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NATIONAL OPTIMAL PATHWAY FOR LUNG CANCER:

3rd EDITION (2025)

Point of Suspicion to First Definitive Treatment in Adults (aged 16 and over)

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Approver: Cancer Reference Group Noted by National Clinical Framework Board

FOREWORD

The NHS Wales National Optimal Pathways (NOPs) have been developed as part of the Suspected Cancer Pathway (SCP) programme of work. They aim to establish consistent generic and site-specific pathways that describe all routes of entry, from the point of suspicion (PoS) of cancer. They describe good practice diagnostic and treatment pathways, the diagnostic pathway, including staging, should be performed within 28 days from PoS; and definitive treatment commenced within 21 days from date of Decision to Treat (DTT). The pathways also describe where patients should receive consistent information and support, tailored to meet their needs.

The NOPs aim to provide a platform to standardise care, reduce unwarranted variation and drive improvement whilst increasing quality across each of the cancer pathways in order to:

- meet the SCP cancer waiting time of 62 days for patients presenting with a suspicion of cancer,
- improve cancer patient experience, and,
- improve cancer patient outcomes throughout Wales to that comparable with the best outcomes in Europe.

The Lung Cancer NOP is designed to help lung cancer service providers, and their commissioners see the basic structure of an effective and efficient lung cancer pathway. It has adopted many of the recommendations made in the UK National Optimal Lung Cancer Pathway (NOLCP), developed following wide stakeholder consultation by the Clinical Expert Group for Lung Cancer, NHSE in 2017[1]. In essence, it is about ensuring that each stage of the pathway happens quickly, that communications with patients are effective and that the entire lung team works in a coordinated but flexible way, focusing always on the patient's journey. It is recognised that the introduction of the National Optimal Pathway for Lung Cancer may present challenges for the Lung Cancer multidisciplinary teams. However, introducing a nationally agreed, clinically endorsed pathway will support service improvement. They will also provide clarity and consistency for primary care around the referral process into secondary care, including access to diagnostics, to ensure the patients move through the system in a timely manner.

GROUP CONSULTATION

The first edition of the National Optimal Pathway for Lung Cancer (2019) was developed and led by Dr Gareth Collier and Dana Knoyle. This standardised approach to the management of patients with lung cancer was developed with representation from the full range of professionals involved in delivering lung cancer services. Workshops were held with the Clinical Nurse Specialists (CNS) and Allied Health Professional (AHP) members to embed rehabilitation and Person-Centred Care (PCC) into the pathway, ensuring all patient's needs are assessed and met in a timely manner. Wider consultation was sought in May and June 2019 from NHS Wales's stakeholders, including National Imaging and Pathology Networks and the third sector prior to a final version being issued in July 2019. Initially published in July 2019, the NOPLC has been firmly embedded into a working pathway for Lung Cancer MDTs across Wales.

The second edition (2022) of the NOLCP reflected the changing developments in the treatment of lung cancer since the NOLCP was first described. The inclusion of a standardised approach to molecular and genetic testing of biopsies allowed patients with both early and advanced stage lung cancer to benefit from an increasing range of novel therapies and improve access to clinical trials.

This most recent edition of the NOLCP addresses the changes in the landscape of treatment for patients in both the radical and palliative setting. Within the molecular testing pathway, the pathway offers both DNA and RNA testing profile to all patients diagnosed with non-small cell lung cancer. Further to this, the updated pathway recognises the expanding role of liquid biopsy, and the options for testing within the patient diagnostic journey. The ultimate

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[1] https://www.cancerresearchuk.org/sites/default/files/lung_cancer_implementation_guide_august_2017.pdf

aim of testing in this manner is to offer the highest quality, timely and equitable testing strategies to all patients diagnosed with lung cancer across Wales.

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BIOMARKER TESTING

The initial version of the National Optimal Lung Cancer Pathway (2019) recommended selective biomarker testing at diagnosis for patients with locally advanced or metastatic non-small cell lung cancer (NSCLC) adenocarcinomas. This enabled multidisciplinary teams (MDTs) to tailor systemic treatment decisions based on key biomarkers, including PD-L1 and genomic alterations in EGFR, ALK, and ROS1.

The 2022 revision of the NOPLC reflected significant advancements in thoracic oncology, recognising the growing number of clinically actionable genomic variants and the expanding availability of targeted therapies. The rapid development in biomarker testing and treatments available required a broader panel, including EGFR, KRAS, BRAF, ALK, ROS1, RET, MET, and NTRK. This supported the use of targeted therapies and immunotherapy in the widest clinical setting.

In Wales, all lung cancer patients have access to comprehensive molecular profiling through state-of-the-art 500-gene DNA and RNA Next Generation Sequencing (NGS) panels, as outlined in the National Genomic Test Directory. This approach ensures flexibility in adapting treatment strategies to emerging targets and facilitates participation in available clinical trials.

The latest edition of the NOPLC underscores the transition toward personalised care in thoracic oncology. It aims to improve outcomes for patients in Wales by aligning local practice with international standards and NHS-wide cancer care strategies. A key component of this approach is to make appropriate use of liquid biopsy, and embed reflex genomic testing at the point of diagnosis, regardless of tumour stage. These are both considered integral steps to both diagnostic and therapeutic planning.

This strategy promotes equity in access to testing, treatment, and clinical trials, while also supporting informed discussions around prognosis, treatment options, and follow-up care. By standardising biomarker testing across Wales, the NOPLC fosters consistent, high-quality care delivery despite ongoing challenges related to resources and turnaround times.

Expert opinion on NSCLC small specimen biomarker testing—part 1: tissue collection and management (springer.com)

Expert opinion on NSCLC small specimen biomarker testing part two: analysis, reporting, and quality assessment (springer.com)

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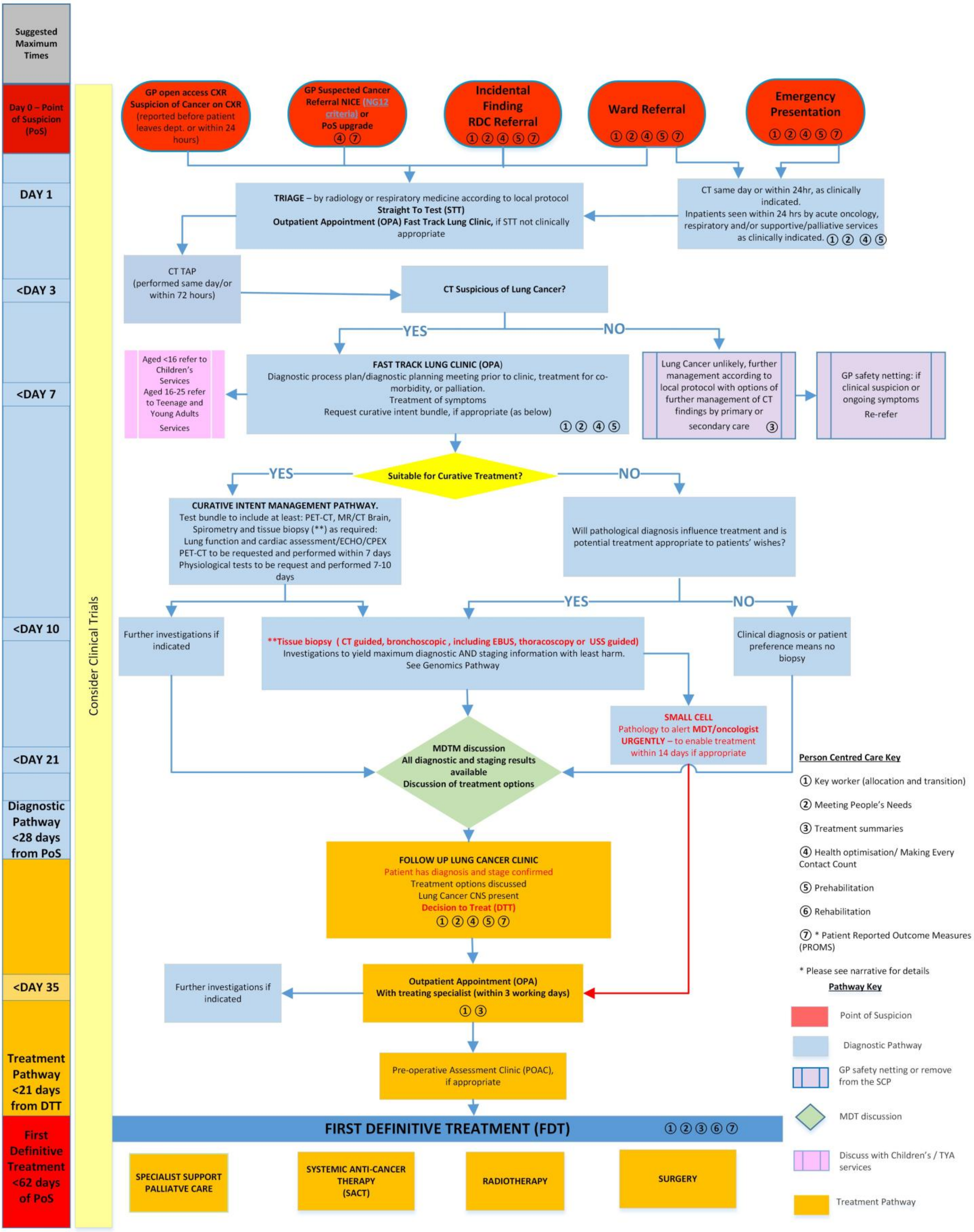
National Optimal Cancer Pathway for suspected and confirmed Lung Cancer: Point of Suspicion (PoS) to First Definitive Treatment (FDT) for adult patients (aged 16 and over)



Suggested Maximum Times

Day 0 – Point of Suspicion (PoS)

DAY 1

<DAY 3

<DAY 7

<DAY 10

<DAY 21

Diagnostic Pathway <28 days from PoS

<DAY 35

Treatment Pathway <21 days from DTT

First Definitive Treatment <62 days of PoS

Consider Clinical Trials

GP open access CXR Suspicion of Cancer on CXR (reported before patient leaves dept. or within 24 hours)

GP Suspected Cancer Referral NICE (NG12 criteria) **or PoS upgrade** ④ ⑦

Incidental Finding RDC Referral ① ② ④ ⑤ ⑦

Ward Referral ① ② ④ ⑤ ⑦

Emergency Presentation ① ② ④ ⑤ ⑦

TRIAGE – by radiology or respiratory medicine according to local protocol
Straight To Test (STT)
Outpatient Appointment (OPA) Fast Track Lung Clinic, if STT not clinically appropriate

CT same day or within 24hr, as clinically indicated.
Inpatients seen within 24 hrs by acute oncology, respiratory and/or supportive/palliative services as clinically indicated. ① ② ④ ⑤

CT TAP (performed same day/or within 72 hours)

CT Suspicious of Lung Cancer?

YES

NO

Aged <16 refer to Children's Services
Aged 16-25 refer to Teenage and Young Adults Services

FAST TRACK LUNG CLINIC (OPA)
Diagnostic process plan/diagnostic planning meeting prior to clinic, treatment for co-morbidity, or palliation.
Treatment of symptoms
Request curative intent bundle, if appropriate (as below) ① ② ④ ⑤

Lung Cancer unlikely, further management according to local protocol with options of further management of CT findings by primary or secondary care ③

GP safety netting: if clinical suspicion or ongoing symptoms Re-refer

Suitable for Curative Treatment?

YES

NO

CURATIVE INTENT MANAGEMENT PATHWAY.
Test bundle to include at least: PET-CT, MR/CT Brain, Spirometry and tissue biopsy (**) as required:
Lung function and cardiac assessment/ECHO/CPEX
PET-CT to be requested and performed within 7 days
Physiological tests to be request and performed 7-10 days

Will pathological diagnosis influence treatment and is potential treatment appropriate to patients' wishes?

YES

NO

Further investigations if indicated

Tissue biopsy (CT guided, bronchoscopic , including EBUS, thoracoscopy or USS guided)
Investigations to yield maximum diagnostic AND staging information with least harm.
See Genomics Pathway

Clinical diagnosis or patient preference means no biopsy

SMALL CELL
Pathology to alert **MDT/oncologist URGENTLY** – to enable treatment within 14 days if appropriate

MDTM discussion
All diagnostic and staging results available
Discussion of treatment options

FOLLOW UP LUNG CANCER CLINIC
Patient has diagnosis and stage confirmed
Treatment options discussed
Lung Cancer CNS present
Decision to Treat (DTT)
① ② ④ ⑤ ⑦

Outpatient Appointment (OPA)
With treating specialist (within 3 working days)
① ③

Further investigations if indicated

Pre-operative Assessment Clinic (POAC), if appropriate

FIRST DEFINITIVE TREATMENT (FDT) ① ② ③ ⑥ ⑦

SPECIALIST SUPPORT PALLIATVE CARE

SYSTEMIC ANTI-CANCER THERAPY (SACT)

RADIOTHERAPY

SURGERY

Person Centred Care Key

① Key worker (allocation and transition)
② Meeting People's Needs
③ Treatment summaries
④ Health optimisation/ Making Every Contact Count
⑤ Prehabilitation
⑥ Rehabilitation
⑦ * Patient Reported Outcome Measures (PROMS)

* Please see narrative for details

Pathway Key

🟥 Point of Suspicion
🟦 Diagnostic Pathway
▥ GP safety netting or remove from the SCP
◆ MDT discussion
🟪 Discuss with Children's / TYA services
🟧 Treatment Pathway

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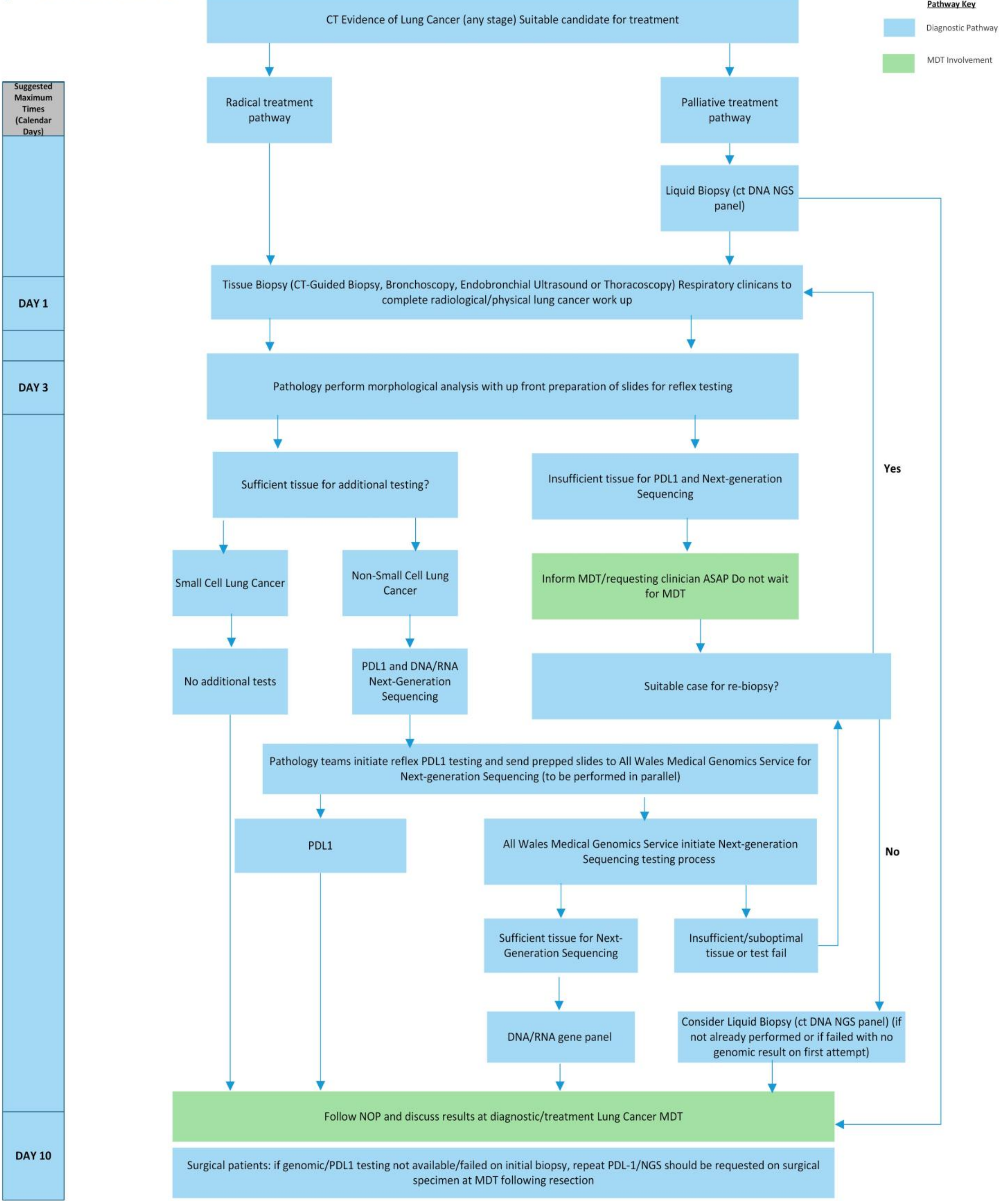
Biomarker Testing Pathway



CT Evidence of Lung Cancer (any stage) Suitable candidate for treatment

Radical treatment pathway

Palliative treatment pathway

Liquid Biopsy (ct DNA NGS panel)

Tissue Biopsy (CT-Guided Biopsy, Bronchoscopy, Endobronchial Ultrasound or Thoracoscopy) Respiratory clinicans to complete radiological/physical lung cancer work up

Pathology perform morphological analysis with up front preparation of slides for reflex testing

Sufficient tissue for additional testing?

Insufficient tissue for PDL1 and Next-generation Sequencing

Small Cell Lung Cancer

Non-Small Cell Lung Cancer

Inform MDT/requesting clinician ASAP Do not wait for MDT

No additional tests

PDL1 and DNA/RNA Next-Generation Sequencing

Suitable case for re-biopsy?

Pathology teams initiate reflex PDL1 testing and send prepped slides to All Wales Medical Genomics Service for Next-generation Sequencing (to be performed in parallel)

PDL1

All Wales Medical Genomics Service initiate Next-generation Sequencing testing process

Sufficient tissue for Next-Generation Sequencing

Insufficient/suboptimal tissue or test fail

DNA/RNA gene panel

Consider Liquid Biopsy (ct DNA NGS panel) (if not already performed or if failed with no genomic result on first attempt)

Follow NOP and discuss results at diagnostic/treatment Lung Cancer MDT

Surgical patients: if genomic/PDL1 testing not available/failed on initial biopsy, repeat PDL-1/NGS should be requested on surgical specimen at MDT following resection

BEST PRACTICE GUIDANCE

Vetting & Triage	It is recommended that the triage of referrals is undertaken using an electronic system (e.g. Welsh Patient Referral Service) to improve the timeliness, traceability and governance of pathways. Referrals received as suspected cancer (USC) should be prioritised within 1 day and urgent / routine referrals within 3 days due to the potential need for upgrade to suspected cancer (pathway entry date: date referral originally made by primary care).
Direct booking diagnostics	It is recommended that patients attending a face-to-face outpatient clinic appointment as their first point of contact can 'direct book' any onward diagnostic tests such as endoscopy and CT scans on the same day (i.e., leave the hospital with an appointment date and any preparation required for the test).
Accelerated Imaging	It is recommended that following suspected malignant findings at endoscopy, patients should have a staging CT thorax, abdomen, and pelvis (CT TAP) on the same or next day, and for rectal cancers, an MRI scan within 3 days. These scans should be reported within 2 days.
Key worker role	It is recommended that the key worker facilitates discussions with the relevant MDT members as timely as possible, without needing to wait until the next MDT meeting.
Physiological optimisation	It is recommended that if diagnostic investigations (endoscopy or radiology) identify a suspected cancer, that teams give thought to patient fitness optimisation to run concurrently with pathological staging investigation. This could include consideration of the need for respiratory or cardiology (e.g. echocardiogram) investigation. Patients should undergo an objective assessment of peri-operative risk to help inform peri-operative care requirements. They should also have access to peri-operative optimisation resources such as nutritional support, smoking cessation advice, exercise prehabilitation and intravenous iron.
Preservation of tissue for genomics	It is recommended that the preservation of tissue for genomic testing is taken into account when preparing the initial biopsy sample. Optimal fixation time for genomics requires the specimen not be in formalin for more than 24 hours. Cutting sections up front, (to reduce waste at the microtome) and/or splitting the material over more than one block may also reduce the amount of waste at the microtome (as well as speeding up subsequent requests). Each Health Board can identify their own practice for this that is suited to local arrangements.

DEFINITIONS

Decision to Treat	The DATE on which a **Decision To Treat** is made. For the cancer data sets, the **DECISION TO TREAT** DATE is the DATE that the consultation between the PATIENT and the clinician took place and a Planned Cancer Treatment was agreed. Source: NHS Data Dictionary
Direct to Test	GPs have direct access to diagnostic endoscopy, ultrasound, MRI, X-ray and CT for people with suspected cancer. Source: National Institute for Health and Care Excellence, Quality Standard 2016 (QS 124)
First Definitive Treatment	**First Definitive Treatment** is the **first** CLINICAL INTERVENTION intended to manage a PATIENT's disease, condition or injury and avoid further CLINICAL INTERVENTIONS. What constitutes **First Definitive Treatment** is a matter of clinical judgement in consultation with others, where appropriate, including the PATIENT. Source: NHS Data Dictionary
Next Generation Sequencing (NGS)	The advent of next generation sequencing (NGS) technology has revolutionised the scale at which genetic testing can be performed, enabling the analysis of many more genes within the same assay. This allows multiple variants (mutations) to be detected per sample. Large gene panel tests (>500 genes) for cancer testing are rapidly being adopted in the UK. Source: Genome UK: the future of healthcare 2020 AWMGS - Cymru Service for Genomic Oncology Diagnoses (CYSGODI) (medicalgenomicswales.co.uk)
Safety Netting	"Safety netting is a management strategy of patients, tests and referrals used in the context of diagnostic uncertainty in healthcare. It aims to ensure patients are monitored until signs and symptoms are explained or resolved." Source: Royal College General Practitioners
Straight to Test	"Following clear referral criteria into secondary care (usually NICE guidance) the secondary care clinician (defined as per local protocol) will arrange a diagnostic procedure as the first episode of care in place of an outpatient episode. The clinician will retain clinical responsibility for the result including acting on the result." Source: Delivering Cancer Waiting Times NHSE
Teenagers and Young Adults (TYA) Service	Young people (aged 16-24 years) with cancer have their diagnosis treatment and support agreed and delivered by a cancer-site specific multidisciplinary team and a teenage and young adult multidisciplinary team. Source: National Institute for Health and Care Excellence (NICE), 2014. Cancer services for children and young people (QS55)

CLINICAL EVIDENCE

Point of Suspicion/ Referral	The point of suspicion is when a clinician refers a patient or requests a test concerned that a patient may have cancer. Pathway start dates are defined in Appendix 1: Suspected Cancer Pathway Definitions – pathway start date (pages 23 – 29) in the following guidance: Suspected cancer pathway: guidelines (WHC/2024/07) | GOV.WALES Additional information: Cancer Risk Assessment Tool (RAT) Q Cancer Risk Assessment Tool FIT in patients with signs or symptoms of suspected CRC: A joint guideline from ACPGBI and BSG
Diagnosis and Management	Overview | Lung cancer: diagnosis and management | Guidance | NICE

PERSON CENTRED CARE

Person-centred cancer care is culturally embedded and supported by a common approach to assessing and managing people's needs and care should be co-produced to ensure people affected by cancer to achieve the outcomes that matter to them' (Cancer Quality Statement, 2021).

Key Worker	QS 14: Patients are made aware of who to contact, how to contact them and when to make contact about their ongoing healthcare needs. National Institute for Health & Care Excellence (NICE, 2012) CG138 Clinical Guideline: Patient Experience in adult NHS services A cancer key worker is *"a person who, with the patient's consent and agreement, takes a key role in coordinating the patient's care and promoting continuity, ensuring the patient knows who to access for information and advice".* 1. All cancer patients must have an allocated key worker 2. Allocation / Review of key worker to take place at key time points including: *a.* Around the time of diagnosis **please note: allocation of key worker* ***may*** *occur earlier than time of diagnosis, if there is a very high level of suspicion of cancer e.g. evidence obtained via pathology, radiology, endoscopy.* b. Commencement of treatment Key workers for cancer patients (Welsh Health Circular /2014/001) GOV.WALES Cancer Improvement Plan for Wales
Meeting People's Needs	QS 4: Patients have opportunities to discuss their health beliefs, concerns and preferences to inform their individualised care. QS 10: Patients have their physical and psychological needs regularly assessed and addressed, including nutrition, hydration, pain relief, personal hygiene and anxiety. National Institute for Health & Care Excellence (NICE, 2012) CG138 Clinical Guideline: Patient Experience in adult NHS services

	Assessment and discussion of patients' needs for physical, psychological, social, spiritual and financial support should be undertaken at key points including: • Around diagnosis **please note: undertaking a Holistic Needs Assessment* ***may*** *occur earlier than time of diagnosis, if there is a very high level of suspicion of cancer e.g. evidence obtained via pathology, radiology, endoscopy; and it is supported by professional judgement.* • At commencement, during, and at the end of treatment. National Institute for Clinical Excellence (NICE, 2004) CSG4 Improving Supportive & Palliative care for adults with cancer Ideally Holistic Needs Assessments should be undertaken electronically. Cancer Improvement Plan for Wales The Macmillan eHNA is *one* tool which is both valid and reliable. Snowden A & Fleming M (2015) Validation of the electronic HNA. Where appropriate, the impact of the cancer and its treatment on future fertility should be discussed with the cancer team at the earliest opportunity. The eligibility criteria for treatment are set out in the WHSSC Specialist Fertility Commissioning Policy, CP38 (link below). Opportunity should be provided to explore any individual concerns and address any unmet needs and early speciality referral should also be offered. whssc.nhs.wales/commissioning/whssc-policies/fertility/specialist-fertility-services-commissioning-policy-cp38-feb-2020/
Health Optimisation / MECC	QS 9: Patients experience care that is tailored to their needs and personal preferences, taking into account their circumstances, their ability to access services and their coexisting conditions. National Institute for Health & Care Excellence (NICE, 2012) CG138 Clinical Guideline: Patient Experience in adult NHS services Health Optimisation refers to a proactive approach to supporting people who present to NHS services with concurrent comorbid health conditions (e.g. anaemia, diabetes), or health risk behaviours (e.g. smoking, physical inactivity). Welsh Government (2018) A Healthier Wales. Welsh Government (2015) Wellbeing of Future Generations Act. Making Every Contact Count (MECC), is a behaviour change approach that helps health and social care professionals to help people to improve their health and wellbeing through prevention and early intervention. phw.nhs.wales/about-us/board-and-executive-team/board-papers/board-meetings/2022-2023/30-march-2023/board-papers-30-march-2023/412a-board-20230330-strategic-plan-imtp-2023-2026/ ***Lifestyle advice / resources are available*** *from* Making Every Contact Count (MECC) **Please note: Whilst addressing concurrent comorbidities and health risk behaviours is the responsibility of* ***all*** *health and social care professionals, at* ***every*** *contact throughout the pathway; earliest possible intervention* ***may*** *impact on cancer treatment choices / outcomes (especially in respect to tobacco smoking).* National Institute for Clinical Excellence (NICE, 2018) NG92 NICE Guideline Stop Smoking Interventions and services.
Prehabilitation	Patients should have the opportunity to take part in evidence-based education and rehabilitative activities, including self-management programmes, *where available*, that promote their ability to manage their own health if appropriate. National Institute for Health & Care Excellence (NICE, 2012) CG138 Clinical Guideline: Patient Experience in adult NHS services Welsh Government (2018) A Healthier Wales.

	Welsh Government (2015) Wellbeing of Future Generations Act. The Quality Statement for Cancer.
Rehabilitation	All patients will have their needs for rehabilitation services assessed, with referral to an appropriate level of rehabilitative support, throughout the patient pathway. **Please note: not **all** patients will require specialist cancer rehabilitation services. Referral into non-cancer rehabilitation, self-management, and fitness services **may** be suitable to meet some patients' needs.* National Institute for Health and Care Excellence (NICE) CSG4 (2004) resources for improving supportive and palliative care for adults with cancer.
Patient Reported Outcome Measures (PROMs) / Patient Reported Experience Measures (PREMs)	Patient Reported Outcome Measures (PROMs) are questionnaires that patients are asked to complete **before** and **after** treatment to assess the impact on health and wellbeing. ***Some*** of the Cancer Site Groups (CSGs) have been working with the International Collaboration for Health Outcome Measurement (ICHOM), Value Based Healthcare Team, National PROMS, PREMS, & Effectiveness Programme (NPP&EP) and other partners, to pilot tools and data capture methods, which will inform a consistent approach to PROMS & PREMS for cancer. The Quality Statement for Cancer **Please : there are outstanding questions relating to tool selection, data capture intervals, data capture methods and data analysis / reporting which **may** prevent the implementation of PROMS & PREMS across all pathways at this time. PROMS & PREMS have been included in the pathways, in recognition of this work, and will be updated pending further advice from the CSGs.* Patient Reported Experience Measures (PREMs) are questionnaires that patients are asked to complete at **any time** during their pathway to help professionals to understand their experience of NHS services. This information is crucial to understanding the value of healthcare as perceived by patients. Welsh Government (2018/19). Chief Medical Officer Annual Report **Please Note: Whilst it is good practice to collect PREMS throughout the pathway, there is no current standard for cancer PREMS in Wales; further advice regarding this will be sought via the CSGs in due course.*
Communication	Clinicians must ensure patients are kept up to date about their care pathway and are supported to make individualised choices about their treatment. Clinicians should consider the value of interventions and discuss with the patient the likely outcome of treatment options. Clinicians in secondary and tertiary care must ensure that all decisions relating to a patient's care or treatment are communicated to the patient and their primary care clinician in a timely manner and within 24 hours of diagnosis. Clinicians must ensure that the clinical intention of any intervention such as tests or treatment is clear to patients, and whether it is just a stage of the agreed pathway or considered start of first definitive treatment and as such ends the pathway. Clinicians must make contemporaneous records of discussions and decisions and include reasons for deviations from recommended clinical practice in the patient's clinical record. Decisions should be made in a timely manner, and any onward referrals be completed promptly, according to local/national guidelines and optimal pathways and include adequate

	information to allow the receiving clinician to initiate appropriate interventions with the minimum of delay. Referrers must ensure that the patient is aware and agrees for a suspected cancer referral to be made. Suspected cancer pathway: guidelines (WHC/2023/025) | GOV.WALES **Treatment Summary** A treatment summary is a tool completed by secondary care professionals after a significant phase of a patient's cancer treatment. A treatment summary describes the patients cancer diagnosis, prognosis, and aim, types and side effects of any treatment that they have had. It also highlights any signs and symptoms of recurrence that the patient needs to be aware of. It is designed to be shared with the person living with cancer and their GP either electronically or as a paper document, and should use easy to understand, clear and concise language. Additionally, it can be used by the person affected by cancer to help inform other health and social care professionals, employers/occupational health or financial institutions e.g. benefits services or banks, about their cancer care and treatment.
Research	Patients should have the opportunity to take part in research and clinical trials where available. People in research | Health Care Research Wales (healthandcareresearchwales.org) EC Trial Finder | ECMC (ecmcnetwork.org.uk)