

Getting Started with Radiation

What to expect while going through treatments



WHO AND HOW DO I CALL?

- **Please call us first**
- Early treatment of symptoms can prevent complications
- When calling the main office number, provide:
 1. Name
 2. DOB
 3. Physician's name
 4. Reason for your call
 5. Your call back number
- When calls go to voicemail, please leave the above information
- Messages left after 4:00 pm may not be returned until the next business day.
- *After hours:*
 - You will reach the answering service.
 - Provide 5 items listed
 - You will be connected to the provider on call if appropriate.
- *Non-urgent questions* can be emailed to team via MyCarePlus portal



WHAT DO I DO IN AN EMERGENCY?

Call 911 or go directly to the emergency department for new chest pain, new or sudden onset shortness of breath, uncontrolled bleeding, sudden loss of ability to speak, sudden loss of movement in one side of the face, arm, or leg.



WHAT IS CANCER?

- An overgrowth of abnormal cells
 - Your immune system usually recognizes abnormalities in cells and repairs them or forces them to die (apoptosis)
 - If abnormal cell growth goes undetected, cell overgrowth can occur
 - Benign
 - Confined growth
 - Malignant
 - Have the ability to invade neighboring tissue



HOW DO WE TREAT CANCER?

Local Therapy

- Treats local cancer cells by either removing them or treating with high-energy x-rays or other particles
 - Surgery
 - Radiation

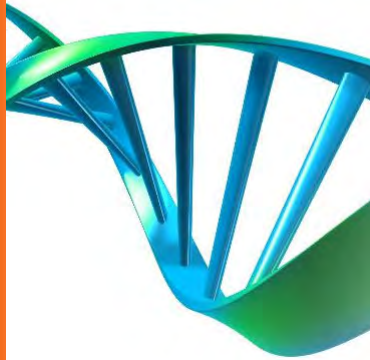
If appropriate, patients are treated in multiple ways to improve their outcomes.

Systemic Therapy

- Treats not only local cancer cells but also cells that may have escaped to distant sites in the body
 - Chemotherapy
 - Immunotherapy
 - Targeted therapies
 - Anti-hormonal therapies



HOW DOES RADIATION WORK?



- Uses high energy x-rays to damage the DNA of cells
- Kills the cancer cells or stops reproduction
- Body naturally eliminates dead cells
- Normal cells may be impacted but a specific plan is made to deliver radiation to tumor site with minimal damage to normal tissue.



HOW DOES RADIATION HELP?

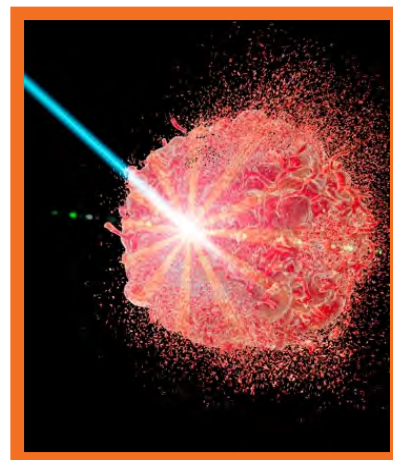
Depends on the goal of therapy:

- Destroy tumors that have not spread to other parts of the body
- Reduce the risk of cancer returning after chemo and/or surgery by killing cancer cells that might remain
- Shrink the cancer before surgery
- Shrink tumors that are causing symptoms impacting quality of life
- Relieve pain



HOW IS RADIATION GIVEN?

- External Radiation Therapy
 - Once or twice a day
 - 5 days a week
 - The number of weeks depends on the total dose of radiation planned
 - Radiation therapy is delivered Monday through Friday, with weekends for recovery
 - Includes:
 - X-ray therapy
 - 3D conformal radiation
 - Intensity modulated radiation therapy (IMRT)
 - Stereotactic body radiotherapy (SBRT)
 - Stereotactic radiosurgery (SRS)



HOW IS RADIATION GIVEN?

- Internal Radiation Therapy
- Also known as brachytherapy
 - Commonly used for gynecologic cancers
 - Delivers high dose of radiation to a small area of the body
 - Process will be discussed more by your provider and team
 - No need to be isolated from family or friends after treatments



WHAT'S THE PROCESS?

- Many steps to get your treatment plan ready before starting treatment
 1. Initial consultation
 2. Informed consent
 3. CT simulation
 4. Tattoos
 5. Immobilization devices
 6. Treatment planning
 7. Set up & Confirmation
 8. Daily treatments
 9. "Doctor days"
 10. End of treatment visit
 11. Follow up care



INITIAL CONSULTATION & CONSENT

- Meet with radiation oncologist
 - Physician who specializes in using radiation therapy to treat cancer
- Purpose of visit:
 - Role of radiation therapy in your treatment
 - Determine the type of radiation therapy to be used
 - The treatment plan for your treatment
 - Answer questions you may have
- May take 1-2 hours
- Provider will review specifics of your diagnosis and prior treatment thus far to ensure best possible care
- Once you have a full understanding of proposed treatment plan, risks, side effects and other treatment options, you will be asked to sign consent for treatment
 - May be withdrawn at any time for any reason



CT SIMULATION

- Must complete before you can start
- Team identifies the precise area you will receive radiation
- Positioning is extremely important
 - Same position every treatment
 - Need to remain still during treatment
- CT scan of region to be treated is done
 - Not a diagnostic scan but rather a planning tool
 - Used to map out your treatment plan
- Simulation takes an hour or more
 - If you experience pain or discomfort, please notify team
- Treatment only takes minutes compared to length of simulation



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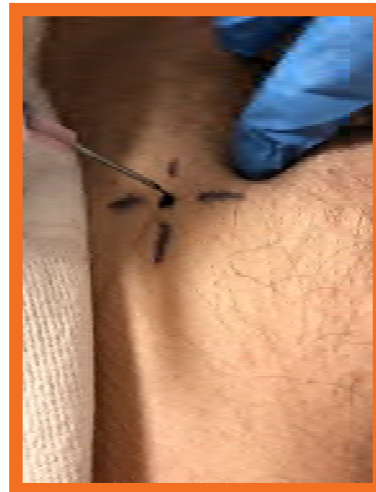
TATTOOS

- Sometimes minimal discomfort
- To ensure correct positioning for treatments, tattoos are placed during simulation visit
 - Small tattoos; dots the size of a pinpoint or freckle, using India ink
- 4-8 tattoos are placed; some times a second set of tattoos may be needed
- Are permanent but not very noticeable

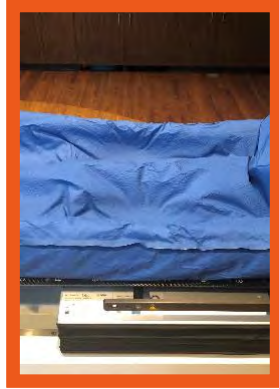


TATTOO PROCESS

1. Laser beams are used to mark the treatment area with a marker
2. Area is cleaned with alcohol
3. Drop of India ink is placed on mark
4. Needle is used to puncture the top layers of the skin allowing ink under the skin to create the tattoo
5. Final tattoo



IMMOBILIZATION DEVICE



- Made individually for each patient who needs one
 - Depends on the area of body being treated and treatment plan
 - Custom bean bag may be molded around the area of the body being treated
 - Custom mask may be used in brain and head & neck patients
- Ensures that you are in exact same position for every treatment



TREATMENT PLANNING PROCESS

- Details from simulation are sent to medical radiation dosimetrists and medical physicists
- They perform highly technical calculations that will be used to set the treatment machine
- Work closely with radiation oncologists to develop plan
 - May take a week or more to complete





SET UP & CONFIRMATION

- Placed on CT table in same position as simulation day, may take 10-15 mins
- Set films will be taken to ensure positioning matches your simulation scan
- Radiation oncologist will confirm positioning and imaging is correct
- Once films and positioning are confirmed, treatment will be delivered



DAILY TREATMENTS

- Treatments are usually given once a day Monday-Friday for a number of weeks
- Treatment generally take 10-15 minutes, but you may be in department up to an hour or longer
 - Twice daily treatments may be recommended
- The radiation therapist will position you on the treatment table using the tattoos, immobilization device and laser beams
- Radiation therapist will then leave the room
 - They will be able to see and hear you from the control room
 - Can also speak to you over a microphone
- Table and linear accelerator may move to get radiation beams in correct location
- Once position is confirmed treatment is given
 - You won't feel the radiation—It is not painful.







DOCTOR DAYS

- Repeat x-rays are done at least once a week
 - Your doctor may request daily imaging to confirm positioning
- Radiation oncologist will examine you at least once a week
 - Takes place just before or just after your treatment
 - Opportunity to evaluate your physical condition, answer questions and plan and coordinate future treatments
- If you're having issues, don't wait for "doctor day"
 - Call the department or ask to be seen in the department
 - Nurse will review any problems or concerns that arise

END OF TREATMENT & FOLLOW UP CARE

- You will meet with your provider near the end of your treatment
 - An exam will be preformed and follow up care discussed
- Follow up appointments occur 2-6 weeks after completion of treatments
- You will be followed on a regular basis to monitor for any radiation related problems



WHAT ARE THE SIDE EFFECTS OF RADIATION?

- Related to the area of the body being treated
 - Depends on the type of treatment you are receiving
 - Your team will discuss specific side effects and how to manage them with you
- Most side effects are short term:
 - **Fatigue:** MOST common side effect
 - **Skin reaction:** redness, irritation, dry, or sensitive; area may look like it's sunburned
 - Treat skin gently: don't use lotions or soaps with perfume, scent, or high content of alcohol
 - **Hair loss:** only in the area being treated
 - **Swallowing problems:** can impact mouth, throat, stomach and/or bowel when those are in the radiation field
 - **Low white blood cell count:** uncommon, can make you more susceptible to infections



WHAT CAN I EAT DURING TREATMENT?

- No specific diet
- Strive for a well balanced diet
 - Choosemyplate.gov
 - <https://www.aicr.org/new-american-plate/>
 - NCI Eating Hints
- Report all herbal or nutritional **supplements** and high dose **vitamins** to your oncologist
 - May interact with other medications
 - May interfere with the effectiveness of your therapy



WILL I BE TIRED?

- Fatigue #1 side effect from treatment
 - Can also be influenced by anemia, nutritional deficiencies, depression, stress
- Cumulative effect over course of radiation
- Management:
 - Energy conservation
 - Balance so valued activities can be maintained
 - Exercise: Increasing activity will have positive impact on fatigue
 - Improves aerobic capacity, prevents muscle loss and deconditioning, manages fatigue
 - Intensity, frequency and type still being studied



IS IT NORMAL TO FEEL THIS WAY?

- Coping with cancer is challenging for patients and family members
- Increased distress is normal
 - Examples: feeling sad, powerless, afraid, guilty, anxious, discouraged, depressed
 - Signs of depression or anxiety:
 - Consistently irritable or angry, significant sleep disturbances, changes in concentration or memory
- Do not hesitate to reach out for help
 - Resources are available; social work, support groups, etc.
- Coping mechanisms
 - Physical movement and exercise
 - Meditation and mindfulness, journaling
 - Activities that help you relax or are meaningful to you









WHEN DO I CALL MY PROVIDER?

- Chills or fever greater than 100.4
- Burning with urination, frequency, urgency, lower back pain (could be sign of bladder infection)
- Productive cough with green, yellow, red, or brown sputum
- Unmanaged diarrhea, constipation, nausea, vomiting
- Unmanaged pain
- Swelling, redness and pain on extremities
- Shortness of breath/chest pain
- Dizziness with changing position or lightheadedness
- Dark urine, less urine than normal, thirst, dry mouth
- Mouth sore, difficulty swallowing, frequent or severe heartburn
- Severe fatigue
- Thoughts of harming yourself, severe depression



COMMON QUESTIONS

	<ul style="list-style-type: none"> ○ Do I need to be isolated after radiation? <ul style="list-style-type: none"> ○ No! It is safe to be with family and friends
	<ul style="list-style-type: none"> ○ Can I drive? <ul style="list-style-type: none"> ○ Most likely, Yes ○ Discuss with your provider
	<ul style="list-style-type: none"> ○ Can I work? <ul style="list-style-type: none"> ○ Most likely, yes ○ FMLA, Americans with Disability Act ○ www.cancerandcareers.org
	<ul style="list-style-type: none"> ○ Can I travel? <ul style="list-style-type: none"> ○ Depends; discuss with your provider
	<ul style="list-style-type: none"> ○ What about intimacy? <ul style="list-style-type: none"> ○ Don't be afraid to talk to your provider!
	<ul style="list-style-type: none"> ○ Can I drink alcohol? <ul style="list-style-type: none"> ○ In moderation; ○ Max 1 serving and not every day

