# ANALYSIS OF THE READINESS IMPLEMENTATION OF ELECTRONIC MEDICAL RECORDS USING L-MED SYSTEM AT DELIMA ASIH HOSPITAL KARAWANG

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## ABSTRACT

This study aims to analyze the readiness implementation electronic medical records using L-Med system at Delima Asih Hospital Karawang. The research used is quantitative descriptive method. The method of data collection is through filing out questionnaires. This study involved 38 respondents. The results of the statistical test can be concluded that 64.4% of human resources are in category II, which is quite ready in the readiness of the implementation of electronic medical records using the L-Med system. Delima Asih Hospital Karawang in providing services related to medical records still does not meet the specified achievement standards, this is an indicator of poor service, through Electronic Medical Record it is hoped that it can minimize delays in sending patient data. To increase maximum readiness, it is necessary to conduct socialization and training to improve the knowledge and skills of staff so that they are very ready to run Electronic Medical Records.

**Keywords:** Electronic Medical Records, L-Med System, Implementation Readiness.

## Introduction

The development of digital technology in society has resulted in the transformation of the digitalization of health services so that medical records need to be held electronically with the principles of data and information security and confidentiality. Electronic Medical Record is a medical record made using an electronic system intended for the implementation of medical records. Its activities include computerization of the contents of medical records and all processes related to them, and have been implemented in several hospitals and health centers in Indonesia. Permenkes No. 24 of 2022 concerning Medical Records emphasizes that all health service facilities, including independent practice places organized by health workers and medical personnel, are required to hold RME no later than December 31, 2023 (Ministry of Health of the Republic of Indonesia, 2022).

In today's modern era, the rapid growth of information in various fields has become a phenomenon that occurs all over the world. The use of information systems in health services is one example. The use of information systems in health services has been known to greatly benefit health service providers. One of the latest advances in information technology in the health sector is the use of electronic medical records (H. A. Asih and Indrayadi, 2023)

The positive impact of Electronic Medical Record can be reviewed from the economic aspects (savings, activities, cost efficiency and increased billing accuracy), clinical aspects (improving service quality, satisfaction, and patient safety), and clinical information access aspects (improving data and information accessibility, supporting decision-making, and supporting patient confidentiality) (D. R. A. Tiorentap, 2020). Another problem of health digitization occurs when health data is found that is still documented manually. Health data in

some regions is still documented using paper and is not digitally integrated (Melinda and Kismi, 2023).

The L-Med system is a hospital information system management system to carry out registration, payment, including support including laboratories and radiology. L-Med is included in a 3rd party or vendor. This vendor uses a 3rd party or Open Sorce for the L-Med system. The L-Med system does not create their own web appearance or design. So they only manage what already exists.

One example of a health service facility is Delima Asih Karawang Hospital. Delima Asih Karawang Hospital provides services according to general patient examinations (Non BPJS) and patients in partnership with BPJS (Social Security Agency). Types of health services include dental polyclinics, general polyclinics, obstetric polyclinics, internal medicine polyclinics, pediatric polyclinics and surgical polyclinics. The implementation of medical records at Delima Asih Hospital Karawang includes registration of old and new patients. Delima Asih Karawang Hospital uses the L-MED system for the implementation of Electronic Medical Record, but it has just run for Outpatient.

Previous research conducted by (Hapsari & Mubarokah, 2023) based on the results of the analysis using the DOQ-IT method, it can be concluded that the Polkesmar Primary Clinic is very ready to implement Electronic Medical Record. A total score of 128.45 was obtained in category III. This score shows that human resources, organizational work culture, governance and leadership, IT infrastructure of the Pratama Clinic Polkesmar are very ready for the use of Electronic Medical Record and can overcome possible challenges for the successful adoption of Electronic Medical Record.

Meanwhile, Delima Asih Karawang Hospital services related to medical records still do not reach the minimum service standards set, which is an indication that the quality of service is still unsatisfactory. Electronic Medical Records (RME) are believed to reduce delays in sending patient data. Preparations for the correct implementation of Electronic Medical Records (RME) are being carried out at Delima Asih Karawang Hospital through the development of human resources (HR), infrastructure, and information systems.

Therefore, it is necessary to analyze the readiness of the implementation of the Electronic Medical Record of Delima Asih Hospital Karawang using the L-MED system with descriptive quantitative method.

## Methodology

This study uses a descriptive quantitative research method. Quantitative descriptive research is research that describes variables as they are

supported by data in the form of numbers generated from actual circumstances. This study uses a data collection technique through a questionnaire. The type of sample used is simple random sampling. The sample used was 38 respondents taken from hospital staff who were running Electronic Medical Record using the L-Med system. The measurement scale uses the Likert scale and the data analysis techniques used in this study include quantitative data analysis techniques and descriptive data analysis techniques.

A. Place and Time of Research

This research was conducted at Delima Asih Hospital located at Jl. Wirasaba No. 54, Karawang Wetan, East Karawang District, Karawang, West Java 41313. This research was carried out in April-May 2024.

B. Population and Sample

The population of this study is the staff of Delima Asih Hospital Karawang. The researcher took the population of medical records, registration, administration, nurses and medical support staff with the study population of 42 people who were undergoing RME using the L-Med system.

The research sample is the staff of Delima Asih Karawang Hospital. The researcher used a random sampling technique with random sampling. The determination of the sample was using the slovin method.

The formula for slovin to determine the sample is as follows:

$$= \frac{N}{1 + N(e)^2}$$

Information:

n = Sample size/number of respondents N = Population size

e = Percentage of tolerance for sampling error (tolerance level).

The level of tolerance with the slovin formula is:

Value e = 0.01 (1%)

E value = 0.05 (5%)

E value = 0.1 (10%)

In this study, the researcher took an "e" value with a tolerance level of 0.05 or 5%. The existing population is 42 and the sample obtained is 38 respondents.

Follow the calculations:

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{42}{1 + 42(0.05)^2}$$

$$n = \frac{42}{1 + 0.105}$$

$$n = 38$$

C. Data Collection Techniques

The type of data used by the researcher is primary data. Primary data was obtained through questionnaires. Dissemination of questionnaires to collect data, researchers spread questionnaires online using google forms that will be created and shared via links to respondents.

D. Data Analysis Techniques

The readiness assessment on each variable component was based on the range of not ready scores (0-1), moderately ready scores (2-3), and very ready scores (4-5). The higher the score, the higher the level of readiness for each element (Melinda and Kismi, 2023). The readiness of Electronic Medical Record implementation is divided into 3 categories, namely category I is not ready (0-43), category II is quite ready (44-96), and category III is very ready (97-140). The higher the score, indicating a higher level of readiness for each element. In general, the scoring technique used in this research questionnaire is the Likert Scale technique. Each question item with an answer score between 1-5. The STS (Strongly Disagree) criterion with a score of 1, the TS (Disagreement) criterion with a score of 2, the RG criterion (Doubtful) with a score of 3, the S criterion (Agree) with a score of 4, and the SS criterion (Strongly Agree) with a score of 5 (Melinda and Kismi, 2023).

**Results & Discussion**

This study involved 38 respondents, of which most of the respondents were 23-year-old women with the most last education level of DIII, and had a maximum working period of 1-5 years. The characteristics of these respondents are described in full in Table 1.

Table 1. Characteristics of Respondent Data

| No | Characteristic | Frequency | Presented (%) |
|---|---|---|---|
| 1. | Gender | | |
| | Male – | 5 | 13,2% |
| | Female | 33 | 86,6% |
| | **Total** | 38 | 100% |
| 2. | Age | | |
| | 20 – 30 years old | 30 | 79% |
| | 31 – 40 years old | 6 | 15,% |
| | 41 – 50 years old | 1 | 2,6% |
| | 51 – 60 years old | 1 | 2,6% |
| | >60 years | 0 | 0% |
| | **Total** | 38 | 100% |
| 3. | Last High School | | |
| | Education | 2 | 5,3% |
| | DIII | 23 | 60,5% |
| | S1 | 13 | 34,2% |
| | S2 | 0 | 0% |
| | S3 | 0 | 0% |
| | **Total** | 38 | 100% |
| 4. | Working Period | | |
| | <1 year | 4 | 11% |
| | 1 – 5 years | 22 | 58% |
| | 6 – 10 years | 5 | 13% |
| | 11 – 15 years old | 5 | 13% |
| | 16 – 20 years old | 2 | 5% |
| | >21 years | 0 | 0% |
| | **Total** | 38 | 100% |

Based on Table 1, it is known that female respondents (86.6%) are more than men (13.2). The majority of respondents at Delima Asih Hospital Karawang are at the age of 20-30 years (79%). DIII graduates dominate the last education

respondents, namely 23 people (60.5%). Meanwhile, 22 respondents (58%) have worked for 1-5 years.

Table 2. Statistical Test Results

| Variables and Instrument Codes | STS (Very Not Agreed) | | TS (disagree) | | RG (Doubt) | | S (Agreed) | | SS (Strongly Agree) | | Mean; SD |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % | |
| **Human Resources** | | | | | | | | | | | |
| A1 | 0 | 0% | 1 | 3% | 4 | 11% | 25 | 66% | 8 | 21% | |
| A2 | 0 | 0% | 2 | 5% | 1 | 3% | 26 | 68% | 9 | 24% | |
| A3 | 0 | 0% | 1 | 3% | 3 | 8% | 28 | 74% | 6 | 16% | |
| A4 | 0 | 0% | 24 | 63% | 8 | 21% | 5 | 13% | 1 | 3% | 76%; 96 |
| A5 | 0 | 0% | 1 | 3% | 2 | 5% | 31 | 82% | 4 | 11% | |
| A6 | 0 | 0% | 0 | 0% | 5 | 13% | 28 | 74% | 5 | 13% | |
| A7 | 0 | 0% | 3 | 8% | 5 | 13% | 24 | 63% | 6 | 16% | |
| A8 | 0 | 0% | 2 | 67% | 7 | 18% | 26 | 68% | 3 | 8% | |
| A9 | 0 | 0% | 1 | 3% | 9 | 24% | 26 | 68% | 2 | 5% | |
| A10 | 0 | 0% | 0 | 0% | 8 | 21% | 26 | 68% | 4 | 11% | |

Based on Table 2, it can be concluded that 64.4% is in category II, that the use of Electronic Medical Records using the L-MED System at Delima Asih Karawang Hospital in terms of human resources, systems, and policies is quite ready. Human resources as users of Electronic Medical Records and as part of policy makers will greatly determine the success of the development of Electronic Medical Records. These human resources include medical recorders, administration, nursing, and medical support. Electronic Medical Records are able to improve the quality of service but must be supported by a clear work system and reliable IT human resources (Melinda and Kismi, 2023).

## Conclusion

Based on the results of the analysis that has been described above, it can be concluded that Delima Asih Karawang Hospital is quite ready to implement Electronic Medical Records using the L-Med System. A total score of 64.4% was obtained, being in category II. This score shows that the human resources of Delima Asih Hospital Karawang are quite ready for the use of Electronic Medical Records.

## Suggestion

To increase maximum readiness, Delima Asih Hospital Karawang needs to discuss with the head of the medical record and IT department to prepare human resources who will carry out RME so that

later the implementation of RME runs smoothly, as well as socialize and train RME at Delima Asih Hospital Karawang to improve the knowledge and skills of medical record staff, registration, administration, nurses and support so that they are very ready to run Electronic Medical Records.

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