Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

Low Dose Total Body Irradiation

This information will help you get ready for low dose total body irradiation (TBI) at MSK. It explains what to expect. It also explains how to care for yourself before, during, and after your radiation therapy.

This resource has a lot of information. Different sections may be helpful at different times. We suggest reading through this resource once before you start radiation therapy, so you know what to expect. Then, refer back to it during your radiation therapy.

This information is general. Your radiation therapy team will design a treatment and care plan just for you. Because of that, some parts of your treatment may be different than what's described here. Your radiation therapy team will talk with you about what to expect.

About radiation therapy

Radiation therapy uses high-energy beams to treat cancer. You won't see or feel the beams.

Radiation therapy works by damaging the cancer cells and making it hard for them to reproduce. Your body is then naturally able to get rid of the damaged cancer cells. Radiation therapy also affects normal cells. However, your normal cells can repair themselves in a way that cancer cells can't.

About TBI

TBI is radiation therapy that's given to your whole body. Many people have TBI before their stem cell transplant.

Low-dose TBI may be given to decrease the response of your immune system. If you're having an allogeneic stem cell transplant (getting bone marrow or stem cells from a donor), your body may see the cells as foreign. If this happens, your immune system will try to destroy them. Having low-dose TBI before your transplant can help keep this from happening.

You will be admitted to the hospital for your TBI treatment.

Your role on your radiation therapy team

Your radiation therapy care team will work together to care for you. You're a part of that team, and your role includes:

- Getting to your appointments on time.
- Asking questions and talking about your concerns.
- Telling us when you have side effects.

- Telling us if you're in pain.
- Caring for yourself at home by:
  - Quitting smoking if you smoke. MSK has specialists who can help. To learn more about our Tobacco Treatment Program, call 212-610-0507. You can also ask your nurse about the program.
  - Caring for your skin based on our instructions.
  - Drinking liquids based on our instructions.
  - Eating or avoiding the foods and drinks we suggest.
  - Staying around the same weight.

What happens before low dose TBI

Simulation appointment

Before you start TBI, you will have a treatment planning procedure called a simulation. This is done to make sure that your treatment area is mapped out and you get the right dose of radiation. This includes measurements of your height and chest measurements.

Take devices off your skin

You may wear certain devices on your skin. Before your simulation or treatment, some device makers recommend you take off your:

- Continuous glucose monitor (CGM)
- Insulin pump

If you use one of these, ask your radiation oncologist if you need to take it off. If you do, make sure to bring an extra device to put on after your simulation or treatment.

You may not be sure how to manage your glucose (blood sugar) while your device is off. If so, before your appointment, talk with the healthcare provider who manages your diabetes care.

What to expect when you arrive

A member of your radiation therapy team will check you in when you arrive. They'll give you an identification (ID) wristband with your name and date of birth. During your appointment, many staff members will check your ID wristband and ask you to say and spell your name and date of birth. This is for your safety. People with the same or a similar name may be getting care on the same day.

Your radiation therapists will review what to expect during the simulation. If you haven't already signed a consent form, they will go over the form with you. They will answer any questions you have and ask for your signature.

Appointment scheduling

Your radiation oncologist will plan your exact treatment schedule. A member of your radiation therapy team can give you more information. You can write notes in the space below.

You will have a total of 1 or 2 daily treatments.

Your TBI treatments

A patient escort will bring you from your hospital room to your treatments.

- Wear your hospital gown or comfortable clothes. Don't wear clothes with metal.
- You may wear hospital socks, but you must take off your shoes or slippers.
- Don't wear jewelry or metal objects (such as rings or hairpins). These may increase the radiation dose to that area.
- Don't wear powders or lotions.

Positioning

It's important that you're in the right position during your TBI treatments. Your radiation therapists will help you.

- You will be positioned on a platform. You will stand over

a seat that's like a bicycle seat and put your hands on handles next to your hips (see Figure 1).

- A large Plexiglass® screen will be placed in the front of your body. The Plexiglass will make sure that the radiation is evenly distributed.

You will face the machine for the first half of your treatment and will be turned away from it for the second half.

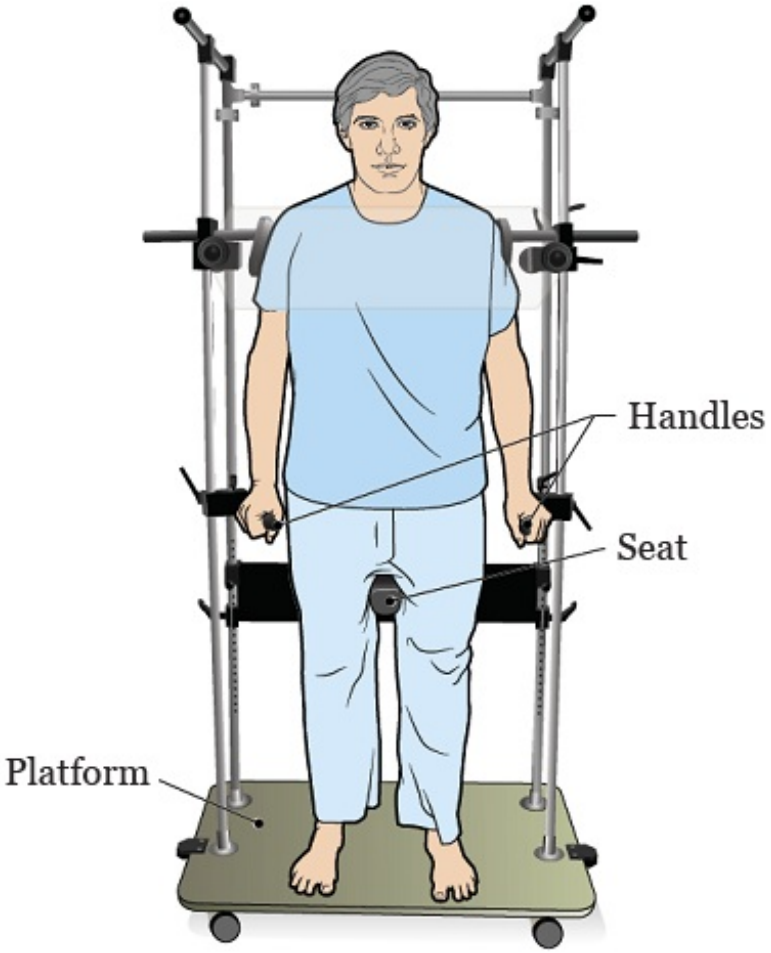


Figure 1. Treatment position

During your TBI treatments

Once you're in the correct position, your radiation therapists will leave the room, close the door, and start your treatment. You won't see or feel the radiation, but you may hear the machine as it moves around you and is turned on and off.

You will be alone in the room during your treatment, but your radiation therapists will see you on a monitor and hear you through an intercom at all times. They will make sure you're comfortable during your treatment.

Breathe normally during your treatment, but don't move. However, if you're uncomfortable or need help, tell your radiation therapists. They can turn off the machine and come in to see you at any time, if needed.

Neither you nor your clothes will become radioactive during or after treatment. It's safe for you to be around other people.

Boosts

A boost is an extra dose of radiation given to an area that's included in the TBI treatment area. You may have boosts as an outpatient before you're admitted to the hospital for your regular TBI treatments.

Your inpatient care team

Any concerns you have during treatment will be managed by your inpatient team. Your inpatient team will contact your radiation therapy team, if needed. Tell your inpatient team if you have chills or any new or unusual symptoms.

During treatment

Your radiation oncologist and radiation nurse will see you once during your treatment to ask you about any side effects you're having, talk with you about your concerns, and answer your questions. This visit will be before or after your treatment on _____.

If you need to speak with your radiation oncologist or radiation nurse, call your radiation oncologist's office. You can also ask the support staff or your radiation therapists to contact them.

Vitamins and dietary supplements during radiation therapy

Vitamins, minerals, and herbal or botanical (plant-based) supplements are examples of dietary supplements.

It's OK to take a multivitamin during your radiation therapy. Do not take any other dietary supplements without talking with a member of your care team.

Side effects of low dose TBI

You may have side effects from TBI. The type and degree of side effects depends on many things. These include the dose of radiation, the number of treatments, and your overall health.

Short-term side effects

The most common side effects happen during or within 24 hours after your treatment and don't last very long. Common side effects include nausea (feeling like you're going to throw up) and vomiting (throwing up).

Some people also have swelling of their salivary glands. This causes pain in front of their ear and in their jaw. This is a less common side effect.

Long-term side effects

Some side effects can happen months or years after your treatment and last for a long time. One example is becoming sterile (not able to have a biological child). Your sexual function and pleasure won't be affected.

Other long-term side effects are rare but can happen. Examples include cataracts and new cancers.

Managing side effects

Nausea and vomiting

You will be given medication to keep this side effect from happening and lessen it if it does happen.

Tell your nurse if you have nausea or vomiting. They may give you more medication to help.

Sexual and reproductive health

You may have concerns about how cancer and your treatment can affect your sex life. You are not radioactive. You can't pass radiation to anyone else. It's safe to be in close contact with others.

You can be sexually active during your radiation therapy, unless your radiation oncologist gives you other instructions. If you or your partner are able to have children, you must use birth control (contraception) to prevent pregnancy during your radiation therapy.

Talking with your radiation oncologist or nurse about your sexual health can be hard, but it's an important conversation to have. They may not bring it up unless you share your questions and concerns. You may feel uncomfortable, but most people in cancer treatment have similar questions. We work hard to make sure everyone in our care feels welcome.

Sexual health programs

MSK offers sexual health programs. These programs can help you manage the ways your cancer or cancer treatment affects your sexual health or fertility. Our specialists can help you address sexual health or fertility issues before, during, or after your radiation therapy.

- To learn about our Female Sexual Medicine & Women's Health Program or to make an appointment, call 646-888-5076.
- To learn about our Male Sexual & Reproductive Medicine Program or to make an appointment, call 646-888-6024.
- To learn about our Cancer and Fertility Program, talk with your healthcare provider.

Other sexual health resources

Read *Sex and Your Cancer Treatment* (www.mskcc.org/pe/sex-cancer-treatment) to learn more about sexual health during cancer treatment.

The American Cancer Society also has information about sexual health issues during cancer treatment. You can find it online at www.cancer.org/cancer/side-effects/sexual-side-effects or call 800-227-2345 to ask for printed information.

Emotional health

Cancer diagnosis and treatment can be very stressful and overwhelming. You may feel:

• Anxious or nervous • Afraid • Alone • Angry	• Depressed • Helpless • Frustrated	• Numb • Uncertain • Worried

You might also worry about telling your employer you have cancer or about paying your medical bills. You may worry about how your family relationships may change, or that the cancer will come back. You may worry about how cancer treatment will affect your body, or if you will still be sexually attractive.

It's normal and OK to worry about all these things. All these kinds of feelings are normal when you or someone you love has a serious illness. We're here to support you.

Ways to cope with your feelings

Talk with others. When people try to protect each other by hiding their feelings, they can feel very alone. Talking can help the people around you know what you're thinking. It might help to talk about your feelings with someone you trust. For example, you can talk with your spouse or partner, close friend, or family member. You can also talk

with a chaplain (spiritual advisor), nurse, social worker, or psychologist.

Join a support group. Meeting other people with cancer will give you a chance to talk about your feelings and learn from others. You can learn how other people cope with their cancer and treatment and be reminded you're not alone.

We know that all cancer diagnoses and people with cancer are not the same. We offer support groups for people who share similar diagnoses or identities. For example, you can join a support group for people with breast cancer or for LGBTQ+ people with cancer. Visit www.msk.org/vp to learn about MSK's support groups. You can also talk with your radiation oncologist, nurse, or social worker.

Try relaxation and meditation. These kinds of activities can help you feel relaxed and calm. You might try thinking of yourself in a favorite place. While you do, breathe slowly. Pay attention to each breath or listen to soothing music or sounds. For some people, praying is another way of meditation. Visit www.msk.org/meditations to find guided meditations lead by our Integrative Medicine and Wellness providers.

Exercise. Many people find that light movement, such as walking, biking, yoga, or water aerobics, helps them feel

better. Talk with your healthcare provider about types of exercise you can do.

We all have our own way of dealing with tough situations. Often, we do what worked for us in the past. But sometimes that's not enough. We encourage you to talk with your doctor, nurse, or social worker about your concerns.

Contact information

If you have questions or concerns, contact a member of your radiation therapy team. You can reach them at the numbers below.

Radiation oncologist: _____
Phone number: _____

Radiation nurse: _____
Phone number: _____

A member of your care team will answer Monday through Friday from 9 a.m. to 5 p.m. Outside those hours, you can leave a message or talk with another MSK provider. There is always a doctor or nurse on call. If you're not sure how to reach your healthcare provider, call 212-639-2000.

Support services

MSK support services

Counseling Center

www.msk.org/counseling

646-888-0200

Many people find that counseling helps them. Our counseling center offers counseling for individuals, couples, families, and groups. We can also prescribe medicines to help if you feel anxious or depressed. Ask your healthcare provider for a referral or call the number above to make an appointment.

Integrative Medicine and Wellness Service

www.msk.org/integrativemedicine

Our Integrative Medicine and Wellness Service offers many services to complement (go along with) traditional medical care, including music therapy, mind/body therapies, dance and movement therapy, yoga, and touch therapy. Call 646-449-1010 to schedule an appointment for these services.

You can also schedule a consultation with a healthcare provider in the Integrative Medicine and Wellness Service. They will work with you to come up with a plan for creating a healthy lifestyle and managing side effects. Call 646-

608-8550 to make an appointment.

Nutrition Services

www.msk.org/nutrition
212-639-7312
Our Nutrition Service offers nutritional counseling with one of our clinical dietitian nutritionists. Your clinical dietitian nutritionist will talk with you about your eating habits. They can also give advice on what to eat during and after treatment. Ask a member of your care team for a referral or call the number above to make an appointment.

Rehabilitation Services

www.msk.org/rehabilitation
Cancers and cancer treatments can make your body feel weak, stiff, or tight. Some can cause lymphedema (swelling). Our physiatrists (rehabilitation medicine doctors), occupational therapists (OTs), and physical therapists (PTs) can help you get back to your usual activities.

- **Rehabilitation medicine doctors** diagnose and treat problems that affect how you move and do activities. They can design and help coordinate your rehabilitation therapy program, either at MSK or somewhere closer to home. call Rehabilitation Medicine (Physiatry) at 646-888-1929 to learn more.

- An OT can help if you're having trouble doing usual daily activities. For example, they can recommend tools to help make daily tasks easier. A PT can teach you exercises to help build strength and flexibility. Call Rehabilitation Therapy at 646-888-1900 to learn more.

Resources for Life After Cancer (RLAC) Program
646-888-8106
At MSK, care does not end after your treatment. The RLAC Program is for patients and their families who have finished treatment.

This program has many services. We offer seminars, workshops, support groups, and counseling on life after treatment. We can also help with insurance and employment issues.

Sexual Health Programs
Cancer and cancer treatments can affect your sexual health, fertility, or both. MSK's sexual health programs can help you before, during, or after your treatment.

- Our Female Sexual Medicine & Women's Health Program can help with sexual health problems such as premature menopause or fertility issues. Ask a member of your MSK care team for a referral or call 646-888-5076 to learn more.

- Our Male Sexual & Reproductive Medicine Program can help with sexual health problems such as erectile dysfunction (ED). Ask a member of your care team for a referral or call 646-888-6024 to learn more.

Tobacco Treatment Program

www.msk.org/tobacco
212-610-0507
MSK has specialists who can help you quit smoking. Visit our website or call the number above to learn more. You can also ask your nurse about the program.

Virtual Programs

www.msk.org/vp
Our Virtual Programs offer online education and support for patients and caregivers. These are live sessions where you can talk or just listen. You can learn about your diagnosis, what to expect during treatment, and how to prepare for your cancer care.

Sessions are private, free, and led by experts. Visit our website for more information about Virtual Programs or to register.

Radiation therapy support services

American Society for Therapeutic Radiology and Oncology

www.rtanswers.org

800-962-7876
This website has detailed information about treating cancer with radiation. It also has contact information for radiation oncologists in your area.

External support services

There are many other support services to help you before, during, and after your cancer treatment. Some offer support groups and information, while others can help with transportation, lodging (a place to stay), and treatment costs.

For a list of these support services, read *External Support Services* (www.mskcc.org/pe/external-support-services). You can also talk with an MSK social worker by calling 212-639-7020.

Questions to ask your radiation oncologist

Before your appointment, it's helpful to write down questions you want to ask. Examples are listed below. Write down the answers during your appointment so you can review them later.

What kind of radiation therapy will I get?

How many radiation treatments will I get?

What side effects should I expect during my radiation therapy?

Will these side effects go away after I finish my radiation therapy?

What kind of late side effects should I expect after my radiation therapy?

For more resources, visit www.mskcc.org/pe to search our virtual library.

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