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Letter to the Editor

"Revolutionizing Healthcare: The Evolution of Artificial Intelligence in Healthcare Sector and Its Transformative Impacton the Health Profession"

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Dear Editor,

The purpose I am writing this is to highlight the broad repercussions that AI has on Medicine and Surgery announcing a new era of healthcare. This translation of machine gained knowledge has unprecedented accuracy, reaching that of a human expert[1]. In addition to recognizing the importance of interdisciplinary collaborations in developing unbiased AI systems[2], we must consider that despite all the different areas our use cases have spanned, there are several issues affecting some or most life-affecting decisions made by people.

Artificial Intelligence (AI), based on machine learning algorithms, provides the solution to alleviate healthcare challenges by matching patients' signs and symptoms for diagnosis and management, effectively mitigating concerns about infectious disease outbreaks[3]. In addition to designing relevant healthcare systems, artificial intelligence (A.I) will play the role of a disruptive technology for drug discovery where any primary care physician must become familiar with future advancements in A. AI tools like deep learning models, for instance, significantly improve diagnostic accuracy in radiology and pathology and thus reduce human error[5].

AI, especially the analysis of human genomic data using machine learning algorithms is expected to be one day part and parcel in patient care where AI could reveal hidden features about diseases[4]. This ability will enable health specialists to find diseases in advance, even when asymptomatic and anticipate the advent of cancer or cardiovascular disease. Governments may use AI to predict and prevent the outbreak of new diseases, subsequently stopping their dissemination.

While the role for doctors and health care providers remains uncertain, AI beckons those who understand its importance. While more recent programs around AI for clinicians and staff are appearing to improve hospital operations, aide in system level automation[6], reducing clinician burnout.

Still, we need to deal with the ethical dilemmas encountered by AI and specifically in terms of patient confidentiality and data protection. Massive data collection for AI training: Collection of massive datasets to train an algorithm introduces the risk of unauthorized access and ultimately end in a data breach[7]. Healthcare organizations must place a high priority on strong security, and the willingness of patients to share their data in AI-driven healthcare systems. Second, efforts must be made to mitigate algorithmic bias that could worsen the disparities in healthcare outcomes which already exist[8].

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For AI to be utilized optimally, collaboration between clinicians with domain knowledge and data scientists is crucial[9]. Finally, physicians need to be empowered with the understanding of how these insights were derived using AI and data scientists need to design models that are informed by real world clinical utility. By working together, AI systems can be human-centred and ethical.

In conclusion health professionals must prepare for advances in artificial intelligence to improve the care they offer patients. While AI has the capacity to transform surgery and medicine in amazing ways, it is crucial for one to go into this technology with a clear understanding of its strengths as well as - or even more importantly at times! - limitations. To fully gain from the transformational impact of AI, cross-disciplinary collaboration must be maintained.

Sincerely,

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