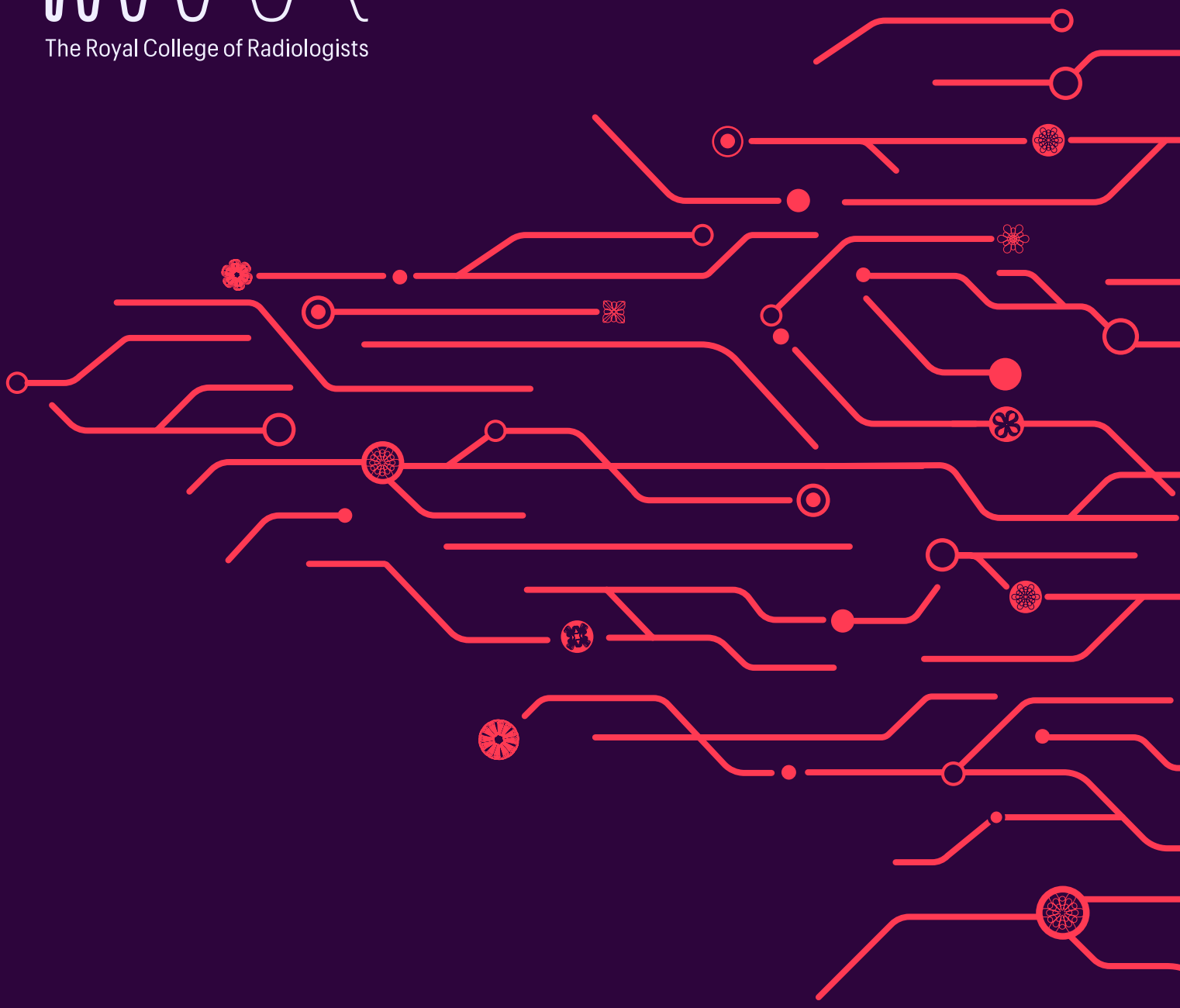
The Royal College of Radiologists



The Future of AI in Healthcare:

Public perceptions of AI in Radiology

April 2025

Foreword

Successfully harnessing AI will be crucial to ensuring the NHS's continued growth and sustainability.

We are increasingly seeing the impact of soaring demand against the backdrop of significant shortfalls of radiologists and oncologists. We must consider how technology such as AI can play a greater role, freeing us up to spend more time with patients while boosting accuracy, effectiveness and productivity.

AI tools are already being used in over 60% of cancer centres and 70% of radiology departments and in the years to come we expect AI will play an even greater role across both back-office and frontline functions. Technology is advancing at a rapid pace, and there are serious conversations to be had about how to harness AI to improve NHS productivity, and the extent to which we are comfortable with AI supporting healthcare.

We now stand at a critical juncture. Because while AI holds great potential, it also holds great risks. Getting this wrong would put patients at risk, waste doctors' time and drain public funds.

It is critical that we approach this conversation in partnership with both health professionals and patients. At the Royal College of Radiologists, we are already leading the charge on the former, developing guidance and educational materials for professionals to build confidence in their use of AI.

We now need a national conversation to ensure AI in healthcare is acceptable to and trusted by patients. Our polling results demonstrate that this task is significant, but surmountable: while the public is largely unaware of how AI is being used in the NHS, they recognise the value it could bring – particularly in radiology, and particularly in how it could enable us to spend more time caring for them. And the more information the public has about AI, the more acceptance there is, necessitating careful implementation which addresses the public's concerns.

The government has a critical role to play in the implementation of AI into healthcare, and that must include public education around AI and supporting clinical leadership. Parliamentarians too will be essential partners in ensuring transparency in this area, holding the NHS and government to account. To do this, they must be fully informed about the potential and the risks of AI and how the public currently feels – and we hope this research will aid that endeavour.

Finally, it is clear from our research that the public trust doctors and value their expert oversight when it comes to AI – and so we, as a college, must ensure that clinicians are partners in AI adoption. Representing two technology-centric specialities, the RCR is in the perfect position to continue to lead at the cutting edge of AI implementation in the NHS. We stand ready to do just that and look forward to harnessing the great potential of AI, to create an NHS fit for the future.

Dr Katharine Halliday
President
The Royal College of Radiologists

Executive Summary

This report presents findings from a comprehensive survey conducted by J.L. Partners examining public attitudes toward artificial intelligence (AI) in healthcare settings. The research sought to understand public perspectives on AI adoption in healthcare, their comfort levels with the application of AI in radiology settings and their trust in different institutions managing health data.

The findings reveal that there is broad recognition of AI's potential benefits in healthcare amongst the public. But there remains significant hesitation about its implementation with the public extremely sceptical about potential use cases which involve completely replacing human doctors with AI.

The research shows that the public acceptance of AI in these healthcare settings is strongly influenced by familiarity with AI technology, age, education level and the specific context the AI is being used in.

Key Insights:

- **Less than half (46%) of the public have heard of AI being used in healthcare in the United Kingdom.**
- **Public engagement is critical as the more familiar people are with AI, the more comfortable they are with its use in healthcare.** While just 40% overall say they feel comfortable with AI in healthcare, that figure rises sharply to 76% among those who are very familiar with AI.
- **4 in 5 (80%) members of the public support the use of AI in radiology** in some capacity. In comparison, just 40% of the public saying they felt comfortable with the use of AI in healthcare more generally.
- However, **the public does recognise the value AI could bring** – saving time and bringing down waiting lists.
- **The public trust doctors and value their expert oversight when it comes to AI** – they want their doctors to ensure that AI will not make the wrong diagnoses, reduce human interaction in healthcare and to be assured that their data will be safe and secure.
- The public has far more trust in the use of public data to train AI models when it is managed by institutions such as the NHS or their local GP than they do when it is managed by more abstract entities such as "government" or "health technology companies".
- **The public overwhelmingly believes that radiologists and oncologists should oversee healthcare AI, regardless of its capabilities.** Only 5% thought AI should work independently, without radiologists' oversight.

The RCR is calling for:

- Transparent engagement with the public on AI in healthcare to increase trust and confidence in its adoption in the NHS
- An expansion of the specialist IT workforce at a local and national level to deliver AI deployment and ensure that the refreshed Long-Term Workforce Plan includes consideration of the clinical workforce needed to support AI deployment.
- Government to implement the recommendations of the Sudlow review, to address issues in equipment, IT and data which prevent greater AI adoption.
- Support to be given to health regulators to ensure robust processes for the regulation and audit of AI tools
- Long-term funding to support the implementation of AI in the NHS.

Introduction

The Royal College of Radiologists (RCR) commissioned a survey to understand public sentiment toward the use of Artificial Intelligence (AI) in medical diagnostics. Within the field of radiology, AI presents significant opportunities to enhance diagnostic accuracy, improve efficiency, productivity and alleviate workload pressures.

However, the integration of AI into medical decision-making also raises questions regarding trust, safety and the role of human professionals. Understanding public attitudes toward AI in radiology is essential for policymakers, healthcare providers and professional organisations to navigate the path forward.

The future of the NHS depends on successfully navigating this path to AI adoption. This path should be shaped by the needs and views of both patients and health professionals. The RCR is committed to facilitating that conversation and advancing the safe and effective adoption of AI in the NHS. This report presents findings from a nationally representative survey conducted by J.L. Partners, exploring public opinion on the future of AI in radiology. The survey assesses levels of support for AI's role in medical imaging, concerns about patient safety and expectations for human oversight. By examining these insights, we aim to inform discussions and encourage a national conversation on how AI can be responsibly integrated into clinical practice to maximise benefits while addressing public concerns.

Methodology

On behalf of the Royal College of Radiologists J.L. Partners conducted a nationally representative poll of adults in Great Britain between 12 December and 15 December 2024 to gauge their views of AI in healthcare.

The sample consisted of 1,021 GB adults, with quotas applied to ensure representativeness across gender, age, region, education level, ethnicity, 2024 general election vote and political engagement based on British Election Study estimates.

The data was collected via an online panel and subsequently weighted to match the national demographic profile. The margin of error for the study is ±3.4%.

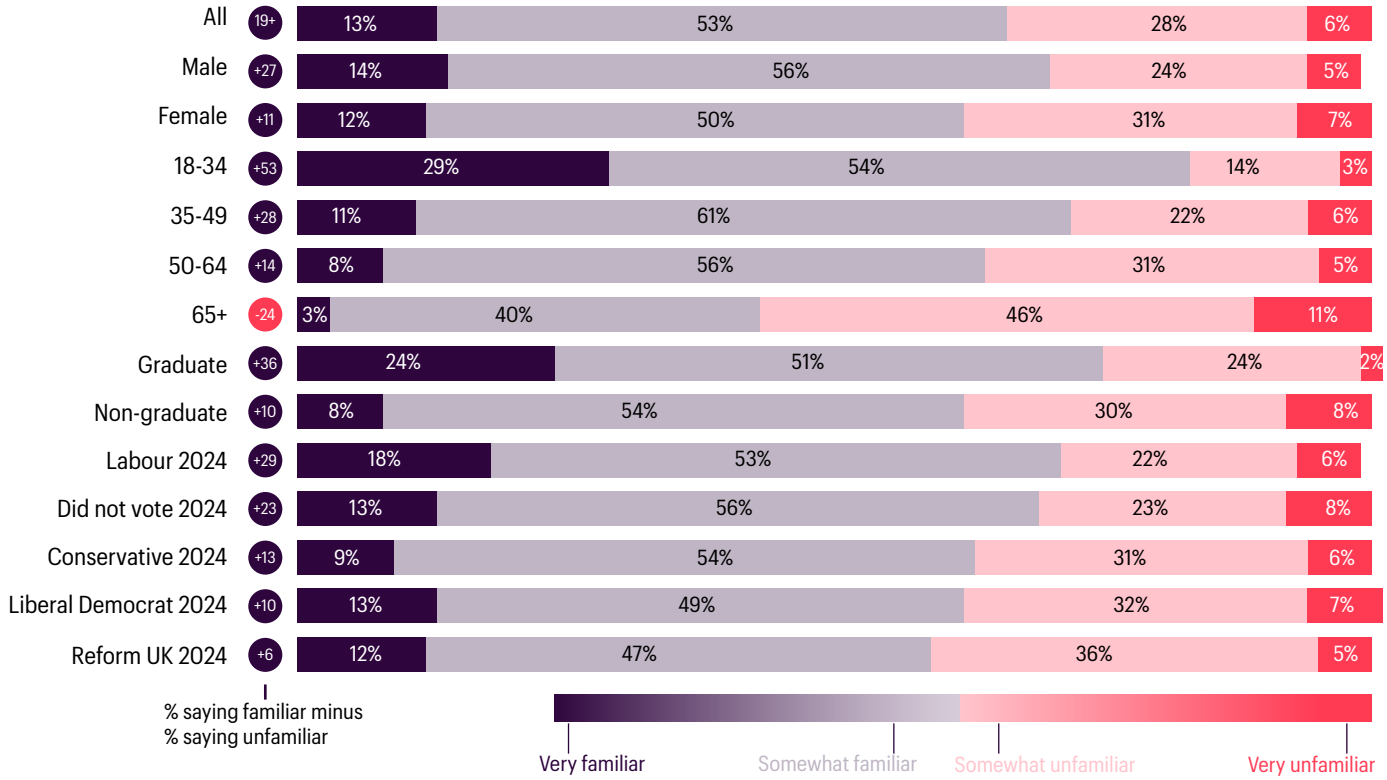
You can download the full set of polling results here.

Key findings

1. Awareness of AI

Polling data reveals that two-thirds (66%) of adults are familiar with AI in general, though this familiarity varies significantly across demographic groups. That leaves 1 in 3 UK adults who are say they are unfamiliar with AI – albeit only 6% say they are 'very' unfamiliar with AI. This audience is crucial to keep in mind with campaigns and communications on the adoption of AI in the NHS, as those with a lower level of familiarity are more likely to be sceptical of its use.

Q. How familiar, if at all, are you with the concept of artificial intelligence (AI) in general?



The difference in awareness between age groups are substantial. Eighty-three per cent (83%) of 18–34-year-olds report familiarity with AI compared to just 43% of those aged 65+. Awareness also varies across education level. Seventy-five per cent (75%) of graduates are familiar with AI, versus 62% of non-graduates. There is also a gender gap, with 70% of males reporting familiarity versus 62% of females.

Q. Have you heard about AI being used in the healthcare in the United Kingdom?

However, when it comes to AI in healthcare specifically, awareness levels drop considerably. Only 46% of people have heard about AI being used in healthcare in the UK, 44% have not heard of AI being used in healthcare and 10% are unsure. This points to a need for greater communication about the use and potential of AI in the NHS, both in terms of its current uses and to build confidence and acceptance for future uses.

AI in Action:

AI is already being used on a daily basis across the NHS as a tool to support the crucial work of doctors, and nowhere more so than across radiology and clinical oncology.

Dr Stephen Harden, Clinical Radiologist

"I use AI in my clinical practice when reviewing CT scans during lung cancer screening to look for lung nodules, which can be early signs of lung cancer. The AI instantly measures nodule dimensions and 3D volumes and compares these against previous measurements to show how much the nodule has grown. This saves me time, because I no longer need to perform these measurements manually on both sets of scans and lets me review more scans each day. It means the patient gets a diagnosis or the 'all clear' sooner, and if they do have cancer, means they can begin treatment more quickly."

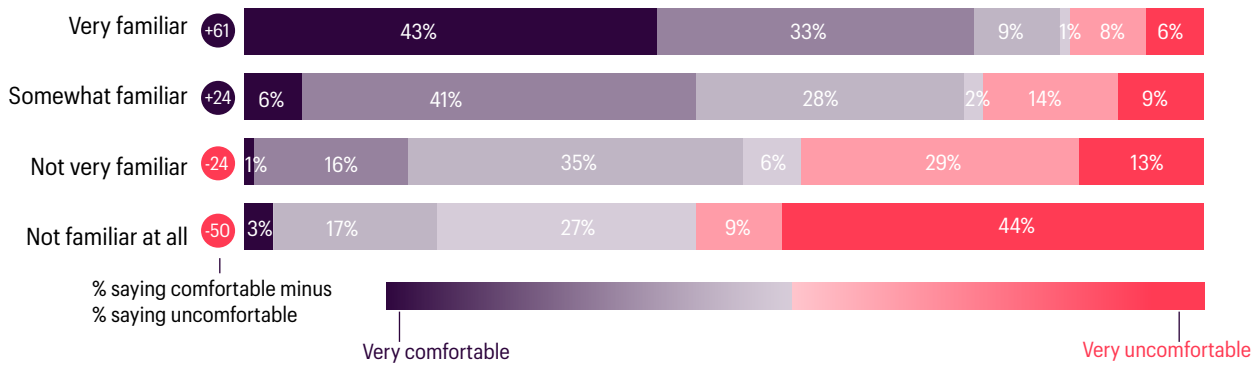
Dr Petra Jankowska, Clinical Oncologist

"My team use an AI tool for contouring when I am planning radiotherapy treatments. Contouring involves marking out the tumour and the neighbouring healthy tissues so that radiation is directed at the tumour while keeping the normal tissue dose to a minimum. The AI makes this a task that I need to review, rather than complete myself, which means the process is quicker and more streamlined. This reduces the time of radiotherapy planning so patients can start their cancer treatment more quickly. It also gives inbuilt peer review of the volumes of the healthy tissues, which are usually reviewed by both a dosimetrist and a doctor."

2. Public Concerns and Priorities

Overall comfort levels with AI in healthcare remain moderate. Forty per cent (40%) feel comfortable with AI use in healthcare. This rises to 76% among those "very familiar" with AI technology. Only 3% of those unfamiliar with AI feel comfortable with its use.

Q. How comfortable or uncomfortable are you with the use of artificial intelligence (AI) in healthcare?

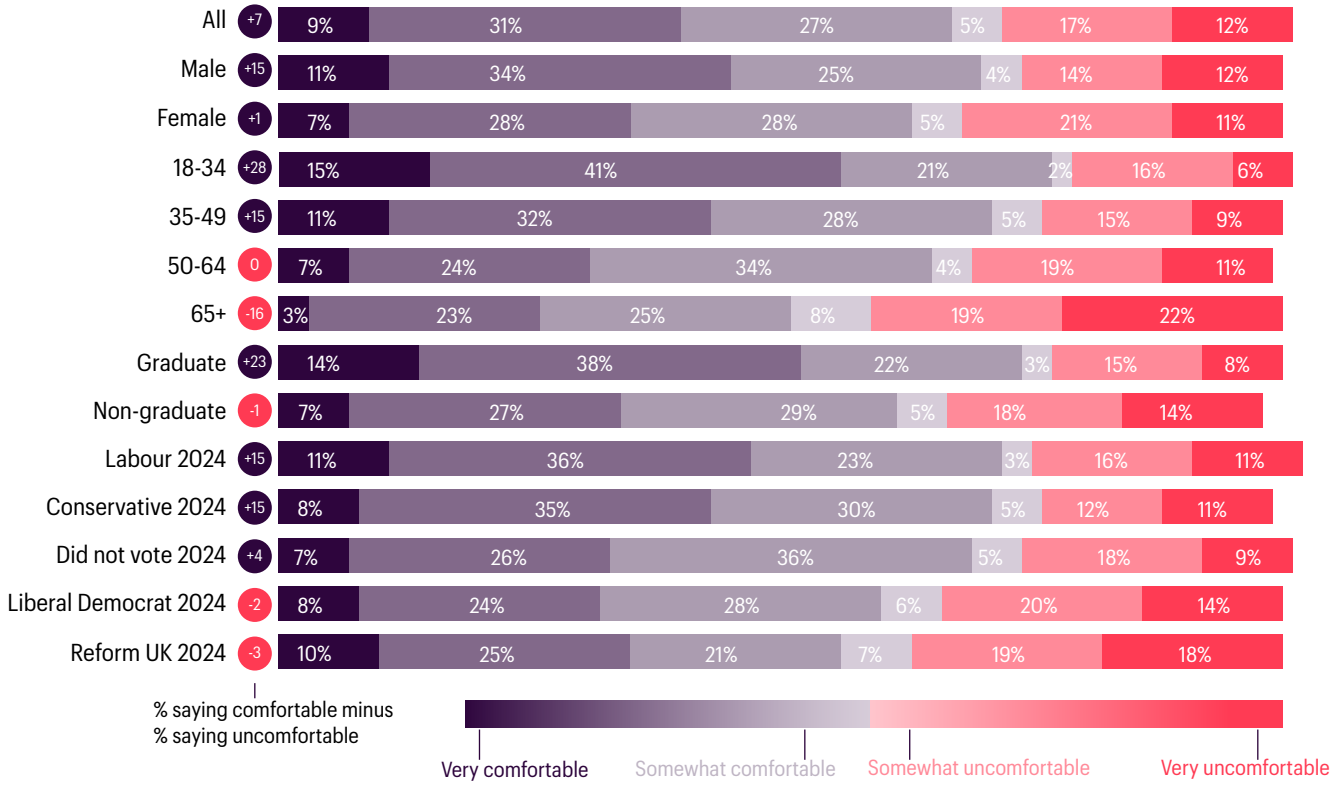


Demographic variations in comfort levels are again notable, with comfort levels decreasing steadily with age. Fifty-six per cent (56%) of 18–34 year-olds report feeling comfortable while only 26% of those 65+ express comfort. Fifty-two per cent (52%) of graduates are comfortable with AI in healthcare compared to 34% of non-graduates while males report higher comfort levels (45%) and females express more caution (35%). This gender gap is consistent across age groups. These demographic variations highlight the importance of tailored communication strategies when engaging with different segments of the public on AI.

The AI-sceptical audience is likely to be older, less familiar with AI technologies and more comfortable with traditional medical practices. Many of these individuals express concerns about AI's potential for misdiagnosis, lack of human intuition and the perceived loss of patient-doctor relationships.
A considerable portion of this audience also fears the unintended consequences of automation in healthcare, such as over-reliance on algorithmic decision-making and the erosion of professional accountability. Among those most resistant, there is a strong preference for AI to remain an assistive tool rather than a decision-maker, with nearly 80% of this group opposing the idea of AI replacing doctors.

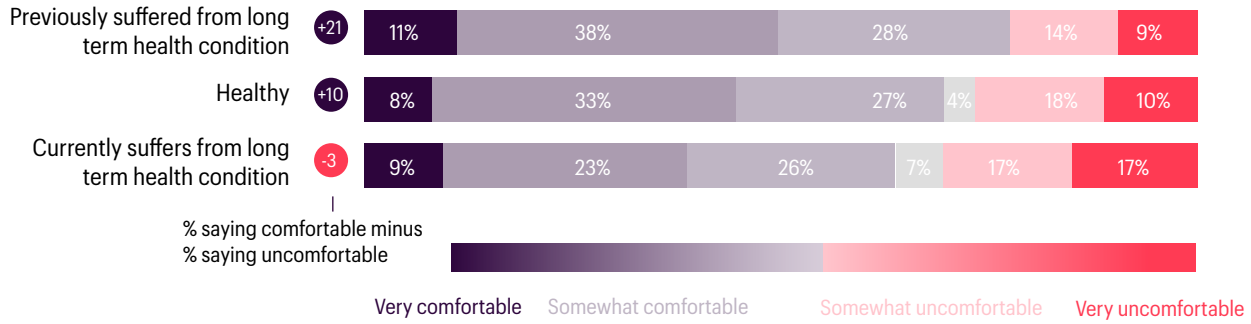
Furthermore, AI scepticism is closely tied to broader attitudes toward technology and institutional trust. Those who are less trusting of large technology firms or government oversight express particular concern about AI's potential misuse. Transparency in AI decision-making, clear regulations, and ongoing human oversight are essential factors in reducing this scepticism. It therefore follows that communication strategies should focus on these themes, addressing fears head-on while reinforcing AI's role in improving – not replacing – patient care.

Q. How comfortable or uncomfortable are you with the use of artificial intelligence (AI) in healthcare?



It is notable that members of the public who currently suffer from a chronic health condition express more discomfort with AI use than respondents who are either healthy or previously suffered from a chronic health condition. Thirty-four per cent (34%) of those with a long-term health condition said that they were uncomfortable, with 32% saying they were comfortable, whilst for the population who consider themselves currently healthy, those figures were 28% and 41% respectively. We must therefore be careful, when thinking about AI adoption in the NHS, not to forget the concerns of those who might be regular users of the NHS and are concerned about any potential changes to the care that they receive.

Q. How comfortable or uncomfortable are you with the use of artificial intelligence (AI) in healthcare?

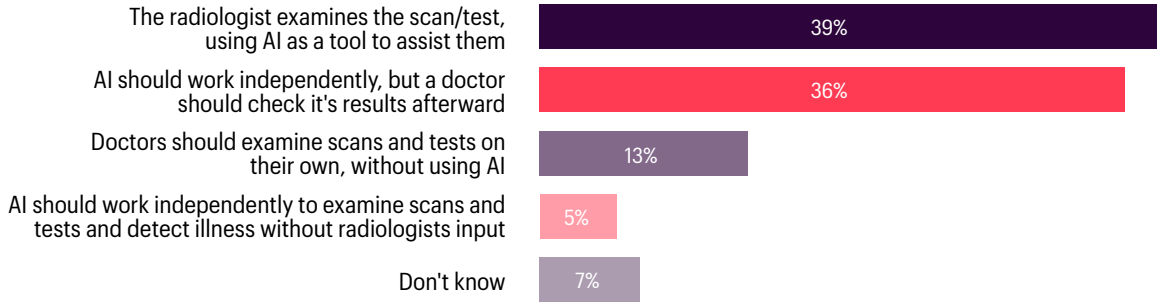


3. Specific Applications and Trust

The public shows clear preferences for how AI should be implemented in healthcare. The most accepted applications are using AI to speed up imaging processes in CT and MRI scanners (61% support), analyse scans in real-time alongside human radiologists (59% support) and identify problems in medical images (54% support). The least accepted applications are using AI to perform surgery independently (18% support) and to replace specialist/cancer doctors (22% support).

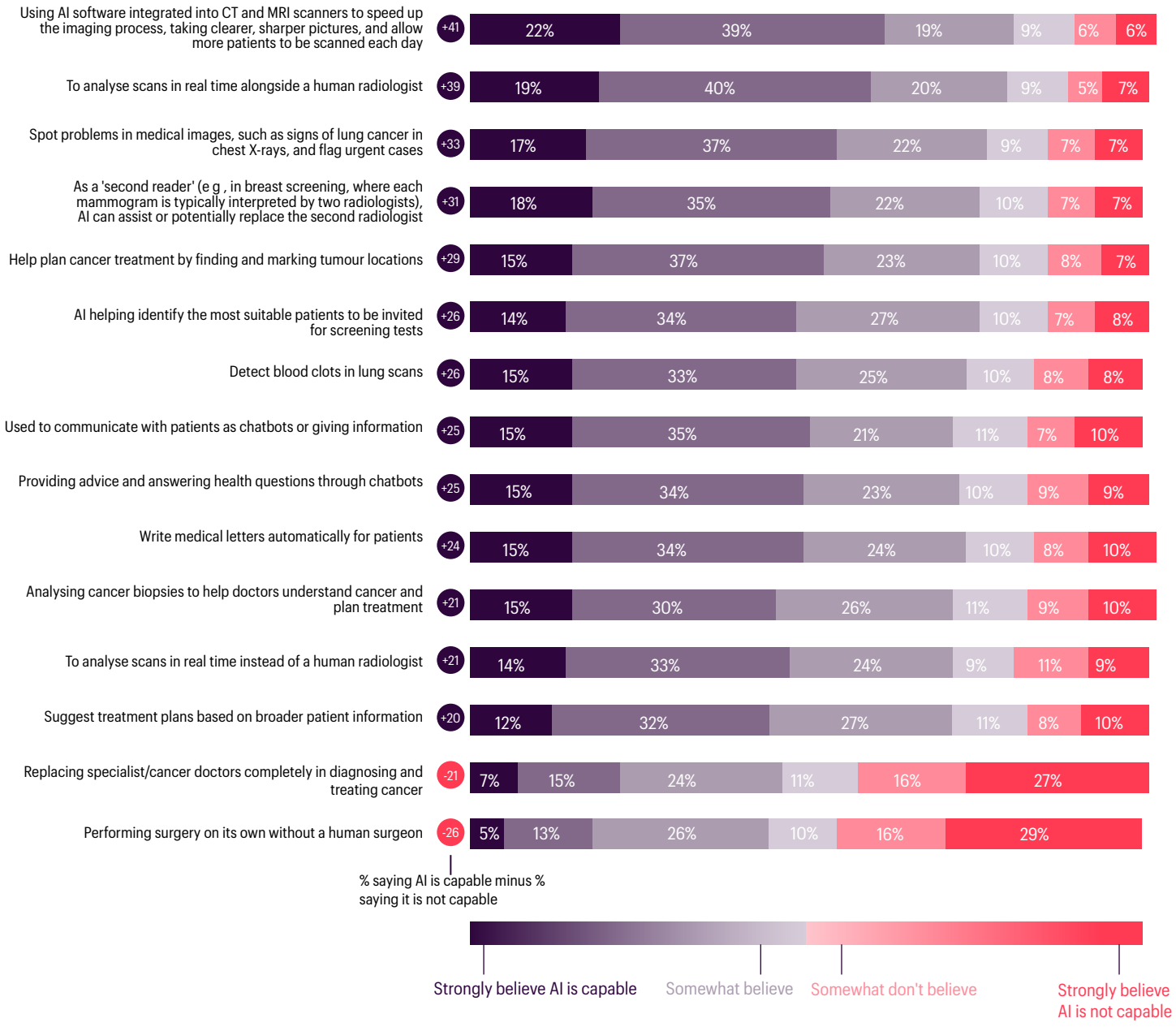
Further analysis reinforces these findings, emphasising the importance of human oversight. Thirty-nine per cent (39%) of respondents preferred radiologists using AI as a supplementary tool when reading scans, while an additional 36% favoured a model where AI operates independently but with subsequent clinician review. Only 5% supported fully autonomous AI without any human input.

Q. Which of the following is closest to your view?



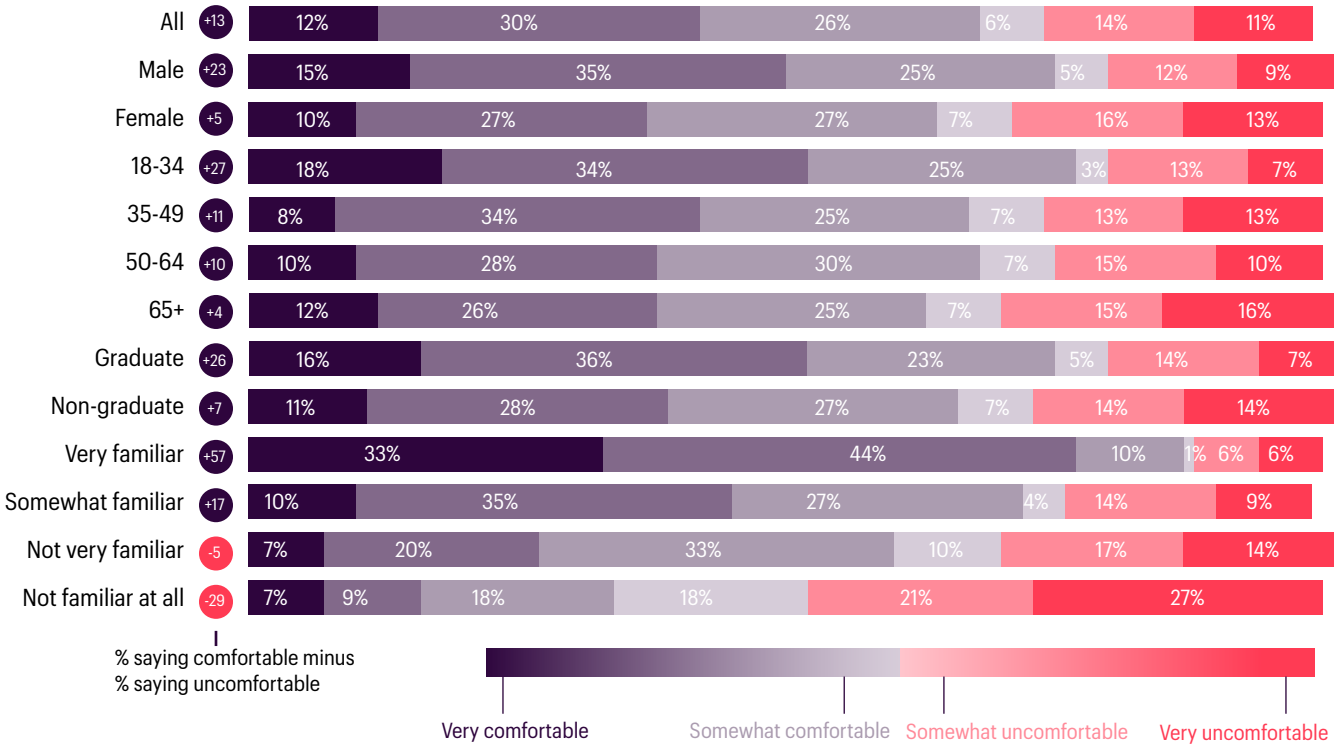
This clearly indicates that, although the public appreciates AI's ability to enhance efficiency–particularly in imaging processes–the consensus is that AI should serve as a support mechanism rather than as a replacement for professional expertise.

Q. Regardless of it being used or not, what do you believe AI is currently capable of doing in healthcare?



Women, adults aged 65 and over and those unfamiliar with AI are the most sceptical of AI replacing doctors. Among these AI-sceptical groups, the concern is not just about AI's technical performance but also about ethical and procedural implications. Many express discomfort with the idea of AI making life-and-death decisions, particularly when the technology's limitations in handling complex or ambiguous cases are considered.

Q. AI needs large datasets to work and analyse data. This involves having access to personal and healthcare data in order to train AI systems for medical purposes. How comfortable or uncomfortable would you feel with AI having access to personal health data?



These concerns suggest that AI adoption in radiology, and in healthcare more generally, must be accompanied by clear public education on its strengths and limitations. AI should be framed as a collaborative partner to human radiologists rather than a standalone solution. Engaging the most sceptical groups through patient-centred case studies and real-world examples of AI-assisted improvements could help alleviate fears and build trust over time.

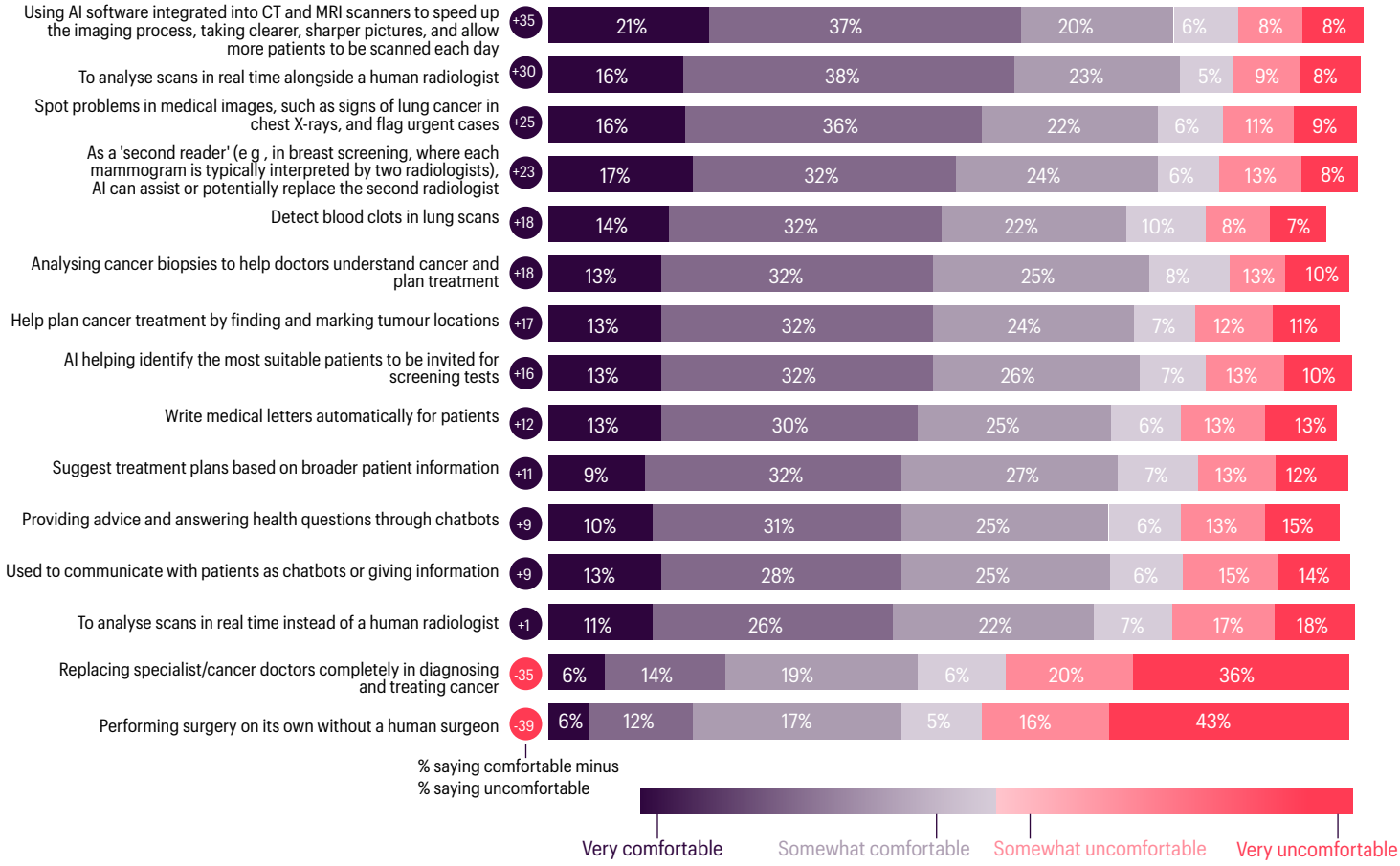
On the other hand, Conservative voters, individuals from higher socioeconomic backgrounds and people from ethnically diverse communities are more likely to believe in AI's healthcare capabilities.

The potential benefits of AI:

When asked to focus on the benefits of AI, the public point to a wide range of ideas. Speed of diagnosis was amongst the most cited benefits with 'quicker', 'time', 'speed' all featured prominently in the public's responses, shown below.

When presented with a range of AI use cases, and asked to judge their comfort levels, the public felt most comfortable in cases where AI assisted in analysing scans. Fifty-four per cent (54%) of the public said that they were comfortable with use of AI to analyse scans in real time alongside a radiologist while only 17% said that they were uncomfortable with that use of AI. For each option presented to them, there is a significant proportion of the public – about 1-in-4 in most cases – who are on the fence or yet to decide as to whether they felt comfortable with that AI use case.

Q. Regardless of it being used or not, to what extent do you feel comfortable with the use of AI in the following areas of healthcare?



The case study, below, sets out just one example of how AI can support radiologists and increase the detection of conditions.

Case Study: AI supporting the detection of symptomless blood clots in lungs

The introduction of an Artificial Intelligence-enhanced scanning system at Mater Misericordiae University Hospital in Dublin in 2023, led to a doubling of the detection rates of symptomless, 'incidental' pulmonary embolisms in patients offered routine chest CT scans.

Pulmonary embolisms are sudden blockages in the blood vessels in the lungs. Without immediate treatment they can be life-threatening. In some cases, embolisms don't cause specific symptoms and are spotted on CT scans given for other reasons such as during routine monitoring of cancer, or in A&E department visits – these are the 'incidental' pulmonary embolisms.

In the UK, nearly 70,000 people were recorded as having a pulmonary embolism between 2021–2022, resulting in nearly 37,000 admissions to hospital[1]. Therefore, increasing the detection of them can not only improve patient outcomes, but also might help to limit future hospital admissions.

[1] https://cks.nice.org.uk/topics/pulmonary-embolism/background-information/

During the study, researchers compared the results of scans taken over a four-month period between September and December 2022 – before AI was introduced – to scans taken over the same period in 2023, looking at over 11,600 scans in total. The overall detection rate for incidental embolisms almost doubled after the AI system was rolled out from 0.35% of scans to 0.63%. This shows the ability of the technology to highlight cases that may be overlooked by a radiologist due to their subtlety and the large amount of information contained in imaging studies that needs to be reviewed by the radiologist.

The AI tool was also able to correctly detect 99.9% of cases where there was no embolism present. False positives slow workflows down and can waste radiologists' time. This AI tool was therefore incredibly effective at spotting "normal" and leaving radiologists to spend more time looking closely at the abnormal scans.

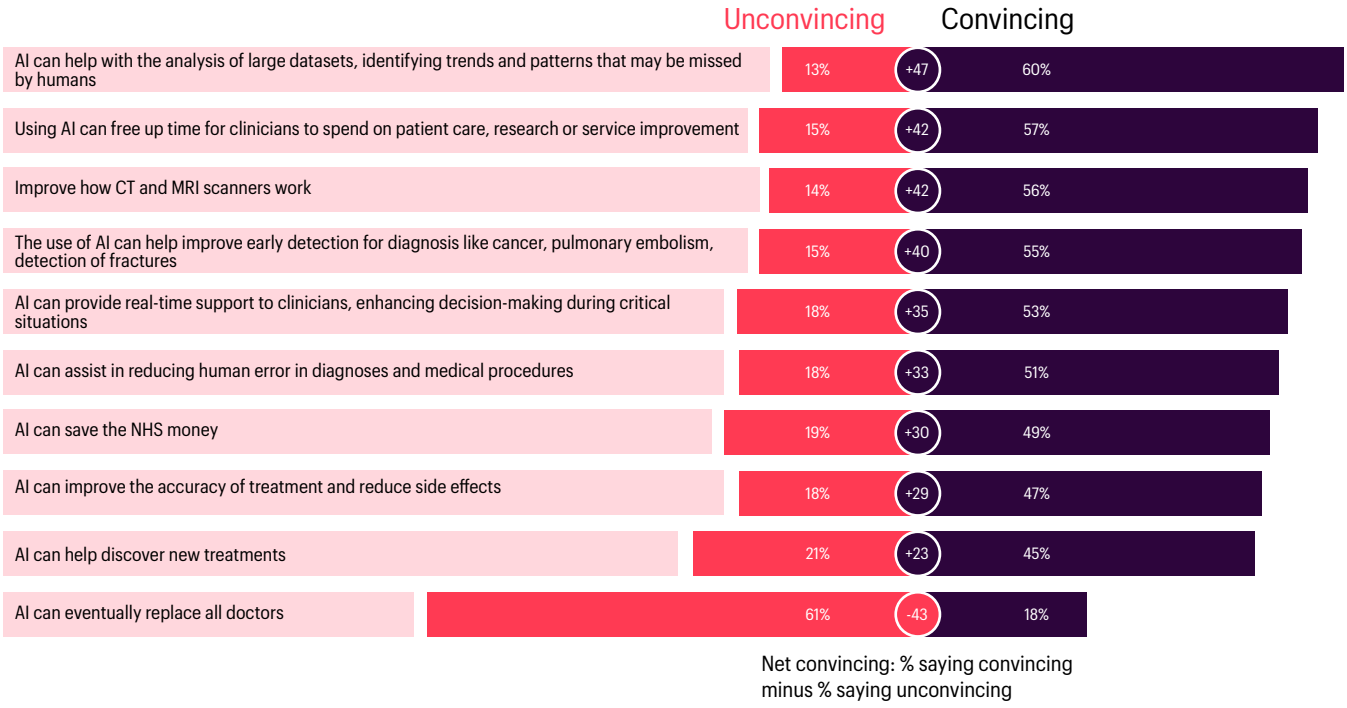
The paring of AI with a human radiologist was an effective one. While the tool only independently picked up 66% of the embolisms ultimately diagnosed by radiologists, it clearly had a meaningful impact on detection which, in the words of one of the study's authors Dr Fergus O'Herlihy, "shows that these don't need to be perfect tools in order to be useful for radiologists". It also emphasises the importance of AI as a tool working alongside a radiologist.

As a result of this increase in detection, 77% of patients who were found to have an incidental pulmonary embolism had a change in patient management as its detection supported the clinical team to determine the best course of action for patients. While this AI tool has been incredibly effective, there now needs to be work done to ensure that the clinical guidelines for treatment of incidental pulmonary embolisms becomes more evidence based so that those who are diagnosed can be treated in the most effective way possible.

The arguments for AI in healthcare:

Overall, the most convincing argument for increasing AI use in healthcare is its ability to enhance human capabilities, while the least convincing – by a large margin – is that it can replace doctors.

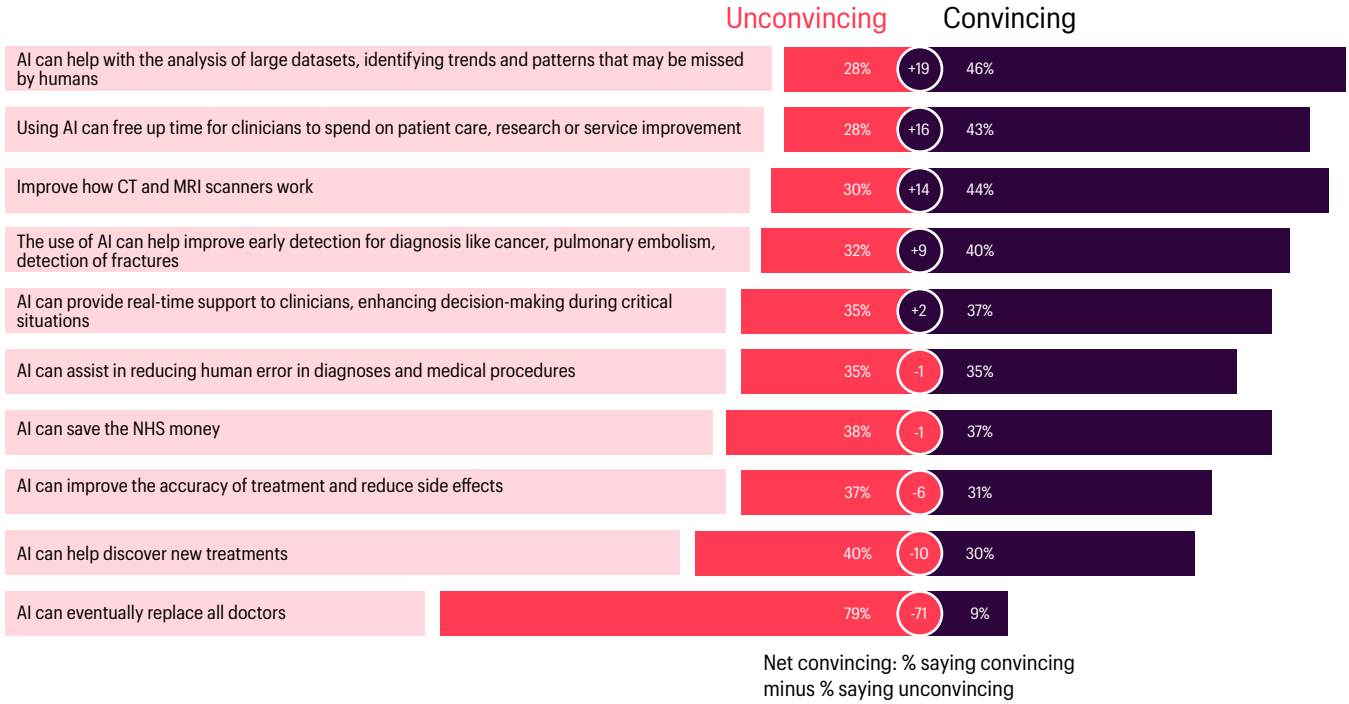
Q. How convincing or unconvincing do you find the following arguments in favour of increasing the use of AI in healthcare?



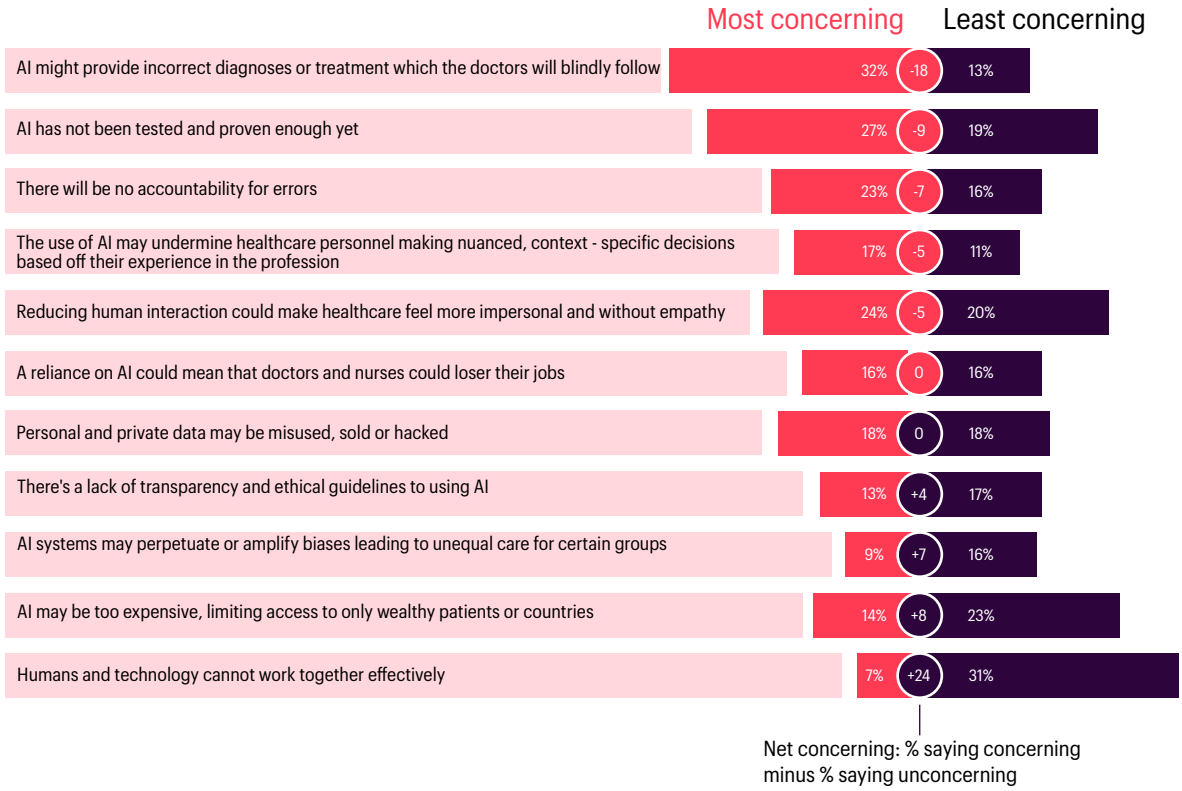
Even among those who are generally uncomfortable with AI in healthcare, the ability to analyse large datasets is the most convincing argument in favour of increasing AI use in healthcare. Respondents who are more sceptical of AI use are also even more unconvinced than the public as a whole by the idea that AI can replace all doctors.

Respondents cited the potential for incorrect diagnoses that doctors may blindly follow as the most concerning argument against the implementation of AI.

Q. How convincing or unconvincing do you find the following arguments in favour of increasing the use of AI in healthcare? (Those who are uncomfortable with AI in healthcare)

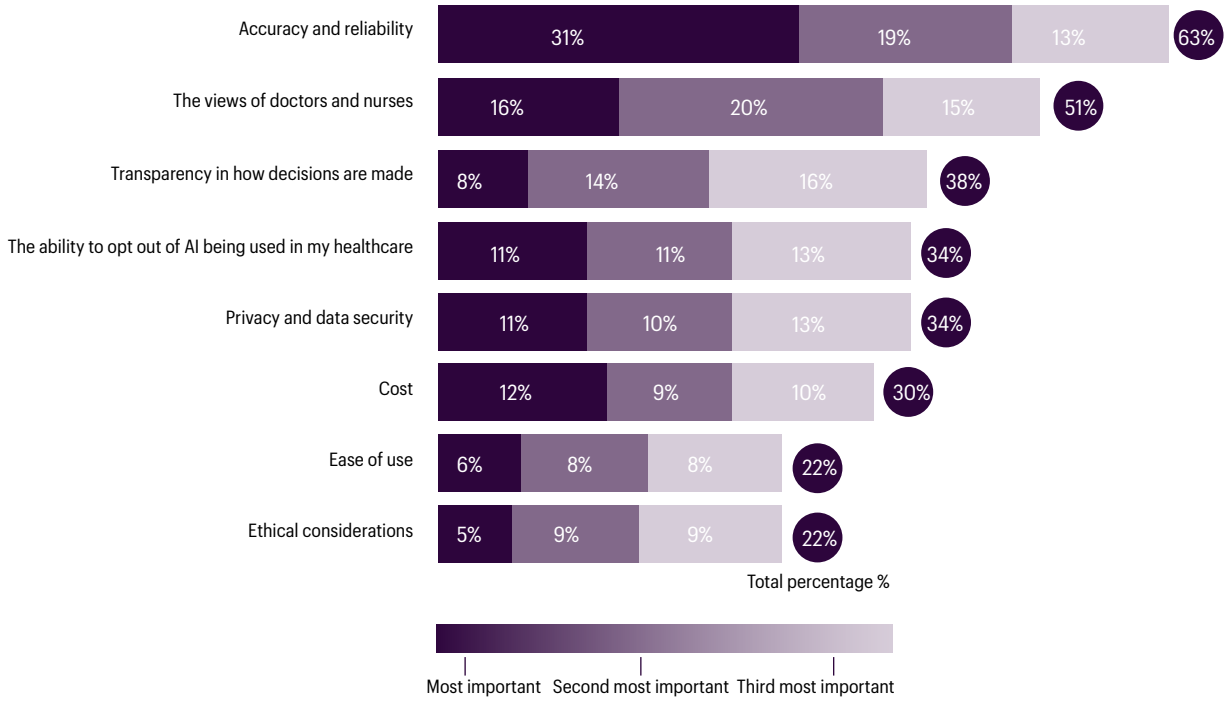


Q. Of the following, which do you think are the two most concerning arguments and the two least concerning arguments against the implementation of AI?



Respondents cited accuracy and reliability as the most important factors when using AI for healthcare, followed closely by the views of doctors and nurses. Ethical considerations were the least important factors for respondents.

Q. When using AI in healthcare, which is the most important to you? Rank your top three in order



While there is resistance to full automation, the public acknowledges AI's potential to assist the NHS. Many respondents recognise AI's ability to enhance efficiency and reduce waiting times, but currently express a preference for AI to operate under human supervision. Indeed currently, legislation (Ionising Radiation (Medical Exposure) Regulations or IR(ME)R) prevents AI from being used autonomously in radiology and ensures human oversight in clinical processes. Future AI adoption strategies must fully consider how safeguards are built into processes to maximise the potential of AI, utilise doctors' time in the best way possible and ensure public comfort and transparency with the use of AI.

The growing gap between radiology capacity and demand for services means that we must seriously plan for how to manage the workload in the future. Part of this consideration will be how autonomous AI might support radiology departments. Work must be done to define the clinical problems where AI is most likely to add value, and to identify the AI tools which might have the greatest potential. Through the development of a roadmap for AI implementation, public engagement will be crucial. While the public is supportive of how AI currently supports radiology, they are less comfortable with AI reviewing scans autonomously. Alongside public engagement to build comfort and trust, clinical engagement will also be essential to ensure the workforce is supportive and equipped to work with new technologies.

4. Trust in Organisations

The public shows clear preferences for how AI should be implemented in healthcare. The most trusted institutions are hospitals (+36 net trust) and GP practices (+36 net trust) and the wider NHS (+34 net trust). There is a gulf in the level of trust when compared with the least trusted institutions, national government (-17 net trust) and health technology companies (-29 net trust).

Q. How much, if at all, do you trust these organisations with your health data, including access to personal healthcare information for training AI systems for medical purposes?

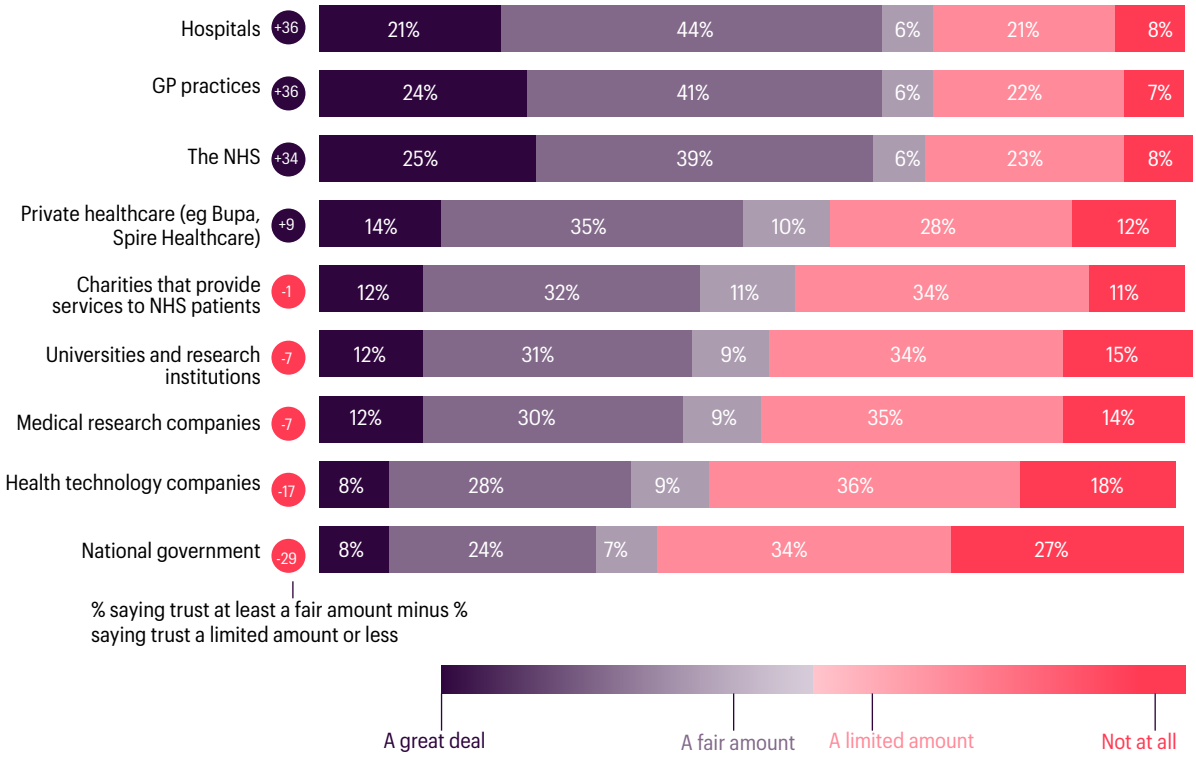
	All	Male	Female	18-34	35-49	50-64	65+	Non-graduate	Graduate	Very familiar	Somewhat familiar	Not very familiar	Not familiar at all
Hospitals	+36	+39	+34	+37	+26	+34	+49	+31	+47	+61	+36	+36	-6
GP practices	+36	+41	+31	+30	+27	+41	+47	+34	+39	+63	+35	+33	-2
The NHS	+34	+39	+29	+29	+26	+39	+41	+30	+40	+56	+33	+33	-5
Private healthcare (eg Bupa, Spire Healthcare)	+9	+1	+6	+22	+12	-4	+3	+6	+14	+53	+4	+3	-25
Charities that provide services to NHS patients	-1	+3	-5	+10	+6	-7	-15	-6	+7	+44	-2	-18	-23
Universities and research institutions	-7	-4	-10	-3	-4	-5	-17	-16	+10	+34	-6	-26	-26
Medical research companies	-7	-3	-10	+13	-6	-23	-12	-11	+2	+32	-6	-23	-23
Health technology companies	-17	-17	-18	+6	-13	-28	-37	-22	-9	+46	-20	-37	-41
National government	-29	-22	-36	-8	-18	-39	-54	-38	-11	+20	-29	-47	-52

% saying trust at least a fair amount minus % saying trust a limited amount or less

Moreover, respondents reflected higher levels of trust in individuals and local institutions (eg their personal doctor) and lower levels of trust in more abstract entities, namely the government and technology companies.

There is strong demand for transparency and accountability for AI applications in the health service; many participants seemed most concerned with the need for robust regulatory oversight and clear ethical guidelines to ensure patient safety and trust. In terms of trust with using health data to train AI systems, the public had more trust in health technology companies (-17 net trust) than national government (-29 net trust). Again, hospitals, GPs and the NHS have more positive support levels of trust suggesting that government should leverage the trust which the public has in their doctors on the frontline to build trust in AI tools and the idea of using health data to train them. The possibility of using nationally representative data in training AI holds great potential, but is something which must be explored carefully, with the appropriate checks and transparency in place.

Q. How much, if at all, do you trust these organisations with your health data, including access to personal healthcare information for training AI systems for medical purposes?



These preferences of who the public trusts with their data exist within the context of the broader sentiment that AI should act as an aid to healthcare professionals rather than a replacement, reinforcing the public's preference for a collaborative model where technology augments rather than supplants human expertise.

Together, these findings illustrate that the public values the efficiency and diagnostic enhancements offered by AI but insists that its successful integration in healthcare hinges on maintaining human oversight, clear accountability and stringent ethical standards.

5. Conclusions & Recommendations - Working through trusted healthcare institutions

These polling results reveal a cautious yet optimistic public stance towards the integration of AI in healthcare, particularly in radiology. While there is strong support for AI applications that enhance imaging efficiency–such as speeding up CT and MRI scans and providing real-time analysis alongside radiologists–the overarching consensus is that AI must serve as an adjunct to human expertise, not as a replacement. Respondents consistently emphasised the need for robust human oversight, transparency and clear regulatory frameworks, underscoring that trust in AI is intrinsically linked to its ethical and accountable use.

The data further highlights that while younger, more technologically familiar demographics show higher comfort levels, older adults and those with chronic conditions remain more sceptical, indicating that public education and tailored communication are critical. In addition, the public's endorsement of AI hinges on its ability to augment rather than supplant healthcare professionals. As we move forward, it is imperative for policymakers, the NHS and clinical leaders to collaboratively address these concerns–ensuring that AI's benefits in terms of speed, accuracy and efficiency are realised without compromising patient safety or the essential human touch in healthcare. Ultimately, this balanced approach will be key to harnessing AI's potential, fostering public trust and paving the way for a future-ready NHS.

Recommendations

Representing two technology-centric clinical specialties, radiology and clinical oncology, the RCR is at the forefront of AI implementation in the NHS. We recognise its potential but, for this to be realised, there is much work to do in order to integrate AI across all NHS services and regions.

We believe that action is needed in the following areas:

Engagement with the public

- **The government and NHS England should consider how they engage with the public to ensure that there is trust and confidence in the use of AI in the health system including through public education and awareness campaigns.**

The government's engagement with the public on AI must be transparent, involve clinical leaders and aim to maintain patients' trust in the health system and build trust in the tools which are already supporting doctors on the frontline. The government should seek to demonstrate how AI will benefit patients, for example where it can save them time, speed up their care or improve its quality.

Workforce

- **The NHS, at a local and national level, must expand its specialist IT workforce to deliver AI deployment, as put forward in the Hewitt Review.**
- **The government must ensure that the refreshed Long Term Workforce Plan includes consideration of the clinical workforce needed to support AI deployment in radiology and oncology, including how existing clinical staff will be upskilled in the use of AI.**

AI will not replace medical experts but will enable them to invest their time in direct patient care.

Clinicians must remain as the central adjudicators of the outputs of AI tools, assessing and using them to deliver care. Without clinicians, AI tools will not be effective, and they need to play a role in deciding which AI applications will be of the most use, rather than having tools implemented in hospitals which do not help clinicians. Trusts must ensure that adequate time is given to train clinicians to use AI tools so that they help, not hinder productivity.

Equipment, IT, and Data

- **The government should commit to and deliver the Sudlow Review recommendations to address the issues around equipment, IT and data which prevent greater AI adoption.**
- **This should include investment in secure data environments (SDEs) to protect the security of NHS data and to facilitate research and development of innovative AI algorithms.**
- **Continue to ensure the security and safety of patient data by calling on bodies including NHSE, DHSC and the MHRA to put in place rigid data checks and mitigations to ensure that the data used to train AI is representative and does not exacerbate health inequalities.**

Underlying IT systems must be in place before AI can add value. Slow systems cancel out AI-enabled time savings; small and partial datasets prevent the testing of AI tools and evaluation of their performance; interoperable computer systems prevent data sharing and access between sites; and incompatible systems prevent AI integration within sites. Existing datasets should be linked so that the NHS can extract maximum value from the information they contain. Secure data environments (SDEs) should both protect the data they contain, whilst also enabling researchers to access that data for the purpose of testing and developing AI healthcare algorithms.

Additionally, the data which is put into these SDEs must be of the highest quality. AI tools are only as good as the data on which they are trained. If that data is unrepresentative of the population, the AI will be systemically biased. There is a risk that health inequalities will be exacerbated. Mitigations are necessary, including the creation of large, representative datasets within Secure Data Environments, and work to build public confidence and trust. Education of clinicians is also essential so that staff can recognise where AI tools may have clinical biases.

Regulation and Audit

- **Government must support health regulators (such as NICE, MHRA and CQC) to coordinate their processes for long-term audits of AI tools, in order to understand their impact on patient outcomes and to maintain human oversight of AI tools.**

AI tools present unique regulatory challenges; systems must be in place to address these. Algorithms do not always perform consistently over time, so systems are needed to monitor this and thereby protect patients. The fragmented regulatory landscape needs greater direction from the centre, such that efforts are aligned and complementary. In addition to careful post-marker surveillance, organisations such as NICE, must be supported to make conclusions on which AI tools will save the NHS money in the long-term.

Funding

- **The government should include funding to support the implementation of AI in the NHS in future budget allocations for DHSC and NHS organisations (including trusts and ICBs).**

AI deployment projects necessitate large upfront costs. Long-term funding settlements are required to support NHS trusts to meet these expenses, and to encourage AI developers to bring products to market in the UK. Funding should help to secure licensing agreements for AI tools, update IT infrastructure within the NHS and to support staffing costs for essential project management and specialist IT staff needed for AI implementation. NHS organisations should also be supported to develop strong business cases for the adoption of AI helping trusts and ICBs to articulate the productivity gains that would enable a return on investment and save the NHS money.

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