The Royal College of Radiologists

# AI Deployment in the NHS: reviewing progress made and defining future action

Report of a roundtable discussion of thought leaders in healthcare AI at the RCR-NHS Global AI Conference 2025

April 2025

## Consensus statement

The participants of this roundtable discussion agreed that:

1. AI will be essential if the NHS is to meet rising demand for healthcare.
2. AI stands to add the most value to the NHS in situations where it augments or automates administrative processes or resource use planning. The NHS needs to take a proactive approach towards deploying AI tools in these contexts.
3. There is a need to demonstrate the return on investment that AI tools can deliver so the NHS can see the productivity and efficiency advantages of investment.
4. However, certain previous digitisation attempts have cost clinicians time or decreased their effectiveness; for this reason, AI deployments must be clinician-led and outcomes-focused so this risk can be minimised.
5. High-level conversations about access to data are essential. Regulation must balance the need for data protection and the need to enable data access for research and algorithm development and testing.
6. Patients must hear the positive case for AI, when safely adopted and monitored, in terms of faster and higher quality care, to secure their support.
7. The government, the NHS, professional membership bodies and other healthcare organisations must work together to address and overcome barriers to AI deployment.

## Introduction

On Monday 3 February 2025, the RCR convened a group of clinical AI and healthcare policy experts during their inaugural Global AI Conference, led by Professor Owen Arthurs. The aim of this session was to review the healthcare AI landscape, the progress made thus far, the future challenges, and the necessary next steps to continue to drive forward AI adoption. The participants reached a clear consensus, which is summarised in the seven points above.

This paper presents the discussion and the consensus reached by the participants. Discussions were held under the Chatham House rule. A list of attendees can be found in the appendix.

## Background

AI is poised to revolutionise all aspects of healthcare. In diagnostics and cancer care, AI could help to speed up diagnosis and boost the accuracy and effectiveness of treatment. It could help reduce waiting times, detect illnesses earlier, improve patient outcomes, and optimise resource use.

NHS England's AI Lab has led projects such as the AI Deployment Platform (AIDP) and AI Diagnostics Fund (AIDF), which have seen accelerated testing, evaluation and deployment of AI technologies in areas such as lung imaging and stroke diagnosis.[1] The 2023 RCR census found that at least **54% of radiology departments** are using AI in clinical practice.[2] Prevalence has likely increased since this data was collected.

## Report from the roundtable discussion

### AI: the case for adoption

- AI will help to **close the gap between capacity and demand**. Radiology and oncology already face 30% and 15% workforce shortfalls, respectively, whilst demand for imaging and cancer care are set continue to outpace workforce growth.
- The **shift from analogue to digital healthcare, powered by AI tools, represents the best opportunity for healthcare systems to close this demand-capacity gap**.
- AI is already having an impact on clinical care in radiology and oncology, enabling more accurate diagnosis of disease and more rapid contouring of tumours.
- Non-clinical applications of AI include automating administrative tasks like recording notes during consultations or summarising clinical information to improve communication with patients and staff.
- Recruitment and **workforce expansion is still essential** and unavoidable. But there is also a need to change how healthcare is delivered.
- There is also a **risk to not adopting A**I. There may be an opportunity cost in the form of lower productivity and quality of care. This risk needs to be balanced against those more often discussed risks of data usage, algorithm inaccuracy or malfunction, and resource use.

### Where AI will add the most value

- AI will **add the greatest value to the NHS by augmenting or replacing existing administrative and organisational tasks,** thereby improving patient pathways**.**
- Currently, clinicians spend much time performing administrative tasks, reducing the time spent on patient care, medical training, research or service improvement. There are also many clerical and administrative staff employed to manage inefficient legacy systems.

- The types of administrative task that could be automated include: ambient dictation for patient consultations, generation of reports or letters, and scheduling of patient appointments and clinician rotas.
- There is a need to **champion those tools already in use, but not being deployed to their full potential**. Best practice should be shared at the regional or national level.
- The **Federated Data Platform (FDP)** is an example of good practice. It enables NHS trusts to securely bring together siloed datasets to improve resource use efficiency, coordinate care, and bring down waiting lists. It is currently deployed in 39 trusts in England.[3] How the FDP will be used to best effect in future remains to be determined, but it holds great potential.

### Taking a strategic approach

- The NHS must consider **how it wants care pathways and workflows to change**, and whether AI tools could assist in this work.
- For instance, the dynamics and flow of cancer pathways could be optimised to minimise patient care delays. It would be valuable if an AI tool could analyse the dynamics of cancer pathways to identify bottlenecks and recommend interventions to improve efficiency and speed up patient flow.
- There is a need to **shift from vendor-led to clinician-driven AI adoption.** Clinicians and industry need to be in close dialogue, such that vendors develop AI systems that offer tools and deliver outcomes clinicians truly need.
- There is also the imminent **arrival of multimodal healthcare AI**. Such AI would analyse data from multiple different sources, such as imaging data, laboratory data and genomic data, to diagnose and stage diseases to a high degree of accuracy.
- Such AI tools could be used in primary care to improve the quantity and quality of information available to GPs; this could facilitate rapid onward referral of those patients who would benefit the most.

### Addressing barriers to deployment for AI vendors

- Despite much evidence of the capabilities of AI, there has been **relatively little deployment** and realisation of this potential in the NHS.
- **Large sums are required** to develop and test AI tools, and it is not clear that NHS trusts will be able to fund such tools unless a clear return on investment is demonstrated.
- A **framework for post-market surveillance** needs to be developed and approved. This is essential for monitoring AI tools' effectiveness to keep patients safe, and to help reduce pre-deployment regulatory barriers.
- **Regulators will require further support**. Nonetheless, there has been much progress made, with the MHRA's AI Airlock,[4] NHSE's AI and Digital Regulation Service,[5] and NICE's new medtech pathway.[6]

### Productivity: developing strong business cases for AI

- There is a need to **demonstrate the return on investment** that AI tools can deliver so the NHS can justify this expenditure. It is possible to develop strong business cases for AI tools by focusing on their **ability to boost NHS productivity**, and thus deliver a return on investment.

- The challenge is to demonstrate the return on investment for one AI tool deployed for one task. However, when you take consider multiple tools over a whole patient pathway, the gains can be more easily seen. Economic assessments at this scale are not routinely conducted.
- High quality ambient voice technology can generate notes from a patient consultation within seconds. This enables the clinician to focus their attention on their patient. This has clear implications for patient care and NHS productivity.
- **Improving the quality of care will lead to a return on investment in the long term**. Early and effective care results in better outcomes, fewer expensive complications, fewer readmissions, and less litigation.
- Freeing up clinicians' time could **boost morale, improve retention**, and reduce the risk of burnout and make staff more likely to carry out research, service improvement projects, or other essential activities.

### The importance of judicious deployment

- However, there are significant risks to deployment. **In the past, digitisation has increased the time taken for clinicians' work** because administrative tasks were transferred from administrative to clinical staff.
- Where this occurs, it is usually due to poor understanding of the clinical pathways and the place of AI within them. It is essential that changes to care pathways are made with care – and with **clinicians playing a key role from the outset**.
- The RCR recently issued guidance to support the adoption of AI tools into radiology services.[7]
- Moreover, poor deployment can have knock-on effects for patients.

### Access to data

- **Access to data for researchers is essential**. Developers and users need large volumes of data to train and test AI tools.
- **High-level discussions about UK data policy are necessary**. As per the Sudlow Review, these should focus on increasing access to and linkages between existing datasets to extract the greatest benefit from them.[8]
- Current best practice is to establish Secure Data Environments (SDEs) in which patient data is held, and to which researchers are granted access. However, there can be problems with this approach. SDEs can lack the functionalities or the scale (volume of data stored) necessary for developing and iterating an algorithm. SDE design needs to accommodate functionalities for research and development.
- **Intellectual property (IP) considerations** can also limit access to data for researchers. The NHS and other institutions like UK universities must agree to share data for driving healthcare improvements.[9] NHSE are finalising new guidance for NHS trusts about how to best protect their IP and how to establish data sharing agreements with partners.

### Making the case for AI to policymakers and to the public

- The public are more likely to have heard about the risks and dangers of AI than the positive case for its adoption. The NHS needs to **describe the positive effect AI will have** on the whole patient

pathway. The RCR is developing an illustrative, AI-powered patient pathway that would facilitate this task.

- AI promises to **give patients their time back**. It will enable them to be diagnosed and treated more quickly and return to good health with fewer complications. Responses to the government's public consultation on the 10-Year Health Plan suggest that the **public want a focus on ensuring that the NHS works well for them**.
- The RCR has also commissioned polling on public attitudes towards AI in healthcare.[10] Less than half (46%) said they had heard of AI being used in the NHS. However, 75% supported the use of AI in radiology to help analyse medical images. The public rated the views of doctors on AI very highly.
- This shows the **need to bring the public along with us** on the journey to AI adoption, and the **importance of clinicians' voices** for this.

### What needs to happen next

- The NHS and partner organisations need to **educate clinicians in the proper use of AI.** The levels of AI education required will vary according to individual clinicians' and healthcare staff's roles and responsibilities. Education is needed for both resident doctors and those who have completed their training.
- **Clinician headspace and time must be addressed**. The problem that motivates AI adoption – the demand-capacity gap – is also a barrier to AI adoption, since deployment projects often require clinicians in their local setting to champion and drive them forward.[11]
- There must be greater focus on **getting the digital basics right** as a precondition for AI deployment. Slow systems cancel out AI-enabled time savings; small datasets prevent the testing of AI tools; interoperable computer systems prevent data sharing between sites; and incompatible systems prevent AI integration.

## Conclusion

The participants **reached a consensus** on the progress made with AI adoption in the UK thus far and the necessary steps to take adoption to the next level.

The NHS must **close the gap between demand for care and capacity to provide it**. DHSC and the NHS, regulators like NICE and MHRA, and bodies like the RCR need to work together to develop solutions to this problem. **AI will play a central role in closing this gap** by automating time-intensive processes, improving resource use efficiency, enrich the information available to clinicians and empower clinicians to deliver more accurate and personalised treatment.

AI will add the most value when used to automate or augment administrative processes and optimise workflows and patient pathways. The **greatest potential time savings and productivity gains** will be secured here. We need digital tools that take the administrative burden away from clinicians to allow them to dedicate themselves to patient care, plus tools that can review pathways and suggest optimisations to design and resource use to speed up patient throughput and improve patient outcomes.

**Data is fundamental**, but **regulatory frameworks** need to balance the need to protect sensitive patient data as well as enabling research and innovation. There must be a conversation about UK data policy to enable innovation. Therefore, we need the means by which to communicate to the public – and help policymakers communicate to the public – **the positive case for AI** in their healthcare.

The RCR looks forward to working with DHSC, the NHS, NICE and other bodies to further this agenda.

## Appendix – list of attendees

Dr Katharine Halliday – President, The Royal College of Radiologists

Professor Owen Arthurs – Roundtable chair, and Chair of RCR-NHS Global AI Conference

Professor Erika Denton – Interim National Medical Director for Transformation, NHS England

Mr Dominic Cushnan – Deputy Director of AI, NHS Transformation

Mr Kendall Jamieson Gilmore – Lead Strategy Advisor, System Strategy Unit, Department of Health and Social Care

Ms Jennifer Berger – Head of AI Strategy, Department of Health and Social Care

Dr Stephen Duffield - Associate Director, Real-World Evidence Methods, NICE

Dr Richard Goodwin – National Specialty Advisor for Imaging, NHS England

Dr Pearse Keane – Professor of Artificial Medical Intelligence, UCL and Consultant Ophthalmologist, Moorfields Eye Hospital NHS Foundation Trust

Professor Darren Treanor – Digital Pathology Lead, The Royal College of Pathologists

Dr Tim Horton – Assistant Director (Insight & Analyses), Health Foundation

Professor Fiona Gilbert – AI Lead Advisor, RCR and Professor of Radiology, University of Cambridge

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