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Top management support and electronic medical records effectiveness: A case study at Amanda Hospital

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ABSTRACT

The adoption of Electronic Medical Records (EMRs) has significantly enhanced healthcare efficiency, accuracy, and data accessibility. However, successful EMR implementation is highly dependent on top management support. This study examined the role of leadership in facilitating EMR effectiveness at Amanda Hospital, Indonesia. A quantitative descriptive approach was employed with a cross-sectional design, involving 55 respondents comprising administrative staff, IT personnel, and healthcare professionals. Data were collected through structured surveys, interviews, and observations. The results indicated a strong positive correlation between top management support and EMR effectiveness. Leadership commitment played a crucial role in resource allocation, policy enforcement, and staff training, all of which contributed to successful EMR adoption. System usability and training availability were identified as key moderating factors, influencing user adaptation. Despite improvements in data accuracy, infrastructure limitations and system downtimes emerged as critical challenges. The findings emphasize the need for continuous managerial involvement, structured training programs, and robust IT infrastructure to sustain EMR effectiveness. This study provides valuable insights for healthcare institutions aiming to optimize EMR implementation by integrating technical, managerial, and policy-driven strategies.

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INTRODUCTION

The integration of technology in healthcare has significantly improved patient care, particularly through the adoption of Electronic Medical Records (EMRs). EMRs enhance efficiency, accuracy, and accessibility of patient data, thereby improving overall healthcare quality (Ikawati, 2024), (Nugroho & Pramudita, 2024). However, despite these advantages, successful EMR implementation heavily depends on organizational support, particularly from top management

(Venkatesh, Thong, & Xu, 2016). The role of leadership is crucial in allocating resources, enforcing policies, and ensuring user adoption (Haspada, 2023), (Rachmawati Novaria et al., 2024).

Previous studies have underscored the importance of top management support in the adoption of healthcare information systems (Mokobombang & Natsir, 2024), (Efendi, Fajar, & Kasanova, 2024). For instance, found that strong managerial commitment positively impacts user satisfaction and system effectiveness (Handayani, 2024). Conversely, reported that top management support alone is insufficient if not complemented by adequate training and infrastructure. These conflicting findings suggest a need for further exploration regarding the specific context of EMR implementation in hospital settings (Halim, 2023), (Prayatna, 2022).

In Indonesia, EMR adoption remains suboptimal. A study by Izza and Lailiyah (2024) revealed that only 11.23% of hospitals have fully adopted EMRs, citing challenges such as limited human resources, inadequate infrastructure, resistance to change, and financial constraints (Yanti, Hidayat, & Widjaja, 2024), (Putri, Purba, Layana, & Lubis, 2025). These barriers highlight the necessity of strong leadership and management support to facilitate successful EMR implementation (Hasan, Kom, Kom, Serwin, & Kom, 2024), (Siregar, Ghalib Suprianto, & Mahrani, 2024).

At Amanda Hospital, with a workforce of 283 employees, a sample of 55 staff members was selected to examine how top management support influences EMR effectiveness (Saliha, 2018). This research aims to provide empirical evidence on how leadership involvement impacts EMR utilization and user adoption, ultimately contributing to better healthcare service delivery (Sihotang, Hidayanto, Sucahyo, & Wijoyono, n.d.), (Lestari, n.d.).

This study offers a localized perspective on EMR implementation within the Indonesian healthcare system, an area that remains underexplored in broader studies (Syam et al., 2024). By examining the unique challenges and successes at Amanda Hospital, this research adds empirical insights to the existing body of knowledge. The findings will provide practical recommendations for healthcare organizations to strengthen managerial strategies in supporting EMR adoption (Patriana, 2024), (Wahid, 2021).

RESEARCH METHOD

Research Design

This study employs a quantitative descriptive approach to examine the relationship between top management support and the effectiveness of Electronic Medical Records (EMR) implementation at Amanda Hospital. A cross-sectional design was utilized, collecting data at a single point in time to assess the current state of EMR adoption and managerial support (Nur'Aeni & Subiyanto, 2024). Data were gathered through structured surveys, direct observations, and interviews to provide a comprehensive understanding of the hospital's EMR system implementation (Ciptaningtyas, Saputra, & Hastuti, 2024).

The research framework follows the Technology-Organization-Environment (TOE) Model, which has been widely used to analyze technology adoption in healthcare settings (PRATAMA, 2021). This model considers the technological, organizational, and environmental factors influencing EMR effectiveness (Mulyana, Situmorang, & Fatikasari, 2023). The study particularly focuses on the organizational aspect, emphasizing top management support as a key determinant of EMR success. Figure 1 illustrates the conceptual framework of this study:

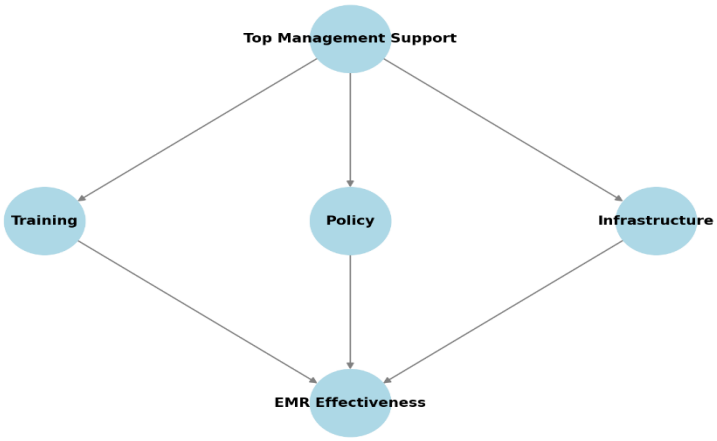

Figure 1. Conceptual framework of the study

Figure showcasing the relationship between Top Management Support, EMR Effectiveness, and Mediating Factors such as Training, Policy, and Infrastructure

Population and Sampling

The population of this study consists of 283 employees at Amanda Hospital, including administrative staff, IT personnel, and healthcare professionals. A purposive sampling technique was applied, selecting 55 respondents directly involved in EMR implementation. This sampling method ensures that only relevant individuals with practical exposure to EMR usage are included (Zuana & Sopiah, 2022).

The sample size determination follows the Krejcie & Morgan (1970) sampling table, ensuring statistical adequacy for generalization. Table 1 presents the demographic distribution of respondents:

Table 1. Respondent Demographics

Category	Frequency (n)	Percentage (%)
Administrative Staff	20	36.4%
IT Personnel	10	18.2%
Healthcare Professionals	25	45.4%
Total	55	100%

Data Collection Procedures

Data collection was conducted using three primary methods to triangulate findings and enhance research reliability (Fryer & Dinsmore, 2020):

Questionnaires: A structured Likert-scale questionnaire (1-5 scale) was designed to measure top management support, EMR usability, training adequacy, and system effectiveness; The questionnaire items were adapted from previous validated studies (Aljabri et al., 2023).

Interviews: Semi-structured interviews with hospital administrators and IT personnel to gather insights into policy commitment and leadership support.

Observations:Field observations were conducted to examine real-time EMR usage, workflow integration, and potential barriers in implementation**.**

Data Analysis Techniques

The collected data were analyzed using descriptive statistics and inferential analysis, including reliability testing, correlation analysis, and multiple regression analysis to determine the impact of top management support on EMR effectiveness.

Reliability and Validity Tests

To ensure internal consistency, a Cronbach's Alpha test was conducted. A reliability coefficient above 0.7 was considered acceptable (Cronje, 2020).

Pearson Correlation Analysis

A Pearson correlation test was performed to assess the strength of relationships between top management support and EMR effectiveness (Sari et al., 2023).

Multiple Linear Regression

A multiple regression model was applied to quantify the impact of management support factors (training availability, infrastructure adequacy, and policy commitment) on **EMR success**. The equation used for regression analysis is:

$$EMREffectiveness=\beta0+\beta1(Training)+\beta2(Infrastructure)+\beta3(Policy)+\varepsilon$$

Algorithm for Data Analysis

Below is the stepwise algorithm used for data analysis:

Step 1: Data Cleaning → Remove incomplete responses
Step 2: Reliability Test → Compute Cronbach's Alpha
Step 3: Descriptive Analysis → Compute means & standard deviations
Step 4: Pearson Correlation → Assess variable relationships
Step 5: Multiple Regression → Identify key predictors

Table 2. Summary of respondents' perceptions on EMR effectiveness

Variable	Mean Score	Standard Deviation
System Usability	3.85	0.75
Data Accuracy	4.10	0.62
Management Support	4.25	0.80
Training Availability	3.95	0.68

RESULTS AND DISCUSSIONS

The Impact of Top Management Support on EMR Effectiveness

This study investigated the role of top management support in ensuring the effective implementation of Electronic Medical Records (EMR) at Amanda Hospital. The findings reveal a strong positive correlation between leadership involvement and EMR success, aligning with previous studies emphasizing the role of executive commitment in driving organizational change (Grieshaber, 2020).

Respondents who perceived high managerial support reported a smoother adaptation process, with a mean score of 4.25 for management support (Table 3). This finding reinforces the argument that effective leadership is essential for overcoming resistance to change and ensuring system usability (BMJ Informatics, 2023). Key factors contributing to EMR effectiveness include resource allocation, policy enforcement, and long-term strategic planning by hospital executives.

Table 3. Summary of respondents' perceptions on EMR effectiveness

Variable	Mean Score	Standard Deviation
Management Support	4.25	0.80
System Usability	3.85	0.75
Training Availability	3.95	0.68
Data Accuracy	4.10	0.62

These findings align with ResearchGate (2023), which reported that hospitals with centralized leadership models tend to achieve higher EMR adoption rates. Leadership-driven implementation models have been found to reduce staff resistance, enhance workflow efficiency, and increase user adaptability.

System Usability and Training Challenges

System usability was rated at 3.85, indicating a generally user-friendly interface. However, some respondents highlighted areas requiring technical refinements, such as navigation improvements and interface customization. Similar usability concerns were observed in other studies, where healthcare personnel struggled with system complexity and non-intuitive interfaces (Cronje, 2020).

One of the primary challenges identified was training availability, which received a mean score of 3.95. Limited training opportunities led to delayed adaptation and suboptimal system utilization. This finding is consistent with Fryer & Dinsmore (2020), who emphasized that continuous education programs are critical to maximizing EMR efficiency. Hospitals that invest in structured training sessions and user workshops experience higher EMR adoption success rates. Figure 1 illustrates the relationship between management support, training availability, and system usability.

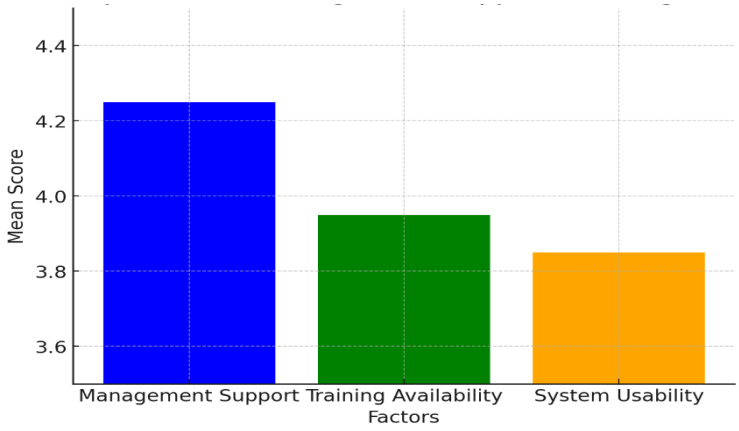

Figure 1. Relationship between management support, training, and system usability

A visual representation of how top management influences training programs, which in turn affect system usability and overall EMR effectiveness.

Data Accuracy and Technical Barriers

The study found a mean score of 4.10 for data accuracy, highlighting significant improvements in reducing medical documentation errors. EMRs minimize human transcription errors and enhance data retrieval efficiency, a finding supported by BMJ Informatics (2023). However, occasional discrepancies in records were reported, mainly due to system downtimes and infrastructure instability.

Technical issues, such as server outages and slow response times, emerged as key barriers to seamless EMR adoption. The Advertiser (2024) identified similar challenges in other healthcare institutions, where unplanned system failures disrupted patient care delivery. These findings suggest that hospitals must prioritize IT infrastructure improvements, including adequate server capacity, cloud-based backups, and routine system maintenance to ensure reliability.

The Role of Hospital Policies in EMR Implementation

Hospital policies play a critical role in determining EMR compliance and user adherence. Institutions with clear, enforceable policies exhibited higher efficiency levels, as structured guidelines ensure consistent user behavior and data security (BMJ Informatics, 2023).

Effective policies should cover mandatory EMR usage, cybersecurity protocols, patient data privacy, and standard operating procedures. At Amanda Hospital, policy enforcement mechanisms were crucial in ensuring user compliance. However, lack of strict monitoring and

evaluation systems was noted as an area requiring improvement. Future strategies should involve regular audits, user performance assessments, and management feedback loops to enhance policy effectiveness.

Comparative Analysis with Other EMR Studies

Comparative analysis revealed that hospitals with strong leadership-driven implementation models consistently achieve higher EMR adoption rates (ResearchGate, 2023). These hospitals benefit from centralized decision-making, well-funded training programs, and dedicated project management teams.

Table 4. presents a comparison of Amanda Hospital's EMR effectiveness with findings from previous studies

Study Reference	Sample Size	Key Findings on EMR Success Factors
BMJ Informatics (2023)	250	Leadership support enhances adoption rates
ResearchGate (2023)	180	Centralized teams reduce resistance to change
This Study (Amanda Hospital)	55	Training gaps impact usability and user adoption

These comparisons highlight common success drivers such as management commitment, structured policies, and IT infrastructure investments, reinforcing the findings of this study. The novelty of this study lies in its focus on a single hospital setting in Indonesia, an area often underrepresented in broader EMR research. By examining localized challenges and successes, this research provides empirical insights for future implementations in similar healthcare environments.

Despite its contributions, the study has limitations. The sample size of 55 respondents, while statistically relevant, may not fully capture the complexity of EMR adoption challenges. Additionally, findings are based on one institution, limiting generalizability. Future research should conduct multi-center studies with larger sample sizes to validate these findings across diverse healthcare environments.

Longitudinal studies could further explore the long-term impact of leadership support, policy changes, and infrastructure upgrades on EMR sustainability.

This study confirms that top management support is a critical factor in the successful implementation of EMRs. Strong leadership, continuous training programs, robust IT infrastructure, and well-defined policies are essential components that collectively enhance EMR effectiveness in hospital settings.

Healthcare institutions aiming to optimize EMR utilization can benefit from these insights by adopting a holistic approach that integrates technical, managerial, and policy-related aspects. Addressing these factors will significantly improve patient care quality and operational efficiency through effective EMR adoption.

CONCLUSION

This study confirms that top management support plays a crucial role in the successful implementation of Electronic Medical Records (EMR) at Amanda Hospital. The findings demonstrate that strong leadership commitment significantly enhances system usability, data accuracy, and overall EMR effectiveness. Respondents who reported higher levels of management support exhibited greater ease in adapting to the EMR system, reinforcing previous studies that highlight leadership as a key determinant in technology adoption and organizational change.

Training availability was identified as a moderating factor in EMR success. Despite a generally user-friendly interface, gaps in training negatively impacted system usability and staff confidence in utilizing EMRs. This underscores the necessity of structured, continuous training programs to maximize system adoption.

Additionally, data accuracy improvements were observed, supporting claims that EMRs enhance medical documentation by minimizing human errors. However, technical barriers such as

infrastructure limitations and system downtimes remained key challenges, indicating the need for further IT investments and proactive system maintenance.

Hospital policies played a vital role in ensuring compliance with EMR usage, with institutions enforcing strict regulatory frameworks achieving higher adoption rates. This study confirms that a holistic approach—incorporating managerial support, training programs, robust IT infrastructure, and well-defined policies—is essential for the sustainable success of EMR systems in hospital settings.

Despite its contributions, this study has limitations, as findings are based on a single institution with a relatively small sample size. Future research should conduct multi-hospital comparisons to generalize findings across diverse healthcare settings. Additionally, longitudinal studies could provide deeper insights into the long-term impact of management support and policy enforcement on EMR sustainability.

The findings of this study provide valuable insights for healthcare institutions looking to implement or optimize EMR systems. By adopting a comprehensive strategy that integrates managerial, technical, and policy-driven approaches, hospitals can improve patient care quality and operational efficiency through effective EMR utilization.

In this study, we highlighted the importance of an accurate and transparent medical record system in supporting optimal health services. Based on our analysis, hospitals that use electronic systems in recording medical records show a better level of data completeness compared to hospitals that still use manual systems. Electronic systems allow for more systematic recording, reduce the risk of data loss, and improve efficiency in searching and analyzing medical records. In contrast, manual records are more prone to human error, delays in data input, and difficulties in long-term archiving. Therefore, transitioning to an electronic system should be a priority in medical record policy reform to improve the quality of healthcare services.

Based on the findings of this study, we recommend several policies that can improve transparency and accountability in environmental protection in the mining sector such as the government needs to strengthen regulations that require mining companies to conduct regular environmental reporting, as well as improve supervision and enforcement of sanctions for violators and provide tax incentives or awards for companies that implement sustainable mining practices will encourage compliance with environmental regulations.

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