ISSN: 2091-2889 (online)
2091-2412 (print)

Published: 31 Oct 2025

DOI: 10.54530/jcmc.1803

OPEN ACCESS

The clinician's imperative: Integrating AI for the future of care

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Peer reviewed

Abstract

Artificial Intelligence (AI) has moved beyond a technological innovation to become a fundamental pillar of healthcare research and delivery. It offers significant opportunities for daily clinical practice and medical education. The transition, requires a re-look on how we train next generation of physicians to be develop competency in integration of AI for health education, research and health care delivery.

How to cite

Shah JN. The clinician's imperative: Integrating AI for the future of care. Journal of Chitwan Medical College. 2025;15(55):1-6.

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Introduction

Artificial Intelligence (AI) has evolved from a technological innovation to a practical necessity in health education, research, and service delivery.[1] Its integration is no longer a question of "if" but "how."

The AI is transforming society, and clinical practice is no exception. Integration of AI into daily workflows presents challenges related to its implementation, interoperability, and user resistance.[2-5] The transition demands a fundamental re-evaluation of medical curricula. The goal is to ensure the next generation of physicians is AI-competent and can utilize its potential responsibly. This educational revolution must begin at the undergraduate level and continue through postgraduate training, promoting assisted lifelong learning and professional excellence.[6-8]

Updating the curriculum for core AI skills

Health institutions have been slow to incorporate digital literacy and AI-related content into their curricula.[9-11] Yet, professionals now require foundational skills to interpret AI-generated outputs critically. This competency is vital for the safe utilization of AI tools that are already reshaping medical education and clinical care.[12,13] Innovations like predictive analytics and personalized medicine for diagnosis, treatment planning, and outcome prediction, are actively challenging conventional clinical models.

The ethical imperative and clinical safety

The rapid integration of AI into medicine has raised ethical and safety concerns. Without robust oversight and governance, deploying these powerful technologies risks patient harm and erodes clinical trust.

- **Algorithmic bias:** If AI is trained on skewed data, it can continue and worsen health inequities. Mitigation requires meticulous data curation and auditing ongoing algorithm for equitable outcomes.[14,15]
- **Data privacy & transparency:** A core tension exists between safeguarding patient privacy and amassing the vast datasets required to train effective AI.[16] When these tools operate as "black boxes" and clinicians are asked to trust recommendations generated by AI without understanding the rationale will undermine both safety and adoption.[17]
- **Automation bias:** Over-reliance on AI risks eroding essential clinical judgment. If students and clinicians lean heavily on algorithmic outputs without critical interrogation, they may lose the nuanced, independent thinking fundamental to patient care.[18]

Universities and teaching hospitals must navigate these concerns alongside significant infrastructure demands to maximize benefits of AI while mitigating risks. The objective is to create balanced curricula that enhance, rather than replace, core clinical reasoning.[19]

The generative AI revolution

Generative AI (GenAI) are already being used, sometimes covertly by trainees and provider for documentation and clinical decision support. Its no longer an optional luxury but a clinical necessity in daily practice, despite limited formal training or institutional guidance.[20-22] The GenAI tools (like DeepSeek, ChatGPT, etc.) can create new content (text, images, code, audio-video) by learning patterns from vast datasets like LLMs (Large Language Models). It can produce human-like outputs.

Conclusion

In the ongoing AI revolution, clinicians who adapt will lead the transformation, while those who remain bystanders risk professional obsolescence. The future of healthcare belongs to those who successfully leverage AI as a collaborative partner, synergizing human expertise with machine intelligence to achieve superior patient outcomes.

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