Family Medicine

Reassessing Parente: Considering Emerging AI Pedagogies

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TO THE EDITOR:

In "Generative Artificial Intelligence and Large Language Models in Primary Care Medical Education," Dr Parente captured a moment when the promise of generative artificial intelligence (AI) was matched by significant uncertainty. He warned that hallucination, bias, and security concerns posed real risks in medical education, yet he also urged clinicians and educators to engage critically rather than withdraw. "The world has already changed," he wrote, "although society is still grappling with the full implications."[1] His words captured the tension between innovation and uncertainty that defined early conversations around AI in health care.

Parente urged clinicians and educators not to shrink from this transformation but to engage critically. "We must not fail to use these technologies to enhance medical education and ultimately human health."[1] One year later, his call for intentional adoption remains prescient, but the field has advanced more rapidly than anticipated.

Now, institutions are rarely debating whether AI belongs in medicine, but rather how to use it responsibly. Janumpally et al identified five ways generative AI (GenAI) is reshaping graduate medical education: reducing record burdens, enhancing simulation, personalizing instruction, advancing research, and improving decision support.[2] Their findings confirm Parente's optimism. Yet ethical concerns persist. Komasawa and Yokohira emphasized that accountability, accuracy, and professionalism must guide AI integration.[3]

This broader shift reflects the emergence of governance as a central consideration in responsible AI use. Ethical use now depends on institutional leadership, clear policy frameworks, accreditation expectations, and accountability systems that translate intent into practice. Strategy has likewise expanded beyond individual skill-building. Institutions are beginning to align curricular design, faculty development, and long-term planning with the reality that AI is embedded in students' learning environments.

Recent scholarship illustrates how quickly this landscape is evolving. Hallquist et al documented how AI-supported simulation, feedback systems, case generation, and virtual standardized patients are already reshaping medical education while highlighting the need for ongoing oversight and validation.[4] Succi and colleagues further argued that although large language models perform well on standardized tasks, their limitations in clinical reasoning require training that cultivates dual competency—the ability to use AI effectively while preserving essential skills in hypothesis formation, situational judgment, and ethical decision-making.[5]

AI is also becoming an academic competency. Many programs now teach students to evaluate outputs, identify bias, and document AI use transparently, aligning with national guidance that AI literacy is essential preparation for contemporary practice. Early curricular models include advising on responsible use, AI supported clinical reasoning exercises, and simulated encounters powered by large language model patient interactions. These approaches counter concerns about cognitive complacency by positioning AI as a tool requiring active, reflective engagement.

Parente's central insight remains essential. The future of AI in medical education depends on multidisciplinary collaboration to ensure safety, equity, and reliability. Yet the past year shows a shift from speculation to structured integration. If institutions pair strong governance with evidence-informed strategy, AI can

enhance, rather than erode, the rigor, empathy, and professionalism at the heart of medical education.

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