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The Relationship between the Implementation of Electronic Medical Records and the Improvement of Healthcare Service Quality in the Post-Disaster Period at the UPTD Special Pulmonary Hospital of North Sumatra Province

“The Relationship between the Implementation of Electronic Medical Records and the Improvement of Healthcare Service Quality in the Post-Disaster Period at the UPTD Special Pulmonary Hospital of North Sumatra Province.”

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Abstract: North Sumatra Province is prone to disasters that significantly impact respiratory health, such as haze, flooding, and other environmental disasters. Post-disaster conditions often lead to an increase in cases of lung disorders, including acute respiratory infections (ARI), asthma, chronic obstructive pulmonary disease (COPD), and complications of tuberculosis. The Lung Hospital, as a referral facility, plays a strategic role in maintaining the quality of healthcare services in these situations. This study aims to analyze the effect of Electronic Medical Records (EMR) implementation on the quality of post-disaster healthcare services at the Lung Hospital of North Sumatra Province. The study used a quantitative design with a cross-sectional approach, involving 30 respondents, namely medical record staff. The statistical test used was the chi-square test. The results showed that EMR implementation significantly impacted the quality of post-disaster healthcare services ($p < 0.05$). Optimal implementation of EMR improves service speed, accuracy of pulmonary clinical procedures, continuity of patient care, and patient safety.

1 INTRODUCTION

Indonesia is a country with a high risk of disasters, including earthquakes, tsunamis, floods, and landslides. North Sumatra Province is one of the regions in Indonesia vulnerable to natural and environmental disasters, such as floods, forest and land fires that cause haze, and non-natural disasters that impact air quality. The impact of these disasters contributes to the increase in cases of respiratory diseases, both acute and chronic.

Information technology has brought about significant changes in various fields, and the health sector is no exception. Medical technology innovation has become a key process in accelerating

the development of healthcare, improving the efficiency and quality of medical services. One example of the application of information technology in hospitals is the use of electronic medical records.

According to Minister of Health Regulation Number 24 of 2022 concerning Medical Records, the definition of an electronic medical record is as follows: An electronic medical record is a medical record created using an electronic system intended for the management of medical records. Electronic medical records (ERM) are a crucial component of the health information system that can expedite service flow in emergency situations by providing real-time patient data integrated across all hospital services.

Medical records play a very important role in treating patients affected by natural disasters. Based on previous research by Munir, Misbakhul (2024), it is known that the final result of this research is a natural disaster medical record plan that meets effective and efficient standards as well as technical instructions for filling out medical records according to user needs to facilitate health services for victims of natural disasters. Previous research by Munir, Misbakhul in 2021, regarding Interface Design for the Natural Disaster Medical Record Information System at Airlangga University Hospital, Surabaya, revealed that according to user needs, an interface design for a Natural Disaster Medical Record Information System at Airlangga University Hospital was needed which could help with emergency room registration for doctors, nurses and other staff in maximally assisting disaster victim patients.

The development of Electronic Medical Records (ER) at the Special Lung Hospital (UPTD) began in 2023. Users and Care Professionals (PPA) have experienced numerous benefits from the implementation of EMR at the UPTD, including improved medical data management and easy access to patient medical data by authorized medical personnel. However,

Despite the numerous benefits, EMR implementation also faces challenges and several obstacles. Limited human resources, infrastructure, and budget are among the challenges faced by hospitals in implementing EMR. Electronic Medical Records (ER) are a crucial solution for maintaining the quality of healthcare services under these circumstances. This study aims to analyze the impact of EMR implementation on the quality of post-disaster healthcare services at the North Sumatra Provincial Lung Hospital.

2 LITERATURE REVIEW

2.1 Hospital

According to Law of the Republic of Indonesia Number 17 of 2023 concerning Health, a Hospital is a Health Service Facility that provides comprehensive individual health services through promotive, preventive, curative, rehabilitative, and/or palliative health services, providing inpatient, outpatient, and emergency services.

In the health disaster management system, the Lung Hospital serves as a referral hospital specifically for respiratory diseases. It handles: Respiratory failure, Acute respiratory infections,

Exacerbations of TB, asthma, and COPD after a disaster.

2.2 Electronic Medical Records (EMR)

Electronic Medical Records (EMR) is a digital system for electronically creating, storing, accessing, and processing individual patient health data. EMR provides advantages such as: rapid clinical decision-making, reduced duplication of examinations, improved communication between service units, and real-time support for health statistics.

2.3 Quality of Healthcare Services

Quality of Post-Disaster Healthcare Services The quality of post-disaster healthcare services in pulmonary hospitals is measured by the speed of service for patients with respiratory disorders, the accuracy of clinical therapy, continuity of TB and COPD treatment, patient safety, and patient satisfaction. The RME response supports the emergency response system with: Real-time access to patient data, rapid triage support, clinical condition monitoring, integration with the disaster response system.

3 RESEARCH METHODOLOGY

This quantitative study used a cross-sectional design. The population was all medical record personnel involved in post-disaster health services. A sample of 30 respondents was obtained using a total sampling technique. The instrument was a Likert-scale questionnaire. Simple linear regression was used for analysis.

4 RESULTS

4.1 Characteristics of Research Respondents

Table 4.1 Frequency Distribution of Research Respondent Characteristics

No	Age Groups	Frequency	Percentage (%)
1.	< 30 years	1	3,3
2.	30-40 years	14	46,7
3.	>40 years	15	50
Total		30	100
Gender		Frequency	Percentage (%)
1.	Male	5	16,67
2.	Female	25	83,33
Total		30	100
Education		Frequency	Percentage (%)
1.	High School	1	3,3
2.	Diploma 3	12	40
3.	Bachelor's Degree	9	30
4.	Professional /Master's Degree	8	26,7
Total		30	100

Based on age group, the majority of respondents were over 40 years old, amounting to 15 respondents (50%). There were 14 respondents aged 30–40 (46.7%), while only one respondent aged <30 (3.3%). This indicates that the majority of respondents were in the adult to elderly age group. In terms of gender, the majority of respondents were female, at 25 (83.33%), while there were 5 male respondents (16.67%). This indicates that female respondents participated significantly more than male respondents. Based on educational level, the majority of respondents had a Diploma III (D3) education, with 12 (40%). Nine respondents had a Bachelor's degree (S1) education, followed by eight (26.7%) with a Professional/Master's degree. Meanwhile, only one respondent had a high school education (3.3%). This indicates that the majority of respondents had a higher educational background.

4.2 Electronic Medical Records Implementation

Table 4.2 Electronic Medical Records Implementation

No	Category	Frequency	Percentage (%)
1.	Good	17	56,7
2.	Adequate	10	33,3
3.	Less	3	10
Total		30	100

Based on the table above, it is clear that of the 30 respondents, the majority fell into the good category, namely 17 respondents, representing 56.7%. Furthermore, 10 respondents (33.3%) fell into the adequate category. Meanwhile, the Less category represented the smallest proportion, namely 3 respondents, or 10% of the total respondents. This indicates that the majority of respondents had a good assessment.

4.3 Quality of Post-Disaster Health Services

Table 4.3 Quality of Post-Disaster Health Services

No	Category	Frequency	Percentage (%)
1.	Good	18	60
2.	Adequate	10	33,3
3.	Less	2	6,7
Total		30	100

Based on this table, of the total 30 respondents, the majority were in the good category, namely 18 respondents with a percentage of 60%. Furthermore, the sufficient category includes 10 respondents or 33.3%. Meanwhile, the less than category had the lowest number, namely 2 respondents with a percentage of 6.7%. These results indicate that the majority of respondents have a relatively good assessment

4.4 Relationship between the Implementation of Electronic Medical Records and Improving the Quality of Post-Disaster Health Services

Table 4.4 Relationship between the Implementation of Electronic Medical Records and Improving the Quality of Post-Disaster Health Services

Implemen- tation of RME	Quality of Post-Disaster Health Services						Total	
	Less		Adequate		Good			
	F	%	F	%	F	%	F	%
Good	2	6,7	0	0	1	3,3	3	100
Adequa- te	0	0	9	33	1	3,3	10	
Less	1	3,3	1	3,3	15	50	17	

From the statistical test results, the p-value was obtained, namely 0.001. It can be concluded that the implementation of electronic medical records is related to improving the quality of post-disaster health services at the special lung hospital in North Sumatra province.

5. DISCUSSION

5.1 Implementation of Electronic Medical Records

Based on the results of research regarding the implementation of Electronic Medical Records (RME), it was found that out of a total of 30 respondents, the majority were in the good category, namely 17 respondents (56.7%). This shows that the implementation of RME at the research location has generally gone well and has been utilized by the majority of health workers to support services. Furthermore, as many as 10 respondents (33.3%) assessed that the implementation of RME was in the sufficient category. This condition indicates that even though RME has been implemented, there are still

several obstacles to its use, such as limited user understanding, the need for further training, or technical obstacles in the system. Meanwhile, 3 respondents (10%) assessed that RME implementation was in the poor category. This shows that there is still a small number of users who have not been able to utilize RME optimally, which is possibly caused by infrastructure factors, human resource readiness, or organizational support. Overall, the results of this research illustrates that RME implementation tends to be in the good category, but improvement efforts are still needed, especially through strengthening user training, improving systems, and increasing management support so that RME implementation can run more optimally and evenly across all service units.

5.2 Quality of Post-Disaster Health Services

Based on the results of research regarding the quality of post-disaster health services, it was found that out of a total of 30 respondents, the majority rated the quality of services as being in the good category, namely 18 respondents (60%). These results indicate that the health services provided after the disaster have been able to meet community needs optimally, both in terms of service accuracy, speed of response, and continuity of service. Furthermore, as many as 10 respondents (33.3%) assessed that the quality of post-disaster health services was in the sufficient category. This indicates that the services provided are already running, but there are still several aspects that need to be improved, such as the availability of resources, coordination between officers, as well as the completeness of facilities and infrastructure supporting services. Meanwhile, only 2 respondents (6.7%) assessed the quality of post-disaster health services as being in the poor category. This relatively small percentage shows that the majority of services are running well, although there are still certain obstacles felt by a small number of respondents,

possibly related to limited facilities, workload of health workers, or post-disaster emergency conditions that affect the quality of services. Overall, the results of this study illustrate that the quality of post-disaster health services tends to be in the good category. However, efforts to improve quality still need to be carried out on an ongoing basis through strengthening service systems, increasing the competency of health workers, and utilizing health information technology to support more effective and efficient services.

5.3 Relationship between Implementing Electronic Medical Records and Improving the Quality of Post-Disaster Health Services

Based on the results of this research, it can be seen that there is a relationship between the implementation of Electronic Medical Records (RME) and the quality of post-disaster health services. In the good RME implementation category, there were 3 respondents (100%), with details of 2 respondents (6.7%) in the poor service quality and 1 respondent (3.3%) in the good service quality, while there were no respondents in the sufficient category. In the category of adequate RME implementation, the number of respondents was 10 people, of which the majority were in adequate service quality, namely 9 respondents (33%), and 1 respondent (3.3%) was in good service quality. There were no respondents with poor service quality in this category. Meanwhile, in the category of poor RME implementation, there were 17 respondents, with the majority indicating good service quality, namely 15 respondents (50%). The remaining 1 respondent each (3.3%) was in poor and sufficient service quality. The statistical test results show a p value of 0.001, which means it is smaller than α (0.05). Thus, it can be concluded that there is a significant relationship between the

implementation of RME and the quality of post-disaster health services.

6. CONCLUSIONS AND SUGGESTIONS

6.1 Conclusion

From the research results obtained, it can be concluded that the implementation of electronic medical records has a significant relationship with the quality of post-disaster health services at the North Sumatra Province Lung Hospital.

6.2 Suggestion

1. Training is needed to implement RME specifically for disaster scenarios for lung disease
2. Strengthening IT infrastructure and backup systems
3. Integration of RME with regional disaster management systems is required

REFERENCES

- Entjang, (2000), Public Health Sciences, PT Citra Aditya Bakti 6. Bandung
- Herlinawati, Banowati, L., & Revilia, D. (2021). Level of Community Satisfaction with Online Registration on 6 JKN Mobile Applications. *Health Care : Journal of Health*, 10(1), 78–84. <https://doi.org/10.36763/healthcare.v10i1.114>
- Hussein Umar. (2005). *Research Methods for Business Theses and Theses*. Jakarta: Raja Grafindo Persada.
- Gibson, James L., et al. (in Herbani Pasolong's book, 2010:4) *Big Indonesian Dictionary (KBBI)*. (On line). <https://kbbi.web.id/persepsi>. Accessed December 26, 2025
- Indonesian Ministry of Health. Law of the Republic of Indonesia Number 17 of 2023 concerning Health. Jakarta: Ministry of Health of the Republic of Indonesia; 2023
- Minister of Health of the Republic of Indonesia, 2021, Government Regulation of the Republic of Indonesia number 47 of 2021 concerning the Implementation of the Hospital Sector, Jakarta

- Notoatmodjo, S. (2020). Health research methodology; quantitative and qualitative approaches; Rineka creates.
- Nurmalasari, M., Temesvari, N. A., & Maula, S.N. (2020). Sentiment Analysis of Public Opinion in Using Mobile-JKN for BPJS Health Services in 2019. Indonesian of Health Information Management Journal (INOHIM), 8(1), 35–44. <https://doi.org/10.47007/inohim.v8i1.2>
- Regulation of the Minister of Health of the Republic of Indonesia No. 30 of 2019 concerning Hospital Classification and Licensing
- Prasetyo, R. A., & Safuan, S. (2022). Effectiveness of Using the Jkn Mobile Application in Reducing Queues. Syntax Literate; Indonesian Scientific Journal, 7(2), 971. <https://doi.org/10.36418/SyntaxLiterate.V7i2.6338>
- Sondang P, Siagian. (2008). Human Resource Management. Jakarta: Earth of Letters.
- Sugiyono (2019). Quantitative, Qualitative, and R&D Research Methods. Bandung: Alfabeta
- Sutrisno, E. (2007). Human Resource Management. Jakarta: Kencana.
- Law no. 24 of 2011 concerning the Social Security Administering Body (BPJS). 2011.
- Republic of Indonesia Law Number 40 of 2004 concerning the National Guarantee System.
- Republic of Indonesia Law Number 44 of 2009 concerning Hospitals. Jakarta : 2009
- Yamit, Zulian. (2003). Inventory Management. Yogyakarta: ECONIC.