

## Artificial Intelligence (AI) in Medical Education

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Medical education, evolving with technology and Artificial Intelligence (AI) integration, has undergone significant transformation in recent decades across the globe, including the Southeast Asian region which comprises countries with unique healthcare and education systems. AI technologies, like natural language processing and machine learning, are reshaping how medical knowledge is taught and applied. The Asia Pacific Medical Education Conference (APMEC) 2024 to be held in Colombo, Sri Lanka from 15th to 21st January 2024 with the theme 'AI in Health Professions Education' will be a boost to implement AI in Medical Education in the South East Asian Region.

One of the main areas where AI is making a profound effect on medical education is curriculum design. The traditional medical curriculum is mostly based on memorization and therefore it is necessary to follow the transition from the information age to the age of AI (Paranjape, 2019). It's crucial to equip future physicians with information integration skills (Wartman, 2018) from the start of medical training, and to embed this knowledge into medicine. AI-powered analytics enhance curricula by identifying student performance and adapting their curricula to ensure better learning outcomes. For example, AI algorithms can identify areas in which students struggle the most and recommend adjustments to course content or teaching methods which will lead to enhancing the efficiency and effectiveness of medical curricula. Even though the digitalization of the curriculum across all institutions may not be feasible due to financial

constraints (Frehywot et al., 2013), many medical schools in Canada and the UK are building curriculum maps (Willett et al., 2008), relying on AI and data for support.

Since the late 1990s, AI-driven approaches have gained traction as important tools in assessing medical students' clinical skills, knowledge retention, and critical thinking abilities. Computer simulations, virtual patients, and automated grading offer more objective feedback (Kononowicz et al., 2019). These developments underscore the transformative potential of AI in medical education, paving the way for more personalized, efficient, and data-driven approaches to student assessment that will ultimately contribute to the preparation of competent and highly skilled healthcare professionals. Nevertheless, it is crucial to continue researching the ethical and pedagogical implications of AI integration in student assessment to ensure its responsible and effective implementation.

AI-powered simulated patient encounters provide students with opportunities to practice diagnostic and treatment skills in a risk-free environment. AI-driven virtual reality (VR) and augmented reality (AR) applications develop hands-on training experiences, allowing students to explore the human body and surgical procedures in immersive environments which will allow students to enhance clinical skills acquisition, diagnostic accuracy, and decision-making proficiency. For instance, a study conducted by Densen (2011) highlighted the potential of AI-driven virtual patient simulations in providing realistic and immersive clinical scenarios for students to practice their skills in a safe and controlled environment. According to Rajkomar et al. (2018), demonstrated promising results in developing students' clinical reasoning by offering real-time guidance and feedback during patient case analysis.

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<https://doi.org/10.4038/seajme.v17i1.551>



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