Electronic Medical Records Vs Manual Medical Records: A Qualitative Study on Specialist Doctors in a Rural Hospital

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Abstract: The use of electronic medical records (RME) in hospitals continues to increase along with the need to improve efficiency and accuracy in patient data management. However, the transition from manual medical records to RME faces significant challenges, especially in technology adaptation in resource-constrained environments. The main issue faced in this study was to compare the effectiveness, safety, and management support between RME and manual medical records from a specialist's perspective. This study aimed to identify the advantages and disadvantages of using RME compared to manual medical records, as well as evaluating specialists' experiences in using both systems. This study used a qualitative approach through questionnaires and in-depth interviews with 12 specialists in a rural hospital, conducted at RS Muhammadiyah Mardhatillah Randudongkal, Pemalang District, in September 2024. Data were analyzed to understand perceptions, preferences, and challenges in using RME and manual systems. Eight out of 12 doctors (67%) preferred RME due to its ease of access and efficiency. Six doctors (50%) stated that RME reduces recording errors and helps collaboration between medical professionals. However, 4 doctors (33%) doubted data security and 5 doctors (42%) reported technical glitches. In contrast, manual systems were rated as more reliable in emergency situations (8%), and 2 doctors (17%) felt safer from the risk of hacking. A total of 67% of doctors rated RME training as adequate, but technical support needs to be improved. Although RME offers many advantages, technical barriers and security-related concerns remain a challenge. Continued support and further training are needed to ensure the successful adoption of RME in rural hospitals.

Keywords: Electronic Medical Records, Manual Medical Records, Rural Hospitals, Specialist Doctors

INTRODUCTION

In the Minister of Health Regulation No. 24 of 2022 concerning Medical Records, it is stated that, *"All Health Care Facilities must organize Electronic Medical Records in accordance with the provisions in this Ministerial Regulation no later than December 31, 2023".* But by 2024, not all hospitals have integrated using RME. The policy from BPJS Kesehatan does encourage hospitals to integrate Electronic Medical Records (RME). According to some sources, this integration aims to ensure that claims submitted are in accordance with the requirements and policies set by BPJS Kesehatan, as well as to speed up the process of verification and payment of claims.

In addition, the Ministry of Health also launched the SATUSEHAT platform that integrates patient health data from all health facilities, including hospitals, clinics, laboratories, and pharmacies. This

platform allows real-time access to patient health data, which supports BPJS policy in optimizing the utilization of RME data.

Medical records are an important element in healthcare, but manual medical records have limitations such as the risk of data loss and recording errors. With technological advancements, electronic medical records (RME) are becoming a more efficient and accurate option, supporting data-driven decision-making and care coordination between health facilities (Pradita et al., 2023). However, RME adoption in rural hospitals faces challenges such as limited infrastructure, cost, and resistance from medical personnel. The main obstacles in RME adoption include limited technological infrastructure, high costs, and resistance from medical personnel who are accustomed to manual systems (Nugroho et al., 2023).

Despite the challenges, RME offers benefits in data interoperability and accessibility, as well as improving the quality of care and reducing the risk of information loss. RME also facilitates the transfer of information between health facilities, and improves the efficiency of hospital operations. Policy support and ongoing training are needed to overcome these barriers and ensure effective RME adoption. RME also supports collaboration between medical professionals, although data privacy and security are major concerns. A well-trained internal IT team and collaboration between the government, private sector, and educational institutions are needed to accelerate RME adoption.

Development of better internet infrastructure is essential for RME accessibility in rural areas, and regular evaluation and feedback from users is also important. The use of technologies such as artificial intelligence (AI) in RME can improve the quality of healthcare. Overall, implementing RME in rural hospitals requires an integrated approach involving training, government support, and infrastructure development to improve the quality of healthcare in rural areas.

METHODS

This study uses a qualitative approach to explore the comparison between electronic medical records (RME) and manual medical records from the perspective of specialist doctors in a rural hospital, which will be conducted at RS Muhammadiyah Mardhatillah Randudongkal, Pemalang Regency. The qualitative method was chosen to deeply understand the doctors' experiences, perceptions, and attitudes regarding the two medical record systems.

This research was proposed to analyze and reveal the phenomenon of using electronic medical records and manual medical records in rural hospitals. In collecting, revealing various problems and objectives to be achieved, this research was conducted with a descriptive qualitative study approach.

The data source in this study was obtained through a questionnaire distributed to 12 specialist doctors working at RS Muhammadiyah Mardhatillah Randudongkal, Pemalang Regency, which included 3 internal medicine specialists, 2 obstetrics & gynecology specialists, 1 pediatrician, 1 surgeon, 1 neurologist, 1 orthopedic specialist, 1 anesthesiologist, 1 ophthalmologist and 1 urology specialist. The questionnaire was designed to gather information regarding the advantages and disadvantages of using RME and manual medical records, as well as the challenges faced in implementing each system. The questionnaires were distributed directly to the respondents at the hospital, and the questionnaires were completed anonymously to maintain the confidentiality and comfort of the respondents. In addition, in-depth interviews were also conducted to gain a more comprehensive understanding of the doctors' experiences in using both medical record systems

RESULTS

This study revealed various findings related to the use of electronic medical records (RME) and manual/conventional medical records in rural hospitals based on questionnaires and interviews with 12 specialist doctors. Of the 12 doctors studied, 8 of them (67%) preferred RME due to its ease of access and efficiency in managing patient data. In terms of the advantages of RME, 6 doctors (50%) stated that RME can reduce the risk of errors in patient medical records. 6 doctors (50%) considered that RME helps in collaboration between medical professionals. However, 4 doctors (33%) expressed uncertainty regarding the security and privacy of patient data, and 5 doctors (42%) reported technical difficulties and system glitches when using RME. On the other hand, 1 doctor (8%) stated that the manual system was easier to access in emergency situations, and 2 doctors (17%) felt that they did not have to worry about the risk of hacking or data breaches.

A total of 8 doctors (67%) agreed that the training provided to use RME is adequate, while 8 doctors (67%) agreed that increased technical support and training is needed to improve RME utilization. In addition, 6 doctors (50%) thought that RME implementation in rural hospitals should be prioritized to improve the quality of health services. Finally, 8 doctors (67%) thought that management support for RME utilization was adequate in rural hospitals. These results provide a clear insight into the views and experiences of specialists in rural hospitals towards the use of electronic medical records compared to manual systems, and highlight the importance of training and support in the transition towards a more efficient and secure RME system.

With the results of this study, it can be concluded that despite challenges in the implementation of electronic medical records, many specialists in rural hospitals see great potential in the use of these

systems. Security-related uncertainties and fears of technical glitches are inhibiting factors, but proper support from the owner and ongoing training can encourage wider adoption.

In addition, the importance of developing adequate technological infrastructure and internet access in rural areas cannot be overlooked. Without stable connectivity, the benefits of RME will not be fully achieved. Therefore, collaboration between the government, internet service providers, and hospitals is necessary to improve the quality of healthcare services in more remote areas.

The results also show that active participation of doctors in the RME implementation process, including input on system design and training, is crucial. By involving medical personnel in the decision-making process, hospitals can ensure that the implemented system matches the real needs in the field, thereby increasing the level of user satisfaction.

Furthermore, this study recommends conducting further studies involving more respondents and different locations to gain a broader perspective on the use of RME in rural hospitals. This may provide a clearer picture of the potential and challenges faced in the transition to a more modern and efficient medical record system.

Rural hospitals can take advantage of the opportunities available to improve the quality of health services, for the better welfare of the people in the region. Effective and safe implementation of RME is expected to bring about significant positive changes in the health system in rural areas, as well as facilitate better access to health services for the entire community.

DISCUSSION

The use of Electronic Medical Records (EMR) does bring many benefits in terms of efficiency and accuracy of medical data. However, there are concerns that RME may reduce the quality of communication and empathy between health workers and patients. In the era of manual medical records, doctors and other healthcare professionals interacted more directly with patients. They can record important information briefly while maintaining eye contact and communicating with the patient. This allowed for a more personalized and empathetic relationship. With RME, health workers often have to spend more time filling in data and ensuring all information is recorded correctly. This process can reduce the time that should be spent interacting with patients. As a result, effective communication and empathy can be reduced as the health worker is more focused on the computer screen than the patient. Research shows that good communication and empathetic behavior from healthcare workers have a significant impact on patient satisfaction. When communication is reduced, patients may feel less cared for and dissatisfied with the care provided. This can have a negative impact on the patient's perception of the quality of health care (Soleman & Cabu, 2021). (Soleman & Cabu, 2021).

The use of Electronic Medical Records (RME) in Indonesia is becoming more widespread, with various brands and types available in the market. There are free RMEs such as SIMRAISHA, which is specifically designed for clinics and independent doctor practices, as well as paid RMEs that are usually used by large hospitals with more complex features.

However, the difference in systems between RMEs is often a challenge for health workers, especially specialists who practice in several places. Each RME has different interfaces and workflows, so doctors have to adapt to the various systems. This can reduce work efficiency and increase administrative burden, as doctors have to spend more time understanding and filling in data in each different system. To solve this problem, some solutions that can be considered are: 1). Standardization of the RME System, 2). Training and Mentoring and 3). System Integration (Zulvianti, 2012).

This lack of uniformity can also affect the quality of healthcare. Doctors who have to switch between various RME systems may have difficulty in accessing patient information quickly and accurately, which may ultimately affect medical decision-making. In addition, the time spent filling in data across multiple systems can detract from the time that should be spent interacting and communicating with patients.

In this study, we compared the use of Electronic Medical Records (RME) and Manual Medical Records at RS Muhammadiyah Mardhatillah Randudongkal, Pemalang Regency, focusing on the perspective of specialists. The results showed that although RME offers a number of advantages, such as ease of access and better information management, challenges in its implementation remain a major concern. With RME, it allows doctors to leave it entirely to the results processed from RME. This can make the interaction between patient and doctor less significant.

One of the key findings was that most doctors recognized the benefits of RME in improving efficiency and accuracy in patient data management. RME allows doctors to access medical information quickly, potentially speeding up the diagnosis and treatment process. This is in line with previous literature showing that RME systems can reduce the time required for medical information search and minimize errors in data recording. (Sofia et al., 2022)

However, the study also identified concerns related to patient data privacy and security. Some doctors expressed uncertainty about the data protection offered by RME systems, especially in rural areas where technological infrastructure is often lacking. This reflects broader concerns about potential data breaches in digital systems, suggesting the need for stricter security protocols to protect patient information.

In addition, challenges in technology accessibility are also a significant issue. Many doctors in rural hospitals experience limitations in internet connectivity, which hinders optimal use of RME. Study

by Widiyanto et al., (2023) showed that unstable internet networks can affect the effectiveness of RME systems, thus emphasizing the need for collaborative efforts between the government and internet service providers to improve infrastructure in remote areas.

The importance of training for medical personnel was also highlighted in this discussion. Some respondents stated that they felt underprepared in using RME and wanted more comprehensive training. This supports research by Amarullah et al.(2023)which showed that continuous training can improve the skills and confidence of medical personnel in using new technology.

From the perspective of interprofessional collaboration, the results show that RME can facilitate better communication between doctors and other healthcare professionals. With better access to patient data, collaboration in multidisciplinary care becomes more effective, which in turn can improve the quality of care provided.

Given the results of the study that showed significant differences between the use of RME and Manual Medical Records, it is important to explore this aspect of technology acceptance among doctors. Although most respondents recognized the benefits of RME, there were also some who showed skepticism towards the switch from manual to electronic systems. This may be due to uncertainties related to the effectiveness of the RME system in daily practice, as well as concerns over the additional burden of learning and adapting to the new technology. A study by Lusianingrum et al., (2020)indicated that support from peers and a supportive work environment can contribute to better acceptance of new technologies, including RME.

One thing to note is the role of the government in providing policy support that encourages the adoption of RME. Fiscal incentives and government-run training programs can help reduce the initial cost burden for rural hospitals. Such support should be designed to meet the specific needs of hospitals in remote areas, which may differ from hospitals in urban areas. Wibisono et al. (2021)showed that policies focused on digitizing health services in rural areas have the potential to improve access and overall quality of health care.

Furthermore, it is important to evaluate the long-term impact of using RME on the quality of patient care in rural hospitals. Further research is needed to measure how RME affects health outcomes, such as patient satisfaction, efficiency of care, and reduction of medical errors. This also includes a cost-benefit analysis to understand the investment required in RME technology compared to the benefits gained.

Integrating the findings from this study, we recommend the development of an RME adoption model that includes collaboration between the government, hospitals, and the private sector. This model should include ongoing training programs, prompt technical support, and regular evaluation to ensure the RME system continues to meet the needs of doctors and patients. Only with this holistic approach can

rural hospitals optimize the benefits of RME and, in turn, improve the quality of healthcare in their communities.

CONCLUSION

This study shows that the implementation of Electronic Medical Records (RME) in rural hospitals provides a number of significant benefits compared to the Manual/Conventional Medical Records system. From the results of a qualitative study of 12 specialists, it was found that RME increases efficiency in patient data management, reduces errors in recording, and facilitates access to medical information. However, challenges in implementing RME, such as data privacy concerns, infrastructure limitations, and training needs, are still barriers that must be overcome.

Support from the government and healthcare providers is needed to improve technological infrastructure and provide adequate training for doctors. In addition, the successful implementation of RME also depends on the hospital's commitment to continuous evaluation and improvement. By paying attention to these factors, it is expected that RME can be optimized to improve the quality of health care in rural hospitals, provide better access for patients, and support medical personnel in providing more efficient and effective services.

The research also recommends the need for further studies to explore the long-term impact of RME on patient health outcomes and how this system can be integrated with national health policies to achieve broader success in the health sector.

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