The National CLEAR Programme

Midlands AI-driven radiology transformation programme

Expression of interest information pack

August 2025

Welcome to the National CLEAR Programme

Thank you for your interest in the Midlands Radiology Transformation Programme, delivered by the National CLEAR Programme in partnership with The Royal Wolverhampton NHS Trust and funded by NHS England – Midlands.

This programme gives trusts across the region the chance to take part in a cutting-edge transformation programme, bringing together advanced AI-driven analytics and clinician-led design to enable smarter, more effective ED radiology referrals.

The fully funded opportunity aims to support trusts in optimising CT referrals in their ED – specifically CT pulmonary angiogram, CT abdomen and CT pelvis investigations – to help relieve pressure, reduce backlogs and enhance patient care. The aim is to understand to what extent – through data – these radiology referrals deliver meaningful clinical value.

Radiology services across the Midlands are under growing pressure. Rising demand - particularly from ED referrals - and workforce shortages have contributed to longer waits, operational strain and variation in how imaging is used. Some patients undergo scans that offer limited diagnostic benefit, while others face delays for essential tests.

To address these challenges, NHS England - Midlands has commissioned this programme to help trusts redesign radiology pathways through evidence-based and AI-driven insights. By applying advanced analytical tools—including AI and large language models—we will analyse large-scale referral and outcome data to pinpoint opportunities for improvement. This may include reducing low-yield imaging, enhancing diagnostic accuracy or reshaping referral thresholds to ensure timely access for those most in need.

The programme builds on a successful proof-of-concept at The Royal Wolverhampton NHS Trust, where AI-led pathway redesign safely reduced unnecessary imaging and demonstrated clear potential to release capacity and improve patient flow.

Participating in this support offer means joining a collaborative, forward-thinking programme that puts clinicians at the centre of innovation—shaping smarter, more sustainable imaging pathways for the future. I hope you feel encouraged to apply for this opportunity to help shape the future of radiology services in the Midlands.

Dr John Jeans
National Lead, The National CLEAR Programme and CEO, 33n

The National CLEAR Programme

Part 1: Information about the Midlands Radiology Transformation Programme

About this pack

This information pack provides details about the Midlands AI-driven radiology transformation programme and explains the process for submitting an expression of interest (EOI). We have designed the programme to be as supportive as possible – providing selected trusts with analytical firepower and clinical insights to redesign radiology pathways. The document is organised into the following sections for ease of reference:

- ✓ Programme overview and scope: What the programme entails, which sites are eligible and the focus areas.
- ✓ Support offer: The resources and expertise participating trusts will receive from the programme team.
- ✓ Data sharing and IG considerations: How data will be handled and protected.
- ✓ EOI submission process: How to apply, timelines and what to expect during the selection.
- ✓ EOI application form: A form for interested trusts to fill in as part of the assessment process.

This is a funded opportunity (there is no cost to your trust to take part, aside from staff time) to accelerate improvements in a critical service area with national-level support. We invite all eligible trusts in the Midlands to consider applying. If you have any questions about the programme or the EOI process, please contact the CLEAR team at projectsupport@33n.co.uk.

Programme overview and scope of work

This programme aims to support a select number of NHS trusts in the Midlands to redesign parts of their radiology pathways using an innovative combination of CLEAR's methodology and AI analytics – focussing on ED referrals for CT pulmonary angiogram, CT abdomen and CT pelvis investigations. This will involve identifying where imaging capacity can be freed up (by reducing unnecessary or duplicative tests) and how pathways can be improved to speed up diagnosis for those who need it.

Scope of work

Participating trusts will engage in a focused CLEAR project examining ED CT pulmonary angiogram, CT abdomen and CT pelvis imaging referral processes and outcomes. Each trust's project will be tailored to its specific context and data - ensuring that the project delivers meaningful results for each trust, rather than a one-size-fits-all approach. What remains common is the overall methodology: using data to pinpoint inefficiencies to improve the referral quality, pathway flow and workforce utilisation in radiology.

We anticipate selecting *multiple trusts* across the Midlands for this programme (exact number to be confirmed based on level of interest and funding). Our aim is to include a diverse mix of trusts to maximise learning and regional impact.

Every trust with significant radiology service challenges and a commitment to improvement is encouraged to apply. Given the intensive support to be provided, places are limited – the selection process (described below) will ensure we pick a cohort of sites that together can demonstrate the value of this approach region-wide.

The support offer

Selected trusts will receive comprehensive support and resources throughout the project duration including:

Dedicated CLEAR team with Wolverhampton expertise: Each trust will work with a multidisciplinary CLEAR team, including a clinical lead and data analysts, supported by The Royal Wolverhampton NHS Trust. The team will review your processes and data to identify opportunities for improvement.

AI tools and data analysis: CLEAR will manage data analysis, using advanced AI, to extract insights. Your team will get access to interactive dashboards via the CLEAR analytics platform to explore findings throughout the project.

Tailored insight pack: A summary report will outline key findings, recommended changes, and expected benefits—such as reduced scan volumes or shorter waits.

Implementation guidance: While delivery focuses on insights, CLEAR will offer guidance on implementation, including planning, business case advice, and risk mitigation—ensuring your team is ready to take the work forward.

Recognition and strategic alignment: Participating trusts will be showcased as leaders in AI-enabled transformation, with outcomes feeding into regional and national strategy and investment planning.

Expected outcomes

As part of this work, several key areas of strategic opportunity and potential system-wide benefits have been identified. These include:

- Understanding of the opportunity for pathway and protocol improvements within trusts EDs and across the region.
- Determining key factors for success for wider role out of this approach should it be helpful.
- Opportunity for harmonised referral standards and shared data narrowing inter-trust variation and improving equity of access for patients.
- Build upon the community of practice that already exists within the regions imagining networks.
- Demonstrate the transition from analogue to digital within the region.

Case study: reducing low-value CTPA imaging through AI and clinical pathway transformation in Wolverhampton

Faced with rising demand and falling diagnostic yield, The Royal Wolverhampton NHS Trust and University Hospitals of North Midlands NHS Trust conducted a comprehensive audit of over 35,000 CT Pulmonary Angiogram (CTPA) reports from 2018 to 2023. Using a large language model (GPT-3.5), they categorised reports to analyse trends in imaging effectiveness. The results revealed a doubling in CTPA demand over six years and a significant drop in positive findings—well below the Royal College of Radiologists' recommended range of 15–35%. This suggested a growing number of low-value investigations, particularly among younger patients, and pointed to issues in request quality and overestimation of risk.

The study identified three key levers to improve the pathway: cultural change to raise the threshold for imaging, better use of clinical risk scoring (e.g., Wells, PERC), and revisiting D-dimer thresholds. Notably, analysis of D-dimer values showed that most reported positives under 700 ng/mL were likely false positives—often related to image artefact or over-cautious reporting. Raising the D-dimer threshold to 700 ng/mL could reduce unnecessary scans by 10%, potentially saving £5 million annually and releasing significant radiologist capacity.

Similarly, applying age-adjusted D-dimer thresholds showed further potential to reduce low-yield imaging without compromising patient safety.

The findings support a more efficient, evidence-based diagnostic pathway for suspected pulmonary embolism. The methodology—combining AI-driven analysis with clinical insight—is now being expanded to include data from other trusts.

This scalable approach offers a blueprint for the NHS to reduce unwarranted variation, improve the positive yield of imaging, and relieve pressure on overstretched diagnostic services.

Information governance

Information Governance (IG) is central to this project. Data shared by participating trusts will be handled securely, ethically and in line with NHS standards. The analysis will require access to de-identified radiology-related data such as imaging exam details, referral reasons, outcomes, and timing metrics. No patient-identifiable data (e.g. names, NHS numbers, full DOBs) will be included.

Before any data leaves the trust, it must be de-identified, with support from the CLEAR team to ensure appropriate anonymisation. A formal Data Sharing Agreement will be signed between each trust and CLEAR (hosted by East Lancashire Hospitals NHS Trust), and relevant partners. This agreement outlines what data will be shared, how it will be used and ensures GDPR and NHS policy compliance.

Data will be transferred via encrypted channels and stored securely on CLEAR platform, which meets NHS cloud security standards. Access is restricted to approved personnel, with audit trails in place. Optional read-only access to the dataset will be provided to each trust for transparency.

Any AI tools used for analysis (e.g. natural language processing) will not retain data or compromise confidentiality. Outputs will be fully anonymised and reviewed by trusts before any wider sharing. Upon completion of the project, data will be deleted or returned, in line with the agreement.

CLEAR will support your trust through the process, providing documentation and responding to any local IG requirements. Patient privacy is treated with the same seriousness as clinical safety.

Time commitment and roles

Each participating trust will be asked to assign key roles to support the successful delivery of the programme. This includes an executive sponsor to champion the work at a leadership level, an information governance (IG) lead to serve as the primary point of contact for data-related matters, and a service manager to help coordinate and progress of the project operationally alongside the CLEAR team.

Expression of interest process

We are inviting expressions of interest from NHS trusts across the Midlands to take part in this fully funded programme.

The programme begins with a straightforward expression of interest (EOI) process, designed to gather enough information to select a committed and diverse cohort of trusts. Below, we outline how the EOI process will work, details of information webinars to find out more about the support offer and the indicative timeline.

Information webinars

We are holding two webinars from 12:30-1:30pm on **Wednesday 10 September** and **Monday 15 September** to provide more information about the programme. It is advised that your nominated IG lead and service manager attends a webinar (they will be repeated so you only need to attend one). You can join the webinar on Wednesday 10 September here and Monday 15 September here.

Application process

Please complete the expression of interest form and submit it by the deadline of **5pm** on **Monday 6 October**. The online form is here.

Questions

If you have any further questions, please contact the CLEAR team by email: **projectsupport@33n.co.uk**

Information webinars	10 and 15 September
EOI deadline	6 October
Trust's notified of EOI outcome	10 October
Project kick off	October

CLEARnotes

Project outline

Phase 1: Signing IG agreement: October - November
Each trust signs a comprehensive IG agreement and prepares for the data extraction with support from the CLEAR team.

Phase 2: Data extraction: November - December
CLEAR team works with each trust to safely extract the data needed for analysis from IT systems.

Phase 3: Data analysis and report development -December - March
CLEAR team works with colleagues from The Royal Wolverhampton NHS Trust to analyse the data through AI and develop a report with the findings and recommendations for next steps.

The National CLEAR Programme

Part 2: Background to CLEAR

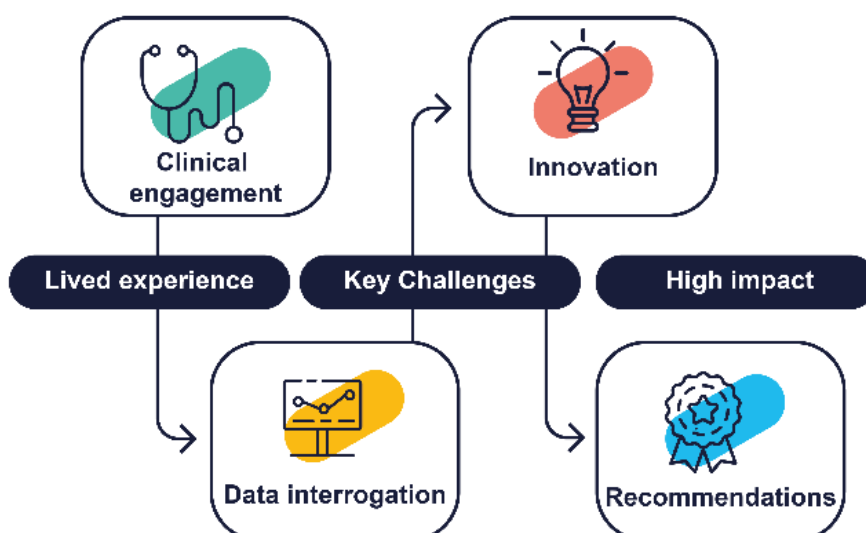# Introducing the National CLEAR Programme

What is CLEAR?

CLEAR supports organisations across the breadth of primary and secondary care in transformation, data analysis and workforce redesign to improve the quality, safety and efficiency of services and deliver sustainable change. Since launching in 2019, we have completed more than 75 projects across key NHS priority areas with productivity gains of more than £50m.

Watch this 90-second animation for a quick guide to CLEAR

Originally developed in partnership with Health Education England and now commissioned by NHS England, regions and systems, the Clinically Led workforcE and Activity Redesign (CLEAR) programme places clinicians at the heart of healthcare decision making and innovation.

CLEAR is hosted by East Lancashire Hospitals NHS Trust and delivered by the trust and 33n - a team of NHS clinicians, educational specialists and data analysts united in their passion to improve services, address workforce challenges and enhance patient care.

Our goal is to provide solutions to the changing needs of the healthcare system, support the sustained recovery of services, encourage staff retention and shape services for the future. The CLEAR approach involves four key stages:

The impact of CLEAR

An independent, <u>economic evaluation</u> of the programme found that CLEAR is cost-effective, encourages retention and is more likely to deliver results than other complex change programmes.

Key findings of the evaluation showed:

- CLEAR recommendations are more likely to be implemented because of significant levels of clinical engagement – and have an average potential return on investment for some projects of £4.19 (potentially up to £14) over 5 years for every £1 invested.

- CLEAR provides more cost-effective delivery of complex change programmes than the alternatives – resulting in a cost saving of £1.90 for every £1 spent.

- CLEAR appears to have a positive impact on staff retention and wellbeing – the cost of a CLEAR project is covered if one medical consultant remains in post for a year or there's 1% improvement in the annual staff retention rate within a site.

- Clinicians taking part in CLEAR develop valuable new skills in clinical engagement, data analysis and interrogation, and project management and leadership. Evaluation shows that 87% felt confident in the design of innovative solutions and 62% said it helped improve their chances of career progression.

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The CLEAR team has energised all those who have been involved, we've seen real engagement with all staff groups and a transformational approach with measurable, realistic and deliverable outcomes which will revolutionise our theatre programme over the next year.

Kerry Broome - Deputy Chief Operating Officer, The Queen Elizabeth Hospital (QEH) King's Lynn NHS Foundation Trust