Exploring how different stakeholders view the use of artificial intelligence in MRI

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Introduction

To increase capacity by reducing exam times, NHS England has centrally funded AI software for MR Image Reconstruction in 2023 [1]. However, manufacturers provide few details of their implementations (exact algorithms, training data) raising questions of efficacy and the potential for inequality within the MRI community. Engagement with the stakeholders in MRI is therefore needed to shape the future of the technology.

Objectives

- Engage with stakeholders in MRI across the UK.
- Understand their opinions on the use of AI in healthcare, and specifically its uses in MRI reconstruction.
- Find out about its implementation and if there can be recommendations for its rollout and use.

Are you a radiologist? Please tell us your thoughts!

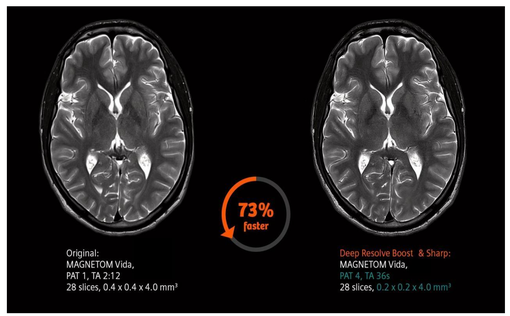


Figure 1: An example of the improved image resolution and time-saving on a Siemens Magnetom Vida

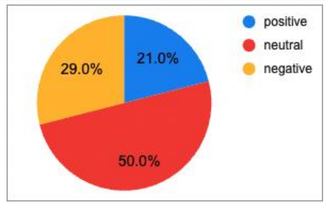


Figure 1. General consensus of the patient representatives on their feelings towards the manufacturer AI software installed on clinical MRI scanners.

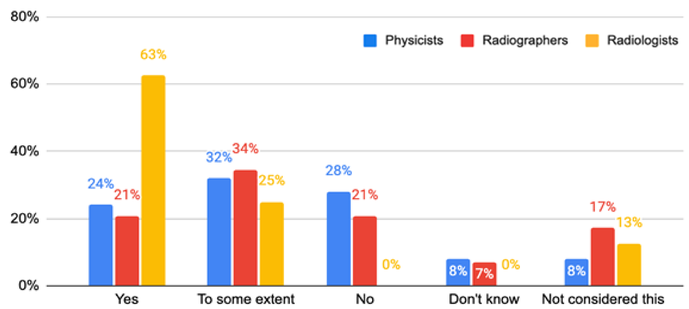


Figure 2. The opinions of physicists, radiographers and radiologists on whether patients should be told about the use of AI in MRI.

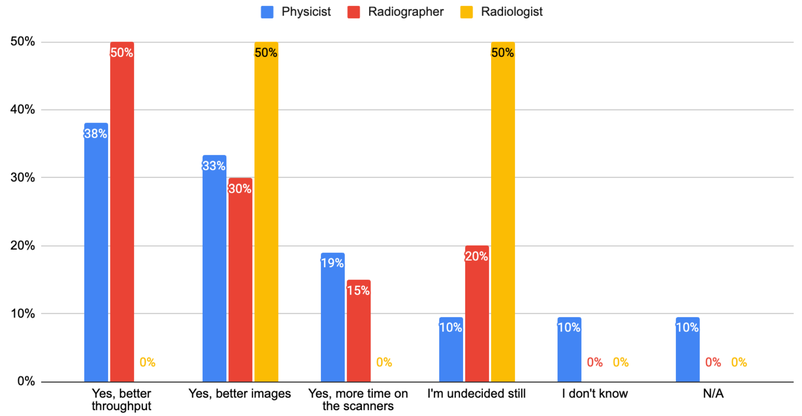


Figure 3. The opinions of physicists, radiographers and radiologists on whether they think the manufacturer AI software is good to implement.

Methods

- A questionnaire (26 questions) and online focus groups were created to gather the views of patients and the general public on the use of AI in MRI (38 and 17 participants for each, respectively).
- Questionnaires were developed for each staff group. There are 92 responses from 40+ UK sites have been collected, and collection is ongoing for radiologists, for which results might be less accurate.

Results

- Patients were positive about the use of AI, except when AI made decisions not overseen by a doctor. Staff thought AI can lead to faster diagnoses and increased accuracy, but had concerns over data protection and undetected mistakes. Patients think the manufacturer AI software could be positive but unsure overall (fig 1). They would like to be told about the use of AI in MRI in all situations and some wished to opt out. Staff were unsure if this is feasible (fig 2). Patients prioritise detail over length of scan.
- 83% of staff thought that AI reconstruction is positive due to increased throughput and image quality (fig 3). Experience of implementation was varied. Concerns included optimisation process, trust in the system and data protection. Lack of adequate application specialist support and a desire for more information was also apparent.

References: [1] OECD Data: MRI Units. Accessed 22nd May 2024 [Website - https://data.oecd.org/healtheqt/magnetic-resonance-imaging-mri-units.htm]

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