

NURSES' ACCURACY IN ELECTRONIC NURSING CARE DOCUMENTATION

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ABSTRACT

Electronic Medical Records (EMR) are an important instrument for ensuring service quality, patient safety, and the professional accountability of health workers, in line with Ministry of Health Regulation No. 24 of 2022. The accuracy of EMR-based nursing care documentation is a key indicator of patient safety and continuity of care, yet a preliminary study at RSU Anwar Medika revealed persistent documentation inaccuracies in several inpatient wards. This study aimed to describe nurses' accuracy in electronic-based nursing care documentation at RSU Anwar Medika. A quantitative descriptive design with an observational approach was used. The population comprised all inpatient EMRs during May 2026, totaling 942 records, with a sample of 91 EMRs obtained through consecutive sampling. Data were collected using an observation sheet referring to the hospital's Minimum Service Standards and Regulation No. 129/Menkes/SK/II/2008, then analyzed using univariate frequency distribution. Of the 91 EMRs, most documentation fell into the accurate category (83 records; 91.2%), fairly accurate (2 records; 2.2%), and inaccurate (6 records; 6.6%), with the highest accuracy found in the assessment (96.7%) and nursing diagnosis (95.6%) stages, while planning, implementation, and evaluation ranged from 92.3%. These findings indicate that documentation accuracy results from the interaction between nurses' individual readiness and system support, so future improvement should be accompanied by orientation programs for new nurses, workload evaluation, and strengthened standard operating procedures for EMR use.

Keywords: *Documentation Accuracy; Nursing Care; Electronic Medical Record; Inpatient Ward*

INTRODUCTION

The development of information technology in the health sector has driven a shift in medical record systems from conventional paper-based methods to electronic systems, or electronic medical records (EMR). In Indonesia, the digitalization of medical records is regulated under Ministry of Health Regulation No. 24 of 2022 concerning Medical Records, which requires all health service facilities to implement electronic medical records in stages. This regulation affirms that EMR functions not merely as an administrative document but also as an instrument for quality assurance, patient safety, and the professional accountability of health workers. The implementation of electronic-based nursing care documentation plays a strategic role as a medium of communication among health workers, a form of legal evidence, and a basis for evaluating the quality of nursing services (Lestari et al., 2021). The use of EMR is also considered capable of improving nurses' work efficiency and supporting improved quality of health services (Wasliati, 2022).

The accuracy of EMR-based nursing care documentation is an important indicator in ensuring patient safety, continuity of care, and the quality of nursing services. Accuracy in this context refers to the degree of correspondence between the data recorded by nurses and the patient's actual clinical condition. A preliminary study conducted at RSU Anwar Medika observed five inpatient EMRs and found that in the Camelia ward, two samples (40%) were categorized as inaccurate and one sample (60%) as fairly accurate; in the Melati ward, one sample (60%) was fairly accurate; while in the Lili ward, one sample (100%) was accurate. These preliminary findings indicate that inaccuracy and suboptimal accuracy in

documentation still occur, so further research is needed to describe the accuracy of nursing documentation in inpatient wards.

Several previous studies show inconsistent findings regarding documentation accuracy. Erianti et al., (2025) found that most nurses had implemented nursing care documentation according to established standards, although the assessment stage still showed a relatively low accuracy rate of 61.9%. Damanik et al., (2019) reported that the nursing assessment stage was only partially complete (76.7%), while the diagnosis stage remained limited because it only recorded nursing problems (95.7%), and the intervention stage largely did not record nursing actions or activities (81.3%). Yanti et al., (2024) revealed that data-grouping accuracy at the assessment stage reached only 55.3%, while the implementation stage showed 58.8% non-conformity with the planned actions. Meanwhile, Nurjanah & Rejeki, (2020) found an overall documentation accuracy of only 42.88%, far below the standard set by the Ministry of Health of 100%. In contrast, Hartati, (2026) reported a very high EMR accuracy of 98% at a different hospital, and Zabolinezhad & Eslami, (2022) found overall accuracy ranging from 61% to 75.5%.

These varying results indicate that, despite the widespread adoption of EMR, an important knowledge gap remains regarding the actual level of accuracy of EMR-based nursing care documentation, particularly because accuracy appears to be strongly influenced by local context, nurse characteristics, and organizational support rather than by the electronic system alone (Nurlatifah & Susanti, 2025). Inaccurate documentation can have a significant impact on the quality of health services: it makes recorded information inconsistent with the patient's actual condition, hinders the tracing of prior health history, increases the risk of error in clinical decision-making, and weakens the legal strength of the medical record (Putri et al., 2024). Addressing these problems requires comprehensive improvement efforts covering human resources, workload, technology systems, and managerial support (Muslim et al., 2025).

Based on this background, this study aims to describe nurses' accuracy in electronic-based nursing care documentation at RSU Anwar Medika. This study contributes an updated, ward-level description of documentation accuracy across all five stages of the nursing process in a hospital that has fully implemented EMR, which can serve as an evaluative basis for hospital management, nurses, and nursing education institutions.

METHOD

This study used a quantitative descriptive design with an observational approach to describe the level of nurses' accuracy in electronic-based nursing care documentation. A descriptive study aims to systematically, factually, and accurately describe data, population characteristics, or a phenomenon under study without analyzing the causal relationships between variables (Sarwono & Handayani, 2021).

The population in this study was all inpatient electronic medical records documented by nurses at RSU Anwar Medika during May 2026, totaling 942 records. The sample consisted of 91 EMRs, determined using the Slovin formula with a 10% margin of error, and was obtained through a consecutive sampling technique, in which every record that met the inclusion criteria during the study period was taken sequentially until the required sample size was reached (Sembiring et al., 2024). The inclusion criteria were EMRs of inpatients who had completed treatment (discharged/closed case) and were treated in an inpatient ward

during the determined study period, while EMRs of patients still undergoing treatment or not treated in an inpatient ward were excluded.

Data were collected using an observation sheet developed to assess the accuracy of EMR-based nursing care documentation covering five components: assessment, diagnosis, planning, implementation, and evaluation, referring to the hospital's Minimum Service Standards and Ministry of Health Regulation No. 129/Menkes/SK/II/2008 concerning Hospital Minimum Service Standards (Yanti et al., 2024). Each item that was filled in was given a score of 1, while an item that was not filled in was given a score of 0. This study was conducted in the inpatient wards of RSU Anwar Medika from February to July 2026.

Data were analyzed descriptively using univariate analysis with the frequency distribution/percentage formula $P = (F/N) \times 100\%$, where P is the percentage, F is the total score obtained, and N is the total number of items. The resulting percentage was then categorized into three levels: accurate (76-100%), fairly accurate (50-75%), and inaccurate (<50%) (Hasan et al., 2025; Ramadhan, 2024). This study upheld research ethics principles, including informed consent, anonymity, and confidentiality of respondent data (Anggreni, 2022).

FINDING AND DISCUSSION

RESEARCH RESULT

Table 1: Frequency Distribution of Nurses by Age

No	Umur Perawat	Frekuensi (f)	Presentase (%)
1.	24 – 35	71	76,9
2	36 – 45	14	15,4
3	46 – 55	6	6.6
	Total	91	98,9

Source: Primary Data, 2026

Table 1 shows that most nurses were aged 24-35 years, namely 71 people (76.9%).

Table 2: Frequency Distribution of Nurses by Educational Level

No	Pendidikan	Frekuensi (f)	Presentase (%)
1.	S1 Ners	72	79,1
2.	D3 Kep	19	20,9
	Total	91	100

Source: Primary Data, 2026

Table 2 shows that most nurses held a Bachelor of Nursing (S1 Ners) qualification, namely 72 people (79.1%).

Table 3: Frequency Distribution of Nurses by Length of Work Experience

No	Pengalaman Kerja	Frekuensi (f)	Presentase (%)
1.	1 – 5 tahun	91	100
2.	6 – 10 tahun	0	0
3.	11 – 15 tahun	0	0
	Total	91	100

Source: Primary Data, 2026

Table 3 shows that all nurses, namely 91 people (100%), had 1-5 years of working experience.

Table 4: Overall Accuracy of Electronic-Based Nursing Care Documentation

	Ketepatan Pendokumentasian Asuhan Keperawatan Berbasis Elektronik		Jumlah	
	F	%	f	%
Tepat	83	91,2	83	91,2
Cukup Tepat	2	2,2	2	2,2
Tidak Tepat	6	6,6	6	6,6
Total	91	100	91	100

Source: Primary Data, 2026

Table 4 shows that most nursing care documentation was categorized as accurate, namely 83 records (91.2%), while 2 records (2.2%) were fairly accurate and 6 records (6.6%) were inaccurate.

Table 5: Completeness of Documentation by Stage of the Nursing Process

Item	Terisi		Tidak Terisi		Jumlah	
	f	%	F	%	f	%
Pengkajian	88	96,7	3	3,3	91	100
Diagnosa	87	95,6	4	4,4	91	100
Intervensi	84	92,3	7	7,7	91	100
Implementasi	84	92,3	7	7,7	91	100
Evaluasi	84	92,3	7	7,7	91	100

Source: Primary Data, 2026

Table 5 shows that the highest completeness was found in the assessment stage (88 records; 96.7%) and the diagnosis stage (87 records; 95.6%), while the intervention, implementation, and evaluation stages each reached 84 records (92.3%).

DISCUSSION

The results show that nurses in the inpatient wards of RSU Anwar Medika documented nursing care in the accurate category for 83 records, fairly accurate for 2 records, and inaccurate for 6 records out of 91 records observed. The high proportion of accurate documentation is consistent with the characteristics of the respondents, most of whom held a Bachelor of Nursing (S1 Ners) qualification and were of productive age (24-35 years), providing sufficient knowledge to operate the EMR system according to documentation principles. This is in line with findings that education level and knowledge are significantly

related to the accuracy of nursing care documentation, where more highly educated nurses tend to have a better understanding of carrying out the documentation process completely and correctly (Zalukhu, 2020).

Nevertheless, some documentation remained inaccurate, a condition likely related to variation in nurses' ability to adapt to the EMR-based documentation workflow. Although most respondents had 1-5 years of working experience, differences in work experience, ability to use the electronic system, and high workload in the inpatient ward are presumed to have contributed to the remaining inaccuracy, since health workers with longer working experience tend to adapt more easily to a new system, whereas nurses with relatively shorter experience require more time to adjust to an electronic workflow (Apriliani et al., 2026). Older nurses, particularly those aged 46-55 years, are also presumed to be less accustomed to electronic-based systems and therefore require a longer adaptation period, especially when combined with a high workload and reporting demands, which slows the learning process for the electronic system (Ramadhani et al., 2025).

Regarding the stages of the nursing process, the assessment stage showed the highest level of completeness (88 of 91 records). This stage is the initial step of the nursing process, aimed at systematically collecting subjective and objective patient data as the basis for establishing a nursing diagnosis, and the EMR system provides a structured format that helps nurses complete assessment data while reducing the risk of missed data compared with manual recording (Khairunisa & Triharini, 2023). The diagnosis stage was completed in 87 records, slightly lower than the assessment stage, since the accuracy of a diagnosis strongly depends on the completeness of the preceding assessment data, and an inaccurate diagnosis can lead to interventions that do not match the patient's needs (Dokuba et al., 2024; Risnawati et al., 2023).

The intervention/planning, implementation, and evaluation stages each showed the lowest completeness (84 of 91 records). Planning requires nurses to arrange interventions consistent with the Indonesian Nursing Outcome and Intervention Standards, and a high workload can cause the planning stage to be skipped or incompletely filled due to limited time amid direct patient care (Lidia et al., 2025; Nurjanah & Rejeki, 2020). Implementation should ideally be documented in real time to reflect the care actually provided; documentation that is delayed risks reduced accuracy because nurses may forget action details (Firmansyah et al., 2025; Wahyuni et al., 2024). Likewise, evaluation, which serves to assess the effectiveness of care and forms the basis for determining follow-up actions, may disrupt continuity of care when not properly documented, since other health workers do not obtain a complete picture of the patient's progress (Damanik et al., 2019; Washilah et al., 2023).

These findings support the view that documentation accuracy reflects the correspondence between recorded data and the patient's actual condition, so that the resulting information can serve as a basis for safe and effective clinical decision-making (Jia et al., 2025). Accuracy can be improved through the implementation of an EMR system, which has been shown to improve recording accuracy compared with manual systems (Khairunisa & Triharini, 2023), contributes to improved completeness of nursing care data (Wahyuni et al., 2024), and improves legibility while minimizing documentation errors compared with manual recording (Zakiyah, 2024). Beyond the system itself, documentation accuracy is also influenced by individual factors such as education level, age, and length of working

experience (Bolado et al., 2023; Yuliastanti & Wulandari, 2025), organizational factors such as high workload (Nurjanah & Rejeki, 2020), and supporting-resource factors such as the availability of facilities, guidelines, and standard operating procedures (SOP) for EMR use (Istianah et al., 2025; Ngozi et al., 2024; Washilah et al., 2023).

Overall, the high proportion of accurate documentation in this study should not be attributed solely to the EMR system itself, but rather to the interaction between individual nurse readiness and system support. The predominance of respondents with an S1 Ners education and productive age provided a foundation for understanding the EMR workflow, but this foundation alone was insufficient without adequate working experience, balanced workload, and clear guidelines or SOPs. This is reflected in the remaining inaccurate documentation, which appears to be more strongly influenced by situational factors, such as short working tenure and high workload, than by technical shortcomings of the EMR system.

This study has several limitations. Its descriptive design only provides a picture of documentation accuracy and cannot explain the factors associated with or influencing that accuracy. In addition, data collection was carried out over only two days with limited access to hospital computers, which were shared with hospital staff, so the researcher could not observe the entire population of 942 records; only 91 records could be observed. Future research is recommended to use an analytic design, such as a cross-sectional analytic study, to examine the relationship between various factors and the accuracy of EMR-based nursing care documentation.

CONCLUSION

Based on the results of this study, it can be concluded that nurses' accuracy in electronic-based nursing care documentation in the inpatient wards of RSU Anwar Medika was mostly in the accurate category, namely 83 records (91.2%), while 2 records (2.2%) were fairly accurate and 6 records (6.6%) were inaccurate. The assessment and diagnosis stages showed the highest completeness, while the planning, implementation, and evaluation stages showed relatively lower completeness.

Hospital management is advised to conduct regular monitoring and evaluation of the completeness and accuracy of EMR-based nursing care documentation, particularly at the intervention and evaluation stages, and to strengthen the standard operating procedure (SOP) for EMR use along with continuous training for nurses. Nurses are advised to improve their thoroughness and adherence in completing all components of nursing care documentation completely and on time, especially at the intervention and evaluation stages, to support continuity of care, patient safety, and the legal strength of medical records. Nursing education institutions may use these findings as teaching material and a reference for further research related to electronic-based nursing documentation..

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