



Artificial Intelligence in Internal Medicine: Opportunities and Challenges in Clinical Practice



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ARTICLE INFO

How to Cite:

Mumtaz, S. U. (2026). Artificial Intelligence in Internal Medicine: Opportunities and Challenges in Clinical Practice: AI in Internal Medicine: Opportunities and Challenges. *Pakistan Journal of Health Sciences*, 7(4), 01-02. <https://doi.org/10.54393/pjhs.v7i4.4290>

Artificial intelligence (AI) is the topic of choice in today's discussions. It is basically the replica of human intelligence by computers or robots, enabling them to observe, learn, reason, and resolve. Unlike usual software, AI uses data and algorithms to perform better with every passing day by learning from new information and experiences. Its key components are machine learning, deep learning, and cognitive functions. Its key types are artificial narrow intelligence, artificial general intelligence, and super intelligence [1].

Worldwide AI use has been superfast in early 2026, even more than the internet and smartphones. The countries leading the AI usage are India, 59 %, the United Arab Emirates, 58 %, Singapore 53 % and China, 50 % [2]. Pakistan has successfully launched its AI policy in 2025, with the potential to increase GDP growth from 7% to 15% by 2030. However, current usage is only confined to 15% in Pakistan. As far as health sector usage is concerned, it's at an emerging stage [3]. It can play a pivotal role in day-to-day clinical internal medicine practice and can revolutionize internal medicine physicians' hospitals and clinics, as well as outpatient and inpatient departments. Then it raises a question: will it replace internal medicine physicians [4]? In Pakistan, this opportunity is very useful in many ways. Our hospitals' overburdened outdoors are dealt with by limited human resources, and hence these AI-supported systems can diagnose and treat in less time, which will improve patient management and will handle patients' burden. In remote cities like Narowal, AI will definitely play a vital role in internal medicine physicians' quick diagnosis, timely management, and referrals where required [5]. It can give clues in history and examination, interpret investigations like computed tomography, magnetic resonance imaging, electrocardiograms, chest radiographs, and even routine ultrasounds. Similarly, state-of-the-art management is possible in emergencies where minute-to-minute management matters and hence increases physicians' efficiency and can change the patient's outcome. It can also be the clerical job of patient history notes and even tell us about the possible course of the disease and future admission rate [6].

AI can decrease internal medicine physicians' burnout by decreasing workload and repetitive administrative tasks. It promotes evidence-based medicine by setting standards of care. Hence, quality care can be assured in overburdened resource-limited settings. The WHO has also set a worldwide mechanism for the safe and ethical use of AI in healthcare. It ensures public interest by giving six core principles, including protecting autonomy, human well-being, transparency, responsibility, inclusiveness, and sustainability [7].

However, despite the advantages, there are significant challenges associated with AI usage. The lack of local data giving rise to algorithm bias is a critical limitation. Limited infrastructure and resources also hinder its effective deployment. Lack of regulatory frameworks is also challenging. Lack of internal medicine physicians trained with AI tools can also be a limitation. It may also hamper physicians' critical thinking skills, a risk of over-reliance. It could be difficult to define accountability if an incorrect clinical or medicolegal decision is made by AI, using Western data models [8].

There are possible solutions to best use AI systems in our country. It should be adapted to local data, disease patterns, and



population dynamics rather than relying purely on Western data. A systematic and cautious approach is important for integrating AI into internal medicine for accurate results. Physicians must be trained adequately before using AI tools critically rather than passively accepting them. Infrastructure and resources must be enhanced for effective functioning. Regulatory frameworks must be established to address ethical concerns, data protection, and accountability. AI should act as a decision support system, with the physicians being fully responsible for patient care [9].

AI can help evidence synthesis by analyzing large data and assist in applying guidelines at the point of care. It can increase adherence to best evidence-based medicine (EBM) and reduce variability in patient management. However, EBM is not totally about data. It incorporates clinical expertise, patient values, and the best clinical evidence. AI can assist the evidence component, but it cannot replace physicians' expertise. Therefore, AI should be taken as an extension of EBM rather than a substitute for it [10].

AI is revolutionizing internal medicine, but its role must be clearly defined. It is a good supportive tool that can enhance patient care, but it cannot replace internal medicine physicians. The future of medicine will not be determined by AI alone, but by how effectively physicians integrate it into their practice. Clinicians who embrace and thoughtfully adopt AI will thrive in this new era, while those who disregard it will become obsolete.

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