

Lung cancer

What is lung cancer?

Lung cancer is caused by the uncontrolled growth (proliferation) of abnormal cells inside the lung. There are two main forms of the disease, non small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). NSCLC is the most common form of the disease, accounting for approximately 85% of all cases.¹ Early-stage NSCLC does not always have obvious symptoms and so approximately 70% of patients are not diagnosed until the disease is at an advanced stage², when the chances for cure or significant patient benefit are limited. Adenocarcinoma is both the most common type of lung cancer and the most common form of NSCLC³; adenocarcinoma develops in the outer areas of the lungs.

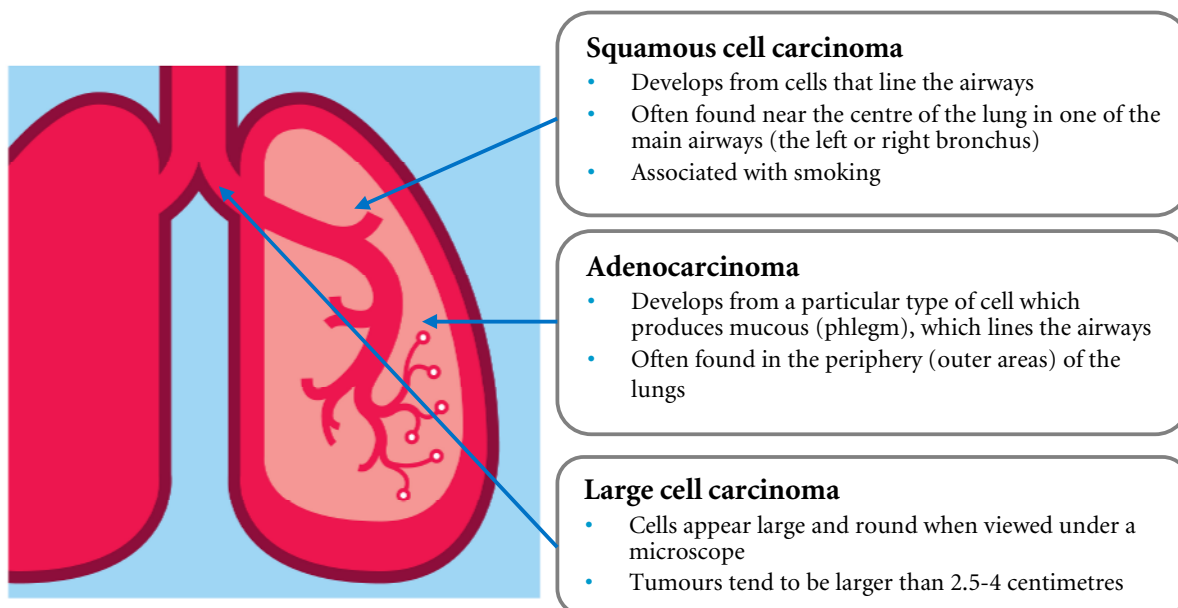


Figure 1: Diagram showing the location of different types of non small cell lung cancer.

Some NSCLC tumours possess activating mutations in the epidermal growth factor receptor (EGFR) gene, changing the structure of the EGFR proteins that they code for such that they have increased activity. NSCLC with EGFR activating mutations is considered to be a genetically distinct form of lung cancer which is most common in never smokers, patients with adenocarcinoma, people of Asian origin and females.^{4,5}

Prevalence

i. Worldwide

Lung cancer is the most common cancer worldwide, with 1.35 million new cases diagnosed every year.⁶ It is the leading cause of cancer mortality and is responsible for 1.18 million deaths each year.⁶

Each day, more than 3,000 people die from lung cancer worldwide, equal to two deaths every minute.⁷ Almost half of the cases of lung cancer occur in developing countries (49.9%), with the incidence generally being lower in women (globally, 12.1 per 100,000 women compared to 35.5 per 100,000 in men).⁶

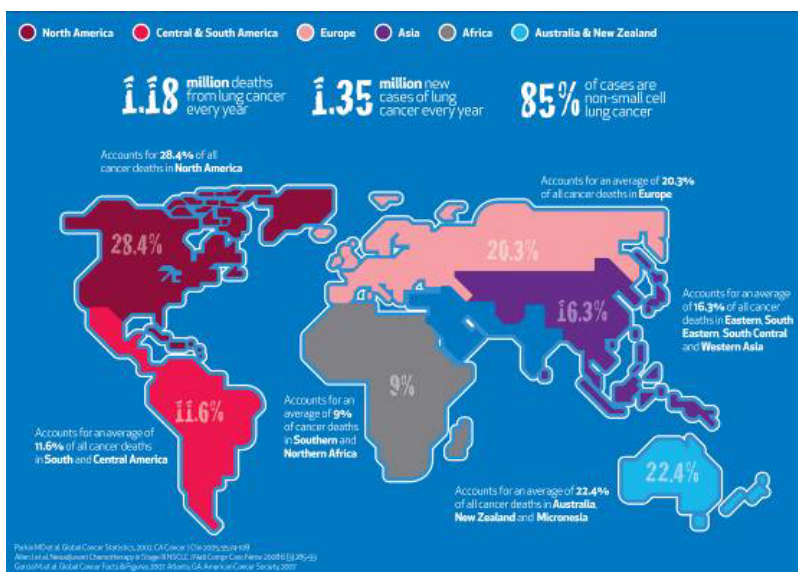


Figure 2: Lung cancer deaths worldwide, as a percentage of the incidence of all cancers^{2,9}

ii. Europe

In Europe there were approximately 375,000 cases attributed to lung cancer in 2000⁸ where it accounts for an average of 20.3% of all cancer deaths.⁹ The average estimated age-standardised incidence per 100,000 populations is 71.8 for men and 21.7 for women, across the European Union (25-member states).¹¹ Lung cancer was the leading cause of cancer related death in Europe in 2006.

Risk factors

- Smoking is associated with 80% of cases in men and 50% of cases in women.¹¹
- Passive smoking: There is a 20% increase in the likelihood of developing lung cancer in spouses of smokers.¹²
- A family history of lung cancer.¹³
- Exposure to asbestos and radon gas.⁹
- Urban and indoor air pollution (particularly in poorly ventilated homes where coal, wood or other solid fuels are regularly burnt) have also been linked with increased risk of lung cancer.¹⁴

Symptoms

Common symptoms of lung cancer are mostly non specific and can be indicative of other illnesses or conditions. This means that symptoms are sometimes disregarded, which is one reason many patients go to their doctor at a later stage, when the disease has advanced. However, common symptoms of lung cancer include:

- Shortness of breath and / or wheezing.

- Chronic cough and / or repeated bouts of bronchitis.
- Hoarseness of voice, chest pain.
- Loss of weight and appetite for no apparent reason.

Management of NSCLC

Treatment options vary in accordance with the type and stage of the cancer – its size, position in the lung, whether it has spread to other parts of the body and the physical condition of the patient. In general the treatment options for NSCLC are:

Surgery: Patients with early stage, localised NSCLC may be successfully treated using surgery. Up to 70% of patients with early stage, localised NSCLC survive for at least five years after diagnosis if treated at this stage, with a proportion of these patients being cured.¹⁵

Radiotherapy: For patients whose cancer cannot be operated on, radiotherapy may be offered alone, or in combination with chemotherapy. In addition, radiotherapy also has a well established role in providing control and relief of the symptoms of lung cancer.

Chemotherapy: The majority of NSCLC cases are diagnosed at an advanced stage¹⁶ when the cancer has already spread to another part of the body and can no longer be successfully removed by surgery. In this instance chemotherapy is often used to treat patients. The most common chemotherapies used in NSCLC are based on a platinum-containing backbone in combination with a second therapeutic. Treatment is given for four to six cycles as cumulative toxicities outweigh the incremental benefits achieved with continued treatment.

Biological therapy: A relatively new approach to cancer treatment, biological therapies (also called targeted therapies) stimulate the body's immune system to inhibit the growth and spread of cancer by modulating specific molecular and cellular processes involved in tumour growth and progression. Biological therapy can include monoclonal antibodies, vaccines and gene therapies. As biological therapies precisely target cancer-specific processes, they may potentially be more effective than other types of treatment (such as chemotherapy and radiotherapy) and less toxic to non-cancerous, healthy cells.¹⁷ Several types of biological therapy exist for the treatment of advanced non small cell lung cancer. These are either given as monotherapy or in conjunction with other therapies at various stages of advanced disease (in accordance with their approved label).

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