High Dose Rate (HDR) Brachytherapy for the Treatment of Prostate Cancer

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

Read through this resource at least once before your brachytherapy procedure, and then as a reference in the days leading up to treatment 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](image-url)
About HDR Brachytherapy

Brachytherapy is a type of radiation therapy. Radiation therapy kills cancer cells by making it hard for them to multiply. In brachytherapy a radiation source is placed directly into or next to a tumor.

With HDR brachytherapy, your doctor will place needles inside your prostate gland. These needles will be attached to tubes that will deliver the radiation source into your prostate. After your treatment, the tubes and needles will be removed.

There are 2 steps for your HDR treatment:

1. You will have a procedure to place the needles into your prostate. This will be done under anesthesia, so you will be asleep.

2. Then, you will have your HDR treatment(s), which are also called fractions.
   - You may have 1 or 2 treatments. Your radiation oncologist will discuss this with you.
   - Your first treatment will be done in the operating room, right after your needle placement procedure. If you need a second treatment, it will be done on the same day.
   - After treatment, the needles will be removed.
   - You will go home the same day as you have your treatments.

Use this space to write down the plan that your radiation oncologist has made for you:
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 or 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.

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 aspirin, 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 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 (medication to make you sleep during surgery) 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.

Consider banking your sperm

For more information, ask your nurse for the resources Sperm Banking (www.mskcc.org/pe/sperm Banking) and Building Your Family After Cancer Treatment: Information for Men (www.mskcc.org/pe/building_family_men).

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 surgeon’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 procedure). Your NP will review your medical and surgical history with you. 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.

It’s very helpful if you 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 use 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 our 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

We recommend that you have someone to help at home for the first 24 hours after your procedure.

**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 with 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 procedure, 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).

Buy your supplies

Purchase the bowel preparation kit your doctor instructed you to use if you haven’t already done so.

- 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 ½ 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 doctor 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 *Herbal Remedies and Cancer Treatment* (www.mskcc.org/pe/herbal Remedies).
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 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. 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.

Take a bisacodyl tablet

At 1:00 PM on the day before your procedure, take 1 bisacodyl tablet with a glass of water.
Follow a clear liquid diet

- You can have solid food for breakfast and lunch. Aim to finish your lunch by 2:00 PM.
- After lunch, 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.
- Don’t drink more than 2 cups (16 ounces) of liquids with caffeine. Don’t drink alcohol.
- Don’t drink diet liquids, even if you have diabetes. If you do, you may feel weak or dizzy.

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Take your NyLYTELY bowel preparation

**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 your anus after every bowel movement.

The night before your procedure

- Take the medications that your nurse or doctor told you to take. Take them with a small sip of water.
- Shower using soap and water the night before or the morning of your 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 or nurse practitioner. 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 during your procedure.

**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. Compression boots will be placed on your lower legs. These gently inflate and deflate to help circulation in your legs.

Once you’re comfortable, your anesthesiologist will give you anesthesia 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 a rectal ultrasound to see your prostate. They will insert 12 to 22 tiny needles into your prostate through your perineum, which is the area of skin between your scrotum and anus. The needles are guided to the exact locations in and around your prostate through a square plastic template. The template will be positioned up against your perineum (see Figure 2).

**During your treatment**

When all of the needles are inserted, you will have a computed tomography (CT) scan or magnetic resonance imaging (MRI) to make sure the needles are in the right place. These scans will also help your doctor finish the treatment planning process.
After your treatment plan is confirmed, you will probably have your first treatment while you’re still in the operating room under anesthesia. For your treatment, tubes will be connected to the needles in your prostate to deliver the radiation (see section “Getting your second HDR treatment”). The tubes look like long, plastic straws (see Figure 2). The cables are connected to a machine that stores the radioactive source (Iridium-192).

After the right amount of radiation is delivered to your prostate, the tubes will be disconnected and the treatment will end. If you are getting a second treatment refer to the section “Getting your second HDR treatment.”

The needles will be removed from your prostate after the treatment is finished. Your nurse will apply pressure to your perineum to help with any bleeding. The Foley catheter and breathing tube will be removed.

**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.

In rare cases, you may still have a Foley catheter in your bladder to monitor the amount of urine you are making. You may also have compression boots on your lower legs to help your circulation.

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, tell your doctor or nurse.

If you still have needles in place, you must stay in bed. You will be lying on your back with your legs straight or on a ramp. You can’t move your hips or legs, but you can wiggle your toes. You can move your arms and upper body. Once your needles are removed, you will be allowed to get out of you bed with help.

There isn’t anything radioactive in your needles between your treatments. You can have visitors and don’t have to be alone.

**Getting your second HDR treatment**

If you need 2 HDR treatments, the second treatment will be done about 4 to 6
hours after your first treatment. You will be moved from the PACU to the treatment area in the Department of Radiation Oncology for the treatment. You will be able to give yourself pain medication by using a patient-controlled analgesia (PCA) device.

For your second treatment, your radiation therapist will attach the needles coming out of your perineum to tubes. Once everything is set, your radiation therapist will leave the room while you receive the HDR treatment. The room has a video camera and an intercom so your radiation therapists can see and hear you at all times. The Iridium-192 radiation source will move through the tubes into your needles. You won’t see or feel the radiation while it’s in your prostate. You may hear a clicking sound from the HDR machine.

Your treatment will take about 10 to 20 minutes.

After your treatment is done, the Iridium-192 radiation source is moved back into the machine. Your radiation therapist will come back and disconnect the cables.

After your last treatment, the template, needles, and Foley catheter will be removed. After your catheter is removed, you will have to urinate on your own before you can go home. Most people go home on the same day as their procedure and treatment(s).

After your treatment is finished, you are not radioactive and don’t need to follow any radiation precautions.

At home

Medications

- Radiation to the prostate often causes urinary frequency and urgency (feeling that you need to urinate more often or very suddenly). To manage these side effects, keep taking all urinary medications as prescribed, such as tamsulosin (Flomax®), silodosin (Rapaflo®), or alfuzosin (Uroxatral®). Tell your doctor or nurse if you don’t have these medications at home.

- After your procedure, you may feel burning when you urinate. This is from the Foley catheter that was placed in your bladder. You will get a prescription for medication to help with the burning called phenazopyridine
(Pyridium®).

Other instructions

- Rarely, you may have some bleeding in your perineum where the needles entered. If this happens 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 right after your treatment. You may want avoid things that may irritate your bladder. Examples include caffeine (such as coffee and tea), alcohol, citrus juices, and spicy foods.
- You can shower after you’re 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 their 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 can’t 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 your procedure and can last several months or longer.
- You may have some burning during urination. This usually begins 2 to 4 weeks after your procedure 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 your procedure. Call your doctor if bleeding continues after 7 days or if you pass blood clots in your urine.
You may experience bruising and or swelling around your scrotum, testicles, 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.

**Pain**

You may have some mild pain for 1 or 2 days after your procedure. You can take acetaminophen (Tylenol®), ibuprofen, or naproxen to help with pain. If these doesn’t help your pain, call your doctor or nurse.

**Sexual health**

You may have concerns about the effects of cancer and your treatment on your sexuality. After your treatment, you aren’t radioactive. You can’t pass radiation to anyone else, so it’s safe to be in close contact with other people.

You may be sexually active after your HDR brachytherapy treatment unless your radiation oncologist gives you other instructions. However, if you’re sexually active with a woman who is able to have children, you must use birth control (contraception) to prevent pregnancy during your entire prostate cancer treatment. You must continue to use birth control for 1 year after your treatment is finished. This is to make sure you don’t conceive with sperm that may have been damaged by exposure to radiation, which could possibly result in birth defects.

You may have temporary or permanent numbness in the head of your penis, although this is rare.

You may also develop sexual changes after your treatment. You may have:

- Erectile dysfunction (difficultly or inability to have or maintain an erection).
- A change in the sensation of orgasm
- A change in the amount or consistency of your ejaculation.

These sexual changes may occur many months or even years after treatment.
There are treatments for erectile dysfunction. MSK has a Male Sexual and Reproductive Medicine Program to help people address the impact of their disease and treatment on their sexual health. You can meet with a specialist before, during, or after your treatment. Your doctor or nurse can give you a referral, or you can call 646-888-6024 for an appointment.

An excellent resource that discusses sexual health issues during treatment is the booklet *Sex and the Man With Cancer*. You can get a copy of this booklet from the American Cancer Society by calling 800-227-2345 or by searching for it at [www.cancer.org](http://www.cancer.org).

**Call Your Doctor or Nurse if You Have**

- New or worsening urinary symptoms
- Difficulty urinating
- Blood clots in your urine
- A temperature of 100.4° F (38°C) or higher
- Pain that doesn’t get better after taking pain medication
- 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: _________________________
Phone number: _________________________

Radiation nurse: _________________________
Phone number: _________________________

After 5:00 PM, during the weekend, and on holidays, call __________ and ask for the radiation oncologist on call. If there’s no number listed, or you’re not sure, call 212-639-2000.
Resources

MSK Resources

Anesthesia
212-639-6840
Call with questions about anesthesia.

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

High Dose Rate (HDR) Brachytherapy for the Treatment of Prostate Cancer

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