SUNWAY
CANCER CENTRE

A PATIENT'S GUIDE TO

LUNG CANCER

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INTRODUCTION

Welcome to the Lung Cancer Patient Handbook.

This guide is designed to provide you with comprehensive information about lung cancer, its diagnosis, treatment options, and how to manage living with the disease.

Our goal is to empower you with knowledge and support through every step of your journey.

UNDERSTANDING LUNG CANCER

What is Lung Cancer?

Cancer is an abnormal growth of cells. The whole body is made of cells that act and grow in controlled ways as the body needs them. The cells are controlled by genes. Lung cancer starts when the lung cells become abnormal and begin to grow out of control.

According to the 2014 World Health Organization report, lung cancer accounted for 19.1 deaths per 100,000 population in Malaysia, resulting in approximately **4,088 deaths per year**. This represents 3.22% of all deaths in the country.

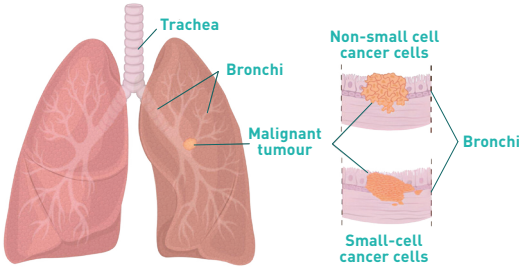
Notably, lung cancer is the **third most common cancer in Malaysia**, according to the Malaysia Cancer Registry Report 2017-2021.

Types of Lung Cancer

There are two main types of primary lung cancer. They behave in different ways and your treatment will depend on the type of lung cancer you have.

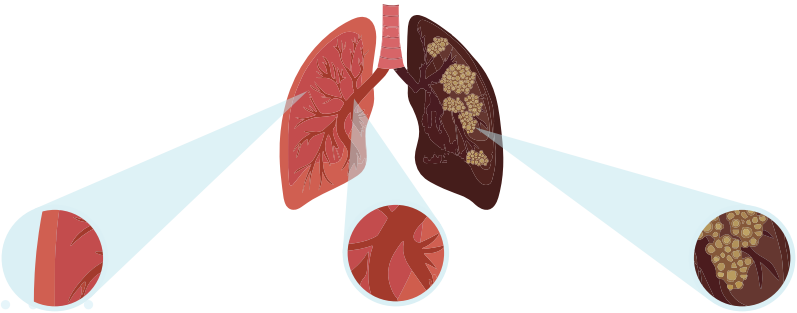
Small Cell Lung Cancer (SCLC)

A less common but more aggressive form, strongly associated with cigarette smoking.



Non-Small Cell Lung Cancer (NSCLC)

The most common type, accounting for about 85% of cases.
The 3 main histological subtypes of NSCLC are:



Adenocarcinoma

- Often found in the outer part (periphery) of the lungs
- Comprises 40% of the NSCLC
- Previously more common in women and non-smokers
- Now the most prevalent subtype in both males and females

Squamous Cell Carcinoma

- Starts in cells that line the inside of the airways, usually in the central part of the lungs
- Comprises 25-30% of the NSCLC
- Common in men
- Strongly associated with cigarette smoking

Large Cell Carcinoma

- Appears in any part of the lungs and often grows and spreads quickly
- Comprises 10-15% of the NSCLC
- Usually consist of large polygonal cells with vesicular nuclei

RISK FACTORS OF LUNG CANCER

Understanding the risk factors can help in prevention and early detection.

Tobacco Smoking

Exposure to Second-hand Smoke

Occupational Exposures

*Asbestos, Radon Gas, Silica Dust, Diesel Exhaust, Coal Tar and Soot, Arsenic, Beryllium, Nickel, and Chromium

Family History of Lung Cancer

SMOKING CESSATION PROGRAM

The **Smoking Cessation Program** in Sunway Medical Centre specializes helps our cancer patients, cancer survivors and their families improve their health by quitting smoking. Our pharmacy team offers individual counselling to anyone who wants to quit, or who is considering quitting.

5 REASONS

for Cancer Patients to Quit Smoking

1. 
   Help those diagnosed with cancer live longer and decrease the risk of a cancer recurrence or of developing new cancers.

2. 
   Improves the effectiveness of radiotherapy for some types of cancer.

3. 
   Improves the healing of surgical wounds.

4. 
   Lowers the risk of infection following surgery.

5. 
   Reduces symptoms related to chemotherapy toxicity such as infection, and heart, stomach or breathing problems.

‘START ’
STEPS TO QUITTING SMOKING

When you are ready, **START** and use the strategies below to quit smoking. They can be quite effective in helping smokers succeed in becoming, and staying, tobacco-free.

Set
a Quit Date — choose the specific day you commit to stop smoking.

Tell
your family, friends, and co-workers you plan to quit and when.

Anticipate
and plan for the challenges you may face while quitting.

Remove
cigarettes and other tobacco products from your home, car, and work.

Talk
with your doctor about quitting.

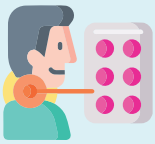
OPTIONS IN QUITTING SMOKING

There are many methods available to assist you in **quitting smoking**.

Below are some of the options for you to consider:

Counselling Provided by Our Pharmacist

Counseling can provide strategies to cope with the challenges of quitting



Quit Smoking Aids

include Nicotine Replacement Therapy
(Nicotine patch, Nicotine gum and Nicotine Mouth Spray)
and non-nicotine medications which are available in pill form

Knowledge Boost!

Nicotine Replacement Therapy works by reducing the cravings caused by quitting smoking — non-nicotine medications stimulate the same area of brain that nicotine does, it helps to reduce cravings caused by quitting smoking.

LUNG CANCER SCREENING

Importance of Early Detection

Early detection of lung cancer can significantly improve the chances of successful treatment and survival. Screening is particularly important for high-risk individuals.

Who is Eligible for Lung Cancer Screening?

Annual lung cancer screening is recommended for:

Adults aged between 45 to 75

Currently smoking

Family history of lung cancer

Quit smoking within the past 15 years

20 years' smoking history

Screening for Lung Cancer

At early stages, patients often don't have symptoms. The most effective screening tool for lung cancer is the low-dose computed tomography (LDCT) scan. It can detect lung cancer at an early stage when treatment is more likely to be effective.

How is Lung Cancer Screening Done?

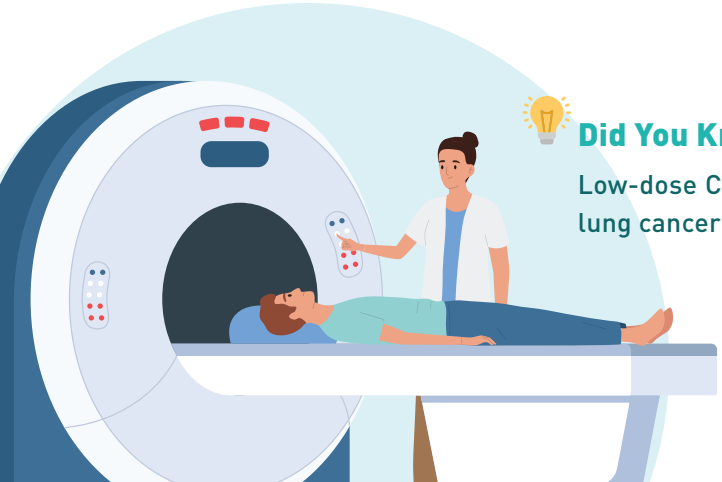
- During the LDCT, you lie on a table and an X-ray machine uses a low dose of radiation to create detailed images of your lungs. The scan is quick and painless.
- LDCT can help detect any abnormalities that could be a sign of cancer.

Risks of Lung Cancer Screening

False Positives: Sometimes the test shows something that looks like cancer but isn't, causing unnecessary anxiety and additional tests

Radiation Exposure: Involves a small amount of radiation

False Negatives: The test might miss a cancer, making someone think they're fine when they're not



Did You Know?

Low-dose CT screening can reduce lung cancer mortality by 20%

PRESENTATION, INITIAL INVESTIGATIONS AND REFERRAL

This step outlines the process for the emergency physician to initiate the right investigations and refer to the appropriate specialist in a timely manner.

1 Signs and Symptoms

The following unexplained or persistent symptoms lasting more than three weeks (or less than three weeks in people with known risk factors) require urgent referral for a chest x-ray.

Coughing up blood

Persistent new / changed cough

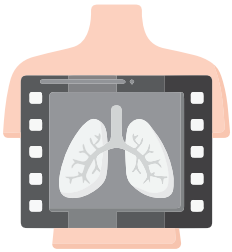
Chest / shoulder pain

Breathlessness

Hoarseness

Unexplained weight loss

2 General or Primary Practitioner Investigations



Perform a **chest x-ray;** if cancer is suspected, refer without delay.

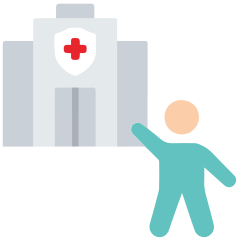
Contrast spiral computed tomography (CT) of the chest and upper abdomen if the chest x-ray is clear and symptoms persist.

Immediate referral if the CT is abnormal, test results should be provided to the patient within one week.

The first specialist appointment should take place within two weeks of referral.

Referral 3

Refer all patients with suspected or proven lung cancer to a specialist linked with a multidisciplinary team.



Please note that not all patients will follow every step of this pathway.

DIAGNOSIS AND STAGING

Lung Biopsy

a small piece of lung tissue is removed and examined to help determine if it is cancer

May be obtained from bronchoscopy through a scope in the airway or CT-guided biopsy

Immunohistochemical and Molecular Testing

These tests help to determine origin of the cancer and best drugs that should be offered

Staging

Radiological staging based on CT scan, PET Scan and brain MRI

Why is Staging Important?

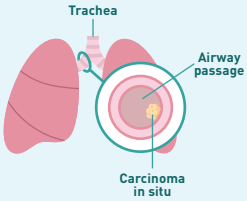
Doctors need staging information to plan a patient's treatment!

Lung Cancer Staging

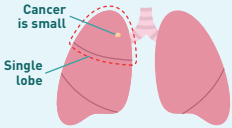
What is Lung Cancer Staging?

Lung cancer staging is a system that describes the overall size and spread of the main tumour.

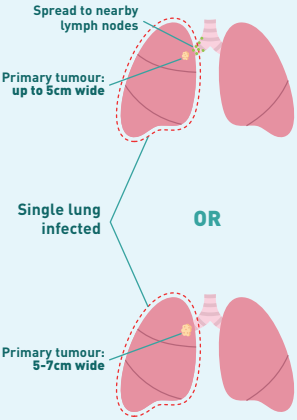
Stage 0



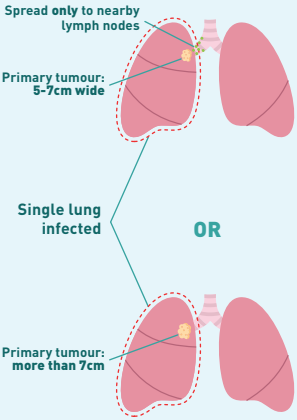
Stage I



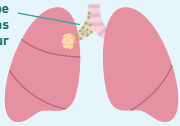
Stage IIA



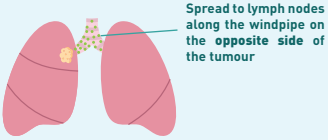
Stage IIB



Stage IIIA

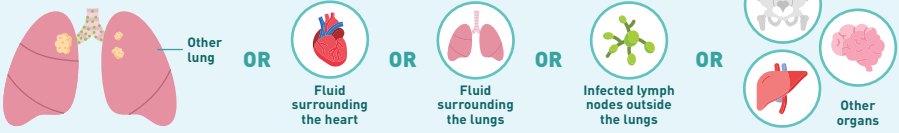


Stage IIIB



Stage IV

Cancer has spread to other areas of the body including:



LUNG CANCER TREATMENT

After the type, stage, and grade of your lung cancer have been determined, your healthcare team will develop a treatment plan.

The kind of treatment you are offered will depend on several factors, including the type of lung cancer you have; its location, spread, and genetic changes; and the health of your lungs, as well as your overall health.

This plan will be unique to you and specifically designed to achieve the best possible outcomes for your particular diagnosis.

Cancer treatments are categorized as either:

Local

Surgery

Radiation Therapy

Systemic

Chemotherapy

Targeted Therapy

Immunotherapy

Local

Surgery

Surgery removes tumours and structures, like lymph nodes, to which cancer has spread.

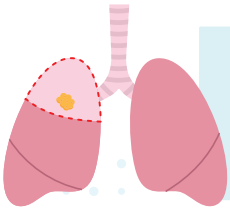
Surgery may be possible if you have:

- non-small cell lung cancer (NSCLC) stage 1 or 2, or occasionally stage 3
- small cell lung cancer (SCLC) that is very small and has not spread outside the lung

Types of Surgery for NSCLC

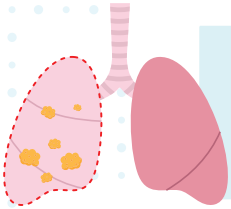
Segmentectomy or Wedge Resection

Part of a lung lobe is removed



Lobectomy

Entire lung lube is removed



Pneumonectomy

Entire lung is removed

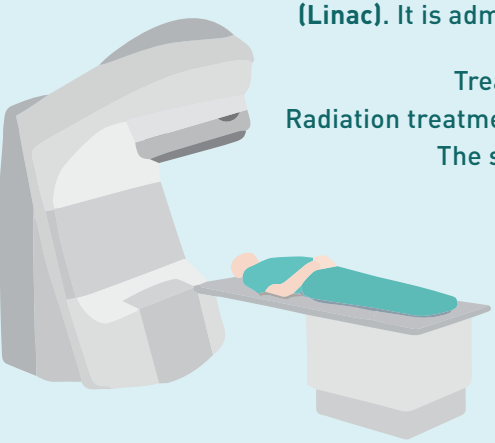
Local

Radiation Therapy

Radiation therapy (also called radiotherapy or radiation) uses high-energy x-rays to destroy cancer cells. Radiation damages cells only in the cancerous area.

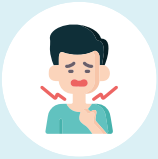
Radiation comes from a large machine known as a **Linear Accelerator (Linac)**. It is administered at the Radiotherapy Department.

Treatments can take 2 to 9 weeks to complete. Radiation treatments are usually performed Monday-Friday. The schedule depends on what is being treated.



Linear Accelerator (Linac)

Side Effects May Include



Esophageal damage, difficulty swallowing

Fatigue

Red, dry, and tender skin in the irradiated area

Lung inflammation

Systemic

Chemotherapy

Chemotherapy is a cancer treatment that uses drugs to stop the growth of cancer cells, either by killing the cells or by stopping them from dividing.

Chemo drugs are most often administered **intravenously** or **orally.**

Small Cell Lung Cancer (SCLC)

Chemotherapy is usually the first treatment for small cell lung cancer (SCLC).
You may have it:

- at the same time as radiotherapy (chemoradiation)
- if the cancer has not spread to other parts of the body
- before radiotherapy to try to shrink the cancer
- on its own to control advanced cancer, help you live longer and improve symptoms

Chemotherapy may also be given after surgery to try to get rid of any remaining cancer cells. But surgery is not usually possible for SCLC.

Non-Small Cell Lung Cancer (NSCLC)

Chemotherapy to treat non-small cell lung cancer may be given:

- on its own or with a targeted or immunotherapy drug – helps to control advanced cancer, prolong life, and alleviate symptoms
- Adjuvant Chemotherapy: after surgery or radiotherapy to minimise cancer relapse
- Neo-adjuvant Chemotherapy: before surgery or radiotherapy to shrink the cancer
- with radiotherapy if surgery is not suitable and the cancer is locally advanced
- with radiotherapy before surgery
- after treatment with targeted therapy drugs if they are no longer working

Fatigue

Hair loss

Poor appetite

Nausea

Weight loss

Mouth sores

Joint pain

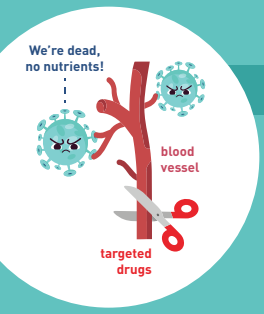
Tingling or numbness in the hands and feet

Side Effects May Include

Systemic

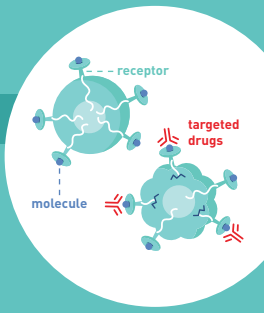
Targeted Therapy

Targeted therapy directed towards specific mutations that drive cancer to grow and spread. Targeted therapies interrupt the growth and function of cancer cells, while avoiding health cells. You may qualify for targeted therapy based on the results of biomarker testing.



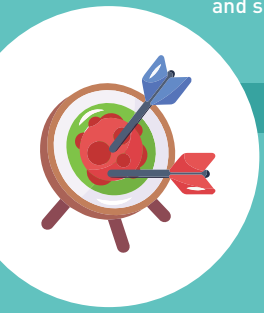
Inhibiting Angiogenesis

New blood vessel formation, or angiogenesis, is a fundamental process in tumour growth. Angiogenesis inhibitors are targeted drugs that block the signals for blood vessel formation. By stopping this process, these drugs effectively control tumour growth.



Block Signal Transmission

Targeted drugs interfere proteins that control how cancer cells grow and spread, helping to slow down cancer's uncontrolled growth.



Direct Targeting

When some antibodies combine with chemotherapy drugs attach to cancer cells, the cells absorb the drugs, causing them to die, cells without the target are not affected.

Side Effects May Include

Fatigue

Diarrhoea

Skin rash

Weight loss

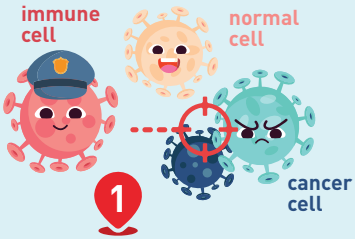
Poor appetite

High blood pressure

Systemic

Immunotherapy

Immunotherapy uses the body's immune system to recognise diseases like cancer by boosting its ability to detect and destroy abnormal cells.



Immune cells act like patrol officers, detecting and destroying foreign substances like cancer cells

Normal cells use PD-1 protein to signal "I am one of us, don't attack me"

Some cancer cells disguise themselves as normal cells to dodge immune attacks

Scientists then develop antibodies to block PD-1 and PD-L1 binding

This disruption helps immune cells uncover cancer cells' disguises, allowing immune cells to detect and attack

Fatigue

Diarrhoea

Constipation

Cough

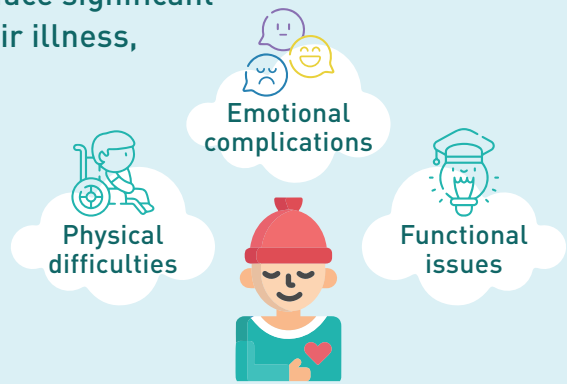
Nausea

Joint pain

Side Effects May Include

SUPPORTIVE CARE

People with cancer face significant challenges from their illness, including:



Supportive and palliative care in cancer is the prevention and management of the adverse effects of cancer and its treatment.

This includes management of **physical and psychological symptoms and side effects** as well as the **provision of psychosocial and spiritual support** across the continuum of the cancer experience from diagnosis through treatment and post-treatment care, and for some, end-of-life, and bereavement care.

The goal of supportive and palliative care is to improve the quality of life for both the patient and the family.

Supportive and palliative care is appropriate for all patients with serious illness, regardless of age or stage of illness and can be provided together with curative treatment.

FOLLOW UP AFTER THERAPY

For Non-Small Cell Lung Cancer (NSCLC)

Stage I NSCLC

- **Recurrence Rate:** 6.5% annually
- **Monitoring:** Check for treatment side effects for 3-6 months
- **Check-Ups:**

✓ **Every 6 months:** Physical exams and chest CT scans
✓ **Optional:** FDG PET scans
✓ **After 3 years:** Annual check-ups with low-dose CT scans

Stage I-II NSCLC *treated with radiotherapy & Stage III-IV NSCLC

- **Check-Ups:**

✓ **Every 3-6 months for 3 years:** Contrast-enhanced chest CT scans
✓ **Every 6 months for 2 years:** Contrast-enhanced chest CT scans
✓ **Annually thereafter:** Low-dose CT scans

Advanced/Metastatic NSCLC

- **Treatment Response:** Assess with CT scans every 2-4 treatment cycles or as needed
- **Biomarkers:** May predict treatment outcomes

For Small Cell Lung Cancer (SCLC)

Limited SCLC

- **Follow-Ups:**

✓ Every 3 months for 1-2 years
✓ Every 6 months in the third year
✓ Annually thereafter

Extensive SCLC

- **Follow-Ups:**

✓ Every 2 months in the first year
✓ Every 3-4 months in years 2-3
✓ Every 6 months in years 4-5
✓ Annually thereafter

- **Brain MRIs/CTs with Contrast:**

✓ Every 2 treatment cycles
✓ Every 3 months for patients with brain metastases

SUNWAY®
CANCER CENTRE

The Nuclear Medicine Centre is located at Basement, Tower C

Operation Hours

Mondays-Fridays	8.30am - 5.30pm
Saturdays	8.30am - 12.30pm

Closed on Sundays and Public Holidays

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