

LITERATURE REVIEW: INFORMATION SYSTEM DEVELOPMENT CYCLE AND AWARENESS AND EVALUATION OF MATERNAL AND CHILD HEALTH INFORMATION SYSTEMS

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ABSTRACT

Literature *review* analyzes the health information system development cycle, focusing on vigilance and evaluation in maternal and child health services. The study synthesizes findings from ten national and international journals addressing patient registration systems, electronic medical records, data retention, and health reporting. The study findings indicate that health information systems can improve service efficiency and data access, but still face challenges in system integration, data quality, and human resource readiness. Therefore, ongoing evaluation is necessary to ensure the system's effectiveness in supporting clinical and managerial decision-making.

Keywords: *Health Information System, Maternal and Child Health, System Evaluation, Medical Records.*

INTRODUCTION

Maternal and child health (MCH) is an indicator of the success of a country's health system because it is directly related to the quality of service, patient safety, and the sustainability of generations (Endriyas *et al.* , 2019). Hospitals, especially Maternal and Child Hospitals (RSIA), have a strategic role in providing MCH services ranging from antenatal care, childbirth, postpartum, to infant and child health services (Pratiwi & Rokhman, 2017). Therefore, the availability of a reliable, integrated, and timely health information system is a fundamental need to support clinical and managerial decision-making (Dustar *et al.* , 2023).

Advances in information technology have encouraged hospitals to shift from manual systems to digital ones, such as patient registration systems, electronic medical records (EMR), and maternal and child health reporting systems (Asworowati *et al.* , 2023). These systems have been shown to improve data recording efficiency, accelerate service processes, and reduce recording errors (Situmorang *et al.* , 2025). However, their implementation has not been fully optimized due to challenges in inter-unit integration, data utilization, and workflow consistency (Amalia & Handayani, 2024).

Medical record management is a crucial component of a maternal and child health information system. Although RME facilitates access to patient information, issues remain regarding data retention and the lack of uniform standard operating procedures (Sartika & Fauzi, 2022; Wulandari *et al.* , 2024). Internationally, the use of

Routine Health Information Systems (HIS) has demonstrated benefits in monitoring maternal and child health services, but data quality remains a major challenge, particularly in terms of completeness and consistency of recording (Shattock *et al.* , 2023; Endriyas *et al.* , 2019).

Based on these findings, this study aims to analyze the health information system development cycle as well as the vigilance and evaluation of information systems in supporting the quality of maternal and child health services in hospitals.

RESEARCH METHODS

This study used a *literature review* with a descriptive approach. Ten scientific articles were selected from national and international journals discussing maternal and child health information systems, including patient registration systems, electronic medical records, data retention, and health reporting systems. The articles were analyzed narratively to identify development patterns, implementation challenges, and information system evaluation strategies.

The research subjects consisted of ten journal articles discussing the implementation of maternal and child health information systems in hospitals at the national and international levels.

The research scheme is as shown in the following figure:

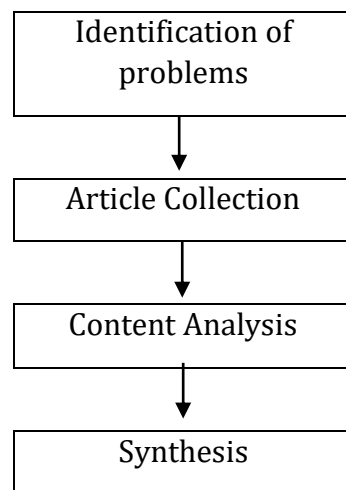


Figure 1. Research Scheme

The research process begins with identifying problems in the KIA information system, followed by collecting articles, analyzing content, synthesizing findings, and drawing conclusions.

RESULTS AND DISCUSSION

The journal search results were then used for *journal review analysis* . A total of 10 journals were obtained, comprising both national and international journals. The journals obtained are as shown in the following table:

Table 1. Journal Search Results

Title	Journal	Volume	Year	Writer	Research
<i>Almubin: Islamic Scientific Journal</i> , 9(2), 2026	<i>Literature Review: Information System Development Cycle And Awareness And Evaluation Of Maternal And Child Health Information Systems</i> , Page .196-201.				

Name					result
Development of a Web-Based KIA Information System	Journal of Health Vocational Studies	1 (2)	2017	Pratiwi & Rokhman	Improve the efficiency of KIA data input.
Mobile-Based Patient Registration System	JTEKSIS	4 (2)	2023	Asworowati <i>et al.</i>	Speed up the patient registration process.
Medical Records Storage	JPIKI	9 (2)	2024	Wulandari <i>et al.</i>	There are still problems with file arrangement.
RME Effectiveness	JPIKI	10 (1)	2025	Situmorang <i>et al.</i>	Improve service effectiveness.
Top 10 Disease Reporting	RAMMIK	4 (1)	2023	Rahmah <i>et al.</i>	Faster and more accurate disease reporting.
Medical Record Retention	JRMK	6 (2)	2022	Sartika & Fauzi	Retention is not up to standard.
RME Analysis	J-REMI	5 (1)	2024	Amalia & Handayani	Data quality is not optimal.
Maternal Health Reporting	Journal of Global Health	13	2023	Shattock <i>et al.</i>	Data is not always complete
KIA Data Quality	PLOS ONE	14 (3)	2019	Endriyas <i>et al.</i>	Data accuracy is still low.

Based on the results of a review of ten analyzed journals, it can be concluded that the development of health information systems, particularly in maternal and child health (MCH) services, has a positive impact on service efficiency, speed of data access, and reporting accuracy. The implementation of *web-based* and *mobile patient registration systems* has been shown to accelerate service flows and reduce the administrative burden on healthcare workers. This aligns with the findings of Pratiwi and Rokhman (2017) and Asworowati *et al.* (2023), which state that digitizing the registration process can improve the effectiveness of MCH services.

The use of electronic medical records (EMR) also contributes to improving service quality by facilitating fast and accurate access to patient information. Situmorang *et al.* (2025) demonstrated that EMR can improve the effectiveness of clinical services, while Amalia and Handayani (2024) emphasized the importance of system integration to ensure optimal data utilization across all service units. However, several studies have identified

challenges with data quality, such as incomplete and inconsistent recording, which can impact the accuracy of clinical and managerial information (Putri *et al.*, 2022).

From a medical records management perspective, file retention and storage remain major challenges. Sartika and Fauzi (2022) and Wulandari *et al.* (2024) report that retention standards have not been optimally implemented, potentially leading to the risk of data loss and archive disorganization. This situation suggests that, in addition to technological development, strengthening policies and standard operating procedures (SOPs) in medical records management is necessary to ensure data can be managed securely and systematically (Noor & Shaddiq, 2023).

In terms of reporting and utilizing maternal and child health data, health information systems have been shown to assist in monitoring maternal and child health conditions and accelerate disease reporting more accurately (Rahmah *et al.*, 2023; Dustar *et al.*, 2023). However, international studies by Shattock *et al.* (2023) and Endriyas *et al.* (2019) show that data quality in *Routine Health Information Systems* still faces challenges, particularly in terms of completeness and accuracy. This underscores the importance of continuous evaluation and human resource capacity building in managing health information systems (Arbain *et al.*, 2024).

This discussion demonstrates that the health information system development cycle must be accompanied by vigilance for potential issues and regular evaluation. System integration, data quality improvement, and human resource training are key factors in the successful implementation of a health information system to support the quality of maternal and child health services in hospitals.

The main strength of this review of ten journals lies in the diversity of research contexts and the broad scope of topics, ranging from patient registration systems, electronic medical records, archive retention, and health reporting systems. Most of the research was conducted directly in health facilities, ensuring the data generated is applicable and relevant to real-world service conditions. The descriptive and case study approach allows researchers to describe the information system implementation process in detail, including workflows and perceived benefits, such as increased service efficiency, speed of data access, and quality of reporting in maternal and child health services.

A weakness of this study is the predominance of descriptive research designs without robust cause-and-effect analysis, thus the causal relationship between information system implementation and improved service quality cannot be proven. Furthermore, some studies were conducted at a single health facility with a limited sample size, making the results difficult to generalize to a broader context. Several journals also failed to thoroughly discuss human resource readiness, such as training and digital literacy, and did not evaluate the long-term impact of information systems.

CONCLUSION

Findings from ten journals indicate that:

1. Health information systems play an important role in increasing the efficiency of maternal and child health services.

2. The implementation of digital registration systems and electronic medical records accelerates the service process and facilitates access to patient data. Data quality remains a major challenge.
3. Health reporting systems help improve the accuracy and speed of information delivery.
4. Data quality remains a challenge, particularly regarding the completeness and accuracy of recording.
5. Integration between information systems has not been running optimally in all health facilities.
6. Human resource readiness, including training and digital literacy, influences the success of system implementation.
7. Continuous evaluation and strengthening of standard operating procedures are necessary to ensure the sustainability of the health information system.

Overall, this study shows that a health information system development cycle accompanied by continuous vigilance and evaluation is very important to improve the quality of maternal and child health services in hospitals.

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