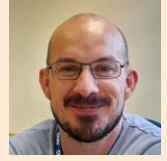


AI IN HEALTHCARE: ENHANCING PRACTICE WITH TECHNOLOGY

Here we explore the evolving role of AI in healthcare and dietetics specifically. By understanding the benefits and potential of AI, we can appreciate its value in enhancing practice, ensuring we remain at the forefront of delivering compassionate, effective nutritional care.



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Imagine a future where you didn't have to worry about 'MUST' calculations, energy/protein requirements, weight loss percentages, or any of the other repetitive boring parts of your job. Instead, you could focus on interacting with patients and doing the bits you enjoy most. This is a future that is not only possible but will be happening soon, thanks to artificial intelligence or AI.

AI is like a smart assistant that can learn, make decisions and solve problems by itself. Imagine a computer program that can understand what we need from it, whether it's playing a game, translating languages, or even suggesting what we should eat based on our health goals. AI does this by analysing lots of information and recognising patterns, much like learning from experience, just as humans do.

In dietetics within the NHS, AI is starting to play a supportive role and help dietitians provide even better care for their patients. The emergence of AI though brings up concerns about job security and the future role of dietitians. The aim of this article then is to demystify AI whilst highlighting how it serves as a tool to augment the expertise of dietitians, not replace it. This exploration is meant to reassure and inspire, emphasising the irreplaceable human elements of empathy, understanding and the personalised touch that dietitians bring to their work.

WHAT AI CAN ALREADY DO IN CLINICAL PRACTICE

It's tempting to think that AI is just a new thing and that because of this, it is of limited use in clinical practice. This assumption doesn't take into account the exponential rate at which AI improves. Here are some examples of AI's current capabilities:

AI can already pass dietetic and medical exams

In 2023, researchers from the Beijing University Of Chinese Medicine published a paper showing that one specific AI called ChatGPT was able to pass the Chinese dietetic exam. The exam was 200 questions divided into four sections: food and nutrition science, individual and group management, public nutrition and education, and dietary management. They even tested its ability to provide information about topics like the ketogenic diet. Human dietitians also took the test and the answers were compared. ChatGPT answered all the questions correctly, with an accuracy of 60-75%. The AI overlapped with real dietitians 80% of the time.¹

It's important to note that in this context the AI simply answered questions not related to specific clinical contexts. Still, it's impressive that this 'computer program' can pass the dietetic exam without specialist training. It is

REFERENCES

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currently possible for anyone to 'feed' ChatGPT with specialist data that can improve its accuracy. Similarly, ChatGPT passed the German State Medical Exam in 2023 without any special training and outperformed all German medical students.²

Patients can't tell the difference between AI or a dietitian

When it comes to the information produced by a dietitian or by AI, it seems that patients may not notice any difference. For example, a study published in 2021 set out to test this. They took children with allergies and got human dietitians to design a nutrition plan and got the AI dietitian to do the same. They then asked the patients which they preferred. The results were intriguing. When the researchers made it obvious which were the human-designed plans vs the AI-designed ones, 82.44% preferred the human-made nutrition plans. When the researchers blinded the nutrition plans so patients did not know if they were human-made or not, 86.67% preferred the AI-produced nutrition plans.³ Similarly, a different 2023 paper compared patient preferences of human physician responses to questions vs AI. Interestingly, 78.6% of people preferred the AI responses. The majority of people rated the AI responses to be of higher quality and even more empathetic.⁴

AI may give the same or better advice

A research group in the Netherlands took seven dietitians and asked them for the 20 most asked questions from their patients. They also logged the dietitians' answers. They then posed the same questions to AI (ChatGPT) and compared both sets of answers for scientific accuracy, actionability and comprehensibility. The AI scored higher in five of the eight questions posed to it. In the remaining questions, the AI scored the same as the dietitians.⁵

Healthcare professionals rate AI highly

In 2024, a study was published that asked AI (an old version of ChatGPT) questions on the following topics: congenital heart disease, atrial fibrillation, heart failure and cholesterol. They then gave those answers to 19 nurses and one dietitian and asked them to rate the answers

for trustworthiness, value and danger. The results? Overall, the healthcare professionals rated the AI responses as trustworthy, valuable and not dangerous. They also specifically liked that the AI gave nuanced and comprehensive information and that it directed people to seek professional help.⁶

AI can't take your job (yet)

Thankfully, AI cannot replace you or me at work just yet. A 2024 study looked at whether AI (ChatGPT) could provide nutrition advice for patients with multiple comorbidities. They found that when they asked AI about single conditions (like NAFLD or sarcopenia) it performed very well and generally in line with guidelines. That said, when they asked AI about a patient with type 2 diabetes, obesity and chronic kidney disease they found it gave conflicting and sometimes inappropriate advice. The researchers concluded: 'ChatGPT proved to be fairly accurate in providing responses related to nutritional advice for various NCDs. However, it exhibited limitations in handling more complex cases involving the coexistence of multiple health conditions. Consequently, even while it shows potential utility, to date, *it cannot replace the advice of a health care professional with expertise in nutrition.*'⁷

AI CAN AUGMENT YOUR PRACTICE AS A BUSY HCP

One of the most immediate benefits of AI is its ability to handle repetitive and data-intensive tasks, such as calculating basal metabolic rates (BMR), protein/energy requirements and 'MUST' scores, etc, with high accuracy and speed. This alone frees up valuable time for dietitians, allowing them to focus more on patient care and less on the manual processing of data.

Using AI for dietetic plans

In 2023, I personally experimented with this and used a paid version of ChatGPT, which was fed with data regarding oral nutrition supplementation. I then proceeded to test it and compare the nutrition plans that AI was able to generate as compared with my own. (Note: no personally identifiable information should be given to AI at this stage). The results

were surprising. In 90% of cases it built almost the exact same plan as I did and it referenced guideline documents (NICE CG32, for example) as part of its justification.

Even in this simple use case scenario, the potential is huge. Dietetic departments all over the country have large waiting lists and not enough dietitians. Could AI be used by dietetic assistants or even admin staff as a way to put an initial plan in place? Provided AI has been fed the correct data and tested vigorously, this is a possibility that could hugely benefit not only dietetic departments but also the patients they serve.

Helping with language barriers

Another simple but hugely beneficial use case that popped up for me was while communicating with a Mandarin-speaking patient. A translator via the telephone was not available that day, so I used AI (ChatGPT) to communicate with this patient in Mandarin via text message. This meant some basic info gathering could be done and a basic plan was put in place – all without a translator and without causing delay to the patient.

Saving time with writing tasks

AI can also do most of your writing tasks for you. For example, AI wrote 60% of this article (with my guidance of course!). Clearly the potential for AI to enhance patient outcomes while driving healthcare efficiency is particularly relevant within the context of the NHS, which operates under constant financial pressures.

By automating routine tasks and enabling more personalised care, AI can help reduce the overall cost of dietetic service delivery without compromising quality. This efficiency could lead to better resource allocation, where dietitians spend more time on complex cases and patient communication, ultimately contributing to improved health outcomes. In an era where the NHS is seeking ways to maximise resources, AI in dietetics and clinical nutrition offers a pathway to more effective, efficient and patient-centred care.

THE FUTURE OF DIETETICS WITH AI

Whether we like it or not, AI is coming into healthcare at a rapid pace. The NHS has already invested £250 million into AI (in 2019) and set up what's called the 'NHS AI Lab'.⁸ In 2023 they also invested £21 million into using AI for lung cancer diagnosis.⁹

Whilst AI cannot completely replace dietitians or healthcare professionals just yet, it can be used to augment what we do in several ways. Perhaps the issues we face as a profession can be alleviated somewhat by utilising this transformative technology, which in turn will help us help our patients better and faster. The future is impossible to predict; however, from history, we know that as technology disrupts industries it also creates new opportunities. Therefore, we should not fear the adoption of this technology, especially if it helps our ability to serve our patients.

CONCLUSION

The integration of AI into healthcare and dietetics is not about replacement but of augmentation. As we look towards a future interwoven with AI, it becomes clear that embracing this technology offers a pathway to enriching healthcare delivery and delivering better patient outcomes. By capitalising on AI's capabilities to perform data-intensive tasks and personalised patient care, dietitians can reallocate their focus towards more complex aspects of patient interaction and care planning. This symbiosis between AI and human expertise heralds a new era of healthcare, promising a more efficient, effective and empathetic approach to dietetics and patient care.

