urine, which will make it look pink. This is common and usually disappears 3 to 7 days after the seeds have been implanted. Call your doctor if bleeding continues after 7 days or if you pass blood clots in your urine.

• You may experience bruising around your scrotum and penis. This should go away 1 to 2 weeks after your procedure. Call your doctor if you still have bruising after 2 weeks.

Talk with your doctor if you have any of these symptoms. If you have a procedure to look at your bladder planned (such as a cystoscopy), wait to have it until after you’ve talked with your doctor.

**Bowel symptoms**

• You may have bowel movements that are more frequent or softer than usual. This is from irritation to your rectum. This may start 1 week after the seeds are implanted and can last several months or more.

• You may have rectal discomfort or mucus discharge.

• If you have hemorrhoids, they may get worse.

Talk with your doctor if you have any bowel symptoms. If you have a procedure to look into your rectum or colon planned (such as a colonoscopy), wait to have it until after you’ve talked with your doctor.

**Erectile dysfunction**

Erectile dysfunction, sometimes called ED or impotence, means not being able to achieve an erection. You may notice a change in the strength of your erection.
You may have less ejaculate or the consistency may be different.

About 30% of men (3 in 10 men) who have LDR brachytherapy will develop ED within 5 years of the procedure. It’s difficult to predict who will be affected.

If you develop ED, it may be permanent. Tell your doctor if happens. There are many treatments for ED available.

**Radiation Safety Instructions**

The radioactive implants in your prostate are made of either palladium (Pd-103) or Iodine (I-125). If you’re not sure which type you have, ask your doctor.

If you had palladium implants, you don’t need to follow any safety precautions.

**If you had iodine (I-125) implants, follow these instructions.**

The seeds give off a very small amount of radiation. The amount of radiation decreases the further it gets from your body. There is no measurable radiation 3 feet away.

You can’t make something radioactive by touching it. You don’t have to do anything special with linens, clothing, dishes, or in the bathroom. The seeds won’t disturb pacemakers or microwave ovens.

Make sure to follow all of the instructions on the card that your radiation safety officer gave you, including holding children on your lap and sleeping with your partner in a spoon shaped position.

**Safe sex precautions**

- You may resume sexual activity 1 week after your procedure.
- Use a condom or ejaculate outside of your partner for at least the first 5 ejaculations. Sometimes, one of the seeds can pass from your prostate when you ejaculate. This is rare.
  - Ejaculating in a condom or outside your partner may reduce any worry about being able to ejaculate after the procedure. It also lets you check to see if a seed is in the ejaculate. Call your radiation oncologist or radiation safety if this happens.
If your partner is pregnant, use a condom until the baby is born. This will prevent a seed that may be passed in the ejaculate.

**Traveling**

You can travel, including flying on airplanes. You will get you a card explaining that you have radioactive seeds implanted. Please keep this card with you. Some security equipment may detect radioactivity or metal.

**Bodily fluids**

The radiation from the seeds will not get into your blood, urine, or other body fluids.

**Follow-up Care**

Your doctor will want to see you regularly after your LDR brachytherapy. At each of these visits, your team will evaluate your response to treatment. You will have a physical exam and blood tests, including a prostate specific antigen test (PSA), and your doctor and nurse will review any symptoms you may have. Use these visits to ask questions and discuss your concerns.

**Resources**

**MSK Resources**

**Anesthesia**
212-639-6840
Call with questions about anesthesia, the medication used to make you sleep during your procedure.

**Bobst International Center**
888-675-7722
MSK welcomes patients from around the world. If you are an international patient, call the International Center for help coordinating your care.

**Chaplaincy Service**
212-639-5982
Spiritual and religious resources provide comfort and strength for many patients. The chaplains at MSK are available to help you access those resources and provide spiritual support for anyone. If you have a specific religious need,
please call the number above. The interfaith chapel is located near the main lobby of 1275 York Ave. It is open 24 hours a day. If there is an emergency, please call the hospital operator and ask for the chaplain on call.

**Counseling Services**
646-888-0100
Many people find that counseling helps them. We provide counseling for individuals, couples, families, and groups, as well as medications to help if you feel anxious or depressed.

**Integrative Medicine Service**
646-888-0800
Integrative Medicine Service offers patients many services to complement traditional medical care, including music therapy, mind/body therapies, dance and movement therapies, yoga, and touch therapy.

**Patient Billing**
646-227-3378
Call Patient Billing with any questions regarding preauthorization with your insurance company. This is also called preapproval.

**Patient Representative Office**
212-639-7202
Call the Patient Representatives Office if you have any questions about the health care proxy form or if you have any concerns about your care.

**Perioperative Nurse Liaison**
212-639-5935
If you have any questions about MSK releasing any information while you are having procedure, call the clinical nurse specialist.

**Resources For Life After Cancer (RLAC) Program**
646-888-8106
At MSK, care doesn’t end after active treatment. The RLAC Program is for patients and their families who have finished treatment. This program has many services, including seminars, workshops, support groups, counseling on life after treatment, and help with insurance and employment issues.
Social Work
212-639-7020
Social workers help patients, family, and friends deal with issues that are common for cancer patients. They provide counseling on getting used to having a serious illness, advice on how to communicate with family, friends, and young children, and help with employment issues.

Tobacco Treatment Program
212-610-0507
If you want to quit smoking MSK has specialists who can help. Call for more information.

External Resources

American Cancer Society
www.cancer.org
800-227-2345
Provides information and support to people with cancer and their caregivers.

American Society for Therapeutic Radiology and Oncology
www.rtanswers.org
800-962-7876
Group of radiation oncology professionals that specializes in treating people with radiation therapy. Provides information on treating cancer with radiation and contact information for radiation oncologist in your area.

CancerCare
www.cancercare.org
800-813-HOPE (800-813-4673)
Provides counseling, education, information, referrals, and direct financial assistance to people with cancer and their caregivers.

Cancer Support Community
cancersupportcommunity.org
Provides support and education to people affected by cancer.

National Cancer Institute
www.cancer.gov
800-4-CANCER (800-422-6237)
Provides education and support to people with cancer and their families.

ZERO - The End of Prostate Cancer  
www.zerocancer.org

Prostate Cancer Foundation  
www.pcf.org

US Too International Prostate Cancer Education and Support Network  
www.ustoo.org

Call Your Doctor or Nurse if You Have:

- A temperature of 101°F (38.3°C) or higher
- Pain that does not get better with your medications
- Any new symptom(s) or physical change(s)
- Any questions or concerns

Contact Information

If you have any questions or concerns, talk with a member of your healthcare team. You can reach them Monday through Friday from 9:00 AM to 5:00 PM at the numbers listed below.

Radiation oncologist: ____________________ Number
________________________

Radiation nurse: ______________________ Number
________________________

After 5:00 PM, during the weekend, and on holidays, call ____________ and ask for the radiation oncologist on call.