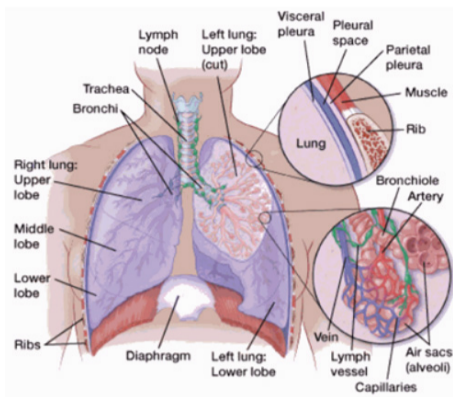


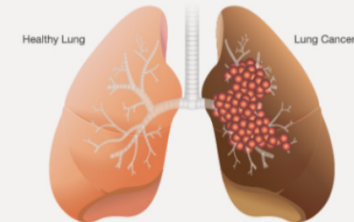
# Understanding Lung Cancer



## Normal structure and function of the lung:

The respiratory system includes the lungs, which are sponge-like organs in the chest. The right lung has three lobes, while the left lung has two because the heart occupies more space on that side. When we breathe in, air enters through the mouth or nose, travels down the trachea (windpipe), and enters the lungs through bronchi, which divide into smaller bronchioles and end in tiny air sacs called alveoli. The alveoli absorb oxygen from inhaled air into the blood and remove carbon dioxide we exhale.

In this edition of our newsletter, we delve into one of the most pressing health concerns of our time: lung cancer. As a leading cause of cancer-related deaths worldwide, understanding lung cancer is crucial for prevention, early detection, and effective treatment strategies.



## What is Lung Cancer?

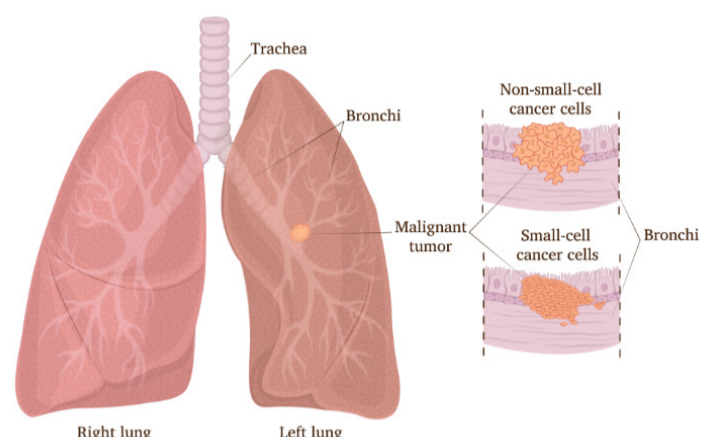
Lung cancer is a condition characterised by uncontrolled cell division in the lungs, leading to the formation of masses or tumours that impair organ function. Normal cell division can be disrupted by mutations, causing cells to multiply excessively. Lung cancer typically originates in the airways (bronchi or bronchioles) or air sacs (alveoli) of the lungs, but cancers originating elsewhere and spreading to the lungs are referred to based on their primary site.

## The main types of lung cancer are non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC):

### Non-small cell lung cancer (NSCLC):

Most lung cancers, around 80% to 85%, fall under non-small cell lung cancer (NSCLC), which includes adenocarcinoma, squamous cell carcinoma, and large cell carcinoma subtypes. Despite originating from different lung cell types, they are grouped as NSCLC due to similar treatment approaches and prognoses.

- **Adenocarcinoma:** Lung adenocarcinoma originates in mucus-producing cells known as epithelial cells, which line the lung's surface. It represents the most prevalent form of non-small cell lung cancer (NSCLC). Lung adenocarcinoma predominantly affects current or former smokers, although it is also the leading type among non-smokers. It exhibits a higher incidence among women and tends to manifest in younger individuals compared to other lung cancer types.
- **Squamous cell carcinoma:** This type begins in squamous cells that line the lung's airways, typically associated with smoking history, and commonly found in the central lung region near major airways (bronchi).
- **Large cell (undifferentiated) carcinoma:** Large cell carcinoma can emerge in any lung area and tends to progress rapidly, posing challenges for treatment. A specific subtype, large cell neuroendocrine carcinoma (LCNEC), resembles small cell lung cancer in its aggressive growth pattern.
- **Other subtypes:** NSCLC encompasses less common subtypes like adenosquamous carcinoma and sarcomatoid carcinoma.



### Small cell lung cancer (SCLC):

Approximately 10% to 15% of lung cancers belong to the category of SCLC, which is known for its rapid growth and tendency to spread faster than NSCLC. Typically, SCLC is diagnosed after it has already metastasised beyond the lungs in many cases. Due to its aggressive nature, SCLC often shows positive responses to chemotherapy and radiation treatments. However, recurrence of the cancer is a common challenge faced by most individuals affected by SCLC.

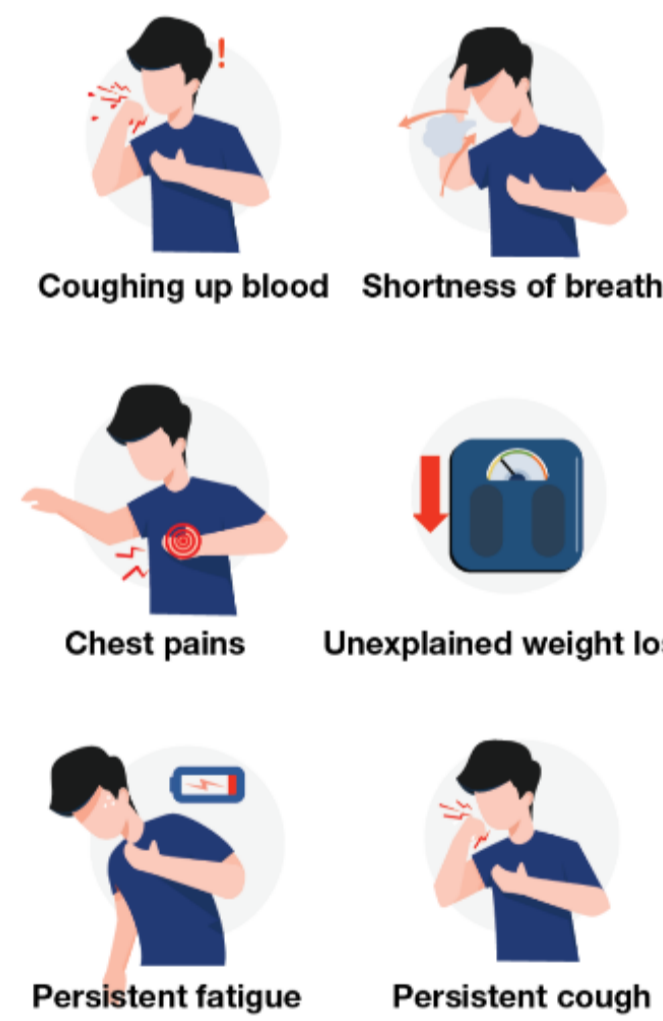
Read more:

<https://my.clevelandclinic.org/health/diseases/4375-lung-cancer>

## Risk Factors:

Several factors contribute to the development of lung cancer, including:

- **Smoking:** Cigarette smoking is the leading cause of lung cancer. The risk increases with the duration of smoking and the number of cigarettes smoked daily.
- **Second-hand Smoke:** Non-smokers exposed to second-hand smoke are also at risk of developing lung cancer.
- **Radon Gas:** Exposure to radon, a naturally occurring radioactive gas, can increase the risk of lung cancer.
- **Occupational Hazards:** Certain occupations, such as mining, construction, and manufacturing, expose workers to carcinogens that can lead to lung cancer.
- **Family History:** A family history of lung cancer may predispose individuals to the disease.



## Symptoms:

Lung cancer typically doesn't present signs or symptoms during its early stages, with symptoms emerging as the condition advances. Such as:

- A persistent cough lasting over 3 weeks.
- Worsening of a long-standing cough
- Recurring chest infections
- Coughing up blood
- Discomfort or pain during breathing or coughing.
- Continuous shortness of breath
- Persistent fatigue or low energy levels
- Unexplained weight loss or loss of appetite

## Less frequent symptoms may include:

- Changes in finger appearance, such as curvature or enlarged ends (known as finger clubbing)
- Difficulty or pain when swallowing (dysphagia)
- Wheezing
- Hoarseness in voice
- Swelling in the face or neck
- Long-lasting chest or shoulder pain

Learn more:

<https://www.cancer.org/cancer/types/lung-cancer/detection-diagnosis-staging/signs-symptoms.html>

## Diagnosis, treatment, and prevention!

Diagnosis may vary based on individual factors; here are some types of diagnosis tests:

- **Medical History and Physical Examination:** Includes symptoms, smoking history, exposure to carcinogens, and overall health assessment.
- **Imaging Tests:** Chest X-ray, CT scan, MRI to evaluate lung abnormalities and tumour characteristics.
- **Biopsy Procedures:** Needle Biopsy, Bronchoscopy, and Thoracentesis to confirm cancerous cell presence.
- **Laboratory Tests:** Genetic analysis on biopsy samples to identify cancer type and mutations.
- **Staging:** Determines cancer extent and spread using PET scans, bone scans, brain MRI, etc.

Treatment for lung cancer depends on the type and stage of the disease but may include surgery, chemotherapy, radiation therapy, targeted therapy, immunotherapy, or a combination of these approaches. Early detection significantly improves the chances of successful treatment and long-term survival.

For more information:

<https://www.nhs.uk/conditions/lung-cancer/treatment/>

## Prevention and Screening:

Reducing the risk of lung cancer involves adopting healthy lifestyle choices, such as quitting smoking, avoiding second-hand smoke, and minimising exposure to environmental carcinogens like radon. Regular screening with low-dose computed tomography (CT) scans is recommended for individuals at high risk, such as current or former smokers.

## Awareness and Advocacy:

Raising awareness about lung cancer, its risk factors, and available screening and treatment options is crucial in combating this disease. Advocacy efforts aim to promote smoking cessation programmes, support research for innovative therapies, and improve access to healthcare services for all individuals affected by lung cancer.

**By raising awareness, advocating for policy changes, and providing support, we can make significant strides in combating lung cancer and improving outcomes for patients.**

References:

<https://www.nhs.uk/conditions/lung-cancer/prevention/>  
<https://www.cdc.gov/cancer/lung/living/index.htm>