NHS
North Central London
Cancer Alliance

AI Risk Stratification for earlier detection of cancer

Project lead and organisation - Dr Afsana Bhuiya, Alex Blakoe

Partner organisation(s) involved - TBC (see WP2)

Funding requested (£) - £300,000

Proposed start and end dates - September 2026 – March 2029

Summary

This bid addresses the NHS priority of improving early cancer diagnosis (ED), which is strongly linked to better survival, reduced morbidity, and lower system costs. It proposes the development and implementation of AI Risk Stratification (AIRS) tools to identify high-risk individuals at a population level before symptoms arise, enabling earlier investigation and treatment.

The project focuses on priority tumour sites in North Central London: lung, colorectal, breast, pancreatic, ovarian, and oesophageal-gastric cancers. It builds on existing work, including a planned prospective study validating an AIRS tool for lung cancer.

Three work packages are proposed. WP1 aims to improve data completeness, potentially using NHS App-based population surveys to enhance risk factor data. WP2 would develop and validate AIRS models for additional tumour sites using federated datasets, in collaboration with external or academic partners. WP3 would design and test real-world clinical pathways, ensuring safe, feasible integration of AI-driven case finding across primary and secondary care.

The project aligns with national goals to increase early-stage diagnoses, improve five-year survival, reduce inequalities, and enhance system efficiency. It requires significant resources, including project management, data science expertise, and evaluation capacity, and is intended to inform a broader pipeline of AI-enabled risk stratification initiatives.

NHS North Central London Cancer Alliance

NCLCA Big Ideas Fund – Expression of Interest

Section 1 – Project Details			
Proposal title	**AI Risk Stratification for earlier detection of cancer**	**Project lead and organisation**	**Dr Afsana Bhuiya Alex Blakoe**
Partner organisation(s) involved	**TBC (see WP2)**	**Funding requested (£)***	**300,000**
Proposed start and end dates*	**September 2026 – March 2029**		
Section 2 – The Idea			
1. What is the challenge you are seeking to address?*	Early Diagnosis (ED) of cancer remains a significant and well-recognised challenge for the NHS and is a central national priority. ED is associated with markedly improved survival, reduced morbidity, and better quality of life, as patients are more likely to benefit from less invasive treatments and curative interventions. In addition to improved patient outcomes, ED offers important system-wide benefits, including reduced demand for complex, costly treatments and more efficient use of healthcare resources. **AI Risk Stratification (AIRS) tools that support population-level case finding** directly address this challenge by proactively identifying individuals at higher risk before symptoms emerge, enabling earlier investigation, timely intervention, and ultimately contributing to improved clinical outcomes and greater sustainability of the healthcare system.		
2. What is your proposed project and – at a high level – how would it be delivered?	Our ultimate aim is to develop, test, and implement AIRS-enabled population level case finding pathways that improve ED rates for NCL priority tumour sites: lung, colorectal, breast, pancreatic, ovarian, oesophageal-gastric. This project would enable us to move forward significantly in achieving this aim, positioning NCLCA as a thought leader in this space. It would also build on existing work, in particular a planned prospective study to validate an AIRS tool for lung cancer developed by a startup, Quantum Analytica. The project would comprise of three concurrent work packages: • **Work package (WP) 1:** To support better data completeness to further strengthen the lung AIRS tool. Initially we would appraise an option for a population level survey completed by members of the public via the NHS App to support demographic/risk factor data completeness. This would build on work we are already leading on data completeness in primary care. • **WP2:** To develop and validate AIRS model(s) capable of identifying individuals at elevated risk for one or more of our other priority tumour sites (i.e. beyond lung). This will build on a retrospective analysis already completed using NCL federated datasets that looks at potential risk factors for our priority tumour sites. Delivery of this work package will require collaboration either with an external partner, such as Quantum Analytica, or		

	through collaborating with an academic partner to secure data science expertise to design, train, and test the algorithms. The tool would be taken through key stages of development, including model building, technical validation, and clinical validation within NHS settings. • **WP3:** To define and validate the future 'real world' clinical pathways for AI-enabled case finding at a population level. This will involve mapping how patients identified as higher risk would move through the system, including points of triage, relevant screening test or diagnostic investigation, and referral across primary and secondary care. Clinical engagement will be required to test the feasibility and safety of these pathways, ensuring appropriate follow-up options are available for different risk categories and tumour sites. We would need to define operational requirements, workforce implications, and integration points within existing services (e.g. GP, community diagnostics, screening programmes).
Section 3 – Impact & Strategic Alignment	
3. Which NCL strategic objectives and/ NCP ambitions does your project align with?	- Improve survival, focusing on early diagnosis and prevention
4. What impact do you expect the project to have on NCL cancer outcomes and/or patient experience?	- Improve five-year survival - Support detection of 75% of cancers at Stages 1 or 2 - Improve system efficiencies and reduce costs - Reduce ED inequalities by identifying higher-risk individuals in underserved populations
Section 4 – Resources	
5. What do you see as the likelihood of attracting external funding?	High. ED is a key priority nationally and locally. AI and Risk Stratification are both attractive/high-interest technologies/tools. We have already had success in securing some funding to support the lung prospective study mentioned above via the OneLondon SDE Driver programme. We have also spoken to pharma companies that have expressed an interest in this area.
6. High-level indication of how the budget would be used*	- Project manager with research skills to support partner selection, project milestones, evidence reviews, pathway mapping, PPIE and stakeholder management **(WP1, WP2, WP3)**. - Data scientist to develop AIRS model(s) **(WP2)**. - Evaluation and modelling to assess effectiveness and economic / wider system (particularly diagnostics) impact on 'real world' pathways **(WP3)**.
Section 5 – Anything Else	
7. Is there anything else you would like to flag?	This project is intended to inform a broader pipeline of AIRS use cases across our priority tumour sites looking at other parts of the pathway where risk stratification can be effective (e.g. triage of USC referrals).

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Additional Guidance on Completing this EOI

General

- All EOIs must not exceed 2 pages.
- Please submit to by 25th June 2026.
- Only NCLCA colleagues may submit.

Section 1 – Project Details

- Our current expectation is that we will fund a small number of projects from a total funding pot of ~£600k.
- Proposed end date for the project must be no later than March 2029.

Section 2 – The Idea

- Question 1 - Describe the problem or unmet need. Include relevant data or evidence where possible.

Section 4 – Resources

- Question 6 - e.g., staffing, clinical time, technology, evaluation, overheads. Precise costings are not required at EOI stage.