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Taking action to improve health for all

Artificial Intelligence Affecting Hospital Systems: A Managerial Perspective

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CONTEXT

The rise of artificial intelligence (AI) in healthcare management marks a transformative shift in healthcare system operational paradigms, driven by technological advancements and the increasing complexity of healthcare delivery.

AI's integration into healthcare is propelled by the exponential growth of data, enhanced computing power, and breakthroughs in machine learning algorithms. These developments enable healthcare organisations to optimise operations, enhance patient care, and address longstanding challenges such as resource constraints and rising costs.

From a managerial perspective, understanding these dynamics is crucial for leveraging AI effectively to improve organisational performance and patient outcomes.

METHODS

SYSTEMATIC REVIEW

- **Aim:** Analyse existing research on AI applications in hospital management.
- **Inclusion Criteria:** Studies discussing AI or machine learning use in hospital systems and management.
- **Screening:** Identified articles were reviewed against the inclusion criteria.
- **Relevance Check:** Studies were evaluated for relevance and applicability to the research question *before* inclusion.
- **Data Extraction:** For included articles, the following was extracted:
    - Methodology
    - Sample size
    - Data collection methods
    - Key findings on AI/ML use in hospital management.

METHODS

SYSTEMATIC REVIEW

- **Synthesis:** Findings from peer-reviewed articles, case studies, and industry reports were synthesised to identify:
  - Best practices in AI implementation.
  - Emerging trends in AI implementation.
- **Critical Examination:** The review also critically examined:
  - Challenges faced by hospital administrators in integrating AI.
  - Insights into managerial strategies for successful AI adoption and utilisation.

RESULTS

KEY THEMES

1. Operational efficiencies
2. Patient engagement
3. Clinical outcomes

MANAGERIAL CONSIDERATIONS: CRITICAL BARRIERS

1. Data privacy concerns
2. Need for staff training

RESULTS

KEY THEME 1: OPERATIONAL EFFICIENCIES

- Automating administrative tasks
- Improving patient flow
- Refining resource allocation
- Notable reductions in operational costs (as a reported outcome)

AI offers significant potential to streamline hospital operations and reduce costs.

KEY THEME 2: PATIENT ENGAGEMENT

- Personalised communications with patient
- Improved patient access to information
- Predictive analytics for patient needs

AI can foster better communication, support, and involvement for patients in their healthcare journey.

RESULTS

KEY THEME 3: CLINICAL OUTCOMES

- Improved patient outcomes due to
  - Remote patient monitoring with real time alert systems
  - Enhanced decision-making
  - Enhanced diagnostic accuracy
  - Personalized treatment plans

AI has the potential to enhance the precision, effectiveness, and safety of clinical care.

MANAGERIAL CONSIDERATIONS

- Data privacy concerns (critical barrier)
- Need for staff training (critical barrier)
- Establish a robust governance framework to address challenges (recommendation)
- Focus on maximising the benefits of AI (recommendation)

KEY TAKEAWAYS

AI in healthcare management signifies a major change in how healthcare systems operate.

Key Enablers:

- Data growth, computing power, and advanced machine learning are driving AI integration.

Core Benefits:

- AI offers potential for operational optimization and enhanced patient care, addressing key healthcare challenges.

Managerial Imperative:

- Understanding and leveraging AI is vital for improving organizational performance and patient outcomes.

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THANK YOU

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