

Can AI Support Shared Decision Making with Patients?

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Published: August 24, 2018 | AI in Clinical Decision Support

DOI: [10.5281/zenodo.17998901](https://doi.org/10.5281/zenodo.17998901)

Abstract

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Introduction

Shared decision-making (SDM) is a cornerstone of modern, patient-centered care. It is a collaborative process where clinicians and patients work together, using the best available evidence, to make decisions that align with the patient's values and preferences. However, the integration of SDM into routine clinical practice is often hampered by time constraints and the sheer volume of complex medical information. With the rise of artificial intelligence (AI) in healthcare, a crucial question emerges: can AI be an effective ally in supporting and enhancing shared decision-making? [1]

The Potential of AI in Augmenting Shared Decision-Making

Artificial intelligence, particularly its subfield of machine learning, has demonstrated a remarkable capacity to analyze vast and complex datasets, offering powerful tools for diagnosis, prognosis, and treatment planning. This ability to process information that might be beyond the scope of human analysis presents a significant opportunity to enrich the SDM process. AI can synthesize information from electronic health records (EHRs), clinical guidelines, and large-scale research studies to provide personalized predictions and recommendations.

AI-powered tools can support SDM by presenting clinicians and patients with a comprehensive overview of treatment options, including their respective benefits, risks, and uncertainties. For instance, an AI model could predict a patient's individual risk of complications from a specific surgery or their likely

response to a particular medication, based on a multitude of personal health factors. This moves beyond generic statistical probabilities, offering a level of personalization that can make the decision-making process more tangible and relevant for the patient. [1]

From Black Box to Collaborative Partner: The Importance of Explainability

One of the most significant barriers to the adoption of AI in clinical decision-making is the "black box" problem. Many advanced AI models operate in ways that are not transparent, making it difficult for clinicians and patients to understand how a particular recommendation was reached. This lack of transparency can erode trust and create a barrier to meaningful collaboration.

To overcome this, the field of explainable AI (XAI) is focused on developing models that can provide clear, human-interpretable justifications for their outputs. For AI to be a true partner in SDM, it must do more than just provide an answer; it must explain the 'why' behind its reasoning. A conceptual framework known as AI-Supported Shared Decision-Making (AI-SDM) emphasizes this shift from mere technical transparency to providing clinically meaningful, narrative justifications that can be easily discussed and debated within the patient-clinician dialogue. [2]

User Perspectives: Promise and Pitfalls

Early research into the use of AI-enabled decision aids has revealed a mixed but promising landscape. Patients often find these tools to be user-friendly and empowering, fostering a greater sense of ownership over their health decisions and potentially leading to better treatment adherence. The ability to visualize personalized risk and benefit information can demystify complex medical choices. [3]

Clinicians, while recognizing the potential, have also voiced important concerns. These include the need to ensure the information provided by AI systems is constantly updated with the latest evidence and the risk of either over- or under-treatment if the AI's recommendations are followed without critical appraisal. [3] There is a clear consensus that AI should augment, not replace, the clinician's judgment and the crucial human element of the patient-provider relationship.

The Path Forward: Challenges and Future Directions

The integration of AI into shared decision-making is still in its nascent stages. Realizing its full potential requires addressing several key challenges. First, the development and validation of AI tools must actively involve end-users—both patients and clinicians—to ensure they are relevant, usable, and trustworthy. [1] [3] Second, the ethical implications, including data privacy, algorithmic bias, and accountability for AI-driven errors, must be rigorously addressed through robust governance and regulatory frameworks.

Ultimately, the goal is not for AI to make decisions for patients, but to facilitate a richer, more informed, and more personalized conversation between patients and their healthcare providers. By transforming complex

data into actionable insights, AI has the potential to empower both parties, leading to decisions that are not only evidence-based but also deeply rooted in the individual patient's unique circumstances and values.

Conclusion

Artificial intelligence holds considerable promise for supporting and enhancing shared decision-making. By providing personalized insights, facilitating communication, and empowering patients, AI can help overcome some of the long-standing barriers to implementing SDM in practice. However, realizing this potential requires a thoughtful and deliberate approach that prioritizes transparency, user-centered design, and ethical integrity. As AI technology continues to evolve, its role in healthcare must be carefully guided to ensure it serves as a tool to strengthen the patient-clinician partnership, fostering a future where every medical decision is truly a shared one.

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