

Editorial

Artificial intelligence in healthcare: Pros and cons

Charu Singh¹, Ashish Gulia¹, Naveen Bansal¹¹Homi Bhabha Cancer Hospital and Research Centre, New Chandigarh, Punjab, India.

The term artificial intelligence (AI) was first used at the Dartmouth Conference in 1956 by McCarthy and Hayes to describe “the science and engineering of making intelligent machines.”^[1] The first attempts by physicians to utilize AI in medical field dates back to 1950s, when computer-aided programs were deployed to improve the medical diagnosis.^[2] However, role of AI in medical practice is changing abruptly and proving beneficial in clinical, diagnostic services, surgical field as well as rehabilitative services.^[3] Some centers also take help of AI in diagnostic workup and decision-making.^[3] The useful side of AI is in analyzing large data set and guiding clinical diagnosis.^[4] AI has been known to assist patient management because of software capable of compiling literature available in database, textbooks, journals, etc. Use of AI in predictive medicine has also been discussed in a review by Secinaro *et al.*^[3]

AI has the ability to identify temporal relationships in raw data, and hence it can aid in supporting diagnosis, disease management, and predicting treatment outcomes in many medical situations.^[5] AI can assist physicians during proactive management of disease onset, identifying risk factors, and targeting health-care interventions for better outcomes. AI-based applications have also been helpful for clinical decision making process and in helping physicians to make better clinical decisions. AI simplifies jobs and provides virtual assistance to health-care professionals. Another arena in which AI has a good implication is patient data and diagnostics where AI can be utilized by researchers to deal with vast amount of real-world data from patients. Various risk factor associations, disease, and drug association can be studied in very less time and aid in improving treatment lines. Rehabilitation robots are based on AI having exercise adaptation algorithms that change exercise based on patient physiological responses. The AI-based robot physically supports and guide a patient’s limb during motor therapy.^[6] In surgical field, AI has vast scope. Surgical robotics has been shown to perform semi-automated surgical tasks with increased efficiency.^[3]

However, AI is seen as a danger to increase unemployment and replace the need of trained medical professionals. It has been a topic of debate lately that if AI has potential to replace medical personnel. However, many have opined that clinical

judgment and clinician expertise can never be replaced by a software. It has been predicted that AI is unlikely to bring any substantial change in health-care employment over the next 20 years or so.^[7] In fact, AI application in healthcare has the scope to create new jobs for experts in AI technology.

Automation comes with errors too. AI is definitely going to make mistakes in patient diagnosis and treatment and there can be no accountability, unlike the present practice where the health professional is accountable leading to legal implications. Moreover, patients also require empathetic interaction with their doctor or nurse which also boosts their morale which will not be provided by AI robots or drug dispensing robots. Clinical correlation is very necessary between diagnostic services and physicians which cannot be achieved by AI-based systems. The policy makers needs a super cautious approach as to how and how much AI should be implemented in the country or state in coming future so that the balance is maintained keeping patient health and care in consideration.

REFERENCES

1. McCarthy J, Hayes PJ. Some philosophical problems from the standpoint of artificial intelligence. Machine intelligence. Edinburgh: Edinburgh University Press; 1969.
2. Yang X, Wang Y, Byrne R, Schneider G, Yang S. Concepts of artificial intelligence for computer-assisted drug discovery. Chem Rev 2019;119:10520-94.
3. Secinaro S, Calandra D, Secinaro A, Muthurangu V, Biancone P. The role of artificial intelligence in healthcare: A structured literature review. BMC Med Inform Decis Mak 2021;21:125.
4. Cho BJ, Choi YJ, Lee MJ, Kim JH, Son GH, Park SH, *et al.* Classification of cervical neoplasms on colposcopic photography using deep learning. Sci Rep 2020;10:13652.
5. Jiang F, Jiang Y, Zhi H, Dong Y, Li H, Ma S, *et al.* Artificial intelligence in healthcare: Past, present and future. Stroke Vasc Neurol 2017;2:230-43.
6. Novak D, Riener R. Control strategies and artificial intelligence in rehabilitation robotics. AI Mag 2015;36:23-33.
7. Puaschunder JM. The potential for artificial intelligence in healthcare. SSRN Electron J 2020;6:94-8.

How to cite this article: Singh C, Gulia A, Bansal N. Artificial intelligence in healthcare: Pros and cons. Indian J Med Sci 2023;75:35.

*Corresponding author: Charu Singh, Homi Bhabha Cancer Hospital and Research Centre, New Chandigarh, Punjab, India singhcharu98@gmail.com

Received: 10 August 2023 Accepted: 12 August 2023 Published: 19 August 2023 DOI: 10.25259/IJMS_171_2023

This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-Share Alike 4.0 License, which allows others to remix, transform, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms. ©2023 Published by Scientific Scholar on behalf of Indian Journal of Medical Sciences