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SEARCH: Screening for early detection of second lung cancer after radiotherapy or chemotherapy for Hodgkin lymphoma

Submission date 19/03/2026	**Recruitment status** Recruiting	[X] Prospectively registered [X] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 30/03/2026	**Overall study status** Ongoing	
Last Edited 18/08/2026	**Condition category** Cancer	

Plain English summary of protocol

Background and study aims
People who have been treated for Hodgkin lymphoma in the past have a higher risk of developing lung cancer later in life. This increased risk is mainly due to the radiotherapy and chemotherapy they received as part of their earlier cancer treatment. Lung cancer in this group is often found late, when it is harder to treat, because there is currently no dedicated screening programme for Hodgkin lymphoma survivors.
The SEARCH study aims to find out whether offering a lowdose CT (LDCT) lung scan to higherrisk survivors is practical, acceptable, and effective within the NHS. The study also aims to understand how best to identify people at higher risk, how people feel about being invited, and whether screening is equally accessible to everyone.

Who can participate?
Adults aged 45–74 years who:
previously had classical Hodgkin lymphoma,
completed their treatment at least 3 years ago,
have a history of smoking, and
are well enough to undergo lung cancer treatment if anything is found.
People must also be able to give informed consent.

What does the study involve?
Participation happens in several steps:
Invitation – Potential participants are identified through NHS records and invited by text message.
Initial telephone assessment – A screening nurse checks eligibility and explains the study.
Lung Health Check (LHC) – A short appointment (usually by phone or video) where the participant gives consent, answers health questions, and has their personal lung cancer risk calculated.
Lowdose CT scan – People found to be at higher risk are offered an LDCT scan at an NHS hospital or mobile unit.
Results and followup – Scan results are sent by post or phone using standard NHS processes.

Questionnaires – Participants complete short questionnaires at the start, 3 months, and 6 months to understand their experiences.
Some participants may also be invited to optional interviews or to give a saliva sample.

What are the possible benefits and risks of participating?
Possible benefits:
The LDCT scan may detect early signs of lung cancer, when treatment is more successful.
Participants may feel more informed about their lung health.
The study will help the NHS decide whether to offer screening widely to Hodgkin lymphoma survivors.
Possible risks or burdens:
Lowdose CT scans involve a small amount of radiation.
The scan may detect findings that need further tests.
Some people may feel anxious before or after receiving results.
The study team minimises these risks through national safety procedures and clear information before, during and after the scan.

Where is the study run from?
The study is sponsored by The University of Manchester and delivered by NHS Lung Health Check teams across participating NHS Cancer Alliances in England.

When is the study starting and how long is it expected to run for?
The study is expected to begin in 2026 and run for approximately 2–3 years, including recruitment, scans, and followup.

Who is funding the study?
The SEARCH study is funded by SBRI Healthcare (NHS Cancer Programme Innovation Call), with additional support from the NIHR Manchester Biomedical Research Centre.

Who is the main contact?
Professor Kim Linton
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Contact information

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Public

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Additional identifiers

Integrated Research Application System (IRAS)
357604

Study information

Scientific Title
SEARCH: Screening for Early detection of second cancers After Radiotherapy and Chemotherapy for Hodgkin lymphoma . Implementing and evaluating lung cancer screening for high-risk Hodgkin lymphoma survivors within the NHS national lung cancer screening programme

Acronym
SEARCH

Study objectives
The primary objective of the SEARCH study is to determine the proportion of lung cancers detected at an early stage (stage I–II) among highrisk Hodgkin lymphoma (HL) survivors who meet PLCOHL risk criteria and undergo lowdose CT (LDCT) screening within an adapted NHS Lung Cancer Screening Programme pathway.

Secondary objectives are to:
1. Describe lung cancer screening outcomes, including cancer detection rate, stage distribution, histological subtype, falsepositive and falsenegative rates, incidental findings, and rates of curativeintent treatment.
2. Compare the performance of lung cancer risk prediction models (PLCOHL, PLCOm2012 and LLPv2) in HL survivors, including measures of predictive accuracy and calibration.
3. Assess participation, feasibility and acceptability of the screening pathway at each stage (invitation, lung health check, LDCT, optional saliva sampling and patientreported outcomes).
4. Evaluate health inequalities in access, engagement and screening outcomes across demographic and socioeconomic groups.
5. Assess feasibility and operational delivery of implementing a PLCOHL riskadapted screening

pathway across multiple NHS Cancer Alliances.
6. Undertake a healtheconomic evaluation, including costeffectiveness, cost per earlystage cancer detected, qualityadjusted life years (QALYs) gained and return on investment.
7. Assess environmental impact, including carbon emissions associated with screening and emissions potentially avoided through earlier diagnosis.

Exploratory objectives include evaluating enhancements to lung cancer risk prediction using additional clinical variables, assessing the performance of emerging risk models, and exploring the contribution of polygenic risk scores to lung cancer risk stratification in HL survivors.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 18/06/2026, Health and Social Care Research Ethics Committee A (HSC REC A) (Office for Research Ethics Committees Northern Ireland (ORECNI) BSO, Floor 2, James House, 2-4 Cromac Avenue, Belfast, BT7 2JD, United Kingdom; +44 (0)28 95 361400; reca@hscni.net), ref: 26 /NI/0059

Primary study design
Interventional

Allocation
N/A: single arm study

Masking
Open (masking not used)

Control
Historical

Assignment
Single

Purpose
Screening

Study type(s)

Health condition(s) or problem(s) studied
Lung cancer risk among survivors of classical Hodgkin lymphoma

Interventions
SEARCH is a multicentre, pragmatic, realworld evaluation study integrating a riskadapted lung cancer screening pathway for highrisk Hodgkin lymphoma (HL) survivors within the NHS Lung Cancer Screening Programme (LCSP).
Eligible participants are identified through primary care searches and direct referrals across multiple NHS Cancer Alliances in England. Following an optin invitation, participants attend a Lung Health Check (LHC) where informed consent is obtained and standardised data on demographics, clinical history and smoking behaviour are collected.
Automated lung cancer risk assessment is performed using the investigational PLCOHL risk

model alongside standard LCSP risk models (PLCOm2012 and LLPv2). Participants meeting predefined highrisk thresholds are offered screening. Outcomes are evaluated using routinely collected NHS data and studyspecific assessments. Analyses are primarily descriptive, focusing on screening outcomes, feasibility, acceptability, health inequalities, and economic impact.

Interventions
The intervention is a riskbased lung cancer screening pathway, comprising the following components:
Risk assessment at Lung Health Check
Participants undergo automated lung cancer risk assessment using PLCOHL in addition to standard LCSP risk models to identify those at elevated risk.

Lowdose CT (LDCT) screening
Participants identified as high risk are offered a baseline LDCT scan delivered under standard NHS LCSP clinical governance. Image acquisition, reporting, nodule surveillance and referral pathways follow existing LCSP protocols. Clinical management of findings occurs entirely within routine NHS care.

Followup and outcome assessment
Participants are followed for screening outcomes including lung cancer detection, stage at diagnosis, incidental findings and treatment outcomes, using routine NHS records and study data collection at defined followup points.

Patientreported outcomes (PROs)
Participants complete questionnaires at baseline and followup to assess acceptability, experience of screening, anxiety, quality of life and smoking behaviour.

Optional saliva sampling (research component)
Participants may optionally provide a saliva sample for genetic analysis. Samples are used for exploratory research purposes only, including genotyping and development of polygenic risk scores, and do not inform clinical decisionmaking.

Smoking cessation support
All current smokers are offered brief smoking cessation advice and referral to NHS smoking cessation services in line with LCSP standards.

The study does not involve investigational treatments. All imaging and clinical care are delivered through existing NHS pathways, with the intervention focused on riskbased identification and targeted screening.

Intervention Type
Device

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
PLCO-HL

Primary outcome(s)

1. Proportion of early stage (stage I–II) lung cancers detected among high risk Hodgkin lymphoma survivors measured using lung cancer diagnosis and stage determined using routine NHS clinical records including radiological assessment, multidisciplinary team review, and histological confirmation where available, with staging classified using the TNM system and cancers identified through baseline and surveillance low dose CT scans at baseline screening and during follow up for up to 12 months after screening

Key secondary outcome(s)

Completion date
01/06/2027

Eligibility

Key inclusion criteria
1. Previous classical Hodgkin lymphoma treated with chemotherapy ± radiotherapy; no relapse or HL treatment within the past 3 years
2. Age 45–74 years at identification.
3. Eversmoker (current or former), with smoking history verified (typically ≥100 lifetime cigarettes or equivalent).
4. Able to undergo LDCT, including ability to lie flat and weight ≤200 kg
5. Medically fit for potential curativeintent lung cancer treatment (i.e., not severely frail and not on palliative care pathways).
6. Capacity to give informed consent
7. Individuals with a prior thoracic CT within 24 months may participate if imaging meets study standards (still complete LHC, risk assessment, ePRO, etc.)

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
45 Years

Upper age limit
74 Years

Sex
All

Total final enrolment
500

Key exclusion criteria
1. Neversmokers: Individuals with no history of ever smoking
2. Lack of capacity to consent: Unable to provide informed consent at the time of enrolment
3. Incorrect lymphoma diagnosis: Any lymphoma other than classical Hodgkin lymphoma
4. History of lung cancer ≥24 months previously: Participants with a diagnosis of lung cancer

occurring ≥24 months prior to identification
5. Unsuitable for LDCT scanning. Including:
5.1. Weight >200 kg
5.2. Unable to lie flat
5.3. Any physical, clinical, or technical contraindication preventing LDCT acquisition
6. Not medically fit for curativeintent treatment. Including:
6.1. Severe frailty (eFI >0.36)
6.2. Registered on a palliative care register
6.3. Metastatic cancer with poor prognosis
6.4. Any comorbidity making curative treatment inappropriate
7. Selfreferrals from outside England: Individuals selfreferring from outside England are not eligible

Date of first enrolment
01/09/2026

Date of final enrolment
01/05/2027

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Manchester University NHS Foundation Trust
Cobbett House, Oxford Road,
Manchester
England
M13 9WL

Study participating centre
University Hospital of North Midlands NHS Trust
Newcastle Road
Stoke-on -trent
England
ST4 6QG

Study participating centre
Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust
Doncaster Royal Infirmary
Armthorpe Road
Doncaster

England
DN2 5LT

Study participating centre
Royal Eye Infirmary - University Hospitals Plymouth NHS Trust
Derriford Hospital
Derriford Road
Derriford
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PL6 8DH

Study participating centre
University Hospital Southampton
Southampton University Hospital
Tremona Road
Southampton
England
SO16 6YD

Study participating centre
NHS Cambridgeshire and Peterborough Integrated Care Board
Gemini House, Bartholemew's Walks, Cambridgeshire Business Park
Cambridge
England
CB7 4EA

Study participating centre
Harrogate and District NHS Foundation Trust
Harrogate District Hospital
Lancaster Park Road
Harrogate
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HG2 7SX

Study participating centre
The Royal Marsden Hospital Pathology Services
Royal Marsden Hospital
Fulham Road
Chelsea
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SW3 6JJ

Sponsor information

Organisation
University of Manchester

ROR
https://ror.org/027m9bs27

Funder(s)

Funder type

Funder Name
SBRI Healthcare (NHS Cancer Programme Innovation Call)

Funder Name
Manchester Biomedical Research Centre

Alternative Name(s)
NIHR Manchester Biomedical Research Centre, Manchester BRC, NIHR Manchester BRC, NIHR Manchester Biomedical Research Unit, Manchester NIHR BRC, Manchester NIHR Biomedical Research Centre, Biomedical Research Centre, BRC, NIHR BRC

Funding Body Type
Government organisation

Funding Body Subtype
Research institutes and centers

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file	version 0.7	02/06/2026	18/08/2026	No	No