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# SCOTTISH PATHWAYS **MATTER**

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A REVIEW OF LUNG CANCER  
SERVICES IN 2023 TO SUPPORT  
THE IMPLEMENTATION OF THE  
SCOTTISH NATIONAL OPTIMAL  
LUNG CANCER PATHWAY



UNITED KINGDOM  
LUNG CANCER COALITION

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**The report was informed by interviews with healthcare professionals and service providers from across 11 of the 14 Health Boards in Scotland, representing a variety of specialities and job roles involved in the lung cancer pathway.**

## ABOUT THE UKLCC

The United Kingdom Lung Cancer Coalition (UKLCC) – the country's largest multi-interest group on lung cancer – is a coalition of the UK's leading lung cancer experts, senior NHS professionals, charities and healthcare companies. Through our campaigning activity we aim to:

- Raise political awareness of lung cancer
- Raise the general public's awareness of lung cancer – and especially encourage earlier presentation and symptom recognition
- Improve the quality of lung cancer services and thereby the outcomes for patients
- Empower patients to take an active part in their care

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## FOREWORDS

We have had the privilege to have spent the majority of our decades-long careers in the NHS working with people with lung cancers. During that time, we have seen huge innovations in the way we diagnose and treat the condition, which have led to some serious improvements in survival – with more people living five years or more than ever before. But those remarkable innovations in lung cancer treatment options have come at a cost on already stretched services.

Late diagnosis and delays to treatment are some of the key reasons lung cancer remains one of the deadliest forms of cancer. While we need to encourage patients to seek medical help sooner if they have symptoms, we also need to speed up the time we take within the NHS to get these patients their first treatment. To that end, the Scottish Government, the Centre for Sustainable Delivery and Cancer Networks across NHS Scotland have been working with clinicians to develop a new Scottish National Optimal Lung Cancer Diagnostic Pathway, with the ambition of delivering patients their first treatment within 42 days of urgent cancer referral in the future.

This report provides valuable insights from healthcare professionals and service providers across Scotland on the current state of lung cancer services – the issues they face and the barriers they must routinely overcome to deliver for patients, as well as what is currently working well. It outlines where investment and innovation, in both technology and working practices alike, could help to accelerate the patient pathway now, to help meet the 42-day ambition, and prepare it for future demand.

We would like to thank the UKLCC and all those who contributed to this project for the time they have taken to contribute and provide feedback on this report. The lung cancer pathway will only ever be as good as the individuals working to deliver it every day, and we are incredibly proud of the enthusiasm and commitment expressed by everyone who contributed to our work, in spite of the challenges currently being faced throughout Scotland. We look forward to this report delivering positive change for both patients with lung cancer and the services they need to access in a timely fashion.

**Dr Melanie Mackean**

**Dr Richard Stretton**

**Dr Joris van der Horst**

NHS Scotland Regional Cancer Networks'  
Lung Cancer Clinical Leads

We are delighted to have worked with our colleagues and coalition members in Scotland to deliver this thorough report, describing the key elements and importance of establishing an optimal care pathway for lung cancer patients in Scotland. First and foremost is the need to implement lung cancer screening, as recommended by the UK National Screening Committee to detect lung cancers at an early stage. But in addition to *early* diagnosis, lung cancer patients also need a *rapid* passage through the, often complex, diagnostic and treatment pathway.

There is good evidence that relatively short delays in the care of lung cancer patients can reduce their chances of receiving effective treatment, thereby reducing the chances of cure and shortening the time they will have to spend with their loved ones. Advances in the diagnosis and treatment of this very common cancer have been dramatic in recent years and are continuing apace. It behoves all those who fund, commission and deliver care to these patients to ensure that they have rapid access to the best that modern lung cancer care has to offer.

We applaud the ambition of the Scottish Government and NHS Scotland to reduce the time that people with lung cancer symptoms have to wait to receive a diagnosis and their first treatment. We hope that this report will provide the insight and impetus needed to deliver specific support – in infrastructure, data systems, the people who deliver services and care – to Health Boards and Cancer Networks that will allow our wonderful NHS workforce – the respiratory physicians, lung cancer nurse specialists, radiologists, pathologists, surgeons, oncologists, clinical scientists, general practitioners and cancer trackers – to all work together towards the 42-day ambition, and UKLCC's goal of 25% of people with lung cancer living for at least five years by 2025.

**Professor Mick Peake**

Chair, UKLCC

**Professor Robert Rintoul**

Clinical Advisory Group Lead, UKLCC

## SUMMARY OF RECOMMENDATIONS

### SCREENING

- 1 The Scottish Government and NHS Scotland should adopt the recommendations of the UK National Screening Committee and implement a national screening programme for people identified as high risk of lung cancer

### FROM SUSPICION TO DECISION TO TREAT

- 2 NHS Scotland should review Health Boards' diagnostic imaging capacity, generally, and specifically, for lung cancer and invest in infrastructure and workforce to meet the current and future patient demand
- 3 NHS Scotland should ensure all GPs across the country have direct access to CT scans
- 4 NHS Health Boards' radiology departments should update their protocols so that a CT is automatically triggered and booked the same day, or within 72 hours of an abnormal chest x-ray (CXR). Teams should take into account emerging learning from the two test beds in NHS Scotland, using artificial intelligence (AI) to flag suspicious chest x-rays in order to speed up time to CT
- 5 Regional PET-CT centres should support the implementation and expansion of pre-planned PET-CT slots for lung cancer patients
- 6 NHS Scotland should introduce AI for the assessment of lung CT scans in all Health Boards, pending the outcomes of ongoing pilot feasibility studies
- 7 NHS Cancer Management Teams should work with their local Lung Cancer Clinical Lead to undertake audits, ensuring quality samples are captured for molecular testing. NHS Health Boards should mandate National Bronchoscopy and EBUS Training Academy training for all staff conducting the procedure
- 8 NHS Scotland should consider routes to support increased investment in laboratory workforce and infrastructure to improve pathology and genomic turnaround times. There should be a particular focus on horizon scanning and early adoption of new technologies while ensuring that funding of companion diagnostics is considered when new therapies are approved
- 9 Regional cancer network management, supported by NHS Scotland and Health Boards, should devise a system of test bundling for all patients who are eligible for curative treatment, utilising prescheduled slots and overseen with support from the cancer tracker/navigator

## TREATMENT

- 10** Regional Cancer Networks should undertake a benchmarking review of the workforce needs dedicated to lung cancer in their region and ensure they are taking a leading role in ensuring each Health Board's lung cancer multidisciplinary teams (MDT) have sufficient oncologist and specialist cardiothoracic surgical cover 52 weeks a year
- This should include at least 1 whole-time equivalent (WTE) lung CNS per 80 new lung cancer patients to support patients on the pathway
- 11** Overseen by Regional Cancer Networks, rural Health Boards should explore creative solutions to capacity challenges – such as SACT delivered at home or mobile units – to reduce any delays in accessing treatment

## PATHWAY COORDINATION

- 14** The Scottish Government, along with NHS Scotland's clinical community, should review cancer waiting times and QPIs to support the delivery of a 42-day optimal lung cancer pathway
- 15** NHS Scotland should look to better define and expand the cancer tracker role to improve recruitment, retention and cancer pathway impact
- 16** NHS Scotland should seek to improve virtual and in-person facilities available to lung cancer MDTs and support cross-Health Board cooperation to address workforce shortages

- 12** NHS Scotland should develop a new QPI target for radiotherapy delivery times and routinely collect radiotherapy data to ensure time-to-treatment is monitored and addressed
- 13** NHS Scotland and the Centre for Sustainable Delivery should work with NHS Health Boards to further test and implement successful lung cancer-specific prehabilitation approaches, in-line with those set out in the EPIC pilot study in NHS Lothian

## PATIENT CARE

- 17** The Scottish Government should expand the 'single point of contact' pilot programme to every Health Board in Scotland

## INTRODUCTION



**DELAYS TO DIAGNOSIS AND RECEIVING OPTIMAL TREATMENT ARE SOME OF THE CONTRIBUTING FACTORS TO SCOTLAND AND THE UK'S PARTICULARLY POOR OUTCOMES**



**THE NEW PATHWAY AIMS TO DECREASE THE TIME PATIENTS WAIT FROM INITIAL REFERRAL WITH A SUSPICION OF LUNG CANCER, TO RECEIVING THEIR FIRST TREATMENT WITHIN 42 DAYS – THIS IS SIGNIFICANTLY MORE AMBITIOUS THAN EXISTING CANCER WAITING TIMES STANDARDS (62 DAYS)**

Lung cancer continues to be the deadliest cancer in Scotland, accounting for almost a quarter of all cancer deaths nationally in 2020.<sup>1</sup> Although progress has been made in recent decades to reduce mortality and hasten the time people wait to receive treatment for lung cancer, Scotland falls significantly behind the rest of the UK in the mortality rate for lung cancer,<sup>2</sup> and the UK as a whole is behind many countries of comparable size and wealth.<sup>3</sup>

A lung cancer patient's journey, or pathway, through the health system has a major impact on their survival. Lung cancer can progress quickly and the later the disease is detected the lower a patient's chance of survival becomes. Delays to diagnosis and receiving optimal treatment are some of the contributing factors to Scotland and the UK's particularly poor outcomes.<sup>4</sup> These long-standing challenges in the delivery of timely lung cancer diagnosis and treatment were only exacerbated by the COVID-19 pandemic. Patients stopped interacting with health services, resulting in late presentation or 'missing' lung cancer diagnoses,<sup>5</sup> and cancer service delivery was disrupted, further slowing the diagnosis and treatment of patients who did reach services.<sup>6</sup>

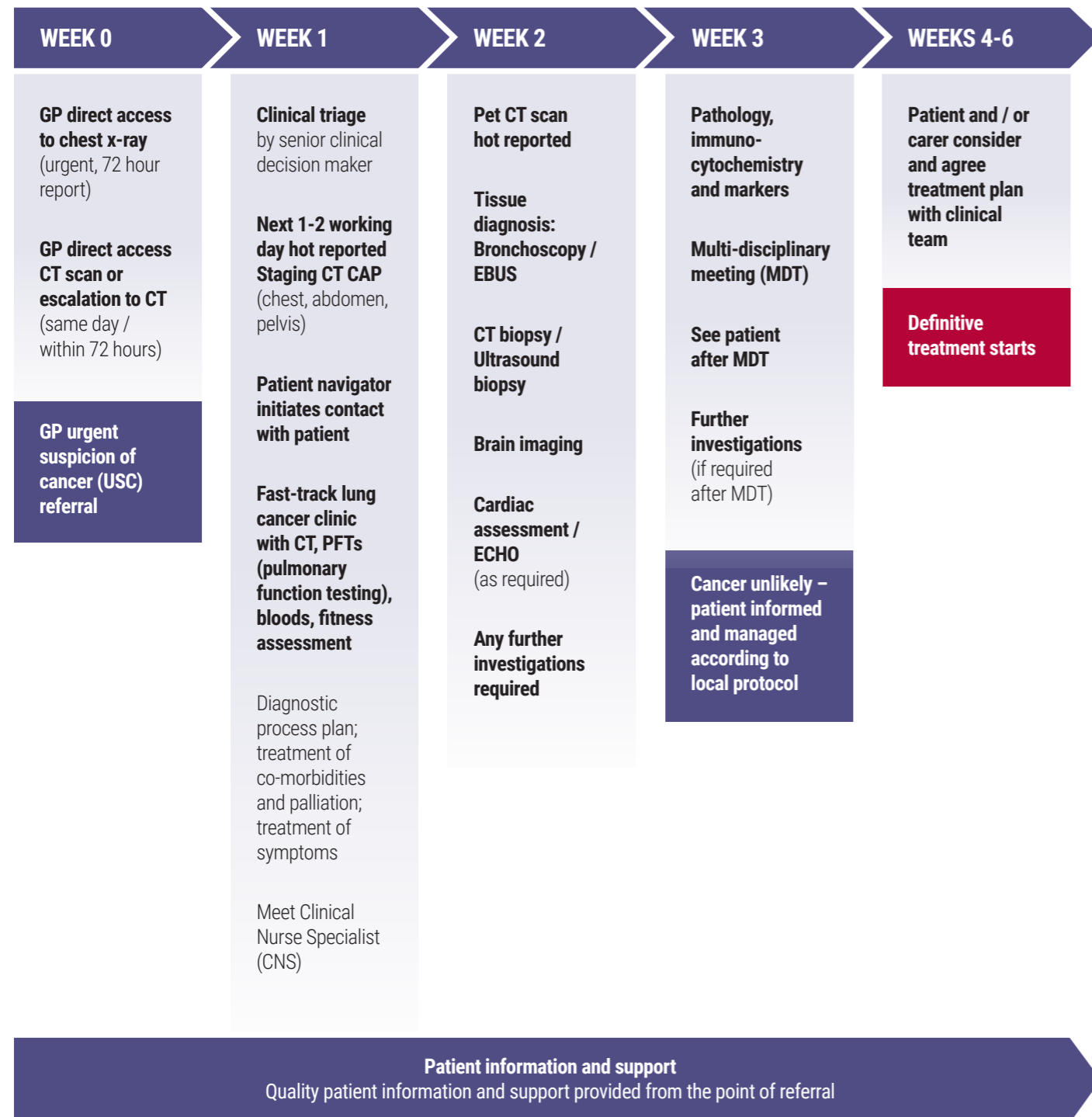
In order to recover and improve time to diagnosis and treatment for lung cancer patients in Scotland, in December 2022 the Centre for Sustainable Delivery published the Scottish Optimal Lung Cancer Diagnostic Pathway.<sup>7</sup> The pathway aims to decrease the time that patients wait from initial referral with a suspicion of lung cancer to receiving their first treatment to 42 days – this is significantly more ambitious than existing cancer waiting times standards (62 days). To expedite the lung cancer pathway, the Scottish Government announced £3 million of Detect Cancer Earlier (DCE) Programme funding to help NHS Health Boards implement the pathway and accelerate time-to-treatment.<sup>8</sup>

Six months later, in June 2023, the Scottish Government published its [Cancer Strategy 2023-2033](#) outlining how it aims to improve cancer services over the next decade.<sup>9</sup> The Government highlight the importance of a continuous focus on lung cancer, including a specific action (in the strategy's underpinning [3 year action plan](#)) to "support implementation of Scotland's new optimal lung cancer diagnostic pathway." However, little detail was included on what additional support will be provided to lung cancer services to achieve the new 42-day treatment ambition. It is vital that we understand what resources are needed to make sustainable improvements in the pathway, and map out how and when these will be delivered.

To support our members in Scotland with this effort, we have conducted an analysis of current lung cancer service provision and practice in NHS Scotland to consider where gaps exist to achieving the new pathway, as well as identifying and sharing examples of best practice. We outline several recommendations for Health Boards, Regional Cancer Networks, NHS Scotland and the Scottish Government's consideration to improve and extend the lives of people living with a lung cancer diagnosis in Scotland.

**Figure 1: NHS Scotland Lung Cancer Diagnostic Pathway**

Scottish National Optimal Lung Cancer Pathway published in December 2022 by the National Centre for Sustainable Delivery<sup>7</sup>



## METHODOLOGY

The development of this report was informed both by semi-structured interviews with healthcare professionals from NHS Health Boards across Scotland, and through a survey of lung cancer MDTs. The survey questions are detailed in Appendix A. Both the interviews and survey were used to collect qualitative and quantitative data on the current status and performance of the lung cancer pathway from the perspective of those actively involved in its delivery.

We would like to thank the following individuals from Health Boards across Scotland who participated in the interviews:\*

### 1 NHS Ayrshire and Arran

#### Dr Philip Hodkinson

Consultant Respiratory Physician,  
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### 2 NHS Dumfries and Galloway

#### Dr Jane Gysin

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### 3 NHS Fife

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### 4 NHS Forth Valley

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### 5 NHS Grampian

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### 6 NHS Greater Glasgow and Clyde

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### 7 NHS Highland

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### 8 NHS Lanarkshire

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### 9 NHS Lothian

#### Dr David Dorward

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### 10 NHS Shetland

#### Dr Jacqueline Gray

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#### Garry Munroe

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### 11 NHS Tayside

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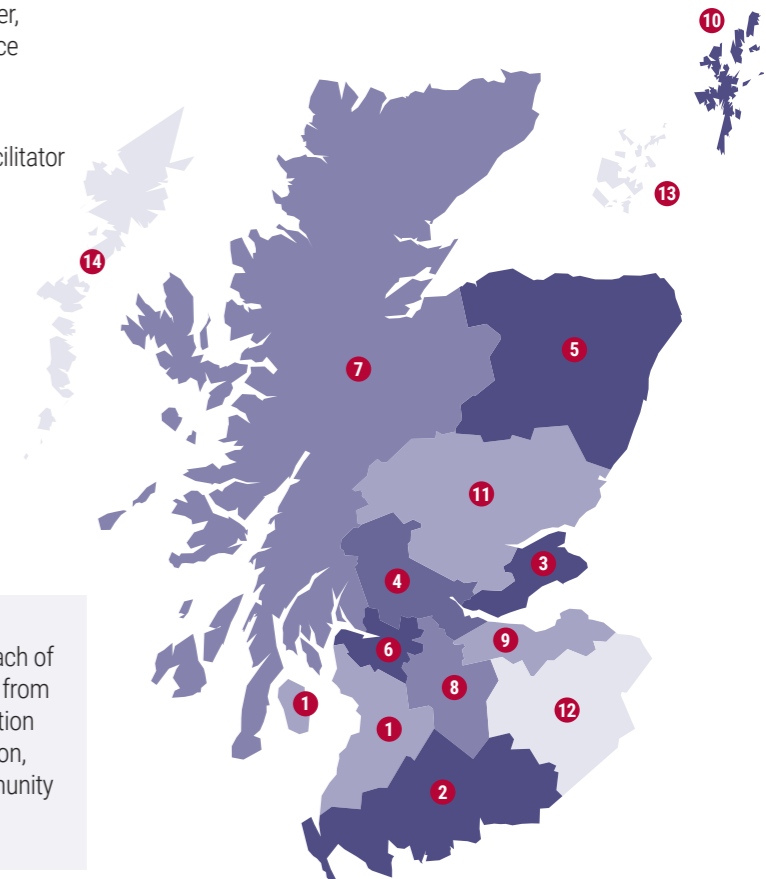
#### Dr Jennifer Wilson

Consultant Pathologist,  
Ninewells Hospital and Medical School

#### Dr Nicola Williams

Consultant Clinical Scientist,  
Scottish Strategic Network for Genomic Medicine,  
Ninewells Hospital and Medical School

As well as clinicians and service providers from each of the Health Boards we are grateful for the insights from **Lorraine Dallas**, Director of Information, Prevention and Support, Roy Castle Lung Cancer Foundation, who has been working with the lung cancer community in Scotland for more than a decade.



\* We were unable to interview representatives from NHS Borders (12), Orkney (13) and Western Isles (14) Health Boards.

## WHY THE PATHWAY MATTERS

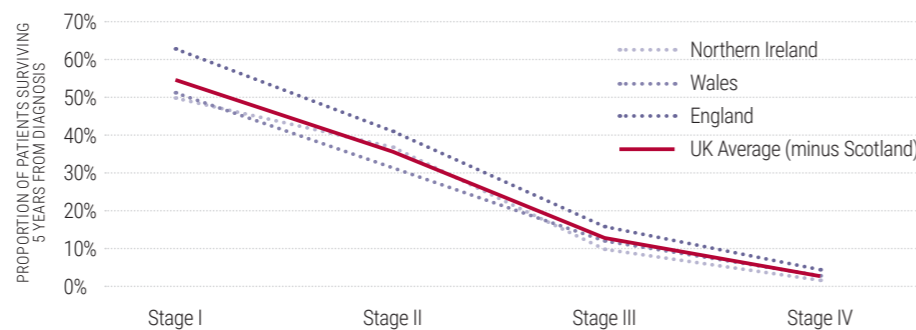


UNADJUSTED LUNG CANCER WAITING TIMES DATA SHOWS THAT **39.1% OF PEOPLE WITH LUNG CANCER ARE WAITING LONGER THAN 62 DAYS TO RECEIVE THEIR FIRST TREATMENT**

The five-year survival rate for lung cancer in Scotland is the lowest of any cancer at just 16.1% (compared to, for example, 74.2% for breast cancer and 56.4% for kidney cancer).<sup>10</sup> This is also significantly lower than the average five-year survival for lung cancer in England of 21%.<sup>11</sup> Although progress has been made to improve survival – including through treatment innovations, and early diagnosis initiatives and disease awareness campaigns – more work is needed to ensure that patients receive treatment for lung cancer whilst it is in its early stages, when treatments are more effective and a complete response is more likely.

Late diagnosis is a key barrier to improving survival. Across the devolved nations, 5-year survival for those diagnosed with stage 4 lung cancer is consistently below 5%.<sup>12</sup> Given 47.5% of lung cancer cases are diagnosed at stage 4 in Scotland, the importance of improving early detection is clear.<sup>12</sup>

**Figure 2: 5-year lung cancer survival by stage at diagnosis<sup>12</sup>**



It is also crucial that patients are accurately diagnosed and receive treatment as fast as possible following initial suspicion of lung cancer, to prevent their cancer from progressing while they wait. Delays in cancer care are detrimental to patient outcomes, and this is of particular importance in lung cancer where stage shift and deterioration in performance status can be rapid and have a major impact on survival. This issue is dealt with in detail in the UKLCC's 2018 report *Millimetres Matter*.<sup>13</sup> One key study found that for every week treatment is delayed, there is a 1% decline in 5 year survival.<sup>14</sup>

The current target for Health Boards to progress from an 'urgent suspicion of cancer' referral to first treatment is 95% of patients within 62 days. However, two calendar months is still a long time for patients to wait to receive a diagnosis and treatment if they have lung cancer and this target is currently not being met, and published unadjusted lung cancer waiting times data shows that 39.1% of people with lung cancer are waiting longer than 62 days to receive their first treatment.<sup>15</sup> For those who receive a lung cancer diagnosis and who are eligible and choose to receive treatment, 9.2% wait longer than the 31 day standard<sup>15</sup> – suggesting most of the delays are occurring during the complex series of tests which involve diagnosing and selecting treatment for lung cancer.



**GIVEN 47.5% OF LUNG CANCER CASES WERE DIAGNOSED AT STAGE IV IN SCOTLAND, THE IMPORTANCE OF IMPROVING EARLY DETECTION IS CLEAR**



**FOR EVERY WEEK TREATMENT IS DELAYED, THERE IS A 1% DECLINE IN 5 YEAR SURVIVAL**

One of the challenges when analysing existing cancer waiting times standards is that key timing milestones that the patient experiences are not detailed. The most common treatment for patients with late-stage disease is best supportive care,<sup>16</sup> which can be delivered quickly, leading to patients with stage 4 lung cancer spending less time in the pathway.<sup>17</sup> Patients who are younger, fitter and with stage 2 and 3 disease require additional tests to determine the best course of action and are spending longer in the pathway than the published data suggests. It is these patients in particular whose survival outcomes are likely to be most adversely affected by delays. As we work towards introducing a national screening programme for people at high risk of lung cancer in Scotland – following the recommendation of the UK National Screening Committee<sup>18</sup> and LUNGSCOT pilot in Scotland<sup>19</sup> – it is likely we will diagnose more cancers at stages 1, 2 and 3 rather than stage 4 in the coming years. Targeted action is crucial so that we maximise the benefit of earlier diagnosis for patients.

As the Scottish Government and NHS Scotland seek to reduce later stage diagnosis and start to consider what lung screening in Scotland should look like, the optimal diagnostic pathway arrives at a crucial time to equip the pathway to cope with increasing patient demand.



Table 1: Summary of targets, challenges and opportunities in the Scottish lung cancer pathway

THE PATHWAY	Current turnaround time target	New pathway turnaround ambition	Survey / interview findings on turnaround times	Barriers	Solutions
 <b>CT following referral / chest X-ray</b>	No specific target outside 62-day wait	Within 1 week	Rural Health Boards meet new target / others can wait more than 2 weeks	<ul style="list-style-type: none"> <li>• High demand from other departments (eg A&amp;E)</li> <li>• Radiology workforce shortage</li> <li>• Lack of prioritisation / protected lung cancer patient slots</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate pre-scheduled CT slots for lung cancer</li> <li>• Increased / improved radiology training</li> <li>• Outsourced CT reporting</li> <li>• Adoption of AI for lung CT scan analysis</li> <li>• Radiology cancer navigator</li> </ul>
 <b>PET-CT</b>	Request to reporting within 10 days	Within 1 week	Request to acquisition: average of 13 days (range 9-17 days) Acquisition to report: average 12 days (range 4-15 days)	<ul style="list-style-type: none"> <li>• Capacity and infrastructure</li> <li>• Radiology workforce shortage</li> <li>• Lack of prioritisation / protected lung cancer patient slots</li> </ul>	<ul style="list-style-type: none"> <li>• Adequate pre-scheduled PET-CT slots for lung cancer</li> <li>• Investment in infrastructure</li> </ul>
 <b>EBUS</b>	No specific target outside 62-day wait	Within 1 week	Request to procedure completion: average of 8 days (range 5-14 days)	<ul style="list-style-type: none"> <li>• Lack of physical space for EBUS clinic</li> <li>• Not enough equipment</li> <li>• Quality of sampling leading procedure repetition</li> <li>• Coordination between local delivery and regional/centralised procedures</li> </ul>	<ul style="list-style-type: none"> <li>• Increased specialism in EBUS (less people conducting procedure) / procedure centralisation</li> </ul>
<b>CT-guided biopsy</b>	No specific target outside 62-day wait	Within 1 week	Request to procedure completion: average of 10 days (range 4-21 days)	<ul style="list-style-type: none"> <li>• Radiology capacity shortages (outlined above)</li> <li>• Mixed expertise in delivering procedure</li> </ul>	<ul style="list-style-type: none"> <li>• Improvement to radiology capacity</li> <li>• Procedure centralisation</li> </ul>
 <b>Tissue diagnosis</b>	No specific target outside 62-day wait	< 1 week	5 days from receipt of sample to report (range 2-9 days)	<ul style="list-style-type: none"> <li>• Pathology workforce shortages</li> <li>• Lack of lung-specific expertise</li> <li>• Intersite transport of material</li> </ul>	<ul style="list-style-type: none"> <li>• Single-site clinic with on-site lung specialist pathology</li> <li>• Increased pathology workforce</li> </ul>
 <b>Test to guide treatment: Immunohistochemistry (IHC) plus genomics</b>	IHC: no specific target Genomics: 14 days	Within 1 week for both	Time from initiation of test to results for both IHC and genomics, ranging from 14 to 25 days	<ul style="list-style-type: none"> <li>• Reflex testing</li> <li>• Laboratory capacity (workforce and space)</li> <li>• Lung-specific pathology expertise</li> <li>• Twice-weekly batch testing of genetic markers</li> </ul>	<ul style="list-style-type: none"> <li>• Improved communication and coordination between pathology and genetics</li> <li>• Splitting samples</li> <li>• Improved training and recruitment</li> <li>• Increased laboratory space</li> </ul>
 <b>Decision to treat to first treatment</b>	31 days	14 days	2-6 weeks	<ul style="list-style-type: none"> <li>• Workforce: shortage of LCNSs, nurses more generally, oncologists, oncology pharmacists</li> <li>• Surgical theatre capacity</li> <li>• Radiotherapy capacity</li> <li>• Physical space for clinics / chemotherapy chairs</li> </ul>	<ul style="list-style-type: none"> <li>• Coordination between MDTs within a Cancer Network</li> <li>• Increased and improved training and recruitment</li> <li>• Radiotherapy targets</li> <li>• Creative solutions eg chemotherapy at home / in mobile units</li> </ul>

# LUNG CANCER PATHWAY: SUSPICION TO DECISION-TO-TREAT

Achieving a lung cancer diagnosis is a complicated process. From the time lung cancer is first suspected, around six different tests and procedures are required to ascertain whether there is a mass in the lung, whether or not it is malignant, if it has spread elsewhere, what type of cells make up the cancer, and what the best treatments are for the cancer based on the markers on or within the tumour cells.

Ensuring this diagnostic pathway is completed efficiently and without delays is critical to patients receiving treatment within the current 62-day cancer waiting times standard; and will be even more important as we attempt to reduce the timeline further to 42 days.

Through our survey and interviews, clinicians and service providers noted several key challenges in the diagnostic pathway that must be optimised to enhance the existing pathway. These recommendations have been structured to follow the diagnostic pathway steps:



## LUNG CANCER SCREENING

The UK National Screening Committee in 2022 recommended a lung cancer screening programme in the four nations of the UK for people aged 55 to 74 who are identified as being at high risk of lung cancer; following extensive evidence that the programme would help improve earlier diagnosis and reduce lung cancer mortality.<sup>18</sup> Whilst a small feasibility pilot is underway in Scotland,<sup>19</sup> in England, an expanded screening pilot saw more than 2,000 people diagnosed with lung cancer, with 76% at stage I or II.<sup>20</sup> There was resounding support from our interviewees and survey respondents for country-wide implementation in Scotland as soon as possible.

### RECOMMENDATION

- Scottish Government and NHS Scotland should adopt the recommendations of the UK National Screening Committee and implement a national screening programme for people identified as high risk of lung cancer**

## DIAGNOSTIC IMAGING

### Direct referral to chest x-ray or CT scan

Efficient access to chest x-rays (CXRs) and contrast computed tomography (CT) scans for patients presenting to primary care settings with symptoms of lung cancer is essential to securing swift entry into the lung cancer pathway and ultimately to timely treatment.

At present, GP practices across Scotland are able to request urgent and routine CXRs; however, they are not always able to directly request a CT if they strongly suspect a patient has lung cancer – they would instead have to refer the patient to secondary care as an urgent suspicion of cancer. Interviewees noted that GP practices across Scotland should be able to directly request a CT for people they strongly suspect to have lung cancer, removing a step in the pathway that could potentially reduce time to treatment by 1-2 weeks. This has to be balanced with CT and radiology capacity more broadly, so a chest x-ray may be more suitable for those whose symptoms are less clear. Guidelines should be updated to help GPs make this distinction.

For patients who receive an abnormal CXR result, it is the responsibility of the radiologist to either refer the patient for an urgent CT or send an alert to a respiratory physician to confirm the need for a CT – the patient is then contacted by secondary care and a CT booked for the earliest available date.<sup>21</sup> However, our survey and interviews suggested the earliest date can be some weeks away. Abnormal CXRs need to routinely trigger a CT within 72 hours to meet the requirements of the new pathway.

### CT capacity impact on the pathway

Through our interviews it was clear that the wait for a CT scan can be a significant source of delay in the pathway. In the more rural Health Boards, such as NHS Highland or in NHS Shetland, CT scans can often be ordered, conducted, reviewed by a radiologist and reported within 2-3 days. In areas with high patient volumes, waiting for a CT scan alone can take up to 2 weeks, resulting in delays to the diagnostic pathway from the outset. In these cases, understandable and overwhelming demand from other departments and specialities, particularly A&E, means patients have to wait longer and at times had to be rescheduled due to emergency cases. Solutions proposed by our interviews include protected CT scan slots and reporting prioritisation for those with a suspicion of lung cancer and, where this isn't possible, additional CT scanners and radiologists.

### Access to PET CT scans and reporting

A positron emission tomography (PET)-CT scan gives a more detailed picture of cancer across the whole body and can tell you if the cancer has spread, where it has spread to and how aggressive it is.

The delivery of the lung cancer pathway in Scotland is monitored via Quality Performance Indicators (QPIs) which detail expected standards of care. Currently, QPI 4 states that the time between the request for a PET-CT scan and it being reported should be within 10 days for 95% of patients. However, this QPI is only being met in 22% of cases.<sup>22</sup> MDTs reported via our survey that PET request to PET report can take 2-4 weeks (see Table 1). The new optimal pathway suggests PET-CT request, acquisition and reporting should take place **within one week**.

Scotland's imaging capacity is far below that of other comparable countries, with just 0.7 PET-CT scanners per 1,000,000 people, compared to 1.3 in England, and 3.6 in Australia.<sup>23</sup> Scotland's 10-year cancer strategy mentions PET-CT only once.<sup>9</sup> The accompanying 3-year action plan doesn't mention PET-CT at all.<sup>24</sup> Yet without solutions to this challenge, the new optimal pathway for lung cancer is simply not achievable.

In order to solve this issue, we are calling for:

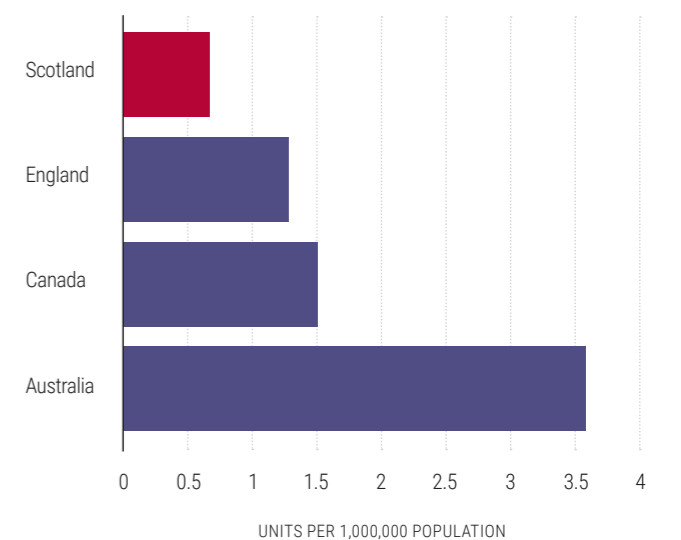
### Infrastructure investment

Investment must be made into additional diagnostic machinery for PET-CT – including workforce, specialised buildings and facilities, to allow for greater capacity to cope with increasing demand on PET-CT. This must be equitably distributed to both the more rural and urban Health Boards to avoid worsening rural health inequalities.

### Pre-scheduled testing slots

Pre-scheduled slots for lung cancer cases for PET-CT scans have been shown to contribute to a more efficient pathway in Glasgow.<sup>25</sup> Several respiratory services have already introduced pre-scheduled slots for pulmonary function tests, CT and PET-CT scans for lung cancer patients to help reduce waiting times, but further implementation of this is required more widely across the country. Safeguards need to be in place to ensure these are used efficiently and effectively for the most time critical patients on the pathway.

Figure 3: PET-CT and PET units per 1,000,000 population<sup>23</sup>





## Radiology workforce

Part of the challenge in access to diagnostic imaging lies in the radiology workforce. In their 2022 clinical radiology workforce census, the Royal College of Radiologists (RCR) found that the North of Scotland had a 44% shortfall of consultant clinical radiologists, with the South West of Scotland and South East of Scotland having 24% and 18% shortfalls respectively.<sup>26</sup> By 2027, the RCR projects that the North of Scotland will have a 53% shortfall of consultant clinical radiologists, compared to 28% in South East Scotland.<sup>26</sup>

Radiology is not just a challenge in cancer services. One of our interviewees told us: *"Hospitals are full of people waiting for CT scans or MRIs. Radiology is at the heart of the capacity challenges across the entire NHS."* Therefore, addressing challenges in radiology therefore must be a priority for the Scottish Government if NHS waiting times and the service as a whole is to be improved.

To address the radiology workforce challenge, our interviews suggested the following:

### Expansion of out-of-hours reporting

To address the shortfall in clinical radiologists, scan reporting is often conducted at home and outside of regular working hours – a solution that was adopted during the COVID-19 pandemic. Reporting can also be outsourced to radiologists based in other countries.<sup>27</sup> As these radiologists may not have access to prior scans or medical histories, outsourcing is more suited to the initial contrast CT scan, rather than subsequent scans that require comparisons.

### The introduction of a radiology navigator for cancer

NHS Grampian, Lothian and Tayside have introduced a radiology pathway navigator for all cancer imaging. The navigator role supports the co-ordination of scan requests, acquisition and review/reporting by a radiologist, saving radiologists' time and helping the whole department to be more efficient.

### The introduction of reporting radiographers

NHS Highland has recently appointed a reporting radiographer to assess and document scans and work with wider teams to communicate these results, thereby increasing capacity.

### Reviewing radiology training

Several solutions to training new radiologists were suggested by our interviewees, including reducing the training course from five years to four years in duration; further expanding training places and attracting trainees through the promise of a guaranteed job following training.

## Fast adoption of innovation

Innovations in AI are being investigated across the UK, including two test-beds currently live in Scotland (NHS Greater Glasgow & Clyde and NHS Grampian), exploring the use of CXR AI.<sup>28</sup> If found to be accurate and reliable, the implementation of AI across NHS Health Boards would help to speed up decision making time and the wider pathway.

## RECOMMENDATIONS

- 2 NHS Scotland should review Health Boards' diagnostic imaging capacity and invest in infrastructure and workforce, to meet the new, current and future patient demand**
- 3 NHS Scotland should ensure all GPs across the country have direct access to CT scans**
- 4 NHS Health Boards' radiology departments should update their protocols so that a CT is automatically triggered and booked the same day, or within 72 hours of an abnormal chest x-ray (CXR). Teams should take into account emerging learning from the two test beds in NHS Scotland, using AI to flag suspicious chest x-rays, to speed up the time to CT**
- 5 Regional PET-CT centres should support the implementation and expansion of pre-planned PET-CT slots for lung cancer patients**
- 6 NHS Scotland should introduce artificial intelligence for the assessment of lung CT scans in all Health Boards, pending the outcomes of ongoing pilot feasibility studies**



## TISSUE SAMPLING

Following non-invasive diagnostic investigations, for patients who are deemed fit enough for treatment, a biopsy is obtained to use in further tests to ascertain the type of lung cancer and the presence or absence of markers that guide treatment decisions. Biopsy samples are obtained either through **endobronchial ultrasound (EBUS) or CT-guided biopsy**.

Delays to tissue sampling are rarely due to workforce shortages – one Health Board has 11 respiratory physicians conducting EBUS within a single hospital. Reasons for delays were reported as due to:

### EBUS

- Lack of physical space to open an additional EBUS clinic.
- Quality of sampling leading to the need for repeat sampling. Patient fitness and tolerability for the initial procedure can result in some sampling having to be repeated due to poor quality.
- Coordination between local delivery of the procedure and regional/centralised procedures such as PET-CT.

### CT-guided biopsy

- Insufficient protected or timely CT biopsy slots.
- Variation in expertise in delivering the procedure.

Currently EBUS is largely conducted locally, and there are no routine measures of the performance of clinicians carrying out EBUS with respect to the proportion of biopsy procedures they undertake in which insufficient tissue is obtained. Centralisation to a single centre within a Health Board may act to concentrate expertise, allowing those clinicians with the most experience in conducting the procedures to undertake these specialised services. Health Boards should also ensure staff conducting EBUS attend the new National Bronchoscopy and EBUS Training Academy to improve standardisation and the quality of samples and results.<sup>29</sup>



## TISSUE DIAGNOSIS

Pathology and genomic laboratories, and the scientists and pathologists who work within them have a crucial role in the lung cancer pathway by making definitive diagnoses of lung cancer and defining the subtype of individual tumours.

Our survey reported that turnaround times for a tissue diagnosis were an average of 5 days with a range of 2 to 9 days. There is no specific target set within the new Scottish pathway, however, the National Optimal Lung Cancer Pathway in England recommends results are reported within 48 hours.<sup>30</sup> Our interviewees suggested that while this is technically achievable with a fully staffed service, working optimally and housed within the same site that the biopsy was taken, 5 working days is a more realistic target based on current capacity.



## TESTS TO GUIDE TREATMENT

For certain lung cancer subtypes, further molecular characterisation is essential to allow oncologists to decide, based on national clinical guidelines, which first and second line therapies are most suitable for the patient. This molecular testing can, however, only occur after the initial diagnosis/subtyping has been made and cannot be performed concurrently.

For molecular testing, initiated after a pathology report has been completed, turnaround times vary but UKLCC recommends a turnaround time of 10 working / 14 calendar days.<sup>31</sup> However, this is not always achieved.

Both tissue diagnosis and the molecular characterisation of tumours are labour- and time-intensive and rely on multiple sequential processes to produce a complete result. Turnaround times from receipt of specimen to final pathology and molecular reports therefore reflect both the nature of the work but also the resource and capacity of the laboratories to deliver the service.

Based on the interviews conducted there were a number of common themes:

### What is working well across Scotland

#### Reflex molecular testing

Molecular testing is initiated by pathologists at the time of cancer diagnosis rather than waiting for MDM decision. This is an essential time-saving step in meeting the QPI target but some interviewees noted that non-lung specialists often wait for MDM instruction regarding further testing. Increased discussion between pathology and genomic laboratories will help to address this and the creation of a working group between the Scottish Pathology Network (SPaN) and Scottish Strategic Network for Genomic Medicine (SSNGM) is welcomed.

#### Volume vs resourcing

Samples are delivered to molecular testing centres via a daily/alternate day inter-site van service which minimises any delay incurred from regionally-centred testing but there is an inevitable delay in turnaround times when specimen transfer is required.

## Key challenges

### Volume vs resourcing

Since the first Scottish Medicines Consortium (SMC) approval for a targeted lung cancer therapy (TKI) in 2012 there have been a further 17 TKI and 9 immunotherapy approvals<sup>32</sup> all of which require companion molecular tests across a range of different analytical technologies. This rapid expansion in therapeutics has placed an additional workload on laboratories but often without increased funding to allow implementation of the relevant companion diagnostics. The pathway cannot be optimally delivered without resources to match demand and may result in patients not receiving the SMC-approved treatments best suited to their cancer type.

### Tissue acquisition

Pathology and molecular diagnostics are dependent on good quality tissue specimens which require a high proportion of tumour cells within the sample. When this does not occur then repeat biopsy is required which will delay time to treatment. Improvement in tissue acquisition therefore has a direct impact on pathology/genomic service delivery.

### Workforce capacity

Workload in laboratories is high, with little 'wiggle room' to cope with fluctuations in demand or reduction in workforce capacity during holiday periods. There is a national shortage of pathologists as well as biomedical and clinical scientists. Creative solutions and forward planning are therefore required to maintain an adequate workforce

### Infrastructure capacity

As workload has increased more/different equipment is needed for increasingly complex tests. The space occupied has not grown to meet these increases and capital investment is required in many centres to address this issue.

### New technology

Development of new technologies and their early adoption presents significant opportunity to meet the targets of the optimal lung cancer pathway. For example, creation of a national, integrated digital pathology network would allow easier access for specialist lung pathology opinion and access to artificial intelligence solutions throughout the tissue processing pathway. Similarly, circulating tumour DNA analysis may circumvent the need for invasive biopsy in certain contexts thereby accelerating patients through the diagnostic process. At present Scotland is behind other devolved nations in these regards but focus on horizon scanning is essential in order to keep pace with new, relevant diagnostic tools and therapeutics.

**Significant workforce and infrastructure investment in both pathology and genomic laboratories is required to reduce turnaround time further while proactive adoption of new technologies including digital pathology, artificial intelligence and peripheral blood tumour DNA analysis will also be of significant benefit.**



### Case study

In one centre, 98% of patient tissue samples were successfully diagnosed without the need to access all of the available tumour material. The centre worked collaboratively between pathology and genomics to calculate the maximum number of slides required for both services, ensuring these were cut at the same time and thereby shaving off a day or two in turnaround time and improving the quality of the material preserved for genomics or further testing. In order to ensure there was no delay in waiting for biomedical scientist in cellular pathology to cut the blocks; the genetics scientists were trained to cut the blocks themselves.

## RECOMMENDATIONS

**7 NHS Cancer Management Teams should work with their local Lung Cancer Clinical Lead to undertake audits, ensuring quality samples are captured for molecular testing. NHS Health Boards should mandate National Bronchoscopy and EBUS Training Academy training for all staff conducting the procedure**

**8 NHS Scotland should consider routes to support increased investment in laboratory workforce and infrastructure to improve pathology and genomic turnaround times. There should be a particular focus on horizon scanning and early adoption of new technologies while ensuring that funding of companion diagnostics is considered when new therapies are approved**

## FINDING A WAY FORWARD: BUNDLING OF DIAGNOSTIC TESTING TO SPEED UP DECISION TO TREAT

As illustrated above, there are a large number of steps in achieving a diagnosis and treatment decision for lung cancer. Some of these tests must be done sequentially, which is adding to delays when there are waiting times for each test. There needs to be a way to coordinate and 'bundle' some of the key tests in the pathway so they can be done in the tightest possible timeframe.

In more geographically remote regions of Scotland, lack of access to some of the equipment and personnel to perform these tests has led to creative cooperation and working solutions with neighbouring Health Boards to ensure patients living in rural locations have access to necessary tests.



### Case study

Patients from NHS Shetland travel to NHS Grampian for all diagnostic tests following a lung cancer diagnosis via CT. Tests are 'bundled' over 3-5 days. The bundling of tests means patients obtain a diagnosis significantly quicker than if tests were scheduled in isolation. For patients who are eligible and choose to pursue active treatment for their condition, they receive a treatment decision within the new pathway ambition (within 28 days from initial suspicion).

The situation for some patients in NHS Highland and the Island Health Boards are proof of principle that a short diagnosis timeline is achievable. A similar principle could be applied across Scotland, taking into account the infrastructure and distribution of patients in the local area.

- Following a CT, patients will need to be triaged first by a respiratory physician to determine whether or not they are fit enough to pursue active treatment, and that it is the patient wish to do so.
- From that point, the physician would then order all the necessary tests and a pathway navigator would pick up the scheduling and tracking of the tests.
- Tests should be delivered:
  - Utilising pre-scheduled slots for lung cancer, held by each service provider.
  - In bundles so each test is within quick succession of the last (within a period of 1 week, maximum 2 weeks).
  - Either in the same or in different locations where there is *expertise*. Depending on the Health Board, this may involve an overnight stay (as is already the case for NCA Boards) or coordinating transport methods that are available to the patient.
- In the short to medium term, the cancer tracker role would need to coordinate patients through existing systems and processes. However, coordination of test bundling and pre-scheduling lends itself to a digital solution, which would in future support efficient test tracking

Lung cancer is very much the trailblazer for pathway optimisation in Scotland. Any systems, processes and infrastructure invested to support the hastening of the decision to treat and ultimate treatment decision will support the improvement of future cancer pathway optimisation.

## RECOMMENDATION

**9 Regional cancer network management, supported by NHS Scotland and Health Boards, should devise a system of test bundling for all patients who are eligible for curative treatment, utilising prescheduled slots and overseen with support from the cancer tracker/navigator**

## LUNG CANCER PATHWAY: DECISION TO FIRST TREATMENT

While undoubtedly the complex web of diagnostic tests in the lung cancer pathway is impacting time to diagnosis and treatment decision, our interviewees have suggested that there are significant barriers faced by eligible patients to pursuing active treatment – from an MDT making a treatment recommendation and the patient receiving the treatment.

### Treatments

The published unadjusted cancer waiting times data show that 90.8% of lung cancer patients receive treatment within the current 31-day standard,<sup>15</sup> but the new pathway target will reduce this target to 21 days. Also, as discussed earlier in this report, the waiting times data is likely an underestimate of the waiting times faced by younger, fitter stage II and III patients, since those receiving best supportive care will receive treatment within a shorter time period than those waiting for surgery, radiotherapy or systemic anti-cancer treatment (SACT) – bringing down the average and masking the scale of the problem.

Our interviews in some Boards reported waits of six weeks for SACT for some patients, stating several reasons as to why this is the case:

#### Lack of physical space

- There aren't enough chairs, or rooms to expand into, within hospitals to deliver intra-venous chemotherapy or immunotherapy. Having to deliver SACT in oncology wards is part of the issue.

#### Nurse capacity

- LCNSs provide a crucial role in patient care from before diagnosis (delivering clinics; explaining the different tests required) to preparing and supporting patients through treatment; however, only 1 Health Board responding to our survey had the recommended 1 whole-time equivalent LCNS for every 80 new diagnoses per year.
- Specialist Nurse availability to administer SACT is poor. This doesn't need to be an LCNS, but nurse capacity across the country is stretched. SACT-trained nurses are needed independently of the flux of the ward.

#### Oncologist capacity

- There is a national shortage of oncologists outside of the major cities. Some interviewees reported that there was no lung oncology speciality cover in place when the one visiting oncologist was on leave. This potentially leads to a delay between diagnosis and treatment decision and also undue pressure on individuals not to take full leave.

#### Surgical capacity

- Some interviewees reported no prospective cover for single attending consultant surgeons in MDMs leading to delays in decision making. Theatre capacity is limited so there can be a wait of a number of weeks for surgery.

Respondents also reported patients don't always want to travel for surgery if it is out of area, this will be a patient choice following clinical discussion

There is also concern in the clinical community that radiotherapy waiting times – chiefly stereotactic ablative radiotherapy (SABR) – can be even longer than six weeks, and the waiting times are not being captured by any form of national data collection as SABR is excluded from waiting times data. Without monitoring and data collection to evidence the challenges, it will be difficult to make the case for improvement or to understand what the solutions might be.



#### Case studies

The Health Boards within the West of Scotland Cancer Network (WoSCAN) are generally reporting the delivery of shorter treatment turnaround times than the rest of Scotland. Reasons for this include:

Reflex testing all patients with an NSCLC tissue diagnoses who are deemed eligible through stage and performance score status (NHS Forth Valley, NHS Greater Glasgow and Clyde, NHS Lanarkshire)

Single site clinics (NHS Ayrshire and Arran, NHS Forth Valley), improving coordination of services

Virtual attendance of oncologists from the Beatson West of Scotland Cancer Centre at the MDT, with treatment decisions taken in a meeting immediately following the MDT (NHS Ayrshire and Arran, NHS Lanarkshire)

Working flexibly to call a patient in to oncology clinic as soon as the MDT has reviewed the patient's case (the same week, instead of having to wait until the next available slot) and make a treatment recommendation

For more rural Health Boards, creative solutions may be required to overcome some of the SACT capacity challenges. Our interviewees suggested that, in rural communities where hospital space and LCNS capacity is more limited, a trial should be conducted of delivering SACT at home. The first administration of a new treatment would need to be delivered in a hospital to monitor for side effects, so this would only apply to subsequent doses. Specifically CEL-30 SACT trained staff would need to be trained in remote and rural delivery.

### RECOMMENDATIONS

**10 Regional Cancer Networks should undertake a benchmarking review of the workforce needs dedicated to lung cancer in their region and ensure they are taking a leading role in ensuring each Health Board's lung cancer MDT has sufficient oncologist and specialist cardiothoracic surgery cover 52 weeks a year**

- **This should include at least 1 whole-time equivalent (WTE) lung CNS per 80 new lung cancer patients to support patients on the pathway**

**11 Overseen by Regional Cancer Networks, rural Health Boards should explore creative solutions to capacity challenges – such as SACT delivered at home or mobile units – to reduce any delays in accessing treatment**

**12 NHS Scotland should develop a new QPI target for radiotherapy delivery times and routinely collect radiotherapy, including SABR, data to ensure time to treatment is monitored and addressed**

### Prehabilitation

As previously described in this report, lung cancer patients often present with significant comorbidities alongside the symptoms of their condition, which together impacts heavily on their wellbeing and fitness (as measured by their performance status). Also sadly, patients can deteriorate in fitness on the pathway whilst awaiting treatment decisions. Many treatments are only available to people with a performance score of 0-2, as those with poorer fitness levels may not be able to tolerate the side effects of treatment. However, changes in lifestyle – or 'prehabilitation' – can help improve or at least maintain a patients' fitness ahead of receiving treatment.

It is recommended that prehabilitation is offered to patients as early as possible (at diagnosis) and certainly in advance of any cancer treatment.<sup>33</sup> This is supported by the 10-year Cancer Strategy<sup>9</sup> and accompanying Cancer Action Plan for Scotland 2023-2026,<sup>24</sup> which commits to improving access to prehabilitation services within the next three years, including via a universal prehabilitation workshop delivered by Maggie's Centres – centres run by the charity Maggie's, who provide free cancer support and information in centres across the UK. This workshop introduces prehabilitation to people affected by cancer (patients and carers) and covers nutrition, exercise and psychological support.

While several Health Boards offer prehabilitation support, our survey found that only 3 offer it at the point of diagnosis. For those who do offer prehabilitation, the services are currently only outsourced to Maggie's Centres. While this support is hugely welcomed, some of the specific lung cancer symptoms and frailty to attend gyms, for example, are not addressed by Maggie's Centre programmes of support. Symptoms are important to address ahead of any treatment and can be improved through tailored interventions, for example physiotherapy to manage breathlessness.<sup>34</sup> No Health Board, other than through a pilot study in NHS Lothian, offer bespoke lung cancer prehabilitation.



#### Case studies

Within Inverclyde Royal Hospital, a pilot project has been launched since December 2022 aiming to integrate prehabilitation services into the diagnostic pathway for patients with a high suspicion of lung cancer.

Research led by Dr Iain Philips in NHS Lothian shows that it is feasible to deliver this tailored prehabilitation support to lung cancer patients – including intervention by a consultant in palliative medicine, registered dietitian and registered physiotherapist – alongside the diagnostic pathway.<sup>34</sup> Early outcome data from this study suggests that this intensive and early approach to prehabilitation reduces admissions and time spent in hospital whilst on the diagnostic pathway.<sup>35</sup>

### RECOMMENDATION

**13 NHS Scotland and the Centre for Sustainable Delivery should work with NHS Health Boards to further test and implement successful lung cancer -specific prehabilitation approaches, in-line with those set out in the EPIC pilot study in NHS Lothian**

## PATHWAY COORDINATION

Accelerating the pathway by 20 days – from 62 to 42 days – will not only rely on more efficient testing and reporting, but also more effective coordination, communication, data sharing and delegation of tasks within lung cancer teams and Health Boards.

### Targets

Interviewees and survey respondents noted that if the lung cancer pathway is to be accelerated, new targets must be assigned – through updates to lung cancer QPIs and cancer waiting times standards (with a separate target for lung). Turnaround time targets expected for each diagnostic test or procedure must also be published, alongside guidance on how to achieve these. The targets should be ambitious yet achievable with the resources provided. A phased approach to reducing the pathway timeline should also be considered.

### Cancer trackers

Cancer trackers (also known as pathway navigators) play key roles in ensuring patients progress through the pathway efficiently. By taking responsibility for scheduling diagnostic tests, following up on test results and reporting, and using data to monitor patients and gain a holistic overview of the successes and barriers within the pathway. Crucially, cancer trackers take away some of the administrative responsibilities that may have otherwise fallen to an LCNS or respiratory physicians – freeing up more of their time to directly interact with patients.

Where these roles have been introduced, interviewees noted that significant benefits to both patients and clinicians have been realised. By identifying patients who are at risk of breaching pathway targets – for example due to delays in test result reporting – trackers have played a vital role in ensuring patients receive timely diagnosis and treatment.



### Case study

NHS Shetland introduced a cancer tracker to their lung cancer pathway in 2005 to assist the local MDT to manage patients through the pathway and coordinating patients' diagnostic test results with neighbouring NHS Grampian – and they have had the same person in post during that period. Since the introduction of the cancer tracker role, the time patients spend in the pathway has been significantly reduced.

The case in Shetland is unique due to the duration of the individual in post and the institutional memory that comes with that, as other Health Boards have struggled to recruit or retain someone in this post. Some interviewees reported a lack of consistency in the job descriptions of cancer trackers leading to frustration and confusion from lung cancer teams and candidates. While there will be some variation between Health Boards, a national conversation on how these roles are best utilised could be beneficial to maximise their impact on cancer pathways.

### Health Board interoperability and data infrastructure

As Health Boards increasingly work in collaboration to conduct imaging and pathological tests, practices to improve interoperability and data sharing must be introduced. Health Board interoperability was highlighted as a recurring and easily avoidable issue in interviews, with delays commonly resulting from poor communication or outdated data systems affecting the pathway target adherence.

Should test bundling at regional diagnostic centres be introduced, ensuring uniformity in data infrastructure and online portals across Scotland will be essential to allow MDTs and clinicians in different Health Boards to access test results, while complying with data protection regulations for patient data. As NHS Scotland seeks to harness new innovations in digital technology and data collection and sharing,<sup>36</sup> bolstering data infrastructure and interoperability of systems across and between all Health Boards in Scotland will be key to ensuring patients benefit equally from these advances.

### Supporting Multi-disciplinary teams

MDTs are the driving force behind the lung cancer pathway, providing an opportunity for clinicians to come together to triage new referrals, assess diagnostic test results and decide upon the most appropriate next steps for treatment or palliative care. As the COVID-19 pandemic necessitated an increase in remote and hybrid working practices, MDTs followed suit and now largely take place via videoconference. Although many MDT members find new remote or hybrid working practices beneficial,<sup>37</sup> problems remain that prevent MDTs from working as effectively and efficiently as they could be.<sup>38</sup>

## PATIENT CARE

Clinicians and NHS management focus on improving the time in which a patient traverses the lung cancer pathway – using data and QPIs to monitor and analyse progress towards targets – since reduced time leads to increased survival. However, improving patient care not only relies on efficiency of diagnosis and treatment, but also improving emotional and empathetic support for people with lung cancer, while providing them with easy access to information about their care, how they can help themselves and where they can find further support. One of our interviewees noted:

*"I worry about the patients – the way we move them about isn't always very 'human'. The pathway is driven by targets to speed up diagnosis, which of course helps the patient live longer and in better health. But we must also make sure the person we're treating isn't forgotten."*

### Single point of contact

Interviewees noted that while patients were able to contact lung cancer clinics, there is often no single individual whom they are able to engage with to access information about the status of test results or to schedule upcoming appointments. This role often falls to LCNSs, and while they are happy to do it, their own roles have expanded to support patients' pre-diagnosis and their time is better utilised in the clinic, rather than fielding calls.

To address this issue, the Scottish Government has invested in 12 pilot sites to evaluate the impact of the single points of contact (SPOCs) and evaluate the potential gains if introduced across Scotland. These roles ensure a person can be on the end of the phone or email for patients who have questions about their care and receive timely responses instead of leaving patients to worry and wait. A SPOC's role is to know where to find the information the patients seek rather than to have the answers themselves. In the 2023 Cancer Strategy, the Scottish Government has committed to continuing investment in these pilot sites, however, it did not commit to expanding the programme to other areas of Scotland.

Expanding the introduction of SPOCs to all Health Boards would help to improve the patients experience in the pathway and more efficiently access information about their care. It would also relieve the administrative burden placed on specialist healthcare professionals who currently are seen as the first port-of-call for patients.

Interviewees described difficulties in these new working practices that are hindering effective patient care:

### Videoconferencing technology

Interviewees noted that while moving online had its advantages, the limitations of videoconferencing software – including poor resolution, data privacy and unreliability of technology – make virtual MDT meetings, at times, frustrating to hold. Virtual meetings were also said to reduce interaction between attending clinicians around diagnostics and treatment decisions.

### In-person MDT facilities

Facilities provided by Health Boards for in-person, or a hybrid of in-person and virtual, MDT meetings were said to be inadequate and in need of modernisation, such as updated screens and projectors needed to effectively review imaging results.

In addition, interviewees noted that workforce shortages within MDTs have resulted in some Health Boards needing to work together to assess cases in a timely manner and – in more rural Health Boards – share cases with other teams where there are gaps due to annual leave. While ensuring MDTs are appropriately staffed and able to cope while members of the team take annual leave is vital, MDTs must also be supported to work collaboratively with those teams in other Health Boards when required. This will allow MDTs with higher capacity to relieve pressure from less well-staffed MDTs when required, thereby ensuring cases are not delayed and clinicians are not made to feel guilty about taking periods of leave.

## RECOMMENDATIONS

**14 The Scottish Government, along with NHS Scotland's expert clinical community, should review cancer waiting times and QPIs to support the delivery of a 42-day optimal lung cancer pathway**

**15 NHS Scotland should look to better define and expand the cancer tracker role to improve recruitment, retention and cancer pathway impact**

**16 NHS Scotland should seek to improve virtual and in-person facilities available to lung cancer MDTs and support cross-Health Board cooperation to address workforce shortages**

## RECOMMENDATION

**17 The Scottish Government should expand the 'single point of contact' pilot programme to every Health Board in Scotland**

## CLOSING REMARKS



WITHOUT THIS REDESIGN AND NECESSARY ACCOMPANYING INVESTMENT, THE SCOTTISH NATIONAL OPTIMAL LUNG CANCER DIAGNOSTIC PATHWAY IS **NOT** ACHIEVABLE IN ITS CURRENT FORM



THERE IS AN ABUNDANCE OF ENTHUSIASM AND EXPERTISE IN THE NHS WHO HAVE PROVIDED US WITH VALUABLE INSIGHTS ON HOW TO IMPROVE THE PATHWAY

The urgency for wide-ranging improvements to the lung cancer pathway cannot be understated. The lung cancer clinicians and service providers across Scotland who contributed to this report are passionate about making a difference and are keen to support change.

Improvements to cancer diagnostic services in particular are badly needed. The new Cancer Strategy for Scotland 2023-2033 states: *“Further innovation and redesign of diagnostic services including diagnostic imaging, endoscopy, PET-CT and pathology will be required to facilitate timely access to tests as well as introducing new, effective diagnostic tests as they emerge”*.<sup>9</sup> From our assessment of the lung cancer pathway, without this redesign and necessary accompanying investment, the Scottish National Optimal Lung Cancer Diagnostic Pathway is not achievable in its current form.

The Scottish Government, the Centre for Sustainable Delivery and leadership in NHS Scotland play a key role in the provision of both resources and leadership to drive uptake of innovative technologies and working practices. Although there is enthusiasm for improvement in lung cancer outcomes – explicitly stated in the 10-year Cancer Strategy for Scotland – there is currently a lack of clear actions or resource commitments necessary to support the pathway improvements needed to make this happen. It is critical that this clarity and detail are provided to NHS staff – who are already going above and beyond to care for people with lung cancer.

Optimisation of the pathway cannot only be delivered from the top down alone. There is an abundance of enthusiasm and expertise in the NHS – respiratory physicians, lung cancer nurse specialists, radiologists, pathologists, clinical scientists, general practitioners and cancer trackers have provided us with valuable insights on how to improve the pathway and must continue to be a part of the conversation if we hope to treat lung cancer patients within 42 days of referral. We hope that this report provides the insights and impetus needed to progress lung cancer pathway improvements with the urgency that is required.

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# APPENDIX A

## UKLCC: Scottish National Optimal Lung Cancer Pathway Multi-disciplinary team survey questions

### Personal information

- 1 What is your job role?
- 2 Which hospital are you a part of?
- 3 Which health board are you a part of?
- 4 Which cancer network are you a part of?

### Current situation analysis

- 5 Describing the current situation, does your lung cancer MDT have access to any of the following services and/or facilities, a) within your hospital, b) within your health board, and/or c) Outside of your health board:
  - PET scan
  - Endobronchial ultrasound for diagnosis
  - Endobronchial ultrasound for staging investigations
  - Endoscopic ultrasound
  - Medical thoracoscopy
  - Surgical (VATS) thoracoscopy
  - Access to histopathology reports
  - Access to molecular testing and prognostic markers
  - Cardiopulmonary exercise testing
  - Echocardiogram
  - Full pulmonary function test
  - CT guided percutaneous biopsy
  - Radiologist with at least a third of their job plan devoted to lung cancer
  - Consultant oncologist with at least a third of their job plan devoted to lung cancer
  - One whole time equivalent lung cancer nurse specialist (WTE LCNS) per 80 new diagnoses per year
  - Separate diagnostic planning multidisciplinary team meetings
- 6 How many weeks per year do you have surgical input into your lung cancer MDTs?
- 7 How many whole time equivalent respiratory physicians do you have providing direct clinical care for lung cancer in your respiratory service/oncology department?
- 8 How many hours of respiratory physician's time is dedicated to lung cancer work in the current job plan?
- 9 On average, how many lung cancer patients are diagnosed per year per respiratory physician in your respiratory service/oncology department?
- 10 How many practitioners are involved in conducting EBUS staging in your respiratory service/oncology department?
- 11 Where applicable, what is the current average turn-around time (in days) for the following services for lung cancer patients in your area?
  - PET scan acquisition (time request to scan done)
  - PET scan reporting (time request to report available)
  - Endobronchial ultrasound (time request/clinic to procedure done)
  - Thoracoscopy
  - Access to histopathology reports for biopsy (time procedure to report available)
  - Access to histopathology reports for surgical resection (time procedure to report available)
  - Access to molecular testing and prognostic markers (time procedure to all results available)
  - Cardiopulmonary exercise testing
  - Echocardiogram
  - Full pulmonary function test
  - Percutaneous biopsy (time request to procedure)
- 12 From this list, please rank these services provided by your respiratory service/oncology department in order from those that require the most improvement to least improvement (starting from 1 for requiring most improvement) (if not available in your service, please omit from ranking)
  - PET scan acquisition
  - PET scan reporting

- Endobronchial ultrasound
- Thoracoscopy
- Access to histopathology reports
- Access to molecular testing and prognostic markers
- Cardiopulmonary exercise testing
- Echocardiogram
- Full pulmonary function test
- Percutaneous biopsy

### New Lung Cancer Pathway

- 13 Thinking about the new NHS Scotland Lung Cancer Diagnostic Pathway, and given the services currently provided by your hospital/oncology department:
  - Which of the services/facilities listed in question 11 do you see as a principal barrier to implementing the new pathway in your hospital/oncology department?
  - What further steps do you believe will need to be taken to deliver the pathway within the 42-day ambition?
- 14 How does the new 42-day ambition compare to the average pathway timeline in your department?
  - We regularly meeting this target already
  - We sometimes meet this target
  - We never meet this target
- 15 Has your respiratory service/oncology department taken any steps that would help to implement the new pathway already?
- 16 If yes to question 15, please outline what steps are/have been taken.
- 17 What additional support/equipment do you think your respiratory service/oncology department will require to meet the target (tick those which apply):
  - PET scan
  - Endobronchial ultrasound for diagnosis
  - Endobronchial ultrasound for staging investigations
  - Endoscopic ultrasound
  - Medical thoracoscopy
  - Surgical (VATS) thoracoscopy
  - Access to histopathology reports
  - Access to molecular testing and prognostic markers
  - Cardiopulmonary exercise testing
  - Echocardiogram
  - Full pulmonary function test
  - CT guided percutaneous biopsy
  - Radiologist with at least a third of their job plan devoted to lung cancer
  - Consultant oncologist with at least a third of their job plan devoted to lung cancer
  - One whole time equivalent lung cancer nurse specialist (WTE LCNS) per 80 new diagnoses per year
  - Separate diagnostic planning multidisciplinary team meetings
- 18 Does your respiratory service/oncology department provide any pre-habilitation services?
- 19 If yes to question 18, do these services start at first clinic/diagnosis?
- 20 Do patients within your lung cancer service currently travel outside of your Health Board for any part of the existing pathway?
- 21 If yes for question 20, for which part of the pathway do patients travel outside of your Health Board for, and is this transport made available by your hospital/trust?
- 22 What data collection infrastructure is in place in your respiratory service/oncology department to monitor progress towards the new target?
- 23 Have you applied for funding for new resources to support the implementation of the new lung cancer pathway in Scotland?
- 24 If yes to question 23, what resources have you applied for?
- 25 Are there any examples of best practice from your department that will support adherence to the new pathway?

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PATHWAYS  
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