Diagnosing lung cancer earlier in the UK

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The 30326 deaths from lung cancer in England and Wales in 2008 represent 22% of the total mortality burden from cancer in that year. The next two most common causes of cancer death were colorectal cancer (10%) and breast cancer (8%). These familiar statistics outline the enormous impact that lung cancer continues to have on public health in the UK.

The dramatic fall in the prevalence of smoking in the UK over the last 60 years means that the lung cancer epidemic in the UK has peaked, particularly in men, and this is good news. In order to protect future generations of people in the UK from developing lung cancer, however, steps to drive down the prevalence of smoking as much as possible, and across all sectors of society, remains a pressing public health priority. This will inevitably need a broad spectrum of approaches.

People who are currently at high risk of developing lung cancer, but do not yet have the disease, may benefit in the future if an effective screening programme can be developed to detect early subclinical disease. At the moment the use of CT imaging seems the approach most likely to succeed, but no trial yet has been able to demonstrate a reduction in mortality. A number of trials are currently ongoing, however, and more definitive evidence is expected between 2012 and 2016.

Recently, a feasibility study for a randomised trial of CT screening in the UK has been completed and currently the arrangements are being finalised to undertake a pilot randomised trial. We hope that this project will stimulate more research in this area in the UK, including a trial powered to detect a mortality benefit of screening as well as research into the natural history of early lung cancer detected by CT screening.

Research into other screening approaches using more innovative methods is also ongoing but at an early stage.

Unfortunately, screening will not help those people who are being diagnosed with lung cancer now in the UK. Consequently, those of us who work in healthcare have an important duty of care to these people to ensure that the cancer diagnosis is made at the earliest possible moment and that the most effective currently available treatments are given in a timely fashion in order to improve survival and/or palliate disease. With this in mind, a number of papers published in Thorax have recently...
focused on potential delays in the care of people with lung cancer.

The recent paper by Holmberg et al suggests that people with lung cancer in England do worse than people with lung cancer elsewhere in Europe. In this study of lung cancer registry data from England, Norway and Sweden were analysed and the authors found that, for both men and women and for people in all age groups, the 5-year survival from lung cancer was lower in England than in Norway or Sweden. The median age of diagnosis was also higher in England than in Norway or Sweden. Most of the difference in survival between the countries was the result of particularly poor early survival in England. The researchers conducted a number of sensitivity analyses to allow for the fact that registry data are collected in slightly different ways between the countries, but none of these affected the overall findings greatly. In particular, in England and Norway but not in Sweden, cases that are recorded on the death certificate but not recorded elsewhere are included in the registry dataset. For this reason, all such cases from Norway and England were excluded from the main analyses although, interestingly, the proportion of death certificate-only cases was higher in England (6.8%) than in Norway (1.0%). Overall, the authors concluded that clinically relevant differences in survival are present between the countries and that access to healthcare services and/or population awareness are likely to be the main drivers of these differences.

Similar conclusions come from another study published in Thorax which used very different methods. Imperatori et al compared people presenting with a new diagnosis of lung cancer in 2000 to hospitals in Teesside in the North of England with Varese in Northern Italy. The differences between the two patient groups were striking. People with lung cancer in Teesside were an average of 2 years older than those with lung cancer in Varese and were more likely to have a comorbid illness, to have a worse performance status, a lower forced expiratory volume in 1 s and to be diagnosed on the basis of symptoms. People in Teesside were also less likely to have histological confirmation of their disease and tended to have a more advanced disease stage at diagnosis. Perhaps not surprisingly, the surgical resection rate and median survival were both higher for people in Varese than for those in Teesside.

These two studies both show that people with lung cancer in the UK present late and do badly, but they do not tell us why. To improve the care for people with lung cancer in the UK, we need to understand the extent to which late presentation is due to population awareness factors or deficiencies in the healthcare system. In other words, is it the public, the health service, or a bit of both? Research to date in this area has been limited and this needs to change because, if we can understand where and why the delays occur in the diagnosis of lung cancer, then there is scope for improving the care and prognosis for people with lung cancer using the currently available treatments.

Information on possible patient-related reasons for delays comes from a study by Corner et al who interviewed 23 patients with recently diagnosed lung cancer and compared their recollection of the emergence of their respiratory symptoms and their interaction with their general practitioner with information from the primary and secondary healthcare records. The most common symptoms that patients reported were cough (68%), breathing changes (68%) and chest pain (55%). In total, more than 30 different symptoms were reported and the median time between the self-reported onset of the symptom and diagnosis was 12 months. In contrast, the median time delay between the symptom which triggered the presentation to the general practitioner and the diagnosis was only 2 months. The authors conclude that people with lung cancer often have symptoms for a considerable period of time before they consult their general practitioner, and that this is a major source of delay in the diagnostic process. They recommend that education is needed for smokers to increase the awareness of how lung cancer presents and to seek help. Similar conclusions were drawn by the authors of an interview survey of 360 Scottish people with newly diagnosed lung cancer. In this study Smith et al found that about half the people with lung cancer had symptoms for more than 14 weeks before they presented to their general practitioner. Those who lived alone, had chronic obstructive pulmonary disease or longer smoking histories tended to have longer times between the onset of symptoms and consulting their general practitioner. There has been very little research directed at the interaction between people with lung cancer and general practitioners in the period up to the time of diagnosis. In one case-control study of 247 people with lung cancer and 1235 age- and sex-matched controls registered with 21 general practices in Exeter, a number of symptoms (haemoptysis, loss of weight, loss of appetite, dyspnoea, chest pain, fatigue, cough), a clinical sign (clubbing) and abnormal investigations (thrombocytosis and abnormal spirometry) all predicted the presence of lung cancer in the 2 years before the cancer was diagnosed. The researchers then ignored the last 180 days of consultations before the cancer diagnoses to test the ability of these variables to predict lung cancer at an earlier stage, and the factors that remained associated with lung cancer diagnoses were haemoptysis, dyspnoea, abnormal spirometry and being a current or ex-smoker. This in turn raises the possibility that these variables, and perhaps others, could be used to help guide general practitioners as to the risk of lung cancer in the people who consult them, perhaps by developing a predictive scoring system.

Although the currently available evidence is limited, it does suggest that lung cancer could be diagnosed earlier by improving both public awareness of lung cancer and by helping general practitioners to risk stratify the people who consult them for their risk of lung cancer. One example of a public health intervention designed to tackle both of these approaches is the early intervention in lung cancer within Doncaster (EICID) project. This project involved people from local public health departments, secondary care respiratory medicine, nursing, Sheffield Hallam University and a media company. Six areas of Doncaster believed to be at particularly high risk of lung cancer were identified, and a combination of a social marketing campaign to highlight awareness of lung cancer symptoms and training for general practice surgeries around lung cancer was put in place. The provisional results of the project suggest that the campaign led to more people with a troublesome cough visiting their general practitioner and asking for a chest X-ray, more chest X-rays being ordered by general practitioners and an initial increase in the diagnoses of lung cancer. The full results of the study are awaited and will be important in guiding future research and interventions in this area.

In summary, there is an urgent need to understand fully why people in the UK with lung cancer present late and do badly. There is evidence that both patient and health service factors may contribute to these delays. Our aim should be to remove these delays and improve the care that is offered.
Asthma: improved understanding and insights into the challenges of achieving asthma control

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Asthma articles were among the most frequently cited and downloaded items from the Thorax website. The BTS-Sign Asthma Guidelines topped the list, indicating the important role Thorax has played in supporting the respiratory community and the British Thoracic Society in particular.

One of the more important articles covering asthma epidemiology summarised the findings of Phase III of the International Study of Asthma and Allergies in Children (ISAAC).1 This study, undertaken in some 106 centres in 56 countries, compared the prevalence of asthma symptoms 5–10 years after the original surveys. In 6- to 7-year olds, asthma prevalence (wheeze in the last 12 months) was 11.6% and in the 13- to 14-year-old children 13.7%. Comparing trends over time, prevalence had fallen in many western countries but had increased in some other countries including Eastern Europe and parts of Asia. These important ecological data triggered much discussion about the likely causes of the observed trends but failed to generate a unifying hypothesis that could be tested. Thorax also carried a number of other papers generated by the ISAAC study, among the more interesting of which examined the effect of diet on asthma and allergic sensitisation.2 This report, based on ISAAC Phase II data, examining >50,000 children demonstrated that fruit intake was associated with a lower prevalence of current wheeze and conferred a lifetime protective effect, as did consumption of vegetables and fish. We have high expectations that the enormous epidemiological database held by the ISAAC researchers will continue to shed light on risk factors and inform protective strategies.

Asthma genetics was a very hot topic, and interest peaked over the ADAM33 story. A frenzy of interest ensued and this was touted as a major breakthrough in our understanding. With the benefit of hindsight, the real impact was modest. Breaking initially in Nature in 2002,3 the gene encoding ADIsintegrin and Metalloprotease 33, on chromosome 20p13, was identified by positional cloning. Thorax carried an editorial on the topic the following year,4 which noted that this