ANALYSIS OF THE READINESS FOR THE IMPLEMENTATION OF ELECTRONIC MEDICAL RECORDS AT FAGA HUSADA GENERAL HOSPITAL

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A B S T R A C T

Faga Husada General Hospital plans to transition to electronic medical records (EMRs), requiring a preparation assessment. According to the Ministry of Health Regulation No.24 of 2022, all healthcare facilities must implement EMRs. The regulation mandates that every healthcare facility in Indonesia manage electronic medical records, with the transition process to be completed by December 31, 2023. This study aims to assess the hospital's readiness for implementing EMRs. The research conducted is descriptive quantitative with a cross-sectional approach, using the DOQ-IT (Doctor's Office Quality-Information Technology) tool. The sample size is 8 participants, and data were collected via a questionnaire. The analysis of readiness for EMR implementation using the DOQ-IT method assessed four variables: organizational culture preparedness, governance and leadership, human resources, and infrastructure. The results showed that organizational culture preparedness scored an average of 33, placing it in the "very prepared" category. Governance and leadership scored 33.12, human resources scored 32.8, and infrastructure scored 32.4, all also in the "very prepared" category. Overall, the hospital's readiness for EMR implementation is classified as very high, indicating that Faga Husada General Hospital is well-prepared for the transition.

INTRODUCTION

According to the WHO (World Health Organization), hospitals are an integral part of social and health organizations that are tasked with providing comprehensive health services and curing diseases in the community. A hospital is a healthcare institution that provides an individual's overall healthcare services, including outpatient, inpatient, and emergency services. The quality of health services does not only depend on medical services, but also on the management of medical records, which is an important measure of health service quality (Naiggolan, 2019).

The development of information technology in the health sector covers various aspects, ranging from the development of health sciences, hospital organization, treatment, to medical records. The application of health information technology is one way to deal with future needs (Ludwiick, 2019). Health information technology is a systematic and integrated health data and information management system to support health management and improve health services to the community. The use of information and communication technology will encourage every government agency to be electronic-based (Permenkes No. 18, 2023).

Medical records are records of the patient's identity, examinations, treatments, actions, and other services provided. The purpose of electronic medical records is to improve the quality of health services by ensuring the security, confidentiality, integrity, and availability of medical record data and providing legal certainty about when patients go home, be referred or die (Permenkes No. 24, 2022).

Electronic medical records are medical records that are stored in electronic format and include personal data, demographic data, social data, clinical/medical data, and clinical events taken from various data sources (multimedia). Electronic medical records help medical decision-making by helping to make decisions (Indradi, 2019).

The use of computerized systems for electronic medical records allows the processing of patient medical data and the utilization of information about the efficiency and effectiveness of health services, as well as the improvement of the scope of services provided by health facilities. As a result, the data and information generated from the electronic medical record system become fast, precise, and accurate (Mutiara, 2020).

A previous study (Research et al., 2023) showed that the Bandar Negara Husada Hospital is ready to implement electronic medical records (RME). They just need to get support from management, stakeholders, operational preparation, and technology. Hospitals have not provided training to operational personnel and end users, so there is a lack of training. In order for the Bandar Negara Husada Hospital to be fully ready to implement RME, training must be accelerated.

According to additional research (Hapsari & Mubarokah, 2023), the Polkesmar Primary Clinic has the readiness to implement RME at 128.45, which is in category III, which means it is very prepared. The strongest readiness comes from the readiness of HR (4.50), Governance and Leadership (4.64), IT Infrastructure (4.69), and Organizational Work Culture (4.54).

Based on preliminary data obtained by researchers on March 22, 2024 through interviews with the person in charge of IT, the head of the medical record room, and one of the medical record officers at Faga Husada Hospital, the readiness to implement RME can be seen from several things, such as officers who have received materials related to RME, as well as the preparation of supporting equipment such as server rooms, networks, and the addition of computers.

METHODOLOGY

This study uses a descriptive quantitative method with a cross sectional approach and the DOQ-IT method. Quantitative research is a systematic process to investigate phenomena by collecting measurable data through statistical, mathematical, or computational techniques (Abdullah Karimuddin, 2019). This research was carried out at Faga Husada General Hospital, which is located in Katobengke Village, Betoambari District, Baubau City. The research was conducted from May to June 2024. The population in this study is all staff at Faga Husada Hospital. The sample is part of a population that has certain characteristics (Dameriaa Sinaga, 2019). The sample in this study was taken using purposive sampling, which is sampling based on certain considerations. The sample consisted of the Director of the Hospital, the Head of Medical Records, the Person in Charge of IT, the RME Planning Team, medical record staff, users of electronic medical records (doctors and nurses), and medical record officers at the outpatient installation at Faga Husada Hospital. The data collection technique in this study was collected using questionnaires or questionnaires. The instruments used in this study are scores from the EHR Assessment and Readiness Starter Assessment by Doctor's Office Quality Information Technology (DOQ-IT).

Data presentation is presented in the form of descriptive writing of frequencies, charts, relationships between categories, flow charts, and so on (Pasaribu Benny, 2022). In this study, the data is presented using a frequency distribution table. Data analysis was carried out after data from all respondents were collected. The quantitative analysis used was EHR Assessment and Readiness Starter Assessment by DOQ-IT.

RESULTS & DISCUSSION
1. Respondent Characteristics

The selection of respondents is carried out according to the needs of the sample to be measured related to the readiness of the implementation of RME in hospitals. The following are the characteristics of respondents in the trial of the RME implementation readiness questionnaire.

<div align="center">**Table 1.** Characteristics of Respondents</div>

It	Characteristic[edit]	Frequency	Percentage (%)
1	**Gender**		
	Man	3	37,5%
	Woman	5	62,5%
	Total	8	100%
2	**Age**		
	20-30 Years	5	62,5%
	31-40 Years	3	37,5%
	41-50 Years	0	0%
	51-60 Years	0	0%
	>60 Years	0	0%
	Total	8	100%
3	**Last Education**		
	SMA	0	0%
	D3-D4	3	37,5%
	S1	5	62,5%
	S2	0	0%
S3		0	0%
	Total	8	100%
4	**Working Period**		
	<1 Year	1	12,5%
	1-5 Years	7	87,5%
	5-10 Years	0	0%
	11-15 Years	0	0%

16-20 Years	0	0%
>21 Years	0	0%
Total	8	100%

Based on Table 1, it is known that the number of female respondents (62.5%) is more than male respondents (37.5%). Most of the respondents at Faga Husada Hospital are between 20-30 years old (62.5%), with the majority of S1 graduates as many as 5 people (62.5%). In addition, 7 respondents (87.5%) have worked for between 1-5 years.

2. Level of Readiness for the Implementation of Electronic Medical Records
The following is the level of readiness for the implementation of electronic medical records at Faga Husada Hospital:
a. Level Of Readiness To Implement RME In The Organizational Work Culture Aspect

Table 2. Organizational Work Culture

Variables and Instrument Code	Not Ready		Enough Ready		Very Ready		Score
	f	%	f	%	f	%	
Organizational Work Culture							
A1	0	0%	4	50%	4	50%	
A2	0	0%	3	37,5	5	62,5%	
A3	0	0%	4	50%	4	50%	
A4	0	0%	3	37,5%	5	62,5%	33
A5	0	0%	4	50%	4	50%	
A6	1	12,5%	2	25%	5	62,5%	
A7	0	0%	3	37,5%	5	62,5%	
A8	1	12,5%	4	50%	3	37,5%	
A9	0	0%	2	25%	6	75%	
A10	0	0%	2	25%	6	75%	

Based on the table, the level of readiness to implement electronic medical records in the aspect of organizational work culture at Faga Husada Hospital obtained an average score of 33.

b. Readiness Level of RME Implementation in Governance and Leadership Aspects

Table 3. Governance and Leadership

Variables and Instrument Code	Not Ready		Enough Ready		Very Ready		Score
	f	%	f	%	f	%	
Governance and Leadership							
B11	0	0%	5	62,5%	3	37,5%	
B12	0	0%	4	50%	4	50%	
B13	0	0%	3	37,5%	5	62,5%	33,87
B14	0	0%	2	25%	6	75,%	
B15	0	0%	3	37,5%	5	62,5%	
B16	0	0%	4	50%	5	50%	
B17	0	0%	2	25%	6	75%	
B18	0	0%	4	50%	4	50%	

Based on the table, the level of readiness for the implementation of electronic medical records in the aspects of governance and leadership reached an average score of 33.87.

c. The level of readiness to implement RME in the aspect of human resources

Table 4. Human Resources

Variables and Instrument Code	Not Ready		Enough Ready		Very Ready		Score
	f	%	f	%	f	%	
Human Resources							
C19	0	0%	3	37,5%	5	62,5%	
C20	0	0%	3	37,5%	5	62,5%	
C21	0	0%	4	50%	4	50%	32,8
C22	0	0%	4	50%	4	50%	
C23	0	0%	4	50%	4	50%	

Source : Primary Data, 2024

Based on the table, the level of readiness for the application of electronic medical records in the aspect of human resources obtained an average score of 32.8.

d. Readiness Level of RME Implementation in Infrastructure Aspects

Table 5. Infrastructure

Variables and Instrument Code	Not Ready		Enough Ready		Very Ready		Score
	f	%	f	%	f	%	
Infrastructure							
D24	0	0%	3	37,5%	5	62,5%	
D25	1	12,5%	3	37,5	4	50%	
D26	0	0%	3	37,5%	5	62,5%	32,4
D27	0	0%	3	37,5%	5	62,5%	
D28	0	0%	5	62,5%	3	37,5%	
Average Score							132,07

Source : Primary Data, 2024

Based on the table, the level of readiness for the implementation of electronic medical records in the IT infrastructure aspect received an average score of 32.4.

DISCUSSION
1. Analysis of the Readiness of the Implementation of Electronic Medical Records Using *DOQ-IT*
a. Organizational Work Culture Readiness
Organizational culture is a unique system made up of beliefs and norms shared by the members of the organization (No & Page, 2019). The work culture of the organization is related to the leader's ability to design and establish policies, standard operating procedures, and planning processes that must be understood, and the ability to encourage staff in implementing RME (Zenobia et al., 2024). The results of the study showed an average readiness score in the aspect of organizational culture of 33, which reflects the readiness of officers in participating in training and using RME. These findings are consistent with the research of Hapsari & Mubarokah (2023), which emphasizes that staff skills in operating computers are an important factor in the development of RME.
b. Governance and Leadership Readiness
Governance and leadership are related to strong support from leaders who influence the implementation of RME. Leaders need to be involved in the entire process and need effective clinical staff managers and leaders. Policies implemented by leaders can affect the success of the

implementation of RME (Zenobia et al., 2024). The results of the study showed that the average readiness score in the governance and leadership aspects was 33.12, indicating the importance of leadership support in the RME training process. These findings are in line with research by Hapsari & Mubarokah (2023) which shows that leader support and user activeness are essential for the successful implementation of RME.

c. Human Resource Readiness

Human resources are a strategic factor that supports the effective and efficient performance of other resources. The ability of staff to operate computers is an important element in the implementation and development of RME (Maha Wirajaya & Made Umi Kartika Dewi, 2020). Research shows that female respondents (62.5%) are more than men (37.5%). Most of the respondents at Faga Husada Hospital are in the productive age range which has a significant effect on their performance in managing electronic medical records. The average readiness score on the human resources aspect was 32.8, with RME officers and users who had received related training. These findings are in line with research by Hapsari & Mubarokah (2023) which highlights the importance of staff's computer skills in supporting RME.

d. Infrastructure Readiness

Infrastructure readiness for the implementation of RME involves several factors, including information system integration, IT infrastructure readiness, IT management, and budget (Maha Wirajaya & Made Umi Kartika Dewi, 2020). The results of the study showed an average readiness score in the infrastructure aspect of 32.4, with hospitals having prepared server rooms and networks. These findings are consistent with the research of Zenobia et al. (2024), which emphasized the need for adequate infrastructure, including data security, privacy, and accountability. This can be achieved by forming a security team, identifying risks, drafting SOPs, and conducting training and monitoring for the implementation of RME.

CONCLUSION

Based on the results of the research conducted, it can be concluded that the readiness of the implementation of electronic medical records at Faga Husada Hospital is in the very ready category with a total score of 132.07. This readiness is divided into several components as follows: Organizational Work Culture Readiness reaches an average score of 33, indicating the category of very prepared. Governance and Leadership Readiness obtained an average score of 33.87, also in the category of very prepared. Human Resources (HR) readiness received an average score of 32.8, which indicates that the category is very prepared. Finally, Infrastructure Readiness reached an average score of 32.4, included in the category of very prepared.

Some suggestions that can be given from the results of this study are: 1) Organizational Work Culture: It is recommended that RME users support each other to improve discipline in the use of RME and be actively involved in planning and decision-making related to electronic medical records. 2) Governance and Leadership: It is recommended to give rewards and punishments to officers based on their compliance in implementing RME. 3) Human Resources: Socialization and assistance regarding electronic medical records should be carried out more regularly. 4) Infrastructure: Additional IT infrastructure needs to be done to ensure smooth service when implementing electronic medical records comprehensively, without disrupting operations due to computer shortages.

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