Invitation to tender

Evaluation partner for accelerating prediction and prevention of urgent and emergency care in the NHS programme, North London's national demonstrator of AI-guided clinical coaching (AICC)

June 2024

UCLPartners (UCLP) are looking for an independent research team to conduct a 3-year evaluation of the AI for UEC programme implemented by Health Navigator (HN) in North London.

Background

About the AICC

Given extraordinary and increasing urgent emergency care (UEC) pressure in London and across England, a more proactive and preventative approach is needed to continue to deliver quality outcomes and drive system sustainability. This programme – delivered over three-years across a North London population of two million – will be a demonstrator of such an approach. Together, UCLP, North East London (NEL) ICS, and HN will deliver the AI for UEC programme to find and directly support 11,228 patients at high and rising risk of accessing unplanned care. Using routinely collected local hospital data, we will create bespoke machine learning algorithms to predict, with 8 out of 10 accuracy, high-intensity users of unplanned care, up to 6-months in advance. A six-month prediction window ensures sufficient time to intervene with a nurse-led tele-coaching intervention. HN's Clinical Coaches will work with patients to self-manage their conditions, improve outcomes, and reduce likelihood of unplanned hospital attendance, admission, and extended hospital inpatient spells. These clinical staff will be recruited from across the UK (avoiding additional strain to limited local workforce) and trained according to a Personalised Care Institute accredited programme. Based on HN's historic work, we expect the AI for UEC programme to save 2% of all unplanned bed days in NEL ICS, creating vital capacity on congested pathways.

Existing evidence and ongoing evaluation

AICC is validated by a 5-year, multi-centre RCT led by the Nuffield Trust. HN have demonstrated significantly increased PAM-13 scores, reduced UEC demand, decreased elective referrals, and significantly reduced mortality in elderly males. HN has twice been appointed to the National Innovation Accelerator programme to encourage the spread of AICC. In parallel to the delivery of AICC for North East London, North Central London (NCL) ICS is an evaluation comparator group where only the Health Navigator AI-guided case identification will take place, NCL will not receive the clinical coaching intervention.

Partners and stakeholders

This programme is sponsored and funded by NHS England to inform future policy and spread more effective Personalised Care. This support is based on the RCT evidence described above – evidence that has been assessed and approved in a deep-dive by NHS England's Economic and Strategic Analysis Team.

UCLP and HN will co-lead delivery, working closely with the leadership teams of North East and North Central London ICS'. We will engage hospital providers as needed (e.g., for information governance and data access) but, importantly, AICC is a high-impact low disruption intervention. We do not require administrative resourcing or clinical input beyond the initial limited set-up. In addition to ongoing direct feedback from patients enrolled in AICC, a PPIE group will be established to incorporate direct input from the public throughout delivery.

UCLPartners is a health innovation partnership spanning a population of 5 million+ in North Central and North East London and Mid & South Essex. Our role is to accelerate research translation and innovation adoption to transform outcomes in priority areas, reduce inequalities and improve the health of our population.

HN has spent seven years building, testing, and applying machine learning algorithms to routinely collected health data, identifying individuals with rising risk of future unplanned care activity.

Aims and objectives of the evaluation

We would like to work with an evaluation partner to perform the following core roles:

- Help the UCLP HN partnership to understand the impact and effectiveness of the AI for UEC programme by designing and delivering an effective Real World Evidence (RWE) evaluation approach.
- Design, collect and generate data for regular learnings and insights to improve impact and effectiveness of the AI for UEC programme.
- Independently and objectively assess the impact and effectiveness of the programme.
- Generate insight as to whether the AI in UEC programme was implemented as intended and identify learnings, facilitators and barriers to successful implementation.
- Extrapolate the results to a national level cost-impact scenario to support a wider business case for AI-guided prediction and prevention across the NHS.

We have devised four key research objectives to be answered by the RWE evaluation:

Objective 1: To understand the effectiveness in terms of non-elective activity, morbidity, mortality and other outcomes of a) the HN prediction tool for identifying patients with high service utilisation compared to standard care and b) the HN prediction tool when combined with HN health coaching where patients are amenable to a health coaching intervention.

Objective 2: To understand the acceptability of the HN health coaching intervention to patients, including sub-group analysis to explore variation on dimension of health inequality.

Objective 3: To understand patient activation, experience and quality of life for a) potential high utilisation patients identified through the HN prediction tool compared with b) potential high utilisation patients identified through the HN prediction tool who are amenable to a health coaching intervention

Objective 4: To understand (a) the cost effectiveness and budget-impact at system and national level of the HN prediction tool when compared with standard care and (b) cost effectiveness and budget-impact at system and national level of the HN prediction tool when combined with HN health coaching compared with standard care.

To understand the impact of the programme and meet the research objectives, questions to answer are likely to include, but are not limited to:

a. Does the Health Navigator clinical coaching improve patient activation, experience and quality of life as intended, by enabling them to live more independently and improving their health and wellbeing?
b. What is the wider system impact of the intervention on primary & secondary care, community services and the wider health and care sector?
c. Does the Health Navigator clinical coaching support changes to A&E utilisation as intended, reducing and enabling better management of reactive care?
d. Is there any impact on clinical outcomes such as morbidity and mortality?
e. From a health access equity perspective, what is the impact of the programme?
f. What is the cost-effectiveness and budget impact of the programme?
g. Extrapolating the results to national level, with consideration of regional and local demographic differences, what is the national business case for this approach?
h. What are the strengths and weaknesses of the AI in UEC programme and what opportunities and threats should future commissioners consider?
i. How far does the AI assisted HN clinical coaching (AICC) intervention provide value for money in comparison to standard care?
j. What potential confounding contextual factors are there and how do they affect implementation and outcomes between the intervention group and standard care?
k. What are the key recommendations for UCLP, HN and future commissioners to inform decisions about the future direction of AI assisted UEC interventions?
l. Who are the external stakeholders that this work is most relevant to and what are the key learnings and insights that are most relevant for these stakeholders?
m. How do patient outcomes and cost effectiveness compare between NEL, the intervention group, and NCL, the comparator group?
n. What are the barriers and enablers to patient participation in AICC; what factors influence attrition or refusal to participate?

Deliverables

We expect the following deliverables to be to be undertaken as part of this contract:

- Development of a comprehensive evaluation strategy and framework
- A discovery phase that reviews the existing evidence and previous evaluative approaches resulting in a comprehensive evaluation framework and health economic approach outlining the key evaluation questions with an outline of methods, data sources and analysis plans for each. We require that patient representation is included in the development of the evaluation framework and recommend at least two relevant patient organisations be consulted.
- Relevant NICE frameworks in relation to this kind of technology should be consulted as part of the evaluation framework development

Undertake creation of protocols, data collections and supporting action plans

- Development of relevant RWE research protocols outlining the approach and methodology, with associated information governance and local research ethics approvals for novel data collections where appropriate
- Evaluation Health Inequality Action Plan. Full outline of the proposed actions to be taken to reduce inequalities in the project. This will contribute to the overall Health Inequality Action Plan created and owned by HN.

Data collection and analysis

- Undertake safe, legal and secure data collection in line with planned protocols
- Manage all evaluation data and undertake appropriate analysis in line with planned methodologies and supporting action plans
- Utilise regular operational data flows to inform the learning health system focus areas (see Appendix 2)
- Attend the learning health system to gather regular insights from implementation of the AICC programme and feed in any emerging themes or learning from evaluative activities

Regular updates & reporting

- Monthly mobilisation updates during the project set up phase. Covering updates on evaluation planning and implementation and highlighting issues, blockers or insights that require escalation.
- Quarterly updates to wider programme group as part of attendance at Learning Health System. escalating any issues or early evaluative insights. This may include, but is not limited to details on clinical quality, friends & family scores, staffing levels and other feedback from patients or staff.
- Bi-annual health inequality action update. Summary of evaluative findings in relation to reducing inequalities.

Programme reporting & publication

- End of year 1 and year 2 interim evaluation report. A full account of the previous reports, containing lessons learned, informs any need for change and preliminary analyses.
- Final full RWE evaluation paper and related outputs Complete analysis of the three-year programme bringing together the key learnings and insights.
- Supporting publication in peer reviewed journals.

National business case -cost and complexity of wider implementation across the NHS vs patient impact, clinical impact and cost/resources impact

We are open to ideas about the format of data collection and reports to ensure they are accessible and meet the partnership's learning needs. We would like insight and learning updates every quarter to understand how the intervention is progressing and making impact over the 3 years.

Available data

Data access requests

In relation to quantitative clinical outcome and activity data, HN will submit detailed data access requests to collect information required to deliver the intervention for NEL and they will request the same data from comparator group NCL. This will include at least 3 years of longitudinal historical data and monitoring data for the duration of the intervention and 1 year after the end of the intervention programme for evaluation purposes.

The evaluation partner will manage data access and approvals for both NEL and NCL required to conduct the evaluation. Collaboration in data access requests from HN and the evaluation partner is encouraged and joint agreements involving the evaluation partner as an additional data processor will be undertaken where possible.

Learning Health System

In relation to operational programme learning, the AI for UEC programme of work will take a Learning Health Systems (LHS) approach to support and enable stakeholders involved to rapidly make decisions backed by data and evidence to improve how the programme is being and quickly monitor the immediate impact and adjust the approach as necessary.

UCLPartners will support the implementation of the AI for UEC programme with a LHS, focusing on **operational delivery** using a range of quantitative and qualitative tools to rapidly share learning through:

- creating a rich data stream,
- analysing and testing emerging insights,
- supporting decision making
- supporting programme leads to rapidly implement those decisions,
- closing the loop by checking reliability and effectiveness of that implementation

The data and insights surfaced by the UCLPartners delivered LHS will be a key data source for this evaluation. Respondents should explicitly describe how the LHS's continuously captured information will be leveraged and integrated into their proposed evaluation design and methods.

Health economic data

It will be the responsibility of the evaluation partner to source appropriate costing and other economic data required for full analysis of costs and cost effectiveness. The evaluation partner will undertake the relevant governance requirements to ensure such data can be flowed legally and stored securely.

Qualitative data

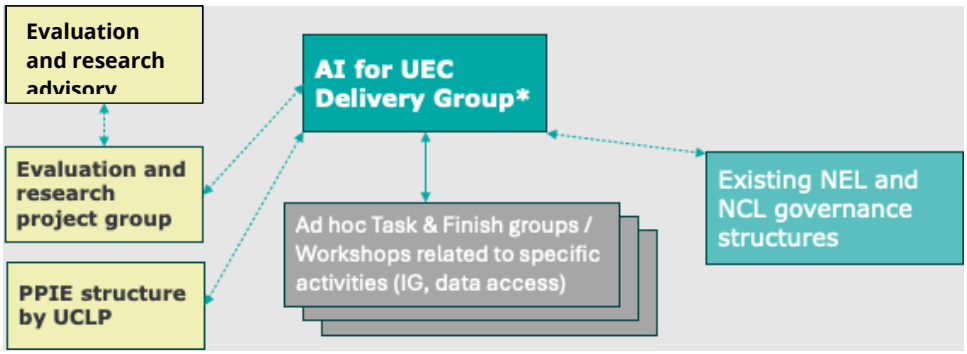
In relation to any qualitative data collected (e.g. through patient and staff interviews, surveys or observations), the evaluation partner will be required to undertake the relevant research ethics approvals and information governance

requirements to ensure data gathered through evaluation activities can be collected, stored and analysed ethically and legally.

Evaluation governance

To deliver the evaluation, an Evaluation and Research Project group will be established. The Evaluation and Research Project group will be formed by members from the appointed evaluation partner, UCLPartners, NEL, NCL and HN and be responsible for operational oversight of the evaluation delivery.

The Evaluation Advisory group will be chaired by UCLP and have participants with experience in HTAs, AI evaluation, health service evaluation and academic experts. The Evaluation and Research Advisory Group will work in parallel to the main Delivery Group described in the Service Delivery governance structure below, and provide expert input and guidance to the Project group:



A data review group will also be established; the purpose of this group is to assess KPIs that will be made available on a regular basis to inform how the programme is progressing. This group is not a formal part of the evaluation governance structure but will provide an opportunity to check and challenge interim findings of the evaluation against regular monitoring indicators.

Ways of working

The work will be managed by UCLPartners alongside Health Navigator as part of the evaluation and research project group. In the face-to-face inception meeting, we will co-design and agree ways of working, with a schedule of evaluation partner updates for the duration of the project. We expect to work collaboratively and agilely alongside the evaluation partner.

The evaluation partner will be required to produce 6-monthly updates to present at evaluation and research advisory group meetings as well as input into the quarterly insight and learning updates. Other expected reporting outputs detailing ways of working are; overarching evaluation framework, evaluation and research protocols, a health inequality action plan and updates and monthly mobilisation updates during the set up phase.

Upon submission of the final project report, we suggest continuing discussions regarding focused dissemination of key learnings. There may be interest in allocating budget post-project to produce one or two knowledge sharing outputs that make the findings accessible to priority audiences.

Time and capacity to prepare any required documentation for meetings and for key members of the steering or project groups to attend meetings should be built into your proposal.

Costs and expenses

All costs to conduct the evaluation should be included in the bid. This might include but not be limited to labour, hardware software license costs, costs for patient surveys or other IP protected assets needed to conduct the evaluation, ethical application and other application and submission fees related to the research.

Tender process

Please submit a succinct written proposal to outline your approach to this piece of work. We are open to working with either a single supplier or a consortium bid. Your proposal should include the following:

- A brief description of your organisation (or consortia) in terms of provided activities and services as well as the organisational governance and management structure (400 words)
- An overview of your tender (400 words)
- How will your tender meet the needs of the AI for UEC programme and the aims and objectives of this evaluation. (500 words)
- A research plan including proposed methods, use of data, governance and ethics, dissemination plan and how you will comply with good ethical practice (1500 words). If desired, diagrams and/or flow chart of activity can be included as an appendix.
- A project management plan (500 words)

- Your relevant experience and expertise, including specific experience from large-scale RWE studies, health economic assessments, cost-impact evaluations, business -and investment case creations (600 words)
- Details or biographies of the principal team members who will be working directly on this project and the skills and experience that they bring (500 words)
- Please provide full justification for your costs including value for money assessment (500 words)
- A breakdown of the programme budget
- At least two relevant client references accessible to UCLP in our evaluation of the tender
- Bibliography of your organisations' publications relevant to this programme and evaluation experience

The tender will be assessed by UCLPartners against the selection criteria and a small number of applicants supplying the strongest proposals will be shortlisted and invited to interview.

Selection criteria

The following criteria will be used to assess the applications to inform the shortlisting process

- The extent to which the approach meets the needs of the programme
- Quality, suitability and feasibility of the proposed approach
- Expertise in evaluating initiatives using a range of research methods and synthesising data from mixed methods approaches
- Knowledge of and previous experience working with complex health and care projects
- An awareness of AI led interventions and wider system implications
- Experience providing and disseminating insights to inform decision making and engage priority audiences
- Appropriate project management, risk management and quality assurance
- Capacity to deliver
- Value for money
- Appropriate data protection and ethics measures
- Commitment to accessibility

Costs

The budget is a maximum of £600,000 **including VAT and expenses**. We are open to working with either a single supplier or a consortium bid.

Timetable

Item	Date
Closing date for clarification questions to be submitted to ellie.boden@uclpartners.com	26th July 2024
Closing date for applications	2nd August 2024
Review of applications and shortlisting	w/e 16th August 2024
Confirmation of shortlisted applicants	23rd August 2024
Interviews to be held (one of the three days included)	3rd & 5th September 2024
Successful bidder to be notified	6th September 2024
Evaluation programme starts	
Inception meeting	
Evaluation framework and protocols submitted and approved by Delivery Group via UCLP	6 months from contract sign
Evaluation Health Inequality Action Plan Full outline of the proposed actions to be taken to reduce inequalities in the project, actions that will incorporate into the Health Navigator programme health inequality action plan.	6 months from contract sign
Monthly Mobilisation update Details on evaluation project progress, implementation and transformation. Covers issues, blockers, and ongoing risk monitoring.	From month 1 until all NEL live

6-monthly Report Details on clinical quality, including friends & family scores, staffing levels, other feedback from patients. Progress report and escalation of any issues or insights from the evaluation and research project group.	6 months after go-live
6-monthly Evaluation Health Inequality Action Update Summary of action taken by evaluation and research project group to reduce inequalities. Contributing to wider Health Inequality Action update owned by HN.	12, 18, 24, 30 months
End of Year 1 and 2 Interim Evaluation Full account of the previous reports, containing lessons learned and preliminary analyses.	Month 12, 24
Full Evaluation Paper and Related Journals Complete analysis of the three-year programme as conducted by evaluation partner.	Month 36

Confidentiality clause

By reading/responding to this document you accept that your organisation and staff will treat information as confidential and will not disclose to any third party without prior written permission being obtained from UCLPartners. Providers may be requested to complete a non-disclosure agreement prior to interview.

Conflict of interest

Applicants submitting proposals in response to this invitation must provide a written statement of independence and disclose any potential conflicts of interest that could undermine the impartial conduct of the work or subsequent

evaluation findings. This includes but is not limited to relevant past or present funding relationships, personal or professional affiliations, ideological perspectives or associations, or economic interests linked to organisations with a stake in this programme area. Applicants should outline the safeguards that would be put in place to mitigate the risk of actual or perceived conflicts arising during the delivery of services. UCLP reserves the right to adjudicate what constitutes an appropriate level of disclosure or unacceptable conflict prior to awarding the contract.

Publication

UCLPartners will have sign off on all final manuscript drafts before publication. Authorship will include acknowledgement of the project team, funders and members of the team who have contributed to the work, for example through implementation design or pathway maps. Academic intellectual property (IP) of the publication will belong to the appointed evaluation partner.

Ethics

The evaluation partner will seek relevant ethical approval for activity from relevant bodies such as the NHS or academic institutions. It is anticipated that an application to the NHS Health Research Authority Research Ethics Committee (REC) will be required.

Questions and accessibility

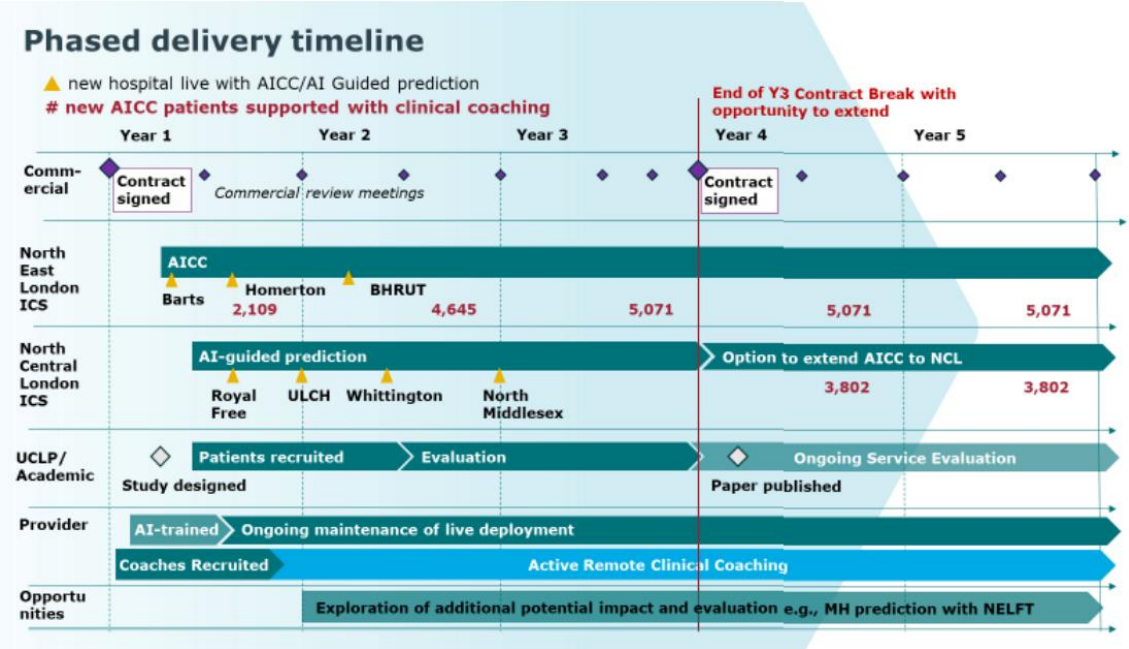
If you have any queries relating to the tendering process or the nature of the service required please email ellie.boden@uclpartners.com by 26th July. If you have any accessibility requirements to support you to submit a tender response, please contact **ellie.boden@uclpartners.com** and we will make adjustments where possible. We will aim to reply to queries within five working days.

How to apply

Please submit your application by 2nd August at 5pm to ellie.boden@uclpartners.com

Please include AI for UEC tender application in the subject line.

Appendix 1: Delivery timeline and management structure of AI for UEC programme



Appendix 2: Learning Health System research questions

The LHS will seek to answer the following questions. However, a flexible approach will be taken. Where no new insight is being gathered (i.e. there is a level of data saturation) the project team may decide to no longer continue this data gathering. Furthermore, if implementation begins and knowledge and insight gaps are identified, the team will seek to address and answer these.

- How many patients have taken up the offer of nurse coaching vs expected numbers?
- Are these patients representative of the local population?
- How many sessions have patients taken up with nurse coaches?
- How many patients have declined and why?
- What is the average number of sessions undertaken with nurse coaches?
- What is going well and what could be improved during the onboarding process? Nurse coaches and patient perspective
- What is going well and what could be improved in the nurse coaching sessions?
- What other healthcare and social services have patients accessed
- What has been positive about the experience with the nurse coach?
- What could be better about the experience?

- What has been the experience of patients 6 months and 1 year after accessing the service (i.e. patient wellbeing and contact with health services)

Appendix 3: Index of HN published evidence

Academic Papers

- Bull LM, Arendarczyk B, Reis S, et al. **Impact on all-cause mortality of a case prediction and prevention intervention designed to reduce secondary care utilisation: findings from a randomised controlled trial** Emergency Medicine Journal Published Online First: 12 October 2023. doi: 10.1136/emermed-2022-212908
- Cohen, J N. Nguyen, A. Rafiq, M Taylor, P. **Impact of a case-management intervention for reducing emergency attendance on primary care**: randomised control trial British Journal of General Practice 2022; 72 (723): e755-e763. DOI: 10.3399/BJGP.2021.0545
- Wieske, M. Poduval, S. Hamilton, F. Kirby, B. Werr, J. **Artificial intelligence enabled clinical coaching impact on patient health outcomes**: A prospective cohort study (2019) available here. Edgren, G., Anderson, J., Dolk, A., Torgerson, J., Nyberg, S., Skau, T., Forsberg, B. C., Werr, J., & Ohlen, G. (2016).
- Edgren, G., Anderson, J., Dolk, A., Torgerson, J., Nyberg, S., Skau, T., Forsberg, B. C., Werr, J., & Ohlen, G. (2016). **A case management intervention targeted to reduce healthcare consumption for frequent Emergency Department visitors: results from an adaptive randomized trial**. European Journal of Emergency Medicine, 23(5), 344–350.
- Reinius, P., Fjellner A., Johansson, M., Werr, J., Ohlén, G., & Edgren, G. (2013). **A telephone-based case-management intervention reduces healthcare utilization for frequent emergency department visitors**. European Journal of Emergency Medicine, 20(5), 327–334.
- Laher, S., Brackstone, C., Reis, S., Nguyen, A., White, S., & Habli, I. (2022). **Review of the AMLAS Methodology for Application in Healthcare**. arXiv preprint arXiv:2209.00421.

Wider Evidence

- **East Kent Poster, 2019** Poster produced by East Kent NHS analytics team – winners of Association of Healthcare Analysts' Team of the Year award.
- **HETT Slides, 2019** Healthcare Excellence Through Technology (HETT) 2019 – presentation of HN's RCT results.

- **Sara Reis, 2020** Ensuring fairness and inclusion in AI-guided patient screening
- **Prof. Matthew Cooke, 2021** – Reducing the high healthcare demand of a few individuals
- **NHSE Case Study, 2020** A case study of our York deployment, written by the NHS England Personalised Care Group.
- **Policy paper, 2020** produced to explain the benefits of clinical health coaching.
- **Videos** Interviews with HN, our NHS partners, and patients.