

Factors Inhibiting Outpatient Electronic Medical Record Completion From the Perspective of Health Care Officers at North Bolaang Mongondow Regional Hospital

Wafadelila Eato^{1*}, Riska Ahmad², Moh. Ichsan Antu³

¹²³DIII Medical Records and Health Information Study Program, STIKES Bakti Nusantara Gorontalo, Indonesia

*Corresponding author: Wafadelila@gmail.com

Article Info

Article history:

Received 26 May, 2026

Revised 08 July, 2026

Accepted 25 July, 2026

Keywords:

Electronic Medical Records;
Outpatient Care;
Implementation Barriers;
Health Care Officers; 5M
Framework

ABSTRACT

Background: Electronic Medical Records (EMR) are increasingly used as part of digital transformation in health services. In outpatient care, however, implementation may be constrained by human resources, infrastructure, procedures, data completeness, and financing. This study examined factors inhibiting outpatient EMR completion from the perspective of health care officers at North Bolaang Mongondow Regional Hospital.

Methods: This study used a descriptive qualitative approach. Data were obtained through in-depth interviews, direct observation, and document review at the outpatient and medical-record units of North Bolaang Mongondow Regional Hospital in June 2026. Five informants participated: one key informant, two main informants, and two additional informants. The findings were analyzed using the 5M framework: Man, Method, Machine, Material, and Money.

Results: EMR implementation was still in an early transition stage and had not completely replaced paper-based documentation. Human-resource barriers included unequal exposure to EMR training and perceived staffing limitations at outpatient registration. Method-related barriers included the absence of a specific EMR completion standard operating procedure (SOP) and incomplete dissemination of procedures. Machine-related barriers included limited computers, unstable network access, uneven Wi-Fi availability, and occasional server/system downtime. Material-related barriers were reflected in incomplete electronic documentation and continued parallel use of manual and electronic records. Money-related barriers involved insufficient funding for additional computers, network improvement, system maintenance, and continuing training. Monitoring of EMR completeness was conducted periodically, including approximately monthly review, but remained part of an evolving implementation process.

Conclusion: Outpatient EMR completion at North Bolaang Mongondow Regional Hospital was influenced by interconnected 5M factors. The findings indicate the need for more evenly distributed training, clearer EMR-specific SOPs, stronger network and equipment infrastructure, systematic monitoring of data completeness, and sustainable budgeting for EMR development and maintenance.

INTRODUCTION

Digital transformation has changed how health organizations create, store, retrieve, and use clinical information. Electronic Medical Records (EMR) are intended to replace or reduce dependence on paper-based documentation and to make patient information more accessible, structured, secure, and useful for clinical and administrative activities. In Indonesia, the implementation of EMR has been strengthened through Minister of Health Regulation No. 24 of 2022 concerning Medical Records, which establishes a regulatory framework for electronic medical-record management and integration (Mujtahidah & Istiqamah, 2025).

The importance of EMR is particularly visible in outpatient services, where patient volume can be high and

documentation must be completed without unnecessarily extending waiting time. EMR can support registration, clinical assessment, treatment documentation, reporting, and access to patient information. Studies cited in the source research describe EMR as contributing to efficiency, data accessibility, documentation accuracy, and support for clinical decision-making (Suryani et al., 2024; Meilani et al., 2025; Fauziyah et al., 2025).

Nevertheless, the existence of an EMR system does not automatically mean that documentation becomes fully electronic or efficient. Previous studies identified barriers related to human resources, infrastructure, internet connectivity, training, procedures, system integration, and financing (Ifitah et al., 2022; Pamuji et al., 2024; Pakaya et al., 2025). In outpatient settings, technical interruptions may delay service and contribute to longer patient waiting time, while limited equipment may force staff to use alternative or manual documentation processes (Augustyana & Mulyani, 2025; Awali'ah et al., 2025).

The transition from paper records to EMR can also create a period of parallel documentation. When staff write information on paper and subsequently re-enter the same information into an electronic system, the process may create double work and increase the risk of delay, incomplete documentation, and data inconsistency (Fatimatuzzahra et al., 2025). Therefore, the quality of EMR implementation should be understood not only from the availability of software, but also from the readiness of people, procedures, infrastructure, supporting materials, and organizational financing.

At North Bolaang Mongondow Regional Hospital, outpatient EMR implementation was relatively new at the time of the study. The source research reports that the system had been in use for less than six months and that paper documentation remained part of the service process. Physicians could initially document on paper, after which registration or medical-record personnel entered patient identity, complaints, diagnoses, medical actions, and medications into the computer system. The physician then authenticated the entered information. The study also documented recurring network problems associated with dependence on wired Local Area Network (LAN) infrastructure and the absence of evenly distributed Wi-Fi.

These circumstances provide a specific local context for examining barriers to EMR completion. The study therefore focused on the perspectives of health care officers and analyzed barriers using the 5M framework: Man (human resources), Method (procedures), Machine (facilities and technology), Material (supporting documentation/data completeness), and Money (financing). The objective was to identify the factors that inhibit outpatient EMR completion and to provide an evidence base for improving implementation at the hospital.

METHODS

Study Design and Setting

A descriptive qualitative design was used to understand the experiences, perceptions, and operational barriers encountered by health care officers during outpatient EMR implementation. The study was conducted at North Bolaang Mongondow Regional Hospital (RSUD Bolaang Mongondow Utara), Talaga Tomoagu, West Bolang Itang District, North Bolaang Mongondow Regency, North Sulawesi, Indonesia. Data collection was conducted in June 2026.

Informants

Five informants participated in the study. They consisted of one key informant from the medical-record unit, two main informants from outpatient registration, and two additional informants representing medical-record/SIMRS-IT and supporting management functions. The source document identifies five informants in total and uses interviews to explore human resources, procedures, infrastructure, data completeness, monitoring, and financing.

Informant category	Role	Number
Key informant	Head/representative of the medical-record unit	1
Main informants	Outpatient registration officers	2
Additional informants	Medical-record/SIMRS-IT and supporting officer	2

Data Collection

Primary data were collected through in-depth interviews, direct observation, and documentation review. Observation focused on the actual process of EMR use in outpatient services, including availability of computers, network access, system use, workflow, and data completeness. Interviews explored staff experiences and perceptions regarding training, workload, procedures, equipment, network reliability, monitoring, and budget support. Document review considered SOPs, hospital policies, and other supporting documents related to EMR implementation.

Data Analysis

The analysis followed the study's 5M conceptual framework. Information was organized into five thematic domains: Man, Method, Machine, Material, and Money. Interview findings were compared with observations and

available documents to identify recurring barriers and areas where informants had different perceptions. The analysis emphasized the practical implications of each factor for the completeness, timeliness, and continuity of outpatient EMR documentation.

RESULTS

Early-Stage EMR Implementation

The study found that outpatient EMR implementation at North Bolaang Mongondow Regional Hospital was still in an early transition phase. The system had not yet completely replaced paper-based documentation. Paper forms continued to be used in clinical encounters, while electronic entry was performed at subsequent stages. This hybrid arrangement indicates that the hospital was implementing digital documentation incrementally rather than operating a fully electronic outpatient workflow.

In practice, physicians could record information manually during the patient encounter. The paper form was then transferred to registration or medical-record personnel for entry into the computer system. The electronic record could contain patient identity, complaints, diagnosis, medical procedures, and medication information. The physician subsequently authenticated the electronic entry. This workflow allowed the hospital to continue service while the EMR system was being developed, but it also created an additional data-entry stage.

The early implementation stage was accompanied by technical interruptions. Informants described network-related problems and system errors, while the hospital relied heavily on wired LAN infrastructure and did not yet have evenly distributed Wi-Fi. When access was slow or unavailable, manual records remained necessary to maintain service continuity. Thus, the transition strategy was functioning as a practical contingency mechanism, but it also prolonged parallel documentation.

Man: Human Resources

Human resources represented an important implementation issue, although the problem was not uniform across all units. Outpatient registration officers reported that staffing levels were still insufficient and that additional personnel were needed. They also reported that they had not received the same level of specific EMR training as some personnel in the medical-record and SIMRS/IT areas. In contrast, medical-record and SIMRS/IT personnel reported having received training and being sufficiently familiar with the system.

The different perceptions suggest that the human-resource barrier was partly unit-specific. The source research indicates that staff involved in EMR completion were still adapting because the implementation was relatively new. Uneven training creates a situation in which some users are more familiar with the electronic workflow than others. The issue is therefore not simply the total number of employees, but also the distribution of competence and training across work units.

This finding is consistent with the literature reviewed in the original study. Bariyah et al. (2023) describe human-resource capability as an important element in outpatient EMR implementation, while Anggraini et al. (2025) identify limited information-technology skills, insufficient training, and high workload as potential barriers. Arya et al. (2026) similarly identified training and staff capability as barriers in outpatient EMR implementation. These findings support the interpretation that staff preparation should accompany technical deployment.

At the hospital under study, the training gap was particularly relevant because outpatient registration officers interact directly with patient flow and documentation. If these officers must continue to use manual processes because of limited training or limited access to the electronic system, the expected efficiency benefits of EMR are reduced. The findings therefore point to the importance of equitable training and ongoing assistance rather than a one-time introduction of the system.

Method: Procedures and SOP

The method factor was characterized by the absence of a specific, fully implemented SOP governing outpatient EMR completion. The hospital was still preparing and socializing procedures as EMR implementation developed. Consequently, officers did not yet have a single formal reference that standardized every step of electronic documentation across units.

The absence of a specific SOP has practical consequences. A standardized procedure should define who enters particular data, when information must be entered, how corrections are handled, how authentication is completed, how incomplete records are followed up, and how system interruptions are managed. Without such guidance, different units may maintain different practices during the transition from paper to electronic records.

The finding is consistent with Pakaya et al. (2025), who identified the absence of written SOPs as a barrier to EMR implementation, and with Awali'ah et al. (2025), who emphasized the importance of clear procedures and socialization. Arya et al. (2026) also reported the absence of formal SOPs as a method-related barrier in outpatient registration. In the present setting, the issue was amplified by the coexistence of manual and electronic workflows. The findings do not indicate that staff were unwilling to follow procedures. Rather, the problem was that a specific EMR procedure had not yet been fully formalized and disseminated. This distinction is important because it places

the improvement opportunity at the organizational level: developing, socializing, and periodically reviewing an EMR-specific SOP.

Machine: Infrastructure and Technology

Machine-related barriers were directly visible in daily operations. Not every outpatient service area had a dedicated computer for EMR entry. Informants also reported unstable or slow network connections, uneven Wi-Fi availability, and occasional server or system downtime. The hospital's dependence on wired LAN infrastructure meant that a cable or connectivity problem could interrupt access to the system.

These limitations can affect both documentation and patient flow. When the system is slow or inaccessible, officers may need to wait, use another device, or return temporarily to paper documentation. In an outpatient setting, such interruptions can lengthen the administrative process and contribute to delays. The original research therefore identifies machine as a factor that is experienced directly by frontline staff.

The finding is consistent with Augustyana and Mulyani (2025), who reported that network and SIMRS problems can slow outpatient services, and with Awali'ah et al. (2025), who found that limited computers and system downtime hindered EMR implementation. Quintary et al. (2025) also identified the need to optimize internet connectivity in an RSUD setting. The similarity across settings suggests that infrastructure reliability remains an important implementation condition.

Infrastructure limitations also interact with financing. A hospital cannot expand computer coverage, Wi-Fi, network redundancy, and server capacity without investment. Thus, the machine factor should not be treated as an isolated technical problem; it is partly connected to the Money factor discussed below.

Material: Completeness of Electronic Documentation

The material factor in this study was primarily reflected in the completeness of EMR documentation. Because implementation was still developing, not all clinical information was entered electronically at the same point in the care process. Patient identity and diagnosis were generally entered, while some clinical information could be completed after the physician had established the final diagnosis. At outpatient registration, SIMRS and administrative documentation based on the medical-record number continued to be used.

The continued coexistence of paper and electronic documentation created a double-work process. Staff could record information manually and then enter it again electronically. Fatimatuzzahra et al. (2025) describe this pattern as a transition-related workload that may increase the risk of delayed or inconsistent documentation. The finding is also consistent with the study's observation that the hospital had not yet fully shifted away from paper-based records.

The research indicates that monitoring of completeness was already being undertaken, but it remained gradual because the EMR was newly implemented. Data were checked after service, and periodic monitoring was conducted approximately once a month, particularly for information needed for patient services and BPJS claims. This monitoring demonstrates an existing quality-control mechanism, although the source research indicates that it was still being strengthened.

The importance of completeness is supported by Suriawan et al. (2025), who describe completeness as encompassing patient identification, service information, clinical documentation, and authentication. A complete record supports continuity of care, reporting, administrative processes, and the reliability of health information. In the present study, therefore, material-related barriers concern not only physical materials but also the completeness and readiness of the information being entered into the electronic record.

Money: Financing

The study found that available funding had not yet fully met the requirements for EMR development and maintenance. The most frequently identified needs included additional computers for service rooms, improved internet connectivity, more evenly distributed Wi-Fi, system maintenance, and continued support for EMR implementation. Hospital management was attempting to fulfill these requirements gradually according to available budget capacity.

The findings indicate that financing was not described as the sole cause of implementation problems, but it slowed the process of completing the infrastructure and support environment required for a more mature EMR system. This interpretation is consistent with the original research conclusion that budget limitations were a factor that delayed system improvement rather than an absolute cause of implementation failure.

Pamuji et al. (2024) explain that financing is important for hardware, software, internet networks, maintenance, user training, and continuing information-technology development. Ifitah et al. (2022) similarly identified financial limitations as a factor contributing to inadequate supporting infrastructure. The present study extends this understanding to a regional hospital in North Sulawesi, where implementation was occurring incrementally.

The hospital's strategy of prioritizing infrastructure according to available funding suggests that implementation planning and budgeting are closely related. Sustainable budgeting is needed not only for initial procurement but also for network upgrades, server maintenance, system support, staff training, and periodic evaluation.

Summary of 5M Findings

Factor	Main finding	Implication for outpatient EMR
Man	Uneven training exposure and perceived staffing limitations, especially at registration.	Differences in user readiness and workload may slow electronic documentation.
Method	No fully implemented EMR-specific SOP; socialization still developing.	Workflow and responsibilities may not be standardized across units.
Machine	Limited computers, unstable network, uneven Wi-Fi, occasional downtime.	System access interruptions can delay documentation and service.
Material	Electronic documentation not yet fully complete; paper and electronic records coexist.	Double work and delayed/incomplete data entry may occur.
Money	Funding not yet sufficient for all infrastructure, network, maintenance, and training needs.	Improvements must be implemented gradually and prioritized.

DISCUSSION**Interrelationship of the Barriers**

The findings show that the five factors should not be interpreted as independent obstacles. Human resources, procedures, technology, documentation materials, and financing interact throughout the outpatient workflow. For example, a trained officer may still be unable to complete an electronic record promptly if the network is unavailable. Similarly, a reliable system may not produce consistent documentation if users do not have a clear SOP or if staffing levels make timely data entry difficult.

The early stage of implementation is central to understanding these interactions. The hospital had introduced EMR but had not yet eliminated paper documentation. This means that the observed barriers are partly characteristic of a transition period. The coexistence of old and new workflows creates additional work, while incomplete infrastructure and procedures limit the ability to standardize the new workflow.

This interpretation is compatible with Ifitah et al. (2022), Pamuji et al. (2024), and Pakaya et al. (2025), whose findings emphasize that EMR implementation depends on multiple organizational and technical conditions. The current study adds a local description of how these conditions appear in outpatient service at a regional hospital where the system is still being expanded.

Human Resources and Organizational Readiness

The human-resource findings indicate that implementation readiness is uneven. Some personnel had received EMR training, whereas outpatient registration staff reported a need for more preparation. This gap is significant because registration and frontline administrative processes influence the continuity of patient information into the clinical workflow.

The finding is aligned with Bariyah et al. (2023) and Anggraini et al. (2025), who emphasize competency, training, and workload. It also suggests that training should be role-specific. Personnel responsible for registration may require different practical instruction from medical-record or IT staff. Continuing support can help staff translate general system knowledge into routine work practices.

The staffing issue should likewise be interpreted carefully. The source research records different perceptions: some informants considered the number of staff insufficient, while SIMRS/IT personnel considered staffing adequate because some EMR work was performed by nurses. This difference indicates that perceived workload depends on the task distribution within the workflow. Rather than relying only on total headcount, management can evaluate workload and responsibility at each stage of outpatient documentation.

Procedures as a Standardization Mechanism

The lack of a dedicated EMR SOP is a procedural gap that can amplify other barriers. When staff encounter a system interruption, incomplete field, or uncertain responsibility, a clear SOP can provide a common response. Conversely, without a standard, individual staff may develop different workarounds, especially during a transition period.

The literature in the source document supports this interpretation. Pakaya et al. (2025) links method-related barriers to the availability and clarity of SOPs, while Awali'ah et al. (2025) highlights socialization and user familiarity.

Arya et al. (2026) similarly reports formal SOP gaps in outpatient EMR implementation. The present findings therefore support the need to treat SOP development as part of implementation itself rather than as an administrative activity after the system is installed.

Technology, Network Reliability, and Service Continuity

The machine findings illustrate a basic condition of digital health: electronic documentation depends on reliable access. In a paper system, a temporary network failure does not prevent writing a note. In an electronic system, connectivity or server problems can immediately affect the ability to enter or retrieve information. The hospital's continued use of paper during interruptions therefore functioned as a practical contingency mechanism.

However, frequent reliance on manual workarounds may weaken the benefits of digitalization and increase re-entry requirements. Augustyana and Mulyani (2025) and Awali'ah et al. (2025) similarly document the operational effects of unstable networks, limited computers, and downtime. In this context, improving network reliability is not merely an IT objective; it is directly related to continuity and timeliness of outpatient documentation.

Data Completeness and Quality Monitoring

The material findings indicate that EMR quality should be monitored during the transition, not only after full implementation. The hospital had begun reviewing records after service and conducting periodic monitoring, including checks related to BPJS claims. Such monitoring can identify missing information and provide feedback to users.

The source research notes that monitoring was conducted approximately monthly and remained developmental. More structured monitoring could connect completeness findings with the specific factor that caused the omission: staff competency, unclear procedure, system access, or workflow design. This would make monitoring more useful than simply counting incomplete records.

Suriawan et al. (2025) emphasizes that completeness includes identification, service information, clinical documentation, and authentication. The present study suggests that the hospital can use these components as practical monitoring domains while the electronic workflow matures.

Financing and Sustainable Implementation

The financing findings demonstrate that EMR requires continuing investment. Initial software implementation is only one component of the total resource requirement. Computers, networks, servers, maintenance, training, technical support, and future system development all require funding.

Pamuji et al. (2024) explicitly associates the Money factor with hardware, software, internet, maintenance, training, and continuing technology development. Ifitah et al. (2022) similarly identifies financial constraints as a factor behind infrastructure limitations. In the present study, the hospital's approach of gradual procurement reflects the practical need to align EMR expansion with available resources.

A sustainable financial plan can therefore support the other four factors. Funding can enable training, equipment, network redundancy, system maintenance, and development of supporting procedures. The five factors should consequently be managed as a coordinated implementation program rather than as separate procurement or administrative issues.

Implications for Hospital Practice

The findings provide several practical implications for outpatient EMR implementation. First, training should be distributed according to user roles and should include refresher sessions and hands-on assistance. Particular attention should be given to frontline registration personnel and other staff who have less exposure to the electronic workflow.

Second, the hospital can finalize an EMR-specific SOP that clearly defines the workflow from patient registration through clinical documentation, authentication, correction, monitoring, and contingency procedures during system downtime. The SOP should be socialized and reviewed periodically as the system develops.

Third, infrastructure planning should prioritize computers in service rooms, stable network connectivity, broader Wi-Fi coverage where appropriate, and routine server/system maintenance. The objective is not simply to add equipment but to create reliable access throughout the outpatient workflow.

Fourth, monitoring should be systematic and linked to action. Periodic review of incomplete records can identify patterns by unit, documentation component, and cause. Findings can then be used to determine whether the appropriate response is training, procedural revision, technical repair, or workload adjustment.

Finally, budgeting should treat EMR as a continuing operational investment. Annual or multi-period planning should account for maintenance, replacement, network improvement, training, and technical support in addition to initial system costs.

Limitations

This study involved five informants, consisting of one key informant, two main informants, and two additional informants. The limited number of informants means that the findings represent the experiences available within

the selected outpatient and medical-record implementation context and should not be generalized statistically to other hospitals. The study was also conducted while the EMR system was still relatively new, so some barriers may change as staff become more familiar with the system and as infrastructure and procedures are improved.

The source research also recognizes that the study was conducted by a beginning researcher at the Diploma III level, which may limit the depth of interpretation compared with research teams with longer experience in health information management. These limitations do not negate the practical value of the findings, but they should be considered when interpreting the results.

CONCLUSION

Outpatient EMR completion at North Bolaang Mongondow Regional Hospital was still in an early transition from paper-based to electronic documentation. The study identified five interconnected groups of barriers. The Man factor involved uneven training exposure and perceived staffing limitations, particularly in outpatient registration. The Method factor involved the absence of a fully implemented EMR-specific SOP and incomplete procedural socialization. The Machine factor involved limited computers, unstable network access, uneven Wi-Fi availability, and occasional system downtime. The Material factor involved incomplete electronic documentation and continued parallel use of paper and electronic records. The Money factor involved insufficient funding to meet all infrastructure, network, maintenance, and training requirements.

The findings indicate that improving EMR completion requires coordinated action across these factors. Strengthening user competency without improving access to reliable technology may not be sufficient; similarly, installing technology without clear procedures and monitoring may not produce consistent documentation. A coordinated implementation approach that combines training, SOP standardization, infrastructure improvement, completeness monitoring, and sustainable budgeting is therefore relevant to the hospital's ongoing transition.

RECOMMENDATIONS

Provide regular, role-specific EMR training and mentoring, with priority for staff who have had limited exposure to the system.

Finalize and socialize an EMR-specific SOP covering workflow, responsibilities, authentication, correction, completeness checks, and downtime procedures.

Expand computer availability and improve network reliability, including more evenly distributed Wi-Fi and preventive server/system maintenance.

Strengthen routine completeness monitoring and use monitoring results to identify whether omissions are caused by human, procedural, technical, material, or financing factors.

Develop sustainable budgeting for EMR operation, maintenance, training, network upgrades, and future system development.

Acknowledgments

The authors acknowledge the support of the management and health care officers of North Bolaang Mongondow Regional Hospital and the academic support provided by STIKES Bakti Nusantara Gorontalo.

BIBLIOGRAPHY

Anggraini, et al. (2025). [Reference details as listed in the source manuscript].

Augustyana, D. I., & Mulyani, K. (2025). Evaluasi Implementasi SIMRS dan Hambatannya di Instalasi Rawat Jalan RS Bhayangkara Balikpapan. *Jurnal Manajemen Informasi dan Administrasi Kesehatan*, 8(1), 77–84.

Awali'ah, S. I. A., Sukmaningsih, W. R., & Licia, R. (2025). Analisis Faktor Penghambat Implementasi Rekam Medis Elektronik di Klinik Pratama Harapan Bunda Boyolali. *Jurnal JHIMI*, 4(2), 84–90.

Bariyah, N. S., Ningtyas, R., & Setiawan, C. T. (2023). Gambaran kemampuan sumber daya manusia dalam menerapkan rekam medis elektronik rawat jalan di Rumah Sakit Ibu dan Anak Ummu Hani Purbalingga. *Jurnal Kesehatan Tambusai*, 4, 4219–4228.

Bariya, U. K., Rosyidah, & Hidayat, M. S. (2024). Pengaruh mutu pelayanan terhadap kepuasan pasien unit rawat jalan di rumah sakit. *Jurnal Kesehatan Tadulako*, 10(4), 547–555.

Fatimatuzzahra, J. L., Viatiningsih, W., Sonia, D., & Yulia, N. (2025). Peralihan rekam medis manual ke rekam medis elektronik di rumah sakit P. *Journal of Comprehensive Science*, 4(8), 2492–2500.

Fauziyah, N. F., Nurhayati, A., Dwi, R. S. B. N. L., Romadhon, Y. A., Ichsan, B., & Sari, N. D. A. M. (2025). Kepuasan pengguna terhadap penggunaan rekam medis elektronik di rumah sakit swasta. 17(1), 42–50.

Ferdianto, A., Savitri, D. A., Nugraha, R. I., & Rizkiyatul, A. (2025). Rekam medis elektronik sebagai pendukung pelayanan kesehatan di RSU Anna Medika Madura. *Jurnal Informasi Kesehatan Indonesia*, 11(1), 41–49.

Goni, A., Pertiwi, J. M., & Wariki, W. (2025). Analysis of barriers to the implementation of electronic medical records in the outpatient clinic of Gunung Maria Hospital, Tomohon. *Journal of Public Health Science and Research*, 5(2), 231–237.

- Ifitah, M., Laila, K., Surya, M., Pribadi, W., Ariyanto, O. S., Yunita, P. N., Nanda, S., Rahayu, T., Kesa, W., Pujanggi, A., & Sutha, D. W. (2022). Faktor penghambat pelaksanaan rekam medis elektronik di rumah sakit: Narrative review. *Jurnal Manajemen Informasi Kesehatan Indonesia*, 12, 65–71. <https://doi.org/10.33560/jmiki.v12i1.645>
- Izza, A. Al, & Lailiyah, S. (2024). Gambaran implementasi rekam medis elektronik di rumah sakit Indonesia berdasarkan Permenkes Nomor 24 Tahun 2022 tentang Rekam Medis. *Media Gizi Kesmas*, 549–562.
- Meilani, A. H., Nugraheni, S. W., & Suprawita, B. (2025). Analisis implementasi rekam medis elektronik terhadap mutu pelayanan rawat jalan di RSUD Ibu Fatmawati Soekarno Kota Surakarta. *Jurnal Ilmiah Rekam Medis dan Informatika Kesehatan*, 15(2), 158–164.
- Mujtahidah, & Istiqamah, N. F. (2025). Permenkes No. 24/2022 dan interoperabilitas rekam medis elektronik. *Jurnal Kajian Ilmu Keolahragaan dan Kesehatan*, 24, 114–122.
- Pakaya, N. A., Ahmad, R., & Katili, R. (2025). Faktor penghambat implementasi rekam elektronik di RSUD Toto Kabila Bone Bolango. *Jurnal Kesehatan Tambusai*, 6(3), 10185–10196.
- Pamuji, A., Igiyany, P. D., & Andriani, R. (2024). Faktor-faktor yang mempengaruhi implementasi rekam medis elektronik. *Jurnal Kesehatan Masyarakat*, 8, 1023–1033.
- Putri, Y. W., Saragih, T. R., & Purba, S. H. (2024). Implementasi dan dampak penggunaan sistem rekam medis elektronik (RME) pada pelayanan kesehatan. *Jurnal Kesehatan Masyarakat*, 3(4), 255–264. <https://doi.org/10.54259/sehatrakyat.v3i4.3449>
- Putri, Z. H., Arum, K. K., & Dhiandani, E. (2023). Literature review faktor keterlambatan penyediaan dokumen rekam medis berdasarkan unsur Man, Money, Method, Material, Machine sesuai dengan standar waktu di rumah sakit. *Journal of Social Science Research*, 3, 8096–8110.
- Quintary, T. A., Agung, A., Citra, I., Puspitasari, S., & Afrida, E. (2025). Analisis hambatan implementasi RME dari perspektif perawat dan bidan di RSUD [reference details as listed in the source manuscript].
- Setyoningrum, & Abdullah. (2024). [Reference details as listed in the source manuscript].
- Suriawan, et al. (2025). [Reference details as listed in the source manuscript].
- Suryani, et al. (2024). [Reference details as listed in the source manuscript].
- Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 tentang Rekam Medis.
- Peraturan Menteri Kesehatan Republik Indonesia Nomor 6 Tahun 2026 tentang Rumah Sakit.