Will Artificial Intelligence replace medical doctors? A question that will be answered in a few decades. A Commentary Article

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INTRODUCTION

Artificial intelligence (AI) is increasingly integrated into healthcare with applications in diagnostic imaging, robotic surgery, and predictive analytics [1,2].

Advances in deep learning and large language models have accelerated AI's adoption across multiple specialties and care settings. For example, these models may reduce healthcare costs by identifying patients suitable for recommended chemotherapy [3]. In chronic disease management, language models have been applied to support mood regulation, smoking cessation, diabetes management, and asthma [4]. Given these advancements, concerns have emerged among clinicians and patients that AI may replace physicians.

This commentary argues that although AI has transformed many aspects of healthcare, it is unlikely to replace physicians. Instead, AI will serve as a complementary tool that enhances physician expertise. The discussion will examine the benefits of artificial intelligence in the healthcare system, its limitations, and the ethical concerns that should guide its use.

DISCUSSION:

Currently, the AI-driven medical technology is developing rapidly, assisting patients and health care workers in many aspects.

Potential Benefits

AI technologies help to store and integrate the expanding clinical data and medical information, application of diagnostic images using artificial intelligence are flourishing in healthcare. The advanced technologies are assisting patients in finding the most suitable departments and medical experts for booking appointments and consultation. It can detect early signs of clinical symptoms and help in making diagnosis, analysis of disease prognosis, and recommendations of treatment plans. AI can bring many advanced developments in the medical field, like brain-machine interfaces, reconstruction of sensory functions such as vision, and restoring motor and physical functions in disabled, incapacitated patients [5].

Issues

It is normal for us to think that will AI replace the doctors? The short answer is no, not for the coming few more years if we tackle the challenges thoughtfully and responsibly [6]. There are some issues encountered with the use of artificial intelligence technology.

1. Lack of emotions and empathy
2. Ethical dilemmas (privacy breach, jeopardizing the autonomy of individuals)
3. Liability and accountability
4. Transcription errors and lack of generalizability, transparency
5. Policy implementation in future

Recommendations:

1. A single-center survey study was done to evaluate patients' outlook on clinical application of AI, assessing the doctor-patient interaction, diagnosis and treatment, human control and supervision of AI, and its acceptance [7]. The results stated that patients feel more secure with AI use under the supervision of a doctor instead of without it, and 66.8% patients said that the physician's decision regarding diagnosis should be followed, while only 2.6% said that they were satisfied with the AI's diagnostic decisions. The discrepancy between AI and physicians from patients' point of view was due to "addressing my worries and removing my anxieties" for doctors receive excessive value; it depicts the empathetic doctor-patient interaction [7-8]. As patients depicted trust and more compliance towards doctors, AI technology could complement human intelligence rather than replacing it; to achieve high-quality medical care, this is called "augmented intelligence" [9].

2. Use of AI technology in online social media poses few social concerns that can breach privacy and jeopardize the autonomy of individuals, causing stigma. Patient complexity is increasing day by day, and social and behavioral context plays a key role in managing

complicated patients and requires a critical component of technology-based resolution [10]. A balanced solution is allowing the AI system to access the data only from the patients who have given informed consent, which can provide patient control. [11-12].

3. For accountability, the responsibility should still lie with the physician to make the final decision through his expertise to decide whether to follow or decline the medical recommendation. This can provide safety and reserving patient's voluntary decision rather than following AI blindly. [11-12].

4. AIVT (Artificial intelligence powered voice to text technology) has a significant role in reducing clinician documentation burden. A systematic review assessed the AIVT use for medical documentation in different settings, such as outpatient or clinics, compared to manual writing. It was interpreted that although AIVT enhanced documentation efficiency, there are concerns over transcription errors and generalizability [13]. Use of artificial intelligence in clinical research is expanding rapidly, but issues of registration and reporting of trial results exist regarding the reliability and validity of evidence. By vast methodological protocols and ethical practices, AI incorporation in clinical settings could be strengthened by a more reliable evidence base to support its use in healthcare [14].

5. Testing the AI systems on diverse populations to ensure equitable outcomes across racial, gender, and socioeconomic lines is also a necessary step. This mitigates risks that arise from training models on skewed or incomplete data. Additionally, training healthcare staff to understand AI is the most important step. AI training modules can be implemented in medical schools. Federated learning and encryption methods are used in banking and could be implemented in healthcare. Ethical oversight bodies like Institutional Review Boards (IRBs) can adapt to evaluate AI tools [12-15].

Although resistance to change exists, the technological and institutional infrastructure needed to implement these changes already exists or is within reach [12-16]. The primary challenges are not technical but cultural and regulatory. These can be overcome through stakeholder collaboration and clear policy guidance. Also, there is a concern about the data bias in AI, which can be solved with stronger programming and algorithms as we proceed further into the future [16].

We must focus on building a future where AI assists and reshapes the work, not replacing medical doctors. If we handle its integration carefully, AI can reduce administrative burdens, improve diagnostic accuracy, and accelerate treatment planning [16]. By addressing key problems like privacy, liability, bias, and education, we can ensure that AI becomes a trusted partner to healthcare professionals. The future of medicine is not man or machine, but it is man with machine, working together for better care and a better world.

CONCLUSION:

In conclusion, artificial intelligence is transforming healthcare practices, but its integration presents challenges that require targeted action. Major issues include ethical dilemmas, data security risks, the lack of informed consent protocols, unclear accountability, and the potential weakening of physician-patient relationships.

Addressing these challenges will require:

1. Ethical and regulatory oversight — The establishment of governance frameworks to ensure AI-backed care is transparent, fair, and maintains patient autonomy.

2. Physician-led accountability — Clinicians ought to retain responsibility for patient outcomes despite supplementary use of AI.

3. Education and training — Incorporate AI literacy into medical education and continuous professional development to ensure safe and effective collaboration with AI models.

4. Research and evaluation — future research should be aimed at assessing AI's impact on patient outcomes, health equity, and workflow efficiency in diverse populations to reduce bias.

Prioritizing these aspects will allow AI to complement clinical expertise rather than replace it. The future of healthcare depends on a model of augmented intelligence where physicians and AI systems collaborate to provide safer, more effective care.

REFERENCES:

1. Yu KH, Kohane IS. Framing the challenges of artificial intelligence in medicine. *BMJ Qual Saf*. 2019;28(3):238-241. doi:10.1136/bmjqs-2018-008551

2. Jiang F, Jiang Y, Zhi H, et al. Artificial intelligence in healthcare: past, present and future. *Stroke Vasc Neurol*. 2017;2(4):230-243. Published 2017 Jun 21. doi:10.1136/svn-2017-000101

3. Bhinder B, Gilvary C, Madhukar NS, Elemento O. Artificial Intelligence in Cancer Research and Precision Medicine. *Cancer Discov*. 2021;11(4):900-915. doi:10.1158/2159-8290.CD-21-0090

4. National Academy of Medicine; The Learning Health System Series, Whicher D, Ahmed M, Israni ST, Matheny M, eds. *Artificial Intelligence in Health Care: The Hope, the Hype, the Promise, the Peril*. Washington (DC): National Academies Press (US); August 2, 2023.

5. Wang Y, Li N, Chen L, et al. Guidelines, Consensus Statements, and Standards for the Use of Artificial

Intelligence in Medicine: Systematic Review. *J Med Internet Res*. 2023;25:e46089. Published 2023 Nov 22. doi:10.2196/46089

6. Sezgin E. Artificial intelligence in healthcare: Complementing, not replacing, doctors and healthcare providers. *Digit Health*. 2023;9:20552076231186520. Published 2023 Jul 2. doi:10.1177/20552076231186520

7. Lennartz S, Dratsch T, Zopfs D, et al. Use and Control of Artificial Intelligence in Patients Across the Medical Workflow: Single-Center Questionnaire Study of Patient Perspectives. *J Med Internet Res*. 2021;23(2):e24221. Published 2021 Feb 17. doi:10.2196/24221

8. Yang K, Zeng Z, Peng H, Jiang Y. Attitudes Of Chinese Cancer Patients Toward The Clinical Use Of Artificial Intelligence. *Patient Prefer Adherence*. 2019;13:1867-1875. Published 2019 Nov 1. doi:10.2147/PPA.S225952

9. Banerjee A, Sarangi PK, Kumar S. Medical Doctors' Perceptions of Artificial Intelligence (AI) in Healthcare. *Cureus*. 2024;16(9):e70508. Published 2024 Sep 30. doi:10.7759/cureus.70508

10. Shaban-Nejad A, Michalowski M, Buckeridge DL. Health intelligence: how artificial intelligence transforms population and personalized health. *NPJ Digit Med*. 2018;1:53. Published 2018 Oct 2. doi:10.1038/s41746-018-0058-9

11. He J, Baxter SL, Xu J, Xu J, Zhou X, Zhang K. The practical implementation of artificial intelligence technologies in medicine. *Nat Med*. 2019;25(1):30-36. doi:10.1038/s41591-018-0307-0

12. Gerke S, Minssen T, Cohen G. Ethical and legal challenges of artificial intelligence-driven healthcare. *Artificial Intelligence in Healthcare*. 2020;295-336. doi:10.1016/B978-0-12-818438-7.00012-5

13. Alboksmaty A, Aldakhil R, Hayhoe BWJ, Ashrafian H, Darzi A, Neves AL. The impact of using AI-powered voice-to-text technology for clinical documentation on quality of care in primary care and outpatient settings: a systematic review. *EBioMedicine*. Published online July 21, 2025. doi:10.1016/j.ebiom.2025.105861

14. He Z, Yang L, Li X, Du J. Discrepancies in reported results between trial registries and journal articles for AI clinical research. *EClinicalMedicine*. 2025;80:103066. Published 2025 Jan 20. doi:10.1016/j.eclinm.2024.103066

15. Younis HA, Eisa TAE, Nasser M, et al. A Systematic Review and Meta-Analysis of Artificial Intelligence Tools in Medicine and Healthcare: Applications, Considerations, Limitations, Motivation and Challenges. *Diagnostics (Basel)*. 2024;14(1):109. Published 2024 Jan 4. doi:10.3390/diagnostics14010109

16. Rahman MA, Victoros E, Ernest J, Davis R, Shanjana Y, Islam MR. Impact of Artificial Intelligence (AI) Technology in Healthcare Sector: A Critical Evaluation of Both Sides of the Coin. *Clin Pathol*. 2024;17:2632010X241226887. Published 2024 Jan 22. doi:10.1177/2632010X241226887

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