

Cancer Plan 2022-2032

1st April 2022

Submission made by Professor David Baldwin (chair), on behalf of the UK Lung Cancer and Mesothelioma Clinical Expert Group. Correspondence to CEG secretariat, at Roy Castle Lung Cancer Foundation, jackie.tebbs@roycastle.org

The UK Lung Cancer and Mesothelioma Clinical Expert Group (CEG) is the leading independent group of nationally and internationally recognised clinicians, academics, patients, commissioners and representatives from health professional bodies and charities. The CEG provides expert advice on clinical issues in thoracic malignancies, in particular in areas of health policy and strategy. Roy Castle Lung Cancer Foundation acts as secretariat for the Group. More information on the Group is available at <https://roycastle.org/for-healthcare-professionals/clinical-expert-group/>. The focus, therefore, in this submission is on lung cancer and mesothelioma.

This new Cancer Plan must be ambitious in scope to recover from the pandemic and to close the gap between us and the best performing countries in the world. There is an urgent need to level up by focusing on early detection and on inequalities in diagnostics, treatment, care and support, so that everyone gets the very best cancer care.

Lung Cancer – a top priority as the leading cancer killer

Lung cancer is the commonest cause of cancer death for both men and women in the UK. Around 35,000 people die from lung cancer across the UK each year. In 2018, England had around 28,000 deaths. Outcomes for those diagnosed with lung cancer had, however, been improving in the years up to 2020, with survival estimated to be at around 16% - a doubling from that seen in the late 1990s. Faster diagnosis, the optimisation of the lung cancer pathway, improvements in curative intent treatments, new systemic anti-cancer therapies and the potential for lung cancer screening, all meant that pre-pandemic, there was optimism for the future. Sadly, the pandemic has reversed the progress made and illustrated how important early presentation and diagnosis is to improving outcomes. Recovery from this position requires a renewed emphasis on early detection through early presentation and targeted screening using low-radiation dose computed tomography (LDCT). It is vital that there is a highly skilled, dedicated and energetic workforce supported by modern equipment to achieve this recovery and match or exceed international standards.

The Impact of the Pandemic – Mesothelioma

In the period 2016 to 2018, there were an average of 2718 people diagnosed with mesothelioma each year with an average of 2,444 deaths. As with lung cancer, COVID has had a similar impact on early diagnosis. Mesothelioma UK, a registered charity, has established through patient surveys that during the pandemic, patients with mesothelioma and those worried with symptoms failed or chose not to seek medical help. Access to GP assessment was difficult, with many patients reporting long telephone queues and lack of access to face-to-face consultations. Once diagnosed, being advised about shielding led to fear of mixing with others,

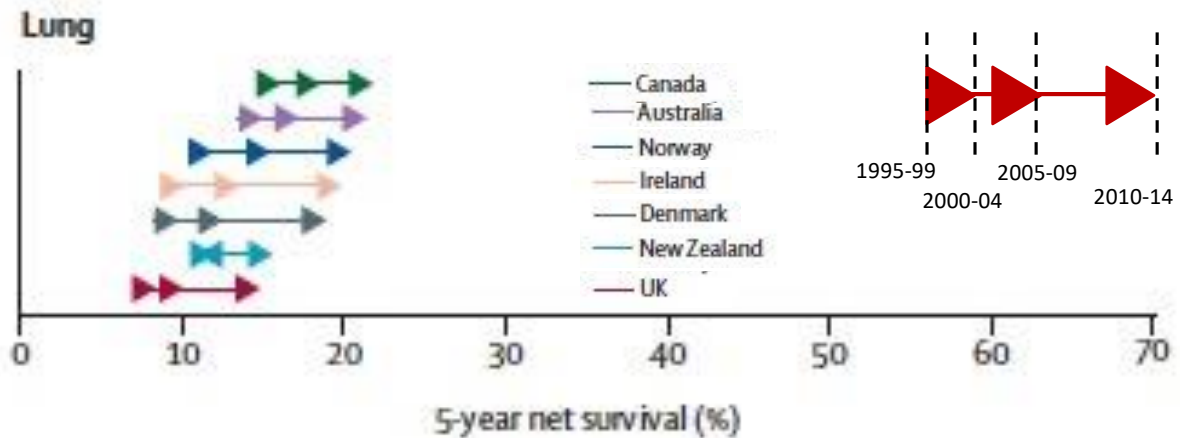
and a feeling of being abandoned. Separation from family was also a factor in this. Limitation of hospital visits was a major issue and continues now in this group of people who are often elderly, frail and with a poor prognosis. In addition, systemic treatments on the NHS (chemotherapy and immunotherapy) virtually stopped. This was in contrast to those patients able to fund their treatment privately (mainly through their civil claims settlements), where there was no delay or interruption to chemotherapy / immunotherapy treatment. The majority of this was delivered through Home Care private providers (Health Care at Home), with clinicians using virtual platforms for consultations.

International comparison – lung cancer outcomes

The International Cancer Benchmarking Partnership has compared 1, 3 and 5 year survival in common cancers between countries and the UK has the lowest survival. In lung cancer, this is most marked for the 1 year survival measure which is most sensitive to the effects of late diagnosis. Earlier diagnosis is associated with a lead-time which lengthens survival and the proportion of that lengthening is greater with shorter survival measures for lung cancer because the average survival is so short (only 36% of people survive 1 year).

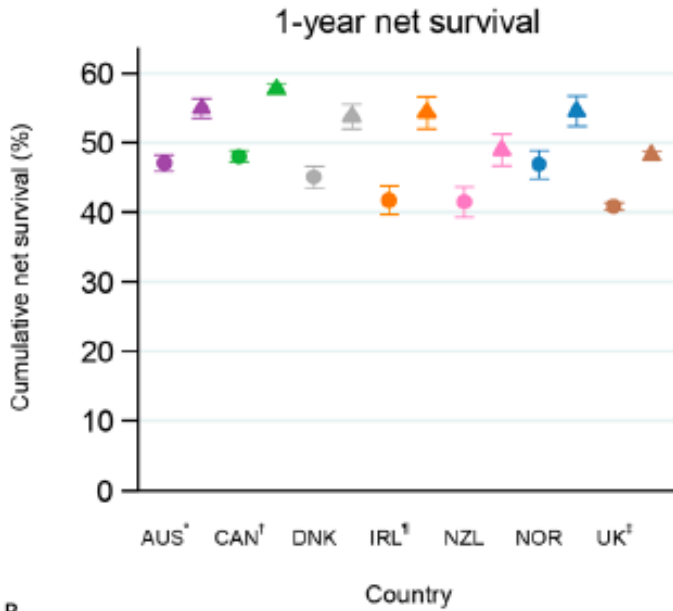
The figures below are from two of the latest publications from the ICBP. Figure 1 shows comparative 5-year survival for lung cancer and figure 2 shows 1 year survival non-small cell lung cancer in men (circles) and women (triangles).

Figure 1



Arnold, M., M. J. Rutherford, A. Bardot, et al. Lancet Oncol. 2019 Sep 11. pii: S1470-2045(19)30456-5. doi: 10.1016/S1470-2045(19)30456-5.

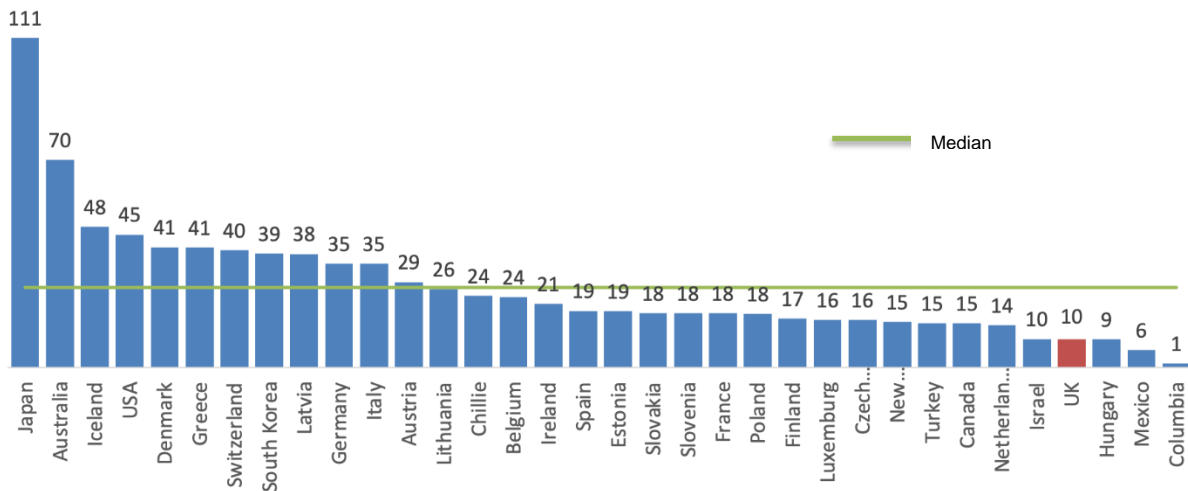
Figure 2



Araghi M, et al. *Thorax* 2021;0:1–13. doi:10.1136/thoraxjnl-2020-216555

The main explanation for the poor performance in the UK is thought to be later diagnosis and this, in turn has multiple potential causes. The fact that the UK has primary care as a “gate-keeper” for referrals has been one explanation, particularly because Denmark, until the last analysis was another European country where survival was poor and the route to referral for suspected cancer was via primary care. Denmark has improved recently having introduced a system for direct access to CT scanning for primary care. In the UK, as highlighted by Sir Mike Richards in his report on diagnostic services, we lack equipment. Figure 3 shows the number of CT scanners per million population; Denmark has 4 times more.

Figure 3: CT scanners per million population by country



National Lung Cancer Audit and Variation

Since 2005, England has collected national audit data on lung cancer. This was one of the first national cancer audits and has shown the extent of the variation in practice and outcomes in England. One of the most important observations is that, if we were able to achieve the outcomes of the best performing hospitals / integrated services we would easily match the top performing countries. This led the CEG to propose a new model of commissioning to help all hospitals have the same level of expertise available to their patients "Clinical advice to Cancer Alliances for the provision of lung cancer services."

[http://content.smallerearthtech.co.uk/system/file_uploads/16090/original/Clinical Advice for the Provision of Lung Cancer Services Aug 2017.pdf](http://content.smallerearthtech.co.uk/system/file_uploads/16090/original/Clinical_Advice_for_the_Provision_of_Lung_Cancer_Services_Aug_2017.pdf)). Although this has not yet been implemented widely, the National Optimal Lung Cancer Pathway does, at least, mandate the same logistical approaches. The latter has been taken forward into other tumour sites and is part of the faster diagnostic pathways initiative from the National Cancer Programme.

The Long Term Plan

The CEG supports the aims of the Long Term Plan and successful implementation will improve outcomes to match those of the best countries. However, the challenges are very significant and for lung cancer there will need to be major investment in the public message, and physical and human resources. We set out below the way in which the LTP can be achieved for lung cancer.

1. Lung Cancer Prevention

Tobacco smoking causes around 85% of lung cancer. Although environmental factors such as air quality also play a part, the reduction of tobacco smoking has resulted in a large reduction in cancer incidence in the UK and other developed countries. Further reduction of smoking is essential for prevention of many diseases and in lung cancer it is known that people with lung cancer who continue to smoke have worse outcomes at all stages. Smoking is a major contributor to health inequalities and the gap in life expectancy between the most and least affluent in society. Smoking cessation services should be recommended to patients at every opportunity, along with smoking cessation advice, on the basis that this would improve survival and mortality.

Of particular importance is the inclusion of stop smoking services within the Targeted Lung Health Check Programme and within a future Lung Cancer Screening Programme. Participation in this programme provides a key teachable moment to engage people with a long smoking history, and at the highest risk of developing smoking related diseases, in activity to help them stop smoking. Current guidance provided by the National Institute for Health and Care Excellence (NICE) states that behavioural support, bupropion, varenicline, nicotine replacement therapy and nicotine-containing e-cigarettes should be accessible to adults who smoke. Further, research has shown that making this support easily accessible by co-locating stop smoking services with the lung health check service, and delivered by trained stop smoking specialists, is likely to maximise uptake of stop smoking support and thus potential for successful quitting. Consideration must be given to how high quality, evidence-based stop smoking support is going to be provided, delivered and funded in any Targeted Lung Health Check or Lung Cancer Screening Programme to maximise the morbidity and mortality benefit.

There is an increasing number of the lung cancer population that are never smokers. A recent survey by the EGFR+ charity found that, of 117 respondents, 85% of their members have either never smoked (59%) or gave up over 10 years prior to diagnosis(26%). Although there is still an urgent need to encourage cessation of smoking there are clearly other factors at play still undefined.

2. Early Detection

Early detection encompasses early symptomatic presentation and lung cancer screening.

2.1 Early symptomatic presentation

2.1.1 Public awareness campaigns.

There is a need for the general public to be aware of symptoms associated with lung cancer and to know that health services are open, available and safe to investigate and treat them. They need to know how to obtain help easily.

In England, the national **'Help Us Help You' campaign**, which ran from February to May 2021, focused on lung cancer. The aim of the campaign was to raise awareness of the key symptom of lung cancer – a cough that lasts for three weeks or more. The campaign encouraged people who have this symptom and do not have COVID-19 to contact their GP practice, reminding the public that cancer remains an absolute priority and that the NHS is here to see them. The campaign was viewed across a full range of communication channels such as TV advertising, video on demand, radio and social media. We strongly support the extension of such public campaigns, with access to clinical triage (as in 2.1.2).

Similarly, campaigns such as the Roy Castle Lung Cancer Foundation, *'Still Here'* campaign, have encouraged symptom awareness and availability of health services.

2.1.2 Improving access to clinical triage and referral

It is important that once patients come forward, there is speedy access to diagnostic services. The overlap of symptoms of lung cancer and COVID means that lung cancer may not have been suspected. During the pandemic, NHS111 clarified the advice and referral process for patient callers, ensuring that patients with a persistent cough are directed to a healthcare professional, usually a GP, irrespective of COVID status. *It is vital that this advice from NHS111 is continued to be offered post pandemic.*

To assist primary care in the difficult task of deciding who to refer in the context of a high prevalence of COVID, the CEG published guidance in June 2020 **'How to differentiate lung cancer from COVID 19'** (see https://www.roycastle.org/app/uploads/2020/09/Differentiation-of-the-Cs-in-lung-cancer_-Cancer-vs.-COVID.pdf).

However, the current problem of **COVID backlog** means that many primary care services are overloaded, and provision of rapid and easy access for patients who are concerned that they might have lung cancer may not be possible. For this reason **we recommend novel methods**

for improving access and triage to help patients and primary care in the context of overloaded primary care services. This may include **cancer concern telephone hotlines and self-referral**. These can be run by primary or secondary care or in combination and give the possibility of highly specialised risk assessment and improved use of stretched radiology services. Awareness campaigns **tailored to individual GP practices** may also reach **family and friends** who may encourage presentation of people who develop symptoms.

2.1.3 Incidental findings

A significant proportion of early-stage lung cancer is detected from within-hospital referrals for scans performed for reasons unrelated to lung cancer (incidental detection). This contribution to early detection was substantially reduced during and post-pandemic due to reductions in overall scanning of some cardiothoracic conditions. This is due in part to the stay-at-home message, but also due to overall lower hospital activity for non-urgent conditions; this has yet to fully recover in all areas. **Support for in-hospital radiology services, including those managing possible early lung cancer (pulmonary nodules)** is vital in the context of the huge backlog.

2.2 Low radiation dose computed tomography (LDCT) screening

2.2.1 The Targeted Lung Health Check programme

TLHC is working with 23 CCGs in England, with high lung cancer mortality rates and invites high risk individuals to a lung health check with LDCT. The programme was just getting underway in early 2020, when the pandemic resulted in a pause in this and the other cancer screening programmes. The programme has now partially resumed, with an addendum to the protocol, to ensure COVID safety. There is commitment to a further roll out of the programme to 20 further sites in 2022. The targeted Lung Health Check programme is a world-class initiative and much of the world is looking at it as an exemplar of national implementation, even though it is essentially a pilot. Standards must remain high as we move to a fully implemented national programme (see 2.2.2). The programme offers the opportunity of large scale research that can refine its efficiency and effectiveness and identify novel approaches to improve outcomes.

2.2.2 A National Targeted Lung Cancer Screening Program

Lung cancer screening with low radiation dose computed tomography (LDCT) has a strong evidence base with the potential to prevent many deaths from lung cancer through detection at an early stage, when curative treatment is possible.

Two large randomised controlled trials have shown similar impacts on mortality. The National Lung Screening Trial showed a 20% reduction in lung cancer mortality 6.4 years after 3 annual screens with LDCT compared with annual chest X-ray. This trial also showed a 6.7% all-cause mortality benefit. The NELSON study showed a 24% reduction in lung cancer mortality in men and a 33-44% reduction in women with 4 screening rounds over 5.5 years.

A national lung cancer screening programme will support the early detection of lung cancer by identifying and screening asymptomatic high-risk individuals with LDCT. Screening high-risk

individuals for lung cancer with LDCT is very likely to be cost-effective as a stand-alone intervention but will be integrated with smoking cessation where there is evidence for a significantly greater impact on quit rate. This will significantly improve the cost-effectiveness, whilst preventing the development of lung cancer and other smoking-related diseases responsible for additional mortality and morbidity.

Lung cancer is more common in the socioeconomically disadvantaged, so introducing an effective screening programme will help address health inequalities.

The National Screening Committee is currently undertaking a revised review of Lung Cancer Screening cost-effectiveness and following an analysis showing that LDCT screening is highly cost effective, has made a draft recommendation to implement screening in the UK. This draft recommendation is available for stakeholder comment until 8th June 2022. See [Lung cancer - UK National Screening Committee \(UK NSC\) - GOV.UK \(view-health-screening-recommendations.service.gov.uk\)](https://www.gov.uk/view-health-screening-recommendations.service.gov.uk)

3 Cancer pathways - Faster diagnosis and treatment

As above, it is essential that patients present early to primary care and primary care responds by referring early. This means that more patients will be eligible for curative treatments and also those with advanced disease will be in a better physical condition to allow them the benefit from modern systemic anti-cancer treatment. Lung cancer is a rapidly fatal cancer for many people and time is critical.

It is important that services have the capacity to deal with additional referrals and to implement **the National Optimal Lung Cancer Pathway (NOLCP)** which ensures rapid diagnosis and treatment, optimal logistics and compliance with national targets.

3.1 Diagnostic capacity

Diagnostic capacity should be improved: the UK ranks amongst the lowest in the world in number of CT scanners and MR scanners per head of population. Professor Sir Mike Richards in his review, '*Diagnostics: Recovery and Renewal*' (NHSE) identified a need for a 100% increase in scanners just to bring the UK up to the current median level. Early lung cancer diagnosis is heavily reliant on CT scanning as a test far more sensitive than chest X-ray, which mostly detected later stage disease. Enhanced early-stage diagnostic facilities should also be developed

3.2 Advanced early-stage diagnostics and treatment

Enhanced secondary care facilities to manage more early-stage lung cancer detected through early presentation, early CT and LDCT screening is a pressing need to ensure maximum benefit with least harm from early detection. This encompasses both the workforce with the skills and equipment required for advanced early-stage diagnosis and treatment.

3.3 Direct access to CT scanning

This has been an option recommended in the NOLCP from 2017 and implemented in some areas of the UK. The key is to accurately assess symptomatic individual's risk of lung cancer and offer them immediate CT from primary care. The new cancer concern hotlines may be able to aid further implementation.

3.4 Pathology Services

Pathology services are under huge pressure due to the combination of a very limited workforce, and the increasing complexity of analysis of samples required to ensure that diagnoses are both correct and timely, and that patients have the correct, often targeted, treatment. Genomic Laboratory Hubs now undertake the molecular analysis, going live at the end of 2020, and their integration into the diagnostic pathology pathways has added significant additional pressure. The NOLCP states that the time from sample acquisition to full result (including all molecular data) availability should be 10 working days, although this will remain aspirational under current workforce limitations.

3.5 Circulating free DNA (cfDNA) testing

It is well established that the use of circulating tumour DNA has utility in early detection, the analysis of molecular biomarkers to predict response, the detection of resistance, and for monitoring in cancer patients. The UK has developed targeted cfDNA services for the detection of known variants in NSCLC (for the EGFR gene), which have been usefully employed over the last 5-6 years. The UK has now fallen behind, and needs to upgrade its cfDNA technology with the introduction of gene panels. We refer to the paper produced by the National lung cancer cfDNA Working Group*, which proposes an urgent evaluation of introducing cfDNA gene panel testing for non-small cell lung cancer into the England test directory for cancer to improve 62 day wait times, and allowing patients to receive the correct drug treatment.

*Contact Prof S Papat, Medical Oncologist, Royal Marsden Hospital

Future changes to treatment pathways

This will include fewer chemotherapy treatments and more immunotherapy and targeted therapies used earlier in the treatment pathway, supported by cfDNA implementation and genomic tumour boards; moving drug administration into the community and away from secondary care. Systems need to be in place to ensure quality of care.

During the Covid pandemic, the experience of mesothelioma patients who were funded for private treatment was that chemotherapy was continued and facilitated by provision of treatment at home. There is a need to investigate the establishment of **NHS home care services in oncology**, especially for our more vulnerable cancer patients.

4 High Quality Data

The COVID pandemic has highlighted the need for **high quality data in real time**. We are fortunate in the lung cancer area to have the National Lung Cancer Audit (NLCA) - a national and internationally recognised audit, led by clinicians. Beyond the traditional scope of the NLCA, there is a need to understand the implication of changes made due to COVID on diagnostics, treatments and services, including the switch from face-to-face consultation to virtual patient

consultation. Where these are evaluated and found to be beneficial, changes to ongoing practice should be adopted. There is also a need to assess the impact of the TLHC programme across the lung cancer pathway. Furthermore, data needs to be in real time, feeding back to clinicians and local service managers. **The NLCA, as it aims to track recovery from COVID and monitor lung cancer beyond, in as near to real time as is possible, needs to be adequately resourced and supported to do so.**

The National Mesothelioma Audit (originally part of the NLCA) has been funded by Mesothelioma UK since 2014. Currently, invitations are being sought for tender for the next 3 years. Like the NLCA, it is a world leading audit and a focus for future audit will be to interrogate data from the pandemic and monitor recovery.

5 Reducing inequalities

- 5.1** People in the most deprived socioeconomic quintile are twice as likely to develop lung cancer as those in the most affluent. Improving outcomes in lung cancer, through earlier detection, including screening, and implementation of the NOLCP, will have a direct effect on reducing health inequality.
- 5.2** This will require making sure all socioeconomic groups have equal access and the most deprived are not disadvantaged by factors such as access to primary and secondary care including transport and costs associated. Better diagnostic facilities in the correct locality are required with consideration to these factors.
- 5.3** In addition supporting uptake of TLHC in the most deprived socioeconomic quintile is vital. This may require a more tailored approach in communities with more appropriate appointment systems that account for communication preferences and literacy and general health literacy levels.

6 Personalised care – tailored support

6.1 Virtual consultations

Telephone, video or online), replacing some traditional face to face consultations. For lung cancer, it is likely that the future will be a mix of the two, with a focus back to face to face. However, patient preference and clinical necessity need to be assessed, to ascertain in what circumstance. Adequate training, space and provision of equipment is needed to ensure quality of communication in virtual consultation.

6.2 Patient Information

Availability of high quality patient focused lung cancer Information is a priority.

6.3 Patient Experience

In all areas of lung cancer diagnosis, treatment, support and end of life care, the experience of lung cancer patients and carers needs to be considered and taken into account within planning and service provision. The National Cancer Patient Experience Survey has been an important tool in capturing this. However, it has not adequately collected lung cancer patient experience. The nature of this particular cancer and the methods used in the NCPES, means that the experience of many patients with poor prognosis is omitted. We would welcome an improved range of tools for engaging patients in service evaluation and redesign.

6.4 Support for Carers

Through survey work, it is clear that in switching to virtual consultations and limited visiting, support for carers has suffered during the pandemic. There have been few or no opportunities for carers to ask questions, especially important for those caring for folks near end of life. It is important as services recover, that carers are not forgotten.

6.5 Prehabilitation

Prehabilitation aims to maximise patient fitness, nutrition and wellbeing, before treatment, in order to improve outcomes. CNSs and also Allied Health Professionals, such as dedicated dieticians and physiotherapists, are not only key to ensuring better prehabilitation but also, in ensuring post treatment rehabilitation and symptom management. With COVID causing patients both to present later and with greater psychological distress, there is a need for these AHPs to be part of workforce planning in lung cancer.

7 Workforce

Forward planning is required for shortages in Respiratory Physicians, Thoracic Radiologists, Specialist Clinical and Medical Oncologists, Thoracic Surgeons and team, Pathologists and technicians, and Lung Cancer Clinical Nurse Specialists (CNSs). Along with the need for improved administrative support. Furthermore, to address variation in outcomes as identified by the National Lung Cancer Audit (NLCA), these shortages need to be addressed in all hospitals providing lung cancer services and set out the National Clinical Advice to Alliances for Provision of the whole lung cancer pathway, published by NHSE in 2017 (see [https://www.roycastle.org/app/uploads/2019/07/Clinical Advice for the Provision of Lung Cancer Services Aug 2017.pdf](https://www.roycastle.org/app/uploads/2019/07/Clinical_Advice_for_the_Provision_of_Lung_Cancer_Services_Aug_2017.pdf)).

Clinical Nurse Specialists The CNS role is vital for many of the innovations in lung cancer, including the smooth running of the NOLCP, prehabilitation of patients to help them prepare for treatment and then afterwards in their recovery and living with their cancer. They can greatly assist the process where shortages in workforce are present and are highly adaptable in their roles. Most importantly, they are a consistent support to patients and carers throughout the pathway. In the context of COVID, the workload of CNS has been somewhat higher as they have been drawn into work on COVID response whilst at the same time having to manage more people with latest stage disease who are understandably fearful of COVID and the potential delays to their treatment. CNSs are vital in improving patient quality of life and in addressing psychological care. They have a key part in the NOLCP, not only in ensuring good communication between primary and secondary care but also in reducing the need for GP appointments and hospital admissions.

Increasing the number of CNS posts is an important way in which to improve the deficits in lung cancer services and at the same time support the enhanced services required to improve outcomes and reduce variation.

Thoracic Surgical workforce future needs have been estimated by the Society of Cardiothoracic Surgeons. These indicate that in 2017 there were 118.5 WTE thoracic surgeons. Future projections based on the impact of the Targeted Lung Health Check, and greater need for training time for video assisted and advanced robotic surgical techniques indicate a need for 39 additional surgeons over 5 years, equating to more than one per thoracic surgical unit. Careful planning is required to account for the retirement of senior surgeons (approx. 38 WTE in the next 5-10 years).

Clinical and Medical Oncologist workforce is limited in lung cancer and the demand on these services is increasing due to the better treatments now available. Early and faster diagnosis initiatives will further increase the proportion of people treated and surviving longer, that latter also contributing to increased workloads. The current workforce needs to be expanded promptly if we are to achieve better outcomes in lung cancer

There are currently 34 **Mesothelioma Clinical Nurse Specialists** across the UK, most being charity funded. The role of the CNS is vital and even more so at this time. To ensure adequate cover across the UK, an additional 10 posts are required.

8 Harnessing Technology

Advances in technology underpin most of the improvements that are needed in cancer services. These apply throughout the pathway and offer ways to improve early diagnosis, faster as safer diagnosis, maximise the efficiency of the workforce and improve treatment.

8.1 Artificial intelligence

Artificial intelligence tools are developing rapidly in medicine and in lung cancer apply from early detection and screening through to treatment; examples are:

- 8.1.2** Assisted reporting of the chest x-ray to accelerate progress to CT where indicated;
- 8.1.3** Assisted reporting of CT scans including nodule detection and quantitative analysis;
- 8.1.4** Risk prediction in pulmonary nodules;
- 8.1.5** Assisted histopathology reporting in digital pathology;
- 8.1.6** Algorithmic analysis and assistance with the NOLCP logistics;
- 8.1.7** Machine learning techniques applied to molecular profiles (genomics, liquid biopsy etc.).

8.2 Data analysis

Data analysis is advanced in the UK, but given the world-leading level of medical data held on individuals, especially the primary care dataset, it is widely recognised that we underutilise what we have to advance medicine. In lung cancer:

- 8.2.2** There needs to greater emphasis on using data to better define people at risk of the disease, who can then either be screened or referred promptly, and on a sound basis, for diagnostic tests;
- 8.2.3** The real-world data from the treatment datasets needs to be better linked with concrete actions to reduce variation and ensure all hospitals use the latest treatment;
- 8.2.4** There needs to be more emphasis on correct fitness assessment and impact on quality of life through collection of additional data that is added to the existing.

8.3 Engineering advances

Engineering advances should be embraced as part of routine clinical practice, but should be evaluated for their impact on clinical and cost efficacy and overall outcomes, including the impact on the workforce. These include:

- 8.3.2** Radiology reporting, interpretation and analysis suites, some of which incorporate artificial intelligence;
- 8.3.3** Advanced diagnostic techniques including image guidance and navigation bronchoscopy;
- 8.3.4** Robotic applications currently used in surgery but also being developed for diagnostic techniques;
- 8.3.5** Automated sample processing.

8.4 Media

Communicating with people at risk of lung cancer is vital and work has shown that many people at risk of lung cancer are in the so call “hard to reach” group. In lung cancer there needs to be more emphasis on appropriate use of techniques to improve communication including:

- 8.4.2** Accurate and understandable information about lung cancer risk and symptoms with easy access to assessment, which may include new apps;
- 8.4.3** An emphasis on destigmatisation of lung cancer;
- 8.4.4** An emphasis on what can now be done for lung cancer and how important early diagnosis is;
- 8.4.5** Inclusion of the wider social circle.

8.5 New Treatments

New treatments will improve cancer outcomes these include:

- 8.5.2** Novel systemic anti-cancer treatments
- 8.5.3** New radiotherapy techniques and modalities
- 8.5.4** Advance surgical techniques supported by modern technology
- 8.5.5** Support for large-scale clinical trials is essential to rapidly test new treatments

9 Research to practice – Going further, faster

The process of medical progress can be delayed by the need for reliable evidence. This is illustrated by the long delay to a positive recommendation by the UK National Screening Committee, only in March 2022 releasing a draft statement, a full 12 years after the publication of the National Lung Cancer Screening trial. In order to maintain the high standards by which the UKNSC is revered for, a second trial was needed and this was only published in 2020. If a CT programme had begun implementation in 2011, an estimated 17,000 or more lives would have been saved by now. Where appropriate, there needs to be much more rapid progress from research to implementation to ensure benefit is realised as soon as possible, but equally, the evidence must be strong enough.

- 9.1** The current funding for rapid evaluation of technology (engineering and artificial intelligence through Innovate UK, NIHR, SBRI etc.) should be continued but to make this more effective, a common platform for evaluation should be developed so that tools can be directly compared. This would involve the creation of large pseudonymised datasets that include all relevant data and reliable outcome data. If the dataset is large enough, evaluations can be very rapid, largely bypassing the need for longer term follow up;
- 9.2** Iterative improvements in diagnostics and treatments may be more appropriately assessed. Currently, a new drug or radiotherapy technique generally has to undergo a full research trial with very high standards which can take years. Consideration should be given to a process of assessment where only the essential information (e.g. toxicity, cost) is evaluated in the conventional way, with surrogate markers (with a high threshold to indicate improved outcomes) used to confirm superiority over current standards.
- 9.3** Large scale studies that can be used to assess diagnostics and treatments should be encouraged with wider inclusion of NHS hospitals. This has been a successful approach but needs to be on a scale that is embedded in every service.

10 Summary

In summary, lung cancer and mesothelioma patients and services have been hugely negatively impacted by the COVID pandemic. As we return to normality, there needs to be a focus on early detection in lung cancer, by both extending the '*Help Us Help You – Lung Cancer*' public awareness campaign, improving access to clinical evaluation and prompt referral and ensuring implementation of a National Lung Cancer Screening Programme, as soon as is possible. Implementation of the National Optimal Lung Cancer Pathway remains a major priority to ensure rapid diagnosis and treatment through optimal logistics, capacity planning and application of the highest clinical standards. Expansion of the workforce is essential and without this it will not be possible to achieve what is set out in the LTP. Investment in new technology that has been properly and rapidly tested, needs to happen at pace and if applied correctly will maximise the efficacy of the workforce. Research into practice needs to be accelerated but without significant risk of error. This might be achieved through larger platforms for evaluations of new technologies and new treatments, with careful applications of surrogate markers.

Concise recommendations to achieve LTP objectives and match the best performing countries:

- a. Expansion of the Targeted Lung Health Check Programme and in time, implementation of a National Lung Cancer Screening Programme.
- b. Enhanced awareness programmes linked to efficient referral processes.
- c. Improved triage of patients with unclear symptoms including better risk assessment.
- d. New methods to improve access to assessment and referral such as cancer hotlines, managed primary care priority access and direct secondary care managed self-referral
- e. Support for the NOLCP by ensuring there is better provision of the workforce including all specialties, lung cancer nursing and improved administrative support.
- f. Enhanced secondary care facilities to manage more early stage lung cancer detected by screening including skills and equipment required for advanced early stage diagnosis and treatment.
- g. Greater access to CT scanning for all those at risk of lung cancer, whether symptomatic or eligible for CT screening. It is probably the most important factor in the differences seen in the UK outcomes compared with those of other countries with equivalent healthcare systems. This requires an expansion of scanning capacity at least as great as recommended in the Richards report.
- h. Data. The NHS provides a real opportunity to use the excellent primary care data to risk assess people and provide access to CT with early diagnosis when people can be cured or at least are fit enough to receive the new and improved treatment for later stage disease. There needs to be better linkage of our excellent data to concrete actions to address variation.
- i. For people who smoke, every opportunity should be taken to assist them in quitting. Smoking cessation should be integrated into all aspects of lung cancer care, including screening.
- j. The use of new technology should be properly and rapidly evaluated to accelerate implementation in the NHS.
- k. Research needs to focus on faster implementation where appropriate, facilitated by larger evaluation platforms and appropriate use of surrogate markers.