North East Lincolnshire
Health and Care
Working in Partnership

AI within Health and Care in North East Lincolnshire

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Background

The use of Digital solutions within Health and Care has been under intense scrutiny nationally.

It has been recognised that digital solutions can bring about rapid change within the NHS and Social Care.

With increasing demands on our health and care services, AI offers innovative solutions to improve efficiency and patient outcomes.

The 2024 Darzie Review highlighted the significant role of digital advancements in enhancing healthcare services

What is Artificial Intelligence (AI)

Let's look at what AI can do:

- **Machine Learning (ML):** AI learns from data by identifying patterns. It makes predictions without explicit programming.
- **Deep Learning (DL):** A subset of ML that mimics human brain neural networks. It allows AI to process vast amounts of complex data. These are text, images and speech.
- **Automation:** AI-powered systems handle repetitive tasks efficiently. It reduces human workload and improves accuracy.
- **Large Language Models (LLMs):** A specific application of DL, where models like GPT-4 are trained on vast amounts of data to understand and generate human-like language

How does AI process data and make decisions?

- **Data Collection:** AI gathers structured and unstructured data. It comes from multiple sources.
- **Pattern Recognition:** AI analyses data. It helps to detect trends, anomalies, and relationships. It can do this much faster than humans.
- **Decision-Making:** AI uses trained models. They generate insights, recommend actions, and predict outcomes.

- **Cannot Do:** AI lacks emotional intelligence, creativity, and genuine human intuition. This makes it ineffective for some tasks. They typically require empathy or moral judgment.

AI in everyday life

1. **Virtual Assistants**: AI-powered virtual assistants like Siri, Alexa, and Google Assistant help with tasks such as setting reminders, answering questions, and controlling smart home devices.
2. **Smart Home Devices**: AI powers smart thermostats, security cameras, and other IoT devices to learn your habits and optimise your home environment.
3. **Image recognition:** AI supports security with facial recognition at Passport Control and on mobile phones. Self driving cars also utilise this technology to identify surrounding objects.
4. **Recommendation Systems**: Platforms like Netflix, Amazon, and Spotify use AI to recommend movies, products, and music based on your preferences and past behaviour.
5. **Customer Service**: Many companies use AI chatbots to handle customer inquiries, provide support, and even process orders.
6. **Navigation and Travel**: AI is used in GPS and navigation apps like Google Maps and Waze to provide real-time traffic updates, route optimisation, and estimated arrival times.
7. **Social Media**: AI algorithms curate your social media feeds, suggest friends, and even detect and filter out inappropriate content.
8. **Finance**: AI helps detect fraudulent transactions, provide personalised financial advice, and automate trading.

Principles

- The use of AI should be shaped by the public, patients and health care staff to ensure it works for them
- The NHS must focus AI development and deployment in the right areas
- The NHS needs data and digital infrastructure that will enable it to capitalise on the potential of AI
- The use of AI in the NHS must be underpinned by high-quality testing and evaluation
- The NHS needs a clear and consistent regulatory regime for AI
- The health care workforce must have the right skills and capabilities to capitalise on AI

The Health Foundation

https://www.health.org.uk/reports-and-analysis/briefings/priorities-for-an-ai-in-health-care-strategy#lf-section-220776-anchor

Exclusion and Inclusion

When re-designing services to include AI, we need to ensure that we are managing inclusion. We should consider:

- Access to the service – how do we keep this equitable?
- Equality and health impacts assessments (EHIA's) will help with this
- Skills development – both community and workforce
- What the alternative options are if someone opts out of the use of AI
- Clear and transparent communication about how the AI is used and what it does
- Having an ethics plan

It's equally important to appreciate how AI can help bolster inclusion for cohorts of people who have previously found interacting with health and care services difficult. This includes people with disabilities, communication challenges, neurodiversity and shift workers.

Use cases in Health and Care

Safety Critical - certification

Personal Productivity

- Medical Image Analysis
- Predictive analytics
- Diagnostics
- Medical triaging

- Language translation
- Voice recognition
- Home automation
- Remote monitoring
- Conversational Chatbots
- Policy advice
- Service optimisation

- Meeting and Case Note Transcription
- Appointment automation
- Waiting list management
- SOP Generation

National Drivers and Support

- Analogue to Digital - Road to recovery: the government's 2025 mandate to NHS England - GOV.UK
- 25-26 NHSE Planning Guidance
- A blueprint for modern digital government (HTML) - GOV.UK
- AI Opportunities Action Plan - GOV.UK

Where can we access support and best practice?

- NHSE/DHSC – AI Policy Unit and AI Ambassadors Network
- HNY – AI Steering Group and Community of Practice to provide advice and guidance
- Central Government - Launching the Artificial Intelligence Playbook for the UK Government – Government Digital Service
- LGA – AI Intelligence Hub

Risks

- Algorithmic Bias – caused by incorrectly trained models e.g. the data used isn't a fair representation of our population.
- Lack of transparency around decision making
- Confidentiality
- Unintentional misuse (lack of understanding or skills)
- Fear of job losses

Benefits

- Improving health outcomes and patient experience,
- Enhancing diagnosis, treatment, prevention, and management of diseases,
- Personalising care to individual needs and preferences,
- Increasing efficiency and productivity by automating and optimising processes, workflows, and tasks
- Improving access to services, such as reduced wait times
- Freeing up ‘time to care’

Final points and Next Steps

- Industry/profession is still learning
- AI technology is constantly evolving
- We need to agree how to prioritise the implementation of AI
- We need to agree how we demonstrate the impact of AI
- The AI market is awash with providers, generalists or specialists – we need to ensure we focus on need rather than get influenced by commercial entities.
- We must develop an approach to managing the implementation; including workforce support – not just about the tech
- Continue to engage with Councils and ICBs to sharing findings, participate in networks and communities of practice