

- Skin irritation similar to a sunburn
- Mild to moderate breast swelling
- Mild fatigue
- Mild tenderness in the breast or chest wall
- Scarring of a small part of the lung just under the breast
- Ischaemic heart disease for left breast radiation (new techniques have minimised the risk to under 5%)
- Secondary cancers (rare)
- Rib fracture (rare)

CARING FOR YOURSELF DURING AND AFTER RADIATION THERAPY

- **Be careful caring for the affected area**
Avoid hot or cold packs and only use lotions and ointments after checking with your doctor or nurse. Clean the affected area with lukewarm water and mild soap.
- **Rest well**
Get plenty of rest during treatment.
- **Check your medications**
Inform your doctor if you are taking medications, to make sure that they are safe to use during radiation therapy.
- **Stop smoking**
Immediate benefits of less airway irritation with less cough and shortness of breath.
- **Eat well**
Makes you feel better, have less side effects and allows you to fight infections better.

- **Stay active (even gentle short bouts of activity helps!)**
Improves mood, reduces fatigue and helps with appetite.
- **Enlist support**
Mental and emotional health is as important as physical health. It might be helpful to talk to counsellors or join a cancer support group.
- **Have a caregiver who can manage your care**
It is good to have someone who can help to keep track of hospital appointments and medications prescribed.

Informed Consent

Informed consent is an important process before the start of radiation therapy. Your doctor will explain to you the benefits and risks of the recommended therapy in detail during consultation, before the initiation of the treatment.

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 treatment, your health or medical condition.

CONTACT INFORMATION



Nearest MRT Station: Kent Ridge Station (Circle Line)

Commuters can alight at the Kent Ridge Station, right at the doorstep of the NUH Medical Centre. Please exit the station via Exit C. NCIS is located on levels 8, 9 and 10 which are accessible via Lift Lobby B.

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

NUH Medical Centre, Level 8
 Opening Hours : 8.30am – 5.30pm
 (Mon – Fri, except Public Holidays)
 Appointment Line : (65) 6773 7888
 (8.30am – 5.30pm, Mon – Fri,
 except Public Holidays)
 Email : CancerApptLine@nuhs.edu.sg

For all other general enquiries

National University Cancer Institute, Singapore (NCIS)
 Email : ncis@nuhs.edu.sg
 Website : www.ncis.com.sg



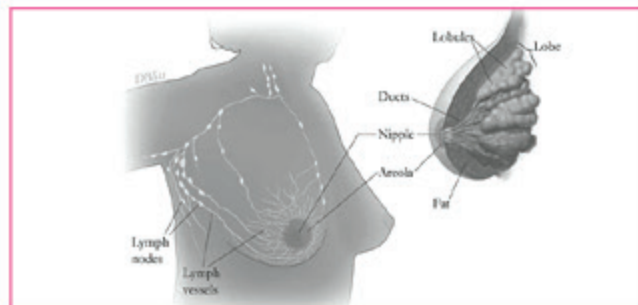
National University Hospital
 5 Lower Kent Ridge Road, Singapore 119074
 Tel: 6779 5555 Fax: 6779 5678
 Website: www.nuh.com.sg

Radiation Therapy for BREAST CANCER



WHAT IS BREAST CANCER?

Breast cancer is a group of cancer cells that has developed from the cells in the breast. These cancer cells have grown into the surrounding tissues or spread to distant parts of the body. It usually starts in the cells of the lobules (the milk-producing glands) or the ducts (the passages that drain milk from the lobules to the nipple).



In other cases, this type of cancer can begin in the stromal tissues, which are the fibrous and fatty connective tissues of the breast.

WHAT ARE THE SIGNS AND SYMPTOMS?

- Breast lump
- Skin changes
- Bloody or unusual nipple discharge
- Retracted nipple
- Breast pain
- Persistent rash around nipple

HOW IS BREAST CANCER DIAGNOSED?

- Breast self-examination
- Clinical breast examination
- Mammogram
- Breast ultrasound
- Breast MRI
- Breast biopsy (a sample of cells taken from the tumour)

WHAT ARE THE DIFFERENT TYPES OF TREATMENT?

Treatment depends on the type of breast cancer and the stage of cancer, as well as the general medical condition of the patient.

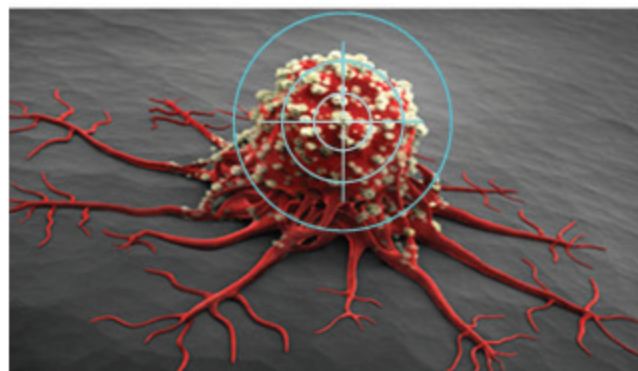
Mastectomy: Removal of the entire affected breast tissue.

Lumpectomy: Breast conserving surgery which involves removal of only the cancerous tissue. This is usually followed by radiation therapy.

During the lumpectomy or mastectomy, the surgeons may perform surgery on the lymph nodes to test if these lymph nodes have been affected by the cancer.

WHAT IS RADIATION THERAPY?

Radiation therapy treats cancer by using high-energy X-rays generated from a radiation therapy machine to destroy the cancer cells. It inhibits cancer cells from multiplying by delivering ionising radiation to destroy cancer cells whilst minimising radiation to 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 this leads to a much higher proportion of tumour cell death compared to normal cells.



HOW IS RADIATION THERAPY DONE?

1. **Consultation:** The Radiation Oncologist determines the most appropriate method and discusses with you the treatment intent, schedule, risks and side-effects.
2. **Mark-Up and Simulation:** A CT scan of the treatment area will be obtained, while three small full-stop size marks are made to ensure accurate positioning during your daily treatment.



3. **Treatment Planning:** A multidisciplinary team produces a customised treatment plan for you.
4. **Treatment:** Radiation therapy for breast cancer is delivered daily (Mondays to Fridays) for three to seven weeks. Each treatment session lasts 10 to 15 minutes.
5. **Follow-up:** Your first follow-up appointment varies depending on how you do during treatment, and is usually about four to six weeks after you have completed the course of radiation therapy.

WHAT ARE THE TYPES OF RADIATION THERAPY AVAILABLE FOR BREAST CANCER?

- **3-Dimensional Conformal Radiation Therapy (3DCRT)**
3DCRT delivers very precise doses of radiation to the breast and spares surrounding normal tissue through a machine called a linear accelerator.

- **Accelerated Partial Breast Irradiation (APBI) - Breast Brachytherapy**

APBI is currently recommended in selected patients with early stage breast cancer. It is an outpatient procedure which involves placing flexible plastic tubes called catheters into the breast around the scar region.

A radioactive source then travels via the catheters to treat the high risk area surrounding the scar. This technique reduces overall treatment time from several weeks to four days as well as reduces potential long-term side effects to adjacent tissues.

- **Intensity Modulated Radiation Therapy (IMRT)**
IMRT involves varying (or modulating) the intensity of the radiation being delivered during treatment. Compared to 3DCRT, this technique can deliver more tightly focused radiation beams to cancerous tumours while reducing the amount of radiation to surrounding healthy tissues.

Breath Hold Technique For left-sided breast cancer

Breath Hold Technique utilises a patient-controlled ventilation control tool which helps the patient hold a deep breath. This allows us to treat the chest wall/breast with the patient in full inspiration (at full inspiration, the chest wall is furthest from the heart), thereby minimising any radiation dosage to the heart.

WHAT ARE THE POTENTIAL SIDE EFFECTS?

You will experience minimal side effects in the first one to two weeks after your radiation therapy session. Many of these side effects will improve over time and some can be controlled with medication. Inform your doctor or nurse if you are experiencing any discomfort so they can help you better.