



Introduction to Public Health (LCHS 4007)

Lecturer

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Assessment 2

A Research Report

On

LUNG CANCER

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Introduction

Lung cancer is a fatal disease in which the cancer cells start growing uncontrollably in the lungs. These cancer cells develop in the tissues of the airways or air sacs of the lung. There are two types of lung cancer, non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). NSCLC are most common cancer cell and is less aggressive, but it accounts for about 85 per cent of lung cancer cases. In contrast, SCLC is an infrequent form of lung cancer, but it is a more aggressive type (Herbst, Morgensztern & Boshoff, 2018).

Common symptoms include persistent cough, breathlessness, chest pain, weight loss and fatigue. Lung cancer is a major global problem in terms of cancer deaths. Each year, approximately 2.2 million new cases of lung cancer are diagnosed, and 1.8 million people die (Siegel, Miller & Jemal, 2020). In the UK, around 48,000 people are diagnosed with lung cancer every year, which accounts for around 21 per cent of all cancer deaths (Cancer Research UK, 2023).

1. Approaches Used to Measure and Monitor Lung Cancer

Lung cancer control is heavily dependent on the availability of global, national and local cancer monitoring systems, cancer registries, clinical audits, screening programmes and indicators. Such information allows national and international public health institutions to assess the impact of cancer prevention and control activities.

a. Global Monitoring Approaches

Global Cancer Observatory (GLOBOCAN) was developed by the International Agency for Research on Cancer (IARC), which is the cancer research arm of the WHO. GLOBOCAN has cancer incidence, mortality and prevalence data for 185 countries worldwide and provides a global and regional resource. This helps to evaluate and compare trends in lung cancer incidence in greater detail, causes and patterns of the disease in different parts of the world. Thus, whilst incidence of lung cancer in men in high-income countries, such as the UK, USA and Australia, is continuing to fall, as it has for decades in other developed countries, there are several low and middle-income countries where incidence is increasing, particularly in countries such as China (Islami, Torre & Jemal, 2015).

b. UK Monitoring Approaches

Monitoring lung cancer in the UK is a highly structured and data-rich activity. Every new cancer diagnosis is entered into the National Disease Registration Service (NDRS) with specific details regarding the tumour type and stage at diagnosis, all treatment given and the patient's outcome. The Office for National Statistics (ONS) releases the cancer registration statistics

annually, which provides information on lung cancer incidence in the population by age, sex, region and deprivation. The role of the National Lung Cancer Audit (NLCA) is also important. This audits the diagnosis, investigation, management and survival of patients with lung cancer in England and Wales.

c. Screening and Early Detection

Early detection of lung cancer leads to better treatment and improved survival. Worldwide, low-dose computed tomography (LDCT) screening detects more lung cancers at an early stage in treatable conditions. The NELSON trial demonstrated a mortality reduction of up to 24% in men and up to 33% in women with LDCT screening (de Koning et al., 2020). This has already had an impact on international screening guidelines.

In the UK, the NHS Targeted Lung Health Check programme offers low-dose computed tomography (LDCT) scans to people who have smoked and are between the ages of 55 and 74. The programme is helping to catch cancers at an early stage, which is providing a wealth of information on causes and tumour characteristics

d. Epidemiological Indicators

Public health agencies use several epidemiological indicators to monitor lung cancer:

- Incidence rate
- Mortality rate
- Survival rates
- Age-standardised rates
- Risk factor prevalence

This category of indicators is employed to assess the burden of various diseases and the effect of preventive activities.

2. How Lung Cancer Is Controlled

Lung cancer control requires a comprehensive approach in prevention, early detection, diagnosis and treatment.

a. Global Control Strategies

The World Health Organization (WHO) has declared that the only effective method for the reduction of lung cancer worldwide will be a reduction in global tobacco use. In 2008, the WHO called on all governments to implement the WHO Framework Convention on Tobacco Control

(FCTC). An international treaty designed to provide countries with a clear direction and the tools required to implement effective, evidence-based policies to reduce tobacco consumption.

- Increasing tobacco taxes
- Banning advertising and sponsorship
- Introducing smoke-free public spaces
- Requiring graphic health warnings
- Restricting sales to minors

A review of the global literature has found that few countries have implemented tobacco control measures and seen a reduction in smoking prevalence and lung cancer incidence (Bade & Dela Cruz, 2020).

b. UK Control Strategies

The UK is leading the way in tobacco control. Measures such as plain packaging, high tobacco tax, and evidence-based stop smoking services have all contributed to a fall in smoking rates. And the public's smoke-free law introduced in 2007 has also reduced exposure to second-hand smoke.

The UK also invests heavily in early diagnosis. The NHS has introduced the Targeted Lung Health Check programme to encourage greater numbers of people to come forward for a check if they are at risk of developing lung cancer, thereby increasing the chances of a cure.

c. Treatment Approaches

There is no single treatment for all types of lung cancer. Individual treatment will depend on several factors, including the type of lung cancer and its stage. A list of recognised treatment options worldwide and in the UK is given below.

- Surgery
- Radiotherapy
- Chemotherapy
- Targeted therapies
- Immunotherapy

In recent years, advances in personalised medicine have allowed for improved survival for those patients with a defined genetic mutation (Planchard et al., 2018). Personalized medicine has made significant strides in treating known genetic alterations, but there has been an unequal distribution of new therapeutic options between and within countries, with the poorest countries being the hardest hit.

d. Public Health Policies

Most public health policies aim to reduce exposure to harmful substances such as tobacco, air pollution and work environment hazards. But socio-economic inequalities also need to be reduced as lung cancer is more prevalent in disadvantaged areas, and better access to screening and diagnosis/treatment is required.

3. Consequences of Lung Cancer on People and Communities

Lung cancer produces multi-faceted problems for patients, families, communities, and healthcare systems. These are discussed below.

a. Physical Impact

Physical symptoms can occur in many different forms. Patients with lung cancer are often affected by a variety of physical symptoms due to the growth of tumour(s). In addition to the symptoms mentioned above, treatment-associated side effects can also have a very significant impact on the individual's quality of life, such as having nausea and vomiting, hair loss, and an immunosuppressed state.

b. Psychological Impact

Emotions can range from anxiety to depression. In addition to these emotions, smokers can suffer from the social stigma of having a lung cancer diagnosis, often viewed because of their own "bad habits". In this context, the role of psychotherapy is highly important for the management of cancer-related psychological symptoms.

c. Social Impact

Lung cancer has a huge impact on our work and finances, as well as our social lives. Many people have to give up work because of the symptoms of the cancer and the side effects of the treatment. This can have a huge impact on the finances.

d. Economic Impact

Lung cancer is a major driver of healthcare costs associated with hospitalizations, treatments and palliative care. Lung cancer is one of the costliest cancers to treat globally, with high costs

of targeted therapies and immunotherapies. There is also significant productivity losses in the community related to the disease and mortality (Siegel, Miller & Jemal, 2020).

4. Health and Social Care Support Services Required

Treatment of lung cancer requires a holistic approach when dealing with cancer patients.

a. Primary Care Services

GPs are often the first point of contact for people who have concerns about changes in their health that may be lung cancer. They can assess symptoms, carry out investigations and manage other health issues that may be relevant to a diagnosis of lung cancer.

b. Specialist Cancer Services

A wide range of doctors are involved in the management of lung cancer patients, including oncologists, respiratory physicians, radiologists, and specialist nurses. The coordination of diagnosis, treatment, and follow-up care is ensured. All treatment is discussed in a Multidisciplinary team (MDT).

c. Palliative and End of Life Care

Palliative care teams evaluate and treat medical symptoms while also providing counselling, social work and advanced care planning services. Hospice care is specialized care for individuals with terminal or advanced illness and their families.

d. Community Support Services

These include:

- Smoking cessation programmes
- Social workers
- Home care services
- Support groups
- Mental health services

e. Rehabilitation Services

The main benefit of Pulmonary Rehabilitation is to enhance the respiratory and physical functions as well as the overall quality of life of patients. The occupational therapists and physiotherapists assist in leading an independent lifestyle.

Conclusion

Lung cancer is a global and national public health priority. Worldwide and nationally, lung cancer is diagnosed by the million and by the tens of thousands each year. This has a significant impact on the person, their family, health and social care services and economies. It is therefore important that lung cancer is adequately represented in the global and national surveillance resources, including data in sources such as GLOBOCAN and national cancer registries such as the NLCA. Cancer prevention, particularly tobacco control, also remains important. Lung cancer also has a psychological, social and economic impact on individuals and families. To effectively manage lung cancer, a multi-disciplinary approach that incorporates a combination of treatment and curative therapies alongside supportive care, community and rehabilitation services is necessary. To reduce the significant burden that lung cancer places locally, nationally and globally, continued investment in all areas of public health, screening and access to a full and equitable range of cancer services is required.

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