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Analysis of The Readiness of Electronic Medical Record Implementation Using DOQ-IT at RSUD Class D Pratama Sendawar

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Abstract: This study aims to evaluate the readiness of Class D Primary Hospital Sendawar in implementing Electronic Medical Records (EMR) using DOQ-IT, focusing on four aspects: human resources (HR), organizational work culture, governance and leadership, and technology infrastructure. The method used was qualitative through in-depth interviews with health workers and hospital staff, and thematic analysis. The results showed that HR had a positive understanding of the benefits of EMR, but lacked information technology skills and adequate training. Organizational work culture supports the implementation of EMR, but needs strengthening in the formation of special teams and policy development. Management support for EMR is strong, but a clear strategy for internal coordination is needed. Technology infrastructure is currently inadequate, with problems in hardware, software and internet networks. The research conclusions emphasize the need for increased HR training, policy development, and infrastructure improvements. RSUD Kelas D Pratama Sendawar is advised to adopt a comprehensive approach to managing change to facilitate an effective transition to the EMR system.

Keyword: Readiness, Electronic Medical Records, DOQ-IT, Hospital

INTRODUCTION

Electronic medical record (EMR) is one of the important innovations in the healthcare system that aims to improve the efficiency and effectiveness of patient medical data management. In Indonesia, the implementation of EMR is regulated by the Minister of Health Regulation Number 24 of 2022, which requires all health care facilities to implement this system before the end of 2023. In this context, Class D Primary Hospital Sendawar is expected to analyze the readiness of EMR implementation using the DOQ-IT method, which is a tool to assess various aspects of organizational readiness in adopting health information technology (Amalia Rachmawati et al., 2024; D. A. Hapsari et al., 2023; Khasanah, 2021; Neng Sari Rubiyanti, 2023). The readiness of EMR implementation in Sendawar Primary Class D Hospital does not only depend on technical aspects, but also involves human resources, infrastructure, and organizational culture factors. Previous research shows that the success of

EMR implementation is strongly influenced by user training and understanding of this new system (Ariani, 2023; Sabran et al., 2023; Wulansari et al., 2023). Therefore, it is important to conduct a comprehensive assessment of the hospital's readiness to adopt EMR, including an analysis of existing HR competencies, technology infrastructure readiness, and management support (Ningsih et al., 2023; Rum & Saud, 2023; Titin Wahyuni et al., 2023).

The DOQ-IT method, developed to assess the readiness of health facilities to implement EMR-based information systems, includes several important dimensions, such as leadership, organizational culture, human resources, and technological infrastructure (M. A. Hapsari & Mubarokah, 2023; Praptana et al., 2021). Using this approach, Sendawar Primary Class D Hospital can identify strengths and weaknesses in preparation for EMR implementation, as well as formulate appropriate strategies to overcome challenges that may arise during the transition process from manual to electronic systems (Ariani, 2023; Eka Siti Hastuti et al., 2023; Praptana et al., 2021). In addition, this readiness analysis should also consider the legal and regulatory aspects that govern the use of EMR in Indonesia. By understanding the existing legal framework, Class D Primary Hospital Sendawar can ensure that EMR implementation not only meets technical standards, but also complies with applicable regulations (Kassiuw et al., 2023; Neng Sari Rubiyanti, 2023). This is important to avoid potential legal issues in the future that could disrupt hospital operations.

In the context of increasingly complex health services, the implementation of EMR is expected to improve service quality, reduce medical errors, and speed up administrative processes (Fenilho & Ilyas, 2023; Rosalinda et al., 2021; Sudjadi et al., 2023). However, challenges in EMR implementation, such as resistance from health workers, limited infrastructure, and lack of training, need to be addressed with a systematic and planned approach (Ariani, 2023; Eka Siti Hastuti et al., 2023; Neng Sari Rubiyanti, 2023). Therefore, this study aims to analyze the readiness of EMR implementation using the DOQ-IT method at Class D Primary Hospital Sendawar, with the hope of providing useful recommendations to improve the effectiveness and efficiency of health services in the hospital. With this background, this research is expected to provide a clear picture of the readiness of RSUD Kelas D Pratama Sendawar in implementing EMR, as well as the steps that need to be taken to ensure a successful transition to a more modern and efficient system. Through a comprehensive analysis, it is hoped that the results of this study can serve as a reference for policy makers and hospital management in planning and implementing EMR implementation effectively.

METHOD

Research on the readiness of electronic medical record (EMR) implementation using DOQ-IT will be conducted at Class D Primary Hospital Sendawar, located in West Kutai Regency, East Kalimantan, Indonesia. The hospital provides basic and specialist medical services, as well as supporting facilities such as laboratory, radiology and pharmacy. The research covers various medical and administrative departments, including the information technology unit which is essential for the readiness of the EMR technology infrastructure (Swarjana, 2016). The research will take place from June 3 to August 30, 2024, with June focusing on preparations such as proposal drafting and licensing submissions, as well as coordination meetings with hospital management. July and August will be used for data collection through in-depth interviews and participatory observation. A qualitative method with a case study design was chosen to gain an in-depth understanding of the hospital's readiness. Participants will be selected using purposive sampling based on the relevance of their role in EMR implementation. The researcher will also coordinate with the hospital management to obtain a list of involved staff and formally invite them to participate in the study (Liberty, 2024). The results of the study are expected to provide a comprehensive insight into the readiness of Class D Primary Hospital Sendawar in implementing EMR using DOQ-IT.The research method contains the type of research, sample and population or research

subjects, time and place of research, instruments, procedures, and research techniques, as well as other matters relating to the method of research. This section can be divided into several sub-chapters, but no numbering is necessary (Agnesia et al., 2023).

Based on the method that has been applied, the research participants in examining the readiness of the implementation of EMR using DOQ-IT at Class D Primary Hospital Sendawar are as follows:

Table 1. Research Participants

No.	Participant Group	Number of Participants	Position or Role
1	Hospital Leader	3	• Section Head of Non-Medical Services • Head of Subdivision Administration • Head of Medical Services Section
2	Key Medical Staff	34	• 2 General Practitioners • 13 Medical personnel from Emergency Unit • 11 Medical personnel from the Inpatient Unit • 2 Medical personnel from Outpatient Unit • 6 Medical Staff from Pharmacy Unit
3	Medical Record Administration Staff	1	• Medical Record Staff

Source: Primary Data, 2024

The total number of participants involved in this study was 38. Participants were selected through purposive sampling based on the relevance of their role in the implementation and use of the EMR system. Coordination with hospital management and formal invitations will be used to invite participants, ensuring a thorough and valid representation of the various stakeholders in this study.

To examine the readiness to implement Electronic Medical Records (EMR) using DOQ-IT at Class D Primary Hospital Sendawar, data collection techniques used included in-depth interviews and participant observation. In-depth interviews aimed to gain insight into stakeholders' perceptions and challenges related to EMR implementation, with procedures including the selection of participants through purposive sampling, development of a semi-structured interview guide, and conducting interviews that were recorded for further analysis. Participant observation was conducted to observe staff interactions with the existing system as well as evaluate the readiness of the technology infrastructure, with procedures including determining observation locations in various hospital units and the use of checklists to record important details. Data analysis was conducted through thematic analysis that included data transcription, coding, theme identification, and in-depth analysis to generate a comprehensive understanding of the hospital's readiness to implement EMR. In addition, data triangulation was used to increase the validity and reliability of the findings by comparing information from various sources such as interviews, observations, and document studies, thus ensuring that recommendations were based on reliable data from multiple perspectives.

RESULTS AND DISCUSSION

Description of Research Informants

This study involving 38 informants from various professions and positions at Sendawar Primary Class D Hospital aimed to provide a comprehensive view on the readiness of implementing Electronic Medical Records (EMR) using DOQ-IT. The informants included 28 females (73.7%) and 10 males (26.3%), predominantly aged 25-35 years, reflecting a mix of young tech-savvy staff and experienced seniors. Their diverse backgrounds ranging from D3 to professional degrees like Doctors and Pharmacists were crucial for assessing readiness from different competence levels. The majority were direct medical personnel like nurses and doctors who would be primary users of EMR systems. Informants covered various units such as ER, Inpatient, Pharmacy, Outpatient, and management, ensuring a thorough understanding

of hospital workflow readiness for EMR implementation. Additionally, managerial positions represented by heads of administration, medical services, and non-medical services sections added decision-maker perspectives, enhancing validity through triangulation with other data sources. However, it is noted that specific IT department representation was lacking, which might impact analysis given its critical role in system implementation. This diverse composition allowed researchers to obtain a comprehensive picture on EMR readiness at Sendawar Primary Class D Hospital but highlighted potential gaps related to IT involvement.

Table 2. Characteristics of Research Informants

Characteristics	Amount	Percentage (%)	Analysis
Gender			
Male	10	26.30	The majority of informants were female, reflecting the general composition of health workers in hospitals.
Female	28	73.70	
Age			
20-30 Years	25	65.80	The majority of informants were young (20-30 years old), who may be more familiar with technology.
31-40 Years	9	23.70	
41-50 Years	4	10.50	
Education			
Diploma 3	23	60.50	The majority had a D3 education, indicating the need to consider additional training in EMR implementation.
Bachelor / Diploma 4	9	23.70	
Professional	6	15.80	
Position			
Nurse	17	44.70	Nurses and midwives dominated, indicating the importance of focusing on these key users in EMR implementation.
Midwife	9	23.70	
Pharmacist /Assistant	6	15.80	
Doctor	2	5.20	
Management	3	7.90	
Others	1	2.60	
Work Unit			
Emergency Unit	13	34.20	The distribution of work units was fairly even, allowing for an understanding of readiness in different areas of the hospital.
Hospitalization	11	28.90	
Pharmacy	6	15.80	
Management	3	7.90	
Outpatient	2	5.30	
Others	3	7.90	

Source: Primary Data Processed, 2024

The diversity of informants in this study covered various aspects of the hospital organization, enabling a comprehensive view of the readiness of the Electronic Medical Record (EMR) implementation. By involving representatives from various work units, ranging from nurses, midwives, doctors, to management, the study gained a broad and in-depth perspective on the challenges and opportunities. The predominance of young people aged 20-30 among the informants could be a significant advantage in adapting to new technologies such as EMR, as the younger generation is generally faster in mastering new technologies and more open to changes in work processes. The majority of direct users such as nurses, midwives, and doctors (92.1%) are crucial in the EMR implementation process, as they are the end users who will interact with the system on a daily basis. However, it should be noted that management involvement is relatively low (7.9%), which may not be enough to provide a holistic view from a strategic and policy standpoint. The even distribution of work units among the informants allowed for a more comprehensive understanding of the readiness in the various service areas of the hospital, ensuring that the analysis conducted reflected the real conditions on the ground.

Result

Readiness of Human Resources

Based on interviews with 38 respondents at Class D Primary Hospital Sendawar, most health workers understand the benefits of implementing Electronic Medical Records (EMR) in improving the efficiency of health services. However, knowledge and skills related to EMR are still limited, as many have never been involved in its use or attended previous training. Respondents such as RJN (32 years old) and KD (26 years old) stated that EMR would make their work easier, especially in recording patient data. Nonetheless, concerns were raised regarding the lack of training and IT skills, which was considered a major challenge in implementing EMR. Some respondents also expressed concerns about potential data security issues and difficulties in learning the new system. Computer skills were identified as a fundamental need to operate the EMR, and there is currently only one medical recordist in the hospital without adequate IT staff. Therefore, EMR-related socialization and training are essential to improve staff readiness to face this implementation challenge.

The following table describes the theme of the research findings in the readiness of human resources at Sendawar Primary Class D Hospital, namely as follows:

Table 3. Analysis of Human Resources Readiness Findings

Theme	Sub Theme	Key Findings
Understanding and Attitude towards EMR Lack of EMR-related Training and Experience IT Skills Needs	Positive understanding Never attended training Mastery of IT basics	• The majority of health workers understand the benefits of EMR in facilitating and improving service efficiency. • Almost all health workers have not had any specialized training related to EMR and feel that training is needed. • IT skills are essential for operating an EMR, and many health workers felt the need to understand the basics of operating a computer and related applications.
Concerns and Challenges Socialization and Intensive Training	Learning and data security Positive understanding	• Some health workers were concerned about the time required for learning, data security risks, and lack of initial knowledge. • There was an urgent need to conduct intensive socialization and training on EMR, led by experts with in-depth knowledge of EMR.
Understanding and Attitude towards EMR Lack of EMR-related Training and Experience IT Skills Needs	Never attended training Mastery of IT basics Learning and data security	• The majority of health workers understand the benefits of EMR in facilitating and improving service efficiency. • Almost all health workers have not had any specialized training related to EMR and feel that training is needed. • IT skills are essential for operating an EMR, and many health workers felt the need to understand the basics of operating a computer and related applications.
Concerns and Challenges Socialization and Intensive Training	Intensive training needs Positive understanding Never attended training	• Some health workers were concerned about the time required for learning, data security risks, and lack of initial knowledge. • There was an urgent need to conduct intensive socialization and training on EMR, led by experts with in-depth knowledge of EMR.
Understanding and Attitude towards EMR Lack of EMR-related Training and Experience	Mastery of IT basics	• The majority of health workers understand the benefits of EMR in facilitating and improving service efficiency. • Almost all health workers have not had any specialized training related to EMR and feel that training is needed.

Theme	Sub Theme	Key Findings
IT Skills Needs	Limited IT human resources	• IT skills are essential for operating an EMR, and many health workers felt the need to understand the basics of operating a computer and related applications.

Source: Primary Data Processed, 2024

The readiness of human resources at Class D Primary Hospital Sendawar for the implementation of EMR using DOQ-IT shows a positive understanding of the benefits of EMR, but there are major challenges related to the lack of socialization and training, IT skills, and limited human resources who are ready to operate EMR.

According to the literature, HR readiness in healthcare IT implementation is strongly influenced by several key factors, including adequate training, IT competency, and management support (Almajali et al., 2016; Shah et al., 2017). Adequate training is important to ensure that staff have the necessary knowledge and skills to use new systems effectively (Sadaf Zahra et al., 2014). Lack of training can result in resistance to change and suboptimal use of the system. IT skills are also a critical aspect. According to (Longhini et al., 2022) (2010), IT competency among health workers includes not only basic computer skills, but also an understanding of health information systems and how they are used in a clinical context. In this study, many respondents expressed the need to improve their IT skills, which is in line with Longhini findings that IT competency is an important prerequisite for successful implementation of health information systems, in this case EMR. Lack of human resources with IT expertise is also a significant barrier. According to the literature, the presence of competent IT staff and strong management support are critical in ensuring the smooth implementation of health information systems (H. Ahmadi et al., 2015). RSUD Kelas D Pratama Sendawar is currently in the process of recruiting IT staff, but currently the available manpower is still very limited. This indicates the urgency and need for better HR planning and management support to address this shortage. To ensure the successful implementation of EMR using DOQ-IT, the hospital needs to conduct intensive training and continuously improve IT competencies among health workers. Continuous training programs and strong management support are the keys to success in adopting information technology in healthcare (Bagherian & Sattari, 2022; Sheikh et al., 2021). Therefore, Class D Primary Hospital Sendawar should focus on developing a comprehensive training program and ensuring that all staff have access to the necessary resources to improve their IT skills.

Organizational Work Culture Readiness

Findings from interviews and observations with 38 respondents at Class D Primary Hospital Sendawar revealed a highly supportive work culture towards the implementation of EMR, despite existing challenges. Despite having limited knowledge about EMR and never having used it, most health workers demonstrated a positive attitude towards its implementation, recognizing its ability to improve efficiency and quality of health services. For instance, RJN, a skilled nurse in the ER, mentioned that "*the introduction of EMR has changed our work culture to be more thorough*" highlighting the initial enthusiasm but noting the lack of specialized teams or coordinated efforts. Similar sentiments were shared by MEA and PN from the Inpatient Unit, emphasizing the absence of specific policies and Standard Operating Procedures (SOPs) for EMR. Many responders acknowledged starting to learn basic computer operations, particularly in digitizing data, though expressing concerns about coordination between units and the need for further training to ensure all staff are comfortable using EMR effectively. Management support was crucial; RBW noted that "*the hospital supports EMR with installations like Wi-Fi networks and hardware procurement*" but also acknowledged occasional poor unit coordination. Overall, while there is willingness to adopt

new technologies, clearer policies and procedures along with comprehensive training programs are urgently needed to facilitate smooth implementation of EMR at RSUD Pratama Sendawar.

Based on the above explanation, the following table describes the key points of the research findings in the readiness of the organizational work culture at Class D Primary Hospital Sendawar, as follows:

Table 4. Analysis of Organizational Work Culture Readiness Findings

Theme	Key Findings	Analysis
Support for EMR	Most health workers strongly support the implementation of EMR as it is considered to improve service delivery and efficiency.	This support indicates a positive mental readiness and motivation to accept new technology.
Work Culture Change	There has been a change in work culture to be more thorough and structured since the introduction of the EMR concept.	These changes indicate adaptability and the potential for improved work quality with the implementation of EMR.
EMR Specialized Team	No special team has been established to manage EMR in most units.	This shortcoming indicates the need for a more formal organizational structure to support the effective implementation of EMR.
Policies and SOPs	Specific policies and SOPs related to EMR have not been implemented, as EMR has not been officially implemented.	Clear policies and SOPs are needed to provide proper guidance in the use of EMR.
IT Training and Skills	Health workers need further training to improve IT skills, as many are still accustomed to conventional methods.	Intensive training is needed to ensure all health workers are able to use EMR effectively.
Management Support	Hospital management strongly supports the implementation of EMR by providing infrastructure such as Wifi networks and hardware, but coordination between units still needs to be improved.	This support is important to ensure smooth implementation, but there needs to be improved coordination between units.
Computer Habits	Many health workers are still accustomed to using conventional RM and are not used to using computers.	There needs to be further adjustments and training so that all staff are familiar with the use of new technology.
Collaboration and Teamwork	Collaboration between units and teamwork related to EMR has not gone well, indicating a need to improve coordination and cooperation.	Improving coordination and collaboration between units is key to successful EMR implementation.

Source: Primary Data Processed, 2024

The analysis shows that although there is strong readiness and support for the implementation of Electronic Medical Records (EMR) in Sendawar Primary Class D Hospital, significant work culture adjustments are still required. Strengthening leadership, capacity building, and adjusting organizational structure are important to support effective digital transformation (Angelia Putriana, 2023). Orrganizational culture consists of three levels: artifacts, values, and basic assumptions. Support for EMR reflects positive values towards technological innovation, but challenges in the establishment of dedicated teams and policy development suggest that the basic assumptions and artifacts of the organization are not yet fully aligned with these values. The importance of creating a strong coalition of leaders to manage change, which is in line with the need for improved management support and coordination between units at RSUD. The Competing Values Framework model to assess organizational culture, suggesting that RSUD Sendawar is transitioning from a hierarchical culture to a market or adhocracy culture that requires greater flexibility and innovation. Weick and Sutcliffe (2015) discussed the importance of developing clear policies and SOPs to increase reliability in the face of technological change. Overall, although there is strong support for EMR, key challenges including the establishment of a dedicated team, development of policies

and SOPs, and intensive training to improve IT skills among health workers need to be addressed for EMR implementation to run smoothly in this hospital.

Governance and Leadership Readiness

Management support for the implementation of EMR in Sendawar Primary Class D Hospital is very good, indicated by statements from several respondents such as RJN, KD, and KHP who acknowledged that management is very supportive although no specific strategies or policies have been implemented. However, significant shortcomings in terms of coordination and specific strategies for EMR implementation were also detected. Many respondents stated that there has not been adequate coordination between management and units in the Hospital, as stated by CC and MNA. There are strong indications that training and socialization related to EMR is still very minimal, as expressed by AMR and EF. This lack of training is a major challenge in implementing EMR as health workers need to be equipped with adequate knowledge and skills to operate this new system. The process of procuring the facilities and infrastructure needed for EMR is still in its early stages, as explained by ML. Management's commitment to support the implementation of EMR is also evident, but still faces obstacles in the process of providing adequate infrastructure, as expressed by TM and LBH. Serious efforts from management to prepare the hospital to implement EMR are still ongoing, although the process is still ongoing and not fully realized.

Table 5. Analysis of Governance and Leadership Readiness Findings

Theme	Description of Findings
Management Support	Management was very supportive of EMR implementation by finding and discussing with several vendors, as well as training plans for EMR.
Special Coordination and Strategy	Coordination between management and units in the hospital is still lacking. There is no specific strategy or policy set by management to support EMR implementation.
Training and Socialization	Training and socialization related to EMR is still very minimal. There is a training plan but no further implementation or coordination.
Procurement of Facilities and Infrastructure	The process of procuring facilities and infrastructure needed for EMR is still in its early stages. Some tools are still in the process of being procured.
Management Commitment	Management commitment to the implementation of EMR is very good, with efforts to provide the equipment needed and plans to add human resources through the recruitment of CASN 2024.
Barriers and Challenges	The main challenge faced is related to budget. However, there are currently no other specific strategies.

Source: Primary Data Processed, 2024

From the findings at Sendawar Primary Class D Hospital, it can be concluded that management is very supportive of EMR implementation, but this support has not been matched by adequate coordination between management and related units. The absence of a specific strategy or policy to support EMR implementation is a major obstacle, although management has managed to overcome budget constraints and is now in the process of procuring infrastructure and human resources. The lack of training and socialization is also a challenge that must be addressed immediately. According to (Stouten et al., 2018), effective leadership in organizational change requires eight critical steps, including creating urgency and building a guiding coalition. Management support indicates urgency, but the lack of coordination and strategy indicates that the guiding coalition and communication of vision are not optimal. Emphasizes the importance of aligning IT strategy with business strategy, and the absence of specific policies for EMR suggests that IT governance is not yet fully integrated (Pesce & Neirotti, 2023; Sari et al., 2024; Veranita et al., 2023). According to (Thomas, 2024), underlines the importance of a socio-technical approach in the implementation of health information systems, indicating that the social aspects of technological change have not received enough attention. According to (Wager et al., 2017), emphasized the importance of

transformational leadership; despite management support, the lack of coordination suggests that the leadership style may not have been fully transformational. Therefore, Class D Primary Hospital Sendawar needs to improve governance and leadership for successful EMR implementation by developing a clear strategy, improving coordination between units, and implementing a comprehensive approach in managing organizational and technological change.

Infrastructure Readiness

Based on the results of interviews and observations conducted at Class D Primary Hospital Sendawar with 38 respondents, the readiness of technology infrastructure for EMR implementation remains a significant challenge. Various issues related to hardware, software, internet network, and technical support were identified. Specifically, many respondents complained about the inadequacy of hardware, citing a lack of essential computer equipment and no dedicated server room, as exemplified by RJN and KD. Furthermore, the required software for EMR applications was either unavailable or in the process of being procured, as noted by KHP and MEA. An unstable internet network posed additional difficulties, with frequent power outages and generator issues affecting connectivity, as highlighted by CC and EP. Efforts to complete the infrastructure were ongoing but incomplete, with significant gaps such as server rooms still under construction and insufficient IT personnel available for support, according to AMR and MA. The lack of technical support was also emphasized by respondents like FT and SR, who pointed out that without skilled IT staff, numerous technical problems could arise during implementation. Overall, most agreed that the current infrastructure needed substantial improvement before it could effectively support EMR systems, particularly requiring better-equipped devices qualified specifically for EMR use, as RBW noted.

The following is a presentation of the key points in the findings on technology infrastructure readiness, namely:

Table 6. Analysis of Technology Infrastructure Readiness Findings

Aspect	Key Findings
Hardware	• Hardware is far from adequate; computers are lacking, server rooms do not exist. • Computers are still lacking, especially in some rooms. • Infrastructure still needs to be completed, hardware such as computers is inadequate. • Still inadequate, including lack of computers and server rooms. • Still incomplete, including the server room which is under construction.
Software	• Software for EMR is not yet available; it is in the process of being procured. • There is no EMR application yet; still in the planning stage.
Internet Network	• Unstable internet network, often problematic. • Poor internet network constraints, affecting device performance.
Technical Support	• No IT staff yet; technical problems often arise due to the absence of adequate technical support. • No technical support due to lack of IT staff. • Skilled IT staff are needed to support EMR implementation.
Repair Efforts	• Improvement efforts are underway to complete hardware and software deficiencies. • The process of procuring and repairing infrastructure is still ongoing.

Source: Primary Data Processed, 2024

The results of the interviews indicate that the technology infrastructure at Class D Primary Hospital Sendawar requires significant improvement before EMR can be effectively implemented. Deficiencies in hardware, software, internet network, and technical support create challenges that need to be overcome. According to (Shortliffe & Cimino, 2014), a strong technological infrastructure is an important foundation for effective health information system implementation. At RSUD Sendawar, deficiencies in hardware, software, and internet network indicate a significant gap between the current state and the ideal requirements for EMR.

According to (Brommeyer & Liang, 2022), emphasizes the importance of a systematic approach in the development of health technology infrastructure. The ongoing improvement and procurement plan at RSUD Sendawar shows an awareness of this need, but it is necessary to ensure that the approach taken is comprehensive and integrated. The importance of infrastructure readiness in health technology adoption, emphasizing that infrastructure includes not only hardware and software, but also adequate technical support (Wager et al., 2017). The lack of technical support at RSUD Sendawar indicates a critical area that needs to be improved. The importance of considering factors such as scalability, interoperability, and security in infrastructure development for EMR (M. Ahmadi & Aslani, 2018). Infrastructure improvements at RSUD Sendawar need to consider these aspects to ensure the sustainability and effectiveness of the system in the future. Overall, this analysis shows that despite the awareness of the need for infrastructure improvements, RSUD Kelas D Pratama Sendawar still has a long way to go to achieve the technological infrastructure readiness required for successful EMR implementation. A systematic, comprehensive, and forward-looking approach is necessary in this improvement endeavor.

Discussion

The implementation of Electronic Medical Records (EMR) in health facilities in Indonesia, including Sendawar Primary Class D Hospital, is an important step in improving the efficiency and quality of health services. EMR not only functions as a recording tool, but also as a system that supports better clinical decision-making and health information management. In this context, the use of the Doctor's Office Quality-Information Technology (DOQ-IT) method is relevant to analyze the hospital's readiness to adopt this system. The DOQ-IT method is designed to assess various aspects required for successful EMR implementation, including infrastructure, human resources, and organizational culture (Khasanah, 2021; Praptana et al., 2021). One important aspect of EMR implementation readiness is the existing information technology infrastructure in the hospital. Adequate infrastructure includes hardware, software, and a stable network. Research shows that many health facilities in Indonesia still face challenges in terms of infrastructure, such as the lack of computer facilities and unstable internet networks (Babo et al., 2023; Titin Wahyuni et al., 2023). Therefore, Sendawar Primary Class D Hospital needs to conduct a thorough evaluation of the existing infrastructure to ensure that all components required to support EMR are available and functioning properly. In addition to infrastructure, human resources (HR) are also a key factor in the successful implementation of EMR. HR readiness includes training and understanding of the use of the EMR system. Research shows that effective training can improve health workers' skills and knowledge in using EMR, which in turn can improve patient satisfaction and service efficiency (Ariani, 2023; Kassiuw et al., 2023). Therefore, Class D Primary Hospital Sendawar should plan a comprehensive training program for all staff involved in the use of EMR.

Organizational culture also plays an important role in EMR implementation readiness. A culture that supports innovation and change is essential to reduce resistance to new technologies (Syaodih et al., 2022). Research shows that organizations with a culture that is open to change are more successful in adopting new technologies (Sabran et al., 2023; Wulansari et al., 2023). RSUD Kelas D Pratama Sendawar needs to create an environment that encourages collaboration and communication between all parties involved in the EMR implementation process. In the context of regulation, the Minister of Health Regulation No. 24 Year 2022 requires all health care facilities in Indonesia to implement EMR. This requires Sendawar Primary Class D Hospital to immediately prepare itself in order to fulfill these provisions. Research shows that compliance with regulations can improve the quality of health services and the accuracy of medical data (D. A. Hapsari et al., 2023; Neng Sari Rubiyanti,

2023). Therefore, it is important for hospitals to understand and comply with all applicable regulations related to EMR.

The evaluation of EMR implementation readiness using the DOQ-IT method includes several components, such as leadership, human resources, organizational culture, and infrastructure. The results of the analysis of each of these components will provide a clear picture of the level of readiness of Sendawar Primary Class D Hospital in implementing EMR. Previous research shows that the use of the DOQ-IT method can provide valuable insights in planning the steps needed to achieve successful EMR implementation (Khasanah, 2021; Ningsih et al., 2023; Praptana et al., 2021). Constraints that may be encountered during the EMR implementation process also need to be identified. Several studies have shown that obstacles such as lack of management support, budget limitations, and resistance from staff can hinder the implementation process (Eka Siti Hastuti et al., 2023; Titin Wahyuni et al., 2023). Therefore, Sendawar Primary Class D Hospital must anticipate and plan strategies to overcome these constraints so that the implementation process can run smoothly. In order to achieve the successful implementation of EMR, it is important for RSUD Kelas D Pratama Sendawar to conduct regular monitoring and evaluation. This monitoring aims to assess the effectiveness of the implemented EMR system and to identify areas that need improvement. Research shows that continuous evaluation can help in improving service quality and patient satisfaction (Ariani, 2023; Fenilho & Ilyas, 2023). Thus, Class D Primary Hospital Sendawar should set clear performance indicators to measure the success of EMR implementation.

Overall, the analysis of EMR implementation readiness using the DOQ-IT method at Sendawar Primary Hospital shows that there are many factors that need to be considered. Adequate infrastructure, HR readiness, supportive organizational culture, and compliance with regulations are some of the key aspects that must be considered. With careful planning and continuous evaluation, RSUD Kelas D Pratama Sendawar can successfully implement EMR and improve the quality of health services for the community.

CONCLUSION

The readiness assessment of RSUD Kelas D Pratama Sendawar for implementing Recam Medis Elektronik (EMR) reveals several critical areas needing attention. Human Resource Readiness: While healthcare workers demonstrate a positive understanding of EMR's benefits, they face substantial challenges due to insufficient training, lacking IT skills, and an insufficient number of trained personnel. Intensive training and IT skill development are thus priorities. Organizational Work Culture: Strong support exists within the hospital workforce for EMR, yet challenges persist regarding establishing a dedicated team, developing clear policies and standard operating procedures (SOPs), and enhancing IT skills through extensive training. Improving management support and coordinating efforts between departments is essential for seamless implementation. Enhanced communication and collaboration across units are also necessary for a smooth transition. Governance and Leadership: Although managerial backing seems robust, gaps exist concerning strategic planning and coordination. Key issues include the absence of specific EMR-related policies/SOPs and the lack of a designated team managing its implementation. Developing a structured plan and improving intra-departmental coordination are crucial steps toward effective execution. Moreover, addressing both organizational and technological changes demands a holistic approach. Technology Infrastructure: Significant improvements are needed in the current technology infrastructure before successful implementation of EMR can occur. Deficiencies exist in hardware, software installation, internet networks stability, and technical support availability. Hardware inadequacies persist alongside incomplete installations of necessary software applications. Additionally, IT staff shortages exacerbate these issues further. Accelerating ongoing improvement efforts along with procurement plans will be essential for meeting required infrastructural needs effectively.

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