



Challenges of Artificial Intelligence Era on Patient Safety: A Systematic review

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ABSTRACT

Introduction: Artificial Intelligence (AI) is transforming healthcare, but it also presents challenges and ethical concerns, most notably patient safety. Reviewing and addressing the related risks is essential to prioritize patient safety. This review will explore how AI impacts patient safety and address issues in healthcare delivery.

Search Strategy: Searches were performed using three databases: PubMed, Scopus, and Google Scholar, in English. The strategy for the literature search was represented by a combination of "Patient Safety" AND "Artificial intelligence"). Also, words related to "medication safety", "Surgical safety", and "challenges" were searched at the title and abstract levels. Initially, 140 interventional and review abstracts were identified from March 2020 to December 2023. After screening these abstracts, 40 full papers were obtained. Further screening resulted in a total of 16 papers included in this review.

Results: Due to different studies, several challenges were detected. One common issue highlighted in approximately 20 articles was the potential for error or bias in AI algorithms used for medical diagnosis and treatment recommendations. A study found that an AI tool designed for cancer detection was less accurate in identifying melanomas in patients with dark skin tones, which could result in misdiagnosis and delayed treatment. Additionally, there were concerns regarding data privacy and security, as patient information may be at risk of being compromise. Another significant challenge was the lack of transparency in AI decision-making processes, making it difficult to understand and interpret the rationale behind AI recommendations.

Conclusion and Discussion: AI in healthcare can potentially improve patient care, but it also challenges patients' safety. AI algorithms can be biased, leading to disparities in patient outcomes. Addressing these biases and ensuring that AI systems are fair and equitable is essential. Because of the lack of transparency in AI decision-making, clear guidelines and regulations are needed to govern the use of AI in healthcare, along with ongoing monitoring and evaluation to ensure responsible and ethical use. Overall, by addressing these challenges and engaging in open dialogue, healthcare organizations can harness the potential of AI to improve patient safety in cars, e-safety, and privacy.

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