The Royal College of Radiologists

Integrating AI into NHS diagnostics and cancer care services – regulation, governance, and enabling factors

Briefing for the Science, Innovation and Technology Committee

Context

The Royal College of Radiologists (RCR) is a leading voice on the use of artificial intelligence (AI) in healthcare. We will shortly be publishing a long-read AI report, which will set out what must happen at each stage of an AI algorithm's journey to enable it to be used in clinical settings. This briefing summarises our recommendations to Government and the NHS from that upcoming report. These ten points crystallise what we believe are the essential actions that must be taken.

A ten-point plan for integrating AI into diagnostics and cancer care

1 Tackle workforce shortfalls to ensure there are sufficient staff to use and improve AI tools and deliver care to patients

- Persistent shortages in key staff groups, such as clinical radiologists and clinical oncologists, not only contribute to delays in patient care and large waiting lists.
- They also prevent the implementation of service improvement measures, such as deploying new AI tools. IT infrastructure projects require large amounts of time and staff work, which they currently cannot provide.
- We need action to improve retention of staff in the NHS. The Long-Term Workforce Plan made this a priority, but contained little detail on how it would be achieved.
- We also need to recruit more staff – both doctors and allied healthcare professionals, and also expert IT professionals such as systems architects and data scientists. The lack of digital staff in particular is a widespread, severe barrier to deployment.

2 Invest in a modern, digitised NHS to lay the groundwork for the AI revolution

- The NHS's IT infrastructure is disjointed and ageing, which hampers doctors' ability to do their jobs. It also limits the effectiveness of new software. Incompatibility or unacceptably slow computers prevent AI tools from having as much benefit as they ought.
- The Spring Budget announced significant levels of funding to address this problem. We now need more detail on how this money will be spent and to ensure the levelling up of digital readiness is equal across all regions.

3 Establish funding arrangements for implementing AI into the long term

- AI implementation projects, like all infrastructure projects, require significant upfront investment. Individual NHS trusts often lack the funding to meet these costs unsupported.
- Current central NHS funding projects are due to wind up in the next few years. Currently there is little detail on what will follow them.
- We need long-term funding plans for AI implementation to provide confidence to the market and to support trusts/networks to embark on AI deployment projects.

4 Enable data sharing and data standardisation to test and train AI algorithms

- It is essential that AI tools are tested and trained will large volumes of representative and inclusive data to ensure they operate as intended, without exacerbating health inequalities.
- The NHS has a potentially huge pool of data that could be used for this purpose.
- Currently, data is siloed between individual NHS organisations. There is a lack of standardisation for how the data is structured.
- Arrangements should be made to facilitate the collation of this data. Secure data environments should be used to store the data safely.

5 Simplify and standardise information governance processes to speed up implementation

- Cumbersome information governance processes can significantly slow down AI deployment. They should be simplified where possible and reasonable.
- Clear, standardised information governance processes are also needed. These should cover the regional or national level. Currently, processes used vary hugely between individual NHS organisations, leading to duplication of effort and limiting the spread of innovative technologies.

6 Develop a plan of the robust validation of AI algorithms

- AI algorithms are prone to drift. As their digital environment changes, so too may their performance.
- Therefore they need to be regularly tested, once in clinical use, to assess whether they are still performing well.
- Long-term audits are also required to ensure health inequalities are not exacerbated (see point 8).
- We lack the regulatory infrastructure to perform this regular testing. Policies and frameworks need to be established to enable this.

7 Expand and improve the educational resources on AI available to NHS staff

- Many NHS staff lack AI-specific expertise. This limits their confidence in AI tools' ability to supplement their work.
- Educational resources are needed. These should cover every level of interaction with AI – from general principles to expert knowledge.

8 Commission research into where AI will be of most value, how it will affect working practices and how it will impact patients' health outcomes

- There remains much uncertainty about where AI will add the most value in practice, and how its usage will affect how doctors work and how patients are affected.
- Longitudinal studies on patient health outcomes where AI is used in their care are needed to assess the role it plays in their chances of cure and quality of life.
- Likewise, studies into the health economics of AI tools are needed to assess their cost-effectiveness.
- The NHS must plan for the change it wants to see. Research is needed to look into how AI tools will influence doctors' performance and their workloads.

9 Take action to improve clinicians' and public confidence in AI tools

- Buy-in from both the NHS workforce and the public will be essential if AI is to move from the periphery to the centre of healthcare.
- Ambiguities concerning liability and legal responsibility for AI tools and evidence gaps concerning the health effects of AI should be addressed to boost clinicians' confidence.
- The public must be involved in the conversation, particularly about the use of their data and about what AI uses they will and will not find acceptable.

10 Take a pathways approach to AI implementation

- AI tools cannot be introduced in isolation. They will have significant effects for the whole healthcare pathway in which they are deployed. These must be foreseen and planned for.
- AI will only benefit patients and clinicians and shift the dial on waiting lists and NHS productivity if parallel issues are addressed simultaneously. Chief among these are workforce shortfalls and digital infrastructure.

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