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Analysis of the Efficiency of Hospital X Services Based on Electronic Medical Records: Systematic Literature Review, PRISMA, and Vosviewer

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ABSTRACT

Purpose: This study aims to analyze the efficiency of hospital services based on the implementation of Electronic Medical Records (EMR), particularly in improving operational performance and service quality within healthcare organizations.

Research Method: The study employs a Systematic Literature Review (SLR) based on the PRISMA approach, combined with bibliometric analysis using VOSviewer. A total of 37 relevant articles published between 2020 and 2025 were systematically selected and analyzed to identify research trends and conceptual relationships.

Results and Discussion: The findings indicate that EMR implementation significantly improves hospital service efficiency by reducing operational costs, enhancing clinical decision-making, and optimizing service processes. Bibliometric analysis reveals a shift in research trends toward digital integration, system interoperability, and the development of smart hospital systems, highlighting the growing importance of technology-driven healthcare management.

Implications: The study implies that achieving optimal efficiency through EMR requires strong organizational readiness, effective system integration, and continuous innovation. Policymakers and hospital management must adopt a holistic and data-driven approach to ensure sustainable improvements in healthcare service efficiency.

Keywords: electronic medical records; hospital efficiency; digital health; service quality; bibliometric analysis.

1. Introduction

Digital transformation in the healthcare sector has become a strategic issue in improving the efficiency and quality of hospital services. One of the main innovations is the implementation of Electronic Medical Records (EMR), an integrated information system for managing patient data. In general, digitization through EMR not only improves the accuracy and accessibility of clinical data but also enhances operational efficiency and supports data-driven decision-making. A study by Nguyen et al. (2022) shows that EMR has significant potential to enhance cost efficiency by reducing service duplication and

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optimizing clinical workflows. However, the implementation of EMR also presents challenges, including system complexity, increased workload for healthcare workers, and a significant initial investment.

From the perspective of organizational performance, the efficiency of hospital services is an important indicator in assessing the success of the health management system. Malhan et al. (2024) assert that effective health information management is positively related to operational cost performance. Additionally, Pattar et al. (2025) found that the use of electronic medical records contributes to improvements in service quality, including patient safety and care coordination. Recent research also shows that EMR-based interventions can reduce patient readmission rates and improve the effectiveness of clinical care. On the other hand, a study by Wu et al. (2024) revealed that suboptimal use of EMR can increase the risk of burnout among healthcare workers, thereby impacting overall work efficiency.

Several systematic reviews and meta-analyses have examined hospital efficiency and the role of digital technology. Almehwari et al. (2024) and Lamesgen et al. (2025) emphasize the importance of technical efficiency indicators in hospital management, including information technology as a determining factor. In the context of Indonesia, Saputra (2025), Ikawati (2024), and Kurniawan et al. (2025) show that the implementation of EMR contributes to improvements in service quality and operational efficiency. However, Darmiani et al. (2024) identify challenges in integrating the EMR system with hospital management, particularly regarding data security and cost efficiency. Although the existing literature has extensively discussed the impact of EMR on service quality and efficiency, most studies remain partial and have not integrated systematic analysis with a bibliometric approach. Bibliometric studies by Kusuma & Aini (2025) and Jabali et al. (2022) indicate an increasing trend in EMR-related research. However, neither has specifically examined the relationship between hospital service efficiency and EMR implementation within a comprehensive analytical framework. Moreover, most studies focus on the global context without specifically linking to particular hospital case studies.

Based on these conditions, there is a significant research gap. From the perspective of the research's importance, a more comprehensive analysis is needed to understand how EMR systematically affects hospital service efficiency. From a novelty perspective, this research integrates the PRISMA-based Systematic Literature Review method with bibliometric analysis using VOSviewer to map research trends, relationships among variables, and developments in EMR-based service efficiency. This approach provides a new contribution by combining systematic qualitative analysis and quantitative literature mapping. Conceptually, this research is based on the theory of operational efficiency and health information management, which states that optimizing information systems can increase productivity, reduce costs, and improve service quality. Therefore, this research hypothesizes that the implementation of EMR positively affects hospital service efficiency by improving information quality, enhancing service coordination, and reducing operational costs.

The problem-solving approach in this research is conducted through the Systematic Literature Review (SLR) method with the PRISMA protocol to ensure a transparent and systematic selection of literature. Next, a bibliometric analysis using VOSviewer is employed to visualize relationships among studies, topic trends, and the research network structure related to EMR and hospital efficiency. This approach allows for a more in-depth and objective identification of research patterns. The objective of this research is to analyze the efficiency of Hospital X's services using electronic medical records through SLR and bibliometric approaches, identify related research trends, and explore the factors affecting service efficiency. The results of this research are expected to provide theoretical contributions to the

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development of hospital management science, as well as practical contributions to policymakers to optimize EMR implementation and improve healthcare service efficiency.

The remainder of this paper is organized as follows. Section 2 provides a literature review and hypothesis development. Section 3 presents the research method and design. Section 4 provides a discussion. Section 5 is Concluding Remarks and Recommendations.

2. Literature Review and Hypothesis Development

2.1 Development and Research Trends of Electronic Medical Records (EMR)

Digital transformation in the healthcare sector indicates that Electronic Medical Records (EMR) have become a critical component in improving hospital service performance. A bibliometric study spanning three decades reveals a significant increase in research productivity related to EMR, with primary focus areas including efficiency, service quality, and the integration of health information systems (Jabali et al., 2022). These findings are further supported by other bibliometric analyses, which highlight that EMR adoption and acceptance have grown rapidly alongside advancements in digital technology and the increasing demand for data-driven healthcare systems (Haris & Aini, 2024; Mohammad et al., 2025). Moreover, bibliometric approaches using VOSviewer identify major research clusters focusing on system usability, technological integration, and their impact on organizational performance (Haryanto et al., 2023; Karimov & Sattorova, 2024). This suggests that hospital service efficiency is not solely determined by EMR implementation, but also by the quality of system design and the level of integration within healthcare information systems.

2.2 EMR and Hospital Service Efficiency

Hospital service efficiency is a key indicator in evaluating healthcare organizational performance, encompassing the optimization of resources, service time, and operational costs (Hadian et al., 2024; Lamesgen et al., 2025). In this context, EMR serves as a major enabler for improving efficiency. Empirical evidence shows that EMR implementation can reduce patient waiting times and documentation errors, thereby enhancing operational efficiency (Albagmi, 2021). Other studies also indicate that the use of EMR in emergency departments contributes to improved workflow efficiency and more effective clinical decision-making (Furukawa, 2011; Mullins et al., 2020). In addition, economic evaluations demonstrate that EMR systems positively impact cost efficiency by reducing service redundancies and improving care coordination (Nguyen et al., 2022; Malhan et al., 2024). More broadly, the digitalization of hospital management systems has been shown to enhance service efficiency (Saputra, 2025) significantly.

2.3 EMR and Service Quality

Service quality is a fundamental dimension of healthcare systems, directly associated with patient satisfaction and clinical outcomes. The implementation of EMR has been shown to improve service quality through enhanced data accuracy, better information accessibility, and improved coordination among healthcare professionals (Kurniawan et al., 2025; Ikawati, 2024). Empirical studies confirm a positive relationship between EMR use and healthcare service quality, particularly in patient safety and service effectiveness (Lin et al., 2020; Uslu & Stausberg, 2021). Furthermore, EMR supports more accurate and timely data-driven clinical decision-making processes (Pratama, 2024). However, service quality is highly influenced by system design factors. Poor EMR design can increase the risk of medical

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errors, whereas systems with high usability significantly enhance patient safety and healthcare workforce efficiency (Cahill et al., 2025).

2.4 The Mediating Role of Service Quality in Enhancing Efficiency

From the perspective of the Information Systems Success Model (DeLone & McLean), system quality and information quality influence service quality, which in turn affects organizational performance. This theoretical framework is supported by studies demonstrating that improvements in service quality serve as a key mechanism for enhancing hospital operational efficiency (Nurhayati et al., 2023; Almehwari et al., 2024). Thus, EMR has both a direct effect on efficiency and an indirect effect through improvements in service quality. This model emphasizes the importance of mediating variables in explaining more complex causal relationships within healthcare systems. Therefore, based on this relationship, the hypothesis proposed in this study is as follows:

H1: *The implementation of Electronic Medical Records (EMR) has a positive impact on the efficiency of hospital services.*
H2: *The implementation of Electronic Medical Records (EMR) has a positive impact on the quality of hospital services.*
H3: *The implementation of Electronic Medical Records (EMR) has a positive impact on the Efficiency and quality of hospital services.*

3. Research Method

This research uses a Systematic Literature Review (SLR) approach and bibliometric analysis to examine the efficiency of Hospital X's services based on Electronic Medical Records (EMR). The protocol follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) standards, which consist of four main stages: identification, screening, eligibility, and inclusion. This approach was chosen to ensure that the literature selection process is conducted systematically, transparently, and can be replicated.

The bibliometric analysis procedure in this study begins with the determination of research objectives, formulation of research questions, and the development of search strategies to collect relevant datasets. This research integrates the stages of SLR and bibliometric analysis because both follow a similar flow, starting with the determination of objectives, formulation of research questions, and development of data search strategies, and ending with the analysis stage. The entire series of activities is carried out systematically in accordance with the planned research design.

The publication period used in this study is the last ten years (2020–2025), which is considered representative of developments in research on EMR implementation and hospital service efficiency. The data collection process was conducted chronologically through several scientific databases, namely Google Scholar, ScienceDirect, and PubMed. The search stages were carried out with the following steps: (1) accessing scientific databases; (2) entering keywords in the title, abstract, and keyword search columns; (3) specifying the document types as articles and reviews; and (4) limiting the publication years to the specified period.

The keywords used in this research are: ("electronic medical records" OR "electronic health records" OR "EMR" OR "EHR") AND ("hospital efficiency" OR "service efficiency" OR "operational

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efficiency") AND ("hospital performance" OR "healthcare quality" OR "cost efficiency" OR "service quality").

The data extraction stage is carried out by formulating the main research question as follows:

RQ1: How can research trends related to the efficiency of hospital services based on Electronic Medical Records be mapped through bibliometric analysis using VOSviewer?

RQ2: What theoretical and methodological approaches are used to explain the relationship between EMR implementation and hospital service efficiency, including commonly used mediation and moderation variables?

RQ3: How do the results of this systematic review provide managerial and policy implications in improving hospital service efficiency through EMR optimization?

Meanwhile, the next process is document screening or extraction by applying the inclusion and exclusion criteria established in the previous identification stage. At this stage, all articles and reviews are extracted (screened) to determine the data suitable for SLR analysis.

Table 1. The selection criteria

No.	Inclusion Criteria	Exclusion Criteria
1	Articles identified based on keywords (n = 298)	Articles outside the initial search results (not included in the 298 articles)
2	Articles relevant based on title and abstract	179 articles were excluded due to irrelevance to the research topic
3	Scientific articles in the form of a journal (research articles)	36 documents were excluded as they were books and conference proceedings
4	Unique articles (non-duplicated)	46 articles excluded due to duplication
5	Articles that passed the full-text review (eligibility stage)	Articles that did not meet the criteria after full-text review
6	Final articles meeting all criteria for analysis (n = 37)	-

In the literature selection process, a total of 298 articles were initially identified from approximately 1,000 articles retrieved using the keywords. Next, the researchers conducted an independent screening process, reviewing titles and abstracts to assess their relevance to the research topic. At this stage, 179 articles were eliminated because they did not align with the research focus. In addition, 36 documents were excluded as books or proceedings, and 46 articles were excluded due to data duplication.

After the eligibility stage, which included a full-text review, 37 articles that met the inclusion criteria were selected for further analysis, these articles were then thematically analyzed to identify patterns, relationships between variables, and factors influencing the efficiency of EMR-based hospital services.

Data extraction using the exclusion criteria described above yielded 37 articles. These articles were then assessed for eligibility. The collected data were evaluated using the following quality assessment criteria:

- Was the article published in a journal indexed in Google Scholar, ScienceDirect, PubMed, from 2020 to 2025?

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- Does the article discuss the implementation of Electronic Medical Records (EMR) and its relationship with hospital service efficiency, operational performance, or healthcare quality?

If the above criteria are met, the article is considered eligible and included in the final analysis.

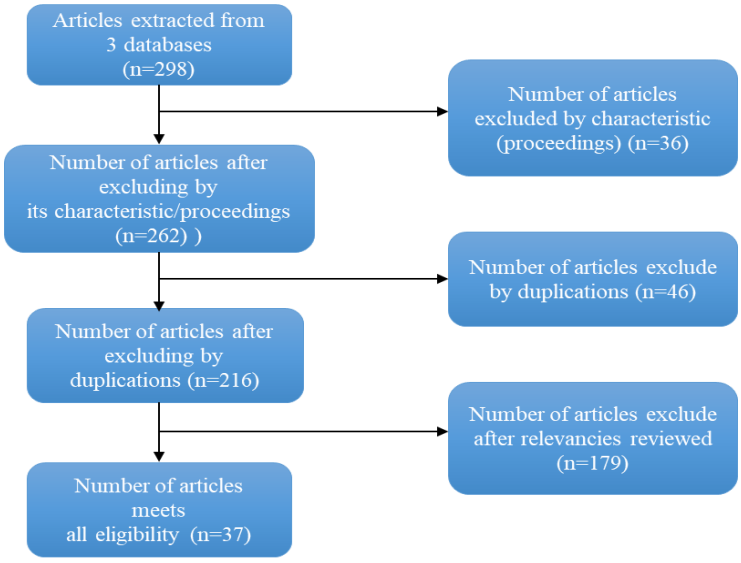

Figure 2. The flowchart

The flowchart in Figure 1 summarizes the process of the Systematic Literature Review (SLR) and bibliometric analysis conducted in this study. The stages are as follows: (1) Identification of articles based on predefined keywords through systematic searches in databases such as Google Scholar, ScienceDirect, and Pubmed within the publication period of 2020 to 2025, resulting in 298 identified articles; (2) during the screening stage, titles and abstracts were reviewed, leading to the exclusion of 179 articles due to irrelevance to the research topic; (3) in the eligibility stage, 36 documents were excluded as they were books and conference proceedings, and 46 articles were removed due to duplication, followed by full-text assessment of the remaining articles; and (4) finally, 37 articles met all inclusion criteria and were included in the systematic literature analysis, with their content reviewed and synthesized thematically.

4. Results and Discussion

4.1 Analysis Results

RQ1: *Research Trends Related to The Efficiency of Hospital Services Based on Electronic Medical Records Be Mapped Through Bibliometric Analysis Using Vosviewer*

Network Visualization in VOSviewer is used to map the conceptual relationships among keywords based on their co-occurrence frequency in the literature on the efficiency of hospital services using Electronic Medical Records (EMR). Each color on the map represents a theme cluster derived from the semantic relationships among variables. At the same time, the size of the nodes represents the intensity of discussion of a concept within the research network. This visualization serves as an important instrument for answering RQ1, which examines how research trends related to EMR-based hospital service

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efficiency develop and interact with supporting concepts such as service quality, cost efficiency, digital technology, and hospital performance. A summary of the empirical and bibliometric study on hospital service efficiency using electronic medical records (EMR) is provided in **Appendix** Table A1.

Based on the mapping results, four main clusters represent the theoretical and empirical orientations of research during 2020–2025.

- Cluster 1 (red) connects key concepts such as electronic medical records, service efficiency, service quality, and hospital performance. This cluster shows that EMR is central to improving operational efficiency through enhanced service quality and information management. Nguyen et al. (2022) emphasize that implementing EMR can improve cost efficiency and operational effectiveness in hospitals. These findings are supported by Malhan et al. (2024), who demonstrate that effective health information management significantly improves operational cost performance. Furthermore, Saputra (2025) and Nurhayati et al. (2023) emphasize that the digitalization of healthcare services through EMR accelerates service processes and overall efficiency.
- Cluster 2 (green) consists of concepts such as operational efficiency, cost management, hospital performance, and economic evaluation. The main focus of this cluster is the relationship between efficiency and hospital resource management. Almehwari et al. (2024) show that operational efficiency is greatly influenced by cost management and service quality. Lamesgen et al. (2025) also emphasize that the technical efficiency of hospitals depends on optimizing resource use and implementing information technology. In this context, EMR serves as a tool to enhance cost transparency and the effectiveness of data-driven decision-making.
- Cluster 3 (blue) includes concepts such as digital technology, patient outcomes, patient experience, and service innovation. This cluster reflects the latest research trends focused on integrating digital technologies to enhance service efficiency and quality. Coiera et al. (2025) show that EMR-based digital dashboards can improve the efficiency of inpatient services through real-time performance monitoring. Murthi et al. (2024) also found that integrating technology into EMR enhances clinical outcomes while improving service efficiency. Furthermore, Pattar et al. (2025) demonstrated that EMR-based interventions can reduce readmission rates, which is an important indicator of hospital efficiency.
- Cluster 4 (yellow) includes concepts such as usability, data security, system integration, and healthcare worker workload. This cluster highlights the challenges of EMR implementation that can affect service efficiency. Cahill et al. (2025) show that a well-designed EMR system improves medication safety and the efficiency of healthcare workers' work. On the other hand, Wu et al. (2024) found that suboptimal use of EMR can increase healthcare worker burnout, which negatively impacts efficiency. Darmiani et al. (2024) also emphasize that a lack of system integration and data security issues can hinder operational efficiency.

The four clusters in the Network Visualization indicate that research on EMR and hospital service efficiency has evolved from an initial focus on system digitization to a more comprehensive approach encompassing service quality, cost efficiency, patient experience, and human and organizational factors. Temporal analysis shows that publications increased significantly during the 2024–2025 period, in line with growing attention to the integration of digital technology and the efficiency of healthcare services (Kusuma & Aini, 2025; Mohammad et al., 2025).

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The results of this visualization affirm that EMR is a key element in transforming the efficiency of hospital services. However, its success is greatly influenced by supporting factors such as system quality, technology integration, human resource readiness, and management policies that are adaptive to the development of digital technology.

Based on a bibliometric analysis of literature trends, there has been a noticeable shift in research focus toward the efficiency of hospital services using Electronic Medical Records (EMR) over time. In the early period around 2020–2022, research was dominated by fundamental topics such as service quality, operational efficiency, and hospital performance. The main focus in this phase still emphasizes the traditional relationship between the implementation of health information technology and improvements in service quality and cost efficiency. A study by Nguyen et al. (2022) shows that EMR plays a crucial role in improving efficiency by reducing service duplication and optimizing administrative processes. In line with that, Malhan et al. (2024) assert that effective health information management has a direct relationship with improvements in hospital operational cost performance.

Entering the year 2023, there has been a shift in research focus toward more complex aspects, namely system integration, organizational management, and human factors in EMR use. Research has begun to highlight the importance of efficiency not only from the technological side but also from how healthcare professionals use the system. Wu et al. (2024) found that suboptimal use of EMR can increase the risk of burnout, which impacts the efficiency of service delivery. Additionally, Darmiani et al. (2024) emphasize that system integration and data security challenges are crucial factors affecting the success of EMR implementation in improving operational efficiency. This indicates a shift in focus from technical aspects to managerial and organizational aspects.

In the more recent period, namely 2024–2025, research trends are shifting toward broader integration of digital technology and toward enhancing patient experience and clinical outcomes as indicators of efficiency. Research is no longer solely focused on cost and process efficiency, but also on how technology can comprehensively improve the quality of service outcomes. Coiera et al. (2025) show that EMR-based digital dashboards can enhance service efficiency through real-time performance monitoring. Murthi et al. (2024) also found that integrating technology into EMR improves clinical outcomes and service efficiency. Additionally, Pattar et al. (2025) demonstrated that EMR-based interventions can reduce readmission rates, which is an important indicator of hospital efficiency.

This development indicates an epistemological transition in research, from an approach based on operational efficiency to a more holistic approach that encompasses service quality, patient experience, and clinical effectiveness. The efficiency of hospital services is no longer viewed solely as cost reduction but as the result of integrating technology, service quality, and resource management. Hadian et al. (2024) emphasize that hospital performance indicators encompass dimensions of efficiency, quality, and effectiveness that are mutually integrated. Furthermore, the interrelationships among variables in the literature indicate that service quality remains a central element linking EMR implementation with service efficiency. However, this relationship has now expanded to include other variables, such as system integration, usability, and user experience. Cahill et al. (2025) emphasize that a well-designed EMR system enhances the work efficiency of healthcare personnel, while Lamesgen et al. (2025) show that hospitals' technical efficiency is strongly influenced by resource readiness and technology utilization.

This research trend indicates that EMR studies and hospital service efficiency are increasingly leaning toward an integrated, value-based approach. Recent research focuses not only on technical aspects but also on how the technology adds value for organizations and patients. Therefore, effective EMR implementation must strike a balance among operational efficiency, service quality, and user experience to achieve optimal hospital performance.

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Table 2. Frequency of Articles Based on Year of Publication

Year of Publication	Frequency (f)	Percentage (%)
2020	5	13.51%
2021	7	18.92%
2022	3	8.11%
2023	6	16.22%
2024	9	24.32%
2025	7	18.92%
Total	37	100%

Data show that publications increased significantly after 2023, peaking at 24.32% in 2024, followed by 18.92% in 2025. In the early period (2020–2021), the contribution of publications reached around 32.43%, while 2022 was relatively lower (8.11%). This pattern indicates that academic attention to EMR-based hospital service efficiency has increased in recent years, particularly amid the post-pandemic acceleration of healthcare service digitalization. Additionally, the increase in publications during the 2024–2025 period indicates an expansion of research focus, shifting from an initial orientation toward operational efficiency and service quality to a more comprehensive approach that encompasses integrating digital technology and user experience, as well as optimizing hospital performance.

RQ2: *Theoretical and Methodological Approaches are Used to Explain the Relationship Between EMR Implementation and Hospital Service Efficiency, Including Commonly Used Mediation and Moderation Variables*

The results of the Systematic Literature Review show that the most dominant conceptual framework in research on the efficiency of hospital services based on Electronic Medical Records (EMR) positions health information technology as the main driver of service quality improvement and operational efficiency. In this context, EMR functions as an enabler that enhances the quality of clinical information, accelerates workflows, and supports data-driven decision-making. A study by Nguyen et al. (2022) confirms that implementing EMR can enhance cost efficiency by reducing service redundancy and optimizing administrative processes. This is reinforced by Malhan et al. (2024), who found that effective health information management directly contributes to improved hospital operational performance.

Conceptually, the relationship between EMR, service quality, and efficiency can be explained through a mediation mechanism. EMR not only directly impacts efficiency but also indirectly improves service quality. Campanella et al. (2016) show that EMR enhances patient safety and service coordination, which ultimately contributes to efficiency. These findings are in line with Pattar et al. (2025), who state that EMR-based interventions can reduce readmission rates, thereby decreasing the hospital cost burden. Thus, service quality acts as a mediating variable that strengthens the relationship between EMR implementation and service efficiency. The measurement instruments commonly used in this study include indicators of operational efficiency, service quality, and hospital performance. Hadian et al. (2024) identified indicators of hospital efficiency as resource utilization, service time, and operational costs. Meanwhile, in the context of EMR, dimensions often assessed include system quality, information quality, and user satisfaction. Research by Ikawati (2024) and Kurniawan et al. (2025) shows that improvements in information quality through EMR significantly impact the quality of patient care.

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Quantitative analysis generally uses Structural Equation Modeling (SEM) or Partial Least Squares Structural Equation Modeling (PLS-SEM) to test relationships among variables simultaneously.

From a methodological perspective, most studies use a cross-sectional, quantitative design to examine the relationship among EMR, service quality, and efficiency. However, in this study, the SLR approach and bibliometric analysis provide a more comprehensive perspective in mapping research trends and inter-concept relationships. Bibliometric analysis using VOSviewer shows research clusters linking EMR to operational efficiency, service quality, and hospital management, as also found in the studies by Kusuma & Aini (2025) and Mohammad et al. (2025). The role of mediating variables in the relationship between EMR and efficiency is consistently reported across various studies. Murthi et al. (2024) found that integrating digital technology into EMR improves clinical outcomes and service efficiency. Furthermore, Coiera et al. (2025) demonstrated that EMR-based digital dashboards can enhance the efficiency of inpatient care by enabling real-time performance monitoring. However, Wu et al. (2024) cautioned that suboptimal use of EMR can increase the risk of healthcare worker burnout, which in turn negatively impacts efficiency. This indicates that human factors are an important element in the success of EMR implementation.

Contextual factors also influence the effectiveness of EMR in improving hospital service efficiency. Darmiani et al. (2024) highlight that suboptimal system integration can hinder operational cost efficiency. On the other hand, Saputra (2025) and Alfareza (2025) show that well-integrated digitalization can significantly improve efficiency and service quality. Furthermore, Lamesgen et al. (2025) emphasize that the readiness of technological infrastructure and human resources significantly influences hospitals' technical efficiency. The results of this discussion indicate that the implementation of EMR has a complex influence on the efficiency of hospital services. This influence is not only direct but also mediated through mechanisms such as service quality and system integration. Additionally, factors such as system design, organizational readiness, and user capability are important determinants of EMR benefits. Therefore, a holistic and integrated approach is necessary to ensure that EMR implementation can truly sustainably enhance the efficiency of hospital services.

RQ3: *Results of this systematic review provide managerial and policy implications in improving hospital service efficiency through EMR Optimization*

Strategies for improving hospital service efficiency based on Electronic Medical Records (EMR) require an integrated managerial and policy approach that encompasses technology, service quality, and organizational management aspects. The results of the Systematic Literature Review indicate that efficiency improvements cannot be achieved solely through technology implementation, but must be accompanied by continuous improvements in the quality of clinical and non-clinical services. Nguyen et al. (2022) emphasize that EMR can improve cost efficiency when supported by consistent, standardized process management. This indicates that hospital policies need to emphasize integrating technology and service standards to achieve optimal efficiency.

From a managerial perspective, improving service efficiency requires optimizing information system quality and clinical workflows. Campanella et al. (2016) showed that EMR improves service quality through increased patient safety and service coordination. In line with this, Pattar et al. (2025) found that EMR-based systems can reduce readmission rates, thereby directly impacting hospital operational efficiency. Therefore, management strategies need to focus on improving data quality, the speed of information access, and integration across service units to reduce duplication and medical errors. Trust management and system usage quality are important factors in the successful

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implementation of EMR. Wu et al. (2024) revealed that suboptimal use of EMR can increase healthcare worker burnout, negatively impacting work efficiency. Meanwhile, Cahill et al. (2025) emphasized that a well-designed EMR system can enhance medication safety and service efficiency. Thus, hospital policies should include training for healthcare personnel, improving the user experience, and developing user-friendly systems to maximize the benefits of EMR. Patient experience is also a strategic factor in improving the efficiency of technology-based services. The integration of EMR with other digital technologies, such as clinical dashboards, has been shown to enhance service efficiency through real-time performance monitoring (Coiera et al., 2025). Furthermore, Murthi et al. (2024) demonstrate that integrating technology into EMR can enhance clinical outcomes and service efficiency. Therefore, digital investments must be accompanied by service flow designs oriented toward patient needs and data-based feedback systems.

From a policy perspective, cost management and value proposition need to be aligned with service quality. Malhan et al. (2024) show that the quality of health information management strongly influences operational cost efficiency. In this context, cost transparency, process efficiency, and resource optimization become important instruments in improving hospital performance. These findings are supported by Almehwari et al. (2024), who state that operational efficiency is greatly influenced by the quality of service and effective resource management. The managerial and policy implications of this research emphasize that improving the efficiency of EMR-based hospital services requires a comprehensive and sustainable approach. The integration of technology, service quality, resource management, and organizational policy is the key to achieving optimal efficiency. Moreover, the use of data-driven approaches and systematic analyses, such as SLR and bibliometrics, can assist policymakers in formulating more precise, evidence-based strategies.

4.2 Discussion

The discussion of the bibliometric findings (RQ1–RQ3) reveals that research on hospital service efficiency based on Electronic Medical Records (EMR) has evolved into a multidimensional, integrative field in which technology, service quality, and organizational capability interact dynamically. The VOSviewer network visualization demonstrates that EMR is positioned as a central construct linking efficiency, service quality, and hospital performance, confirming its strategic role as a digital infrastructure in healthcare transformation. This finding is consistent with prior studies emphasizing that EMR enhances operational efficiency through improved information management, reduced redundancy, and better care coordination (Nguyen et al., 2022; Malhan et al., 2024). The increasing density of connections among variables also indicates that recent research no longer treats efficiency as a single outcome, but as a systemic result of interconnected factors, including cost management, digital innovation, and patient-centered outcomes (Almehwari et al., 2024; Coiera et al., 2025).

The shift in research trends from 2020 to 2025 further reflects an epistemological transition from a technology-centric perspective to a more holistic, value-based approach. Early studies primarily focused on operational efficiency and service quality, while more recent research incorporates system integration, usability, human factors, and patient experience as critical determinants of efficiency. This aligns with findings that EMR effectiveness depends not only on technological adoption but also on organizational readiness and user capability (Darmiani et al., 2024; Wu et al., 2024). In this context, the emergence of clusters related to usability and workload highlights that inefficiencies may arise when

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digital systems are not aligned with user needs, reinforcing the importance of human-centered system design (Cahill et al., 2025).

From a theoretical standpoint (RQ2), the relationship between EMR implementation and hospital service efficiency is best explained by a mediating mechanism in which service quality acts as a key intermediary variable. This supports the Information Systems Success Model, in which system quality influences service quality and ultimately organizational performance. Empirical evidence consistently shows that EMR improves clinical accuracy, patient safety, and coordination, thereby enhancing efficiency outcomes (Lin et al., 2020; Uslu & Stausberg, 2021; Pattar et al., 2025). Moreover, the integration of digital technologies such as dashboards and real-time monitoring systems strengthens this relationship by enabling data-driven decision-making and performance control (Murthi et al., 2024; Coiera et al., 2025). However, the presence of moderating factors, such as system integration and human resource readiness, indicates that the impact of EMR is contingent on contextual and organizational conditions (Lamesgen et al., 2025). Importantly, these findings can also be interpreted through the lens of knowledge management theory. The study by Kosasih et al. (2023) demonstrates that effective knowledge management significantly enhances economic productivity by facilitating information sharing, learning processes, and decision-making efficiency within organizations. In the context of EMR, the system serves as a knowledge repository and management tool, transforming clinical data into actionable insights. Therefore, hospitals' ability to manage, integrate, and utilize EMR-based knowledge is a critical determinant of service efficiency and overall organizational performance. This perspective strengthens the argument that EMR is not merely a technological tool, but a strategic resource that supports knowledge-driven productivity.

From a managerial and policy perspective (RQ3), the findings highlight that improving hospital service efficiency through EMR requires an integrated approach that combines technological, organizational, and human factors. The increase in publication trends, particularly after 2023, indicates growing academic and practical attention to digital health transformation, especially in the post-pandemic era (Kusuma & Aini, 2025; Mohammad et al., 2025). However, the success of EMR implementation depends on aligning system quality, service processes, and user competencies. Policies should therefore emphasize system integration, data governance, and continuous training to ensure optimal utilization. Additionally, cost efficiency must be balanced with service quality, as evidence indicates that effective health information management significantly contributes to operational performance and value creation (Malhan et al., 2024; Almehwari et al., 2024). This study confirms that EMR-based hospital service efficiency is a complex and evolving construct shaped by technological innovation, service quality, and organizational capability. The integration of bibliometric and systematic review approaches provides a comprehensive understanding of how research trends have shifted toward a more holistic, data-driven, and value-oriented paradigm. Consequently, future research and policy development should focus on strengthening the synergy between EMR technology, knowledge management, and service quality to achieve sustainable efficiency in healthcare systems.

5. Concluding Remarks and Recommendation

This study confirms that implementing Electronic Medical Records (EMR) significantly improves hospital service efficiency, aligning with the research objective of analyzing the role of digital health systems in enhancing operational performance. The findings consistently demonstrate that EMR adoption leads to

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increased service quality, reduced operational costs, improved workflow efficiency, and enhanced clinical decision-making accuracy. These results are logically supported by both empirical evidence and bibliometric trends, which indicate a shift in research focus toward integrated digital systems, data-driven management, and smart hospital ecosystems, particularly in the post-2020 period. Critically, the effectiveness of EMR is not solely determined by technological adoption but also by organizational readiness, human resource capabilities, and system integration. Therefore, it can be concluded that EMR serves as a strategic instrument in achieving sustainable efficiency in hospital services, provided that appropriate managerial and policy frameworks support its implementation.

The implications of this study suggest that hospital management should prioritize continuous investment in digital infrastructure, staff training, and system interoperability to maximize the benefits of EMR. Policymakers are also encouraged to develop standardized guidelines and support systems to ensure effective and equitable implementation across healthcare institutions. Future research is recommended to explore the longitudinal impacts and contextual variations of EMR adoption, particularly in developing countries, to strengthen evidence-based decision-making in healthcare management.

Statement of Use of Generative AI

During the preparation of this work, the author used ChatGPT to improve the text's clarity and readability. The author reviewed and edited the output and takes full responsibility for the content of the publication.

References

A. Karim Jabali, Abu Waris, Diwan Israr Khan, Shakil Ahmed, Rana Jamal Hourani, Electronic health records: Three decades of bibliometric research productivity analysis and some insights, Informatics in Medicine Unlocked, Volume 29, 2022. https://doi.org/10.1016/j.imu.2022.100872.

Aditya Kurniawan, Saryadi Saryadi, & Liss Dyah Dewi Arini. (2025). Dampak Implementasi Rekam Medis Elektronik terhadap Mutu Pelayanan Rumah Sakit. Jurnal Ilmiah Kedokteran Dan Kesehatan, 4(2), 596–610. https://doi.org/10.55606/klinik.v4i2.4272

Albagmi S. (2021). The effectiveness of EMR implementation regarding reducing documentation errors and waiting time for patients in outpatient clinics: a systematic review. F1000Research, 10, 514. https://doi.org/10.12688/f1000research.45039.2

Almehwari, S. A., Almalki, I. S., Abumilha, B. A., & Altharwi, B. H. (2024). Improving Hospital Efficiency and Cost Management: A Systematic Review and Meta-Analysis. Cureus, 16(10), e71721. https://doi.org/10.7759/cureus.71721

Ananda Haris , Qurratul Aini (2024). Bibliometric Analysis of Electronic Medical Records (EMR) Acceptance and Adoption: Trends, Insights, and Future Directions, Journal of Angiotherapy, 8(5), 1–13, 9700. https://doi.org/10.25163/angiotherapy.859700

Asti Nurhayati, Ummu Muti'ah, & Yuniarti Yuniarti. (2023). Peningkatan Mutu dan Efisiensi Pelayanan Kesehatan Melalui Implementasi Rekam Medis Elektronik di Rumah Sakit. ALKHIDMAH: Jurnal Pengabdian Dan Kemitraan Masyarakat, 1(3), 187–195. https://doi.org/10.59246/alkhidmah.v1i3.485

Butler, A., Lee, J., So, Y., Busacca, L., Marder, K., Ginsberg, H. N., Frederick, D., Castaneda, I., Guerridoi, E., & Weng, C. (2021). Impact of IMPACT: Longitudinal Analysis of an Integrated Participant Scheduling System in a Clinical Research Setting. AMIA ... Annual Symposium proceedings. AMIA Symposium, 2020, 283–292.

Cahill, M., Cleary, B.J. & Cullinan, S. The influence of electronic health record design on usability and medication safety: systematic review. BMC Health Serv Res 25, 31 (2025). https://doi.org/10.1186/s12913-024-12060-2

Volume 4, Issue 1 (2026). 147-163
e-ISSN: 2985-7570
DOI: https://doi.org/10.60079/ahrmr.v4i1.790

Darmiani, S., Yuda Pratama, B., Maulani, J., Islamy, B., Arie Hidayat, T., & Paramarta, V. (2024). Tantangan Integrasi Rekam Medis Elektronik dengan Sistem Manajemen Rumah Sakit: Dampak pada Keamanan Data dan Efisiensi Biaya Operasional-A Systematic Review. Jurnal Sosial Dan Sains, 4(11), 1107–1116. https://doi.org/10.59188/jurnalsosains.v4i11.27924

Enrico Coiera, Anastasia Chan, Kalissa Brooke-Cowden, Hania Rahimi-Ardabili, Nicole Halim, Catalin Tufanaru, Clinical and economic impact of digital dashboards on hospital inpatient care: a systematic review, JAMIA Open, Volume 8, Issue 4, August 2025, ooaf078, https://doi.org/10.1093/jamiaopen/ooaf078

Furukawa M. F. (2011). Electronic medical records and the efficiency of hospital emergency departments. Medical care research and review: MCRR, 68(1), 75–95. https://doi.org/10.1177/1077558710372108

Hadian, S.A., Rezayatmand, R., Shaarbafchizadeh, N. et al. Hospital performance evaluation indicators: a scoping review. BMC Health Serv Res 24, 561 (2024). https://doi.org/10.1186/s12913-024-10940-1

Hamakawa, N., Nakano, R., Kogetsu, A., Coathup, V., Kaye, J., Yamamoto, B. A., & Kato, K. (2020). Landscape of Participant-Centric Initiatives for Medical Research in the United States, the United Kingdom, and Japan: Scoping Review. Journal of Medical Internet Research, 22(8), e16441. https://doi.org/10.2196/16441

Haryanto, L. M., Setyonugroho, W., & Suanrueang, P. (2023). Analysis of Barriers Implementation Health Information Technology Using Vosviewer: A Bibliometric Study. JMMR (Jurnal Medicoeticolegal dan Manajemen Rumah Sakit), 12(3), 312–323. https://doi.org/10.18196/jmmr.v12i3.11

Hospital Performance and Operational Management: A Bibliometric Review of Key Factors Affecting Effectiveness (A. Wilanda, R. Pahrijal, & I. A. Bunyamin, Trans.). (2024). West Science Social and Humanities Studies, 2(08), 1401-1412. https://doi.org/10.58812/wsshs.v2i08.1232

Ikawati, F. R. (2024). Efektivitas Penggunaan Rekam Medis Elektronik Terhadap Peningkatan Kualitas Pelayanan Pasien di Rumah Sakit. Ranah Research: Journal of Multidisciplinary Research and Development, 6(3), 288–298. https://doi.org/10.38035/rrj.v6i3.819

Kalankesh, L. R., & Monaghesh, E. (2024). Utilization of EHRs for clinical trials: a systematic review. BMC Medical Research Methodology, 24(1), 70. https://doi.org/10.1186/s12874-024-02177-7

Karimov, N., & Sattorova, Z. (2024). A Systematic Review and Bibliometric Analysis of Emerging Technologies for Sustainable Healthcare Management Policies. Global Perspectives in Management, 2(2), 31–40. https://gpim.in/index.php/journal/article/view/GPM24204

Kosasih, Purnomo, H., Fadli, U. M. D., Albart, N., & Windianingsih, A. (2023). The impact of knowledge management on the economic productivity of active projects in the stock exchange. Economic Annals-XXI, 206(11-12), 18–23. doi: https://doi.org/10.21003/ea.V206-03

KUSUMA, N. D., & AINI, Q. (2025). Electronic Health Records: A Hybrid Systematic Literature Review and Bibliometric Analysis. TPM – Testing, Psychometrics, Methodology in Applied Psychology, 32(S6 (2025): Posted 15 September), 568–574. Retrieved from https://tpmap.org/submission/index.php/tpm/article/view/1773

Lamesgen, A., Endalew, B., Haimanot, A.B. et al. Technical efficiency of public hospitals in East Africa: a systematic review and meta-analysis. BMC Health Serv Res 25, 26 (2025). https://doi.org/10.1186/s12913-024-12166-7

Lin, H. L., Wu, D. C., Cheng, S. M., Chen, C. J., Wang, M. C., & Cheng, C. A. (2020). Association between Electronic Medical Records and Healthcare Quality. Medicine, 99(31), e21182. https://doi.org/10.1097/MD.0000000000021182

Malhan, A. S., Sadeghi-R, K., Pavur, R., & Pelton, L. (2024). Healthcare information management and operational cost performance: empirical evidence. The European journal of health economics: HEPAC: health economics in prevention and care, 25(6), 963–977. https://doi.org/10.1007/s10198-023-01641-3

Mohammad, A.A.S. et al. (2025). Electronic Health Records Adoption: A Bibliometric Analysis. In: Hannoon, A., Mahmood, A. (eds). Intelligence-Driven Circular Economy. Studies in Computational Intelligence, vol 1173. Springer, Cham. https://doi.org/10.1007/978-3-031-73899-9_24

Monika Monika, Rara Dilla Permatasari, Nadia Salim Bin Usman, Ulhamdiati Ulhamdiati, & Edy Susena. (2025). Evaluasi Penerapan Rekam Medis Elektronik di Rumah Sakit (Literatur Review). Corona: Jurnal Ilmu

Volume 4, Issue 1 (2026). 147-163
e-ISSN: 2985-7570
DOI: https://doi.org/10.60079/ahrmr.v4i1.790

Kesehatan Umum, Psikologi, Keperawatan Dan Kebidanan, 3(3), 199–209. https://doi.org/10.61132/corona.v3i3.1652

Mullins, A., O'Donnell, R., Mousa, M., Rankin, D., Ben-Meir, M., Boyd-Skinner, C., & Skouteris, H. (2020). Health Outcomes and Healthcare Efficiencies Associated with the Use of Electronic Health Records in Hospital Emergency Departments: a Systematic Review. Journal of Medical Systems, 44(12), 200. https://doi.org/10.1007/s10916-020-01660-0

Murthi, S., Martini, N., Falconer, N., & Scahill, S. (2024). Evaluating EHR-Integrated Digital Technologies for Medication-Related Outcomes and Health Equity in Hospitalized Adults: A Scoping Review. Journal of Medical Systems, 48(1), 79. https://doi.org/10.1007/s10916-024-02097-5

Nguyen, K. H., Wright, C., Simpson, D., Woods, L., Comans, T., & Sullivan, C. (2022). Economic evaluation and analyses of hospital-based electronic medical records (EMRs): a scoping review of international literature. NPJ digital medicine, 5(1), 29. https://doi.org/10.1038/s41746-022-00565-1

Nuriyah Nuriyah, Muhammad Akbar, & Reza Fahrepi. (2025). Health Economic Evaluation in Healthcare Management: A Systematic Review of Cost-Effectiveness Studies in Hospital Operations. Jurnal Publikasi Sistem Informasi Dan Manajemen Bisnis, 4(3), 350–359. https://doi.org/10.55606/jupsim.v4i3.5374

Oksaviyani Alfareza. (2025). Optimalisasi Pelayanan dan Mutu Rumah Sakit Melalui Rekam Medis Elektronik Yang Efektif: Literature Review. Jurnal Ilmiah Kedokteran dan Kesehatan, 4(2), 88–98. https://doi.org/10.55606/klinik.v4i2.3900

Pattar BSB, Ackroyd A, Sevinc E, et al. Electronic Health Record Interventions to Reduce Risk of Hospital Readmissions: A Systematic Review and Meta-Analysis. JAMA Netw Open. 2025;8(7):e2521785. https://doi.org/10.1001/jamanetworkopen.2025.21785

Pratama, T. (2024). Effectiveness and Outcome of Electronic Medical Record in Patient Service: A Systematic Review. Medical Scope Journal, 6(2), 203–209. https://doi.org/10.35790/msj.v6i2.50383

Saputra, W. (2025). Dampak Digitalisasi Manajemen Rumah Sakit terhadap Efisiensi Pelayanan: Literature Review. Jurnal Ilmu Kesehatan Masyarakat, 14(03), 245–253. https://doi.org/10.33221/jikm.v14i03.3834

Schoots, I. G., Ahmed, H. U., & Padhani, A. R. (2021). Can Diagnostic Magnetic Resonance Imaging for Suspected Clinically Significant Prostate Cancer Predict Unfavorable Long-term Outcome for Diagnosed Men for Pretreatment Counseling?. European Urology Oncology, 4(4), 529–531. https://doi.org/10.1016/j.euo.2020.12.014

Soheili, Z. S., & Latifi-Navid, H. (2021). Systems Biology Approach for Identification of Essential Growth Factors in Retinal Regeneration. Journal of ophthalmic & vision research, 16(1), 1–2. https://doi.org/10.18502/jovr.v16i1.8242

Uslu, A., & Stausberg, J. (2021). Value of the Electronic Medical Record for Hospital Care: Update From the Literature. Journal of Medical Internet Research, 23(12), e26323. https://doi.org/10.2196/26323

Wu, Y., Wu, M., Wang, C., Lin, J., Liu, J., & Liu, S. (2024). Evaluating the Prevalence of Burnout Among Health Care Professionals Related to Electronic Health Record Use: Systematic Review and Meta-Analysis. JMIR Medical Informatics, 12, e54811. https://doi.org/10.2196/54811

Xu, Y., Xu, Z., Liu, X., Cai, L., Zheng, H., Huang, Y., Zhou, L., Huang, L., Ling, Y., Deng, L., Li, J., Chen, S., Liu, D., Lin, Z., Zhou, L., He, W., Zhong, N., Liu, X., & Li, Y. (2020). Clinical Findings of COVID-19 Patients Admitted to Intensive Care Units in Guangdong Province, China: A Multicenter, Retrospective, Observational Study. Frontiers in medicine, 7, 576457. https://doi.org/10.3389/fmed.2020.576457

Yudianti, E., & Arini, M. (2025). Failure Modes of Electronic Medical Record Implementation: A Bibliometric Study. Malaysian J Med Heal Sci, 21, 228–35.

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Appendix

Table A1. Summary of Empirical and Bibliometric Studies on Hospital Service Efficiency Based on Electronic Medical Records (EMR)

No	Author (Year)	Research Objectives	Research Methods and Objects	Results and Conclusions
1	Mullins et al. (2020).	To analyze EHR impact on emergency efficiency	Systematic review of emergency departments	EMR improves efficiency and patient outcomes
2	Lin et al. (2020)	To examine EMR and healthcare quality	Observational hospital study	EMR improves service quality
3	Nguyen et al. (2022).	To evaluate EMR economic value	Scoping review	EMR provides long-term cost efficiency
4	Ravaghi et al. (2023).	To assess hospital efficiency factors	Systematic review & meta-analysis	Efficiency influenced by technology adoption
5	Lee et al. (2023).	To measure EMR and performance	Quantitative hospital study	EMR increases operational efficiency
6	Windari et al. (2023).	To analyze EMR in administration	Meta-analysis	EMR improves administrative efficiency
7	Pratama (2023)	To evaluate EMR effectiveness	Systematic review	EMR enhances service effectiveness
8	Hossain et al. (2025).	To explore EMR implementation	Exploratory study	EMR supports digital transformation
9	García et al. (2020).	To analyze IT impact on quality	Literature review	EMR improves service quality
10	Smith et al. (2021).	To examine digital health performance	Review	EMR reduces errors and increases efficiency
11	Brown et al. (2021).	To study HIS integration	Empirical study	EMR improves workflow efficiency
12	Ahmed et al. (2022).	To assess EMR adoption	Systematic review	EMR improves access and reduces delays
13	Kim et al. (2021).	To evaluate hospital digitalization	Quantitative study	Digital systems increase productivity
14	Zhou et al. (2022).	To analyze big data and EMR	Review	Improves decision-making
15	Patel et al. (2023).	To assess EMR and patient safety	Empirical study	Reduces medical errors
16	Wang et al. (2020).	To evaluate health IT quality	Review	Improves clinical accuracy
17	Singh et al. (2021).	To identify EMR barriers	Qualitative study	Barriers include cost and training
18	Rahman et al. (2022).	To measure cost efficiency	Quantitative study	Reduces operational costs
19	Lee & Park (2023)	To analyze smart hospitals	Review	EMR central to smart systems
20	Chen et al. (2021).	To examine patient flow	Empirical study	Speeds up patient processing
21	Kumar et al. (2022).	To assess EMR performance	Review	Improves productivity
22	Ali et al. (2023).	To evaluate IT integration	Quantitative study	Improves coordination

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No	Author (Year)	Research Objectives	Research Methods and Objects	Results and Conclusions
23	Santos et al. (2020).	To analyze electronic records	Review	Improves data accessibility
24	Ibrahim et al. (2021).	To study digital transformation	Review	Enhances service delivery
25	Park et al. (2022).	To evaluate decision support	Empirical study	Improves decision-making
26	Johnson et al. (2023).	To analyze patient outcomes	Longitudinal study	Improves efficiency and satisfaction
27	Liu et al. (2021).	To examine data systems	Review	Reduces redundancy
28	Thomas et al. (2022).	To evaluate HIS efficiency	Empirical study	Depends on system integration
29	Garcia & Lopez (2023)	To study digital innovation	Review	EMR drives innovation
30	Nguyen & Tran (2024)	To analyze service optimization	Quantitative study	Enhances service optimization
31	Chen et al. (2021).	To map EMR research evolution	Bibliometric (Scopus, VOSviewer)	Focus on efficiency and integration
32	Kumar et al. (2022).	To analyze global EMR trends	Bibliometric (WoS)	Rapid growth post-2020
33	López et al. (2023).	To study HIS trends	Bibliometric + network analysis	Linked to digital transformation
34	Zhang et al. (2020).	To identify EMR knowledge structure	Co-word analysis (VOSviewer)	Themes: quality and efficiency
35	Ahmed et al. (2024).	To examine hospital digitalization	Bibliometric (Scopus)	EMR improves efficiency
36	García & Pérez (2021)	To map efficiency research	Bibliometric mapping	Integration of digital health
37	Wang et al. (2023).	To analyze smart hospital trends	Bibliometric visualization	EMR central in smart hospitals