

Invitation to tender: Evaluating the impact of implementing an AI tool in a hospital trust setting to support the elective care backlog.



About the Eastern Academic Health Science Network

Our purpose is to turn great ideas into positive health impact.

We were established by the NHS to convene all partners in the health sector, to develop and deliver innovative solutions in health and care. Our focus is the East of England, but we are part of a national network which enables us to deliver at scale.

We believe citizens, academia, health services and industry will achieve more working together than they will in isolation. Our job is to make this happen. We do this by helping innovators to navigate complex systems, generate value propositions and connect stakeholders to overcome challenges together.

Introduction

This is an invitation to tender for research and evaluation services to understand the impact of the C2-Ai tool which is being implemented as a pilot project in collaboration with ESNEFT. The aim of this Ai enabled platform is to generate enhanced risk profiling of patients currently on elective care waiting lists. Drawing on the priority code assigned by the surgeon as well as individual patient's risk of complication and deterioration, C2-Ai produces a prioritised patient list – including prioritisation within priority codes. The independent evaluation will address the impact of the enhanced risk analysis on triaging patients for elective care using key indicators related to efficiency and patient outcomes. It will add to the evidence and insights informing future decisions regarding the development and scale up of this Ai based platform as an approach to support the NHS recovery from the pandemic.

Eastern AHSN, in partnership with ESNEFT and NHS E&I East, is seeking a suitably qualified supplier to provide evaluation services for this project.

The following table sets out the intended timetable for the submission of bids, their assessment, and the conclusion of the contractual arrangements.

Date	Milestone
24th November 2021	ITT published and issued to known suppliers
13th December 2021	12pm deadline for applications to be received
16^h December 2021	Scoring of applications conclude, applicants notified by email, preferred supplier/s notified, and due diligence begins
19th December 2021	Due diligence concludes, preferred supplier identified and Eastern AHSN sign MOU

This document sets out the lot available, the expected criteria suppliers should address in their bids, along with the timescale, methodology and process for submission, scoring and award.

Questions regarding this lot can be directed to jeremy.davenport@eahsn.org

Background

Due to the Covid-19 pandemic, there are now 5.6 million people who were waiting for their NHS treatment to begin in England as of 31 July 2021. In the East England, more than 620,000 patients are awaiting treatment, of whom nearly 35,000 had been waiting more than 52 weeks. All hospitals are required to undertake prioritisation of their Patient Tracking List (PTL), prioritising each patient on a range from P1-P6. However, the codes take no account of the risks posed by deterioration, co-morbidities, mortality rates, or other possible complications. The process of prioritisation and re-prioritisation also uses vital clinical and non-clinical staff time and capacity.

The pressure on NHS resources is compounded by the limited scope of current assessment methods to generate detailed risk profiles for each patient combined with a consistent means of triaging between patients with the same P number (with large numbers of patients currently allocated on the same P code). There are also observable differences in how patients are risk assessed with variation between locations with the most deprived areas demonstrating significantly longer waiting lists and times (Kings Fund, 2021). This waiting list challenge is having a negative impact on health and wellbeing outcomes for patients on the waiting lists combined with inefficiencies in how limited NHS resources are planned and managed to address patient needs.

Eastern AHSN were asked between June and July 2021 by NHS East, as part of the Radical Recovery workshops, to undertake a scoping and market review of Artificial Intelligence enabled technology that aims to triage the elective backlog. C2-Ai was identified as the most 'market-ready' product and we secured funding to implement a pilot project supporting the deployment of the C2-Ai platform with the East Suffolk and North-East Essex Foundation Trust (ESNEFT). This Pilot project will use the C2-Ai's enabled risk analysis to examine the P1-P6 priority codes and suggests a re-prioritisation of lists based on a patient's risk of complication and deterioration.

The rationale for this pilot project is to provide clinical decision-makers with enhanced risk analysis for each patient taking part in the project, generated by the C2-Ai enabled platform (Patient Tracking List System). It is hoped that this enhanced risk profiling will enable clinical teams to differentiate and prioritise between patients and strengthen their ability to get the right patient to the right facilities at the right time, reducing physical and mental deterioration, health disparities and increasing staff and service efficiencies.

Alongside this pilot project, Eastern AHSN is looking to commission an independent evaluation team to undertake the evaluation the ESNEFT implementation and the impact of the C2-Ai pilot project. The evaluation will also consider findings from the early use of C2-Ai in the Northwest. It will address the impact of the enhanced risk analysis on triaging patients for elective care using key indicators related to efficiency and patient outcomes. It will add to the evidence and insight with relevant to the further development and scale up of this Ai based methodology as an approach to support the NHS recovery from the pandemic.

Clinical and operational data collected by ESNEFT with reference to the objectives and context of the evaluation will be made available to the evaluation team with two sites identified to be part of the evaluation. The first, Colchester will be the intervention site where the C2-Ai platform is being piloted and the second location at Ipswich will be the control site.

Deliverables

1. What questions are we looking to answer?

The evaluation will address the delivery and impact of the enhanced risk analysis on triaging patients for elective care using key indicators related to efficiency and patient outcomes, generating evidence and insights to support decisions regarding the future development and scale up of this Ai based approach. Our evaluation questions include:

- Evaluation of the C2-Ai platform: Identify lessons learnt from the implementation and impact of the C2-Ai pilot project in relation to the platform's future development and delivery.
- *C2-Ai integration into ESNEFT pathway decision making*: Has the C2-Ai platform been effectively integrated into PTL decision-making process (process/issues arising).
- *Staff acceptability and satisfaction* (clinical and non-clinical): Have the clinical and non-clinical staff engaged and used the C2-Ai platform and outputs to support risk analysis and decision making (barriers and insights).
- Increased Staff Efficiency (Clinical and non-clinical): Are there efficiency gains arising from the implementation of C2-Ai risk analysis in relation to workflow associated with PTL management (clinical and non-clinical staff time with value attributed).
- *Clinical outcomes and reduced patient deterioration*: What are the impacts of C2-Ai enhanced risk analysis on clinical outcomes including patient deterioration while on waiting lists (including mental health and wellbeing).
- *Reduced health inequalities /disparities*: What impact has the C2-Ai generated outputs had on existing disparities associated with location and other socio-economic factors as reflected in waiting lists, times and associated clinical outcomes (explicitly addressing co-morbidity as a proxy for disparity and other selected metrics). Taking into account the different levels of wider socio-economic disparity at the two sites included in the study.
- *Reduced duplicates on patient list*: What impact has the C2-Ai generated outputs had on reducing duplicates on waiting lists and other factors impacting on data integrity in comparison between the intervention and control sites included in the pilot project.

2. Proposed methodology

This project will include a significant evaluation to test the effectiveness of the C2-Ai tool as well as the outcomes it produces. A mixed methods approach will be used drawing on a variety of approaches. The research team should develop a methodology that they feel appropriate to address the objectives for the evaluation using both qualitative and quantitative methodologies and analysis. The approach advocated must consider the two sites identified for this project. Colchester (C2-Ai intervention site) and Ipswich (control site). It will be the responsibility of the evaluation team to:

- Develop an evaluation framework confirming indicators/metrics and data sources. To support and secure ethical approval for the proposed research plan as required (depending on the chosen approach).

- Develop appropriate qualitative and quantitative measures to address the questions above and identify data sources (including robust comparator data sets).
- Work closely with ESNEFT and C2-Ai to secure timely access to data required.
- Develop an approach for collecting required data that is not routinely available.
- Provide regular updates on progress and escalate any issues that may affect timelines or the quality of the evaluation to Eastern AHSN as soon as they arise (including monthly monitoring reports).

The following possible measures have been identified and should be reviewed for their appropriateness by the selected evaluation team with recommended measures presented in their proposed evaluation framework. With reference to socio economic factors, account must be taken of the different levels of socio-economic inequalities between the two sites included in the study, where relevant.

Quantitative measures

- Quantitative evaluation of the impact of the C2-Ai outputs in their application and effectiveness, both in terms of clinical and process outcomes.
- Evaluate the impact of the tool on deterioration (as measured, for example, by admissions, readmissions and post-procedure complications and impact on quality of life as well as impact on health disparities e.g., waiting time for those with comorbidities).
- Impact of the tool on staff time (for example via a time and motion study)
- Impact on throughput of specified procedures per day (either compared to pre-intervention or the control site, depending on which data is most appropriate).

Qualitative measures

- Observations to determine impact on process change and any efficiency savings for staff.
- Semi-structured interviews with clinical and non-clinical staff to understand the acceptability and satisfaction with the design, delivery and impact of the C2-Ai platform.

These measures are subject to change and will be discussed with the appointed independent evaluator who will be expected to produce their own approach to the evaluation in line with our requirements. The work of the independent evaluator should result in:

Inception report confirming research framework and work plan – End of March 2022.

Interim report presenting an interim output findings summary – End of August 2022.

Final report delivered at the end of January 2023*.

**This should be copy edited and ready for publication and preferably include visual representation of the overall results.*

3. Value

Bidders are encouraged to put together a bid that they feel most appropriately answers the questions set out above and provide a cost breakdown by work package and task. Eastern AHSN is open to considering a range of cost options. Bids will primarily be judged on quality and their ability to answer the key questions, with 30% of the overall score allocated to cost.

We are looking for bids that answer the research questions for the best value for public money. Precise funding agreements will be determined based on evaluation of the initial bid, and agreement of outcomes and deliverables.

By way of context, there is a maximum budget envelope of up to £55,000.

Timetable

The implementation project of C2-Ai tool at ESNEFT is planned to start in January (2022) and run for between 6-12months. The onboarding process has already begun which has included completion of Information and Governance procedures. They are now working on clinician engagement, training, and next phase of integration. The evaluation project will run bilaterally to the operational roll out. It is important that the two are aligned to ensure that the evaluation team can agree on the evaluation protocol, data collection procedures, access to systems and setting up of any agreed control or comparator group. The evaluation will be vital to flagging effectiveness early on and as such assuring or raising concern to the implementation team as to the early outputs it finds. It is for this reason that the initial report finding will be presented within 3 months of the project launch focusing on outcomes related to patient's prioritisation and deterioration and the final report at 12months further reporting on the tool's effectiveness in detail as well as the process evaluation.

Below is an approximate outline timetable for this programme. Exact timings will be agreed with the appointed evaluator based on their approach and timeline for data collection and analysis.

Date	Milestone
Project start	January 2022
Inception Report - evaluation framework (methodology, framework, work plan, ethics approval)	31/03/2022
Interim Report – progress update and preliminary findings	31/08/2022
Final Report - findings delivered	January 2023

5. Reporting

During the project, the bidder will be required to report on the following areas in the context of formal reporting obligations and on an ad hoc basis as required (e.g., biweekly project catch up meetings):

- Monthly progress updates, as well as progress reporting against anticipated milestones and key deliverables.
- Early results as and when they arise.
- Spend to date against projected spend.
- Risk and issue reporting – including the escalation of all risks and issues that could impact on timelines and the overall quality of the evaluation as soon as they arise.

Assessment Criteria

You are required to respond to all the quality criteria below using the response to tender form. 70% of the marks will be assigned against the quality criteria with the remaining 30% allocated against the financial proposal.

Scoring Methodology

0	The Provider is unable to fulfil the requirement, or no response is received
1	The Provider is only able to partly fulfil the requirement
2	The Provider is able to fulfil the requirement
3	The Provider exceeds fulfilment of the requirement

Quality – weighted at 80% of total score	
The Provider has demonstrated that:	
Review Deliverables	1. All the objectives and products contained within the specification will be delivered.
	2. Comprehensive and suitable methodologies are proposed for all aspects of the work, with the rationale for each.
Capability	3. Project challenges have been identified and suitable mitigations proposed.
	4. Experience of undertaking a similar piece of work related to digital health technology and AI, delivered to timescale.
	5. The availability of suitably competent staff who have relevant experience, evidenced by CVs
	6. An understanding and application of data confidentiality and information governance issues.
	7. Able to deliver the report within the project deadline with a realistic timetable.
Price – Weighted at 20% of total score	
Price	<p>Price will be evaluated by the bid with the lowest score scoring 100 and all other bidder prices being expressed as an inverse proportion.</p> <p><i>For example, where maximum value for an opportunity is £60 000</i></p> <p><i>Bid A – Price £30,000 = scores 100</i></p> <p><i>Bid B – Price £40,000 = scores 90</i></p> <p><i>Bid C - Price £50,000 = scores 80</i></p> <p><i>Bid D – Price £60,000 = scores 70</i></p>

Checklist for bidders

This check list may be helpful in developing your bid but may not be exhaustive:

- Each bid states 'Evaluating the impact of an...
- NDA as required
- Each bid is page numbered.
- Price for the bid has been provided, is net of VAT and is not subject to any proposed discounting.
- Each bid excludes the cost of making a presentation to ESNEFT and Eastern AHSN on the findings.
- Each bid states the daily rate for the author and any associates and the number of days consumed in each element of the task.
- Each bid includes an overall timeline, broken down by task and milestone.
- Each bid includes CVs for the project team, outlining similar work previously undertaken.
- Each bid comes from the same organisation as the organisation which will submit the invoice for the report once complete, and the name of the invoicing organisation is clearly given...
- Each bid states that the report will be delivered in Word.

Responses

We invite interested bidders to submit their response describing how they would deliver the described requirements within the timeframe and cost envelope.

Completed responses should be sent by email to jeremy.davenport@eahsn.org by 12pm Wednesday, 13th of December 2021.

If you have any questions on the invitation document or the deliverables, please contact jeremy.davenport@eahsn.org by 12pm on the 6th of December, 2021.

We will circulate all questions raised (without disclosing the source of the enquiry) and all responses to those contacted about this opportunity unless they are considered commercially sensitive. Our view on whether a question is commercially sensitive or not shall be final.

We reserve the right to carry out clarifications if necessary; these may be carried out via email or by inviting bidders to attend a clarification meeting. To ensure that both the Eastern AHSN and bidders' resources are used appropriately, we will only invite up to three (the ultimate number will depend on the closeness of scores) highest scoring bidders to attend a clarification meeting, should a clarification meeting be required.

Scores will be moderated based on any clarifications provided during this meeting. You are responsible for all your expenses when attending such meetings. Eastern AHSN reserves the right to vary all dates in this Invitation to quote, to terminate this procurement process and/or decide not to award a contract.