



Ethics of AI in Healthcare Decision-Making

Bwanbale Geoffrey David

Faculty of Pharmacy Kampala International University Uganda

ABSTRACT

The integration of artificial intelligence (AI) in healthcare has significantly transformed various aspects of medical practice, including diagnosis, treatment, clinical trials, and drug discovery. While AI offers numerous benefits such as improved accuracy, personalized treatment, and expedited care, it also raises critical ethical concerns. These concerns encompass issues related to privacy, access, justice, trust, and safety, as well as the quality of AI decision-making, including transparency, bias, and accountability. This paper explores the ethical implications of AI in healthcare decision-making, highlighting both the potential advantages and the challenges associated with its use. It examines the role of AI in enhancing clinical outcomes and addresses the ethical dilemmas that arise from its application. Additionally, it provides best practices and guidelines to ensure the ethical deployment of AI in healthcare, aiming to create fair, accountable, and transparent systems that prioritize patient wellbeing.

Keywords: AI in healthcare, Ethical considerations in healthcare, Healthcare decision-making, AI ethics, Privacy in AI.

INTRODUCTION

Artificial intelligence (AI) is increasingly used in healthcare for different purposes such as diagnosis, treatment, end of life care, clinical trials, monitoring, drug discovery, etc. Concerns about AI in healthcare tend to include issues related to the nature of health as a fundamental human good, including privacy, access, justice, trust, safety, and wellbeing, as well as concerns about the quality of AI decision-making including discrimination, transparency, bias, responsibility, accountability, validation, security, and safety. From a technical perspective, AI is used in healthcare to minimize human error, build continuous learning algorithms, enable shared decision-making, personalize treatment, increase speed of diagnosis and therapy, and aid innovative treatments for those in most need [1, 2]. There are many examples about the possible good to be achieved for those in most need such as those with rare diseases like genetic leukodystrophies, cystic fibrosis, and familial hypercholesterolemia. Endometriosis, a condition that affects around 10% of the female population worldwide, also benefits from AI in the form of a chatbot where women can talk to an AI about their symptoms. This processing information is then made available as an appointment summary for the doctor or nurse, then leading to a faster, more accurate diagnosis. All these offer potential improvements in the speed and quality of decision-making, and there are thus many discussions regarding the ethics of AI in this context. Nevertheless, robust collaboration between data, technology, and clinical experts is just as vital as is public trust for the successful delivery of the mature tools and services needed for the future of healthcare [3].

ETHICAL CONSIDERATIONS IN HEALTHCARE DECISION-MAKING

Keywords: Ethical consideration in healthcare decision-making, AI in healthcare, integrating AI in decision-making, ethical dilemmas, moral implications in the area of healthcare, decision-making concerns individual care and, on a larger scale, policy formation and public health planning. Software tools, such as clinical guidelines, decision support systems, and predictive models, bring the potential advantage of automating decision processes. In this regard, integrating these software tools can render such a system

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more practical and serviceable, with decisions provided in sophisticated forms. Machine learning techniques are becoming increasingly attractive to health researchers because they have the power to discover and make sense of intricate relationships within data and hence can inform decision-making regarding diagnosis, prognosis, prevention, and the general state of an individual. Yet, serious ethical considerations face those wishing to integrate AI and machine learning techniques into decision-making processes for healthcare. The use of such techniques, for healthcare, can render unavoidable design decisions or pose considerations that are raised by constructs generally outside of our usual experience or competence [4]. The introduction of artificial intelligence (AI) into medical and healthcare practice has seen a significant impact made through ways in which clinicians increasingly rely on artificial intelligence for diagnostic and prognostic certainty, guiding treatment options based on trend analysis classes of patients, and helped to automate routine record keeping, offering the potential of managing significant transitions during care thus reducing the likelihood of error. It has been suggested that it is not the machines themselves, which are capable of taking on ethical status, but the developers and those in administrative charge who have taken on ethical responsibilities related to ethical and moral issues concerning the use of AI in such human-joining activities (e.g. transportation and healthcare). Yet, the manner in which AI, invoked as the black box, might impact upon individual experience and pose a moral or ethical dilemma for someone situated within or regarding an inbuilt structure, "no ethical black box," has been overlooked. It is in the black box justification that some claim there will always be uncertainty about the answer given as well as potential biases, and so the "responsibility for deciding what to do about the epistemic uncertainty... shifts away from the individual user to the group of epistemic engineers who created the expected value function, thereby blunting blame to a certain extent. [5, 6].

THE ROLE OF AI IN HEALTHCARE DECISION-MAKING

Healthcare settings around the world are increasingly witnessing the emergence of artificial intelligence (AI) and the adaptive systems it powers to assist in various functions. AI has become widespread in the administration and organization of healthcare systems, but of particular interest are the roles of AI in healthcare decision-making processes. AI systems are purported to perform a variety of functions – from other common clinical process aids, through being considered as the principal clinical decision-maker [7]. AI systems have been used to predict the outcome of treatments, the necessary medications to ensure successful treatment, and the development of such systems has been seen as a reflection of the adaptive capacity of AI processes to store, process, and analyze large pools of data. They are putatively able to evolve with the integration of additional information sets and to detect previously uncategorized causal, associative, or confounding factors [8]. In the context of healthcare decision-making, given the perceived sophistication of AI-based adaptive systems, the potential exists for AI to be implicated in significantly altering the dynamics of decision-making within a professional healthcare setting. Ethical questions begin to emerge here regarding the appropriate functions and responsibilities that may be ceded to (possibly autonomous) AI-based healthcare decision-making systems within a professional healthcare setting [9, 10]. Systematically, evidence exists to demonstrate the incorporation of AI into clinical environments to aid clinicians in making decisions. This is due to a putative ability of AI decision-support systems to evolve based on feedback and learning, which (it is argued) can potentially result in better clinical decision making. This can contribute to improving patient care by delivering diagnoses, recommending treatments, and suggesting courses of action in a wide range of patient cases [11,10]. Despite this, some critics of the technology express concerns regarding the dangers of over-reliance on AI-based decision-making systems and the potential impacts on the professional skills of healthcare professionals. These issues have yet to be substantially addressed in the literature, or there remains detraction from claims that AI can perform such functions [12].

CHALLENGES AND LIMITATIONS OF AI IN HEALTHCARE

AI identifies or amplifies social biases, misconceptions, or ignorance of the user and automation bias, wherein users become overly reliant on AI's recommendations. AI software and datasets that it examines can be tainted with biases of any sort. Second, other unintended ethical effects may result from the application of AI in healthcare. These mainly refer to privacy threats, which stem from hacking dangers and frequent data sharing among vendors, and the dissection of surveillance data, or the potential for a malfunction of AI systems leading to the degradation of patient privacy and care. Other potential inadvertent consequences manifesting as harmful results, such as the dislocation of face-to-face encounters between physicians and patients, or as clarifications of the medical substances and treatments demanded for usage [10]. Current findings show certain limitations of AI that ought to be resolved prior

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to AI's broadening use in healthcare applications. The quality of datasets and imbalances in data are key obstacles to AI's correct functioning. A severe prerequisite for the utilization of AI is a large number of examples with highly detailed information. The researchers' insufficient understanding of AI may lead to AI errors. Consequently, it is very important that the producers and healthcare professionals understand the AI-generated results. Another limitation of AI that should be resolved is related to the interpretability of the AI code. Even though some researchers have been using dark space strategies to illuminate AI decision-making, solutions are still needed to describe these results in an intelligible way in order for hospitals to safely integrate AI solutions. Furthermore, unlike clinical guidelines, tough difficulty with AI ambiguity may be inherent in their decision-making procedures or their results. Furthermore, as stated previously, the commercial AI healthcare package's inability to adequately execute its services is a severe challenge that must be satisfied in advance. One of the limitations of AI is its resistance to less familiar circumstances when the state varies [13].

BEST PRACTICES AND GUIDELINES FOR ETHICAL AI USE IN HEALTHCARE

Policymakers, developers, and health professionals are presented with numerous recommendations according to a range of guidelines for developing, deploying, and regulating ethical AI in healthcare. This section details at a high level the best practices recommended to ensure the ethical integration of AI into healthcare. The proposed processes to determine best practices in the ethical use of AI in healthcare are explored in greater detail in later sections [14]. This report assumes there are numerous ethical considerations when it comes to developing and using AI in healthcare that will vary based on specific populations and cultural backgrounds, but there are broad areas of concern that must be addressed to create fair, accountable, and transparent healthcare systems. Detailed best practices can be found in the identified policy documents, the Information Risk Framework (IRTF) for Governance Requirements for Health Systems Involving AI, and the European AI Alliance recommendations. Other areas for exploring best practices are to create a set of 'Do no harm' guidelines to present to government or as a guideline for private sector providers. Such a framework could be created as a do-no-harm tool to serve as a guideline to either support new policy development or be legislated. Existing guidance would not work in the Australian legislative and cultural context and will therefore inform the development of new guidelines or policy [15].

CONCLUSION

The application of AI in healthcare decision-making holds great promise for improving patient outcomes and streamlining clinical processes. However, the ethical implications of its use must be carefully considered to ensure that these advancements do not compromise fundamental human values such as privacy, justice, and trust. Addressing the challenges of bias, transparency, and accountability in AI systems is crucial for their successful integration into healthcare. Collaborative efforts among policymakers, developers, and healthcare professionals are essential to establish robust guidelines and best practices that safeguard ethical standards. By prioritizing ethical considerations, we can harness the full potential of AI in healthcare, ultimately leading to a more equitable and effective healthcare system.

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