

RADIATION TREATMENT

A GUIDE FOR PATIENTS AND THEIR FAMILIES

This booklet serves as guide and covers information on radiation treatment, its procedures and general side effects during treatment. It also offers recommendations on how patients can manage their health during and after treatment. As each patient's condition is unique, individual treatment experiences may vary. Please discuss with your doctor, nurses and radiation therapists if you have any concerns.



FAST FACTS ABOUT RADIATION TREATMENT

- Treatments are scheduled every day (except Saturday and Sunday), usually on an outpatient basis.
- Please allow 15 to 30 minutes for each treatment session although the treatment itself takes only a few minutes.
- It is important to get plenty of rest and to eat a well-balanced diet during the course of radiation treatment.
- Skin in the treated area may become sensitive and easily irritated.
- External radiation treatment does not make the patient radioactive. Side effects of radiation treatment are usually temporary; they vary depending on the area of the body that is being treated.

WHAT HAPPENS WHEN I FIRST VISIT THE RADIATION THERAPY CENTRE?

On the first visit or consultation, the radiation oncologist will discuss treatment options with the patient. Following this, an appointment will be arranged for planning procedures in preparation for treatment. The duration from the first visit to the start of the treatment is usually about 2 to 3 weeks.

WHAT IS THE PLANNING PROCEDURE?

The planning procedure involves the collection of information necessary for the planning and delivery of the radiation treatment and consists of the Computed Tomography (CT) simulation. Each step of this procedure is carried out in separate visits before actual treatment begins.

WHAT IS CT SIMULATION?

The CT simulation procedure is carried out using a machine called the CT simulator. It is very similar to a diagnostic CT scan machine, with an additional function of the laser alignment system and a flat couch. The procedure involves taking X-ray images so that the radiation oncologist and radiation therapist can make precise plans of the body area that will be treated. The procedure takes slightly less than an hour.

Before CT simulation, the staff may ask the patient to change into a gown. During the CT simulation, the area that will be treated needs to be exposed. Special accessories may be used to help the patient maintain the same position whilst undergoing the procedure. It is important for the patient to lie still and breathe normally while lying on the CT couch during the procedure. This will ensure accuracy of the planning as well as the actual radiation treatment.

The radiation therapists will take some measurements and X-ray images while the patient is in position. They will make small tattoos on the skin. These marks enable the therapists to position the patient correctly for

treatment, in relation to the laser alignment system in the treatment room, and ensures accurate positioning each time radiation treatment is administered.

The CT simulation procedure may involve a type of dye or contrast that is given through the patient's vein before the scan is carried out. The contrast will highlight the structures within the body. Do inform the medical staff for past history of asthma, diabetes, any drug or non-drug allergies or if you have an implanted cardiac pacemaker.

AFTER CT SIMULATION

An appointment will be given after the CT simulation for the treatment which usually starts in 2 to 3 weeks' time. The radiation oncologists and therapists will use the information collected to design and plan for individualised radiation treatment.

WHAT IS RADIATION TREATMENT?

Radiation treatment is the use of precisely-calculated doses of high-energy X-rays to treat parts of the body where there is disease. It is generally pain-free. A course of radiation

treatment can involve single or multiple sessions depending on the oncologist's prescription. Most patients receive their treatment as an outpatient at the Radiation Therapy Centre. Treatment will include initial and follow-up consultations, to ensure that our patients receive the full continuum of care.

WHO ARE THE PEOPLE INVOLVED IN RADIATION TREATMENT?

The team providing radiation therapy comprises a team of:

- **Radiation Oncologists** – They are doctors who specialise in using radiation to treat cancer/disease.
- **Medical Physicists** – They ensure the equipment delivers the right dose of radiation and functions accurately.
- **Radiation Therapists** – They will guide the patient during treatment, position the patient for treatment and operate the equipment that delivers the radiation. They are also involved in the planning of individualised treatment.
- **Nurses** – They coordinate cancer care, counsel patients and their family on how to manage side effects and address concerns about radiation therapy.

WHAT IS THE TREATMENT PROCESS?

Treatment is painless and takes about 15 to 30 minutes for each session. Treatment is usually scheduled from Monday to Friday unless specially instructed by radiation oncologists.

At the start of the session, the radiation therapist will explain what to expect in the treatment room. The patient will be given a gown to change into only if needed.

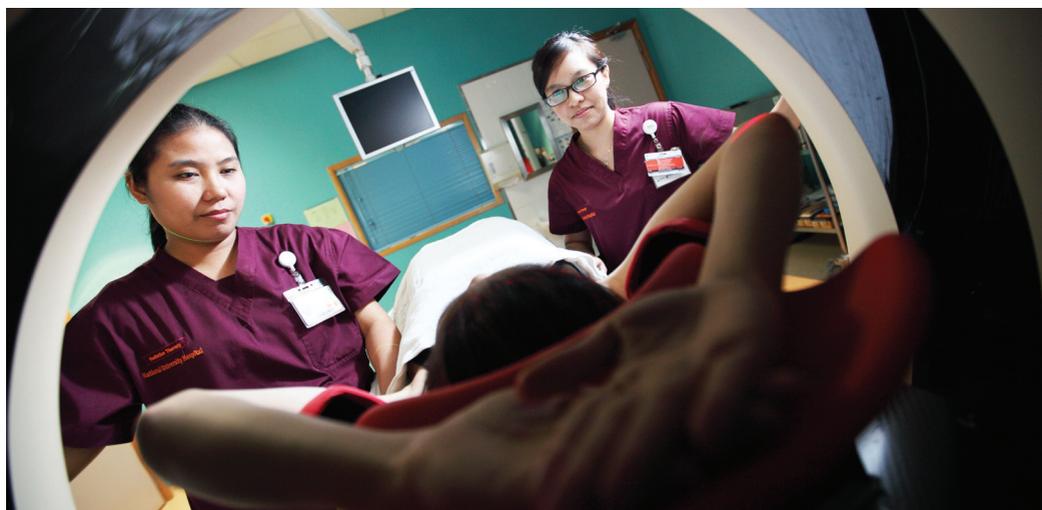
In the treatment room, there is a treatment machine called the Linear Accelerator (LA). The radiation therapists will position the patient on the treatment couch according to the



measurements and the marks drawn on the skin during the CT simulation session.

Once the treatment position is confirmed, actual treatment will begin. The radiation therapists will exit the room to the adjoining console room when treatment starts. They will monitor the patient closely through a closed circuit camera and communicate via an 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. The X-ray beams from the Linear Accelerator are invisible. It is important for the patient to lie still and breathe normally throughout the treatment procedure. This will ensure accuracy of the treatment. However, if the patient feels uncomfortable at any point, he/she can raise his/her arm to alert



the radiation therapists. They will stop the treatment immediately and render assistance. The machine will stop beeping when the treatment is completed. The therapists will re-enter the room and help the patient down from the treatment couch.

WILL I EXPERIENCE ANY SIDE EFFECTS?

Depending on which part of the body is treated, side effects may vary from person to person. Most side effects are temporary and a normal part of the treatment process. During the course of treatment, the patient can discuss any concerns he/she may have with his/her treatment team of oncologists, therapists and nurses.

Patients and their family members can also refer to our informational leaflets or brochures that describe possible side effects associated with the area that is treated.

WHAT ARE SOME THINGS I CAN DO DURING TREATMENT?

- Eat a well-balanced diet daily.
- Take special care of your skin, as it may get dry or sensitive due to treatment. A gentle moisturising cream like Aloe Vera or Vitamin E cream can be used. Please consult the radiation oncologist before using these creams.
- 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. A dietitian from the hospital can help you set-up a nutritional food plan.
- Drink fluids that are high in calories, such as shakes or nutritional supplements. You can approach our staff for further information 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.

- 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 will 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 when your course of treatment is completed.
- The effects of radiation treatment may continue for a few weeks after your last treatment session and will take some time to subside. Your skin that is exposed to treatment will continue to be sensitive to the sun. You will need to use additional sun protection on and around the treatment area. Do be very gentle with your skin.
- If you have had radiation treatment to the mouth, it is essential that you inform your dentist each time you go for a dental check-up.

WHAT IF I AM TAKING OTHER MEDICATION?

The patient needs to inform our radiation oncologist or nurses if he/she is taking any prescription or over-the-counter medication and other supplements. The radiation oncologist will review all current medication. Family doctors can also prescribe any medication for problems other than cancer to the patients.

WHAT HAPPENS AFTER RADIATION TREATMENT?

When the course of treatment is completed, the radiation oncologist will schedule post-treatment reviews for patients to monitor the response of the tumour, side effects and the patient's health.

CANCER SUPPORT RESOURCES CancerLine

Staffed by trained oncology nurses, this is a free counselling service for patients, their families, and members of the public on cancer-related issues.

Support Groups

The National University Cancer Institute, Singapore (NCIS) has various support groups to help people cope with cancer. Types of support groups include:

- **Acute Leukaemia Warriors Support Group**
- **Breast Support Group**
- **Gynaecologic Oncology Patients TEAL Support Group**
- **Haematopoietic Progenitor Cell Transplantation (HPCT) Support Group**
- **Lymphoma Support Group**
- **Multiple Myeloma (MM) Support Group**
- **Myelodysplastic Syndrome (MDS) Support Group**
- **NPC oneHeart Support Group**
- **Sarcoma Support Group**

Membership is free. For more information, please contact the CancerLine.

Support Programmes

We also offer various support programmes to help patients and their families cope with cancer. They include:

- Living With Cancer Education Series
- Look Good Feel Better Programme
- Relax Your Mind Yin Yoga Classes
- Kids Connect!

ABOUT RTC@NCIS

Established in 1999, the Radiation Therapy Centre (RTC) at the NCIS houses state-of-the-art facilities and an internationally recognised team of radiation oncologists, therapists, physicists, nurses and healthcare professionals. Dedicated to providing holistic and specialised care, the NCIS aims to be one of the world's leading centres, dedicated to the prevention, management and cure of cancer.

The radiation oncology team at the RTC is available to discuss treatment, assist our patients and families with the management of side effects and take them through the planning, treatment and post-treatment stages. The team constantly monitors the accurate functioning of the equipment necessary for the patient's treatment so that radiation treatment is delivered precisely and safely. Patients are encouraged to approach the team for recommendations of suitable resources such as cancer support groups and counselling lines that can help them cope with their illness.

CONTACT INFORMATION

NUH MEDICAL CENTRE
National University Cancer Institute,
Singapore (NCIS)

Cancer Centre @ Level 10
Chemotherapy Centre and Stem Cell Therapy
Centre @ Level 9
Radiation Therapy Centre and Breast Care
Centre @ Level 8

Appointment Line: **(65) 6773 7888***
Fax: **(65) 6777 4413**
Email: **CancerApptLine@nuhs.edu.sg**

CancerLine

Hotline: **(65) 9722 0569***
Email: **CancerLineNurse@nuhs.edu.sg**

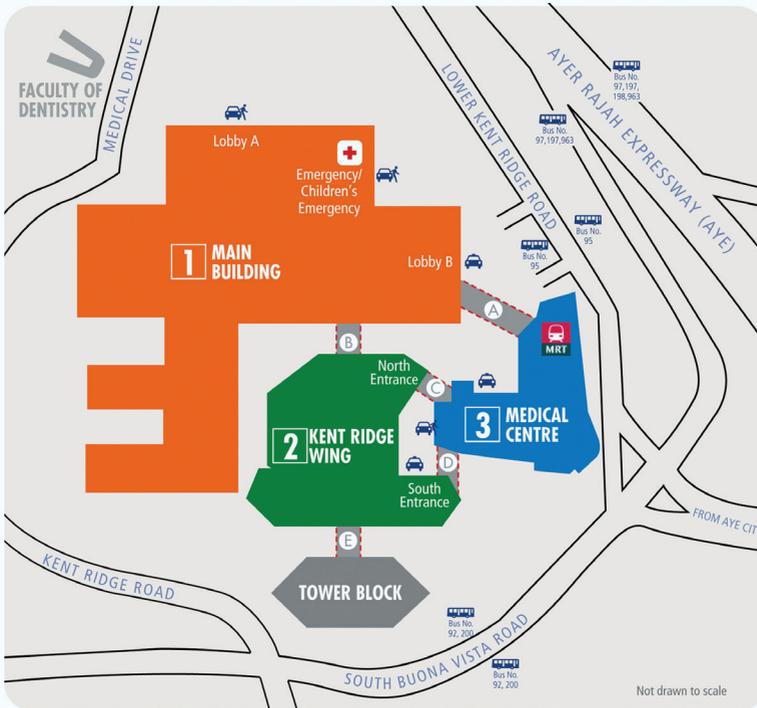
*Mon - Fri (Except PH): 8.30am - 5.30pm

 **National University
Cancer Institute, Singapore**
www.ncis.com.sg



5 Lower Kent Ridge Road, Singapore 119074
www.nuh.com.sg

LOCATION



Nearest MRT Station: Kent Ridge Station (Circle Line)

Commuters can alight at Kent Ridge Station and exit the station via Exit C.

The NCIS is located on levels 8, 9 and 10 which are accessible via Lift Lobby B.

For more information on directions to NUH, please visit <https://www.nuh.com.sg/contact-us/getting-to-nuh.html>

For more information on directions to specific NCIS Clinics, please visit <http://www.ncis.com.sg/about-us/location-map.html>

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