

The Role of AI in Healthcare: Innovation with Human Touch

Huma Azmat, Syed Shujaat Abbas Naqvi

How to cite this Article:

Azmat H, Naqvi SSA. The Digital Doctor: AI's Emerging Role in Clinical Practice. J Bahria Uni Med Dental Coll. 2025;15(4):463 DOI: <https://doi.org/10.51985/JBUMDC2025681>

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non Commercial License (<http://creativecommons.org/licenses/by-nc/4.0>) which permits unrestricted non commercial use, distribution and reproduction in any medium, provided the original work is properly cited.

I am writing in response to the article “Artificial Intelligence in Surgery: Learning and Applications” to express my views on the rapidly evolving role of artificial intelligence (AI) in healthcare which has been published in your prestige journal Volume 15 No.3 (2025) with DOI: <https://doi.org/10.51985/JBUMDC2025592>. This transformative technology is reshaping the way we deliver care, diagnose diseases, and manage treatments.

AI, which involves developing machines capable of mimicking and in some cases surpassing human cognitive functions, is making significant strides in clinical settings. One of its most impactful uses is in predictive analytics. By analyzing patients' current health data alongside their medical histories, AI can forecast potential health risks and identify trends. These predictive capabilities allow for earlier interventions, more effective preventive care, and ultimately better patient outcomes while reducing overall healthcare costs.¹

In addition, AI streamlines administrative tasks by digitizing and organizing patient data, which significantly reduces the documentation burden on medical teams.² It also plays a vital role in medical education, bridging the gap between theory and practice by enabling students to simulate history-taking, diagnosis, and treatment planning.³

Technologies such as 3D printing (3DP), often powered by AI-driven planning tools, are revolutionizing surgical procedures, particularly in tumor excision. They help define precise surgical margins, reduce the risk of damaging vital structures, and preserve healthy tissue resulting in improved postoperative outcomes.⁴

Furthermore, AI-enabled clinical decision support systems (CDSS) assist healthcare professionals by providing real-time recommendations, alerting them to potential errors,

and supporting decision-making processes. In underserved or resource-limited areas, AI tools can extend access to medical expertise where specialists may not be available.

However, it is my firm belief that AI should serve as an adjunct to healthcare professionals not a replacement. The human elements of empathy, ethical judgment, and clinical intuition remain irreplaceable.

In conclusion, to ensure that AI technologies serve patients safely and equitably, close collaboration is required among clinicians, data scientists, and policymakers. With thoughtful integration, AI can truly enhance the practice of medicine and improve healthcare delivery across the globe.

Authors Contribution:

Huma Azmat: Conception, design, analysis, literature search, writing, proof reading

Syed Shujaat Abbas Naqvi: Conception, design, analysis

REFERENCES:

1. Russell S, Norvig P. Artificial Intelligence: A Modern Approach. 3rd ed. Pearson; 2016.
2. Obermeyer Z, Emanuel EJ. Predicting the future — Big data, machine learning, and clinical medicine. *New England Journal of Medicine*. 2016;375(13):1216–9. <https://doi.org/10.1056/NEJMp1606181>
3. Davenport T, Kalakota R. The potential for artificial intelligence in healthcare. *Future Healthcare Journal*. 2019;6(2):94–8. <https://doi.org/10.7861/futurehosp.6-2-94>
4. Wartman SA, Combs CD. Medical education must move from the information age to the age of artificial intelligence. *Academic Medicine*. 2018;93(8):1107–9. <https://doi.org/10.1097/ACM.0000000000002044>
5. Martelli N, Serrano C, van den Brink H, Pineau J, Prognon P, Borget I, et al. Advantages and disadvantages of 3D printing in surgery: a systematic review. *Surgery Today*. 2016;46(12):1443–52. <https://doi.org/10.1007/s00595-016-1342-7>

Huma Azmat

Senior Lecturer, Department of Anatomy,
Bahria University Health Sciences Campus Karachi,
Email: drhumazmat@gmail.com

Syed Shujaat Abbas Naqvi

2nd year MBBS Student,
Bahria University Health Sciences Campus Karachi
Email: naqvishujaat39@gmail.com

Received: 15-08-2025

Accepted: 30-09-2025