

Optimizing Nursing Workload Through EMR-Based Documentation: A Case Study at Welas Asih Regional HospitalLuzi Anjani Hasanah¹, Meilati Suryani¹, Hartati²¹STIKes Budhi Luhur Cimahi, Indonesia²RSUD Welas Asih, Indonesia**ABSTRACT**

The development of information technology in the era of the Industrial Revolution 4.0 has encouraged hospitals to implement Electronic Medical Records (EMR) as part of the Hospital Management Information System (SIMRS). EMR implementation is expected to improve patient safety, documentation quality, and nursing efficiency. However, the use of EMR may also affect nurses' workload, particularly in inpatient settings where documentation demands are high. This study aimed to determine the relationship between the implementation of nursing care documentation using the EMR application and nurses' workload in the medical-surgical inpatient unit of Welas Asih Regional Hospital. This study used a cross-sectional design with a total sampling technique involving 35 nurses working in the medical-surgical inpatient unit. Data were collected using a modified questionnaire that had been tested for validity. The results showed that most nurses implemented nursing care using EMR well (54.3%), and the majority experienced a moderate workload (40.0%). Bivariate analysis revealed a significant relationship between EMR implementation and nurse workload (p -value = 0.026; $\alpha < 0.05$), indicating that better EMR implementation was associated with lighter nurse workload. There is a significant relationship between the implementation of nursing care documentation using the EMR application and nurses' workload in the medical-surgical inpatient unit. Effective EMR implementation can help reduce nurse workload and support better nursing care delivery. Continuous system improvement, adequate infrastructure, and ongoing training are necessary to optimize EMR use in clinical practice.

Keywords: EMR, nursing-workload, nursing-documentation, inpatient unit

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How to cite:
Hasanah, L. A., Suryani, M., & Hartati.
(2026). Optimizing nursing workload through
EMR-based documentation: A case study at
Welas Asih Regional Hospital. *Jurnal
Kesehatan Budi Luhur: Jurnal Ilmu-Ilmu
Kesehatan Masyarakat, Keperawatan, dan
Kebidanan*, 19(1), 180–187.
<https://doi.org/10.62817/jkbl.v19i1.456>

INTRODUCTION

In the era of the Industrial Revolution 4.0, technology has become a key driver in various aspects of life, including the healthcare sector. This development is particularly evident in the use of sophisticated information technology in hospitals, where everything in this digital era is now easy and efficient. One such technology is the implementation of the Hospital Management Information System (SIMRS) in hospitals (Ikawati, 2024). One form of technology that simplifies

the work of healthcare workers is nursing documentation in the form of electronic medical records. Medical records are crucial documents that include patient identification information, health history records, and medical procedures received during visits, treatments, and interventions at healthcare facilities. This system also helps ensure data integrity and accuracy while improving financial efficiency, accessibility, and quality of service in hospitals (Ikawati, 2024). On August 31, 2022, the Indonesian Ministry of Health issued regulations regarding EMRs in Ministerial Regulation No. 24 of 2022 concerning Medical Records. Furthermore, the previous policy, Ministerial Regulation No. 269 of 2008, has been updated to reflect advances in science and technology, service needs, and health policy in Indonesia.

Furthermore, Indonesian National Health Insurance Agency (BPJS) bases its push for the use of Electronic Medical Records (ERCs) on Law No. 46/2014, which requires every healthcare facility to operate an EMR system, complete with time entry, staff, and signatures, and ensures the security of patient data. Implementation is being carried out in stages to strengthen infrastructure, human resources, and data security systems. Furthermore, BPJS is actively promoting this regulation so that healthcare facilities throughout Indonesia can quickly transition to a more efficient, accurate, and integrated system.

The issue of nurse workload in inpatient wards is a significant concern in the healthcare context, given their vital role in supporting patient well-being and care. As the number of patients increases, nurses' workloads also increase, encompassing both the number of patients they must treat and the complexity of the clinical conditions they encounter. Nurses are not only responsible for providing direct care but also ensuring that each patient receives medical interventions appropriate to their needs. Research shows that a heavy workload can negatively impact nurse performance, leading to fatigue, burnout, and ultimately reducing the quality of care provided. These impacts are not only felt by nurses but also threaten patient safety and satisfaction (Apriliani, 2024).

When compared to traditional paper-based recording systems, nurses perceive that the use of Electronic Medical Records (EMR) improves patient safety, particularly by reducing medication errors and workload. In addition, EMRs have the potential to enhance nurses' productivity by streamlining documentation processes, accelerating access to clinical information, and supporting coordination of nursing care, thereby allowing nurses to devote more time to direct patient care. However, nurses also report reduced accessibility of medical information when using EMRs, mainly due to system complexity, lengthy documentation requirements, technical limitations, and differences in users' digital competence. Therefore, to optimize the benefits of EMRs without compromising the quality of nursing care and direct patient interaction, continuous system development is needed through a user-centered design approach, accompanied by ongoing training and adequate technical support to improve system usability, nurse performance, service quality, and patient safety. Roux (2024); Naamneh & Bodas (2024).

In the current healthcare system, improving patient safety and nursing care quality is a significant problem, especially given the growing complexity of care and workload for nurses. Medication mistakes are still among the most common patient safety occurrences and can have major consequences. Using Electronic Medical Records (EMR) is seen to be a smart way to reduce these mistakes and boost nurses' productivity. However, a number of data show that EMR adoption is still not at its best because of issues including system complexity, lengthy documentation times, technical constraints, and gaps in user digital literacy. These circumstances run the danger of making clinical information less accessible and decreasing the amount of time nurses spend directly caring for patients. Therefore, in order for EMRs to truly serve as a tool to promote safe, effective, and high-quality nursing practice, research and development of EMRs that are focused on user needs and supported by continuous training are desperately needed.

Based on the description of the background above, the researcher formulated the research problem, namely: "Is there a relationship between the implementation of nursing care

documentation using the EMR (Electronic Medical Record) application and the workload of nurses in the medical-surgical inpatient unit of Welas Asih Regional Hospital?".

The aim of this study is to determine the relationship between the implementation of nursing care documentation using the EMR (Electronic Medical Record) application and the workload of nurses in the medical-surgical inpatient unit.

METHOD

This study used a cross-sectional approach. This study aimed to examine the dynamics of the correlation between the implementation of nursing care documentation using an EMR application and workload, using a point-in-time approach. This meant that each research subject was only observed once, and measurements were taken of the subject's character status or variables at the time of the examination. Using the Total Sampling technique, the study's population consisted of 35 nurses working in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital: 9 nurses in the Umar Bin Khatab Room, 5 nurses in the Utsman Bin Affan Room, 16 nurses in the Said Bin Zaid Room, and 5 nurses in the Khalid Bin Walid Room. An altered version of a validity and reliability-tested questionnaire from researcher Faridzal (2024) is used to gauge the adoption of EMR.

RESULT

1. Univariate Analysis

The results of the questionnaire distribution regarding EMR Implementation and Nurse Workload in the medical inpatient ward at Welas Asih Regional Hospital, based on univariate analysis of the frequency distribution of the research results, are as follows:

a. Respondent Characteristics

Table 1
Frequency Distribution of Nurses Based on EMR Implementation in Inpatient Wards

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Female	25	71,4
	Male	10	28,6
Education	Diploma	26	74,3
	Bachelor	7	20,0
	Master	1	2,9
	Ners	1	2,9
Years of Experience	< 1 year	7	20,0
	1 – 5 years	10	28,6
	6 – 10 years	13	37,1
	> 10 years	5	14,3
Average EMR usage	< 1 hour	2	5,7
	1 – 3 hours	17	48,6
	4 – 5 hours	5	14,3
	> 5 hours	11	31,4

Based on table 1, it shows that most of the nurses implementing II in the medical surgical inpatient room are female, as many as 25 (71.4%) nurses, and 10 (28.6%) nurses are male, the nurses implementing II in the medical surgical inpatient room mostly have a Diploma education,

namely 26 (74.3%) nurses, a small number have a Bachelor's degree, namely 7 (20.0%) nurses, a small number have a Master's degree, namely 1 (2.9%) nurse and a small number have a Nursing education, namely 1 (2.9%) nurse, the length of service of the nurse implementing II in the medical surgical inpatient room almost half have a work period of 6-10 years, namely 13 (37.1%) nurses, almost half also have a work period of 1-5 years, namely 10 (28.6%) nurses, a small number <1 year, namely 7 (20.0%) nurses and a small number >10 years, namely 5 (14.3%) nurses. Nearly half of EMR users used the service for 1–3 hours (17 nurses, 48.6%), nearly half used it for more than 5 hours (11 nurses, 31.4%), a small percentage used it for 4–5 hours (5 nurses, 14.3%), and a small percentage used it for less than 1 hour (2 nurses, 5.7%).

b. Implementation of EMR (Electronic Medical Record)

Table 2 Implementation of EMR

EMR Implementation	f	Percentage
Good	19	54,3 %
Poorly	16	45,7 %

Distribution of Nurse Frequency Based on EMR Implementation in the Medical-Surgical Inpatient Ward of Welas Asih Regional Hospital. Based on table 2 above, the results of the analysis of the description of the implementation of EMR for 35 nurses in the medical surgical inpatient room of Welas Asih Regional Hospital show that the majority, namely 19 (54.3%) of nurses, carried out Nursing Care Using the EMR Application well and almost half of them, namely 16 (45.7%) of nurses carried out Nursing Care using the EMR Application poorly.

c. Nurse Workload

Table 3

Frequency Distribution of Nurses Based on Nurse Workload in the Medical-Surgical Inpatient Ward of Welas Asih Regional Hospital

Nurses Workload	f	Percentage
Light	10	28,6%
Moderate	14	40,0%
Heavy	11	31,4%

Based on table 3 above, the results of the analysis of the description of the workload of nurses in the medical surgical inpatient ward of Welas Asih Regional Hospital are almost half, namely 10 (28.6%) nurses are in the light category, almost half, namely 14 (40.0%) nurses are in the moderate category and almost half, namely 11 (31.4%) nurses are in the heavy category.

2. Bivariate Analysis

The results of the bivariate analysis of the relationship between the implementation of nursing care using EMR and nurse workload are presented in the following table:

Table 4
Relationship between the Implementation of Nursing Care Using the EMR Application and the Workload of Nurses in the Medical-Surgical Inpatient Ward of Welas Asih Regional Hospital

Nurse Workload	EMR Implementation				Total		p-Value
	Good		Poorly				
	F	%	F	%	N	%	
Light	9	90,0	1	10,0	10	100,0	0.026
Moderate	6	42,9	8	57,1	14	100,0	
Heavy	4	36,4	7	63,6	11	100,0	

Research results based on table 4 above obtained the results of the analysis of a total of 10 nurses with a light workload of which almost all, namely 9 (90.0%) nurses carried out EMR well, and a small portion, namely 1 (10.0%) nurse carried out EMR poorly, of a total of 14 nurses with a moderate workload of which almost half, namely 6 (42.9%) nurses carried out EMR well and most, namely 8 (57.1%) nurses carried out EMR poorly, and of a total of 11 nurses with a heavy workload, among which a small portion, namely 4 (36.4%) nurses carried out EMR well and 7 (63.6%) nurses carried out EMR poorly. From the analysis results, the p value obtained was $0.026 < \alpha (0.05)$, so H_0 was rejected and H_a was accepted, meaning that there was a relationship between the Implementation of Nursing Care Using the EMR Application and Nurse Workload in the Medical-Surgical Inpatient Room of Welas Asih Regional Hospital.

DISCUSSION

1. Overview of Nursing Care Implementation Using an EMR Application in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital.

Based on the researchers' observations at the hospital, almost all nurses were already using an EMR, with each nurse assigned to one EMR by the team leader. Several aspects of nursing care must be documented, from the patient's admission assessment to their discharge. However, there are still shortcomings in electronic medical records, such as frequent computer errors, inaccurate clocks, unstable internet connections, and nurses' inability to use the medical record, resulting in incomplete sections of the nursing care. This indicates the need for further development by the hospital, such as providing a more adequate internet connection and regular outreach for nurses unfamiliar with this medical record application.

This research aligns with research by Mahfud *et al.*, (2024) who found that the factors contributing to the inadequate implementation of EMR were deficiencies in incomplete sections of the medical record. Nursing documentation is a means of communication between healthcare workers in the recovery of patient health, where nurses are responsible and accountable from admission to discharge. Without proper and accurate nursing documentation, nurses cannot be optimally accounted for in efforts to improve the quality of nursing care and improve patient health.

2. Overview of Nurse Workload in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital

Workload is a crucial aspect that must be considered to achieve optimal harmony and productivity. Besides being influenced by the work environment and individual capacity, workload can also be reduced by providing adequate staff, both in quality and quantity, to meet service needs. The more patients a nurse handles, the heavier the workload.

Statistical tests showed that a moderate workload is associated with good performance in implementing nursing care using the EMR application. However, 41.7% of nurses agreed with the statement that the numerous tasks required for patient safety, the need to make informed decisions at all times, and the hospital leadership's expectations for quality service.

The diverse range of tasks nurses must perform to ensure patient safety requires them to consistently act quickly and professionally. In practice, nurses not only perform routine tasks but also face the challenge of making informed decisions in often rapidly changing situations. This demonstrates the crucial role nurses play in determining nursing interventions that directly impact patient safety and well-being.

Furthermore, nurses are required to prioritize caring values in their nursing care, demonstrating empathy, concern, and attention to the patient's physical and psychological needs. These values are integral to holistic nursing practice. Hospital leadership, on the other hand, expects the services provided to be consistently high-quality, effective, and patient-safety-oriented. The combination of workload, decision-making responsibilities, and institutional expectations regarding service quality are factors that can significantly impact nurses' workload.

3. The Relationship between the Implementation of Nursing Care Using the EMR (Electronic Medical Surgical) Application and Nurse Workload in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital

The results of the study, based on Table 4 above, show that of the 10 nurses with light workloads, almost all (90.0%) performed EMR well, and a small proportion (10.0%) performed EMR poorly. Of the 14 nurses with moderate workloads, almost half (62.9%) performed EMR well, and the majority (85.1%) performed EMR poorly. Of the 11 nurses with heavy workloads, a small proportion (43.4%) performed EMR well and 7 (63.6%) performed EMR poorly. The analysis yielded a p value of $0.026 < \alpha$ (0.05), thus H_0 was rejected and H_a was accepted. This indicates a relationship between the Implementation of Nursing Care Using an EMR Application and Nurse Workload in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital.

The results of this study indicate that implementing an EMR system can reduce excessive workload on nurses. Although documentation is done digitally, most nurses are able to adapt and effectively document nursing care. This aligns with research by Dwi Ernawati *et al.* (2020) at Premier Hospital Surabaya, which found a relationship between EMR documentation implementation and nurse workload. Most respondents reported moderate workloads and good EMR implementation.

Factors that allow workloads to remain moderate despite the use of an EMR include regular outreach regarding the use and operation of the EMR application, adequate technological support, and a user-friendly EMR system. Efficient data recording and management allows nurses to save time on documentation, thus minimizing their workload. These findings illustrate that effective EMR implementation can be a solution to improve documentation quality without significantly increasing nurses' workload. Effective EMR implementation should not only focus on system adoption but also emphasize continuous system evaluation, usability improvement, and ongoing user training to ensure that EMRs enhance documentation quality without imposing additional workload on nurses.

CONCLUSION

1. Most nurses have implemented nursing care using the EMR application in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital (54.3%), with a good rating.
2. Most nurses in the Medical-Surgical Inpatient Unit of Welas Asih Regional Hospital (40.0%) have a moderate workload.

3. There is a relationship (p value = 0.026) between the implementation of nursing care using the EMR (Electronic Medical Record) application and the workload of nurses in the Medical-Surgical Inpatient Unit.

RECOMMENDATION

Theoretical Suggestions

The results of this study will be used as additional information to enhance knowledge in nursing science, particularly nursing management.

Practical Suggestions

a. Hospital

To encourage increased implementation of medical records, hospitals need to provide a more stable internet network and promote the use of EMR, ongoing user training and emphasize continuous system evaluation so that nursing care using this EMR application can be implemented effectively and appropriately.

b. Nurses

Nurses are expected to consistently participate in socialization programs on the use of this EMR application, both internally and externally.

c. Educational Institutions

This study is expected to serve as a reference for STIKes Budi Luhur Cimahi in developing Nursing Management and Nursing Informatic System courses, particularly regarding the implementation of EMR applications and nurse workload.

d. Further Researchers

Further researchers are recommended to conduct similar research using a larger but still homogeneous sample.

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