# Lung Health Check Operational Pilot for Wales

**Executive Summary**

## Evaluation Report 1

September 2024

GIG CYMRU NHS WALES
Gwiriad Iechyd yr Ysgyfaint
Bwrdd Iechyd Prifysgol
Cwm Taf Morgannwg
University Health Board
Lung Health Check

GIG CYMRU NHS WALES
Rhwydwaith Canser
Cancer Network

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## About this report

This is an Executive Summary of Evaluation Report 1 for the Lung Health Check Operational Pilot for Wales. The full report will be made available through the Cancer Network website.


## Funding acknowledgements

The Wales Lung Health Check Operational Pilot has been supported by a financial grant from Roche Products Ltd, grant from MSD (Merck Sharp & Dohme (UK) Limited), Sponsorship Agreement from Novartis Pharmaceuticals UK Limited, Partnership Agreement with Moondance Cancer Initiative and funding from Tenovus Cancer Care following a prior donation from Bristol Myers Squibb Pharmaceuticals Limited.

# Foreword

Lung cancer is the biggest cause of cancer death in Wales, and whilst we know that patients generally receive very good care and treatment, we also know that survival is below that of our international peers. The majority of lung cancers are diagnosed at a late stage in Wales and the UK, when treatment options are less likely to lead to long-term survival. It is therefore crucial that we address this to improve outcomes for our patients, and a national screening programme is the ideal approach to achieving this. We also know that lung cancer has differing effects across our population, widening the inequality gap between the most and least deprived in society, further emphasising why this must be a key area of focus to improve the outcomes for our population.

In recognition of this, the Cancer Network has focussed on lung cancer screening as a priority over a number of years, initially by commissioning a scoping report with recommendations for the way forward in Wales, and more recently by introducing a programme team to deliver these. The scoping report highlighted the range of evidence that has been developed, demonstrating the impact that targeted lung cancer screening can have on the identification of lung cancers at an earlier stage and ultimately on patient outcomes. The recommendation to deliver a pilot in order to test this within the Welsh healthcare system, and to gain advance learning to inform a future national Screening or Health Check Programme, was accepted and the work undertaken since then has been a testament to the opportunities for partnership-working across the NHS as well as with Industry and the Third Sector. We are incredibly grateful for the support of a number of partners as identified throughout this report, without whom this pilot may not have happened.

As this report sets out, targeted lung cancer screening offers significant opportunity to improve lung cancer outcomes across Wales, and we must now embrace this as a nation to implement a national screening service as quickly as possible. We are now in a far better position to engage in the design and roll-out of a screening programme in Wales following the positive recommendation for implementation of lung cancer screening by the UK National Screening Committee in 2022. Whilst there will be many challenges in delivering this, including finance, workforce and capacity, we know that this has the opportunity to transform the lives of people across Wales. Targeted lung cancer screening could have a greater impact on cancer outcomes than any other new intervention that is currently available to us and we must, therefore, work together to ensure that this is delivered. We will work with all our cancer partners and stakeholders in Wales to deliver a high-quality programme that is effective, efficient and providing equitable access to the people of Wales, as soon as safely possible.

**Prof Tom Crosby OBE**
National Cancer Clinical Director
National Strategic Clinical Network for Cancer,
NHS Wales Executive

# Executive Summary

## Background and overview

1. Targeted low-dose CT (LDCT) screening for lung cancer has been recommended for implementation by the UK National Screening Committee. Lung cancer screening reduces lung cancer mortality by around 20% by finding lung cancer at an earlier stage.
2. Plans for the Wales Lung Health Check (LHC) Operational Pilot (OP) developed following scoping work by the National Strategic Clinical Network for Cancer.

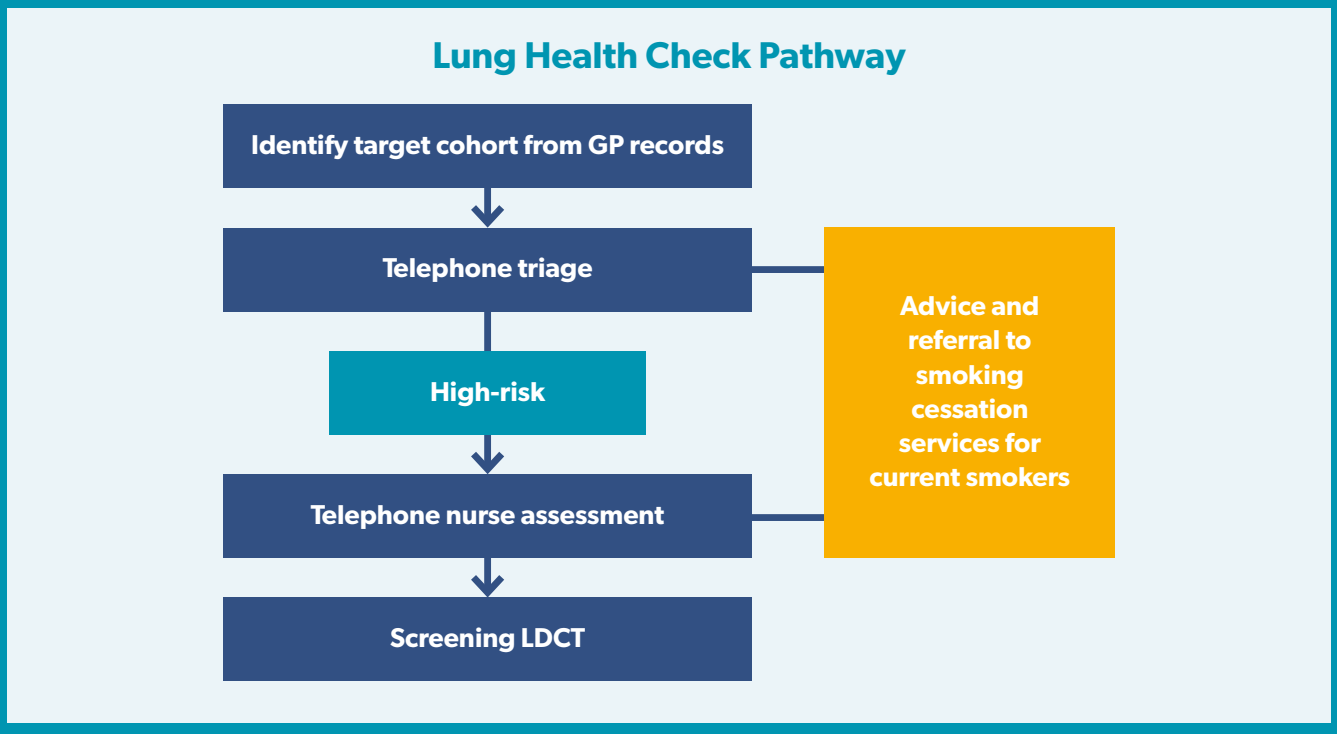
   The aims of the OP are to:

   a. Provide immediate health benefits to the pilot cohort

   b. Provide advance learning and modelling to support and de-risk the rollout of a future programme in Wales

   c. Develop a core team who would gain experience to be used as the nucleus for a future national rollout

3. This report covers the inception, planning, delivery and results of the OP up to the point of completion of baseline and 3-month recall LDCT scans.
4. The OP is being delivered by Cwm Taf Morgannwg University Health Board with support from the National Strategic Clinical Network for Cancer, and funding from Industry and Third sector groups.
5. The OP invited people from selected GP practices in North Rhondda aged 60-74 years, who had ever smoked, for a LHC. The LHC included an opt-out telephone triage appointment to determine the participant's personalised risk of developing lung cancer using standardised multivariable risk assessment tools. Those at high risk were offered a telephone nurse assessment followed by a screening LDCT scan. Current smokers were offered advice and opt-out referral to local smoking cessation services.

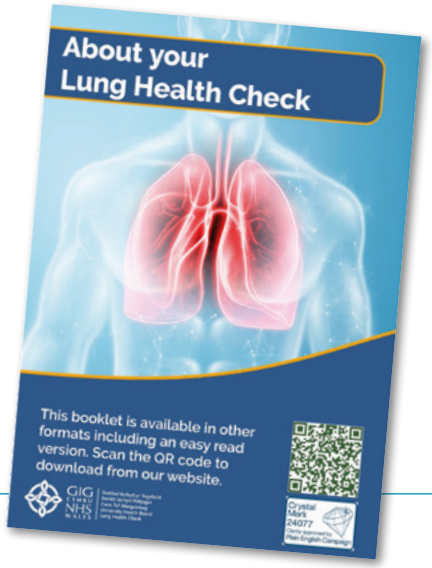


## Preparation

6. Extensive planning for the OP was required including development of a business case, securing of funding, establishment of a governance structure, development of a pathway and service model, modelling work to project the expected activity, and gaining of numerous permissions and approvals to proceed. Following a procurement process, aspects of the OP were delivered in partnership with InHealth and Heart&Lung Health.

7. Protocols were established to underpin identification of the target population from GP records, the invitation process, assessment of participants, delivery and reporting of LDCT scans, and management of findings.

8. A comprehensive communications plan was established, including development of evidence-based public-facing materials designed with public and patient involvement.




9. The invitation process, participant pathway and communications plan were designed to optimise uptake of the OP by the at-risk population, aiming to overcome known emotional and practical barriers to participation in lung cancer screening.

## Delivery

10. Invitations and telephone triage commenced in August 2023, and telephone nurse assessments and baseline LDCT scans were undertaken in September to November 2023. LDCT screening scans were performed using a mobile CT scanner located at Ysbyty Cwm Rhondda.

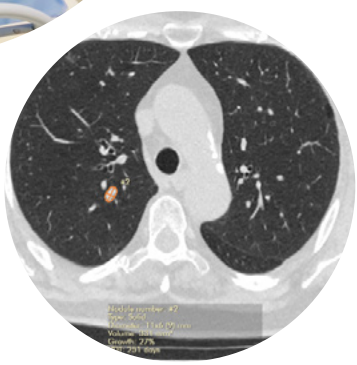
11. LDCT scans were reported by thoracic radiologists from across Wales using a cloud-based reporting system, supported by Artificial Intelligence computer-aided lung nodule detection software and a standardised reporting protocol.

12. Participants with suspected lung cancer underwent further investigation via the Single Cancer Pathway at the Royal Glamorgan Hospital lung cancer service.

13. Participants with small lung nodules requiring surveillance were recalled for a further scan after 3 months. Those with persisting nodules will be recalled for a further scan 12 months after their baseline scan (September to November 2024).

14. All suspected cancers, lung nodules and potentially actionable incidental findings were reviewed at a weekly Screening Review Meeting to determine the most appropriate course of action.

15. Semi-automated standardised results letters were generated and sent to participants, incorporating lifestyle advice for those with common incidental findings such as coronary artery calcification or emphysema.

## Results

16. In total, 2128 people aged 60-74 years who had ever smoked were invited from two GP practice groups. Of those invited, 1241/2128 (58.3%) completed telephone triage and of these, 860/1241 (69.3%) were determined to be at high risk of lung cancer. Following telephone nurse assessments and exclusions due to ineligibility, 608 participants were referred for a baseline LDCT scan, with 547 baseline LDCT scans ultimately performed (547/608, 90.0% of those referred for LDCT). The most common reason for ineligibility to proceed was CT thorax imaging in the previous 12 months.

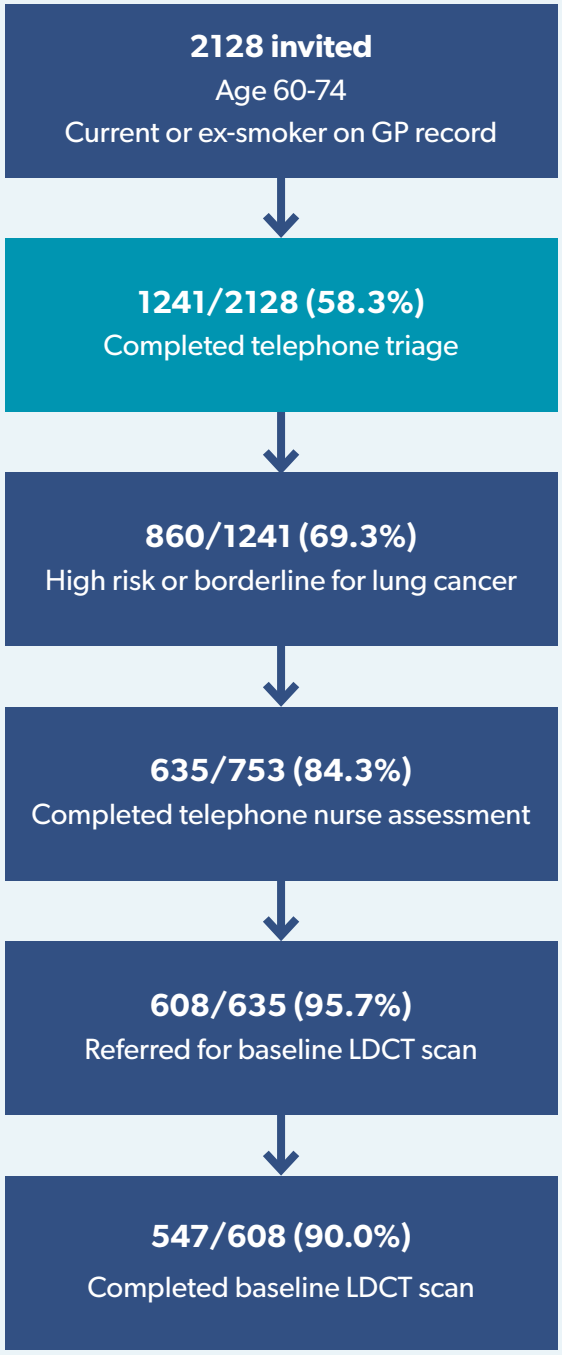
17. Of participants who completed telephone triage, 341/1241 (27.5%) were current smokers. Participants who completed telephone nurse assessment were generally fit, with 90.2% having an ECOG Performance Status of 0-1 and 77.5% having a mMRC Dyspnoea Scale Grade of 0-1.

18. Combined from baseline and 3-month recall scans, thirteen participants underwent further investigations for suspected lung cancer, with 12 ultimately receiving a lung cancer diagnosis (cancer detection rate = 2.2%, number needed to scan per lung cancer diagnosis = 46, false-positive rate = 0.2% of those scanned).

19. Of lung cancers diagnosed through the OP, 66.7% were early stage (stage 1-2), 66.7% underwent surgical resection as the primary treatment modality, and 83.3% received treatment with radical (curative) intent.

20. Of participants who underwent a baseline LDCT scan, 17.6% had a small lung nodule requiring a recall scan following Screening Review Meeting discussion.

### Pilot throughput



21. There were 7.3 actionable incidental findings per 100 baseline LDCT scans following Screening Review Meeting discussion. The most common actionable incidental finding was moderate/severe aortic valve calcification, which resulted in referral to the local Cardiology service for echocardiography.

22. Through discussion at Screening Review Meetings, almost a quarter of reported small lung nodules (23.6%) and nearly half of potentially actionable incidental findings (42.9%) became non-actionable, most commonly due to findings being present on previous imaging or medical records.

23. Coronary artery calcification and emphysema were common incidental findings, with each finding present on more than half of scans undertaken. Most cases of coronary artery calcification and emphysema were mild, and most with severe findings were already on risk-modifying medication for cardiovascular disease or had a known diagnosis of chronic obstructive pulmonary disease (COPD).

24. No invasive tests or surgical resections for suspected lung cancer were undertaken in participants who were not ultimately diagnosed with lung cancer.

# Discussion

25. Uptake of the OP by the target population compares favourably to most other lung cancer screening/LHC activities elsewhere. This suggests that the strategies employed in the OP to overcome barriers to participation, through communications and pathway design, were successful and can provide a template for a future national programme.

26. Results related to the clinical effectiveness of the OP are aligned with those seen in lung cancer screening activities elsewhere, and compare favourably to lung cancers diagnosed through usual care in Wales, particularly in relation to stage of lung cancer at diagnosis and treatment intent.

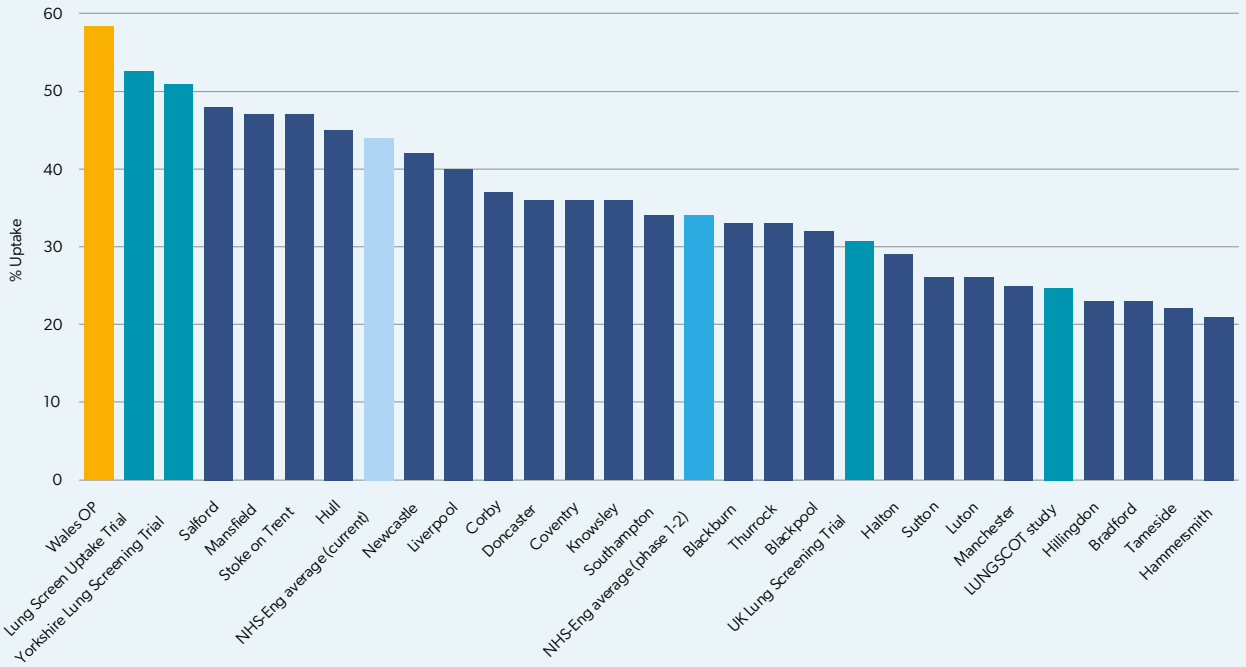
27. The results of the OP provide assurance that:

**a. Lung cancer screening can be delivered effectively within the Welsh healthcare system**

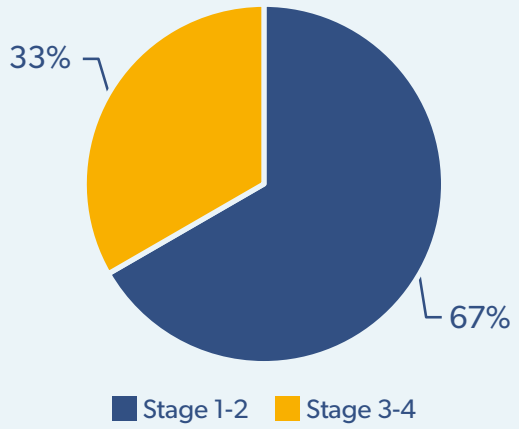
**b. Lung cancer screening is likely to yield benefits similar to those seen in studies, pilots and programmes elsewhere**

**c. A lung cancer screening programme would significantly improve lung cancer outcomes compared to current care in Wales**

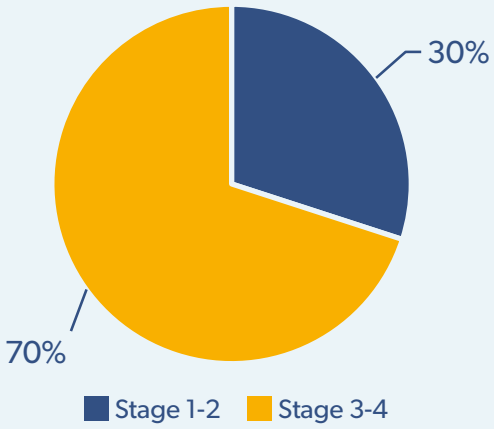
## Uptake of Pilot compared to other UK Lung Health Check activities



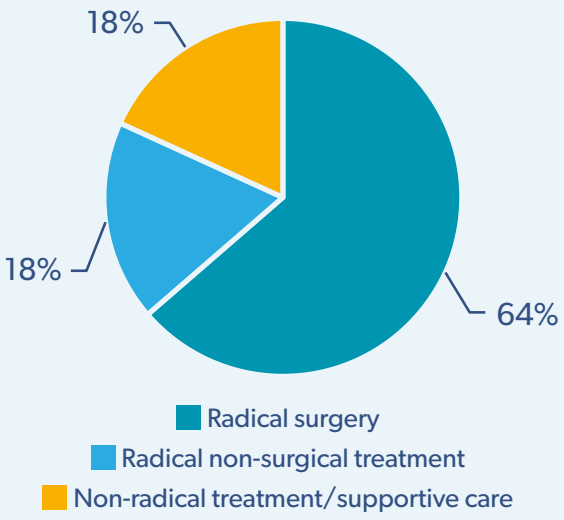
### Stage of lung cancers diagnosed through the OP



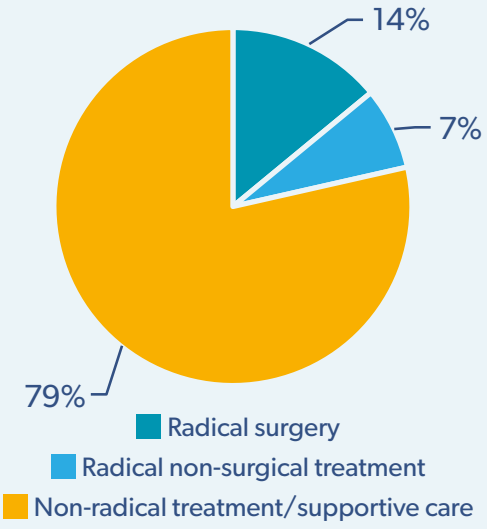

### Stage of lung cancers diagnosed through usual care in Wales




### Treatment intent/primary treatment modality of non-small cell lung cancers diagnosed though the OP




### Treatment intent/primary treatment modality of non-small cell lung cancers diagnosed through usual care in Wales




## Next steps

28. Clinical activity of the OP is due to conclude in late 2024 with completion of 12-month recall scans for small lung nodules. A second report covering 12-month recall scans, smoking cessation pathways and experience of participants and healthcare professionals involved in the OP is planned for March 2025.

29. Welsh Government have commissioned Public Health Wales to undertake a project reviewing how targeted lung cancer screening could be delivered in Wales in the future. This project commenced in April 2024 and will be informed by the delivery and findings of the OP.