

Informed Consent

Informed consent is an important process before the start of radiation therapy. As any cancer treatment involves certain risks, it is important for patients to understand the benefits and risks of the recommended therapy before the initiation of the treatment.

Through the process of informed consent, patients are informed about the purpose of the treatment, the technique or approach to be used, and the outcome and potential adverse effects to be expected.

Patients are usually required to sign a consent form before planning radiation therapy. Signing the consent form indicates that the patient fully understands the therapeutic process and associated benefits and adverse effects, and agrees to accept the recommended treatments and their consequences. However, if questions or concern about the treatment arise after signing the consent form, patients should not hesitate to direct them to the attending physicians.

About RTC@NCIS

Established in 1999, the Radiation Therapy Center of the National University Cancer Institute, Singapore (RTC@NCIS) houses state-of-the-art facilities and an internationally-trained team of radiation oncologists, therapists, physicists, nurses and healthcare professionals. Dedicated to providing holistic and specialized care, RTC@NCIS aims to be one of the world's leading comprehensive cancer centres, dedicated to the prevention, management, and cure of cancer.

Online Resources

National University Cancer Institute, Singapore (NCIS)

www.ncis.com.sg

American Cancer Society

www.cancer.org

American Society of Clinical Oncology

www.cancer.net

Macmillan Cancer Support

www.macmillan.org.uk

Contact Information

**National University Cancer Institute, Singapore (NCIS)
Radiation Therapy Centre (RTC)**

5 Lower Kent Ridge Road Singapore 119074
(Kent Ridge Wing, via Linkway on Level 4)

Opening Hours: 8:30am – 5:30pm (Mon- Fri)
(except on Public Holidays)

For appointments, please contact

Tel: (65) 6772 4870/4854 Fax: (65) 6779 4062
Email: CancerApptLine@nuhs.edu.sg

For International Patients and Visitors

The International Patient Liaison Centre (IPLC) is a one-stop centre to support all the medical needs of our foreign patients.

Tel: (65) 6779 2777 (24-Hours Helpline) Fax: (65) 6777 8065
Website: www.nuh.com.sg/iplc

National University Cancer Institute, Singapore (NCIS)

1E Kent Ridge Road,
NUHS Tower Block, Level 7, Singapore 119224
Tel: 6772 4811 Fax: 6872 3137
Email: ncis@nuhs.edu.sg
Website: www.ncis.com.sg



National University Hospital

5 Lower Kent Ridge Road, Singapore 119074
Tel: 6779 5555 Fax: 6779 5678
Website: www.nuh.com.sg

Free Shuttle Bus Service

Free Shuttle Bus Service from Dover MRT Station to NUH

Operation hours : 8.00 am – 8.30 pm (Mondays – Fridays)
: 8.00 am – 2.00 pm (Saturdays)
Not available on Sundays and Public Holidays

Dover/NUH : 1. Dover MRT Station (opposite Singapore Polytechnic)
passenger pickup/ 2. Main Building, Lobby Entrance (near roundabout)
drop off point 3. Kent Ridge Wing, Level 3, South Entrance

For more information on Shuttle Bus schedule, log on to www.nuh.com.sg

NEW! Circle Line Kent Ridge Station opens on 8 October 2011

Commuters can transit at the Buona Vista MRT Interchange and alight two stops after at the Kent Ridge Station, right at the door step of the NUH's Main Building.
The NUH Shuttle Bus Service between Dover Station and NUH will cease on 1 Nov 2011.

Information in this brochure is given as a guide only and does not replace medical advice from your doctor. Please seek advice from your doctor if you have any questions related to the surgery, your health or medical condition.

Information is correct at time of printing (Aug 2011) and subjected to revision without notice.

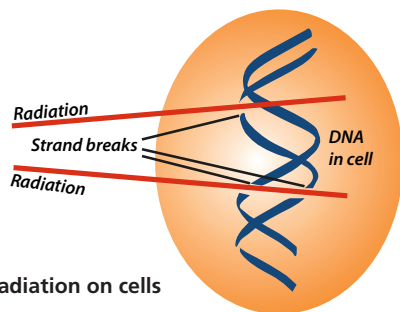
Patient Information on Intensity-Modulated Radiation Therapy & Image-Guided Radiation Therapy

NEW LIFE, NEW HOPE



What is radiation therapy?

Radiation therapy treats cancer by using high-energy X-rays generated from a radiotherapy machine to destroy the cancer cells. It inhibits cancer cells from multiplying by delivering ionizing radiation to destroy cancer cells whilst sparing normal tissues. When these cancer cells die, the body naturally eliminates them. Healthy tissue is then able to repair itself in a way cancer cells cannot, and are hence spared.



Effect of radiation on cells

Radiation therapy can be delivered in two ways, externally (external beam radiation therapy) and internally (brachytherapy). The type of radiation therapy prescribed by a radiation oncologist depends on the location, size and type of cancer.

What is Intensity-Modulated Radiation Therapy (IMRT)?

Intensity-modulated radiation therapy (IMRT) is an advanced form of external beam radiation therapy. It can deliver precise radiation doses to a tumour by modulating—or controlling—the intensity of the radiation beam in multiple small volumes. It can also minimise the dose to surrounding normal critical organs. Usually, the computer-assisted radiation beams will come from 7 to 9 angles around the body to optimise the treatment to the tumour and reduce radiation exposure to the normal organs as far as possible.

What are the benefits of IMRT?

- The targeted tumour will be able to receive a consistently high radiation dose, improving the chance of tumour kill
- Side-effects may be minimized by reducing unwanted radiation exposure to normal organs

What is Image-Guided Radiation Therapy (IGRT)?

Image-guided radiation therapy (IGRT) is the use of frequent imaging or scans during a course of radiation therapy to improve the precision and accuracy of the delivery of treatment. In NCIS, our IGRT treatment machine is also equipped with imaging technology so that the radiation therapy team can image the tumour immediately before the time radiation is delivered, while the patient is positioned on the treatment table. These images are then compared to the images taken

during CT simulation and adjustments can be made to the patient's position in order to more precisely target radiation at the tumour and avoid healthy surrounding tissue. It is often used in conjunction with IMRT, when we use the term IG-IMRT.

What are the benefits of IGRT?

- IGRT can further improve accuracy of any radiation treatment by making sure that the radiation is actually targeting the correct location throughout the treatment course.
- Additionally, any inaccuracies in localization (eg. tumour shrinkage, significant weight loss) can be detected early and corrective action applied.

What can I expect for IMRT?

- Usually, patients are scheduled for IMRT sessions five days a week for five to eight weeks. Your radiation oncologist will consider the type, location and size of the tumour, doses to critical normal structures, as well as your general health condition to decide the number of sessions.
- At the beginning of each radiation therapy session, you will be carefully positioned, guided by the skin marks defining the treatment region. Some patients may also have received special instructions before starting each session, such as maintaining a full bladder
- Devices, such as a head mask, may be used to help you maintain the proper position
- After ensuring that the set-up is accurate, and that you are comfortable, our radiation therapy team will start the treatment process. Treatment is painless and will last 10 to 30 minutes.

What can I expect for IGRT?

- For patients having IGRT treatment, images are taken before the start of treatment using imaging equipment in the treatment room. Our team will quickly review the images and compare them to the CT simulation images. You will be repositioned if necessary, and additional imaging may be performed before treatment.
- The image-guidance process may add up 5 – 10 minutes to the radiation therapy session. Some patients require daily scans, whilst others may have a scan once a week. How frequent the scans are done depends on the region of treatment, and how much the tumour is seen to move on the initial scans.

What are the common conditions treated with IMRT and IGRT?

- Patients with cancers of the prostate, head and neck and central nervous system are often treated with IMRT.
- Some patients with breast, lung, gastrointestinal and gynecological cancers may also be offered IMRT treatment.
- Many patients may also benefit from the added accuracy of IGRT. In particular, tumours that tend to be move more easily would be more accurately targeted with IGRT, for example, prostate or lung cancer. We also recommend IGRT for treatment of tumours that are very close to critical normal organs, such as nasopharyngeal cancer.

Are there any side effects?

- The most common side effects experienced are fatigue and nausea.
- There may also be discomfort in the specific treatment area.
- Side effects usually begin two to three weeks after the start of treatment.
- Your radiation oncologist will discuss specific side effects that you may expect for your condition.
- Many of these side effects can be controlled with medication. Inform your doctor or nurse if you are experiencing any discomfort so they can help you feel better.

How should I care for myself during radiation therapy?

- Get plenty of rest during treatment.
- Advise your doctor about any medications or vitamins you are taking, to make sure they are safe to use during radiation therapy.
- Eat a well-balanced diet.
- Stay out of the sun, avoid hot or cold packs, only use lotions and ointments after checking with your doctor or nurse and clean the area with warm water and mild soap.
- Battling cancer is tough. It may help to join a support group.

What can I expect at Radiation Therapy Centre@NCIS?

Before Treatment

- A radiation oncologist will review your current and past medical records, family history, medications, allergies and lifestyle.
- Simulation of your treatment area which involves measurement of the body and marking of skin or immobilisation devices, is done to ensure accuracy.
- Your treatment plan will then reviewed and developed by a professional team.

During Treatment

- At the start of treatment, you will be positioned on the Linear Accelerator.
- Once positioned correctly, the therapist will be monitoring your treatment process via the control room.
- Communication with the therapist is possible through the microphone in the treatment room.
- Treatment can be stopped at any time should you feel unwell or uncomfortable.
- Throughout the procedure you will be awake and will not experience any pain.
- Depending on the reaction of the tumour, your treatment plan may be modified.
- Weekly consultation will be scheduled with your radiation oncologist to monitor your progress, side effects and address your concerns.

After Treatment

- Follow-up appointments will be scheduled to ensure your recovery is proceeding normally.
- As time goes by, the number of appointments will decrease, but your treatment team will always be available to assist you.