



National University
Cancer Institute
Singapore

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Radiation Therapy

Patient and Family Information

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Understanding radiation therapy

Radiation therapy is the use of precisely calculated doses of high-energy X-rays (photons), electrons or protons to treat parts of the body where there is disease.

It is generally pain-free. One course of radiation treatment can involve single or multiple sessions depending on the radiation oncologist's instruction.

Most patients receive their treatment as an outpatient, including initial and follow-up consultations, to ensure that our patients receive the best care.



Quick facts about radiation treatment

- Treatments are scheduled on weekdays.
- The treatment only takes a few minutes but please allow 15-30 minutes for each session.
- It is important to get plenty of rest and to eat a well-balanced diet during the course of radiation treatment.
- Skin at the treated area may become sensitive.
- External radiation treatment does not make you radioactive.
- Side effects of radiation treatment are usually temporary; they vary depending on the area of the body that is being treated.

The NCIS radiation therapy patient journey

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First visit to NUH Medical Centre Radiotherapy Centre (RTC)

On the first visit or consultation, the radiation oncologist will discuss treatment options with you.

Following this, an appointment will be arranged for planning procedures in preparation for treatment. The duration between the first visit to the start of the treatment is usually three to six weeks.



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Planning procedure

The planning procedure involves Computed Tomography (CT) simulation and collecting necessary information for planning and delivering radiation treatment.

Each step of this procedure may be carried out in separate visits before actual treatment begins.



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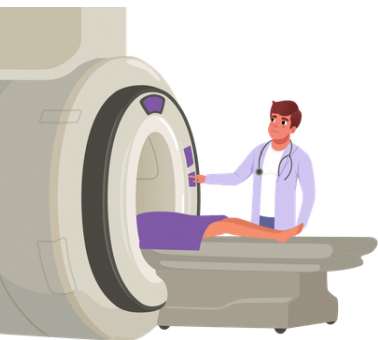
Designing a treatment plan with CT simulation

The radiation oncologists and therapists will use information collected from the CT simulation to design an individualised radiation treatment plan.

Radiation treatment usually commences two weeks after CT simulation.



What is CT simulation?



- CT simulation is a planning scan done before your radiation treatment.
- It uses a CT scanner with a laser alignment system and flat couch to capture images.
- The scan helps your doctors plan your radiation treatment accurately and safely.
- The session usually takes less than one hour.
- You may be asked to change into a gown.

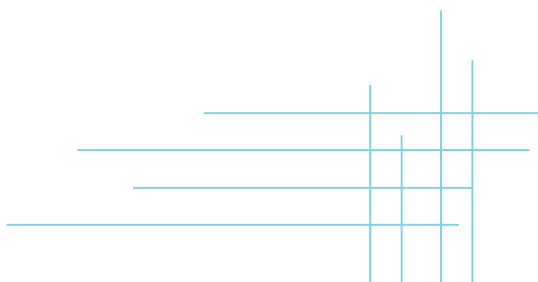
What to expect during the scan

During CT simulation, the treatment area will be exposed, and special accessories may be used to keep you still. It is crucial to remain still and breathe normally on the CT couch to ensure both accurate planning and radiation treatment.

Radiation therapists will take measurements and X-ray images, marking small tattoos on your skin for precise positioning for the laser alignment system, ensuring consistency for each treatment session.



The CT simulation may require a dye or contrast administered through your vein to enhance visibility of body structures. Please inform medical staff of any history of asthma, diabetes, allergies, or if you have an implanted cardiac pacemaker.



Treatment process

- Prior to treatment your radiation therapist will explain what to expect in the treatment room.
- Treatment is generally pain-free.
- Each session takes about 15-20 minutes.
- Treatment is usually scheduled on weekdays, unless otherwise indicated.



Things to note during the treatment process

- To ensure treatment accuracy, please lie still and breathe normally throughout the treatment procedure.
- The machine will beep during treatment and stop once treatment is complete.
- Your radiation therapist will help you down from the treatment couch.
- If you feel uncomfortable at any point, raise your arm to alert your radiation therapists. They will stop the treatment immediately and render assistance.



Types of radiation therapy



Linear Accelerator (LINAC)

Radiation therapists will place you on the treatment couch based on measurements and tattoo marks from your earlier CT simulation. Treatment will commence once you're positioned.

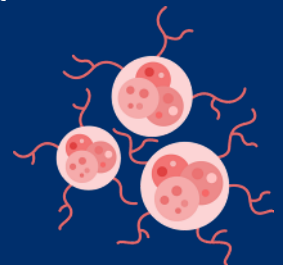
When treatment starts, the radiation therapists will exit the treatment room to the adjoining console room. They will monitor you closely through a camera and communicate with you via the intercom.

The treatment machine may rotate around the couch as it positions itself to deliver the treatment. It will emit a beeping sound when it is turned on.

Proton beam therapy

Proton beam therapy is an advanced cancer treatment that employs a targeted beam of protons aimed directly at the tumour. This method effectively destroys cancer cells while significantly reducing damage to surrounding healthy tissues.

Proton beam therapy differs from traditional radiotherapy by using proton beams instead of X-rays, allowing for precise targeting of tumours while minimising damage to surrounding healthy tissue and reducing side effects.



A key benefit is its accuracy, as protons release energy at the "Bragg peak," allowing precise targeting of tumour cells by physicians.

Frequently Asked Questions (FAQ)



Who are the people involved in my radiation treatment?

- **Radiation oncologists** are doctors who specialise in using radiation to treat cancer/diseases.
 - **Radiation therapists** guide you during treatments and operate the equipment. They are also involved in designing individualised treatment plans for you.
 - **Medical physicists** ensure that the equipment delivers the right doses of radiation and functions accurately.
 - **Nurses** coordinate cancer care, counsel patients and caregivers on managing side effects, and address concerns about radiation therapy.
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Will I experience any side effects?

- Side effects **vary** by treatment area and person to person.
- Most side effects are **temporary** and are a normal part of the treatment process.
- You can **discuss** any concerns with your team of radiation oncologists, radiation therapists and nurses. You can also refer to our **brochures** on possible side effects associated with the area that is treated.
- You will be **reviewed** by your radiation oncologist during your course of treatment to **assess treatment toxicities** and advised on management if required.

Frequently Asked Questions (FAQ)



What if I am taking other medications?

- You need to **inform** our radiation oncologist or nurses if you are taking any prescriptions or over-the-counter medications and supplements.
 - The radiation oncologist will review all current medications. Family doctors can continue to prescribe medication to you for conditions other than cancer.
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What happens after radiation treatment?

- When the course of treatment is completed, the radiation oncologist will schedule **post-treatment reviews** for you to monitor the response of the tumour, and possible side effects from radiotherapy.



Things to do during treatment period

Food & water intake

Eat sufficiently to maintain your weight before and after treatment. Your body needs more calories during treatment so you may need to eat more than usual.



Eat a well-balanced diet daily. A dietician can help you set up a nutritional food plan.



Drink fluids that are high in calories, like shakes or nutritional supplements. You can approach our staff to learn about these supplements.



Drink at least eight cups of fluids every day. Fluids can come from water, gelatin, ice cream, fruit juice, iced tea, soup or milk.

Sleep & Rest



Get plenty of rest. You can resume your regular activities as long as you have adequate rest and do not overexert yourself. Your radiation oncologist can advise how much exercise you should get.



Sleep at least eight hours daily and take naps during the day if you need to. Fatigue is a common side effect, which will ease or subside when your course of treatment is completed.

Things to do during treatment period

Inform your dentist



If you have had radiation therapy or are undergoing radiotherapy to the head and neck region, you should inform your dentist and schedule regular dental review.

Prepare your skin

The effects of radiation therapy may continue for a few weeks after your last treatment session and will take some time to subside.



Remember to be very gentle with your skin. Take special care as it may be sensitive due to the treatment.



A gentle moisturising cream like aloe vera gel can be used. Please consult your radiation oncologist or nurses when in doubt.



The skin that is exposed to treatment will be sun sensitive. Use extra sun protection on and around the treatment area.

Patient support resources

Patient education programmes

Being diagnosed with cancer is emotionally challenging for you and your loved ones. Patient education programmes can aid in coping with the condition.

Consult your cancer care team to learn about available programs.



Journeying with cancer

A series of talks on living with cancer, nutrition, side effects of chemotherapy and more.



Look good, feel better

Teaches women undergoing cancer treatment to manage side effects, boost confidence, and enhance self-esteem during recovery.



ARTiculate

A programme enabling creative expression of feelings through artwork to cope with illness.

Patient support resources

Patient support groups

Patient support groups allow patients to support each other by sharing their experiences through gatherings and various activities.

Inform your doctor if you require support from our medical social workers who can direct you to an appropriate support group.



Support group enquiry numbers

- Breast Cancer: 6357 3755
- Colon Cancer: 6357 8366
- Lymphoma, Myeloma & Leukaemia: 6357 6676
- Prostate Cancer: 9726 1802
- OneHeart Support Group: 9836 8204

Online resources

Learn more about the available assistance schemes and services by Singapore Cancer Society (SCS).

Connect to an SCS representative for tele-support by scanning the QR code.

Website:
www.singaporecancersociety.org.sg

Tel: 1800 727 3333



About NCIS

The National University Cancer Institute, Singapore (NCIS) is a national specialist centre under the National University Health System (NUHS). It is the only public cancer centre in Singapore treating both paediatric and adult cancers in one facility.

At NCIS, every person matters and our goal is to provide comprehensive yet personalised care for each and every patient incorporating cancer awareness, prevention, diagnosis, treatment, rehabilitation and palliative care.

About RTC @ NCIS

The radiation oncology team at the Radiotherapy Centre (RTC) is here to support you and your caregivers throughout your treatment journey. Our team is here to discuss your treatment plans and guide you through the stages of planning, treatment, and post-treatment care.

The team regularly checks and maintains the equipment to ensure accurate functioning for each patient's treatment. This ensures that the radiation treatment is delivered precisely and safely.

We recognise that your journey involves more than just medical care. If you are interested, approach us to find out more information about additional resources, such as cancer support groups and counselling services.

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The information provided in this publication is meant purely for educational purposes and may not be used as a substitute for medical diagnosis or treatment. You should seek the advice of your doctor or a qualified healthcare provider before starting any treatment or if you have any questions related to your health, physical fitness or medical conditions.

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