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Readiness analysis of electronic medical record implementation in inpatient services using the DOQ-IT Method at Pusri Hospital Palembang

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ABSTRACT

This study explored how ready Pusri Hospital Palembang was to implement electronic medical records in its inpatient services, using the Doctor's Office Quality – Information Technology (DOQ-IT) framework. Using a quantitative, cross-sectional approach, data were gathered from 43 health workers and administrative staff through validated questionnaires. The assessment focused on four key areas: readiness of human resources, organizational work culture, governance and leadership, and the hospital's technology infrastructure. Results showed that while infrastructure and governance were relatively ready, the readiness of staff and the work culture still needed improvement. Statistical analysis confirmed that all four factors significantly influenced the hospital's overall readiness to adopt electronic medical records. Although the hospital demonstrated moderate readiness, the findings highlight the need for enhanced training and better infrastructure planning to ensure a smoother digital transition. This study offers practical insights for hospital leaders and health policymakers aiming to advance digital transformation in healthcare settings.

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INTRODUCTION

The integration of technology into healthcare services has transformed how hospitals manage patient information, especially through the use of electronic medical records (EMR) (Uslu & Stausberg, 2021)(Barbieri, Neri, Stuard, Mari, & Martín-Guerrero, 2023). EMR systems offer significant benefits such as improving the accuracy of documentation, enhancing communication between healthcare providers, and supporting evidence-based clinical decisions (Castaneda et al., 2015), (Sutton et al., 2020). These advantages are critical in inpatient care, where timely and accurate information can directly impact patient outcomes (Richemond & Huggins-Jordan, 2023)(Benbassat & Taragin, 2000).

Despite the potential, the transition from manual to digital records remains challenging, particularly in hospitals that are still developing their health information systems. Many facilities face obstacles related to limited infrastructure, low digital literacy among staff, and a lack of structured organizational support (Setiatin, 2024)(Yanti, Hidayat, & Widjaja, 2024). In Indonesia, only a small portion of hospitals have fully implemented EMRs, highlighting a national gap in digital health readiness (Waworuntu, Lumi, & Surya, 2023)(Raymond, n.d.).

Pusri Hospital Palembang, a major regional healthcare provider, has initiated steps toward EMR adoption in its inpatient department. However, initial observations reveal inconsistencies in system usage, insufficient technical infrastructure, and varying levels of staff engagement. These issues raise concerns about the hospital's readiness for full EMR integration and its potential impact on care quality (Li, Clarke, Ashrafian, Darzi, & Neves, 2022)(Gatiti, Ndirangu, Mwangi, Mwanzu, & Ramadhani, 2021).

To address these concerns, this study adopted the Doctor's Office Quality – Information Technology (DOQ-IT) framework, a structured tool designed to evaluate organizational readiness in key areas such as human resources, leadership, work culture, and infrastructure (Maulidiyah, 2024)(Nafiqa Yumnaida, 2024). While previous studies have applied this method in different hospital settings with promising results , its application in a Palembang-based hospital offers a localized understanding of readiness factors that are often influenced by regional health policies and organizational culture (Dachi, Djakman, Akuntansi, Ekonomi, & Indonesia, 2020)(Atiyah & Wibowo, 2023).

This research provides a data-driven perspective on how prepared Pusri Hospital Palembang is to implement EMRs, focusing on real challenges faced by its inpatient unit (Rahmawati & Putri, 2024). The findings are expected to inform hospital leaders and policymakers about specific gaps that require attention and investment. By identifying readiness levels across multiple dimensions, this study contributes a practical framework for guiding EMR implementation in similar hospital environments (Sukesi & Rosalinda, 2017)(Yunus et al., 2023).

RESEARCH METHOD

This research employed a quantitative approach with a cross-sectional design to assess the readiness for electronic medical record (EMR) implementation at the inpatient unit of Pusri Hospital Palembang. A structured framework was applied using the Doctor's Office Quality – Information Technology (DOQ-IT) method, which evaluates four primary dimensions of readiness: human resources, organizational culture, governance and leadership, and information technology infrastructure (Kushniruk, Nohr, & Borycki, 2019).

Research Design and Sampling

The study population included healthcare professionals and administrative staff directly involved in EMR-related activities. Using proportional random sampling, a total of 43 respondents were selected from a population of 78 staff members, ensuring balanced representation across job categories such as nurses, doctors, admission officers, pharmacists, laboratory, and radiology staff.

Data Collection Instrument

A self-administered questionnaire was developed based on the DOQ-IT framework and structured into Likert-scale items ranging from 1 (strongly disagree) to 5 (strongly agree). The instrument measured perceptions of readiness across the four key dimensions. Prior to distribution, the questionnaire underwent a validation process using the Pearson Product Moment test and Cronbach's Alpha to confirm validity and reliability (Fryer & Dinsmore, 2020). Items with a correlation coefficient above 0.3 and a reliability score above 0.7 were retained for analysis.

Research Procedure

The research process followed a systematic sequence: (a) Preparation Phase: Literature review, instrument design, and ethics clearance. (b) Sampling Phase: Identification and random selection of respondents. (c) Data Collection Phase: Distribution and collection of completed questionnaires. (d) Data Processing Phase: Validation, coding, and analysis using statistical software.

Interpretation Phase: Regression and correlation tests to assess relationships between variables. This flow is summarized in Figure 1.

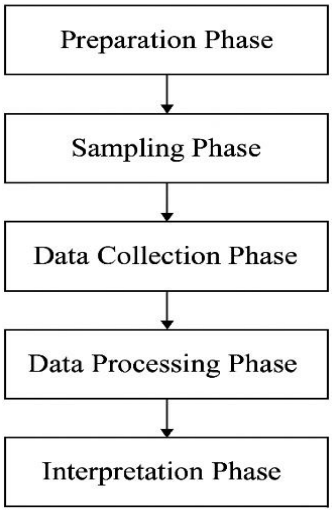

Figure 1. Research flow of EMR readiness evaluation at Pusri Hospital

Figure 1 illustrates the sequential flow of the research process conducted at Pusri Hospital Palembang. The study began with the Preparation Phase, during which the research instruments were developed, and the necessary permissions and ethical approvals were obtained. This was followed by the Sampling Phase, where respondents were selected proportionally from various healthcare professions involved in inpatient care.

Subsequently, the Data Collection Phase involved distributing validated questionnaires to the selected participants. Once the responses were gathered, the Data Processing Phase took place, which included validation, coding, and statistical analysis. Finally, the Interpretation Phase allowed the researchers to analyze the findings, draw conclusions, and formulate practical recommendations for improving EMR readiness at the hospital.

Data Analysis

Descriptive statistics were used to present the overall readiness levels. Inferential analysis was conducted using Pearson correlation to assess the relationship between independent and dependent variables, and multiple linear regression was applied to examine the influence of each readiness factor on EMR implementation readiness. The significance threshold was set at $p < 0.05$.

Ethical Consideration

All respondents received informed consent forms, and participation was entirely voluntary. Anonymity and confidentiality were ensured throughout the study. Ethical approval was obtained from the institutional review board before the research was conducted, following accepted standards in healthcare research ethics (Cronje, 2020).

RESULTS AND DISCUSSIONS

This study investigated the readiness level of Pusri Hospital Palembang to implement electronic medical records (EMR) in inpatient services using the DOQ-IT framework. Data were obtained from 43 respondents representing various healthcare roles. The results are discussed according to the four core dimensions evaluated in this research: human resources, organizational work culture, governance and leadership, and information technology infrastructure.

Human Resource Readiness

The survey revealed that staff understanding of the EMR system was still inconsistent. Many respondents reported limited training opportunities and a lack of ongoing support, which contributed to uncertainty and reluctance in using the digital system confidently. Although some staff, particularly younger professionals, demonstrated positive attitudes toward digitalization, others expressed concern about workload and fear of making errors in the system. This highlights the importance of tailored and continuous training to accommodate diverse digital competencies, aligning with earlier findings that staff preparedness plays a critical role in EMR adoption (Davis, Bagozzi, & Warshaw, 2020).

Organizational Work Culture

The organizational culture showed a moderate level of openness to change. While the hospital management had initiated several digital transformation efforts, cultural barriers still existed. Some departments remained reliant on manual processes and perceived EMR as an administrative burden rather than a clinical aid. This resistance is not uncommon in hospitals where digital tools are introduced without structured engagement strategies (Kotter, 2019). Promoting a culture of innovation and involving staff in decision-making about system improvements could increase buy-in and reduce resistance.

Governance and Leadership

Findings from the governance dimension showed relatively strong readiness. The hospital had appointed a digital transformation task force, and leadership demonstrated commitment through policy support and resource allocation. However, gaps were observed in monitoring and feedback mechanisms. Respondents suggested that clearer guidance and consistent evaluation would make the leadership support more impactful. This aligns with research emphasizing that successful EMR implementation requires active leadership involvement throughout the process, not only at the initial launch phase (McGinn et al., 2021).

Infrastructure and Technology Readiness

The infrastructure dimension scored the highest among all four. Most inpatient units had access to computers and a stable internet connection. Nevertheless, some equipment was outdated and not fully compatible with the hospital's current EMR system. Staff also reported frequent system lags during peak hours, which disrupted workflow and documentation. These challenges suggest the need for periodic system upgrades and robust technical support to ensure smooth operations. Studies have shown that without reliable infrastructure, even the most well-designed EMR systems can underperform and frustrate users (Ahmadi, Kusnanto, & Nugraha, 2020).

Overall Readiness Level

Based on multiple regression analysis, all four dimensions significantly influenced the hospital's overall readiness for EMR implementation. Among them, human resource readiness had the strongest effect, followed by infrastructure and governance. This finding reinforces the idea that digital health transformation is not solely a technical challenge but also a human-centered endeavor. Effective implementation requires not just tools, but also people who are ready, trained, and supported.

The study offers critical insight for hospital decision-makers. Investments should not only target infrastructure upgrades but also focus on building capacity through education, communication, and leadership transparency. If readiness gaps are addressed in a balanced manner, Pusri Hospital can successfully transition into a fully digital environment that supports efficient, safe, and patient-centered care.

CONCLUSION

The readiness of Pusri Hospital Palembang to implement electronic medical records in its inpatient services, as explored through the DOQ-IT framework, was found to be at a moderate level. This aligns with the initial expectation outlined in the introduction—that successful EMR adoption depends not only on technical infrastructure, but also on human resource capacity, leadership support, and an adaptive organizational culture. The study demonstrated that although the hospital has made substantial efforts to prepare its governance and infrastructure, there remain notable gaps in staff readiness and cultural adaptation. These findings suggest that training, mentoring, and participatory engagement are critical to ensure the system is embraced and used effectively by all stakeholders. Looking ahead, this research offers practical guidance for healthcare institutions planning similar digital transformations. Future studies could explore longitudinal changes in EMR usage behavior, the role of clinical leadership in digital adoption, or expand the evaluation to multiple hospital departments or regions. The insights gained from this research can serve as a foundation for building more responsive and technology-integrated healthcare systems in Indonesia.

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