

Radiation Therapy

Radiation therapy uses high-energy beams to kill the cancer cells. In a procedure called External Beam Radiation, radiation therapy is directed at the lung cancer from outside your body. Other forms of radiation include stereotactic body radiation therapy (SBRT) that is used to treat very early stage lung cancer when surgery is not possible. SBRT uses very focused beams of high-dose radiation administered on one or a few days. Several beams are directed at the tumour from different angles. In another type of radiation, brachytherapy involves placing radioactive material directly into the cancer. As the radiation travels a shorter distance from the source, the effects on surrounding healthy tissues are minimised.

ABOUT NCIS

The **National University Cancer Institute, Singapore (NCIS)** is the only comprehensive public cancer centre in Singapore treating both paediatric and adult cancers in one facility. Located at the National University Hospital (NUH), NCIS offers a broad spectrum of cancer care with expertise in prevention, screening, diagnosis, treatment, rehabilitation and palliative care.

CONTACT INFORMATION

National University Cancer Institute, Singapore (NCIS)

Radiation Therapy Centre and Breast Care Centre

NUH Medical Centre, Level 8

Chemotherapy Centre and Stem Cell Therapy Centre

NUH Medical Centre, Level 9

Cancer Centre

NUH Medical Centre, Level 10

Opening Hours: 8:30am – 5:30pm

(Mon – Fri: except on Public Holidays)

For appointments, please contact

Tel: (65) 6773 7888

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-hour Helpline)

Fax: (65) 6777 8065

Website: www.nuh.com.sg/iplc

For all other general enquiries, please contact

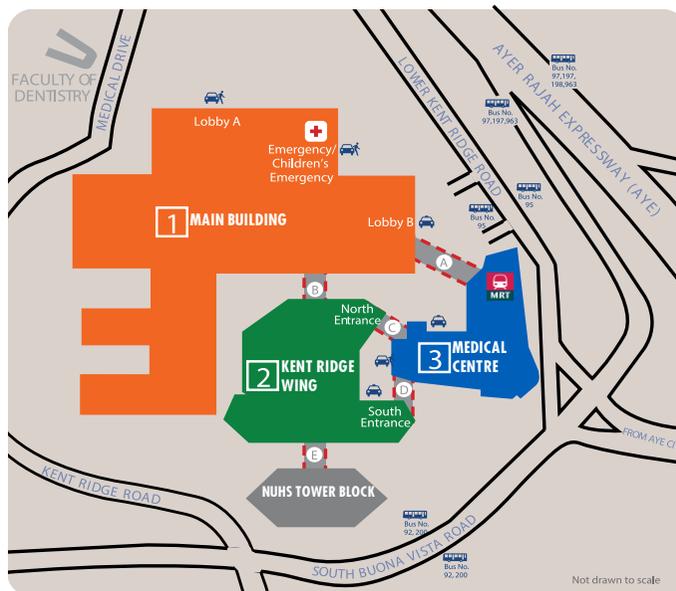
National University Cancer Institute, Singapore (NCIS)

1E Kent Ridge Road,

NUHS Tower Block, Level 7, Singapore 119228

Email: ncis@nuhs.edu.sg

Website: www.ncis.com.sg



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.

For more information on directions to NUH, log on to www.nuh.com.sg.

For more information on specific directions to NCIS Clinics, log on to www.ncis.com.sg.



National University Hospital

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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 questions related to the surgery, your health or medical condition.

Information is correct at time of printing (Oct 2012) and subject to revision without notice.



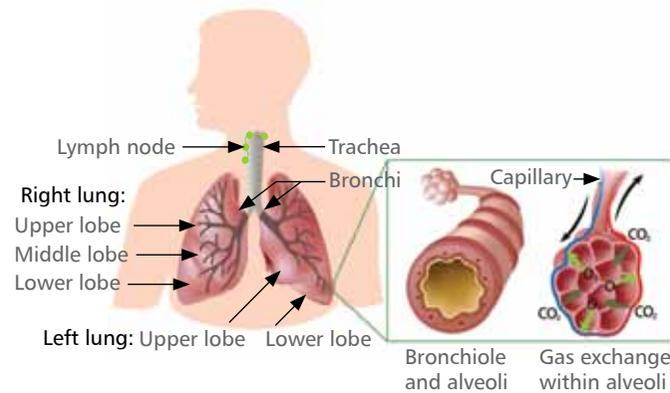
PATIENT INFORMATION

ABOUT
**LUNG
CANCER**

• WHAT IS LUNG CANCER?

Lung cancer, as the name suggests, happens when the cells lining the airways grow and divide without control, leading to the formation of an abnormal mass. It is a cancer that can develop over months to years and patients may not see the warning signs until much later. There are two major types of lung cancer: small cell lung cancer and non-small cell lung cancer. About 85% to 90% of lung cancers are non-small cell lung cancers. The major differences between these two types of lung cancer are the size and shape of the cancer cell, forms of treatment and the speed at which the cancer spreads. Small cell lung cancer spreads more rapidly.

Lung cancer is the second most common cancer in males and third most common cancer in females in Singapore. During the five-year period from 2006-2010, 16.2% of all cancer incidences in men were lung cancer cases. For women, the figure is 7.7%. People who smoke have the greatest risk of lung cancer as they increase their risk with each cigarette they smoke as well as the number of years they smoke. Non-smokers may develop lung cancer as well due to their exposure to second-hand smoke.



• WHO IS AT RISK?

There are a variety of factors that contribute to your risk of developing lung cancer. Certain factors can be suppressed by quitting smoking while other factors such as family history cannot be controlled.

- Habitual smokers
- People who are exposed to secondhand smoke
- Other risk factors include exposure to asbestos, radon gas and certain heavy metals

• WHAT ARE THE SIGNS AND SYMPTOMS?

In the early stages, lung cancer does not usually cause any signs and symptoms –they usually appear when the cancer has reached more advanced stages.

- Persistent cough
- Shortness of breath
- Chest pain
- Coughing up blood
- Recurring chest infection
- Hoarseness
- New onset of wheezing
- Loss of weight
- Loss of appetite

A doctor should be consulted should the symptoms occur.

• WHAT CAN YOU DO TO PREVENT LUNG CANCER?

- Quit smoking or if you are a non-smoker, do not start at all
- Avoid second-hand smoke by distancing yourself from areas where people smoke
- Avoid carcinogens at work
- Consume more fruits and vegetables

• HOW IS LUNG CANCER DIAGNOSED?

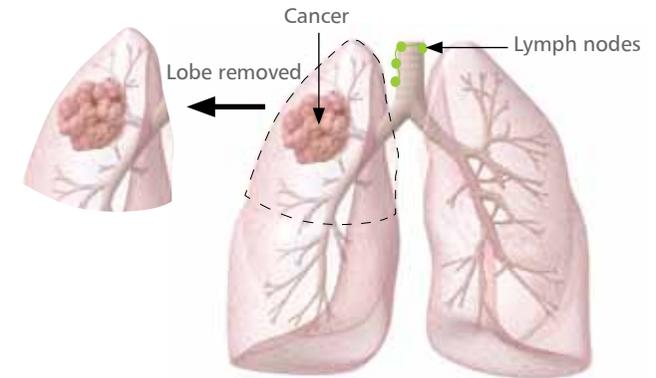
- Imaging tests: A chest X-ray may be conducted to reveal any abnormal mass or nodule. A Computed Tomography (CT) scan can reveal other lesions in your lungs that may not show up in an X-ray.
- Lung Biopsy: A sample of cells is usually taken to confirm the diagnosis. A biopsy sample may also be drawn from lymph nodes or other areas where the cancer has spread.

• WHAT ARE THE TREATMENT OPTIONS?

At NCIS, our patients are managed by a team of cancer specialists and health professionals from various disciplines. From pathologists and radiologists to medical oncologists and surgeons, we believe that a multidisciplinary approach will give our patients comprehensive and holistic care. A treatment plan will be developed to fit each patient's needs and may include one or a combination of the following treatments:

Surgery

Surgery is the mainstay of treatment for early-stage lung cancer that remains within the lung. Surgeons would remove the lobe of the lung where the tumour is located, as well as the surrounding lymph nodes. Minimally invasive 'keyhole' surgery is increasingly performed in suitable patients which results in less pain and faster recovery. Other surgical options are also possible, such as pneumonectomy which removes the entire lung, lobectomy which removes a section of the lung and segmentectomy which removes part of a lobe. In general, lobectomy is the preferred surgical option for non-small cell lung cancer.



Chemotherapy

Cancer cells are killed using drugs in a process called chemotherapy. One or more drugs may be given via an injection through a vein. The drugs are administered in a series of treatments over a period of weeks or months, allowing you to rest in between with breaks. It can be used as a first line treatment for more advanced cancer, or for selected patients before or after surgery or in other patients combined with radiation therapy.

Targeted therapies

Targeted therapies are a form of medical treatment involving the use of drugs or other substances. These drugs block or interfere with specific molecules that help the tumour to grow. They are usually used for stage 3 and 4 cancer with tumours that are unresponsive to other treatments. Two commonly used drugs for lung cancer are:

- Erlotinib (Tarceva), gefitinib (Iressa): Tarceva blocks the growth and spread of tumours by targeting a specific protein which causes cancer cells to divide and grow. This protein is found on the surface of lung cancer cells. These drugs are taken as a pill every day.
- Bevacizumab (Avastin): New blood vessels are formed by cancers to bring nutrients to the tumour. Avastin is a form of intravenous therapy that inhibits the formation of these new blood vessels. It is taken every two to three weeks.