

Delivering complex cancer care

# Curative-intent, multi-modality treatment for non-small cell lung cancer

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A thought piece for NHS system leaders



This white paper consensus statement report was produced by HSJ and was initiated and fully funded by Bristol Myers Squibb.



Wilmington  
Healthcare

# Introduction

## Foreword

In the ever-evolving landscape of oncology, the treatment paradigm for lung cancer has undergone remarkable transformations. Stage II/III non-small cell lung cancer (NSCLC) presents a unique challenge, where optimal treatment is combining local and systemic therapy (termed multi-modality treatment). This demands a multi-faceted approach that acknowledges the intricate interplay of biological and genomic factors, treatment modalities, and patient-centric care. As we delve deeper into this realm, it becomes evident that tackling this complexity necessitates a holistic strategy that encompasses various dimensions of healthcare delivery.

This thought piece explores the increasing intricacies of multi-modality, curative-intent treatment in Stage II/III NSCLC. Gone are the days of a one-size-fits-all approach; contemporary treatment strategies demand a nuanced understanding of tumour biology, patient characteristics, and the latest therapeutic innovations. It is within this context that supra-specialist multidisciplinary teams emerge as the cornerstone of modern oncology practice. However, addressing Stage II/III NSCLC comprehensively requires more than clinical expertise; it demands a holistic package of care. Equity of access stands as a fundamental principle, ensuring that all patients, regardless of socioeconomic status or geographic location, have access to the latest advancements in diagnosis, treatment and care. Moreover, advanced information technology (IT) infrastructure plays a pivotal role in facilitating seamless collaboration among multidisciplinary teams, enabling real-time data sharing, treatment planning, and outcome monitoring.

Quality assurance and performance monitoring emerge as imperative components in this intricate web of care delivery. With treatment algorithms evolving rapidly, ensuring adherence to evidence-based guidelines and continuous quality improvement initiatives becomes paramount. This not only enhances patient outcomes but also fosters a culture of accountability and excellence within healthcare systems. Integrating cellular pathology and genomic services into this framework is essential to deliver timely and equitable biomarker testing that informs high-quality treatment decisions. By leveraging cutting-edge molecular diagnostics, clinicians can tailor therapies to individual patients, maximising efficacy while minimising potential adverse effects.

**The UK's prior lack of engagement with specific multi-modality pathways such as neoadjuvant therapy in NSCLC posed research challenges due to undeveloped pathways. Embracing neoadjuvant therapies now opens avenues for research trials and offers benefits like reduced recurrences and improved patient outcomes, ultimately saving resources by avoiding high-resource treatments in advanced disease.**

As we navigate the increasing complexity of multi-modality, curative-intent treatment in Stage II/III NSCLC, it is imperative to recognise that progress is not a solitary endeavour but a collective effort fuelled by collaboration, innovation, and a steadfast commitment to patient-centred care. By embracing a holistic approach that encompasses equity, advanced technology and quality assurance, we can usher in a new era of hope for patients facing this formidable disease.



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# Introduction

With recent advances and newly emerging therapeutic options, the treatment paradigm in lung cancer is changing rapidly. This is particularly true for the curative-intent, multi-modality setting, which combines local and systemic therapies, in stage II/III non-small-cell lung cancer (NSCLC).

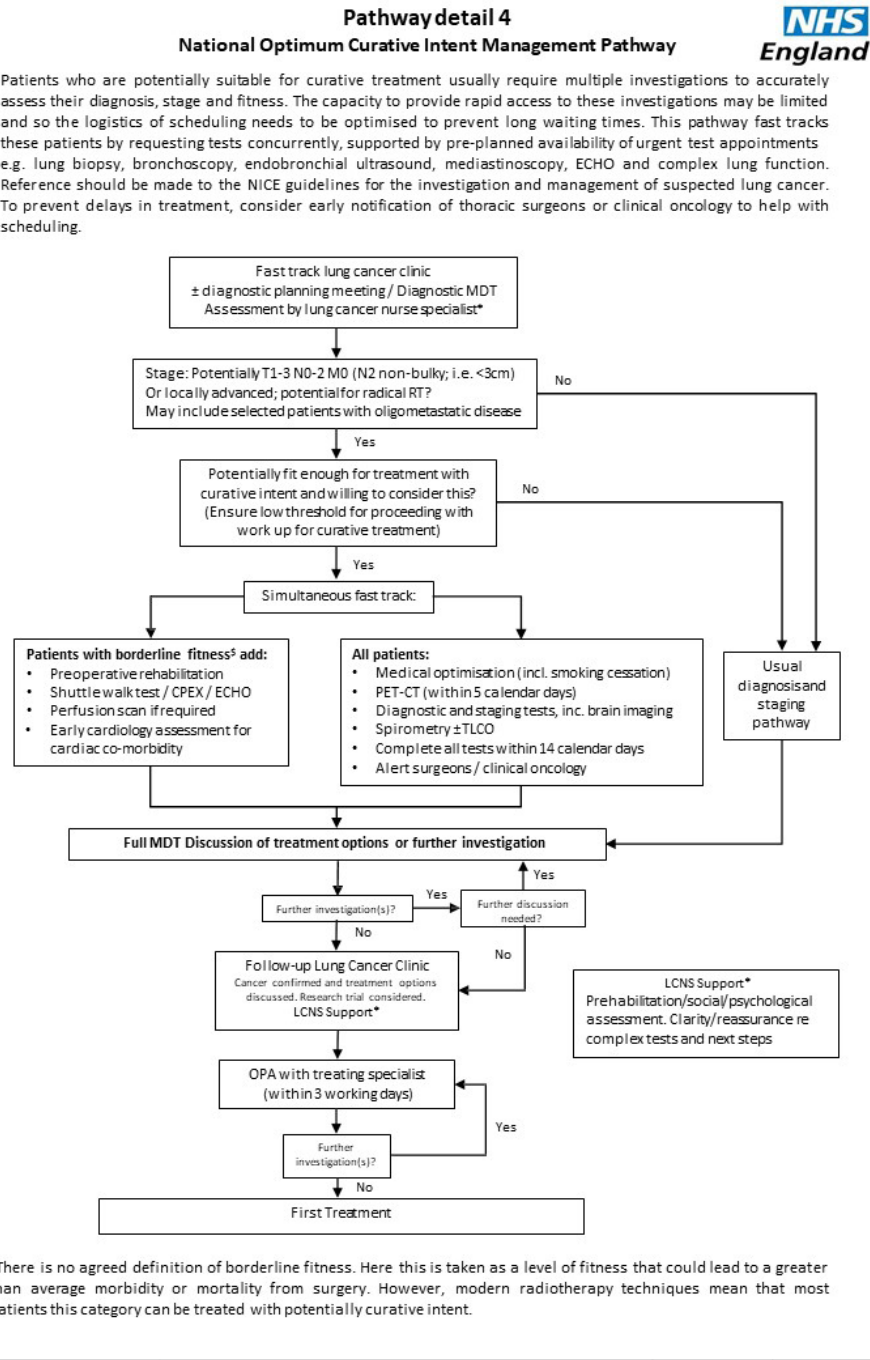
New treatments and modalities increase complexity of decision-making. Meanwhile, clinicians are trying to deliver them at increasing speed to meet the National Optimal Lung Cancer Pathway (NOLCP) targets of 49 days from referral to treatment and 16 days from decision to treat to treatment.<sup>1</sup> This, together with the rapid pace with which new drugs and data are becoming available, creates challenges in terms of keeping up to date with latest evidence, ensuring high-quality service delivery, standardising care, and providing good patient experiences.

Treatment variation is a significant focus for the NHS, and cancer-related priorities, targets and recommendations are embedded in NHS organisations' work programmes and strategies. Reducing unwarranted variation in cancer treatment must be a priority in order to achieve the NHS Long Term Plan ambition of 55,000 more people each year surviving their cancer for at least 5 years after diagnosis.<sup>2</sup>

There is a critical need, therefore, to consider the barriers and solutions to delivering curative-intent multi-modality treatment in NSCLC to capitalise on the innovative treatments, improve patient outcomes and reduce unwarranted variation.

INTRODUCTION

## The National Optimum Curative Intent Management Pathway<sup>3</sup>



# NHS priorities and strategies

## NHS Cancer Programme<sup>4</sup>

### NHS PRIORITIES AND STRATEGIES

#### Planning guidance for Cancer Alliances 2024/25<sup>5</sup>

- Funding responsibility transferred to integrated care boards (ICBs) for recurrent commissioning of key services to underpin progress on early diagnosis, where this has not already happened
- Work with systems and providers to implement regular demand and capacity assessment of systemic anti-cancer therapy (SACT) services and ensure replacement plans for radiotherapy equipment
- Support development of cancer plans that will, subject to ICB agreement, form part of wider local system plans
- £266 million place-based service development funding (SDF)
- Targeted funding for specific initiatives such as Targeted Lung Health Checks (TLHC)
- All cancer alliances tasked with identifying priorities for implementation of Getting It Right First Time (GIRFT) recommendations<sup>6</sup> and reporting these to the national working group

#### GIRFT recommendations for 2024/25<sup>6</sup>

- Recommendation 14:
  - Trusts should monitor rates of post-surgical adjuvant and neoadjuvant treatments and these data should be available for national benchmarking
  - GIRFT proposes a target of >40% of eligible patients undergo SACT after surgery
- Recommendation 15:
  - Trusts should record and monitor multi-modality treatment in stage IIIA disease and offer radical intent treatment as standard in fit patients

# Background to this report

In February 2024, a panel of healthcare professionals with expertise in lung cancer met at a peer-to-peer round-table meeting initiated, supported and funded by Bristol Myers Squibb. A representative from the charity Roy Castle Lung Cancer Foundation also attended.

The group focussed on four key areas of the lung cancer management pathway:

DIAGNOSIS AND STAGING

BIOMARKER TESTING

PATIENT SELECTION

DECISION-MAKING

The aims were to:

- identify key barriers to delivering rapid and effective curative-intent multi-modality treatment in NSCLC
- identify aspirational solutions to ensure delivery of rapid and effective curative-intent, multi-modality treatment in NSCLC
- identify key priorities to make progress towards these aspirational solutions
- describe real-world solutions currently in practice that help to overcome some of the barriers.

For each topic, the experts discussed the following questions:

- Does unwarranted variation exist?
- What are the reasons for this variation?
- What are the key barriers to addressing this variation?
- What are the aspirational solutions (unlimited resources)?
- What steps could realistically be taken towards these aspirational goals?
- Are there examples of real-life solutions?

The views represented in the report are those of the expert group and may not necessarily represent those of Bristol Myers Squibb.

BACKGROUND TO  
THIS REPORT

# How to use this report

This interactive report focuses on the outcomes of a roundtable event of healthcare professionals with expertise in NSCLC and provides insights, guidance and recommendations for action to improve the pathway for patients with NSCLC. Shortcomings in the current care pathway in the NHS landscape are discussed and pathway exemplars are highlighted to display examples of best practice.

Use the interactive menus in the top and side bars to explore different topics which include:

- Introduction
- Diagnosis and staging
- Biomarker testing
- Patient selection
- Decision-making.

HOW TO USE THIS REPORT

The following colour coding is used within this document:

DIAGNOSIS AND STAGING

BIOMARKER TESTING

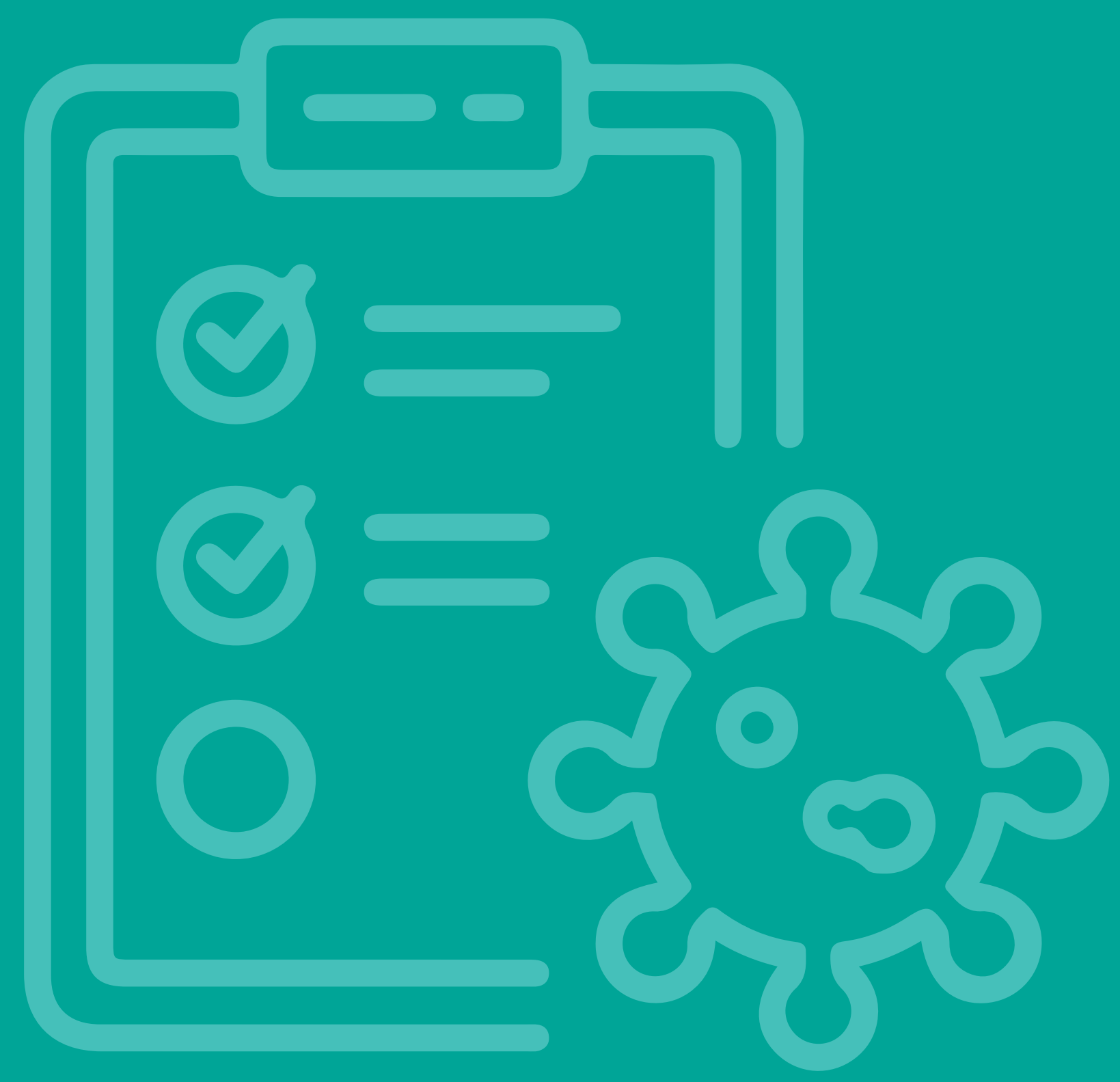
PATIENT SELECTION

DECISION-MAKING

RECOMMENDATIONS/  
CALL TO ACTION

# Diagnosis and staging

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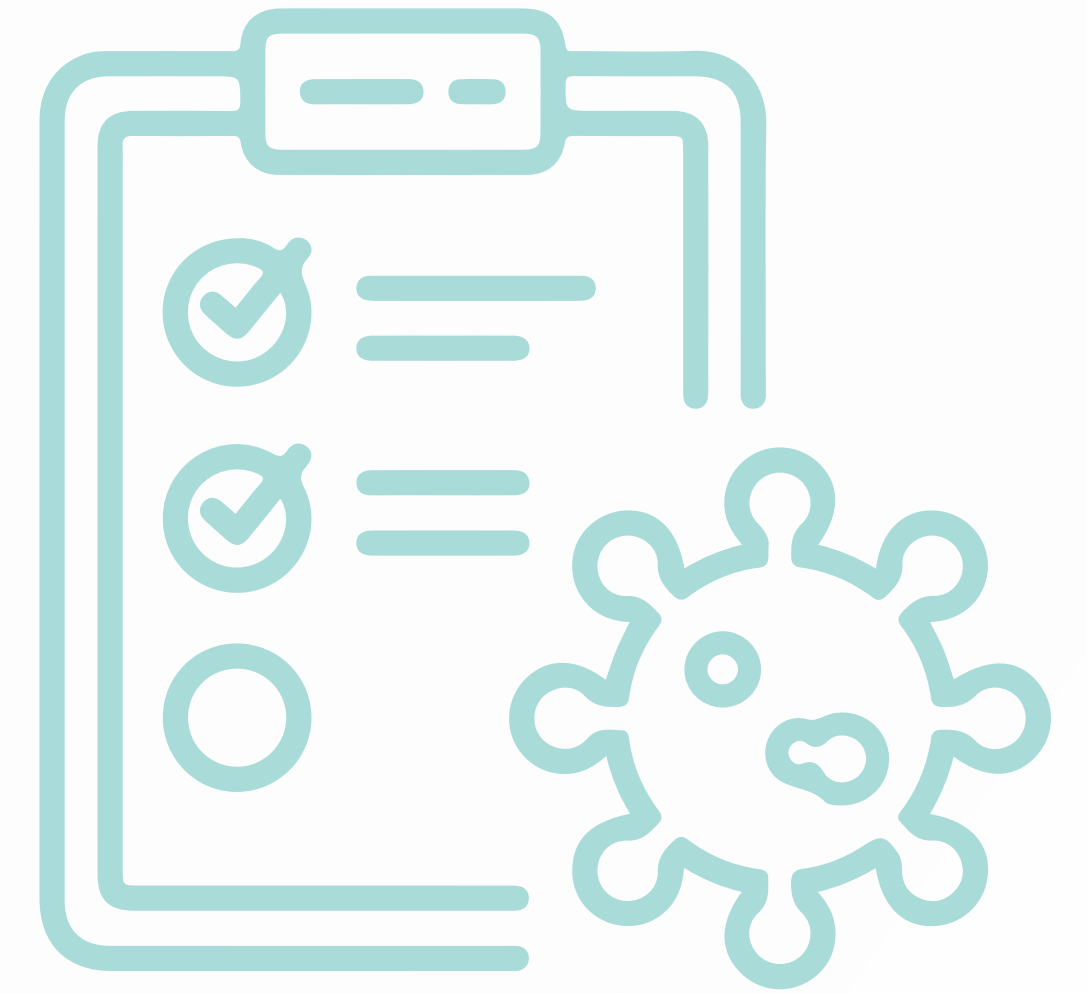


# Achieving accurate and timely diagnosis

The key to improving diagnosis and staging is dependent on achieving accurate and timely diagnosis supported by national pathways, trained staffing and resources, and pathways involving local navigators.

## National and local policies

- National standards of care (NSOC) for lung cancer, with bundling of tests, have long been available.<sup>7</sup> The National Institute for Health and Care Excellence (NICE) is clear in its recommendation for patients with suspected primary lung cancer and any thoracic lymph node >10 mm in short axis but no evidence of distant metastases on staging computed tomography (CT). It states that these patients should first undergo positron emission tomography (PET) imaging, followed by staging endobronchial ultrasound (EBUS) procedure (assuming no distant metastases on PET imaging).<sup>8</sup>
- Even with this national guidance and NSOC algorithms, there is variability in terms of diagnostic approaches used and their sequencing. This is evidenced in the national lung cancer report by GIRFT and deep dive into the use of EBUS across hospital sites.
- There is also variation in the quality of diagnostic and staging investigations. For example, a staging EBUS requires a detailed and systematic process to accurately identify the presence or absence of lymph node metastases across the accessible thoracic lymph node stations. This is an essential step in identifying patients with stage II/III NSCLC and patients eligible for multi-modality treatment such as neoadjuvant treatment prior to surgical resection.

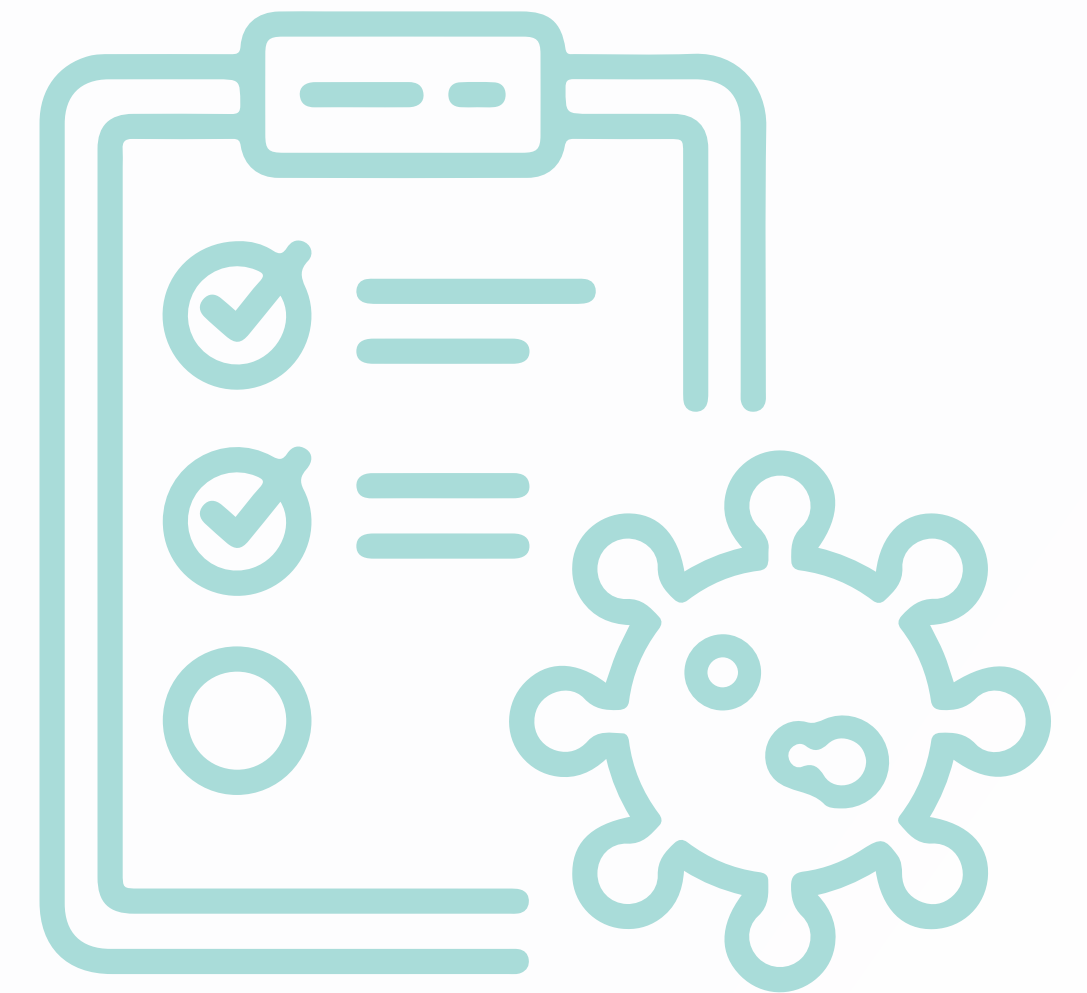


# Achieving accurate and timely diagnosis

The key to improving diagnosis and staging is dependent on achieving accurate and timely diagnosis supported by national pathways, trained staffing and resources, and pathways involving local navigators.

## Trained staffing and resources

- Pressures in terms of appropriately trained staff, resources and funding often delay access to EBUS and other diagnostic and staging tests and consequently increase waiting times. When combined with cumulative delays across the diagnostic and staging pathway, these delays can mean that patients can suffer disease progression or a deterioration in their health that affects their ability to withstand the potential toxicities of multi-modality treatment.
- Ideally, every unit would have sufficient access to the required resources to do all diagnostic and staging tests in a timely manner, but this is not possible, so resources have to be shared between units. Sharing of capacity at a regional level may have a number of potential benefits, which include ensuring adequate capacity for demand, providing resilience to services with single point of failures (e.g. solo operators), and providing rapid access to patients who wish to travel for tests, while freeing up capacity for those patients who wish to stay local for their tests.

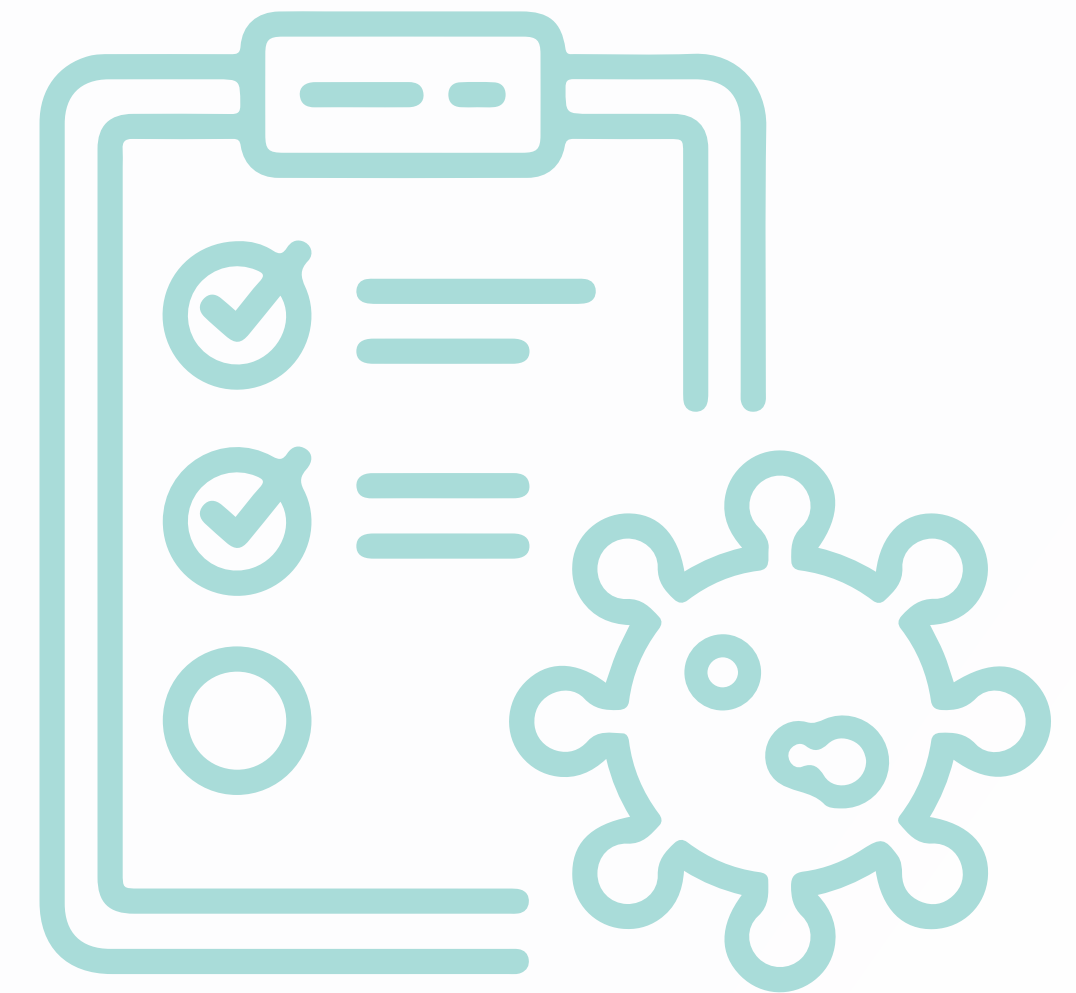


# Achieving accurate and timely diagnosis

The key to improving diagnosis and staging is dependent on achieving accurate and timely diagnosis supported by national pathways, trained staffing and resources, and pathways involving local navigators.

## Pathways involving patient navigators

- Appropriately resourced patient navigator teams can be pivotal for coordinating complex pathways involving multiple tests (sometimes at multiple locations) and ensuring effective patient tracking. To ensure efficient progress through the pathway, individual test results should be reviewed immediately to confirm the next step in the pathway. This requires dedicated, job-planned time for the diagnostic service (e.g. respiratory physicians) to undertake a daily board round of investigation results and queries. Co-locating physicians, nurses and navigators for this process will support efficiency and optimal working.
- The complexity of the pathway and variation in timelines can leave patients confused. The impact of a cancer diagnosis combined with uncertainties over treatment can lead to stress, frustration and dissatisfaction. While faster movement through the pathway has benefits in terms of outcomes and patient experience, it must be balanced with capacity issues, personal choice, and the emotional and financial impact on the family. Rapid access to the clinical nurse specialist (CNS) team is essential, as they provide holistic support at this stage in the journey, including symptom management to ensure patients are able to attend and complete investigations, emotional and psychological support, and signpost to other professionals if required - for example, welfare services. This can be enhanced with clear communication from patient navigators who help to facilitate the patient's journey and provide information on appointment timing, expectations on test results and treatment schedules.



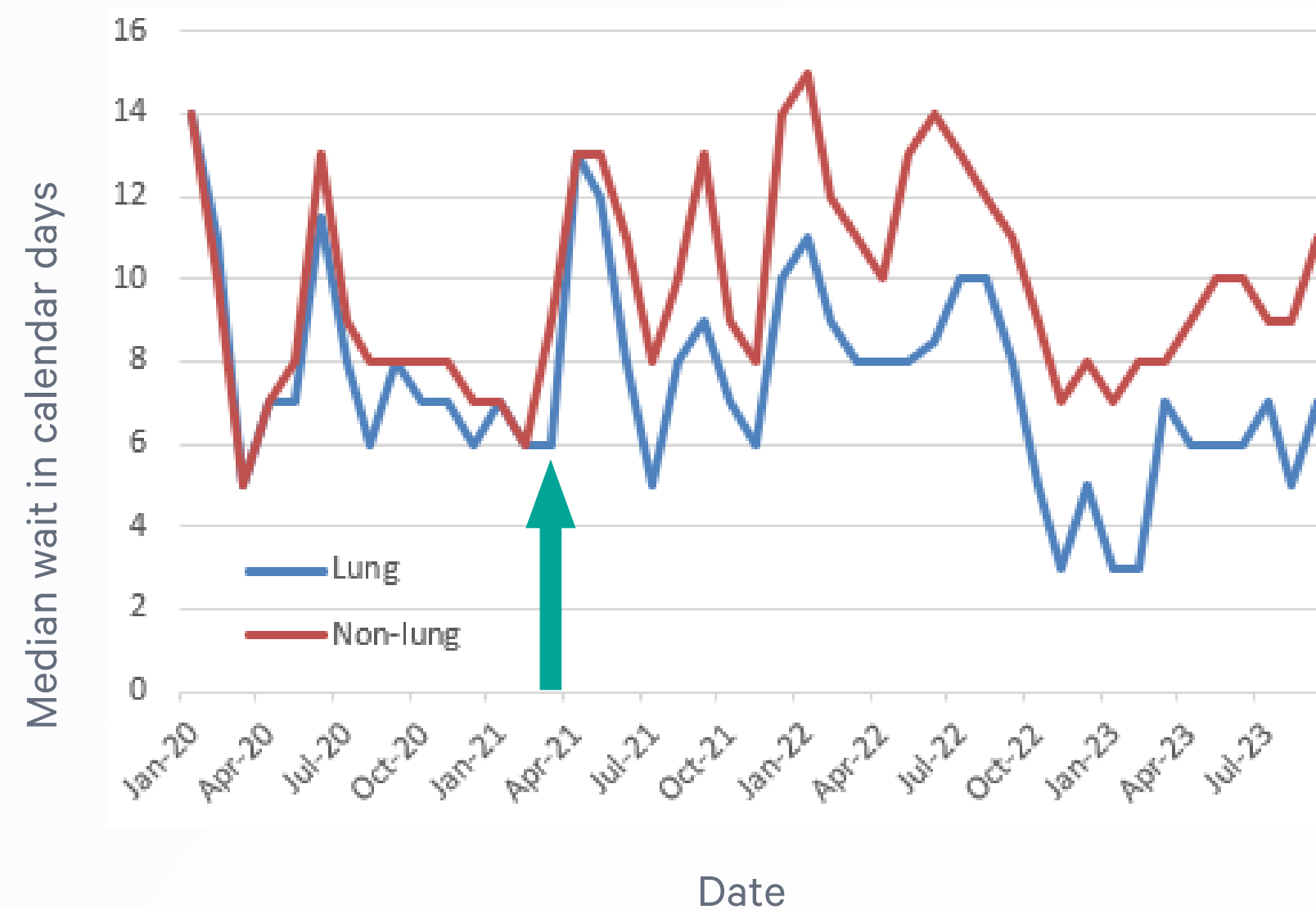
# Examples of good practice



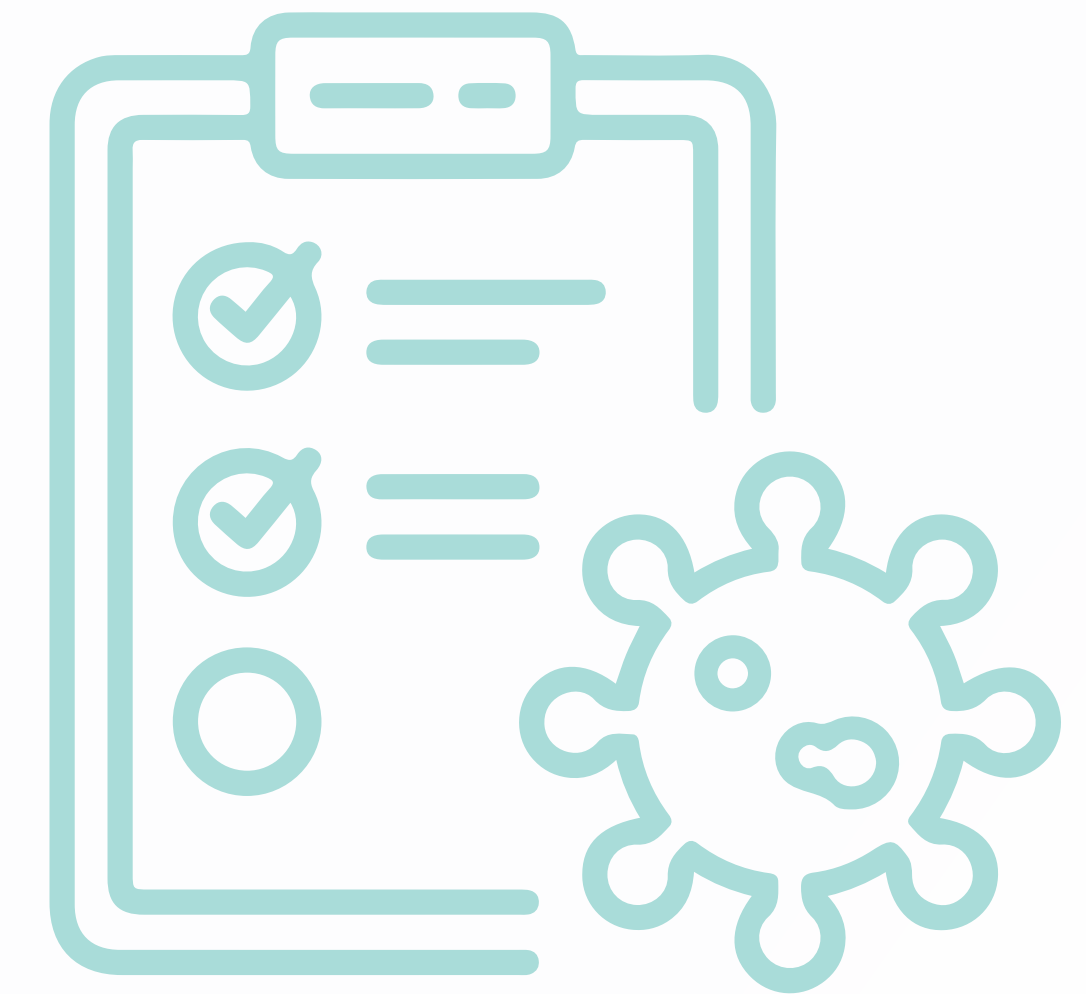
## Booking solutions for imaging

- Direct telephone booking for PET imaging in Greater Manchester launched in April 2021 and has led to a reduction in waiting times.<sup>9</sup>

Median wait time for PET imaging in Greater Manchester for lung and non-lung appointments, January 2020 to July 2023



- West of Scotland Cancer Network is also rolling out direct booking of secured slots for PET scans as part of its diagnostic pathway.<sup>10</sup>



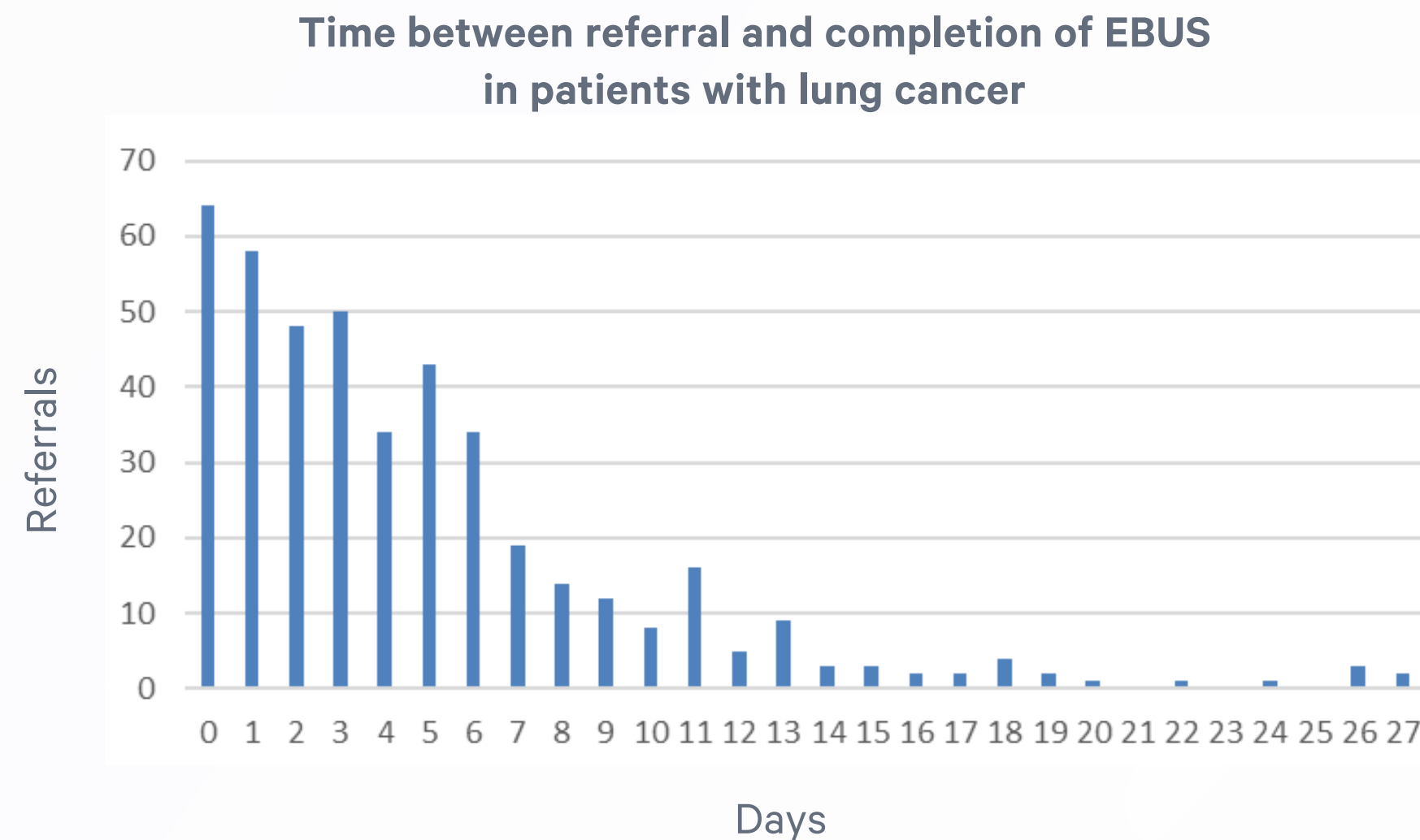
# Examples of good practice



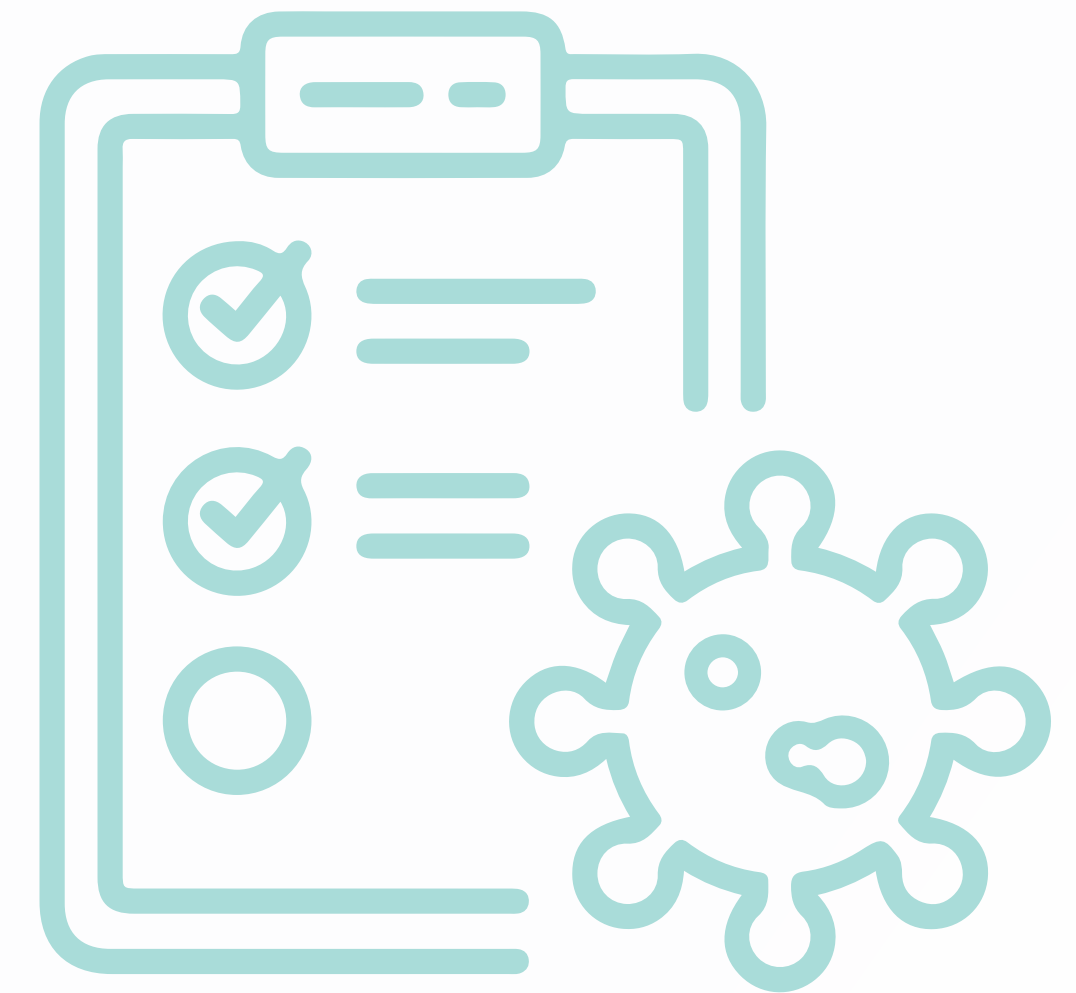
EXAMPLES OF GOOD PRACTICE

## Digital platform for booking specialist cancer diagnostics

- A single queue diagnostic programme in Greater Manchester provides a single digital platform for booking specialist cancer, with sharing of all capacity across the region:<sup>9</sup>
  - Median wait for EBUS: 3 days
  - 68% of patients undergo EBUS within 5 calendar days of referral (GIRFT target).



- This programme is also now live for thoracoscopy and CT-guided lung biopsy.
- Ensuring effective communication with pathology and the multidisciplinary team (MDT) is essential to balance the rapid turnaround times available for the EBUS procedure with the outcome of providing a good-quality diagnostic service.



DIGITAL PLATFORM FOR BOOKING SPECIALIST CANCER DIAGNOSTICS

# Examples of good practice



## Standardised clinical details

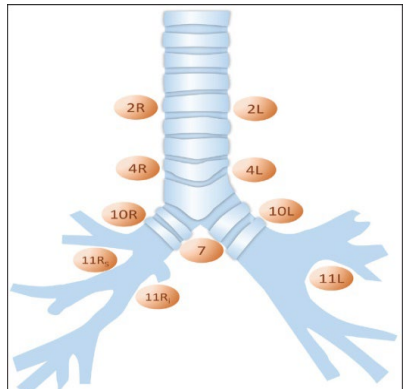
- Clinical details provided to a pathology team have always been an issue but have recently become a bigger problem with the samples being taken by a staff member from a different organisation to the parent clinical team. To reduce variability in clinical details, a standard format for EBUS reporting is used by Pathology at Wigan and Salford.<sup>11</sup>

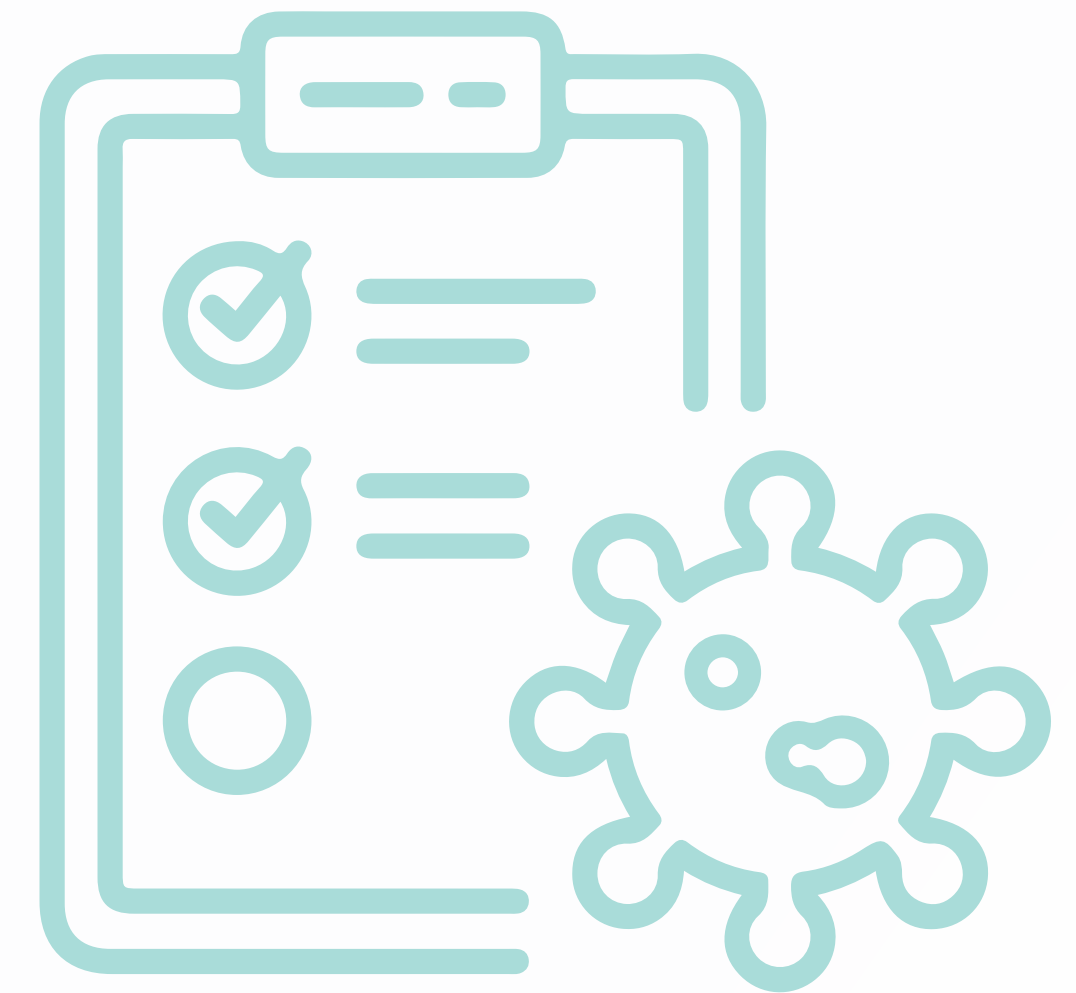
EXAMPLES OF GOOD PRACTICE

STANDARDISED CLINICAL DETAILS



EBUS information required for pathology interpretation:

<b>Patient identification</b>	
Patient's name	
Date of birth	
NHS number	
Primary clinician	(To send final histology report):
Secondary clinician	(Taking sample):
<b>For diagnostic +/- staging EBUS</b>	<b>(Delete as appropriate)</b>
Primary reason for EBUS	Initial diagnosis/ molecular testing only
Previous histology or tumour elsewhere?	Yes/ no: if yes give histology details:
Any endobronchial lesion seen?	Yes/no
Clinical impression	Likely benign/malignant
Likely primary lung	yes/no/unsure
Likely clinical diagnosis	NSCC/SCC/lymphoma/mesothelioma/carcinoid/thymoma/Other (give details)
<b>For reflex testing</b>	<b>(Delete as appropriate)</b>
Smoking status	Never/ light smoker /Current/ Ex-smoker
Performance status	0 1 2 3
Current Stage	Stage I, II or IIIA                      Stage IIIB or IV
Any other information	
<b>For staging EBUS samples</b>	
Has primary lung cancer been sampled? Please give details	
	<p>Stations sampled:</p> <p>Please circle and give the overall clinical impression for lymph nodes sampled</p> <p>Site of Primary Lesion : peripheral /central (use diagram to indicate the site)</p> <p>Isolated lymphadenopathy: Yes/No</p>



# Recommendations



Key ambitions for the diagnostic and staging pathway that supports curative-intent, multi-modality treatment are adequate capacity for demand and quality assurance of the diagnostic pathway. Additional recommendations support optimal MDT working and improved patient experience.

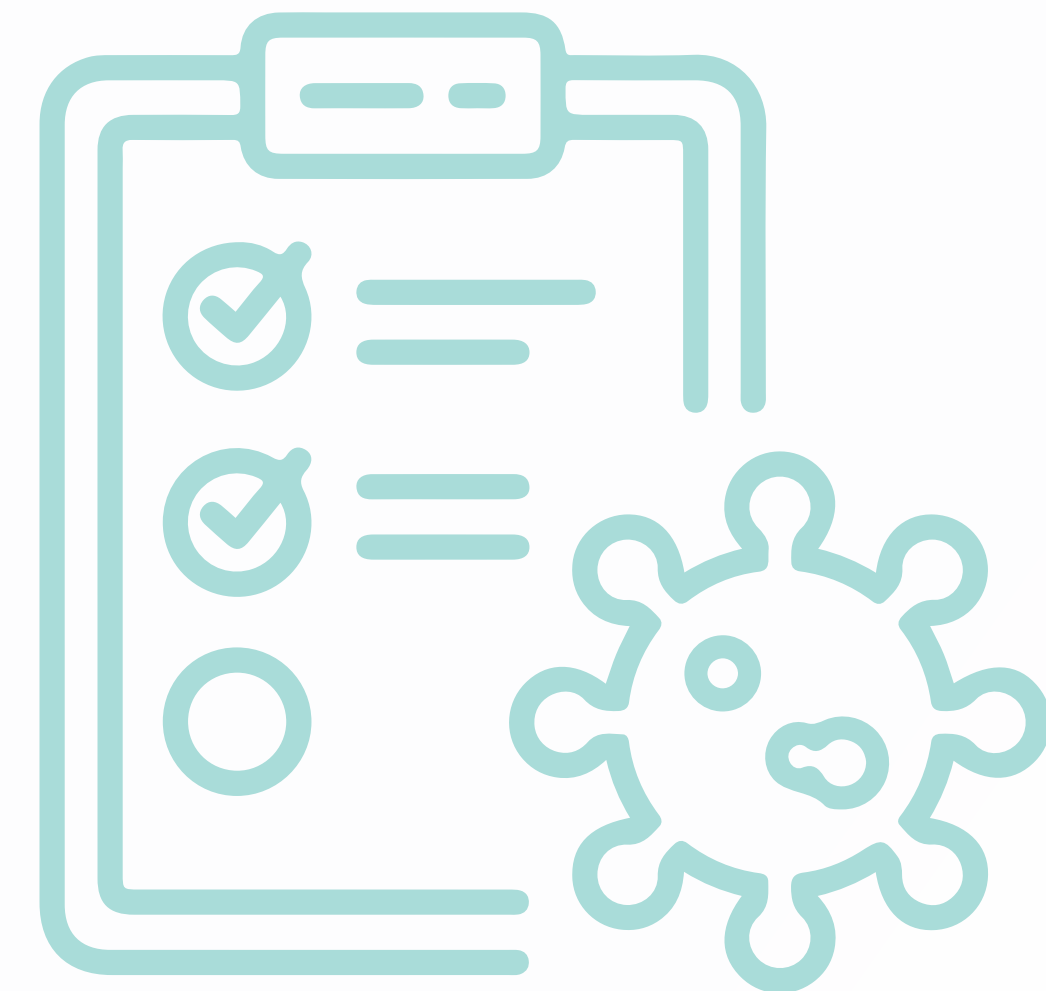


## Improve capacity to meet demand and reduce variability

- Direct telephone booking systems that allows clinicians to directly contact diagnostic and staging services and confirm an appointment then and there (with the patient) are one innovative solution. Real-world examples have shown reductions in waiting times.
- Regional 'single queue' work has shown that sharing of capacity across a cancer network can improve equity of access and reduce waiting times while maintaining patient choice. A key innovation within this is allowing referring teams to book tests at different providers thus removing administrative delays that can normally exist within standard referral mechanisms.
- Quality improvement initiatives that include audits or capacity-and-demand modelling can identify where specific barriers and solutions exist within a pathway and can develop action plans and work programmes to address these barriers.
- Optimal communication channels between diagnostic and staging services and patient navigators could help support rapid filling of newly available slots caused by cancellations or unexpected problems. This could be an important role within the navigator's portfolio. Ideally, some members of the patient navigator team (tissue navigator) should also be based in the pathology unit for effective communication with the clinical team and to improve diagnostic and biomarker services.

RECOMMENDATIONS

IMPROVE CAPACITY TO MEET DEMAND AND REDUCE VARIABILITY



# Recommendations



Key ambitions for the diagnostic and staging pathway that supports curative-intent, multi-modality treatment are adequate capacity for demand and quality assurance of the diagnostic pathway. Additional recommendations support optimal MDT working and improved patient experience.

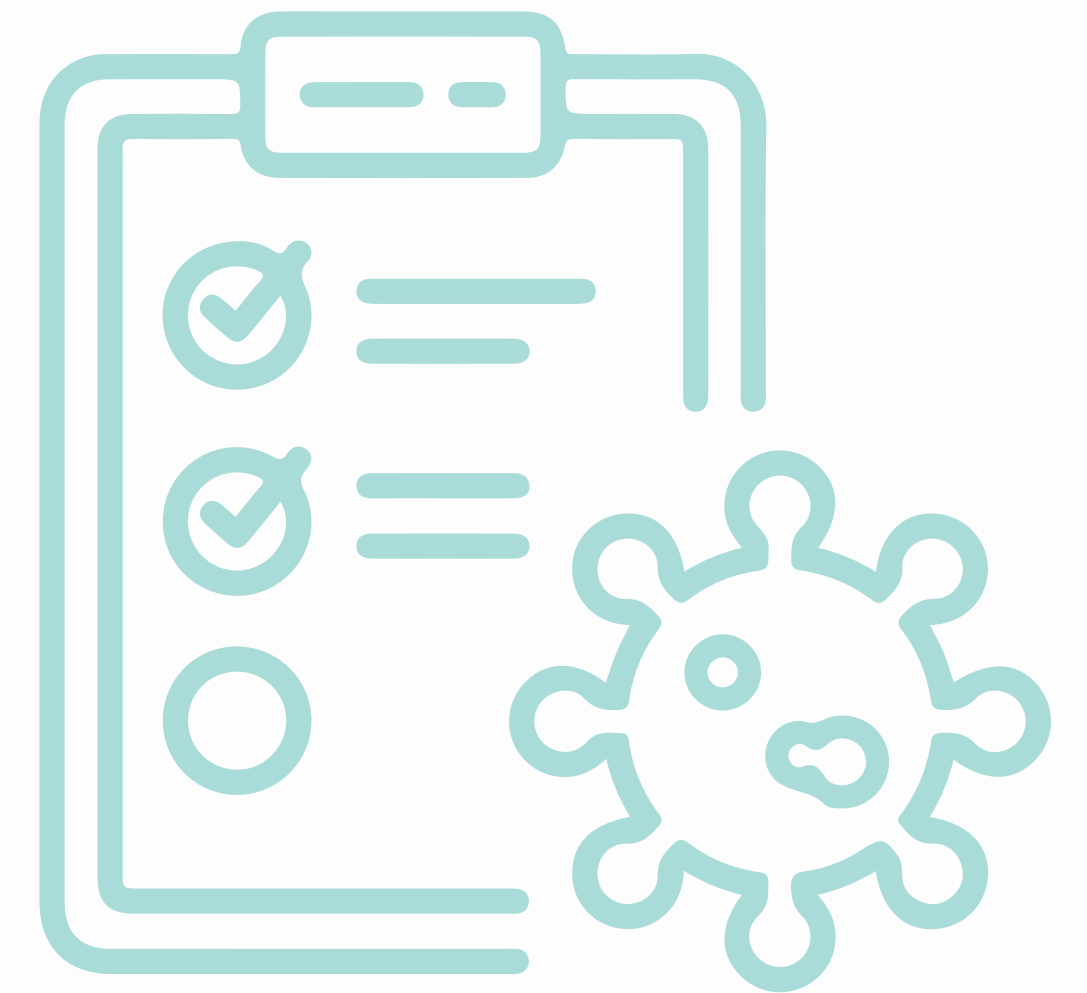


## Ensure quality assurance in diagnostic and staging services

- Local, regional and national audits of quality are critically important to drive performance and support optimal patient outcomes. Accurate pathological diagnosis and complete biomarker testing are important performance indicators and increasingly important for curative-intent, multi-modality treatment.
- Monitoring adherence to national diagnostic and staging guidelines is also an important aspect of quality assurance.
- For quality assurance of diagnostic services, clear communication is the key when multiple sites are used in a patient's pathway. A local audit performed at Salford Royal Hospital showed that the turnaround times of lung cancer reporting improved significantly in an MDT setting due to effective communication between all the team members.<sup>11</sup>
- The distinction between diagnostic services provided by the pathology department would need to be differentiated from prognostic services such as biomarker testing to assess the capacity and demand issues in these separate areas.
- The biomarker services provided by the genomic hub need to differentiate from the services provided by the pathology department to assess issues with resources, capacity and demand.

RECOMMENDATIONS

ENSURE QUALITY ASSURANCE IN DIAGNOSTIC AND STAGING SERVICES





# Recommendations



Key ambitions for the diagnostic and staging pathway that supports curative-intent, multi-modality treatment are adequate capacity for demand and quality assurance of the diagnostic pathway. Additional recommendations support optimal MDT working and improved patient experience.

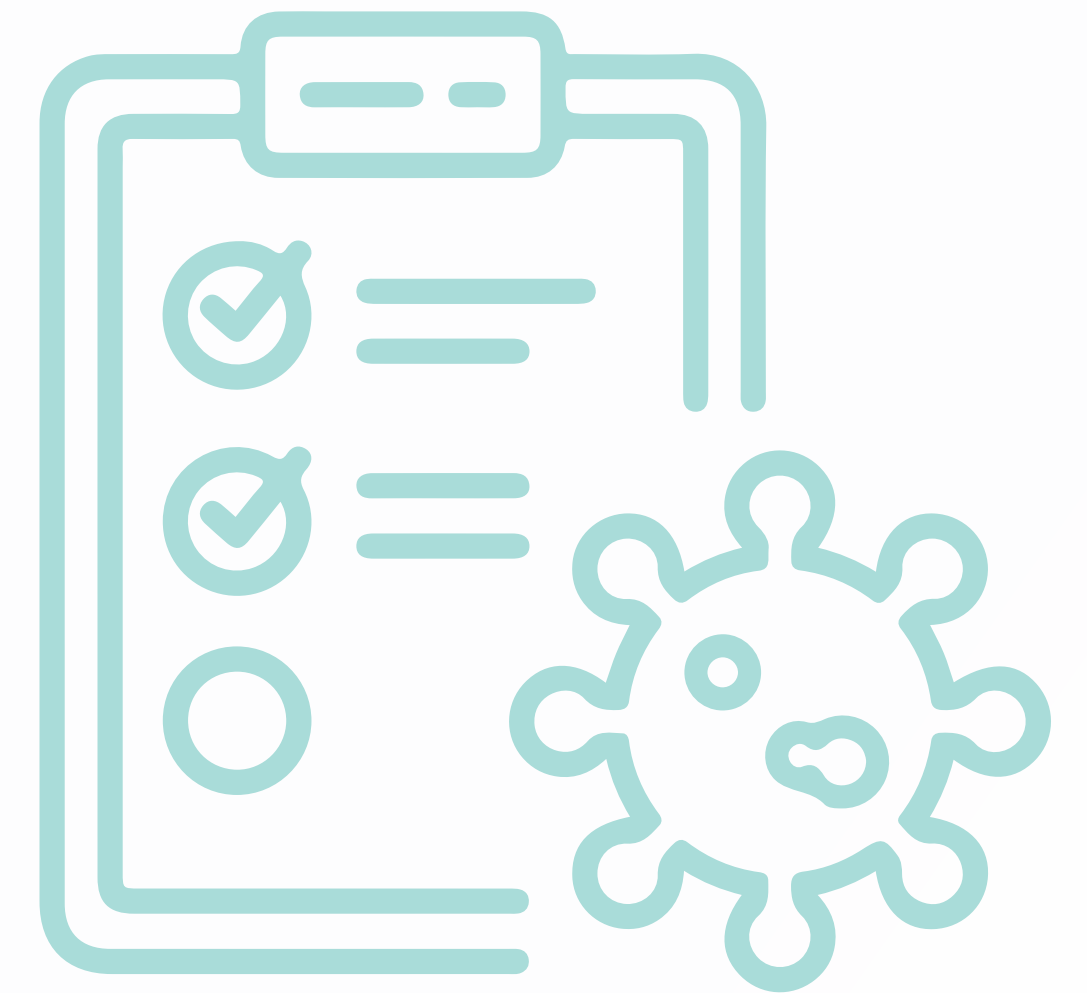


## Enhance patient experience and equity of access

- All patients should have access to CNS for help and support in line with the National Lung Cancer Audit and NICE quality standards.<sup>12,13</sup>
- Clear communication with patients about the structure of pathways, why they are in place and timelines from the outset and throughout their journey can improve the patient experience by managing expectations and reducing confusion and frustration.
  - High-quality printed patient information resources could support this process and could be developed locally and nationally.
  - Patients should be referred to sources of support during the diagnostic pathways. Use of CNS contact numbers and emails to provide a single point of contact or signposting to third-sector helplines and support services can alleviate anxiety.
- Experience of care should be measured and monitored within all lung cancer services.

RECOMMENDATIONS

ENHANCE PATIENT  
EXPERIENCE AND EQUITY  
OF ACCESS



# Biomarker testing



# Optimising biomarker testing for personalised medicine

Biomarkers are a pivotal part of best practice in lung cancer. Biomarkers support appropriate patient selection for different treatment regimens, delivering personalised medicine and optimal outcomes. This is particularly true in the rapidly evolving landscape of curative-intent, multi-modality treatment.

## Biomarker testing for personalised medicine

- Biomarker testing for lung cancer is performed both through immunohistochemistry tests within pathology departments (e.g. programmed death ligand 1 [PD-L1], anaplastic lymphoma kinase [ALK] and ROS1 testing) and through genomic testing within genomic laboratory hubs (GLHs). Genomic testing can include single gene polymerase chain reaction (PCR) tests (which often deliver faster results but with more limited genomic information) and extensive next-generation sequencing (NGS) following DNA and RNA extraction.
- ⊕ Reflex testing is the practice of pathologist-initiated biomarker testing as soon as NSCLC is identified in a specimen, without waiting for instruction from an oncologist or an MDT discussion. This is widely considered a standard of care, but variation exists in the implementation of this in all centres.
- ⊕ Biomarker testing is well established in advanced stage NSCLC but now is of critical importance for delivering curative-intent, multi-modality treatment in stage II/III NSCLC, and new practices and protocols are needed to support this. Equitable comprehensive biomarker testing of every NSCLC specimen regardless of tumour subtyping and stage should be the long-term goal for the UK, although there are resource implications of this for pathology and genomic services.
- Point-of-care testing (e.g. the Idylla system) can be performed by the on-site pathology team, with epidermal growth factor receptor (EGFR) and ALK results available in 4-6 hours. However, point-of-care testing is not appropriate unless there is clear separation between early and metastatic pathways, as this could lead to an inferior service for metastatic patients, because only a small number of biomarkers are required in the early setting (though this is likely to change in the future). Some pathology labs and GLHs have a wider testing panel called Genexus, which offers a reasonable panel approach.

# Optimising biomarker testing for personalised medicine

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## RAPID AND COMPREHENSIVE TESTING

### Rapid and comprehensive testing

- Rapid and comprehensive testing is required in order to deliver both timely and effective treatment. Variation in biomarker testing pathways and equity of access to biomarker testing exist across the UK and are a source of major delay in the lung cancer pathway.
- A key objective for biomarker testing is delivering timely test results appropriate to the clinical situation, where some cases are well supported by rapid single-gene PCR testing and others require comprehensive testing with NGS.
- Often delays in biomarker results can mean that MDT discussions are based on “what ifs”, with different potential treatment plans outlined depending on how the results might look when they eventually become available. Meanwhile, the patient is in limbo between treatments, waiting to find out their next steps.
- GLHs have been blamed for poor turnaround times due to disruptions in pathways that they introduced, which have led to long delays that frustrate clinicians and patients alike. Although centralisation has potential benefits, turnaround times are often much quicker when tests are performed locally. This may be for multiple reasons, such as loss of accountability and ownership with decentralised resources, time needed to transport tissues, lack of communication and lack of resources.
- To aid early decision-making, some clinicians ask local labs to provide some rapid analysis on samples from patients potentially suitable for multi-modality, treatment, such as EGFR, with full NGS panel testing performed later. This means that clinicians have some results available and can start treatment planning.
- Discussions on 10-day turnaround times target for genomic testing are ongoing, and NHS England is planning to audit time from biopsy to result more closely; this is encouraging, as long as any new target is supported by appropriate resources.



# Optimising biomarker testing for personalised medicine

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## Integration and communication

- Integrating pathology and genomic services to create closer working relationships is crucial for seamless communication, efficient data transfer for requests and results, and collaborative working and should be a key goal for the future.
- Improving communication between GLHs, pathology services and lung cancer MDTs is critical. Updates on likely result dates can support planning of MDT discussions and patient consultations, and digital platforms could provide immediate communication of results.
- In some areas, GLHs and local pathology labs work together to deliver a joint approach between pathology and genomic sequencing through cellular pathology genomic centres (CPGCs). The concept is that pathology departments in these centres rapidly

assess samples for the potential for genomic testing and then pass them on to the GLH, who report back, with the pathology team tracking the sample. Centralised immunohistochemistry may also be performed in these centres, so testing for PD-L1 levels and genomic testing would all be run in one centre. This should improve communication, which has been a major issue in recent years, and consequently speed up delivery of results. This is an example of integration between pathology and genomics to deliver a comprehensive and collaborative service.



# Optimising biomarker testing for personalised medicine

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## Resource allocation and collaboration

- Lack of resourcing for pathology to support the rapidly changing process and growing importance of biomarkers for the decision-making process has led to variation. GLHs were brought in to reduce variation but may not have fully realised this ambition.
- Rapid on-site evaluation (ROSE - when a member of the pathology team is present in the diagnostic procedure room) is a mechanism to improve communication between diagnostic and pathology teams and could support high-quality specimen acquisition for biomarker testing and rapid initiation of biomarker testing. This is resource intensive, but the health economics could be examined to understand the value of large-scale deployment. ROSE techniques may be useful in specimen management, but currently can be a challenge to implement in an under-resourced pathology department with a lack of pathologists and biomedical scientists.
- A 'tissue coordinator' embedded in the pathology or oncology team can take ownership of the tissue pathway, be a liaison between the clinical team, path lab and genomic team to track samples throughout the process, and keep stakeholders updated on timelines. Basing the tissue coordinator in the pathology lab might also contribute to solving issues around under-resourcing in pathology.
- Pathology IT systems are often out of date due to under-resourcing, so they do not include all current tests and results. Systems also often do not interact well with clinical record systems. Some GLHs have a digital, internet-based platform that allows stakeholders to log in to see the status of tissue in terms of molecular processing. This indicates when results are likely to be available to allow future planning and can also be useful for auditing but is not standard practice across the UK.

## RESOURCE ALLOCATION AND COLLABORATION



# Examples of good practice



EXAMPLES OF GOOD PRACTICE

SOLUTIONS FOR RAPID TESTING

## Solutions for rapid testing

- Reflex testing protocols are in place at University College London for all NSCLC specimens.<sup>9</sup>
- In Kent, a local biomarker testing process in place within a pathology service provides initial rapid results on a small number of key driver mutations that can support the management decision in the majority of patients and saves extensive NGS testing for specific cases when indicated.<sup>9</sup>
- In Greater Manchester, urgent biomarker testing has been set up for patients eligible for surgery to improve turnaround times.<sup>11</sup>
- Also in Greater Manchester, ALK1 and ROS1 testing is performed initially on immunohistochemistry and consequently on the NGS fusion panel.<sup>11</sup> This provides both quicker turnaround times with the immunohistochemistry and the opportunity for extensive testing with the NGS panel. Tissue adequacy can be a limiting factor with NGS panel testing and an initial immunohistochemistry panel helps in such cases as they do not require extensive material or tissue preservation.



### Note:

*Although single-gene testing can be a short-/medium-term solution to achieve rapid turnaround, the ultimate aim should be comprehensive molecular testing in a timely manner in order to improve access to results for patients with all stages of disease and, as data become available, to guide use of targeted agents in the early-stage setting.*



# Recommendations



Enhancing integration, communication and resource allocation between pathology and genomic services is essential to improve biomarker testing efficiency and support optimal patient outcomes in lung cancer treatment pathways.



## Improve local testing availability and protocols

- Local pathways should deliver local solutions that optimise rapid turnaround times that supports patient care, e.g. rapid single-/multiple-gene PCR testing panels in selected patient scenarios.
- A balance between rapid biomarker testing and comprehensive testing is needed based on patient selection.
- Implementation of reflex testing protocols in all pathology departments across the UK would streamline testing processes and ensure consistency in testing approaches
- ROSE with pathologists and clinicians working together improves turnaround times, and the health economics of large-scale deployment could be examined.

RECOMMENDATIONS

IMPROVE LOCAL TESTING AVAILABILITY AND PROTOCOLS





# Recommendations



Enhancing integration, communication and resource allocation between pathology and genomic services is essential to improve biomarker testing efficiency and support optimal patient outcomes in lung cancer treatment pathways.



## Implement integration and improve communication

- Tissue coordinators should be embedded in the team or pathology lab to take ownership of the tissue, liaise with the clinical team, pathology lab and genomic team to track samples throughout the process, and keep stakeholders updated on timelines.
- Integration between pathology and genomic services is a key ambition that will lead to improved pathway efficiency, communication and patient outcomes. Improved communication with the lung cancer MDT and parent team is also critical. This integration can be both digital integration and service integration.
- Digital interfaces between GLHs, pathology services and lung cancer MDTs are required to support pathway planning and efficient communication. Integration of systems and universal access to reports for all stakeholders would be an important area for investment as it would solve many current issues with the process.

RECOMMENDATIONS

IMPLEMENT INTEGRATION  
AND IMPROVE  
COMMUNICATION



# Recommendations



Enhancing integration, communication and resource allocation between pathology and genomic services is essential to improve biomarker testing efficiency and support optimal patient outcomes in lung cancer treatment pathways.



## Enhance patient experience

- Clear communication on timelines and impact of testing on treatment options should be shared from diagnosis with patients and those supporting them.

RECOMMENDATIONS

ENHANCE PATIENT  
EXPERIENCE



# Patient selection



# Personalising treatment to optimise patient outcomes

Multi-modality treatment in stage II/III NSCLC is becoming very complex; we must recognise this complexity, and lung cancer clinicians across the MDT must become supra-specialised in order to deliver evidence-based and high-quality care.

## Personalised treatment

- Patients with lung cancer who are lifelong never smokers (defined as those that have smoked fewer than 100 cigarettes in their lifetime)<sup>14</sup> are significantly more likely to have a single driver mutation, and the evidence base that treatment with immunotherapy is much less effective in this setting is building. This may steer these patients away from immunotherapy-based multi-modality regimens like neoadjuvant chemoimmunotherapy. Furthermore, the need for extensive testing for a driver mutation mandates NGS not single-gene PCR tests that are often used to produce rapid results to help define treatment plans. Finally, upfront surgical resection (as opposed to neoadjuvant treatment which may drastically affect the tumour content and pathological staging) will provide accurate pathological staging and provide generous tissue for testing to determine adjuvant treatment options (which are expanding in the field of driver-mutated lung cancer). Identifying that a patient is a lifelong non-smoker can, therefore, inform the biomarker testing strategy and help inform treatment decisions from an early timepoint.
- ⊕ Resectability of the main tumour tends to be based on experience and clinical judgement. Resectability of lymph node metastases is challenging and typically involves debate and disagreement, as international guidelines lack clarity when using terms such as bulky, non-bulky, fixed - and non-fixed disease. This can lead to an arbitrary line between what is and is not resectable. Some centres will only operate on single-station N2 disease, while others operate on multi-station N2 patients. If all lymph nodes seem to be completely resectable and are not invading any structures, surgery should be considered as part of multi-modality treatment.
- ⊕



# Personalising treatment to optimise patient outcomes

Multi-modality treatment in stage II/III NSCLC is becoming very complex; we must recognise this complexity, and lung cancer clinicians across the MDT must become supra-specialised in order to deliver evidence-based and high-quality care.

## MDT efficiency and experience

- High-quality discussions in MDTs support evidence-based treatment recommendations that optimise patient outcomes.
- MDTs provide an important opportunity for valuable cross-learning and development for all members in this changing treatment paradigm. Recognition of the increasing complexity in treatment and required skillset should highlight the importance of adequate time for education and training and support to develop and embed optimal MDT practices.
- Some areas have developed 'one-stop' service models with the opportunity for patients to meet multiple treatment specialists in a single clinical visit, which facilitates personalised case-by-case interdisciplinary discussions that support decision-making and high-quality experience of care. Other areas have developed specialist region MDTs that focus on a specific complex area of care, such as multi-modality treatment in stage II/III NSCLC, where expertise is centralised and developed.
- ⊕ • Having biomarker test results available at the time of MDT discussion and at the time of clinical consultation with treatment specialists is essential for effective decision-making. Knowledge of driver mutations may exclude some multi-modality treatment regimens and identify patients less likely to respond to immunotherapy. PD-L1 levels can help inform the probability of response to immunotherapy in non-driver-mutated lung cancer and also informs eligibility for a number of multi-modality treatment regimens.
- ⊕ • Well-led MDT meetings are helpful in speeding up decision-making - as stakeholders can communicate quickly and efficiently with each other - and in ensuring evidence-based treatment recommendations that are equitable for all patients.



# Personalising treatment to optimise patient outcomes

Multi-modality treatment in stage II/III NSCLC is becoming very complex; we must recognise this complexity, and lung cancer clinicians across the MDT must become supra-specialised in order to deliver evidence-based and high-quality care.

## Advanced IT platforms and AI

- In the future, advanced IT platforms and artificial intelligence (AI) could support optimal MDT working and optimise patient selection for multi-modality treatment. More advanced digital technologies could combine multivariate patient factors that can predict outcomes from treatment, including risks of adverse outcomes, and support personalised treatment recommendations based on evidence-based medicine.



# Personalising treatment to optimise patient outcomes

Multi-modality treatment in stage II/III NSCLC is becoming very complex; we must recognise this complexity, and lung cancer clinicians across the MDT must become supra-specialised in order to deliver evidence-based and high-quality care.

## Quality assurance and performance metrics

- Quality assurance of MDT working and treatment recommendations is an important part of the ever-increasing complex landscape of curative-intent, multi-modality treatment. A key performance metric is the proportion of patients completing all elements of the recommended multi-modality treatment (both the local and systemic therapy elements).



# Examples of good practice



EXAMPLES OF GOOD PRACTICE

PATIENT-CENTRED, HOLISTIC MDT CLINIC

## Patient-centred, holistic MDT clinic

- Barts Health operates a multidisciplinary clinic with allied healthcare professionals (CNS, dietitian, exercise physiologist/physiotherapist, pharmacist, oncologists) specifically focused on the needs of patients with early-stage lung cancer.<sup>16</sup> In this setting, patients will be assessed by the wider healthcare team with the aim of optimising patients for neoadjuvant therapies and providing input to help complex decision-making, with the patient being the central focus of the decision-making process.





# Examples of good practice



## Surgical-focused MDT meeting

- Manchester 'Surgical Friends Meeting' is a weekly meeting in which all cases referred for multi-modality treatment are reviewed the day before the GM One Stop Lung Cancer clinic.<sup>9</sup> This meeting provides a collective opinion on resectability that supports the surgeon in the clinic with decision-making. It is an example of a service providing collective responsibility for the definition of resectability and reducing variation.

EXAMPLES OF GOOD PRACTICE

SURGICAL-FOCUSED MDT MEETING



# Recommendations



Personalised treatment and timely decision-making are crucial for patients, and services should reflect this in their design and delivery model.



## Encourage personalised treatment

- Recognise the importance of lifelong non-smokers in biomarker testing strategies, informing treatment decisions early on and mandating NGS for comprehensive testing.
- Lifelong never smokers (defined as those that have smoked fewer than 100 cigarettes in their lifetime)<sup>14</sup> and those with a light smoking history, defined as less than 15 (clinician experience)<sup>9</sup> or 20 pack-years<sup>15</sup>, require an extensive search for driver mutations, as well as personalised adjuvant therapy as multi-modality treatment in stage II/III NSCLC.
- Address challenges in determining resectability of lymph node metastases through expert consensus and standardised guidelines, ensuring equitable access to multi-modality treatment options for eligible patients.

RECOMMENDATIONS

ENCOURAGE  
PERSONALISED  
TREATMENT



# Recommendations



Personalised treatment and timely decision-making are crucial for patients, and services should reflect this in their design and delivery model.



## Enhancing MDT efficiency and experience

- It is important to recognise the significant and increasing complexity of multi-modality treatment in lung cancer and support lung cancer clinicians across the MDT to deliver supra-specialised, evidence-based care.
- Biomarker results are critically important for treatment decisions. Rapid testing pathways are therefore needed to ensure that the results are available to facilitate timely MDT discussions and ensure treating specialists can use them in consultations when discussing treatment options.
- Standardised definitions of resectability are required, as well as interventions to reduce surgeon-to-surgeon variability. One example might be 'collective responsibility' for defining resectability, in which multiple surgeons are involved in all discussions around resectability.
- Quality assurance of MDT working, including the proportion of eligible patients that receive multi-modality treatment and the proportion completing all elements of the treatment regimen, should be robustly monitored across lung cancer MDTs and services.

RECOMMENDATIONS

ENHANCING MDT  
EFFICIENCY AND  
EXPERIENCE



# Recommendations



Personalised treatment and timely decision-making are crucial for patients, and services should reflect this in their design and delivery model.



## Using advanced IT platforms and AI

- Developing and evaluating advanced IT platforms and AI as well as developing our technological readiness for such platforms within the healthcare system will be an important step in supporting safe, effective, evidence-based decision-making and personalised patient selection for curative-intent multi-modality treatment.

RECOMMENDATIONS

USING ADVANCED IT  
PLATFORMS AND AI



# Recommendations



Personalised treatment and timely decision-making are crucial for patients, and services should reflect this in their design and delivery model.



## Improving patient experience

- Patients should be well informed about the patient pathway, why it is important to wait for pathology results before deciding on treatment, and the value of different treatment options.

RECOMMENDATIONS

IMPROVING PATIENT  
EXPERIENCE



# Decision-making



# Improving shared decision-making

With increased complexity and the nuances involved in current decision-making on an individualised basis, innovative and more effective approaches to shared decision-making are needed.

## Shared decision-making

- Joint clinics combine both multidisciplinary treatment specialists that support patients to make treatment decisions and optimisation treatment teams that reduce the risk of treatment-related adverse events (prehabilitation, frailty management and tobacco dependency). This approach has multiple benefits for clinicians and patients.
- Other units use an approach that ensures that patients have timely access to the right specialist.



# Improving shared decision-making

With increased complexity and the nuances involved in current decision-making on an individualised basis, innovative and more effective approaches to shared decision-making are needed.

## Timeliness and information accessibility

- Decision-making in lung cancer, particularly early lung cancer, is becoming increasingly complex with all the considerations involved in taking a patient to surgery or systemic treatment. It is difficult for clinicians to be fully cognisant of the findings and implications of every trial involving neoadjuvant chemotherapy, immunotherapy, surgery, radiation, treatments after radiation, treatments after adjuvant chemotherapy, etc, before even considering the nuances for individual patients. Even if surgeons are fully confident in the data for surgery, they may not be fully cognisant of the data for systemic therapies, and vice versa for medical oncologists. To significantly implement efficient, effective and consistent decision-making in this field will require support from the next generation of IT and MDT solutions.
- Decision-support tools are widely available, but their use is not maximised. Most chest physicians have an app on their phone that calculates the risk of malignancy in a lung nodule. Prognostic algorithms use real-world data to predict outcomes such as survival and quality of life for different treatment options for a particular patient based on clinical, pathological and radiological factors.
- ⊕ A number of software packages are available that pull all of the relevant data items for a patient together into one page that can be accessed in MDT meetings. This could match patients with guidelines and with clinical trials. These tools need evaluation in clinical practice, because they could increase efficiency and effectiveness.

Decision-making tools that support patients include applications such as:

Your Health  
Companion

My Cancer  
Companion





# Improving shared decision-making

With increased complexity and the nuances involved in current decision-making on an individualised basis, innovative and more effective approaches to shared decision-making are needed.

## Standardised information

- Prehab and rehab are vitally important at all stages of lung cancer to ensure that patients are psychologically and physically fit during their cancer journey. Patients who engage with prehab do very well on multi-modality treatment, as it offers some control for the patient.
- However, prehab and rehab are not a standard of care across all centres. Even when these options are available, patients often do not believe they need to take up the offer. Furthermore, if patients declined prehab before treatment, they may not be eligible for rehab after treatment.
- Comprehensive prehab/rehab services should be a standard of care with equity of access for all patients. The importance of physical and psychological preparation for treatment, particularly multi-modality treatment, should form a central part of treatment decisions and decision-making, ensuring maximal uptake of this important intervention for all patients.
- The importance of prehab and rehab is further underlined by the need to reduce variations and inequalities in care. More frail, comorbid populations may derive significant benefit from optimisation of services and therefore prehab/rehab needs to be established as standard of care to reduce inequalities in healthcare.



# Improving shared decision-making

With increased complexity and the nuances involved in current decision-making on an individualised basis, innovative and more effective approaches to shared decision-making are needed.

## Patient fitness and experience

- Two issues are important for patients: timeliness of decision-making and having the relevant information provided in a format that allows time and the ability to absorb and consider that information.
- Patients with lung cancer are often more elderly and complex with multiple comorbidities and are facing potentially serious and life-changing intrathoracic surgery, radiotherapy and systemic therapies (sometimes more than one type of systemic therapy). It can take time to process the diagnosis and fully understand and consider the treatment options presented before deciding to proceed. It is therefore vitally important that patients have the capacity and time to make informed decisions.
- Whether patients see everyone in a one-stop clinic or in a staggered manner is less important than having the right information and the right people available at the right time. However, repeat visits to hospital for different appointments can be difficult for patients, particularly if they need someone to take them to hospital. The benefits and disadvantages of the different approaches need to be balanced carefully, influenced by local resources, geography and other factors.
- CNSs provide valuable support for patients, discuss treatment options to ensure they are able to make an informed choice, and organise and plan care through this complex process.
- Standardisation of information given to patients is going to be critical, but with the treatment landscape rapidly changing, information resources for patients needs to reflect and be constantly updated in line with latest developments.





## Examples of good practice

EXAMPLES OF GOOD PRACTICE

ONE-STOP LUNG CANCER CLINIC

### One-Stop Lung Cancer Clinic

- The Greater Manchester One-Stop Lung Cancer Clinic is one of a number of examples of joint clinics across the country (e.g. delivered in Birmingham and University College London). This clinic combines both multidisciplinary treatment specialists to support patients make treatment decisions and optimisation treatment teams that reduce the risk of treatment-related adverse events (prehabilitation, frailty management and tobacco dependency). The Greater Manchester One-Stop Lung Cancer Clinic has:<sup>9</sup>
  - reduced the time from referral to decision to treat to a median of 5 days, with >85% of patients making a decision on the day of clinic
  - reduced surgical length of stay by an average of 2 days
  - reduced 90-day mortality
  - improved 1-year survival by approximately 10%.





## Examples of good practice

EXAMPLES OF GOOD PRACTICE

### Rapid access surgical and oncology clinic

- In Kent, a patient sees all specialists within 1 week of diagnosis, with the clinical nurse specialist coordinating seamless care without a physical one-stop clinic. Patients see the surgeon within a few days of diagnosis. If they are deemed to be anatomically resectable, the CNS obtains height, weight, bloods, etc. Three days later, the patient then sees the oncologist, who explains and discusses neoadjuvant/adjuvant therapy. In this model, the treatment process begins within a week and patients have the extra benefit of time for thinking and reflection between appointments.

RAPID ACCESS SURGICAL AND ONCOLOGY CLINIC





# Examples of good practice

EXAMPLES OF GOOD PRACTICE

## Prehab and rehab models

- NHS Scotland has developed a prehabilitation programme for Scotland to address unwarranted variation and ensure quality of care.<sup>17</sup> A series of resources to support sustained development and implementation of cancer prehabilitation across Scotland includes:
  - key principles for implementing prehabilitation
  - psychological therapies and support framework for people affected by cancer
  - nutrition framework for people with cancer.
- Barts Charity has funded prehab gym equipment in all Barts Health Hospitals for cancer patients ahead of surgery.<sup>18</sup> Physiotherapists and exercise physiologists in these hospitals offer 1:1 supervised exercise sessions with patients, increasing their strength and fitness levels ahead of cancer surgery.
- The EPIC pilot is a quality improvement project in which patients undergoing investigation for likely locally advanced and metastatic lung cancer undertook a set of intensive prehabilitation interventions at a district general hospital in southeast Scotland.<sup>19</sup> Patients had a first prehabilitation consultation within 10 days of their new patient appointment and underwent a range of assessments around health status and quality of life. The pilot showed that prehabilitation can be delivered in parallel with the investigation of suspected lung cancer.

PREHAB AND REHAB MODELS



# Recommendations



## Improve shared decision-making



- Different, innovative and integrated approaches to MDTs and decision-making such as one-stop clinics, parallel surgical and oncology clinics, and co-ordinated appointments within established timeframes should be a standard of care with equitable access for all patients.
- Balancing benefits and challenges of different approaches, considering patient preferences, resources and local factors, is important.

RECOMMENDATIONS

IMPROVE SHARED  
DECISION-MAKING



# Recommendations



## Optimise timeliness and information accessibility



- Timely decision-making and providing relevant information in an understandable format are crucial for patients, particularly considering their complex health conditions, and services should reflect this in their design and delivery model.
- From referral for treatment assessment to a treatment decision should be within 5 days, and this should be a key performance indicator within curative-intent, multi-modality treatment for stage II/III NSCLC.
- Decision-support IT and AI tools that support clinical decision-making, such as prognostic algorithms and software packages, can increase efficiency and effectiveness of decision-making and should be evaluated in clinical practice.

RECOMMENDATIONS

OPTIMISE TIMELINESS  
AND INFORMATION  
ACCESSIBILITY





# Recommendations

## Enhance patient experience



- CNSs provide valuable support for patients, discuss treatment options to ensure they are able to make an informed choice, and organise and plan care through this complex process; this support should be maximised.
- Standardisation of patient information is critical, but it should be updated continuously to reflect the rapidly changing treatment landscape.
- Opportunities exist to develop and disseminate national standardised information resources that support patients in this pathway. This information should be available in a range of media to support patient understanding, engagement and choice in shared decision-making.
- The importance of prehab and rehab should be recognised. Comprehensive prehab/rehab services should be standard across all centres, with equitable access for all patients. All patients should have the opportunity to maximise the benefits from prehab, as well as all other services that reduce the risk of treatment-related adverse events such as tobacco dependency services and oncogeriatrics/frailty management.

RECOMMENDATIONS

ENHANCE PATIENT  
EXPERIENCE





# Recommendations/call to action

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# Recommendations



- Address variability
- Optimise resources and capacity
- Improve coordination and efficiency
- Ensure quality assurance
- Enhance patient experience

- Implement reflex testing and local testing protocols
- Improve integration and communication
- Develop digital interfaces
- Enhance patient experience

- Ensure personalised treatment
- Improve MDT efficiency and experience
- Use and test advanced IT platforms and AI
- Ensure equitable access to treatments
- Enhance patient experience

- Improve shared decision-making
- Optimise timeliness
- Use decision-support tools
- Ensure access to prehab and rehab
- Enhance patient experience and information accessibility

# Call to action for NHS leaders

CALL TO ACTION FOR  
NHS LEADERS

DIAGNOSIS AND STAGING

## Address variability

- Despite NSOC, there is notable variability in lung cancer diagnostic approaches and sequencing across healthcare facilities. This inconsistency can impact patient outcomes and resource utilisation.

## Optimise resources and capacity

- Resource constraints and funding pressures often lead to delays in accessing essential tests like staging EBUS, which affect patient outcomes, so it is vital to ensure adequate capacity for demand in the diagnostic and staging pathway.
- Improving IT infrastructure and data analysis is essential to improve communications.
- Capacity should be assessed through capacity-and-demand modelling.
- Strategic resource-sharing between units at a regional level can help optimise capacity, enhance service resilience and ensure equitable access to diagnostics.
- Innovative solutions such as direct telephone booking systems and regional 'single queue' approaches can improve access and reduce waiting times.

## Improve coordination and efficiency

- Effective coordination through patient navigator teams and real-time review of test results are essential for optimising diagnostic pathways.
- Co-located teams comprising physicians, nurses and navigators can foster efficiency, collaboration and prompt decision-making, ultimately improving patient experiences and outcomes.

## Monitor quality assurance

- Monitor quality assurance and adherence to national guidelines for diagnostic and staging services through regular audits, emphasising accurate pathological diagnosis and comprehensive biomarker testing.

## Enhance patient experience:

- Patient experience can be enhanced by ensuring clear communication about pathway structures, timelines and procedures, ensuring access to CNS support, and providing high-quality patient information resources developed at local and national levels.

# Call to action for NHS leaders

CALL TO ACTION FOR  
NHS LEADERS

BIOMARKER TESTING

## Implement reflex testing and local testing protocols

- Implement reflex testing protocols in all pathology departments across the UK to streamline testing processes and ensure consistency in testing approaches.
- Consider new local pathways that facilitate patient care.

## Improve integration and communication

- Integrate pathology and genomic services into closer working relationships to facilitate seamless communication, data transfer and collaborative working.
- Improve communication between GLHs, pathology services and lung cancer MDTs, with updates on result dates to support planning and digital platforms to facilitate immediate communication of results.
- Optimise resource allocation and collaboration between GLHs and local pathology labs to minimise delays and improve turnaround times.
- Introduce innovative approaches such as CPGCs and tissue coordinators embedded in pathology teams to take ownership of the tissue; liaise with the clinical team, path lab and genomic team; and track samples throughout the process in order to streamline the testing process, ensure efficient tracking of samples throughout the pathway, and keep stakeholders updated on timelines.
- Explore the deployment of ROSE, with pathologists and clinicians working together to improve turnaround times, and assess the health economics of large-scale deployment.

## Develop digital interfaces

- Develop digital interfaces between GLHs, pathology services and lung cancer MDTs to support pathway planning and efficient communication.
- Invest in universal access to reports for all stakeholders to address current issues in the process.

## Enhance patient experience:

- Share clear communication on timelines and impact of testing on treatment options with patients and those supporting them from diagnosis.

# Call to action for NHS leaders

CALL TO ACTION FOR  
NHS LEADERS

## Ensure personalised treatment

- Recognise the significant and increasing complexity of multi-modality treatment in lung cancer and support lung cancer clinicians across the MDT to deliver supra-specialised, evidence-based care.
- Recognise the importance of lifelong non-smokers in biomarker testing strategies to inform treatment decisions early on and mandate NGS for comprehensive testing.

## Improve MDT efficiency and experience

- Implement quality assurance measures to monitor MDT working and treatment recommendations, focusing on the proportion of patients completing all elements of recommended multi-modality treatment.

## Use and test advanced IT platforms and AI

- Develop and evaluate advanced IT platforms and AI to support optimal MDT working, patient selection for multi-modality treatment, and personalised treatment recommendations based on evidence-based medicine.

PATIENT SELECTION

## Enhance patient experience:

- Ensure clear communication about pathway structures, timelines and procedures.
- Ensure access to CNS support.
- Provide high-quality patient information resources developed at local and national levels.

# Call to action for NHS leaders

CALL TO ACTION FOR  
NHS LEADERS

## Improve shared-decision making

- Different approaches to decision-making, such as one-stop clinics or coordinated specialist visits within a week of diagnosis, should be a standard of care for all patients to support timely and informed decision-making and equitable access for patients with lung cancer.
- Balance the benefits and challenges of different approaches, considering patient preferences, resources and local factors.

## Optimise timeliness

- Ensure that design and delivery models for services facilitate timely decision-making that considers the complexity of patients' health conditions.

## Ensure access to prehab and rehab

- Ensure comprehensive prehab/rehab services are the standard of care across all centres, with equitable access for all patients.

DECISION-MAKING

## Enhance patient experience and information accessibility

- Provide relevant information for patients in an understandable format.
- Develop and disseminate national standardised information resources that support patients in this pathway in a range of media to support patient understanding, engagement and choice in shared decision-making.
- Continuously update patient information to reflect the rapidly changing treatment landscape.

# Executive summary for NHS leaders

## EXECUTIVE SUMMARY FOR NHS LEADERS



- The **distinct and super-specialised expertise** of all specialties involved in the management of patients with lung cancer (especially in relation to curative-intent, multi-modality treatment) should be recognised and **job plans should facilitate the required service delivery and MDT working**.
- All aspects of a patient's management, not just surgery and oncology, should be seen as part of a **holistic package of care**. All patients should have **equity of access** to all elements, including accurate diagnosis, high-quality staging, biomarker testing, timely and informed treatment discussions, and risk reduction strategies and quality-assured care, such as prehab and rehab. This will open access to curative-intent, multi-modality treatment and minimise patient attrition from intensive treatment regimens.
- **IT systems need to be integrated and available across networks**. This would improve communication and ensure that all stakeholders across the patient pathway have access to all information on individual patients. It would also facilitate audit by ensuring comprehensive data from every MDT on every patient was **available to identify variation** across the country, so that appropriate resources can be targeted to address this.
- **Pathology and genomics should be integrated** to facilitate efficient biomarker testing and access to personalised treatment plans with the best outcomes, and pathology IT systems need to be updated.
- **Further resources** are needed to ensure that all units have the staff and tools in place to ensure equity of across the country and minimise delays in diagnosis, pathology and treatment.
- Evaluation and **investment in IT and AI tools** to streamline clinical decision-making is needed.

Implementing the recommendations in this report will lead to more efficient, effective and patient-centred care in the management of stage II/III NSCLC and comes hand in hand with recognition of the increasing complexity of lung cancer and the super-specialised expertise of all specialties involved in delivering a holistic package of care to optimise patient outcomes.

# Appendices

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# Abbreviations

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<b>AI</b>	artificial intelligence
<b>ALK</b>	anaplastic lymphoma kinase
<b>CNS</b>	clinical nurse specialist
<b>CPGC</b>	cellular pathology genomic centre
<b>CT</b>	computed tomography
<b>EBUS</b>	endobronchial ultrasound
<b>EGFR</b>	epidermal growth factor receptor
<b>GIRFT</b>	Getting It Right First Time
<b>GLH</b>	genomic laboratory hub
<b>HCP</b>	healthcare professional
<b>ICB</b>	integrated care board
<b>IT</b>	information technology

<b>MDT</b>	multidisciplinary team
<b>NGS</b>	next-generation sequencing
<b>NICE</b>	National Institute for Health and Care Excellence
<b>NOLCP</b>	National Optimal Lung Cancer Pathway
<b>NSCLC</b>	non-small cell lung cancer
<b>NSOC</b>	national standards of care
<b>PD-L1</b>	programmed death-ligand 1
<b>PET</b>	positron emission tomography
<b>ROSE</b>	rapid on-site evaluation
<b>SACT</b>	systemic anti-cancer therapy
<b>SDF</b>	service development funding
<b>TLHC</b>	Targeted Lung Health Check



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# Wilmington Healthcare

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