

Developments in the Management of Patients with Lung Cancer in the United Kingdom Have Improved Quality of Care

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The management of patients with lung cancer has undergone significant improvement in the last decade in the United Kingdom. The 5-year survival for all patients diagnosed with lung cancer had remained unchanged at 5% over the previous decade, well behind Europe and the United States. Together, government and medical bodies produced guidelines based on best available evidence. The dissemination of these guidelines into clinical practice became the remit of Cancer Networks. The establishment of Multidisciplinary teams (MDTs) has streamlined care and allowed individual teams to discuss patients' management within a wider body of expertise. The Cancer Network quality assurance team assesses the MDTs to ensure that standards are maintained. Though the efficacy of the MDTs in improving quality and consistency of care for patients with lung cancer is irrefutable, the effects on overall survival rates are less certain. The majority of patients have advanced incurable disease at presentation. Changes in awareness of the general public and in the primary care setting are required to address this issue. Severe comorbidities in patients with potentially curable disease can also preclude operative treatment. The delivery of specialized care for patients with lung cancer has improved dramatically in the United Kingdom with the advent of national guidelines and the local MDT. These measures may not be enough in remedying the poor long-term survival of patients with lung cancer in the United Kingdom without attention to underlying cause. A holistic attitude to the "Big Three" smoking-induced diseases offers hope of novel approach to this problem.

Keywords: lung cancer; multidisciplinary teams; health improvement

Lung Cancer kills over 30,000 people each year in the United Kingdom, accounting for 5.6% of all UK deaths (1). This is greater than deaths from the next three most common malignancies combined (breast, colorectal, and prostate cancers). Survival rates for lung cancer in the United Kingdom are very poor and have not improved in the last 30 years (Figure 1). For patients diagnosed between 1993 and 1995 and followed up to 2000, only 5.5% are alive after 5 years. This compares with 13% 5-year survival reported in the United States and similar proportions for several other European Community countries (Figure 2) (2, 3). Surgical resection rates, a marker of outcome, are lower in the United Kingdom (11%) compared with the rest of Europe (17%) and North America (21%), and vary by threefold between health authorities in England (4, 5). The availability of care to all in the United Kingdom as compared with other insurance-based systems may result in differences in the number of reported patients with lung cancer. However, there is still variation in lung cancer survival between regions of the United Kingdom—for example,

5-year relative survival rates varied fourfold (2.2–8.8%) for patients diagnosed in England in 1993–1995 (6).

The "cancer lottery"—that is, where patients' chances of receiving optimum management depended on their referral—was exemplified by historical registry data. Variations in patterns of care meant that over 40% of patients with lung cancer were managed by physicians involved in the care of less than 10 patients with lung cancer a year; a significant number were general surgeons or elderly care physicians. The confirmation of histology and use of active treatment were substantially less in this group (7).

Such comparisons highlighted the need to improve the standards of care for UK patients with lung cancer. Three thousand lives a year could be saved by improving UK 5-year survival rates to match the best. In fact, a doubling in survival figures could be achieved purely by the uniform application of current best UK management strategies. The following description exemplifies the approach by government and medical bodies to such a grave health inequality. This approach may have wider applicability.

THE GOVERNMENT AND MEDICAL PROFESSION RESPOND

NICE (National Institute of Clinical Excellence) is an independent NHS organization responsible for providing national guidance on treatments and care for those using the NHS in England and Wales. NICE guidance and recommendations are prepared by independent groups that include professionals working in the NHS and involved external individuals.

NICE in parallel with their Scottish counterpart SIGN (Scottish Intercollegiate Guidelines Network) produced lung cancer guidelines based on best available evidence in 2001 updated in 2005 (4, 8).

Guidelines on the selection of patients with lung cancer for surgery was established by a joint BTS/SCTS Working Party comprising a core Writing Group taking advice from specialist advisors representing the Royal College of Radiologists and the Royal College of Pathologists (9). The major areas for concern in terms of fitness for surgery were considered to be age, pulmonary function, cardiovascular fitness, nutrition, and performance status, and in terms of operability to be diagnosis and staging, adjuvant therapy, the operations available, locally advanced disease, and small cell lung cancer.

These clinical guidelines sit alongside, but do not replace, the knowledge and skills of experienced health professionals. The dissemination of these guidelines into clinical practice became the remit of cancer networks.

THE CANCER NETWORK: DELIVERY OF CARE

Currently, there are around 30 cancer networks across the country whose populations range from 600,000 to three million. The cancer networks were established after the recommendations of the Calman-Hine report (1995) and NHS Cancer Plan (2000) (10, 11). Cancer networks are the vehicle for ensuring

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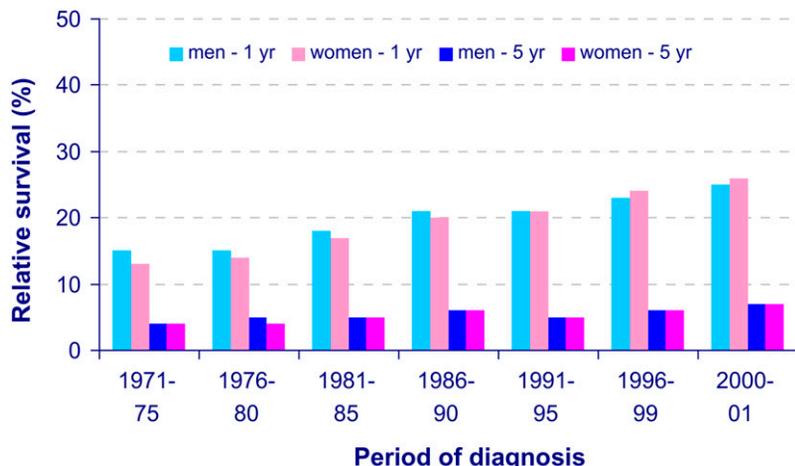


Figure 1. Relative survival for lung cancer, England and Wales, 1971–2001. In England and Wales, 25% of all patients with lung cancer are alive 1 year after diagnosis, falling to 7% at 5 years. The 5-year survival has not significantly improved over the last two decades. (Reprinted by permission from Reference 28.)

that all patients within their population area have equal access to the highest quality of cancer services available.

For example the Pan Birmingham Cancer Network (one of the networks in which the authors practice) has four core objectives (<http://www.birminghamcancer.nhs.uk>):

1. Develop multidisciplinary teams (MDTs) and make arrangements to ensure that all patients are reviewed by them before treatment.

2. Agree common protocols and service patterns to tackle variations and make best use of resources available.
3. Develop all aspects of local cancer services: prevention, screening, diagnosis, treatment, supportive and specialist palliative care.
4. Develop workforce education, training, and facility strategies.

The Cancer Network links with the Cancer Services Improvement Partnership, which is part of the National Modernisation Agency.

NETWORK AUDIT: QUALITY ASSURANCE

Network audit reviews all aspects of patient care to inform practice, service improvement, policy, and investment. Local review of cancer services is undertaken by Network Site-Specific Groups, in part by using Key Performance Indicators (KPIs).

KPIs help monitor improvements in cancer treatment and consistency and provide reassurance and evidence that cancer services are safe, equitable, and deliver good outcomes for patients. Network Site-Specific Groups have agreed KPIs with reference to the measures described within the NICE Improving Outcomes Guidance and the Healthcare Commission-sponsored national cancer audits. Monitoring cancer waiting times as set out in the Cancer Plan are one such KPI (12). Patients should be treated within 31 days of the decision to treat and within 62 days of their urgent referral. These targets are based on potential effects of delays in diagnosis or treatment on survival and quality of life and estimated time for doubling size of cancer.

The National Clinical Audit Support Program (NCASP), commissioned by the health care commission, manages the national clinical audits for cancer, coronary heart disease, and diabetes. The National Cancer Dataset is the approved standard for the collection of cancer data and provides a tool for cancer service providers to share data across healthcare boundaries, to enable comparison of cancer information, to monitor outcomes, and to improve patient care. The dataset has both generic and site-specific data items. Lung cancer was one of four types of cancer to be included in the first wave of this initiative, named the LUCADA (LUNG Cancer DATA) project. After pilot data collection in 2004, the Healthcare Commission (HCC) agreed to fund the project and the schemes have been rolled out to the rest of the country.

LUCADA will collect data on “the incidence, nature, geographical distribution and treatment of lung cancer” with the “ultimate aim of improving patient care and outcomes” (13).

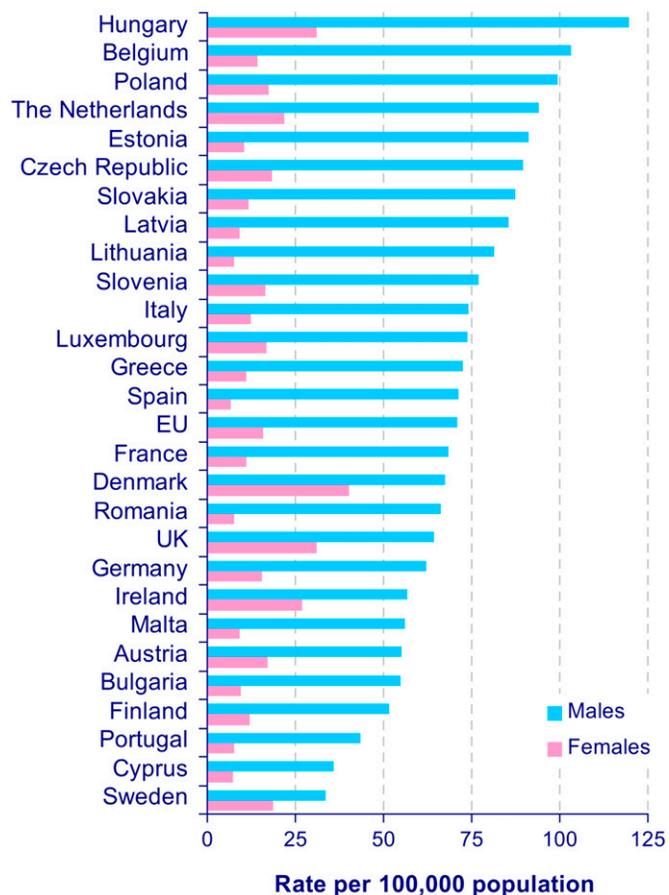


Figure 2. Age-standardized (European) mortality rates, lung cancer, EU countries, 2002. Lung cancer incidence rates vary hugely between different regions of the world. The highest rates of lung cancer in men are found in central and eastern Europe. (Reprinted by permission from Reference 29.)

MDTs

MDTs may include general physicians and nurses, chest physicians, palliative care physicians, clinical and medical oncologists, thoracic surgeons, geriatricians, cellular pathologists, radiologists, radiographers, occupational therapists, specialist nurses, physiotherapists, dieticians, pharmacists, and clinical psychologists.

Input from many different professionals is required in the management of patients with lung cancer, and so the MDTs are especially appropriate in reducing delays caused by cross-referral between specialists.

The importance of MDTs has been noted by a number of previous reports: the Calman-Hine report, *Improving Outcomes in Lung Cancer* (NHS Executive) (14), NHS Cancer Plan, Clinical Oncology Information Network guidelines (15), British Thoracic Society recommendations on organizing care for lung cancer patients (16), and the American College of Chest Physicians (17).

“All patients with a likely diagnosis of lung cancer should be referred to a member of a lung cancer multi-disciplinary team (usually a chest physician). The care of all patients with a working diagnosis of lung cancer should be discussed at a lung cancer multi-disciplinary team meeting” (8). It is important that there is adequate administrative support for MDTs.

Studies of multidisciplinary breast cancer “one-stop shopping” clinics have shown an increase in patient satisfaction and a shorter time from diagnosis to treatment (42.2 days versus 29.6 days) (18).

There is some evidence that such a specialist respiratory service leads to a more expeditious and appropriate care and that a fast-track system of diagnosis and staging can increase the proportion of patients reaching surgery (19, 20).

From the 2007 LUCADA report, 86% of patients with lung cancer were discussed at an MDT; 67% had their lung cancer histologically confirmed, and 48% received some form of active anticancer treatment. These represent improvements compared with historical data (13). A dedicated specialist thoracic surgeon providing a service within the MDT may almost double the resection rate for potentially curable lung cancer (21, 22).

Few studies have looked at improvement in survival rates, and those that have are difficult to interpret because of historical or selected controls (23, 24).

Nevertheless, a multidisciplinary team approach to the management of the patient with suspected or known lung cancer has improved the quality of care.

THE FUTURE

Despite these advances in management, the survival in patients with lung cancer in the United Kingdom is lower than in other similar European countries. Though guidelines and cancer networks may help deal with inequality of health care, this may not necessarily improve survival from lung cancer because of specific biology. Patients with lung cancer in the United Kingdom present at a later stage and with more aggressive types of tumor—namely, large and small cell carcinoma. They have higher co-morbidity than patients in comparable European cities (25). Causes for this worse health include a higher rate of smokers and of occupational risk, delayed diagnosis, socio-economic status, and more advanced stage of disease at presentation (25, 26). As a result, the resection rate is still significantly lower and survival worse.

Delayed presentation means that the majority of patients have advanced incurable disease at the outset. Wider changes of awareness in the general public and in the primary care setting

are required to address this issue. Severe co-morbidities in patients with potentially curable disease can also preclude operative treatment. Novel approaches to curative treatment in these patients should be considered.

An approach to addressing the root cause of poor outcome is exemplified by the UK Lung Cancer Consortium (UKLCC). This partnership of leading lung cancer experts, senior NHS and Department of Health professionals, charities, and healthcare companies formed with the aim “To double one-year lung cancer survival by 2010 and five-year survival by 2015” (27). Their objectives include raising the general public’s awareness of lung cancer, encouraging earlier presentation and symptom recognition, but also raising political awareness of lung cancer. A 12-point plan outlines an aggressive strategy for prevention, screening, awareness, information and support, diagnosis and staging, treatment, end of life care, MDT management, workforce capacity, research, and data collection.

Nine out of 10 lung cancers are associated with smoking. A holistic attitude to the “Big Three” major smoking-induced diseases—cardiovascular disease, COPD, and lung cancer—represents a novel approach which focuses on common pathways. Attention is centered on “screening for susceptibility.” In susceptible individuals, CT screening for early diagnosis might improve the outcome. Novel and innovative treatments for smokers and ex-smokers will take into account the co-morbidities of this group. This change in approach to smoking-induced diseases would eventually be reflected in government- and medical body-issued guidelines.

CONCLUSIONS

The care of lung cancer patients in the United Kingdom has undergone significant improvement in the last decade in response to health inequalities between regions and the poor overall 5-year survival compared with Europe and the United States. This example shows how a centralized state-run health care system can respond to improve standards.

The department of health in conjunction with the Royal Colleges set about addressing this issue. NICE (National Institute of Clinical Excellence) in parallel with SIGN (Scottish Intercollegiate Guidelines Network) produced guidelines based on best available evidence. The British Thoracic Society set up a working party to produce guidelines regarding surgical operability and respectability. Cancer Networks were made responsible for ensuring equal access to the highest quality of cancer services by the use of these guidelines. Its most significant achievement has been the establishment of MDTs. Patient management plans are expedited by the MDT, thus delivering rapid, consistent, good-quality clinical care. Quality assurance is robustly established in this process. However, an overall improvement in survival rates from lung cancer is not apparent because of advanced presentation of disease and severe smoking-related co-morbidities. Broader approaches to management are paramount if survival rates of lung cancer are to improve.

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