

Focus on Lung Cancer

Lung cancer: a personal perspective



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I entered my first patient into a lung cancer clinical trial in the late 1970s and my career has gradually become more focused on this common condition ever since. In the 1980s and 1990s there was a widespread culture of nihilism in both the professional and research community about lung cancer. Medical students (and therefore the GPs that many of them became) were, if anything, taught only two things that they carried into their professional life: firstly, that because smoking was the 'only' cause, it was a self-induced disease and, secondly, the outlook was so bad with so few effective treatments that the best advice to patients related to avoiding the purchase of long playing records rather than seeing an expert opinion and treatment.

However, over the last 15–20 years there has been a huge transformation, with an upsurge of interest in lung cancer; in the quality of care, of the understanding of its basic biology, of the treatments available and finally progress in survival rates. The proportion of patients who survived 5 years from diagnosis in England between 1991 and 1993 was 5%, but the most recent figures from the Office for National Statistics show that, for patients diagnosed with lung cancer in 2011, 14% of men and 17.5% women will be alive 5 years after diagnosis. This improvement is largely a result of more and more patients receiving surgical and other radical therapies.

There has also been an increasing recognition of the vital role that primary care plays in the diagnosis and support of lung cancer patients, a change which the PCRS has seen as very important in promoting. Whilst there have been major improvements in the options for treatment – especially better surgery, stereotactic radiotherapy, combination chemo-radiotherapy and the explosion of new systemic therapies in the form of tyrosine kinase

inhibitors and immunotherapy – the overall prognosis at a population level remains poor, the major reason for this being late diagnosis.

Well over 90% of patients with non-small cell lung cancer diagnosed at stage IA and treated surgically will be alive at 5 years, but by the time the tumour is diagnosed at stage IIA the 5-year survival rate halves to 46%. In the UK, by the time they reach specialist care, almost two-thirds of patients will have stage IIIB or IV disease, the 5-year survival rate for which is around 5%. The proportion of patients diagnosed at stages I and II has been increasing in England in recent years, going from 19.5% in 2012 to 28% in 2017 (data from the National Lung Cancer Audit), but this remains a lower proportion than that seen in many other western countries and is likely to be one of the main reasons why our survival rates do not compare well at an international level.

Non-small cell lung cancer 5-year survival ¹		
Stage 1A	Stage IIA	Stage IIIB or IV
90%	46%	5%

So, apart from the discovery of some sort of magic bullet, if earlier diagnosis is the key to improving our long-term survival rates, what do we need to do and what part does the primary care community (including commissioners) have in improving the situation? The most important single step is to introduce population-based screening for high-risk patients using low-dose CT scanning. The evidence for this is now overwhelming, though at the time of writing we are still waiting to see the final results of the European NELSON trial on which the UK's National Screening Committee will base its decision.

Screening, in various guises, is however, already happening in parts of the UK, with large clinical trials

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going on in London and Yorkshire and 'Targeted Lung Health Checks' being funded by NHS England and rolled out in over 10 areas of the country.

Screening alone, however, will not solve all the issues and GPs (and other members of the primary care community) need to have a high index of suspicion and low threshold to refer patients. The 2015 NICE guidance on the urgent referral for suspected cancer (NG12, updated in 2017) is significantly more evidence-based than previous guidance and sets a threshold for referral at around 5%. The large majority of lung cancer patients presenting with symptoms will have an abnormal chest x-ray, so patients identified in that way should be sent quickly for a chest x-ray and, if abnormal, the pathway to a local rapid access lung cancer clinic is clear. However, these guidelines are based heavily on smoking history and around 6,000 people in England who have never smoked develop lung cancer each year, so at least doing a chest x-ray in those with suspicious symptoms (particularly persistent cough) should be considered. The NICE guideline for 'Suspected cancer: recognition and referral' recommends that patients who are never smokers should be considered for referral if

they present with two or more symptoms of lung cancer and, of course, any incidence of unexplained haemoptysis in the over-40s should be followed up as a priority irrespective of smoking status.

The more difficult issue is how GPs handle what they perceive as high-risk patients in whom the chest x-ray is normal. My view is that GPs should have easy access to CT scans in this situation – a mechanism that applies in many countries in Europe. It is relatively easy to identify high-risk patients in terms of their being over the age of 50, smokers or ex-smokers, particularly if they have evidence of airflow limitation, so I would support a low threshold for doing a CT scan in patients such as this.

We are living in a time of increasing opportunity for the early diagnosis and more effective treatment of this common cancer. GPs and their colleagues in primary care have a vital role to play in trying to identify patients as early as possible to ensure that patients have access to the very best that the specialist lung cancer teams can offer.

Reference

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Lung Cancer Diagnosis in Primary Care – A GP perspective



Dr Daryl Freeman GP and Associate Clinical Director for Norfolk Community Health & Care

With the advent of newer treatments, it has never been more important to get an earlier diagnosis of lung cancer.

In primary care, lung cancer is rarely seen – GPs see an average of one patient per year who is diagnosed with lung cancer.¹ It is critical that all healthcare professionals including practice nurses and allied healthcare professionals working in primary care have an understanding and awareness of lung cancer signs and symptoms and also are aware of high risk groups (eg, smokers/COPD) in whom lung cancer is more common.

Primary care professionals also need to be aware of current screening programmes available in some parts of the country (see Appendix 1 and support tools available to help in the identification of high-risk patients and diagnosis of lung cancer).

I personally have seen the effects of late diagnoses of lung cancer; my father and several of my

'regular' patients have contracted and died from the disease.

The solution to earlier diagnosis inevitably lies in primary care, as these are patients we may see in the chronic respiratory disease clinics and when they develop acute respiratory infections. We need to address the following:

Maintaining a high index of suspicion in patients at risk

- Recognising that patients at risk must be investigated as soon as their symptoms change – a respiratory infection which is slow to clear, a cough which is 'different', an odd pain in the chest or lower neck. The older guidelines used to suggest symptoms for 2–3 weeks; however this has been removed to allow clinicians to lower their threshold to arrange an urgent chest x-ray.

- Recognising that the established red flags, whilst important, are too often a sign of distant disease and understanding that we have an important role in helping to identify disease earlier.
- Having prompt access to thoracic CT scans is an important step in ensuring we have the tools in primary care to identify patients with earlier disease and ensure prompt onward referral. At the current time there are no specific recommendations on CT scan investigations by general practitioners in investigating suspected lung cancer. The guideline does highlight referral if there are concerns even if the chest x-ray is normal, which fits in with a recent review of the literature by Bradley *et al* (2019) which suggests that 20–23% of lung cancers will not be seen on chest x-ray at presentation.²

We also need to ensure that everyone in the primary healthcare team is aware of the NICE guidance and importance of recognising what may be vague signs in our high-risk patients. Patients attending with a lower respiratory tract infection may not see the respiratory lead in the practice as increasingly acute on-the-day problems are often seen by advanced nurse practitioners, GPs, paramedic practitioners, clinical pharmacists, etc. Educating all of our workforce is a priority.

I am sure all of us working in the community would support and welcome an evidence-based national screening programme.

Identifying patients with lung cancer requires a raised awareness of the signs and symptoms

The National Institute for Health and Care Excellence (NICE) guideline for 'Suspected cancer: recognition and referral'³ recommends referral in the instances shown in Table 1.

All patients should be referred to their local lung cancer urgent referral service using the locally agreed methods of urgent referral to ensure prompt assessment by the specialist MDT service.

The NICE guidance can be confusing for primary care as there is one set of symptoms where an urgent chest x-ray is mandatory and another where a chest x-ray 'should be considered'.

The key here is recognition of the important symptoms and prompt access to radiology and onward referral.

Primary care healthcare professionals need support in recognising the often vague symptoms suggestive of lung cancer (fatigue, increased breathlessness, loss of appetite) and must be aware of the access they have to radiology and onward referral pathways to their local lung cancer service.

Table 1 NICE recommendations for referral for patients with suspected lung cancer (assessment)

The guideline recommends urgent referral (without chest x-ray) for people over the age of 40 years with unexplained haemoptysis

Patients should be referred for an urgent chest x-ray (to be performed within 2 weeks) if...		Patients should be considered for urgent referral for chest x-ray (within 2 weeks)
<ul style="list-style-type: none"> • Aged 40 and over • Present with 2 or more unexplained common symptoms • Cough • Fatigue • Shortness of breath • Chest pain • Weight loss • Appetite loss 	<ul style="list-style-type: none"> • Have ever smoked • Aged 40 and over • Present with 1 or more unexplained common symptoms • Cough • Fatigue • Shortness of breath • Chest pain • Weight loss • Appetite loss 	<ul style="list-style-type: none"> • Aged 40 and over • Present with any of the following red flag symptoms • Persistent or recurrent chest infection • Finger clubbing • Supraclavicular lymphadenopathy or persistent cervical lymphadenopathy • Chest signs consistent with lung cancer • Thrombocytosis

Clinicians who may not be respiratory experts in the practice are often the first contact clinicians: they may be advanced nurse practitioners, paramedic practitioners or clinical pharmacists, so raising awareness of the red flag signs in this group of clinicians is key to earlier diagnosis.

References

1. Cancer Research UK. Lung Cancer Statistics. <https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/lung-cancer>
2. Bradley SH, Abraham S, Callister ME, *et al*. Sensitivity of chest X-ray for detecting lung cancer in people presenting with symptoms: a systematic review. *Br J Gen Pract* 2019 Oct 21. pii: bjgp19X706853 [Epub ahead of print]. <https://doi.org/10.3399/bjgp19X706853>
3. National Institute for Health and Care Excellence. Suspected cancer: recognition and referral. [NG12]. 2017. <https://www.nice.org.uk/guidance/ng12>

Multi-agency support for early diagnosis of lung cancer

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Cancer Research UK's determination to help improve the picture for lung cancer is reflected in our research strategy, which highlights lung cancer as a disease of unmet need, and in our policy and information activity across prevention, early diagnosis and treatment, because reducing the burden of lung cancer and improving the outlook for patients requires action on a range of fronts.

From a research perspective, a major investment has been made in the TRACERx Lung Study, which is using cutting edge methods to collect comprehensive clinical and genomic data on hundreds of patients diagnosed with non-small lung cancer, from the point of diagnosis and throughout their treatment. The study aims to generate more understanding about the biology of lung cancer and how it can change, and to pave the way for more targeted treatments in the future (see <https://scienceblog.cancerresearchuk.org/2019/03/20/the-immune-system-preys-on-growing-lung-cancers-forcing-them-to-evolve-to-survive/>).

In terms of prevention, tobacco exposure remains the single biggest risk factor for lung cancer, and our efforts to influence Government to achieve a smoke-free future and investment in evidence-based smoking cessation services continues. We have also developed some guidance on very brief advice for smoking cessation for GPs and others working in primary care, and our network of facilitators can offer training on this too. While efforts to reduce the damage caused by tobacco are crucial, it is also important to remember that there are thousands of patients diagnosed with lung cancer each year who have never smoked, and research efforts to understand much more about this are needed. For further information, see <https://www.cancerresearchuk.org/health-professional/awareness-and-prevention/smoking-cessation>

When it comes to early diagnosis, there has been a lot of interest over the years in exploring the potential of doing low-dose CT scans in people identified as being at increased risk. A major European trial (NELSON) presented results showing a

reduction in lung cancer mortality in those who had had the scans, and a peer-reviewed publication of this study is eagerly awaited so that it can feed into formal decision-making processes in the UK. In the meantime, the NHS in England has launched the lung health check programme, which involves lung screening projects in 10 cancer alliances. It is vital that these projects are well supported and conducted to a high standard, with robust evaluation and opportunities for research (see <https://scienceblog.cancerresearchuk.org/2018/12/04/lung-cancer-screening-part-1-the-benefits-and-harms-according-to-clinical-trials/>).

It is important to remember that, even if a decision to roll out lung health checks/lung screening is made in the UK, not everyone will be eligible for the lung health check, and not everyone who has a lung health check will reach the risk threshold for a low-dose CT scan. So it is important that both the public and health professionals remain alert to the possibility of lung cancer.

All four nations of the UK have delivered at least one national public awareness campaign focused on lung cancer, but there has been much variation in how often these have run and what sort of investment they have had available. Sustained public awareness targeted to those most in need and complemented by information and support for primary care is an important part of our efforts to improve outcomes.

Once patients have been diagnosed with lung cancer, access to optimal treatment is key. Audits pointing to unwarranted variation have been important for driving change, but there is more to be done.

Macmillan Cancer Support

Sophia Nicola Primary Care Advisor,
Macmillan Cancer Support



Macmillan recognises the vital role that primary care professionals play in diagnosing lung cancer early. With this in mind, Macmillan has worked with our 200-strong primary care community across the UK to develop a wealth of tools and resources to support primary care professionals in this area. As local primary care cancer leads, our Macmillan GPs regularly deliver education and training to colleagues within primary care which extends to emerging roles such as social prescribers.

GPs are vital to the early diagnosis of cancer; however, recognising the signs and symptoms of lung cancer can be difficult, particularly as the average GP may only see one new case of lung cancer a year.¹ To support with this, Macmillan has developed a NICE endorsed summary of the NG12 guidance for 'Suspected cancer: recognition and referral'. Our Rapid Referral Guidelines (https://www.macmillan.org.uk/_images/rapid-referral-toolkit-desktop-2019_tcm9-354239.pdf) can be accessed online or can be ordered as a hard copy for free from Be.Macmillan (<https://be.macmillan.org.uk/be/p-23666-rapid-referral-guidelines.aspx>) and includes accompanying notes with supporting guidance developed by GPs for GPs.

Building on the work of Professors Julia Hippisley-Cox and Willie Hamilton, Macmillan has also worked with the main GP IT providers to integrate a Cancer Decision Support (CDS) tool into each of the main GP IT systems, with lung cancer being one of the sites included in this tool. The CDS tool uses evidence-based algorithms (QCancer and eRAT) to identify patients who may be at a low risk – but not no risk – of cancer. Through the use of an alert and symptom checker function, this integrated tool encourages primary care professionals to 'think cancer' in patients with a positive predictive value risk of 2% or more as identified by the tool. Further information on the CDS tool can be accessed from <https://www.macmillan.org.uk/about-us/health-professionals/programmes-and-services/prevention-early-diagnosis-programme/cancer-decision-support-tool.html>.

There is no national screening programme for lung cancer, but there is increasing evidence that tar-

geting health checks at high-risk individuals can lead to more cancers being diagnosed at an earlier stage. A pilot in Manchester funded by Macmillan carried out 2,500 checks with those at highest risk receiving low-dose CT scans. Of these, 42 cancers were diagnosed, with the majority (80%) being early stage and 90% being offered potentially curative treatment.² NHS England are now running further pilots, with primary care being an essential partner in identifying those at risk.

Emerging treatments for lung cancer provide another vital role for primary care professionals in supporting patients through treatment and managing potential consequences. Oncological immunotherapy harnesses a person's own immune system to target malignant cells. Either alone or in combination with conventional treatments, immunotherapy can significantly improve patient outcomes with non-small cell lung cancer along with other cancers. These therapies are often better tolerated than conventional treatments with a different toxicity profile. It is important in primary care for us to be aware of these newer treatments that our patients may be receiving and the potential improved outcomes, and also the different side effects they produce. These are highlighted in a tool produced by Macmillan and UKONS (https://www.macmillan.org.uk/_images/oncology-treatment-toxicity-risk-assessment-tool_tcm9-317392.pdf).

References

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2. Crosbie PA, Balata H, Evison M, et al. Second round results from the Manchester 'Lung Health Check' community-based targeted lung cancer screening pilot. *Thorax* 2019;**74**(7):700–4.

Roy Castle Lung Cancer Foundation – Saving ‘Bills’



Paula Chadwick Chief Executive



I remember when we first met Bill Simpson, one of the people whose lung cancer was detected early through our lung health check in Nottingham, he said something that still echoes in my ears: *"If I hadn't gone for that scan, I could have been dead in a year's time."*

It's a statement that still gives me goose bumps, the bluntness of it, and yet this has been the reality for lung cancer; people living unbeknown with the disease, the tumour growing undetected until there is nothing that can be done.

But now, with the roll-out of targeted lung health checks at 10 sites across England, there are going to be more people like Bill. More people for whom something can be done. More people whose lives can be saved.

That is the possibility that lung health checks bring and, we believe, if implemented properly, it will have a major impact on lung cancer survival rates and improve quality of life, as well as providing further evidence to support a national screening programme.

As a leading UK lung cancer charity, we are pleased to be working with NHS England and the 10 pilot sites. Using our extensive experience in community engagement, as well as learning gleaned from our own lung health check in Nottingham, we can provide marketing and community engagement support to overcome some of the potential hurdles that lie ahead.

Speaking with the pilot sites, similar problems continue to arise: diverse populations, language barriers, workforce and a general fear of lung cancer.

This nihilistic perception is something we have encountered many times, and one we addressed as part of our lung cancer awareness month campaign last year, the assets of which, including an innovative VR experience, now form part of our community engagement toolkit.

The *Face your Fear* campaign was driven by stories of people who had either benefited from an early diagnosis or were living well with incurable lung cancer. This is something we are aiming to replicate for all the sites; local champions who have been where the target audience are, experienced the same apprehension and anxiety, but *faced their fear* and have come out the other side.

Peer-to-peer encouragement can be much more powerful and persuasive than primary care or a charity explaining the benefits of attending. It could be a particularly crucial tool for areas who are facing a 'mistrust' of screening.

That said, primary care has a huge role to play in making these health checks a success, and we





are producing specific literature to assist GPs, nurses and support staff in answering the common questions that could discourage people from attending.

Because, ultimately, we need to come together to make these pilot programmes as successful as possible. Then we have further evidence to push for a national screening programme. We have the evidence we need to save even more Bills.

<https://www.roycastle.org/>

Summary

Identifying lung cancer early is the only way we, as primary healthcare professionals, can start to improve the hitherto terrible 5-year survival rates from this disease.

Maintaining a high index of suspicion alongside a knowledge of the NICE guidance for the identification and diagnosis of lung cancer is the optimal way forward, and primary care networks should ensure that the new tools mentioned above are advertised and integrated into daily clinical practice.

Healthcare professionals who see patients with respiratory disease on a regular basis (whether in routine chronic clinics or as first contact clinicians) should be directed to these tools and encouraged to act as champions within their own healthcare setting, increasing awareness of the tools and other means of identifying patients with lung cancer earlier.

What to be aware of in respiratory reviews – having a high index of suspicion

- Smoking status
- Increasing shortness of breath
- A cough which is 'different'
- Increased fatigue or malaise
- Respiratory infections which require more than one course of antibiotics
- An 'odd' pain in the chest
- A sudden change in lung function
- They just 'look ill'
- Finger clubbing
- Supraclavicular/cervical lymphadenopathy

Audit suggestions

- Patients seen for respiratory infections in whom more than one antibiotic required
- Smokers over 40 years of age with recorded visit for cough and known recent weight loss
- Review of all diagnoses made in the last 12 months in a practice
 - o How many times had the patients been seen by a member of the primary healthcare team before referral/chest x-ray was performed
 - o How many patients were diagnosed at stage I
 - o How many patients were seen by the lung cancer MDT within 2 weeks of referral

Appendix

Lung Health Check Screening Programme Areas

- | | | | |
|-------------------------|-------------|--------------------------|-----------------------|
| • Blackburn with Darwen | • Doncaster | • Mansfield and Ashfield | • Southampton |
| • Blackpool | • Halton | • Newcastle Gateshead | • Thameside & Glossop |
| • Corby | • Knowsley | • North Kirklees | • Thurrock |
| | • Luton | | |

There are also other independently funded programmes in other parts of the UK including Nottingham, Leeds, Manchester and London.