



Readiness of Electronic Medical Record Implementation at Budi Asih Trenggalek Hospital using the Fishbone Diagram Method

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Abstract. The electronic medical record (EMR) is an important step in supporting the digitization of health services, with the aim of improving the effectiveness, efficiency and accuracy of the management of patient medical data in hospitals. This study aims to determine the readiness of the implementation of RME in BUDIASI Hospital Trenggalek by using the Fishbone Diagram method as an analytical tool in identifying the factors that influence. This study uses a descriptive method with a qualitative approach to explore the implementation process in depth. The Data was obtained through in-depth interviews and direct observation to 20 informants who actively use the RME system in the implementation of daily tasks. The results showed that the readiness of RME implementation in Budi Asih Hospital was influenced by five main factors, namely man (Human Resources), material (tools), machine (data), method (methods), and money (budget). Health workers and administrative staff have been able to operate RME well, accompanied by regular training and workshops to improve understanding related to System updates. Equipment and support systems are available and functioning properly, along with scheduled maintenance to keep the system running stably. Data management has been done accurately and timely, supported by periodic audits to maintain the quality and validity of the data. The hospital also has a clear Standard Operating Procedure (SOP) in the implementation of RME and has allocated a budget to support the sustainability of this system. Overall, Budi Asih Trenggalek Hospital has shown good readiness in the implementation of RME and is ready to develop this system to support the improvement of the quality of health services in the future. This study recommends increased maintenance of software and hardware as well as regular training of human resources to support the sustainability of the RME system.

Keywords: Electronic; Fishbone Diagram; Health Services; Implementation; Medical Records.

1. BACKGROUND

Electronic Medical Records (RME) is an important innovation in healthcare to speed up, simplify and keep patient data secure. With RME, medical personnel can access patient information quickly and accurately, thus helping to make informed clinical decisions. The government requires all health facilities to use RME in accordance with Permenkes No. 24 of 2022. However, the implementation still faces challenges such as limited technological infrastructure, costs, and human resource readiness. Budi Asih Trenggalek Hospital has implemented RME in outpatient and inpatient units. The doctor in charge of the patient is still adapting to electronic recording, so sometimes patient data has not been documented consistently. To overcome this, the hospital needs to improve information technology infrastructure, hold regular training for health workers, and form an RME management team to help when problems occur. System audits and evaluations are also important for optimal RME implementation. With good RME implementation, hospital services will become faster, more accurate and efficient, supporting the improvement of the quality of health services for the community.

2. THEORETICAL STUDY

Electronic Medical Records (RME) is an innovation in health information systems that aims to improve the effectiveness, efficiency and accuracy of patient medical data management in hospitals (Amatayakul, 2017). RME facilitates access to patient data quickly and securely so as to support appropriate clinical decision making. Permenkes No. 24 of 2022 has also regulated the obligation of all health service facilities to organize RME, as a step in supporting the digital transformation of health in Indonesia.

The benefits of RME implementation include improving access to information, accelerating services, maintaining data security, reducing the risk of medical errors, and facilitating data analysis for health policy planning (Kurniawati, 2021; Fakhruddin & Prabowo, 2019). However, the implementation of RME also faces challenges such as infrastructure readiness, budget, data security, HR readiness, and resistance of medical personnel in adapting to the use of the system (Ajami & Bagheri-Tadi, 2013; WHO, 2020). The Fishbone Diagram method is used to analyze the factors that cause problems in implementing RME. Fishbone diagrams, or cause-and-effect diagrams, help identify and organize the factors affecting the readiness of RME implementation into categories: man (human resources), machine (materials or data), material (tools), method (methods), and money (budget) (Kurniasih et al., 2021; Ishikawa, 1985). This approach makes it easier for hospitals to find the root of the problem and formulate solutions in a structured manner (Siswati, 2017).

3. RESEARCH METHODS

This study uses descriptive methodology and a qualitative approach. While the descriptive approach seeks to methodically describe the readiness of the implementation of Electronic Medical Records (RME) at Budi Asih Trenggalek Hospital, qualitative research uses information drawn from primary data sources to gain a deeper understanding of the phenomenon. Informants in this study were hospital staff who were active in operating the RME. Total sampling or the entire sample, namely selection based on certain criteria that are considered capable of providing in-depth information in accordance with the research objectives, is used to select informants.

In-depth interviews, direct observation of RME implementation readiness, were some of the methods used to collect data. The steps of data reduction, data display, and conclusion drawing were used in data analysis. Source triangulation methods and techniques were used to verify the data. This study was conducted at Budi Asih Trenggalek Hospital in May 2025

4. RESULTS AND DISCUSSION

Data Collection Process

In May 2025, this research was conducted at Budi Asih Trenggalek Hospital. Twenty hospital staff who actively use RME from various divisions were interviewed in depth to collect data. In addition, direct observation of the readiness of the implementation of Electronic Medical Records (EMR) was conducted.

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Man (human resources)

Health workers and administrative staff at Budi Asih Hospital are accustomed to operating the RME, starting from registration, data entry, information distribution between units, to insurance claim management. The placement of labor has been in accordance with the required qualifications and competencies. The hospital also regularly conducts internal training to improve staff's ability to use the latest RME features. Although there are still minor difficulties in using the new features, this does not hamper the daily work process.

Material (data)

The Hospital has provided computers, servers and networks with adequate specifications in each service unit. The Khanza SIMRS system is used as the main platform for digitizing patient medical records. Device maintenance is carried out regularly to avoid trouble during service.

Machine (material or data)

Patient medical data, including laboratory, radiology, and prescription drug results, are inputted in a timely manner after services are rendered. Internal medical record audits are conducted monthly to maintain data validity and accuracy, support clinical decision-making, and ensure completeness of medical documentation.

Method

Budi Asih Hospital has a clear SOP in the implementation of RME, in accordance with Permenkes No. 24 Year 2022 concerning Medical Records. The entire data entry process is based on official regulations to maintain legality, accuracy, and data integration.

Money (budget)

Budget management is an important aspect of RME implementation. The hospital has met about 70% of hardware and software needs. Despite using the free open source Khanza system, budget is still required for HR training, system maintenance, and hardware upgrades.

Budget limitations are addressed with efficiency strategies, such as prioritizing essential needs and conducting in-house training to save costs.

5. CONCLUSIONS AND SUGGESTIONS

From the research results described, conclusions can be drawn: a) *Man* (human resources): health workers and administrative staff are able to operate the RME from enrollment to data management. Periodic training is still conducted to adjust new features. b) *Material*: Hardware, software and networks are available in all service units. Regular maintenance is required to maintain optimal system performance. c) *Machine*: Timely and accurate management of medical data, with regular audits to ensure validity of patient data. d) *Method*: The implementation of RME has been running according to clear SOPs and according to regulations. e) *Money (budget)*: The budget has been well allocated to support the implementation of RME. Optimization is still needed on system maintenance and HR training so that the system can run sustainably.

The study suggests that Budi Asih Trenggalek Hospital continue to improve the smooth implementation of Electronic Medical Records (RME) through continuous training for health workers and administrative staff, to strengthen digital literacy and readiness for system feature updates. Routine maintenance of hardware and internet networks needs to be maintained to keep the system optimized, including preparing a backup server to anticipate technical problems. Strengthening internal validation and supervision of supporting data input such as laboratory and radiology needs to be improved so that the data stored is accurate and can be accounted for. Periodic evaluation of workflows and adjustment of SOPs according to system developments are also important to ensure the effectiveness and efficiency of services. In addition, RSUD Budi Asih is advised to manage the budget efficiently and sustainably, not only for device procurement but also for system development, HR training, and long-term maintenance, so that the quality of digital services is consistently maintained.

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Ponorogo. The author hopes that the results of this study will be useful for improving health care, especially in the application of Electronic Medical Records in hospitals.

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