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Implementation of Information Technology on Service Efficiency in Indonesian Hospital (Literature Review)

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ABSTRACT

Hospitals as complex organizations must transform in carrying out business processes that are conventional to digital-based. Inefficiency of manual systems involves large resource allocation and long processes and is vulnerable to human error, thus hindering the speed of providing information and can affect the speed and quality of patient services (Sofianto, 2020). Organizations that fail to adapt and consistently improve quality will be left behind and lose relevance in the market (Goetsch & Davis, 2016). This study applies *the Systematic Literature Review* (SLR) method with reference sources from scientific journals through the Google Scholar database. Based on the results of the journal data collection, 12 *full-text* journals were obtained and worthy of further analysis Information technology plays an important role and is one of the factors in the success of public services (Setyawan, 2016). Information systems can help operational processes in hospitals become faster and more efficient, create an integrated workflow, and reduce cost. Information systems can support workflow. Clinical practice in various ways that will contribute to better patient care (Santosa, IV, et.al., 2024). Digitalization has been shown to increase the effectiveness of hospital services by shortening patient waiting times by 40%, increasing the accuracy of medical records by 25%, and accelerating administrative processes by 30% (Wahyu, 2025).

1. INTRODUCTION

Hospitals are complex organizations (technology-intensive, capital-intensive, expert-intensive, moral-intensive, and labor-intensive) and social in nature (concerning the livelihoods of many people). The rapid development of health and medical science and technology has led to increasing public demand for quality and affordable health services. The growing awareness of the community regarding the right to quality health services, combined with competition among health facilities, requires hospitals to provide not only medical services but also to ensure efficiency, patient safety, and user satisfaction *(World Health Organization,* 2020).

As a public service organization, hospitals must improve the quality of services that not only focus on clinical aspects but also encompass human resource management, health information systems, quality management, and integrated administrative services (Ministry of Health of the Republic of Indonesia, 2022). Law No. 17 of 2023 concerning hospitals, Article 185 paragraph (4) states that hospitals have the function of implementing good hospital governance and clinical governance. As a service provider facility, hospitals must have entered the industrial era 4.0 which runs digital-based business processes, based on *the Internet of Things* (IoT), *Artificial Intelligence* (AI), automation/robotics, and *excellent evidence* to react quickly to unexpected situations. changing conditions.

Organizational development, particularly the development of individual resources and the ability to utilize technological elements *(humanware, infoware, technoware* and *organizationware)* as tools in making specific decisions and expanding the functions of hospital management organizations using a techno-entrepreneur approach based on LEAN and LED architecture design to achieve services that are Just in Time (JIT). Amid the uncertainty of service continuity in the future, there are several operational processes that could pose a threat. The majority of managerial policymakers in hospitals in Indonesia, especially in the public/government sector, are only focused on planning activities, administrative reporting, and bureaucracy, as well as carrying out operational management as usual *(doing business, not growing in business).*

This results in hospitals struggling to develop because hospital revenues are only spent on operational costs and cannot be reinvested. Moreover, following the enactment of Law No. 11 of 2020 concerning Job Creation (Omnibus Law), which facilitates the private sector, both domestic and foreign, to invest in the health sector. If this continues to be neglected, hospitals will eventually be unable to survive amid the emergence of competitors with better

facilities and infrastructure. Viewed from the building facilities, the availability of doctors and health personnel, health technology, and other supporting technologies. The Hospital Leader as the decision maker in the hospital must also be supported by the availability of accurate and precise data based on objective data that is evidence-based and real-time, both related to medical services, non-medical services, and other management services. This is often not possessed by hospitals, where the Director is not supported by tools/information systems that can collect, store, manage, and present data related to all hospital service activities, both administrative and clinical (Ministry of Health of the Republic of Indonesia, 2021).

In addition, the director is also not supported by a creative team that has a sense of business by providing accurate, fast, and precise data and assisting the director in problem-solving. Thus, the decisions made become uncalculated. Since the implementation of the National Health Insurance (JKN) program through BPJS Kesehatan, hospitals have experienced a significant surge in the number of patient visits. This increase poses new challenges in service and administration aspects.

First, the increased volume of patient visits will cause queues at the administration/registration section, queues for service examinations, and queues at the pharmacy for medication collection. According to Mulyadi (2019), manual systems and limited information often lead to high waiting times. The Minimum Service Standards for Hospitals as mandated in the Minister of Health Decree Number 129/Menkes/SK/II/2008 guarantees the quality of excellent service as the end result of the health products offered. Each service and management unit in the hospital has determined the Minimum Service Standards (SPM) as a reference for service standards that must be met.

One of the SPM outpatient indicators related to queues is the waiting time, which is 60 minutes. Long queues are one of the problems commonly found in outpatient installations of hospitals (Wijono, 2009). After the implementation of JKN, patients in outpatient installations require an average waiting time of > 60 minutes to be served. In the context of public service, delays and inaccuracies in this service can reduce public trust in hospitals and the health system as a whole (Hasibuan et al., 2024).

Manual and fragmented service systems increase service times due to data input processes that still rely on paper *-based recording* which results in inefficiencies in workflow and increases the potential for data duplication and requires a large allocation of resources. Second, managing claims payments for BPJS patients treated in hospitals requires data verification time of N+1

months before payment, as the data verification process must be completed. If an appeal claim for a specific diagnosis is not paid by BPJS Kesehatan, the payment process will take n+3 months. This results in delays in claims payments to hospitals and risks reducing operational efficiency, as hospitals face liquidity challenges and delays in operational payments. (BPJS Kesehatan, 2021; Setiawan & Nursalam, 2020).

Hospitals have an obligation to carry out business processes that can apply the principles of *good corporate governance, good clinical governance* and *good nursing governance* so that they can form/produce good *public private partnerships* that produce services based on *patient satisfaction,* therefore integrated *Information Technology tools* are needed to implement the principles of transparency, accountability and quality control as well as cost control by utilizing *Big Data.* Aspects of ease of access, availability of accurate information, ease of service reach Health is an important point that must be captured as an opportunity to increase *value added competitive advantage.*

This article aims to analyze the impact of Hospital Information Systems (HIS) implementation on improving service efficiency in hospitals in Indonesia through a literature review. The research findings are expected to be useful for hospital management in designing and developing information systems that not only support service efficiency but also serve as a basis for future policy development.

2. LITERATURE REVIEW

a. Hospital Information System (HIS)

Hospital Information System (HIS) is an information technology-based system designed to support all processes Integrated administrative and clinical processes in hospitals (Ministry of Health of the Republic of Indonesia, 2022). According to Minister of Health Regulation No. 82 of 2013, the Hospital Management Information System (SIMRS) is an information and communication technology system that processes and integrates all service processes in hospitals. SIMRS aims to improve the efficiency, effectiveness, and accessibility of hospital services. According to Pane, M. S., et.al, (2023), the use of SIM-SR is also mandated by Health Law No.36 of 2009, which stipulates that the implementation of effective and efficient health efforts requires health information organized through information systems and across sectors. Every health facility organizer, including those operating

health service facilities, is required to provide health information system infrastructure, including institutional equipment, technology, and human resources, PP Article 45 No. 46 of 2014. The Hospital Information System (HIS) is a collection of information technology-based subsystems used to manage hospital service information in an integrated manner. An information system is a combination of work procedures, information, technology, and people designed to produce information that supports decision-making and organizational control. In the hospital context, this system creates a faster and more accurate service process (Alter 2022).

A strategic approach to quality management is crucial for achieving competitive advantage (Oakland, 2014). Hospital Information Systems (HIS) can improve the productivity of healthcare professionals, increase the efficiency and accuracy of patient coding and billing data, improve the quality of healthcare services, enhance clinical management in terms of patient diagnosis and treatment, reduce paper costs for medical records, minimize medical errors, enhance patient safety, improve patient care outcomes, and increase patient satisfaction.

SIRS is designed to support hospital management, clinical, and administrative functions, including patient registration, electronic medical records, queue management, and service performance evaluation (WHO, 2016). Optimal SIRS implementation is expected to improve service quality, reduce waiting times, and increase operational efficiency (Setiawan, 2018). Organizations that are able to integrate innovation, operational efficiency, and a focus on stakeholder satisfaction will have a greater opportunity to compete globally (Hammer & Champy, 2009; Imai, 2012).

b. Service Efficiency

According to Harold Koontz and Heinz Weihrich (2008), efficiency is related to the ability of an organization to complete work properly. and use resources as efficiently as possible, where the focus of efficiency is "doing things right," by optimally utilizing resources (time, effort, and costs) in services. In healthcare, efficiency is closely linked to patient data processing, inter-unit coordination, and a fast and accurate reporting system. In the context of macro- efficiency, information systems play a crucial role in building a more responsive and measurable digital healthcare ecosystem.

According to H. Emerson (1912), efficiency is the best relationship between input and output, where there is no waste of energy, time and costs. This means that a service is said to be efficient if it produces maximum output with minimal input. Service efficiency is measured by how optimally resources are used to produce maximum service output with minimal input (Heizer & Render, 2011). In hospitals, service efficiency is related to the use of medical personnel, time, service space, and medical equipment. Meanwhile, according to (Heizer & Render, 2011), efficiency is measured by the comparison of output to input.

In outpatient care, efficiency means serving more patients with less time and resources without compromising quality. Mardiasmo (2002), Efficiency in public services, including hospitals, is achieved if with the smallest possible input (e.g. budget, human resources, equipment), the largest possible output can be produced (number of patients treated, patient satisfaction, and speed of service). Meanwhile, according to S. Dehghan, et.al, 2013 efficiency is a process to achieve predetermined goals with appropriate and optimal results, based on this definition the efficiency process is the achievement of good organizational goals, with minimal costs and a short time based on previously set targets.

Based on the several definitions above, it can be said that service efficiency is the ability of an organization or institution to produce optimal service with minimal use of resources (energy, time, costs, facilities), without sacrificing the quality of service to users.

3. METHODS

The method used in this research is a descriptive qualitative study. This study applies the Systematic Literature Review (SLR) method. This review aims to analyze in depth various literature and previous research results related to the implementation of Hospital Information Systems (HIS) and their impact on the efficiency of hospital services in Indonesia. The data used in this study comes from national and international scientific journals that are indexed in credible databases, namely Google Scholar, with inclusion criteria used in the selection of literature including publications during the last 10-year period (2014-2024). In this study, researchers collected *literature review* data with a thematic structure based on the concept of thought that was arranged to answer scientific questions by grouping and discussing literature sources according to their themes or topics. The search mechanism began by inputting *the keywords "hospital information system", "hospital information system*

efficiency", and the *Google Scholar database.* Data were analyzed using *content analysis* techniques by comparing several previously existing journals related to the implementation of information systems to improve service efficiency in hospitals in Indonesia.

4. RESULTS AND DISCUSSION

There has been a paradigm shift in operational activities, both medical and non-medical, in hospitals. Traditional manual data collection methods have been transformed into automated data as a vital source of information for healthcare services with centralized control. This has led healthcare organizations and healthcare providers to become more engaged in exchanging healthcare-related information, and patient information as evidence of the information system replacing the existing traditional system (GVRK). Acharyulu, 2012).

In recent years, many hospitals in various countries have begun to switch to digital systems to improve the efficiency and effectiveness of health services. The development of Hospital Information Systems continues into the era of Industry 4.0, where the principles of Industry 4.0 combine the processes of digitizing clinical, medical, and laboratory data and implementing automation processes.

The manual processes that have long been used by hospitals and other health services through innovations in cloud computing systems and the Internet of Things to manage the large amounts of patient data. This system innovation will minimize delays and provide opportunities for the field of medical information technology to significantly improve health services (M. Elhoseny, et.al, 2018). According to Maulani, et.al, (2021), technology components are present in every clinical procedure, so information system management is an integrated part to achieve efficiency. Efficiency is the maximum use of every input and output process that is optimally produced by hospitals according to available resources. Technological resources must be managed efficiently throughout the hospital processes to achieve optimal efficiency, which is the goal of integrated information system management. With the existence of an integrated hospital information system, improvements in health quality and patient satisfaction can be achieved, resulting in optimal and efficient services.

Hospitals are required to improve medical services supported by the provision of timely access to information, as well as controlling operational costs (Wulur, et. al., 2023). Without the support of an integrated information system, the processes of data input, recording of medical actions, and

reporting will be vulnerable to errors, delays, and duplications. In this context, the Hospital Information System (SIRS) becomes a strategic instrument to address the complexities that arise. With an integrated SIRS that supports automatic or semi-automatic coding modules, hospitals can minimize coding input errors and improve accuracy and efficiency in the coding process (Setiawan & Nursalam, 2020). In addition, the Hospital Information System (SIRS) can automate coding input based on ICD-10 and INA-CBGs, as well as perform real-time digital reporting to the BPJS system (bridging system process) (Kementerian Kesehatan RI, 2022; McGonigle & Mastrian, 2021). The implementation of SIRS, which includes online registration systems, doctor scheduling, and digital queuing, can significantly reduce waiting times.

In the context of health services, efficiency is not only related to cost aspects but also concerns the utilization of time, medical personnel, facilities, and information technology. The World Health Organization (2020) emphasizes that efficiency in health systems is the ability to achieve the best health outcomes with limited resource allocation, in a fair, inclusive, and sustainable system. Therefore, the implementation of efficiency in hospitals includes efforts to reduce waste, accelerate service processes, and ensure that service procedures run accurately and integrated. Grigg and Swan (2010) add that efficient services are those free from inefficiencies such as long waiting times, unnecessary repetitions of actions, and disintegration.

The implementation of electronic medical records systems, digitizing patient queues, and the systematic use of *clinical pathways* are concrete examples of the application of efficiency in hospital operations.

Table 1. Research Results

No	Journal Study	Research Journal Title	Location/Obj Ect Study	Research result
1	Tri Wulandari & Dewi, et.al (2025)	The Effectiveness of the Online Registration System on the Waiting Time for Outpatient Services of Al Ittihad Hospital in Blitar Regency.	Al Ittihad Hospital Blitar Regency	Implementation of Hospital Information System (HIS) which includes online registration system, doctor scheduling, and digital queue can reduce waiting time significantly.
2	Sofi,et., al (2024)	A Review of the Implementation of an Online Registration System to Support Waiting Time Efficiency at Bandung Regional Hospital "Kiwari"	Bandung Regional Hospital "Kiwari"	Implementation of the online registration system is quite effective in overcoming the problem of waiting time, but requires improvement in socialization and coordination with patients.
3	Santosa, I. V., et.al (2024)	Analysis of the Implementation of the Hospital Information	Hospital Regional	After adopting a digitalization system, the administrative processes in the hospital

No	Journal Study	Research Journal Title	Location/Object Study	Research result
		System (HIS) in Improving Hospital Efficiency Management in Regional Public Hospitals Surakarta	General Surakarta	underwent a significant transformation, having a positive impact on the efficiency and speed of document processing.
4	Nur Azizah et.al (2024)	The Influence of Implementing an Online Registration System Through the Application on Reducing Queues at the Muhammadiyah General Hospital Bandung	Muhammadiyah General Hospital Bandung	The use of an online registration system also has benefits in reducing queues at the hospital, shorten waiting times by registering online, flexibility of scheduling.
5	Gabriella T, et.al (2023)	Analysis of the Influence of Electronics Medical Records (EMR) Towards Quality Improvement, Quality and Patient Safety in Permata Sarana Husada Maternity Hospital 2023	Permata Sarana Husada Child and Maternity Hospital	The use of Electronics Medical Records (EMR) can improve patient safety by reducing the risk of recording errors and speeding up access to patient medical history.
6	Lisa Maharani, & Aisah, S. (2024).	Role Hospital Information System (HIS) in Improving Hospital Efficiency.		Hospital Information System (HIS) are able to reduce data duplication and increase hospital administrative efficiency by automating processes that were previously carried out manually.
7	(Wijaya, *et. al*, 2024)	Impact Analysis of Implementation Hospital Information System (HIS) House Retrieval Management Internal pain Decision		SIMRS provides a good contribution to improving the quality of information and operational efficiency in the management decision-making process.
8	(Rusdi, *et. al*, 2024)	Quality and Efficiency Improvement Health Services Through Implementation of Electronics Medical Records (EMR) at Hasta Hospital Husada	Hasta Husada General Hospital	This study revealed that Electronics Medical Records (EMR) has significant positive impacts, such as easy access to patient data quickly and accurately, increased work efficiency, and reduced risk of medical errors.
9	Saputra, Wahyu (2025)	Impact of Digitalization Hospital Management towards Service Efficiency: Literature Review		Hospital Information System (HIS) and Electric Medical Record (EMR) have a positive impact on the quality of health services, operational efficiency, and management decision-making in hospitals, where digitalization has been proven to increase the effectiveness of hospital services by shortening the time patients wait for services by 40%. increase

No	Journal Study	Research Journal Title	Location/Obj Ect Study	Research result
				the accuracy of medical records by 25%, and speed up the administrative process by 30%
10	Pane, M. S. et.al (2023)	Hospital Information System (HIS) For Improving Service Quality Health in Indonesia		HIS can help increase the efficiency and effectiveness of hospital management processes, accelerate appropriate decision-making, and improve monitoring of the performance of each unit within the hospital.
11	Nugroho et al. (2020)	The Role of Electronic Medical Records in Improving Efficiency, Quality of Health Services, and Safety of Care Patients: Systematic Analysis Literature Review		Outpatient information system integration increases service efficiency by 25%
12	Nasution (2024)	*Implementation of a Hospital Information System to Increase Efficiency, Accuracy and Patient Waiting Time.*	Nurul Hasanah General Hospital	The Hospital Information System (HIS) application can speed up the registration process and reduce queues at Nurul Hasanah General Hospital, allowing patients to access healthcare services more efficiently, with an estimated 10-minute turnaround time. Furthermore, the application makes it easier for patients facing geographic or physical constraints to receive services without having to come to the hospital to register.

Source: data processed, 2025

Based on the results of previous studies from research journals conducted, it can be known that information systems can help the operational processes in hospitals become faster, more efficient, create integrated workflows, and reduce the risk of administrative errors. Information technology plays an important role and is one of the success factors in providing services to the community (Setyawan, 2016). Information systems can support clinical workflows in various ways that will contribute to better patient services (Santosa, IV, et.al., 2024).

5. CONCLUSION

Hospitals as complex organizations must transform in carrying out conventional business processes into digital-based ones. The inefficiency of manual systems involves large resource allocation and lengthy processes that are vulnerable to human error, thus hindering the speed of providing information and can affect the speed and quality of patient services (Sofianto, 2020). Through the development of Hospital Information Systems, it can support the optimization of health services. Optimal services are indicated by the achievement of the hospital's vision in improving efficiency through integrated systems, which can minimize the complexity of health service fragmentation so that patient healthcare efficiency is achieved (Maulani, et.al, 2021). Hospital Information Systems have the potential to improve individual health status and the performance of healthcare providers while minimizing costs, with these improvements enhancing the quality of hospitals. The benefits of using Hospital Information Systems are very important for the healthcare industry due to their role in supporting various specific and complex healthcare tasks and services (H. Ahmadi, et.al, 2017).

Hospital Information Systems can minimize the complexity of healthcare services by increasing organizational efficiency through the innovation of business process management-based information system development, service flow automation, cost reduction, and improvement of hospital performance, aimed at developing human resources, organizational development, and enhancing technology quality so that hospital service efficiency is achieved.

With data in the Hospital Information System (HIS), hospital management can develop strategies for human resource development, procurement of medical equipment, and the addition of facilities in a targeted manner, because everything is data-based. empirical data from actual service conditions (Setiawan & Nursalam, 2020). In the context of digital transformation and quality-based healthcare, HIS plays a central role in improving operational efficiency, service effectiveness, and data-driven decision- making *(evidence-based management).* HIS is not merely a digital recording tool, but a critical infrastructure for realizing a responsive, efficient, and accountable hospital. Its optimal implementation is the main foundation for transforming healthcare services toward a more quality- and data-driven system *(data-driven healthcare).* Hospital Information System (HIS) is an innovative hospital technology development that supports the optimization of healthcare services. Professional integration in information sharing and integration of health services can be achieved with the existence of a Hospital Information System that facilitates data exchange and information can be

accessed in real time, thereby improving the quality of service and achieving patient satisfaction with the care provided so that the process in the Hospital runs smoothly and efficiently (Maulani, et.al, 2021).

6. REFERENCES

Book chapters:

L. Vilcahuamán and R. Rivas, 'New Organizational Model for Hospitals in The New Technology Context', in Healthcare Technology Management Systems, Elsevier, 2017, pp. 159–182.

Books:

Porter, M. E. (2008). *Competitive advantage: Creating and sustaining superior performance*. Free Press.

Hammer, M., & Champy, J. (2009). *Reengineering the corporation: A manifesto for business revolution* (Revised ed.). HarperBusiness.

R. Haux, Ed., Strategic Information Management in Hospitals: An Introduction to Hospital Information Systems, 1st Edition. Softcover version of original hardcover edition 2004. New York, NY: Springer New York, 2010.

Imai, M. (2012). *Kaizen: The key to Japan's competitive success*. McGraw-Hill Education.

Oakland, J. S. (2014). *Total quality management and operational excellence: Text with cases* (4th ed.). Routledge.

Goetsch, D. L., & Davis, S. B. (2016). *Quality management for organizational excellence: Introduction to total quality* (8th ed.). Pearson Education.

Oetomo, Budi Sutedjo Dharma, 2002, "*Perencanaan dan Pembangunan Sistem Informasi*", Penerbit Andi.

Journal articles with no doi:

Fadilla, dr. N. (2021, March 19). Hospital Management Information Systems In Increasing Efficiency: Mini Literature Review. *JATISI (Journal of Informatics Engineering and Information Systems)*, *8*(1), 357-374.

Retrieved from https://jurnal.mdp.ac.id/index.php/jatisi/article/view/555.

Setiawan, A., & Nursalam. (2020). The Effect of Information System Implementation on the Quality of Health Services in Hospitals. *Indonesian Journal of Health Administration*, 8(1), 44–53.

Nugroho YW, Pramudita FA. The Role of Electronic Medical Records in Improving Efficiency, Quality of Healthcare Services, and Patient Care Safety: A Systematic Literature Review Analysis. Indonesian Health Promotion Publication Media (MPPKI). 2024 Feb 7;7(2):343–50.

Nasution, G. S. (2024). *Implementation of a Hospital Information System to Increase Efficiency, Accuracy and Patient Waiting Time. National Journal of Computing and Information Technology (JNKTI).*

Andriani R, Siwi Margianti R, Septiana Wulandari D, Bangun Nusantara V, Soeharso Surakarta R, et al. Implementation of Hospital Management Information System for Digitalization of Health Services. Journal of Health Information Management and Administration (JMIAK). 2022;5(2).

Hasibuan, A. N. R., Harahap, J. W., Agustina, D., Nurmairani, A., & Khairiah, M. (2024). Strategy Analysis in Optimizing Health Services through the Implementation of Hospital Management Information Systems (SIMRS): Systematic Literature Review. Collaborative Journal of Science, 7(5), 1813–1821.

Journal articles with doi:

Santosa, I. V., Subekti, M. N., Jagaddhito, G. S., & Susanti, A. D. (2023). *Analysis of the implementation of the Hospital Management Information System (SIMRS) in improving efficient hospital management at the Surakarta Regional General Hospital.* Sejahtera: Journal of Inspiration to Serve the Nation, 3(1), 189–197. https://doi.org/10.58192/sejahtera.v3i1.1716 journal.unimar-amni.ac.id

Azizah, R. (2023). *Implementation of the Hospital Information System (HIS) to improve the efficiency of health services in Indonesia:: Literature study.* Journal Health Tambusai, 6(2). https://doi.org/10.31004/jkt.v6i2.44329 Journal Universitas Pahlawan

Rusdi, A. J., Kurniawan, F., & Rifqi, A. M. (2024). *Improving the quality and efficiency of health services through the implementation of Electronic Medical Records at Hasta Husada Hospital.* ASSYIFA: Journal of Health

Sciences, 2(3), 517–523. https://doi.org/10.62085/ajk.v2i3.119 assyifa.forindpress.com+1ejurnalqarnain.stisnq.ac.id+1

Satrio Nurwito, B. (2023). *Benefits and effectiveness of implementing information systems in private and government hospitals. Indonesian Journal of Health Information Management*, 12(2). https://doi.org/10.33560/jmiki.v12i2.664 JMIKI

Putri, D. N., Purba, S. H., Layana, K., & Lubis, K. (2023). *Challenges and solutions in implementing SIMRS in government hospitals in Indonesia.* Journal of General Health and Pharmaceutical Research (JRIKUF), 3(1). https://doi.org/10.57213/jrikuf.v3i1.480

K. Mohamed, 'Perceived Benefits of Implementing and Using Hospital Information Systems and Electronic Medical Records', Stud. Health Technol. Inform., pp. 165–168, 2017, doi: https://10.3233/978-1-61499-781-8-165.

H. Ahmadi, M. Nilashi, L. Shahmoradi, and O. Ibrahim, 'Hospital Information System adoption: Expert perspectives on An Adoption Framework for Malaysian Public Hospitals',Comput. Hum. Behav., Vol. 67, pp. 161–189, Feb. 2017, doi: https://doi.org/10.1016/j.chb.2016.10.023

M. Elhoseny, A. Abdelaziz, A. S. Salama, A. M. Riad, K. Muhammad, and A. K.Sangaiah, 'A Hybrid Model of Internet of Things and Cloud Computing to Manage Big Data In Health Services Applications', Future Gener. Comput. Syst., Vol. 86, pp. 1383–1394, Sep. 2018, doi: https://doi.org/10.1016/j.future.2018.03.005

G. V. R. K. Acharyulu, 'Assessment of Hospital Information System Quality in Multi Specialty Hospitals', Int. J. Innov. Manag. Technol., 2012, doi: https://doi.org/10.7763/IJIMT.2012.V3.252

Saputra, W. (2025). The Impact of Hospital Management Digitalization on Service Efficiency: Literature Review. *Journal of Public Health Sciences*, *14*(03), 245-253. https://doi.org/10.33221/jikm.v14i03.3834

Tri Wulandari, T. W., & Dewi, W. P. (2025). The effectiveness of the online registration system on the waiting time for outpatient services of Al Ittihad Hospital in Blitar Regency. *Journal of Hospital Management and Services, 7*(1), 6–9. https://doi.org/10.30994/jhms.v7i1.108

Aprilianti, S., & Gunawan, E. (2024). A Review of the Implementation of an Online Registration System to Support Waiting Time Efficiency at RSUD Bandung Kiwari. *International Journal of Applied and Scientific Research*, *2*(5), 517–524. https://doi.org/10.59890/ijasr.v2i5.1927.

Nur Azizah, F., & Susi Susanti, A. (2024). The Influence of Implementing an Online Registration System Through the Application On Reducing Queues at The Bandung Muhammadiyah Hospital. *Asian Journal of Environmental Research*, *1*(2), 66–72. https://doi.org/10.69930/ajer.v1i2.55

Lisa Maharani, & Aisah, S. (2024). The Role of Management Information Systems in Improving Hospital Efficiency. *Journal of Information Systems, Accounting and Management*, *4* (2), 274-283.

https://doi.org/10.54951/sintama.v4i2.643

Pane, M. S., Fanisya, N., Rizkina, S. R., Nasution, Y. P., & Agustina, D. (2023). Hospital Management Information System (SIMRS) to Improve the Quality of Health Services in Indonesia. Detector: Journal of Health Science Research Innovation, *1*(3), 01-14. https://doi.org/10.55606/detector.v1i3.1980

Internet Documents and Government Publication:

The 1945 Constitution of the Republic of Indonesia.

Law no. 44 of 2009 concerning hospitals.

Law No.11 of 2020 concerning Job Creation *(Omnimbus Law).*

Law Number 17 of 2023 concerning Health.

Indonesian Minister of Health Regulation No. 82 of 2013 concerning the Hospital Information System (HIS).

Ministry of Health of the Republic of Indonesia. (2021). *National Hospital Information System (HIS) Guidelines.*

Ministry of Health of the Republic of Indonesia.

Minister of Health Decree Number 129/Menkes/SK/II/2008 regulates the Standards Minimum Hospital Services.

BPJS Kesehatan. (2021). *Technical guidelines for submitting health insurance claims.*

National Health Insurance (JKN). Jakarta: BPJS Health.

World Health Organization. (2012). *Health information systems: Toolkit on monitoring health systems strengthening.* WHO Press.

World Health Organization. (2020). *Quality of care: A process for making strategic choices in health systems.* Geneva: WHO Press