

Artificial intelligence in nephrology

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Abstract

South Africa's nephrology sector lags in adopting artificial intelligence (AI) innovations, with scant research on AI's application within the local context. This study aims to bridge this gap by exploring the perceptions and readiness of South African nephrology healthcare professionals towards AI. A comprehensive survey was conducted among nephrologists and related practitioners to gauge their familiarity, perceived benefits, potential challenges, and willingness to integrate AI into their practice.

The survey results reveal a mixed level of familiarity with AI technologies among respondents, with some expressing awareness of specific tools like hemodialysis machines and electronic patient recording systems, while others demonstrated limited knowledge. Key perceived benefits of AI in nephrology include treatment optimization, improved diagnostic accuracy, and better patient outcomes. However, significant challenges were identified, including high costs, lack of infrastructure, resistance to change, and data privacy concerns.

Despite these barriers, there is a general positive outlook towards the adoption of AI, with many practitioners acknowledging its potential to enhance patient care and operational efficiency. The study underscores the necessity for targeted training programs, robust infrastructure, and supportive policies to facilitate AI integration in nephrology practices.

This research provides a foundational understanding of the current landscape and attitudes towards AI in South African nephrology, highlighting the urgent need for innovation and development in this critical healthcare sector. The findings advocate for strategic initiatives to overcome existing barriers, paving the way for AI-driven advancements in nephrology that could significantly improve patient outcomes and healthcare delivery in South Africa.