Alberta Doctors' Digest

AI in medicine

Artificial Intelligence (AI) is emerging and making waves in medicine, transforming how we diagnose, treat and manage patient care. AI tools are emerging as game-changers, from predicting disease outbreaks to tailoring treatments through machine learning. Yet this rapid advancement isn't without its hurdles. Many controversial topics within AI in medicine have become apparent throughout the research. As AI technology advances and becomes more embedded in medical practices, it’s stirring up considerable debate, drawing attention from both the public and professionals with its promise of groundbreaking change and the complex challenges it brings.

It is a brave new world for medical students with the presence of AI. Popular programs such as ChatGPT 4o allow for the generation of documents and images and for you to speak to the AI model itself. Moreover, one can ask ChatGPT questions using their voice, and it will reply in a hyper-realistic voice, even mimicking normal human speak with the addition of “uhms” and “ahs.”

The existence of AI has allowed students to get creative with their learning. They can ask ChatGPT to create flashcards from slides they provide or to test their knowledge directly through a back-and-forth conversation with it. Another potential application is medical students asking ChatGPT to act like a patient with a particular problem from a list of potential diseases. The student can then ask various questions similar to a real-life health care encounter to come up with the diagnosis.

ChatGPT will transform not only medical education, but the health care field itself. Similar to the adoption of computers, progress may be slow, but it is inevitable. AI has emerged as a transformative force in medicine, offering new avenues for improving health care outcomes. Research in this field has unveiled several critical insights into AI's potential and limitations. One of the most significant findings is AI's ability to enhance diagnostic accuracy. Studies have shown that AI algorithms, particularly those using deep learning, can match human experts such as physicians in providing personalized patient education comparable to physicians in the field. These systems quickly analyze vast amounts of medical data, which enables earlier and more precise diagnoses.

Another area of impact is personalized medicine. AI can use diverse datasets, including genetic information and patient histories, to recommend tailored treatment plans. This precision medicine approach aims to optimize therapeutic efficacy and minimize adverse effects, paving the way for more effective patient-specific treatments. However, research also highlights several challenges. Data privacy concerns and the need for robust ethical guidelines are prominent issues. Additionally, the reliance on high-quality, representative data is crucial for AI systems to function effectively, and there is a risk of reinforcing existing biases if the data is not diverse. After all, AI is only as good as what trains it.

When medical students were asked what their thoughts are on AI in medicine. One other concern was how it is going to disproportionately affect certain specialties and make them potentially obsolete, which may affect medical students’ choice of specialty. Diagnostic imaging was a particular area of concern. While it is not yet widely used,

technologies exist that use deep learning to extract valuable insights from medical images to help with diagnosis. This could be a widely applicable tool to help with the diagnosis of diseases from imaging. AI is currently not at the point where radiologists aren't needed, but rather it serves as a valuable tool that physicians can use. Similar to the scare that computers caused – "if you can Google your symptoms why would you need physicians? – AI models need human verification and accurate data input by professionals.

In conclusion, AI is a hot topic, and it is currently set to transform the world, including the field of medicine. While AI can greatly benefit patients and improve outcomes, it is not without its ethical issues and concerns. One must use the application of new technologies with caution to ensure standards of patient care while still moving with the times and using available tools.

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