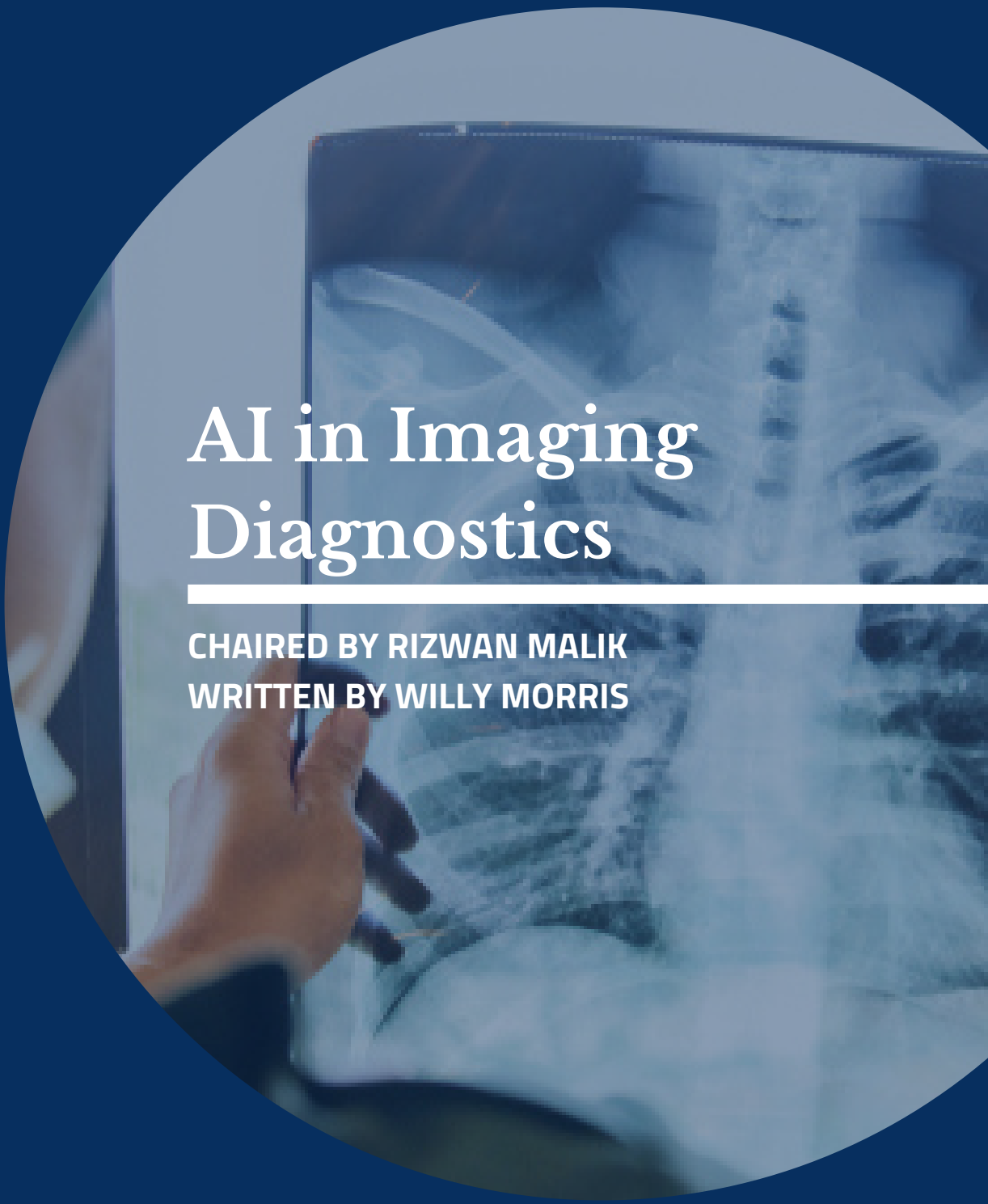
PUBLIC POLICY PROJECTS

INSIGHTS



AI in Imaging Diagnostics

CHAIRED BY RIZWAN MALIK
WRITTEN BY WILLY MORRIS

Deloitte. SIEMENS Healthineers MILLS & REEVE Achieve more. Together.

Key Insights

- The dichotomy between AI technologies or human doctors is a false one. With the NHS facing more than 125,000 job vacancies, AI in this instance should be viewed as supplemental tool to help alleviate pressures, not as a driver of joblessness. Imaging AI is a supplemental tool, made to help doctors and healthcare professionals improve the efficiency and accuracy of diagnosis, reduce workloads, and make healthcare more accessible.

- Industry must meaningfully engage with clinicians to curate relevant use cases. For organisations looking to deploy their technology in any healthcare setting, it's vital to find specific, widely held problems to solve, and have demonstrable examples of the solutions' efficacy.

- Clinical input from an early stage in product design will help ensure companies are not creating solutions in search of a problem. This clinical advice should come in addition to, not in place of, clinical safety officers (CSOs). Additional clinical input from acting NHS clinicians would be helpful in ensuring products are viable in a variety of clinical settings.

- To successfully deploy and scale diagnostic imaging AI in the NHS, multidisciplinary teams (MDTs) for AI implementation within individual hospitals, trusts, and health systems should be set up where possible. Proactive AI MDTs can also play an instrumental role in shaping the future direction of AI in the NHS and can work on crafting a strategy or vision for AI in their local patch. AI MDTs will ensure trusts and systems are prepared to harness the opportunity at hand.

- In the current environment, driving forward innovation in the NHS is almost perversely incentivised, even if, ironically, the innovation is meant to help ease workloads in the long run. Without sacrificing patient safety in the slightest, NHS and political leadership must work to fill vacancies across the health system, or else new technologies such as AI will not be adopted in a meaningful way.

- Accessing the necessary data to train AI models remains quite difficult. While perhaps oversimplified, the crux of the IG problem is that nearly every organisation within the NHS has its own IG rules and own understanding of what is or is not legal. A unified IG approach across the NHS, or at the very least ICS-wide IG practices are highly desirable. Currently, IG is an obstacle to be overcome, but a unified approach can turn IG into an effective enabler of innovation by unlocking the NHS's remarkable data assets.

- Clinicians will have to understand to some degree how relevant AI models work. Patients will be curious to know how decisions about their health are being made, and it will ultimately be frontline clinicians responsible for explaining, at some level, how an AI model uses data to makes decisions. Medical education will have to reflect this reality, and industry providers would also be wise to make sure they are clear in explaining how their models work in non-technical terms.

- Procurement strategies, especially when working with new technologies, should account for the fact that uptake in one pathway vertical has effects further afield. Just as England's health and care systems are meant to be integrated, so too should procurement strategies. Leveraging the buying power of multiple departments, or even multiple care systems, gives the NHS significant buying power and may also make scaling new technologies easier.

Recommendations

1. AI industry advocates and early AI clinical adopters should assure sceptical colleagues that AI in imaging diagnostics is a supplemental tool meant to assist clinicians, not replace them. Demonstrating AI's utility either through a pilot programme or other clinical case studies can help show the capabilities of imaging AI. In radiology in particular, there is an acute, long-term workforce shortage, so AI will provide an invaluable capacity boost to ease workforce pressures.

2. AI vendors should strive to provide clearly defined case studies for the use of their technology in a clinical setting. New technologies, including AI, should solve specific problems, and vendors should work collaboratively with clinicians to identify which problems their technology mitigates. Clearly defined, specific use-cases will help drive clinical trust in AI's abilities.

3. To help ensure their products are clinically applicable, AI vendors should strive to have clinical input at every stage of the product lifestyle where practical, up to and including product implementation. This includes properly compensating clinicians for their advice and input. This clinical input comes in addition to, not in place of, vital advice provided by Clinical Safety Officers.

4. To successfully deploy and scale diagnostic imaging AI in the NHS, multidisciplinary teams (MDTs) for AI implementation within individual hospitals, trusts, and health systems should be set up where possible. These MDTs should be formed in advance of new technology adoption to ensure workplace readiness.

5. The NHS should recognise innovation adoption as valid and appropriate work in a clinical job plan. Without explicit allowance for innovation adoption within regular job specifications, only the most passionate employees will push for new tech adoption as doing so in the current environment generally means working overtime or otherwise outside of day-to-day clinical duties.

6. It is essential that NHS IT teams are consulted from the very beginning of AI adoption processes. AI is highly taxing on IT systems, and IT experts have the requisite domain expertise to advise on the necessary technical steps for adoption and enabling technical integration with the Trust's EPR.

7. The Department of Health and Social Care, NICE, MHRA, and other regulatory agencies should create a strategy for the use of synthetic data to train AI models. Clear rules and guidelines on its use will help build trust in AI and will give industry confidence about which datasets can or cannot be used to train AI models.

8. Medical indemnity as a risk to adoption must be clarified. Currently, risk is typically borne by the Medical Director or Clinical Director at the Trust level, but as AI becomes more seamlessly integrated into clinical practice the line between clinical negligence and device failure becomes more difficult to find. In addition to clarifying the responsibility of clinicians using AI, the legal responsibility of AI suppliers for their technology must be made clear.

9. There should be clearly defined system level digital procurement strategies, which include AI. ICB level strategies will ensure scalability of technology across the system, and coherence in procurement. Similarly, ICSs should aim to create unified information governance (IG) rules, as current IG practices are highly fragmented leading to inconsistent practices and significant confusion.

Introduction

ABOUT THE ROUNDTABLE

On 11 October, 2023, Public Policy Projects (PPP) hosted a roundtable in partnership with Siemens Healthineers, Deloitte, and Mills and Reeve, entitled Implementing AI in Imaging Diagnostics. The roundtable was chaired by Dr Rizwan Malik, Consultant Radiologist at Bolton NHS Foundation Trust, and was attended by:

- Consultant Radiologists
- Health Research Authority
- Clinical AI leads
- Data experts
- Legal experts
- Private sector AI providers

During the roundtable, participants explored the challenges and opportunities relating to AI adoption in imaging diagnostics in the NHS.

While discussions concerning artificial intelligence (AI) have come to dominate public discourse since the launch of ChatGPT last year, in healthcare, AI has been the subject of intense debate for some time.

Many of the key talking points that define the debate in healthcare echo that of its wider implications, namely the unintended consequences of unleashing unregulated algorithms across the sector and the potentially profound implications AI could have upon workforces globally.

However, it is perhaps in healthcare where AI stands to make its greatest and most positive impact. Healthcare is a data-rich industry, with the treatment of patients leading to the production of vast amounts of medical records, images, lab results, and numerous other data outputs. This multimodal data can be used to train a wide range of AI systems, leading to the development of new, more targeted drug treatments and diagnostic tools, more personalised care, and a more efficient healthcare system.

To bring greater clarity to the debate on AI in healthcare, Public Policy Projects (PPP) convened a roundtable of experts to discuss AI in imaging diagnostics. Sub-fields of diagnostic medical imaging such as radiology, pathology, and ophthalmology, were highlighted as "disciplines most likely to be influenced by AI tools" in the NHS's 2019 Topol Review.[1] And while the sector could leverage AI to introduce revolutionary benefits in patient care, roundtable delegates identified several unique barriers within health and care to adopting and implementing AI technology at scale within diagnostics.

Clinical buy-in and clinical utility of AI

AI is a highly emotive topic for any sector given its profound implications for physical workforces, and this certainly holds true in healthcare, where a significant portion of public discourse revolves around the replacement of clinical staff. However, it is the strongly held view of the experts at the roundtable that AI in imaging diagnostics is not designed to replace healthcare professionals. Making the case further, the Royal College of Radiologists also believes that AI will optimise workflows and improve outcomes rather than create mass redundancies.[2]

Industry must meaningfully engage with clinicians to curate relevant use cases. For organisations looking to deploy their technology in any healthcare setting, it's vital to find specific, widely held problems to solve, and have demonstrable examples of the solutions' efficacy.

With the NHS facing more than 125,000 job vacancies, it bears repeating once more that AI in this instance should be viewed as supplemental tool to help alleviate pressures, not as a driver of joblessness.[3]

Misconceptions regarding the potential applications of AI in health often stem from the "yard stick" by which it is measured. Recent articles published in a range of media outlets, from popular news publications to professional industry journals, encapsulate the problem; clinical AI is often framed as being in competition with doctors.[4,5,6] The dichotomy between AI technologies or human doctors is a false one. Imaging AI is a supplemental tool, made to help doctors and healthcare professionals improve the efficiency and accuracy of diagnosis, reduce workloads, and make healthcare more accessible.

Framing the tools as "better" or "worse" is reductive, unhelpful and misses the point of AI's potential. As roundtable delegates noted, clinicians should be assured by colleagues and industry that their jobs and livelihoods are safe because AI is merely another tool in the clinical toolkit, and a revolutionary tool at that.

CLEARLY DEFINED USE CASES

Beyond reassurances, industry and clinical supporters of AI must clearly demonstrate to hesitant colleagues (and a hesitant public) how workflows will be transformed. Having clearly defined use-cases is a good starting point.

For example, an imaging AI application may have better negative than positive predictive abilities. This means that AI can help radiologists make more efficient decisions about which scans to prioritise and redirect to the appropriate reporter.

However, as roundtable delegates argued, it cannot be clinicians alone who define use cases; industry must meaningfully engage with clinicians to curate relevant use cases. For organisations looking to deploy their technology in any healthcare setting, it's vital to find specific, widely held problems to solve, and have demonstrable examples of the solutions' efficacy. Proving results on clear, narrow use cases without having first deployed is admittedly difficult, but public data does exist to help train models and gather results.

This approach can save time, improve diagnostic accuracy, and make work more fulfilling for all staff. Patients, meanwhile, will build trust through more rapid and accurate diagnosis. Narrow use cases for AI will also allow regulation to catch up, something that will be touched upon later in this report.

Clinical buy-in and clinical utility of AI

CLINICAL ADVICE

Lastly, to obtain clinical buy-in of AI, industry must ensure that it is designing AI tools and products with clinical input at every stage where practical, up to and including implementation. At the very least, clinicians hold domain expertise, and do not have to make mere assumptions about how things work "within the system". Clinical input from an early stage in product design will help ensure companies are not creating solutions in search of a problem.

This clinical advice should come in addition to, not in place of, clinical safety officers (CSOs). CSOs are registered health professionals who assess potential hazards, implementation risks, and collaborate with product teams to provide ongoing advice relating to safety. Some NHS professionals at the PPP roundtable felt additional clinical input from acting NHS clinicians would be helpful in ensuring products are viable in a variety of clinical settings.

Clinical advice is also key for product implementation strategies, especially in an NHS that is being stretched to maximum capacity. Radiology department staff have very little time to learn how to utilise new methods and techniques. AI tools that require significant time for training or are overly disruptive to existing workflows have much smaller chances of adoption given existing workplace pressures. Supplying organisations should also be mindful of the IT burden their technology places on procuring organisations, and consequently be prepared to help in implementation from a technical side. As one roundtable delegate suggested, it may be necessary to put a specific obligation on suppliers to fund and provide training on how to use their products.

Clinical advice from early on in product lifecycles is fundamental to ensuring AI technologies are practically designed and solving real problems. But that advice must also stretch all the way through to product implementation.

Clinical input from an early stage in product design will help ensure companies are not creating solutions in search of a problem. This clinical advice should come in addition to, not in place of, clinical safety officers (CSOs). Additional clinical input from acting NHS clinicians would be helpful in ensuring products are viable in a variety of clinical settings.

CHANGE MANAGEMENT

To successfully deploy and scale diagnostic imaging AI in the NHS, multidisciplinary teams (MDTs) for AI implementation within individual hospitals, trusts, and health systems should be set up where possible.

Roundtable delegates noted several reasons for this. At a macro-level NHS England, regional integrated care systems (ICSs), and different individual providers may all have various, and sometimes overlapping, digital strategies and goals. One ICS objective is to develop a more unified strategic approach across multiple providers, but the relatively young ICSs are still maturing, and it will take time to bring together a historically fragmented healthcare system. Further, finite resources and competing interests may mean that it is not only radiology departments who are fighting for new digital and AI technologies. Compounding the problem of limited resource is the fact that radiology tech is generally quite expensive, while the true value of the solution lies outside of radiology. By setting up MDTs for AI in advance of new technology adoption, systems can align new acquisitions to trust, ICS, and NHS priorities.

Clinical buy-in and clinical utility of AI

Where AI strategies don't yet exist, proactive AI MDTs can also play an instrumental role in shaping the future direction of AI in the NHS. A cursory reading of several ICSs' digital strategies shows that many ICSs have very little, if any, AI implementation strategy at all. While ICSs grapple with full implementation of electronic patient records (EPR) and integrate these EPRs into the soon-to-be-rolled-out federated data platform (FDP), AI MDTs that exist should work on crafting a strategy or vision for AI in their local patch. As and when the FDP rolls out across England and clinicians and systems become comfortable with it, the joined-up data will present an unprecedented opportunity to develop more accurate and effective AI models. AI MDTs will ensure trusts and systems are prepared to harness the opportunity at hand.

To successfully deploy and scale diagnostic imaging AI in the NHS, multidisciplinary teams (MDTs) for AI implementation within individual hospitals, trusts, and health systems should be set up where possible. These MDTs should be formed in advance of new technology adoption to ensure workplace readiness.

Lastly, MDT AI teams can further convince leadership of the efficacy of AI by providing a foresight into AI scalability in a way that an individual pursuing AI cannot. The role of the ICS will also be key here, because the unified approach brought on by integrated care means that scalability across systems is a leading factor NHS leaders must consider when developing digital strategies. Technology that cannot be seen as scalable across a system is often an unattractive option to NHS leadership, not least because unscalable solutions do not often present good value for money.

FOSTERING COLLABORATION WITHIN THE NHS AND ITS PARTNERS

The adoption of AI technologies can be highly taxing on basic NHS digital infrastructure, and it is therefore essential that NHS IT teams are consulted from the outset of any implementation process.IT team members will have insight as to the feasibility of integrating new technology into existing systems, the computing power necessary to run the new system, cybersecurity, and general domain expertise. When making a business case for adoption or applying for any funding, NHS AI adopters should ensure they earmark funding specifically for IT teams, because adoption is complex and demanding both from an IT system and human capital perspective.

A particular challenge of adopting AI imaging technologies is funding and benefits sharing. Radiology departments are often not the departments bringing in large amounts of excess funding for hospitals and systems, nor are they the main beneficiaries of improved diagnostic efficiency. And yet, in the NHS Long Term Plan, particular emphasis has been put on diagnosing more cancers at an earlier stage, putting additional pressure on radiology departments.[7] While this latter point demonstrates the need for improved efficiency in radiology, the full benefit of AI in radiology is realised further downstream, in oncology departments, for example.

Clinical buy-in and clinical utility of AI

As was discussed among roundtable delegates, when patients are diagnosed faster and at earlier stages of disease, the disease itself typically becomes easier to treat, and early-stage diagnosis is an important factor in overall cancer outcomes. Trusts, and systems as a whole, will also feel the benefits of earlier diagnosis through improved patient outcomes, and ultimately more available bed space. Put more explicitly, trusts and systems should assess procurement requirements, especially cost-sharing, when adopting AI in imaging diagnostics because the benefits can be wide-ranging.

In the current environment, driving forward innovation in the NHS is almost perversely incentivised, even if, ironically, the innovation is meant to help ease workloads in the long run. Without sacrificing patient safety in the slightest, NHS and political leadership must work to fill vacancies across the health system, or else new technologies such as AI will not be adopted in a meaningful way.

Quantifying these benefits and demonstrating that they are shared across departments (or even systems, in the case of ICSs and imaging networks) is key for individuals and MDTs looking to adopt imaging AI. However, challenges in data collection are exacerbated by the fact that AI technology is new and rapidly evolving, meaning its long-term benefits are difficult to predict. To help themselves, industry partners should provide their own analyses and reporting showing the return on investment of adopting AI across whole organisations or systems. Proving that a novel solution provides better value for money than the incumbent pathway, without sacrificing patient outcomes, will be crucial for adoption.

AI technologies can be expensive to procure and deploy. Benefits of these systems, especially AI imaging systems, are felt laterally across provider organisations. Implementing AI systems requires input and assistance from a number of departments and groups, including IT, information governance, digital, ICSs more broadly, as well as relevant departmental figures like radiologists and PACS systems managers in the case of imaging. Change management is difficult for large, busy organisations but it is essential to have the right infrastructure and resources in place before adopting AI. To help speed up the pace of change, industry should position itself as a genuine partner to the NHS, providing resources and support where necessary. In turn, ICSs and the NHS should develop procurement models that facilitate a sense of collaboration.

Regulation and governance

DEVELOPING NARROW USE CASES IN THE FIRST INSTANCE

As is the case with any new and rapidly developing technology, government regulation is struggling to catch up to AI. Regulatory lag can create a wide range of issues and uncertainty, but there are responsible ways in which systems and organisations can create and adopt AI while lawmakers grapple with the implications of the new technology.

One way to do this is through initial narrow adoption and use. As roundtable delegates noted, echoing wider conversations about AI happening around the world, public and professional trust in AI will naturally build when it's used in a responsible way. In practical terms, this could mean using AI very narrowly in the first instance.

AI in imaging is a particularly helpful use case for this. The assistive nature of imaging AI – merely helping medical professionals sort through and prioritise cases, while decision-making power ultimately still rests with humans – presents an "easing in" of AI into the lives of both medical professionals and patients. This easement brings the beneficiaries of AI along on the developmental ride, fostering trust, which should encourage greater uptake and adoption in the future.

Moving too quickly too fast with AI can have detrimental effects, particularly in healthcare. At the same time, overregulation too early on can risk choking off innovation. While awaiting the rollout of sensible safeguards, narrow adoption and use cases of AI will go quite some way in building public trust.

DATA PRIVACY AND ACCESS, AND TRANSPARENCY

Retrieving NHS data to help train models remains quite difficult, especially for start-ups and SMEs. While there are rightly stringent safeguards on health data, one key difficulty with access rests instead in the fragmentation of NHS data.

As was mentioned earlier, the FDP should go a long way in overcoming this issue, but the current data infrastructure in the NHS is confusing even for veterans of the system. To access the data necessary to train AI models, a myriad of data requests must be made to multiple organisations, and once retrieved this data must be joined together. In all, this is a time consuming, expensive process that makes entering the market difficult for thinly resourced organisations.

Accessing the necessary data to train AI models remains quite difficult. While perhaps oversimplified, the crux of the IG problem is that nearly every organisation within the NHS has its own IG rules and own understanding of what is or is not legal. A unified IG approach across the NHS, or at the very least ICS-wide IG practices are highly desirable.

Adding to the difficulties of data retrieval is the highly fragmented nature of information governance (IG) in the NHS. The NHS's many and varied IG practices were brought up by several roundtable delegates, who all expressed exasperation with inconsistencies in IG across the NHS. While perhaps oversimplified, the crux of the IG problem is that nearly every organisation within the NHS has its own IG rules and own understanding of what is or is not legal. Rather than a single, or even a small handful of IG rules and guidelines, NHS employees and commercial organisations alike are in effect working 10s, 100s, even thousands of assorted IG rules. A unified IG approach across the NHS, or at the very least ICS-wide IG practices are highly desirable. Currently, IG is an obstacle to be overcome, but a unified approach can turn IG into an effective enabler of innovation by unlocking the NHS's remarkable data assets.

Regulation and governance

In addition to the FDP and more clear access governance from NHSE, one potential solution to this problem is synthetic data. While there are various definitions of synthetic data, this paper assumes it to mean artificially generated data, meant to simulate real-world data. In discussions held following the roundtable with a group of legal experts, it was discussed that governments around the world have said very little regarding the legality of using synthetic data to train AI models. The private sector has largely taken this to mean its use is legal. Digital health technology in the UK must still prove its efficacy and safety either through clinical trials, observational studies, or real-world evidence, but synthetic data complicates the situation.

It will take a bold regulator to allow for a situation where an AI model fully trained on synthetic data gains regulatory approval, but it's not difficult to imagine this situation happening even within the next decade. Regardless, it would be wise for the government to issue guidance on the use of synthetic data to train AI health-tech models because opacity in this space will likely hurt public trust in AI.

MEDICAL INDEMNITY

One often overlooked aspect of AI adoption is medical indemnity. Put simply, who is liable if and when AI models make a mistake? In the AI imaging space, AI is merely a supplemental tool, and does not give medical advice. Clinicians are still the medical decision makers. In these early days of AI in healthcare, while clinicians and the public are still building trust in technology, AI is likely to remain only a supplemental tool.

Clinicians will have to understand to some degree how relevant AI models work. Patients will be curious to know how decisions about their health are being made, and it will ultimately be frontline clinicians responsible for explaining, at some level, how an AI model uses data to makes decisions.

However, as one legal expert noted, AI indemnity may prove similar to that of arthroplasty, restoring joint functions such as hips, knees, or shoulders. This is to say that, if a patient is harmed, insurance and legal experts will have to investigate whether it's the clinician or the product at fault. If healthcare AI continues to move in the direction of AI serving as a "co-pilot" to clinicians, finding the line between clinical negligence and device failure will be incredibly difficult. The role and responsibility of AI service providers in holding a degree of liability is something worth examining. Whether AI medical indemnity will require new legislation remains to be seen, but as AI becomes more advanced, clinicians may become wary of adoption if their personal exposure to liability greatly increases.

Other considerations

If clinicians do not trust AI models, because they are worried about liability, the use case is illogical, the implementation is overly disruptive, or for another reason, then their willingness to use them will be severely curtailed.

During the roundtable, it was discussed whether clinicians really need to understand AI models. If an AI tool receives regulatory approval, that should indicate to a clinician that the technology is safe to be used in a clinical setting. After all, clinicians don't necessarily have to know the intricacies of how a drug interacts with the body.

But clinicians will have to understand to some degree how relevant AI models work. Patients will be curious to know how decisions about their health are being made, and it will ultimately be frontline clinicians responsible for explaining, at some level, how an AI model uses data to makes decisions. Medical education will have to reflect this reality, and industry providers would also be wise to make sure they are clear in explaining how their models work in non-technical terms.

PRESSURES ON NHS STAFF

Earlier in this paper, it was strongly recommended that new technologies and products are developed with clinical input at every stage practical. One practical complication with this is the extreme pressures clinicians are under in today's NHS environment. At the roundtable, it was suggested by clinicians and industry members alike that finding NHS professionals with additional time for advisory roles is increasingly difficult.

One way industry providers can ensure they have enough time with clinicians is by properly compensating advisors for their time and expertise. But there is a more complicated, cultural dynamic at play for clinicians.

Because the NHS is facing such extreme pressures across nearly every department and job function, there is a cultural pressure in some parts of the NHS for clinicians not to step away from the "day job".[8] Every moment spent building an MDT for AI implementation, advising industry, pushing for innovation, is a moment that could have been spent reducing the patient care backlog. When departments are short-staffed, which many are now, especially radiology, absences don't go unnoticed by colleagues.

In the current environment, driving forward innovation is almost perversely incentivised, even if, ironically, the innovation is meant to help ease workloads in the long run. Without sacrificing patient safety in the slightest, NHS and political leadership must work to fill vacancies across the health system, or else new technologies such as AI will not be adopted in a meaningful way.

PROCUREMENT AND DEMOCRATISATION OF TECHNOLOGY

The procurement of technology in the NHS could fill an entire report on its own, but this paper will briefly touch on the topic here. As already mentioned, trusts and systems should assess procurement requirements for AI imaging adoption such that costs are more evenly distributed across the departments that will benefit from procuring the new technology. This may require new procurement strategies from ICSs and NHSE.

Other considerations

With that in mind, a leading tenet of integrated care is that the new organisational arrangement of the NHS, ICSs, come together to plan and deliver joined up health services. As such, procurement strategies, especially when working with new technologies, should account for the fact that uptake in one pathway vertical has effects further afield. Just as England's health and care systems are meant to be integrated, so too should procurement strategies. Leveraging the buying power of multiple departments, or even multiple care systems, gives the NHS significant buying power and may also make scaling new technologies easier.

Another potential solution for AI could be more centralised procurement, similar to how many pharmaceuticals are procured. In this case, NSHE would centrally procure AI, and ICSs, trusts, and other bodies would have their pick of these centrally "approved" technologies. More centralised procurement could reduce initial costs due to the increased negotiating power of NHSE over individual systems. This solution may also reduce the risk for ICSs and trusts looking to adopt new AI technology. Further, industry would benefit by having potentially fewer entry points into the NHS, something that has proven an issue with the creation of ICSs and more decentralised care delivery.[10,11] Or, due to notoriously slow and expensive centralised procurement, combined with the need for localised flexibility, ICSs could adopt central procurement models for the organisations within their system.

Procurement strategies, especially when working with new technologies, should account for the fact that uptake in one pathway vertical has effects further afield. Just as England's health and care systems are meant to be integrated, so too should procurement strategies.

In addition, more joined up procurement – whether at a system level or across the whole of the NHS – could go a long way in democratising AI technologies. AI is oftentimes expensive, requiring a large initial investment, even if it saves money over time. This cost can limit procurement to only the most well-funded hospitals and systems, further exacerbating inequalities and access. The cost and risk benefits associated with joined up procurement could help ensure that more systems and trusts, and in turn, more patients, have access to the newest and best AI technology.

Conclusion

AI has rapidly come to the front and centre of public discourse. The health sector is perhaps the best placed of any sector to take advantage of these new and powerful technologies, but adoption is not something which will come naturally. Both clinicians and the public will have to buy in to AI and trust that it is in their best interests to use this new, and sometimes confusing technology.

Safeguards can, should, and most likely will be put into place as more AI tools become available. It should always be remembered that AI algorithms are only as good as the data its trained on. With health inequalities abounding, not just in the UK but around the world, AI developers must be mindful that even the highest quality, real-world datasets will contain biases that reflect our own, human and societal biases.

AI has the power to be a remarkable force for the better, but AI developers, sectoral champions, regulators, governments, and the public all have roles to play to ensure it is used safely and responsibly.

NEXT STEPS

This report is part of Public Policy Project's (PPP's) Cancer Care Delivery Plan. The plan, informed by a series of roundtables and building on the objectives of the NHS Long Term Plan, the Life Sciences Vision and the National Genomics Strategy, discusses the implementation of policies that support the prevention and survival of cancer across the UK.

Following on this initial phase of work, PPP will continue to explore cancer care in the UK. Convening leading health professionals from across the oncology and cancer ecosystems, our 2024 Cancer Care programme will explore the relationships between the major institutions and organisations responsible for delivering quality cancer care, including ICSs, Cancer Alliances, Imaging and Pathology Networks, Health Innovation Networks, Trusts, academia and researchers, the voluntary sector, and the private sector.

For more information on how to get involved in PPP's 2024 Cancer Care programme, please contact Willy Morris at willy.morris@pppinsight.com

Acknowledgements

We are grateful to all who have participated and contributed to this report. A list of those who contributed to the discussion can be found below:

Rizwan Malik
Consultant Radiologist, Royal Bolton NHS Foundation Trust

Cosima Pettinicchio
Partner, Deloitte

Scott Sinclair
Business Manager, Digital Health, Siemens

Susan Shelmerdine
Consultant Academic Radiologist, Great Ormond Street Hospital

Subhashis Ghosh
Managing Director, Onyx AI

Prateek Bharadwaj
Global Market Access Manager - Radiology, Bayer

Daniel Togher
Quality Manager and Reporting Radiographer, Epsom St Helier Hospital

Karen Kirkham
Partner and Chief Medical Officer, Deloitte

James Fry
Partner, Head of Life Sciences, Mills and Reeve

Zoher Kapacee
Head of Data and AI, Health Research Authority

Charlotte Lewis
Principal Associate, Mills and Reeve

Tom Pearson
GP Partner, Drayton Medical Practice

Amitkumar Chougule
NHSE Fellow in Digital Health and Entrepreneurship, Cambridgeshire and Peterborough NHS Foundation Trust

Haris Shuaib
Head of Clinical Scientific Computing, Guy's and St Thomas' NHS Foundation Trust

Prateek Bharadwaj
Global Market Access Manager - Radiology, Bayer

Amrita Kumar
Consultant Radiologist and Clinical AI Lead, Frimley Health NHS Foundation Trust

Bibliography

1. NHS Health Education England (2019). The Topol Review, Preparing the healthcare workforce to deliver the digital future. Available from: https://topol.hee.nhs.uk/
2. The Royal College of Radiologists. Artificial Intelligence. Available from: https://www.rcr.ac.uk/our-services/artificial-intelligence-ai/#:~:text=Far%20from%20making%20the%20clinical,inform%20best%20practice%20and%20outcomes
3. BMA (2023). NHS medical staffing data analysis. Available from: https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/workforce/nhs-medical-staffing-data-analysis#:~:text=High%20vacancies,7.2%25%20of%20all%20medical%20posts
4. RSNA Radiology (2023). Commercially Available Chest Radiograph AI Tools for Detecting Airspace Disease, Pneumothorax, and Pleural Effusion. Available from: https://pubs.rsna.org/doi/10.1148/radiol.231236?s=08
5. The Times (2023). Radiologists outperform AI in diagnosing lung disease from x-rays. Available from: https://www.thetimes.co.uk/article/ai-nhs-tests-radiologist-lung-disease-diagnosis-jl5h3t59w
6. The Guardian (2023). AI use in breast cancer screening as good as two radiologists, study finds. Available from: https://www.theguardian.com/society/2023/aug/02/ai-use-breast-cancer-screening-study-preliminary-results
7. NHS England (2019). The NHS Long Term Plan. Available from: https://www.longtermplan.nhs.uk/publication/nhs-long-term-plan/
8. The King's Fund (2023). NHS Workforce, We know the NHS is facing a workforce crisis, but how many people work in the NHS in England, and what do they do? Available from: https://www.kingsfund.org.uk/projects/nhs-in-a-nutshell/nhs-workforce#:~:text=There%20are%20around%20112%2C000%20unfilled%20posts%20in%20NHS%20providers text=Resolving%20NHS%20workforce%20shortages%20is,NHS%20leavers%20are%20voluntary%20resignations
9. The Royal College of Radiologists. Latest updates. Available from: https://www.rcr.ac.uk/news-policy/latest-updates/
10. Public Policy Projects. The Leeds ICS Delivery Forum, Key Insights. Available from: https://publicpolicyprojects.com/wp-content/uploads/2023/06/ICS-Delivery-Forum-Leeds-Report.pdf
11. Public Policy Projects. The West Midlands ICS Delivery Forum, Key Insights. Available from: https://publicpolicyprojects.com/wp-content/uploads/2023/06/The-West-Midlands-PPP-ICS-Delivery-Forum-Insights-Bham-2023-2.pdf