



Review Of Readiness For The Use Of The Hospital Management Information System In The Medical Record Unit Using The 7M Approach At Mulyasari Hospital

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Abstract

The Hospital Management Information System (HMIS/SIMRS) plays a crucial role in improving the efficiency and quality of healthcare services and therefore requires adequate organizational readiness for implementation. This study aimed to determine readiness for the use of SIMRS at Mulyasari Hospital based on the 7M approach: Man, Money, Materials, Methods, Machine, Management, and Market. A descriptive qualitative method with a cross-sectional approach was employed. Data were collected through interviews, observation, documentation review, and literature review involving nine informants selected by purposive sampling. The findings showed that the Management and Market aspects were categorized as good, whereas Man, Money, Materials, Methods, and Machine were categorized as fairly good. Identified constraints included training that had not yet been sufficiently comprehensive, limited human resources, facilities that did not fully meet service needs, delays in completing medical resumes, unstable networks, slow computers, and system disruptions during maintenance. Overall, Mulyasari Hospital was considered ready to use SIMRS, although several components still require improvement. Regular and more comprehensive training, additional personnel in understaffed units, optimization of budget utilization, development of system features according to service needs, stronger discipline in completing medical documentation, and improvement of information technology infrastructure are recommended to support more optimal and sustainable SIMRS utilization.

Keywords: Hospital Management Information System, Readiness For Use, 7M, Electronic Medical Records

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1. Introduction

According to Law of the Republic of Indonesia Number 17 of 2023, Article 1 paragraph (1), health is a state of well-being physically, mentally, spiritually, and socially that enables everyone to live productively. Article 1 paragraph (2) further defines health efforts as all forms of activities and/or a series of activities carried out in an integrated and continuous manner to maintain and improve the level of public health through promotive, preventive, curative, rehabilitative, and/or palliative measures by the Central Government, Regional Governments, and/or the community. The current information technology era has reached many fields and aspects of life, including healthcare. Technological development in the health sector facilitates patients in obtaining healthcare services and is believed to provide various benefits for healthcare providers. With technological support, accurate and comprehensive patient health information can be made available so that providers can determine the most appropriate care options. Law Number 17 of 2023, Article 1 paragraph (10), defines a hospital as a healthcare facility that provides promotive, preventive, curative, rehabilitative, and/or palliative healthcare through inpatient, outpatient, and emergency services. In addition, Regulation of the Minister of Health Number 24 of 2022 concerning Medical Records, Article 3 paragraph (1), requires every healthcare facility to organize electronic medical records (Ministry of Health of the Republic of Indonesia, 2022).

The medical record unit is one of the central data units in a hospital and is a strategic component that serves as the center for managing patient health data and information. It is responsible for collecting, recording, processing, storing, and redisplaying patient service documentation in a complete, accurate, confidential, and continuous manner to support service quality. Along with technological development and the demand for digital health transformation in Indonesia, medical record management is no longer performed only manually. Medical record administration is now supported by SIMRS, which includes Electronic Medical Record features as a form of medical record digitalization that allows patient data to be documented in real time, accessed easily by authorized health professionals, and used to support more effective, safe, and continuous services (Susilawati et al., 2024).

A Hospital Management Information System (SIMRS) is an information and communication technology that processes and integrates all hospital service processes through coordination, reporting, and administrative procedures to generate timely and accurate information (Utama et al., 2023). The implementation of SIMRS or Electronic Medical Records continues to face challenges related to human resources, hardware, infrastructure, and regulation. The implementation of medical record information systems in clinics or hospitals enables more structured storage and management of medical data, reduces the risk of data loss or damage, and strengthens the confidentiality and privacy of patient medical information (Rivatunisa et al., 2023). Therefore, Electronic Medical Record readiness needs to be assessed using the 7M approach, consisting of Man, Money, Methods, Machine, Materials, Management, and Market. Analysis based on these seven elements can facilitate identification of the core problems (Lestari et al., 2025). The absence of training programs for hospital staff and healthcare professionals may affect performance and patient





outcomes (Ningrat & Kurnianto, 2024). Electronic Medical Records provide medical personnel with a basis or guide for planning and analyzing disease, treatment, care, and medical interventions in order to achieve optimal public health. Nevertheless, the implementation of electronic medical records involves complex challenges and requires careful consideration. Successful implementation requires attention to financing and acquisition strategies, workflow and process mapping, functional strategies, data strategies, technical strategies, vendor selection strategies, implementation strategies, and benefit realization (Mukharrazam & Putri, 2024).

Based on preliminary observations conducted in February 2026 at Mulyasari Hospital, several problems were identified. The number of computers was limited in several service units, and the web-based SIMRS application underwent maintenance on several occasions. Some healthcare professionals and administrative staff did not yet fully understand the use of SIMRS, while structured and continuous training remained insufficient, resulting in less-than-optimal utilization of the system. Research on readiness for SIMRS implementation indicates that successful system use is determined not only by application availability but also by human resource readiness, budget support, supporting materials, work procedures, technological infrastructure, management support, and the benefits of the system for service delivery. Lestari et al. (2025) showed that readiness for Electronic Medical Record implementation should be reviewed through multiple interrelated factors. This is consistent with Azzahra et al. (2025), who reported that although standard operating procedures were available and the system had been integrated, implementation was still constrained by work habits, application limitations, and infrastructure support that had not been fully optimized.

This finding is also consistent with Rosalinda et al. (2021), who evaluated outpatient Electronic Medical Record implementation at a general hospital in Bandung and found that implementation had not yet been fully optimized. Problems included inadequate facilities and infrastructure, the absence of dedicated staff or a special team to address electronic medical record implementation problems, and the absence of established written policies and standard operating procedures. Based on previous studies, SIMRS research has extensively discussed human, technological, organizational, and Electronic Medical Record readiness factors. However, studies that specifically describe SIMRS user readiness in the medical record unit using the seven-element 7M approach Man, Money, Materials, Methods, Machine, Management, and Market remain limited. Each 7M element has different characteristics in describing readiness for SIMRS use; therefore, a comprehensive review is required to identify aspects that are already ready and aspects that remain barriers. On this basis, the researchers conducted a study entitled “Review of Readiness for the Use of the Hospital Management Information System (SIMRS) in the Medical Record Unit Using the 7M Approach at Mulyasari Hospital.”

2. Research Methods

This study used a descriptive qualitative method with a cross-sectional approach. The descriptive qualitative approach was used to obtain an in-depth description of readiness for SIMRS use. Two types of data were used: primary and secondary data (Sugiyono, 2023). Primary data were obtained directly from SIMRS users at Mulyasari Hospital through





interviews and observation, whereas secondary data were obtained through documentation and literature studies, including books, scientific journals, and legislation related to hospital management information systems. The study was conducted at Mulyasari Hospital in May 2026. The study variable was readiness for the use of SIMRS as reviewed through the seven aspects of Man, Money, Materials, Methods, Machine, Management, and Market.

The study population consisted of all 104 SIMRS users at Mulyasari Hospital. Purposive sampling was applied by selecting participants from the population according to criteria determined by the researchers. Nine SIMRS users were included as informants: one specialist physician, one emergency department physician, one nurse, one midwife, one pharmacy staff member, one nutritionist, one head of the medical record unit, one medical record officer, and one information technology officer. Data were collected through observation and interviews with SIMRS users. The stages of the descriptive qualitative study included preparation through problem identification, preliminary study, literature review, and preparation of research instruments; data collection through interviews, observation, documentation, and literature review; data analysis through data reduction, grouping according to the 7M elements, data presentation, and verification; and conclusion drawing based on the analysis of readiness for SIMRS use. Data processing was performed manually through data reduction, verification or interpretation, conclusion drawing, and presentation. The analysis evaluated SIMRS implementation using the 7M framework to assess readiness for SIMRS use at Mulyasari Hospital.

3. Results and Discussion

a. Results

Table 1. Training Organized at Mulyasari General Hospital

No.	Activity Name	Month	Training Title	Participants
1	Medical Staff Competency Refresher	January	SIMRS Training: Electronic Medical Record (EMR) and CPOE Modules	40 persons
2	New Employee Onboarding	March	Mandatory Orientation on Basic SIMRS and Patient Data Security	20 persons
3	Improvement of Clinical Data Accuracy	May	Integrated SIMRS Clinical Coding Training (ICD-10 & ICD-9-CM)	30 persons
4	Front-Line Service Optimization	July	SIMRS Front Office Module: Registration, Customer Service, Electronic Queue System, and Ward Class	20 persons
5	Integrated Logistics Management	September	SIMRS Pharmacy and Medical Supply Management Module Training	15 persons
6	Hospital Reporting Evaluation	November	Data Extraction and Service Indicator Analysis Training (SIRS & SIMRS)	8 persons
7	Optimization of Diet Management and Nutritional Care through Electronic Systems	December	Electronic Diet Management and Nutritional Care Training	5 persons





The training program was conducted periodically from January to December through seven activities involving 5–40 participants and covering key SIMRS functions. Interviews indicated that staff generally had adequate operational skills and had received training before SIMRS implementation. However, training was considered insufficiently detailed and did not cover all system features, while limited staffing remained a challenge during peak service hours. Overall, the human resource aspect was relatively adequate, but more comprehensive training and sufficient staffing are needed to optimize SIMRS implementation.

Table 2. Service Facilities and Infrastructure Requirements at Mulyasari General Hospital

No.	Facilities and Infrastructure	Available	Required	Shortage / Condition
1	Computers for SIMRS users	42 units	50 units	Shortage of 8 computers in several service units.
2	Laptops for administrative activities	8 units	10 units	Shortage of 2 laptops.
3	Printers	20 units	22 units	Shortage of 2 printers to support services.
4	Internet network	Available	Stable in all units	Internet connection is not yet stable during peak service hours.
5	SIMRS server	1 server	1 higher-capacity server	Server capacity needs to be increased to accelerate SIMRS access.
6	UPS (Uninterruptible Power Supply)	10 units	15 units	Shortage of 5 UPS units to maintain electrical stability.
7	Document scanners	7 units	10 units	Shortage of 3 scanners for document digitalization.
8	SIMRS user guide/SOP	Available	Updated periodically	The user guide has not yet been updated in accordance with SIMRS feature development.

Most facilities and infrastructure supporting SIMRS were available, but shortages of computers, laptops, printers, UPS units, and scanners remained, along with unstable internet during peak hours and limited server capacity. SIMRS guidelines also required periodic updates. Although management provided budget support for system upgrades, uneven facility distribution and budget utilization remained challenges. Overall, infrastructure and financial readiness were fairly adequate but still required improvement to optimize SIMRS implementation.

Interviews showed that SIMRS supporting materials, including user manuals, technical guidelines, and documentation, were available and generally easy to understand, particularly for SOAP, electronic prescriptions, and service forms. However, additional system features were still needed to support service activities. Overall, the Materials aspect was relatively adequate but required further feature development.





SIMRS implementation followed established SOPs, with systematic workflows from registration and examination to data entry and reporting. Although procedures were generally clear, delays in physicians' completion of medical documentation affected the coding process. Thus, improving user compliance, particularly in completing electronic documentation, remains necessary to optimize workflow. Readiness for SIMRS Use Based on the Machine Element

Table 3. SIMRS Feature Updates at Mulyasari General Hospital

Type of Feature Update	Frequency	Time of Implementation	Estimated Downtime
Minor Update / Bug Fixing	1–2 times per month	Early morning (01:00–03:00 WIB), when patient visits are low	15–30 minutes
Major Update / New Module (new BPJS bridging, Electronic Medical Records)	Every 3 months	Weekend/holiday, Saturday or Sunday early morning (00:00–04:00 WIB)	1–2 hours
Database Optimization & Migration (data cleaning and feature re-indexing)	1–2 times per year	Long weekend / early morning (00:00–04:00 WIB)	2–4 hours

SIMRS maintenance and updates were conducted periodically, with minor updates monthly and major updates every three months, generally scheduled outside peak service hours. Most supporting hardware was available and functional; however, slow computers, unstable internet connections, and system errors during maintenance occasionally disrupted services and required temporary manual procedures. Overall, the Machine aspect was relatively adequate, but network stability, computer performance, and supporting equipment still required improvement..

Interviews showed strong management support through mandatory SIMRS policies, routine monitoring and evaluation, and inter-unit coordination. Evaluations were conducted monthly or quarterly, indicating good management readiness and continued leadership commitment.

SIMRS was perceived to improve service efficiency, speed, accuracy, integration, and patient satisfaction. Overall, Market readiness was considered good, as SIMRS supported service quality and the hospital's adaptation to digital healthcare..

b. Discussion

Readiness for SIMRS Use Based on the Man Element

Man. The findings showed that most SIMRS users had adequate operational skills and had received training, but the training was not sufficiently comprehensive and staffing shortages remained in several units, particularly during peak service hours. Limited understanding of system features may restrict users to functions routinely performed and reduce optimal system utilization. This finding is consistent with Julianggi et al. (2025), who identified user knowledge and skills as important factors in successful SIMRS





implementation. Therefore, more comprehensive and regular training and appropriate staffing according to workload are needed to support optimal SIMRS use.

Readiness for SIMRS Use Based on the Money Element

The hospital had allocated funding for SIMRS operations, maintenance, server development, and hardware and software upgrades, although some facility needs remained unmet. This indicates that financial support was available but required more effective allocation according to implementation priorities. Consistent with Laila et al. (2024), adequate funding is important for system maintenance, technology development, and user capacity building. Budget planning should therefore address not only hardware but also infrastructure maintenance, system development, and periodic user training.

Readiness for SIMRS Use Based on the Materials Element

Supporting materials, including user manuals, technical instructions, and system documentation, were available and helped users understand SIMRS workflows. However, additional system features were still required to accommodate service needs. This finding is consistent with Fený et al. (2024), who emphasized the importance of manuals, forms, and other supporting materials in SIMRS implementation. Continuous updating of guidelines and system features according to user needs is therefore necessary to support standardized and effective SIMRS use.

Readiness for SIMRS Use Based on the Methods Element

SIMRS implementation followed established SOPs, with systematic workflows from registration and examination to documentation and reporting. However, delays in physicians' completion of medical resumes affected coding and medical record processing. This finding is consistent with Wijayanta et al. (2022), who identified work procedures and SOPs as important components of SIMRS implementation. Strengthening compliance with established procedures, particularly timely completion of electronic documentation, is therefore necessary to maintain efficient and accurate service workflows.

Readiness for SIMRS Use Based on the Machine Element

The hospital had the main technological infrastructure required for SIMRS, but slow computers, unstable internet connections, and system interruptions during maintenance remained challenges. These conditions may disrupt data entry, access, and processing. Amelia et al. (2023) similarly emphasized the importance of adequate hardware and supporting infrastructure for effective SIMRS implementation. Therefore, maintaining device performance, improving network stability, and increasing server capacity are important to ensure continuity of SIMRS services.

Readiness for SIMRS Use Based on the Management Element

Management demonstrated strong support for SIMRS through system-use policies, routine monitoring and evaluation, and coordination among service units. This finding is consistent with Serhalawan et al. (2023), who identified management support as an important factor in successful hospital information system implementation. Continued leadership commitment, monitoring, evaluation, and feedback are important to maintain implementation consistency and address operational problems promptly.





Readiness for SIMRS Use Based on the Market Element

SIMRS was perceived to improve service efficiency, processing speed, information integration, and patient satisfaction. These findings are consistent with Serhalawan et al. (2023), who reported that SIMRS can improve service efficiency, accelerate data processing, and enhance information accuracy for decision-making. The findings indicate that effective SIMRS use can support service quality and the hospital's adaptation to digital healthcare.

4. Conclusion

Based on the study of readiness for Hospital Management Information System (SIMRS) use in the Medical Record Unit using the 7M approach at Mulyasari Hospital, the Man aspect showed that users had fairly good operational abilities and had received training, although training was not yet comprehensive and staffing shortages remained; the Money aspect indicated that funding for SIMRS operations, maintenance, and development was available, but budget utilization and facility fulfillment required improvement; the Materials aspect showed that user guides and technical instructions were available, although additional feature development was needed; the Methods aspect demonstrated that SIMRS implementation followed established SOPs and systematic workflows, but delays in physicians' completion of medical resumes affected medical record processing; the Machine aspect indicated that supporting technology was available, although unstable networks, slow computers, and system disruptions remained challenges; the Management aspect demonstrated strong support through policies, monitoring, evaluation, and inter-unit coordination; and the Market aspect showed that SIMRS improved work efficiency, accelerated patient services, and supported hospital development in the digital healthcare era. Therefore, Mulyasari Hospital should strengthen regular and equitable training, address staffing shortages, optimize budget utilization, develop SIMRS features according to service needs, improve compliance with medical documentation, and strengthen information technology infrastructure while maintaining management support through continuous monitoring, evaluation, and inter-unit coordination to optimize service quality, efficiency, and hospital competitiveness.

5. Compliance with Ethical Standards

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Disclosure of conflict of interest

The authors declare no conflict of interest related to this study.

Statement of informed consent

Participation and information provided by informants were used for research purposes. The specific informed-consent wording should be confirmed by the authors before submission to reflect the actual study procedure.





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