Research informing practice

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AI in healthcare: clinical applications and future implications

AI is increasingly enhancing clinical decision-making, but using it safely and understanding its limits is imperative.

Context

- Summarise how AI supports diagnosis, risk prediction, treatment selection and patient monitoring.
- Identify practical benefits and limitations for clinical use.
- Highlight challenges and outline considerations for safe clinical implementation.

Methods

- A literature search between 2015–2025 including 88 articles were used.
- Research focused on clinically applied AI, imaging applications, predictive modelling and therapeutic optimisation.

Results

AI has meaningful clinical value but it's safe and effective use depends on secure data handling and appropriate integration. The paper identified the following as the most promising applications:

- Clinical Diagnostics: AI improves sensitivity and speed in imaging interpretation and can outperform or support radiologists.
- Treatment Planning and Personalised Care: AI integrates data to tailor treatment choices, predict therapy response and guide dose adjustments.
- Predictive Analytics: Machine-learning models can identify deterioration risk and support early intervention.
- Surgical and Rehabilitation Support: AI-enhanced robotic surgery improves precision, while AI-driven rehab tools assist personalised recovery programmes.
- Digital Health and Monitoring: Wearables combined with AI, capture continuous physiological data to support disease management.

Reference

Fahm, Y. A., Hasan, I. W., Kabba, S., & Ragab, W. M. (2025). Artificial intelligence in healthcare and medicine: Clinical applications, therapeutic advances, and future perspectives. European Journal of Medical Research, 30(848)