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# THE ROLE OF ELECTRONIC NURSING DOCUMENTATION IN ENHANCING PATIENT CARE QUALITY: A SYSTEMATIC LITERATURE REVIEW

**By**
**Siska Mayang Sari[1], Faridah Mohd Said[2]**
[1,2]Faculty of Nursing Lincoln University Collage, Malaysia
Email: [1]siskamyg@htp.ac.id

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**ABSTRACT**
Electronic nursing documentation (END) has become an essential component of modern nursing practice. The use of END is expected to improve the quality of patient care through more accurate and efficient record keeping. This article aims to evaluate the effectiveness of electronic nursing documentation in improving the quality of patient care. This systematic review study was conducted in June-July 2024 by searching the literature on electronic databases such as ProQuest, Science Direct, PubMed, and Google Scholar for articles published between 2019 and 2024. The keywords used included "electronic nursing documentation", or "computerized nursing documentation" and "quality of care" and "nurse" "hospital". Two reviewers independently screened the articles, extracted data, and assessed the quality of the included studies using the Systematic Reviews and Meta-Analyses (PRISMA). There were 9 articles met the inclusion criteria and were analysed further. The inclusion criteria were RCT and non RCT, cross sectional and observational study, and hospital setting, while the exclusion criteria were qualitative study and literature or systematic review. The analysis showed that the use of END significantly improved the quality of nursing care, enhanced communication and collaboration among healthcare providers, leading to improved patient outcomes. Besides, END improved documentation accuracy, time efficiency, operational efficiency, error reduction and patient safety. However, some challenges such as monitoring and evaluation from nurse managers regarding the accuracy and quality of documentation and the need for computer skills training are also needed. It Concluded the electronic nursing documentation has great potential to improve the quality of patient care in hospitals



***Corresponding Author:***
**Siska Mayang Sari**
Nursing Program, Faculty of Health, Universitas Hang Tuah Pekanbaru, Riau Province, Indonesia
Email: siskamyg@htp.ac.id

## 1. INTRODUCTION

The transition from traditional paper-based nursing documentation to electronic nursing documentation (END) has garnered significant attention in recent years, particularly in the context of enhancing the quality of care in hospital settings. Research indicates that the adoption of END can lead to substantial improvements in the quality of nursing documentation and patient care. These findings are supported by the work of which emphasizes that electronic nursing records improve the completeness of documentation and enhance the legal aspects of nursing care, thereby providing a more robust framework for accountability (Hariyati et al., 2019). Furthermore, 's research points out that while electronic documentation can streamline workflows, it may inadvertently reduce the time nurses spend interacting with patients, suggesting a need for careful consideration of how these systems are designed and implemented (Gaudet, 2016).

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The effectiveness of END is also contingent upon the quality of communication it facilitates among healthcare providers. emphasize the importance of user-friendly electronic documentation systems that do not impose excessive time burdens on nursing staff, thereby promoting better communication and collaboration in patient care (Groot et al., 2022). Additionally, the systematic review by underscores that structured nursing records can significantly enhance the quality of documentation, which is essential for effective patient care (Saranto et al., 2013). However, the transition to electronic systems is not without challenges; nurses often report feeling overwhelmed by the demands of electronic documentation, which can detract from their primary focus on patient care(Vehko et al., 2019).

Moreover, the successful integration of END into nursing practice requires ongoing training and support for nursing staff. found that positive perceptions of electronic health records among nurses are crucial for their effective use, highlighting the need for educational initiatives that address both the technical and practical aspects of electronic documentation (Riaz et al., 2022). This aligns with the findings of, who noted that while electronic systems can improve documentation quality, their effectiveness is often influenced by the perceived workload and usability issues faced by nurses (Wang et al., 2013). This systematic literature review aims to evaluate the effectiveness of electronic nursing documentation in improving the quality of care

## 2. RESEARCH METHODOLOGY

### Literature Search Strategy

This systematic review study was conducted in June-July 2024 by searching the literature on electronic databases such as ProQuest, Science Direct, PubMed, and Google Scholar. The keywords used included “electronic nursing documentation”, or “computerized nursing documentation” and “quality of care” and “nurse” “hospital”. The inclusion criteria encompassed peer-reviewed articles published in English from 2019 to 2024 that focused on the impact of END on nursing care quality within hospital settings, study design is RCT and non RCT, cross sectional and observational study, while the exclusion criteria were qualitative study and literature or systematic review, and involved studies that did not specifically address electronic nursing documentation.

### Selection studies

The selection process involved two independent reviewers who screened the titles and abstracts of the identified articles. Full-text articles were retrieved for those that met the inclusion criteria. Discrepancies between reviewers were resolved through discussion, and a third reviewer was consulted when necessary. The final selection aimed to include studies that provided empirical evidence regarding the effects of END on quality of care, as well as those that explored the contextual factors influencing these outcomes.

### Data Extraction

Data from the selected studies were extracted using the guideline of Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA). To assess the quality of included studies were used COCHRANE ROB 2.0 for the Randomized Controlled Trial (RCT) studies, and STROBE for Non RCT and observational studies.

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Figure 1. PRISMA flow chart, selection of studies.

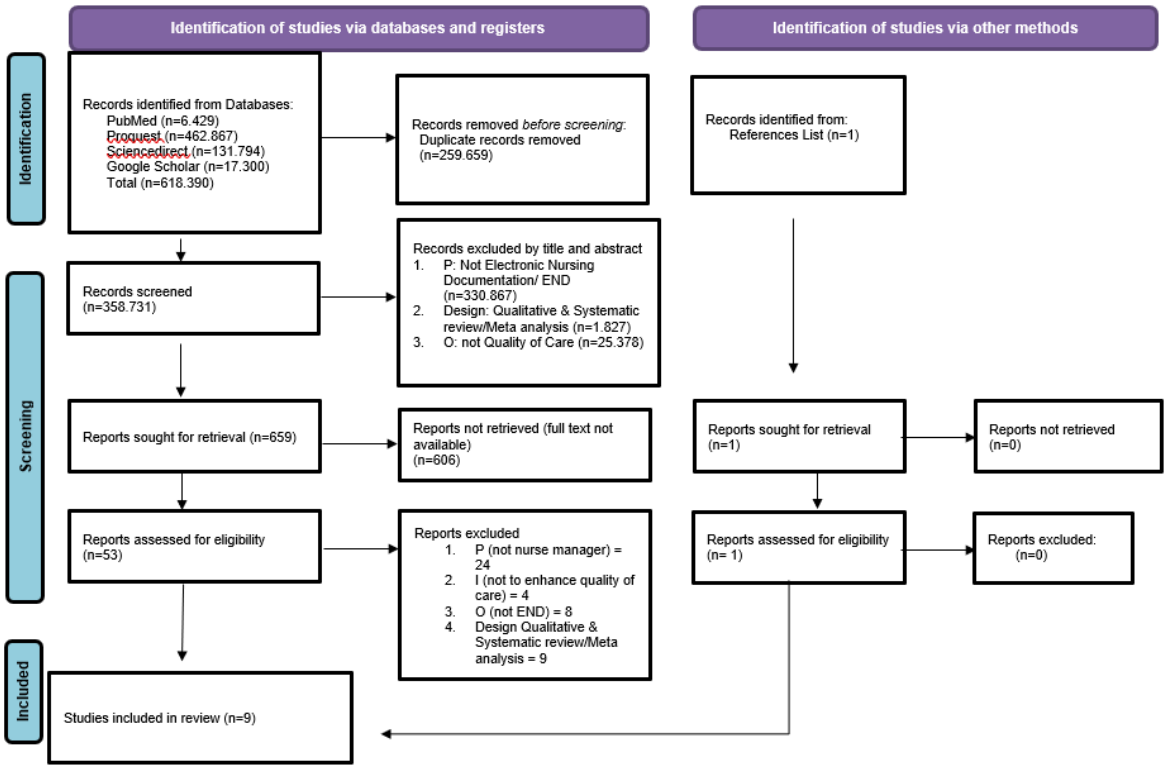


**Figure 1. PRISMA flow chart, selection of studies**

**Table 1. Electronic nursing documentation to quality care**

| No | Author | Title | Year | Design | Result |
|---|---|---|---|---|---|
| 1. | Laith, Adnan A | Electronic nursing documentation interventions to promote or improve patient Safety and/or quality care in an acute setting | 2023 | Randomized controlled trial | - The results revealed that electronic nursing documentation has improved quality of nursing.<br>- Enhanced communication and collaboration among healthcare providers can potentially result in improved patient outcomes<br>- - The implementation of electronic nursing documentation in hospital settings has demonstrated a positive impact on the quality of documentation, operational efficiency, error reduction, and enhancement of patient safety |

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| 2. | Pure,Deoyani, V, R. Ambad. Meghali N. Kaple, R. Dighade | A Review on Association between Electronic Health Record use and Quality of Patient Care | 2022 | Observational study: correlational design | - EMRs help store and manage patient data, medical history, and treatments.<br>- EMRs save time for healthcare providers by eliminating the need for paper documentation and accurately storing past health information.<br>- The use of EMRs improves the quality of patient care. |
| 3. | Karp,E.L., Freeman, R.,Simpson,K.N.,Simpson,A.N | Changes in Efficiency and Quality of Nursing Electronic Health Record Documentation After Implementation of an Admission Patient History Essential Data Set | 2019 | Non RCT Cohort | The capture of essential data elements improved by almost 6%, and admission patient history data completed in one sequence increased by 24%. These study results demonstrate that system timers and event logs can measure the preintervention and postintervention changes in efficiency and quality of a defined clinical workflow into an electronic health record |
| 4. | Dinari,F., Bahaadinbeigy,K., Bassiri,S., Mashouf,E, Bastaminejad , S., Moulaei, K. | Benefits, barriers, and facilitators of using speech recognition technology in nursing documentation and reporting: A cross-sectional study | 2023 | Cross-sectional study | By providing information on the benefits, barriers, and facilitators of using this technology, hospital managers, nursing managers, and information technology managers of healthcare canters can make more informed decisions in selecting and implementing SRS for nursing report documentation |
| 5. | Hussein, S.Z., Khalip, N., Hashim, R., Harun, R., Eazilah N.F., Mat Shah, N | Patient Care Delivery: Electronic Nursing Documentation in Malaysia | 2021 | Cross-Sectional Study | Nurses had a higher knowledge level of and positive attitudes toward electronic nursing documentation |
| 6 | Pyron, Lesley Carter-Templeton, Heather | Improved Patient Flow and Provider Efficiency After the Implementation of an Electronic Health Record | 2019 | Cohort Study | Implementing an electronic health record in six urgent care clinics led to improved provider efficiency and patient flow, with an average length of stay decreasing from 109 minutes to 73 minutes. |

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|---|---|---|---|---|---|
| 7 | Fabio D'Agostino, Valentina Zeffiro, Antonello Cocchieri. Mariangela Vanalli, Davide Ausili, Ercole Vellone, Maurizio Zega, Rosaria Alvaro | Impact of an Electronic Nursing Documentation System on the Nursing Process Accuracy | 2019 | RCT | A significant improvement (p<.001) in nursing documentation accuracy scores was shown after PAI (Professional Assessment Instruments) implementation |
| 8 | Kana Kodama, Shozo Konishi, Manabe, Katsuki Okada, Junji Yamaguchi, Shoya Wadal, Kento Sugimoto, Sakiko Itoh, Daiyo Takahashi, Ryo Kawasaki, Yasushi Matsumura, Toshihiro Takeda | Impact of an Electronic Medical Record-Connected Questionnaire on Efficient Nursing Documentation: Usability and Efficacy Study | 2023 | Ouasy Experiment | The study developed and implemented a system in which self- reported patient data were captured in the hospital information network and quoted in the nursing system. This system contributes to improving the efficiency of nurses' task recordings |
| 9 | H Halimatussakdiah, T. Iskandar Faisal, Cut Aja Nuraskin. Aripin Ahmad, Alhuda | The Effect of Electronic Nursing Documentation (END) Implementation on Nursing Services Toward Patients' Satisfaction | 2021 | Cross-sectional study | nurses can provide comprehensive nursing care comprehensive nursing care to patients by using digital documentation (Electronic Nursing Documentation application). The use of Electronic Nursing Documentation (END) can increase patient satisfaction through shar'i ethics and good nurse performance. Of all the variables tested in the development of the model, shari'i ethics affect the increase in patient satisfaction. The SEM test results obtained the GFI (Goodness of Fit Index) value is in the range of Cut of Value expected (p Value 0.05). The use of END in nursing services and supported by shar'i ethics and good nurse performance can increase postoperative patient satisfaction |

## 3. RESULT

Nine articles were included in the final review. This study explains the implementation of END toward patient safety. The collective evidence from these studies underscores the significant benefits of electronic nursing documentation and electronic health records in enhancing the quality of patient care, improving operational efficiency, and increasing patient satisfaction.

This systematic review synthesizes findings from various studies examining the impact of electronic nursing documentation (END) and electronic health records (EHR) on patient care quality, nursing efficiency, and overall healthcare outcomes. The studies included in this review utilized diverse methodologies, including randomized

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controlled trials (RCTs), observational studies, cohort studies, and cross-sectional studies, providing a comprehensive overview of the current landscape in electronic documentation practices.

***Electronic Nursing Documentation and Quality of Care***

(Adnan, 2023) conducted a randomized controlled trial that demonstrated significant improvements in nursing quality due to the implementation of electronic nursing documentation. The study highlighted enhanced communication and collaboration among healthcare providers, which are critical components for improving patient outcomes. Furthermore, the research indicated that the use of electronic documentation positively affected operational efficiency, reduced errors, and enhanced patient safety.

***Electronic Medical Records (EMRs) and Patient Care***

(Pure et al., 2022) performed an observational study that established a correlation between the use of EMRs and the quality of patient care. Their findings indicated that EMRs facilitate the storage and management of patient data, streamline healthcare providers' workflows by eliminating paper documentation, and ultimately improve the quality of care delivered to patients.

***Efficiency and Quality in Nursing Documentation***

(Karp et al., 2019) reported on a non-randomized cohort study that focused on the implementation of an essential data set for admission patient history within EHRs. The results showed a nearly 6% improvement in the capture of essential data elements and a 24% increase in the completion of admission patient history data in a single sequence. This study underscored the effectiveness of system timers and event logs in measuring changes in efficiency and quality in clinical workflows.

***Speech Recognition Technology in Nursing Documentation***

(Dinari et al., 2023) conducted a cross-sectional study that explored the benefits, barriers, and facilitators of using speech recognition technology (SRT) in nursing documentation. The findings suggested that understanding these factors could assist hospital and nursing managers in making informed decisions regarding the selection and implementation of SRT for nursing report documentation.

***Nurses' Knowledge and Attitudes Towards Electronic Documentation***

(Hussein et al., 2021) carried out a cross-sectional study in Malaysia, revealing that nurses exhibited a higher level of knowledge and positive attitudes towards electronic nursing documentation. This finding is crucial as it indicates the potential for successful implementation and utilization of END systems in nursing practice.

***Impact of EHR on Patient Flow and Provider Efficiency***

(Pyron & Carterleton, 2019) reported on a cohort study that assessed the effects of EHR implementation in urgent care clinics. The results indicated a significant improvement in provider efficiency and patient flow, with the average length of stay decreasing from 109 minutes to 73 minutes, demonstrating the operational benefits of EHR systems.

***Nursing Process Accuracy with Electronic Documentation***

(D'Agostino et al., 2019) conducted an RCT that found a significant improvement in nursing documentation accuracy scores ($p < .001$) following the implementation of Professional Assessment Instruments (PAI). This study highlights the critical role of structured electronic documentation in enhancing the accuracy of nursing processes.

***Usability and Efficacy of EMR-Connected Questionnaires***

(Kodama et al., 2023) explored the usability and efficacy of an EMR-connected questionnaire designed to capture self-reported patient data. The study concluded that this system significantly contributes to improving the efficiency of nurses' task recordings, thereby enhancing the overall documentation process.

***Patient Satisfaction and Electronic Nursing Documentation***

(Halimatussakdiah et al., 2022) investigated the effect of END implementation on nursing services and patient satisfaction through a cross-sectional study. The findings indicated that the use of END could enhance comprehensive nursing care and increase patient satisfaction, particularly when supported by ethical nursing practices. The structural equation modelling (SEM) results demonstrated a Goodness of Fit Index (GFI) value within the acceptable range, further validating the positive impact of END on patient satisfaction.

## DISCUSSION

Electronic nursing documentation (END) is increasingly recognized as a crucial tool for enhancing the quality of healthcare delivery. By facilitating seamless information exchange, END strengthens communication and collaboration between healthcare providers, which is essential for coordinated patient care. Digital documentation systems allow nurses and other healthcare professionals to access and update patient information in real time, ensuring that all team members have the most current information. This continuous flow of data fosters a collaborative environment where providers can make timely, well-informed decisions, leading to safer and more effective patient

care. Furthermore, END enables standardized documentation practices, which helps eliminate inconsistencies in reporting and supports a uniform understanding of patient conditions across teams (Hussein et al., 2021).

The implementation of electronic nursing documentation (END) has been shown to significantly enhance the quality of nursing care by streamlining documentation processes, improving data accuracy, and increasing the accessibility of patient information. END systems enable nurses to efficiently document patient assessments, care plans, and interventions in a standardized format, which reduces variability and promotes consistency in patient records. With real-time access to up-to-date patient information, healthcare providers can make more informed decisions, ultimately improving the quality of care delivered. Recent studies indicate that END has not only increased the accuracy of nursing documentation but has also supported better patient outcomes through improved communication and coordination among healthcare teams (Dinari et al., 2023).

Moreover, END systems enhance workflow efficiency, allowing nurses to allocate more time to direct patient care rather than administrative tasks. By automating routine aspects of documentation, such as data entry and record-keeping, END reduces the manual burden on nursing staff and minimizes the likelihood of errors. This improved efficiency in documentation processes directly translates to more available time for patient interaction and care, which is essential for meeting patients' needs effectively and promptly. In a cross-sectional study, nurses reported that END improved the speed and accuracy of their documentation, contributing to higher patient satisfaction and quality of nursing care (Halimatussakdiah et al., 2021).

Additionally, END contributes to enhanced decision-making and quality of care by providing comprehensive, easily accessible data on patient history and treatment progress. This centralized information repository allows for a holistic view of the patient's condition, enabling better continuity of care across shifts and among different providers. As a result, nurses can more effectively monitor changes in patients' health status, which is crucial for identifying and addressing potential health issues early on. Research has shown that END systems support proactive and personalized care approaches, helping to elevate nursing care quality overall (Kodama et al., 2023).

## 4. CONCLUSION

Electronic nursing documentation plays a critical role in improving nursing care quality by promoting documentation accuracy, increasing workflow efficiency, and supporting data-driven decision-making. By integrating END systems into daily practice, healthcare organizations can create an environment that supports high-quality, patient-centered care and maximizes the valuable time nurses spend directly with patients.

## 5. CONFLICT OF INTEREST

The author declares no conflict of interest.

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