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Medical education should evolve to reflect societies’ needs and their corresponding patterns of practice. The 21st century has seen an influx of changes to undergraduate medical education as the system transforms in order to ensure that learners become competent practitioners. Artificial intelligence (AI) is expected to profoundly influence not only the content of medical education curricula but also its delivery. Given the potential for AI to decrease medical education costs, and augment student learning, there is value in further exploring its role as an academic tool.1

Our analysis outlines the current strategies used by undergraduate medical education programs for the implementation of AI as an adjuvant learning tool as well as the potential challenges that may follow.

There is limited research on the effectiveness of AI as an adjuvant learning and assessment tool in undergraduate medical education. One study conducted by Hamdy et al. examined the validity of AI-based virtual patients in assessing non-psychomotor competencies among medical students.2 They found that virtual clinical encounters using high-fidelity AI-based patients were comparable to direct observation clinical assessments when identifying clinical incompetence among students.2 Maicher and colleagues were also successful in developing an AI-based virtual standardized patient that could fulfill a similar role.3 Their system was comparable to human examiners in its ability to assess students’ medical history taking skills.3 Additionally, the AI-based virtual standardized patients offered students the opportunity to practice their skills and receive immediate feedback, which has been shown to have positive effects on learner outcomes and accelerates learners’ mastery of the skills when compared to delayed feedback.3–5 The individualized feedback provided contributed to learners’ knowledge acquisition and skill development.6 The ability to provide immediate feedback strongly supports the incorporation of AI as an adjuvant learning tool in undergraduate medical education. Given the potential of AI to augment students’ learning, undergraduate medical trainees are thought to be an optimal target population.6 AI technology has the potential to support learners in skill mastery, improve learning outcomes by providing practice opportunities, and create immersive learning experiences with the use of limited resources. It would be disadvantageous to ignore its potential use in undergraduate medical education and when responsibly integrated, AI can enhance student learning and optimize the educational process.

The release of ChatGPT 3.0 drastically changed the landscape of AI, raising a new array of concerns regarding the safety and security of AI chat technology. One major concern is that the use of AI as a medical tool may lead to biased diagnoses and dangerous recommendations that could put patients at greater risk.7 The use of AI technology in undergraduate medical education could also expose students to biases and errors in thinking, which, without adequate guidance, could negatively impact students’ skill...
AI is evolving at an exponential rate. Given its potential impact on medicine and medical education, there is a need for our systems to adapt to maximize the benefits for all parties involved and minimize many of its potential dangers. Undergraduate medical education trainees, in particular, could significantly benefit from AI technology. They would not only benefit from developing a greater understanding of the technology and its applications in medicine but also from its use as an adjuvant educational tool. As a result, there is a need to incorporate education on AI into the medical education curriculum and to develop techniques for its use as an educational tool. Future research should focus on identifying effective strategies to educate trainees on the topic and support their learning. Furthermore, research should aim to identify the most effective way to execute its inclusion. Lastly, institutions should direct their efforts to the development of a regulatory framework. This would not only help guide the development of curriculum content, but it would also work to ensure that the contributions of AI as an adjuvant educational tool are beneficial.

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References