NHS
North East and
North Cumbria

Artificial intelligence (AI) in healthcare report

The Involvement Team

Better health
and wellbeing for all...

Contents

Plain English summary

This report is about what people think and feel about using computers and robots, called artificial intelligence or AI, in hospitals and doctors' surgeries.

A team from the NHS North East and North Cumbria asked lots of people what they thought. They used a survey and talked to people in groups to hear their ideas.

Here's what we found:

- Most people have heard of AI in healthcare, like chatbots or tools that help doctors look at scans.
- Some people think AI can help doctors by saving time and doing jobs like writing notes.
- But many people are worried. They don't want AI to make big decisions, especially in serious situations like end-of-life care or mental health.
- People are also worried about their private health information being shared or hacked.
- Most people want doctors to stay in charge and not be replaced by machines.
- They also want to know how AI makes decisions and who is using their data.

The report says that if we want to use AI in healthcare, we need to:

- Be transparent about how AI is used across healthcare.
- Keep doctors involved in all decisions.
- Protect people's private information.
- Make rules to stop unfair or unsafe use of AI.

This way, AI can help make healthcare better, but people will still feel safe and listened to.

Executive summary

This report presents the findings of a public involvement initiative led by the Involvement Team at NHS North East and North Cumbria Integrated Care Board, exploring public attitudes towards the use of artificial intelligence (AI) in healthcare. The work aimed to understand perceptions, concerns, and expectations surrounding AI technologies, ensuring that public voices inform future developments.

A mixed-methods approach was used, combining a region-wide online survey with attending targeted community forums. The survey captured a broad demographic and explored themes such as trust, privacy, ethical concerns, and acceptable uses of AI. Community forums provided deeper insight into the nuances of public opinion.

Key findings reveal that while awareness of AI in healthcare is high (84%), trust remains low (37%). Respondents expressed significant concerns about data privacy, algorithmic bias, and the potential erosion of human oversight. There was strong support for AI as a tool to assist, rather than replace, healthcare professionals, particularly in administrative and diagnostic contexts. However, AI use in sensitive areas such as mental health, end-of-life care, and paediatrics was widely opposed.

The report identifies five core themes: reliability and effectiveness, human oversight, privacy and security, efficiency and benefits, and ethics and regulation. Each theme is supported by both quantitative data and qualitative insights.

The implications are clear: for AI to be accepted in healthcare, it must be transparent, ethically governed, and implemented with robust human oversight. The report concludes with targeted recommendations for policymakers, practitioners, researchers, and AI developers to ensure AI is developed and deployed in ways that are inclusive, accountable, and aligned with public values.

Purpose and overview

This document is intended to report on the involvement work conducted to understand attitudes towards the use of artificial intelligence (AI) in healthcare settings. The focus of this work was on engaging with the public across the NHS North East and North Cumbria region. The aim was to gather a comprehensive understanding of public perceptions, concerns, and expectations regarding the integration of AI technologies in healthcare.

To achieve this, a multi-faceted approach was employed, involving both quantitative and qualitative methods. Data was collected through an online survey, which was designed to capture a broad range of opinions from a diverse demographic. The survey included questions on various aspects of AI in healthcare, such as its potential benefits, risks, ethical considerations, and the level of trust in AI-driven healthcare solutions.

In addition to the online survey, work was carried out with community forums. These forums provided a platform for in-depth discussions and allowed for a more nuanced exploration of public attitudes. Participants were encouraged to share their thoughts, experiences, and concerns in a collaborative environment. The insights gained from these forums were invaluable in understanding the complexities of public opinion on this topic.

The data collected from both the online survey and community forums has been analysed and synthesised to provide a comprehensive overview of public attitudes towards AI in healthcare. This report presents the findings in a structured manner, highlighting key themes and trends that emerged from the data. It also offers recommendations for policymakers, healthcare providers, and AI developers on how to address public concerns and enhance the acceptance and trust of AI technologies in healthcare settings.

By presenting this report, we aim to contribute to the ongoing dialogue on the role of AI in healthcare and ensure that public voices are heard and considered in the development and implementation of AI-driven healthcare solutions.

Involvement methods and reach

An online survey was developed to gather insights on public attitudes towards the use of AI in healthcare settings. This survey was designed to capture a wide range of opinions and was distributed to an extensive network of regional contacts including; Healthwatch, Local Authorities, Secondary Care, and Voluntary, Community, and Social Enterprise organisations.. The aim was to ensure a diverse sample of responses from various demographics across the NHS North East and North Cumbria region. The survey included questions on the potential benefits and risks of AI in healthcare, ethical considerations, and the level of trust in AI-driven solutions.

In addition to the online survey, the objectives of the work were presented at several community and stakeholder forums, including the Learning Disabilities Network. These forums provided an opportunity for in-depth discussions and allowed for a more nuanced understanding of public attitudes.

Despite the efforts to make the survey as inclusive as possible, requests to have the survey translated into British Sign Language (BSL) were unfortunately hindered by time and resource constraints. This limitation was acknowledged, and it is hoped that future efforts will address this gap to ensure even broader participation and inclusivity.

One hundred and fifty-eight people responded to the survey. Most respondents were female (77%), aged between 55 years old and 74 years old (47%), identified as white ethnic background (93%), and identified as Christian (46%) or had no religious beliefs (44%). Please see appendix 1 for full demographic information.

Thirty eight people participated in discussion groups about AI in healthcare across three community (n=22) and stakeholder (n=16) participation groups. Including one group that gives voice to those with learning disabilities.

Findings

Please note: The analysis of open response data was carried out by AI but checked and corroborated thoroughly by a human. Full survey response data can be found in Appendix 2.

Summary of quantitative findings

Awareness & familiarity

- **84%** of respondents have heard of AI being used in healthcare.
- Most recognised tools include:
    - Chatbots (70%)
    - Diagnostic tools (59%)
    - Image/video analysis (56%)
    - Note-taking and appointment booking (40%)

Trust & concerns

- **Trust in AI**: Only **37%** agree they trust AI in healthcare.
- **Privacy concerns**:
    - **62%** worry AI could affect their privacy.
    - **80%** worry about data security and hacking.
    - **92%** want to know if private companies have access to their data.
- **Transparency**:
    - **92%** want to understand how AI makes decisions.
    - **58%** want to know how AI affects the environment.

Acceptable uses

- **66%** are okay with AI recording doctor visits to help take notes.
- **63%** support AI analysing X-rays or scans.
- **72%** agree AI can suggest treatments if a doctor checks them.
- **70%** support doctors using AI writing tools to save time.

Areas where AI is not wanted

- End-of-life care (90%)
- Mental health (60%)
- Children's care (45%)
- Emergencies (51%)
- Rare symptoms (43%)

Summary of qualitative findings

Reliability and effectiveness

- **Core concern**: AI's accuracy depends on the quality of its training data.
- **Risks**: Potential for incorrect diagnoses and misinformation.
- **Quote**: *"AI is only as good as the data it is taught."*
- **Takeaway**: AI must be transparent, validated, and used cautiously in high-stakes areas like diagnostics.

Human involvement and oversight

- **Core concern**: AI should support—not replace—healthcare professionals.
- **Risks**: Loss of empathy, misinterpretation of non-verbal cues, and lack of accountability.
- **Quote**: *"AI should never be used in place of a healthcare professional."*
- **Takeaway**: Human oversight is essential to maintain trust and quality of care.

Privacy and security concerns

- **Core concern**: Data breaches and misuse by commercial or foreign entities.
- **Risks**: Permanent loss of privacy, exploitation of health data.
- **Quote**: *"Once that data is out, it's out forever."*
- **Takeaway**: Strong, enforceable data protection laws are urgently needed.

Efficiency and potential benefits

- **Core benefit**: AI can reduce admin burden and speed up diagnostics.
- **Opportunities**: Free up time for empathetic care and reduce wait times.
- **Quote**: *"AI would be brilliant to reduce waiting times for test results."*
- **Core concern:** Healthcare professionals could become over reliant and complacent.
- **Takeaway**: AI can enhance healthcare delivery if implemented thoughtfully.

Ethics, bias, and regulation

- **Core concern**: Algorithmic bias, lack of transparency, and commercial exploitation.
- **Risks**: Widening inequalities and loss of public trust.
- **Quote**: *"Bias in data, lack of transparency, accountability, and informed consent."*
- **Takeaway**: Ethical safeguards and public accountability are essential.

Exploring opportunities and concerns

Reliability and effectiveness

A recurring concern among respondents is the reliability of AI systems in healthcare. Many emphasise that AI's effectiveness is directly tied to the quality and accuracy of the data it is trained on. As one participant put it, *"AI is only as good as the data it is taught"* [Respondent 1]. Others worry about the potential for incorrect diagnoses and misinformation, noting that *"AI is prone to hallucinations and should only be used if the data produced is fully verified by an expert in that area"* [Respondent 20]. These concerns are particularly acute in high-stakes environments like diagnostics, where errors could have serious consequences. While some respondents acknowledge AI's potential to improve efficiency, such as in triage or early detection, they stress that these benefits hinge on robust, well-tested algorithms. The theme reflects a cautious optimism: AI can be a powerful tool, but only if its outputs are accurate, transparent, and subject to rigorous validation.

Human involvement and oversight

Many respondents strongly advocate for AI to be used in partnership with human healthcare professionals, rather than as a replacement. There is a clear consensus that AI should support, not supplant, clinical judgment. One respondent stated, *"It should be used jointly with a human healthcare professional,"* [Respondent 2] while another emphasised, *"AI would be a good tool to help with medical care but should never be used in place of a health care professional or face to face consultations"* [Respondent 24]. Concerns include the loss of human empathy, the inability of AI to interpret non-verbal cues, and the risk of over-reliance on automated systems. Participants also highlight the importance of accountability and clinical oversight, with one noting, *"All clinical contacts should have human supervision and control"* [Respondent 35]. This theme underscores the belief that while AI can enhance healthcare delivery, it must be integrated in a way that preserves the human touch and ensures professional responsibility.

Privacy and security concerns

Data privacy and cybersecurity are among the most pressing concerns voiced by respondents. Many express scepticisms about the ability of current systems to protect sensitive health information. One participant bluntly stated, *"Privacy is a joke and the data protection laws are a total waste of time,"* [Respondent 3] while another warned, *"Once that data is out, it's out forever"* [Respondent 5]. There is anxiety about the potential for hacking, ransomware attacks, and exploitation by foreign or commercial entities. For example, one respondent noted, *"American health companies have enormous resources and will exploit any weaknesses in the data protection to gain information they will use to their advantage"* [Respondent 5]. These concerns

are not just technical but also ethical, reflecting fears about the misuse of personal data and the erosion of trust in healthcare systems. The theme highlights the urgent need for robust, transparent, and enforceable data governance frameworks.

Efficiency and potential benefits

Despite concerns, many respondents recognise the potential of AI to improve efficiency and streamline healthcare services. AI is seen as a valuable tool for reducing administrative burdens, speeding up diagnostics, and improving access to care. One participant noted, *"AI would be brilliant to reduce waiting times for test results"* [Respondent 13]. These efficiencies could allow healthcare workers to focus more on patient care and less on paperwork. Some also see AI as a way to address systemic issues, such as long wait times and staff shortages. For example, one comment suggested that AI could help *" This should only be used to support staff not eliminate or reduce their contributions"* [Respondent 38]. This theme reflects a pragmatic view: while AI is not a cure-all, it offers tangible benefits that, if implemented thoughtfully, could significantly enhance the healthcare system's capacity and responsiveness.

Ethics, bias, and regulation

Ethical considerations and the need for regulation are central to many responses. Participants express concern about algorithmic bias, lack of transparency, and the potential for AI to exacerbate existing inequalities. One respondent listed a range of issues including *"Bias in data, lack of transparency, accountability, and informed consent"* [Respondent 34]. Others call for stronger oversight, with one suggesting, *"There should be a central controlling body who ratifies AI spend"* [Respondent 4]. The fear is that without proper governance, AI could be misused or lead to unintended consequences. Some also worry about the influence of large tech companies and the commercialisation of healthcare data. As one person put it, *"Large AI companies want to farm all the information they can get from the NHS in order to make money"* [Respondent 42]. This theme underscores the importance of ethical safeguards, public accountability, and inclusive policymaking to ensure that AI serves the public good.

Implications

The findings from the public engagement work across NHS North East and North Cumbria suggest several critical implications for the integration of artificial intelligence (AI) in healthcare:

1. **Trust and transparency are foundational**
   Public trust in AI is currently low, with only 37% expressing confidence in its use in healthcare. There is a strong demand for transparency in how AI systems make decisions and who has access to the data they use. This implies that any future deployment of AI must be accompanied by clear, accessible explanations and robust consent mechanisms.
2. **Human oversight is non-negotiable**
   Respondents consistently emphasised that AI should support, not replace, healthcare professionals. The implication is that AI must be integrated in ways that preserve human judgement, empathy, and accountability, particularly in sensitive areas like mental health, end-of-life care, and paediatrics.
3. **Privacy and data security are paramount**
   Concerns about data breaches, misuse by commercial entities, and lack of control over personal health information were widespread. This highlights the need for enforceable data protection laws and transparent governance structures to maintain public confidence.
4. **Efficiency gains must be balanced with ethical use**
   While AI is seen as a tool to reduce administrative burden and improve diagnostic speed, there is concern about over-reliance and the potential for complacency. The implication is that efficiency should not come at the cost of safety, equity, or quality of care.
5. **Ethical and regulatory frameworks are urgently needed**
   The risk of algorithmic bias and commercial exploitation underscores the need for strong ethical oversight. Without it, AI could exacerbate existing health inequalities and erode public trust in the NHS.

Recommendations

For policy:

- Develop and enforce clear regulations on AI use in healthcare, including data governance, transparency, and accountability.
- Establish a central oversight body to review and ratify AI applications and spending within the NHS.
- Ensure that ethical considerations, including bias mitigation and informed consent, are embedded in all AI-related policies.

For practice:

- Mandate human oversight in all AI-assisted clinical decisions, especially in high-risk or sensitive areas.
- Provide training for healthcare professionals on how to use AI tools effectively and ethically.
- Implement transparent communication strategies to inform patients when and how AI is being used in their care.

For research:

- Investigate the long-term impacts of AI on patient outcomes, clinician behaviour, and health inequalities.
- Explore public attitudes in underrepresented groups, including those with disabilities and non-English speakers, to ensure inclusive AI development.
- Evaluate the effectiveness of different models of AI-human collaboration in clinical settings.

For AI developers:

- Design AI systems with transparency and explainability at their core. Ensure that users, both healthcare professionals and patients, can understand how decisions are made.
- Build user-friendly interfaces that clearly show what data is being used, how it is processed, and what the AI is recommending or concluding.
- Prioritise co-design with diverse public groups to ensure systems are inclusive, trustworthy, and aligned with real-world needs.

Appendix 1: Demographic Information

Age of Survey respondents

Age	Percentage	n
Under 16	0%	0
16-24	1%	1
25 - 34	8%	13
35 - 44	10%	16
45 - 54	15%	23
55 - 64	23%	36
65 - 74	24%	38
75 - 84	17%	27
85+	0%	0
Prefer not to say	2%	3

Gender of survey respondents

Option	Percentage	n
Female	77%	121
Male	21%	33
Non-binary	1%	1
Prefer not to say	1%	2
Prefer to self-describe (please write in)	0%	0

Ethnic group of survey respondents

Option	Percentage	n
Asian or Asian British (Includes Indian, Pakistani, Bangladeshi, Chinese or any other Asian background)	3%	4
Black, black British Caribbean or African (Includes black British Caribbean, African or any other black background)	0%	0
Mixed or multiple ethnic groups (Includes white and black Caribbean, white and black African, white and Asian or any other mixed or multiple background)	1%	1
White (Includes English, Welsh, Scottish, Northern Irish or British; Irish; Gypsy or Irish Traveller; Roma, or any other white background)	93%	146
Other (Includes Arab or any other ethnic group)	0%	0
Prefer not to say	4%	6

Religion or belief of survey respondents

Option	Percentage	n
No religion or belief	44%	69
Christian (including Church of England, Catholic, Protestant, and other Christian denominations)	46%	72
Buddhist	0%	0
Jewish	0%	0
Hindu	1%	2
Muslim	1%	2
Sikh	0%	0
Prefer not to say	6%	9
Other religion or belief (please state)	2%	3

Other religion or belief (please state)
Quaker
Spiritualist
Pagan

Sexual identity of survey respondents

Option	Percentage	n
Straight or heterosexual	81%	127
Bi or bisexual	5%	8
Gay or lesbian	3%	5
Prefer not to say	9%	14
Other sexual orientation (please state)	1%	2

Other sexual orientation (please state)
Pansexual
Queer

Appendix 2: Full survey responses

Please note all tables may not add up to 158 respondents as all questions were not mandatory in the survey.

Question 1. Have you heard of Artificial Intelligence (AI) being used to help in healthcare?		
Option	**Percentage**	**n**
Yes	84%	133
No	9%	15
Unsure	6%	10

Question 2. Which of these have you heard of? (Select all that you know about)		
Option	**Percentage**	**n**
Chatbots	70%	101
Tools to help doctors find illnesses	59%	86
Helping doctors write notes or book appointments	40%	58
Making a written copy of what you and the doctor said	35%	51
Looking at pictures or videos to help find signs of illness	56%	81
Voice technology	21%	31

Question 3: Do you agree or disagree wit these ideas…?

Question 3.1. I trust AI to help with my healthcare		
Option	**Percentage**	**n**
Agree	37%	59
Not sure	45%	71
Disagree	18%	28

Question 3.2. I worry that AI could affect my privacy		
Option	**Percentage**	**n**
Agree	62%	97
Not sure	22%	35
Disagree	15%	24

Question 3.3. If AI makes a health decision, I want to know how it decided		
Option	**Percentage**	**n**
Agree	92%	144
Not sure	5%	8
Disagree	3%	4

Question 3.4. I worry AI might make the wrong health choices		
Option	**Percentage**	**n**
Agree	63%	97
Not sure	33%	51
Disagree	5%	7

Question 3.5. I worry about how my health data is kept safe from hackers		
Option	**Percentage**	**n**
Agree	80%	123
Not sure	7%	11
Disagree	12%	19

Question 3.6. I worry AI might make unfair choices about my care		
Option	**Percentage**	**n**
Agree	63%	99
Not sure	29%	46
Disagree	7%	11

Question 3.7. I want to know if private companies have access to my data		
Option	**Percentage**	**n**
Agree	92%	142
Not sure	3%	4
Disagree	6%	9

Question 3.8. I want to know how AI use will affect the environment		
Option	**Percentage**	**n**
Agree	58%	89
Not sure	24%	36
Disagree	18%	28

Question 4: do you agree or disagree…?

Question 4.1. A doctor should always help make big health decisions		
Option	**Percentage**	**n**
Agree	96%	151
Not sure	4%	7
Disagree	0%	0

Question 4.2. Sometimes it's better if AI makes a health decision		
Option	**Percentage**	**n**
Agree	11%	16
Not sure	41%	62
Disagree	49%	74

Question 4.3. I want to be told if AI is helping with my care		
Option	**Percentage**	**n**
Agree	93%	141
Not sure	1%	2
Disagree	6%	9

Question 5: Would you be OK with this…?

Question 5.1. AI records my doctor visit to help take notes		
Option	**Percentage**	**n**
Yes	66%	104
Not sure	22%	34
No	13%	20

Question 5.2. AI listens to my talk with the doctor, so the doctor has more time for patients		
Option	**Percentage**	**n**
Yes	44%	69
Not sure	32%	50
No	24%	38

Question 6: Do you agree or disagree with these ideas…?

Question 6.1. AI could help doctors make better choices		
Option	**Percentage**	**n**
Agree	51%	79
Not sure	37%	58
Disagree	12%	18

Question 6.2. I'm okay with AI helping check my test results		
Option	**Percentage**	**n**
Agree	66%	103
Not sure	23%	36
Disagree	11%	17

Question 6.3. I'd use an AI tool to talk about small health worries		
Option	**Percentage**	**n**
Agree	41%	65
Not sure	31%	49
Disagree	27%	43

Question 6.4. I'm okay with AI checking my symptoms to send me to the right help		
Option	**Percentage**	**n**
Agree	54%	83
Not sure	26%	40
Disagree	21%	32

Question 6.5. I'm okay with AI looking at X-rays or scans to help me faster		
Option	**Percentage**	**n**
Agree	63%	98
Not sure	24%	38
Disagree	13%	20

Question 6.6. AI can look at all my health info to suggest treatments – if a doctor checks the ideas first		
Option	**Percentage**	**n**
Agree	72%	111
Not sure	17%	26
Disagree	12%	18

Question 6.7. It's okay for doctors to use AI writing tools if it gives them more time with patients		
Option	**Percentage**	**n**
Agree	70%	109
Not sure	22%	35
Disagree	8%	12

Question 6.8. AI should look at data to find out who needs extra help sooner		
Option	**Percentage**	**n**
Agree	60%	92
Not sure	31%	47
Disagree	10%	15

Question 7. Are there any areas where you do not want AI to help? (Select all that apply)		
Option	**Percentage**	**n**
End of life care	90%	113
When someone has more than one health problem	49%	61
Finding out what illness someone has	28%	35
Mental health	60%	75
Sexual health	33%	41
Children's care	45%	56
Helping older or vulnerable people	47%	59
Helping people with learning needs or disabilities	45%	56
Helping people who speak different languages	14%	17
Long-term pain	34%	43
Rare or unusual symptoms	43%	54
Emergencies	21%	64

Do you agree or disagree…?

Question 8.1. I don't like AI taking the place of face-to-face care		
Option	**Percentage**	**n**
Agree	83%	131
Not sure	12%	19
Disagree	4%	7

Question 8.2. I worry AI might mean fewer human healthcare workers		
Option	**Percentage**	**n**
Agree	81%	127
Not sure	6%	9
Disagree	13%	20

Question 9. AI gets better by learning from lots of health data. Would you be okay with AI using your health data, if it is kept private?		
Option	**Percentage**	**n**
Yes	61%	96
No	22%	34
Don't know	18%	28

Question 10. What would help you feel okay about sharing your health data with AI? (Select all that apply)		
Option	**Percentage**	**n**
My data is private and cannot be linked to me	74%	111
My data is kept safe	77%	114
I know how my data is used	68%	102
Other (please state)	6%	9

Question 10.1. Other
There should be an opt-out for patients who do not feel ok about their health data being shared with AI.
Privacy
I haven't the experience of AI yet to be able to trust it, or to trust our use of it.
I am not ok with this
U.K. company, data unable to be linked to me, full disclosure up front that AI is being used. No ability to reverse engineer data to a person
Just not sure
The NHS is using US companies involved with patient data. One specific company is committed to private health care. So until the NHS takes patient data seriously I would never be comfortable with my data being shared with these systems.
I am assured that my data will not be sold to private companies, and anything that conflicts those assurances are rectified.