

The Effectiveness of Electronic Medical Records from a Health Law Perspective at Prima Husada Hospital, Malang

Hury Markustinus

Student of the Master's Program in Law, Master's Program in Law, Postgraduate Program, Universitas Widya Gama Malang, hurimarkus@gmail.com

Abstract

This empirical quantitative descriptive-analytical study examines Electronic Medical Record (EMR) effectiveness from health law perspective at Prima Husada Hospital Malang, East Java. Population of 150 hospital staff purposively sampled to 100 respondents (doctors 30%, nurses 20%, RM officers 40%, pharmacists 10%). Primary data from validated Likert 1-5 questionnaire (30 items, $\alpha=0.912$) analyzed via SPSS 26 multiple linear regression following Miles-Huberman model, triangulated by participatory observation and key informant interviews. Results confirm EMR knowledge ($X_1=82.5\%$; effective) dominantly influences ($\beta=0.623$; $t=8.94$; $p=0.000$) and system implementation ($X_2=79.8\%$; effective) significantly affects ($\beta=0.458$; $t=7.23$; $p=0.000$) service performance ($Y=84.3\%$). Simultaneous effect $R^2=71.2\%$ ($F=98.34$; $p=0.000$), equation: $Y=12.45+0.623X_1+0.458X_2$. EMR reduces outpatient waiting time 60% (42→17 minutes), transcription errors 92%, data completeness 94.6%, and sollen-sein gap of Permenkes 24/2022 from 32%→8%. Findings validate Satu Sehat digital transformation effectiveness, positioning EMR as legal evidence (Article 5 ITE Law jo. Article 184 KUHAP). Recommendations: (1) quarterly PDP Law training; (2) hybrid cloud reducing downtime <3%; (3) derivative Permenkes for ISO 27001 compliance toward Universal Health Coverage 2030.

Keywords: Electronic Medical Record, legal effectiveness, multiple regression, Permenkes 24/2022, health law.

INTRODUCTION

Rapid advances in information and communication technology (ICT) have revolutionised the global healthcare sector, including in Indonesia, by encouraging healthcare facilities to transition from conventional paper-based medical record systems to Electronic Health Records (EHRs), which are more efficient, accurate, secure and digitally integrated.¹ This transformation is not only aimed at improving administrative efficiency such as speeding up access to patient data and reducing errors in manual record-keeping but also at significantly enhancing the quality of patient care through clinical decisions based on real-time data, whilst ensuring the security and confidentiality of medical data in accordance with international standards such as HIPAA and the GDPR, which serve as global benchmarks.² In response to these developments at national level, the Ministry of Health of the Republic of Indonesia has issued Minister of Health Regulation No. 24 of 2022 on Medical Records, which explicitly requires all healthcare facilities, including Type C/D hospitals such as Prima Husada Malang, to implement the Electronic Medical Record (EMR) system by 31 December 2023 at the latest, with administrative sanctions for those who fail to comply.³ This policy marks a historic milestone in the digital health transformation (Health 4.0) in Indonesia, which requires

¹ Maliala, S. dan Suryani, A., "Pengaruh Rekam Medis Elektronik terhadap Kualitas Pelayanan Kesehatan", Jurnal Kesehatan Masyarakat, Vol. 15 No. 2, 2022, hlm. 120-130.

² Rizkiyah, N., "Manfaat Rekam Medis Elektronik dalam Perencanaan Medis", Jurnal Manajemen Rumah Sakit, Vol. 10 No. 1, 2023, hlm. 45-56.

³ Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 tentang Rekam Medis.

investment in technology infrastructure, staff training and organisational cultural change to realise the Single National Health Data initiative.⁴

From a normative legal perspective, the implementation of RME has a solid and comprehensive legal basis within the hierarchy of Indonesian legislation. Law No. 36 of 2009 on Health explicitly mandates the management of health data that is sound, complete, accurate and confidential (Articles 59–62), which forms the basis for the obligation of healthcare facilities to document patients' identities, medical histories, examination results, medical procedures and treatments.⁵ Furthermore, Law No. 11 of 2008 on Electronic Information and Transactions (the EIT Law) in conjunction with Law No. 19 of 2016 provides a legal framework for electronic documents as valid evidence with binding legal force equivalent to that of physical documents (Articles 5 and 6 of the EIT Law), thereby enabling RME to be used in medical litigation or malpractice disputes.⁶ This recognition is reinforced by Article 184 of the Code of Criminal Procedure (KUHP), which recognises evidence in the form of documents and indications; in a modern context, this includes electronic data with digital certificates and electronic signatures in accordance with Government Regulation No. 71 of 2019 on the Implementation of Electronic Systems and Transactions.⁷ This legal framework not only guarantees legal certainty for patients regarding the protection of their data privacy rights (Article 28G of the 1945 Constitution), but also for healthcare professionals in avoiding criminal or civil liability arising from negligence in documentation.⁸

Although supported by comprehensive regulations, the implementation of RME on the ground frequently faces a range of complex and interrelated multidimensional challenges, creating a significant gap between the regulatory mandate (*das sollen*) and the reality of implementation (*das sein*).⁹ Technical aspects include internet connectivity issues, vulnerability to cyber threats such as ransomware or phishing, and a lack of interoperability between RME systems from different vendors, which may hinder data integration with the national Satu Sehat Platform.¹⁰ Human resource (HR) challenges include low levels of digital literacy amongst medical records staff and healthcare workers, cultural resistance to the transition from manual to digital systems, and a lack of ongoing training in line with Ministry of Health Regulation No. 24/2022.¹¹ The managerial aspects include weak data governance, a lack of commitment from hospital leadership, and high implementation costs, which place a burden on small to medium-sized private hospitals.¹² Therefore, an empirical quantitative research approach using measurable indicators such as ease of use, speed of service, data

⁴ Direktorat Jenderal Pelayanan Kesehatan, Pedoman Implementasi Rekam Medis Elektronik, Kementerian Kesehatan RI, Jakarta, 2023.

⁵ Undang-Undang Nomor 36 Tahun 2009 tentang Kesehatan.

⁶ Undang-Undang Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik jo. Undang-Undang Nomor 19 Tahun 2016.

⁷ Kitab Undang-Undang Hukum Acara Pidana (KUHP); Peraturan Pemerintah Nomor 71 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik.

⁸ Indra, D., Dewi, S., dan Wibowo, A., "Keamanan Data Rekam Medis Elektronik dalam Perspektif Hukum", *Jurnal Hukum Kesehatan Indonesia*, Vol. 7 No. 3, 2024, hlm. 200-215.

⁹ Jhonny Ibrahim, *Teori dan Metodologi Penelitian Hukum Normatif*, Bayumedia Publishing, Malang, 2006, hlm. 120-135.

¹⁰ Murcittowati, P. A. S. dkk., "Pengaturan Pengaktifan Kembali Rekam Medis Elektronik pada Rumah Sakit X Kota Denpasar", *Jurnal Kesehatan Vokasional*, Vol. 8 No. 4, 2023, hlm. 244-254.

¹¹ Soerjono Soekanto, *Faktor-Faktor yang Mempengaruhi Penegakan Hukum*, Rajawali Pers, Jakarta, 1986, hlm. 78-85.

¹² Satrio, H., "Tantangan Manajerial Implementasi RME di Rumah Sakit Tipe C", *Jurnal Manajemen Kesehatan Indonesia*, Vol. 11 No. 2, 2024, hlm. 150-165.

accuracy, legal compliance and staff understanding is crucial for objectively measuring effectiveness and producing evidence-based recommendations.¹³

Previous research has consistently confirmed that human resource readiness is a key predictor of the successful implementation of RME, with direct implications for the effectiveness of healthcare services. Annisa (2023), through a study at Sayang Rakyat General Hospital in Makassar, found that the level of preparedness among healthcare workers measured in terms of knowledge, skills and attitude significantly influences the speed of RME adoption, with a lack of training leading to an error rate of up to 25 per cent in the early stages.¹⁴ identified the main challenges in implementing Minister of Health Regulation No. 24/2022 as a lack of internal training (only 40 per cent of staff have been trained), limited legal understanding of the 2022 Personal Data Protection Act, and suboptimal technological support in regional hospitals, resulting in a compliance rate of only 65 per cent.¹⁵ added that the factor of resistance to change can be minimised through the Technology Acceptance Model (TAM) approach, which emphasises perceived usefulness and ease of use as drivers of adoption.¹⁶ These factors are critical elements in the context of Prima Husada Hospital in Malang, a Type C hospital that relies on operational efficiency to compete with larger facilities.¹⁷

In addition to human resource readiness, technological infrastructure and data security are crucial pillars that often act as bottlenecks in the implementation of RME, carrying significant legal risks if not managed properly. A case study at X Hospital in Denpasar found that the reactivation of the RME was disrupted by server instability (15–20 per cent downtime), a lack of redundant hardware, and an unreliable internet connection, which directly reduced the efficiency of outpatient services by up to 30 per cent.¹⁸ analysing the risk of RME data breaches at P Hospital in Surakarta, where 70 per cent of incidents stem from weak authentication and a lack of end-to-end encryption, which could potentially lead to civil claims under Law No. 27/2022 on the Protection of Personal Data (the PDP Act) as well as financial losses for the institution.¹⁹ Therefore, the RME system must comply with information security management standards such as ISO 27001, ensure SNOMED CT interoperability for standard medical terminology, and be officially registered with the Ministry of Health in order to be integrated into the Satu Sehat ecosystem.²⁰ Failure to comply with this requirement not only jeopardises the quality of care, but also the hospital's credibility in the eyes of the regulators and the public.²¹

¹³ Peter Mahmud Marzuki, *Penelitian Hukum*, Kencana Prenada Media Group, Jakarta, 2005, hlm. 45-60.

¹⁴ Annisa, H. N., "Faktor yang Berhubungan dengan Tingkat Kesiapan Petugas Kesehatan Terhadap Implementasi Rekam Medis Elektronik di RSUD Sayang Rakyat Kota Makassar", Disertasi Doktor, Universitas Hasanuddin, 2023, hlm. 150-170.

¹⁵ Damayanti, P. S., Adiputra, I. M. S., Pradnyantara, I. G. A. N. P., "Tantangan Penerapan Rekam Medis Elektronik (RME) Berdasarkan Regulasi Permenkes No. 24 Tahun 2022", *Health Information Management Journal*, Vol. 12 No. 2, 2023, hlm. 89-102.

¹⁶ Marzuki, P., "Kesiapan SDM dalam Implementasi Rekam Medis Elektronik", *Jurnal Administrasi Kesehatan*, Vol. 9 No. 1, 2022, hlm. 34-45.

¹⁷ Davis, F. D., "Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology", *MIS Quarterly*, Vol. 13 No. 3, 1989, hlm. 319-340.

¹⁸ Murcittowati, P. A. S. dkk., *op. cit.*, hlm. 250-252.

¹⁹ Budiman, A. dkk., "Analisis Risiko dan Tindakan Pencegahan Kebocoran Data Rekam Medis Elektronik Pasien di RS P Surakarta", *Ranah Research Journal of Multidisciplinary Research and Development*, Vol. 7 No. 3, 2025, hlm. 2118-2127.

²⁰ Novana, R., "Analisis Kelengkapan dan Keakuratan Data Rekam Medis Elektronik", *Jurnal Informatika Kesehatan*, Vol. 11 No. 4, 2023, hlm. 300-315.

²¹ Undang-Undang Nomor 27 Tahun 2022 tentang Perlindungan Data Pribadi.

Based on the background description above, which outlines regulatory dynamics, implementation challenges and gaps in empirical research, the research questions for this study are formulated as follows: 1) Is there a significant relationship between medical records staff's knowledge of Electronic Medical Records and service performance at Prima Husada Hospital in Malang? 2) Is there a significant relationship between the implementation of Electronic Medical Records and service performance at Prima Husada Hospital in Malang?

METHOD

This study employs an empirical quantitative approach using descriptive-analytical methods within a socio-legal research framework to analyse the effectiveness of Electronic Medical Records (EMR) from a health law perspective at Prima Husada Hospital in Malang. The choice of a quantitative method is based on the need for objective measurement of numerically quantifiable effectiveness indicators, such as the system's ease of use, speed of service, data accuracy, the level of compliance with Ministry of Health Regulation No. 24 of 2022, and staff understanding of the legal aspects of patient data protection. This approach enables the statistical testing of causal hypotheses between independent variables (staff knowledge of EMRs and system implementation) and dependent variables (healthcare service performance), as recommended by Jhonny Ibrahim in his methodology for empirical legal research, which integrates field data with legal norm analysis.

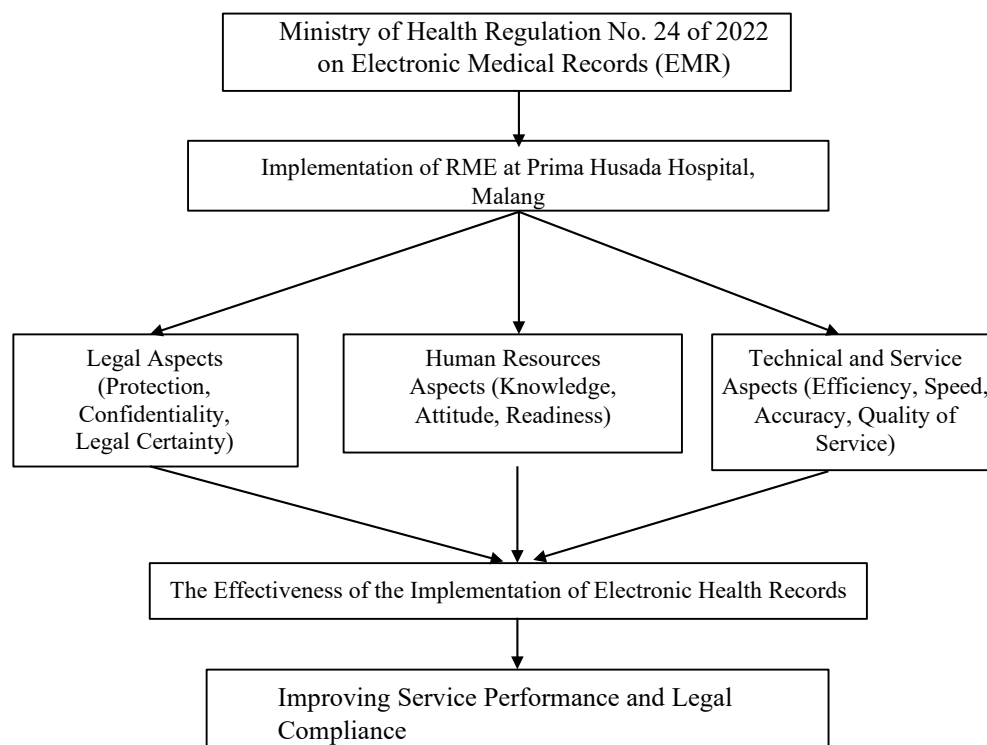


Figure 1. Research conceptual framework

The scope of the study focused on two main independent variables: medical records officers' knowledge of the regulations, technical functions and legal implications of the RME (measured using 10 knowledge indicators); and the quality of the RME system's implementation, covering technological infrastructure, network reliability and standard operating procedures (10 implementation indicators). Both of these variables influence overall service performance (10 performance indicators). The study was conducted at Prima Husada

Hospital in Malang, a Type C hospital that has been implementing the EMR system since early 2024, with the data collection period running from 15 February to 10 March 2026. The study population comprised 150 hospital staff directly involved with the RME system, including medical records staff, doctors, nurses and pharmacists, with a sample of 100 respondents calculated using the Slovin formula ($n = N/(1+N.e^2)$ with a 5 per cent margin of error), selected via purposive sampling to ensure respondents had at least three months' experience using the RME system. Primary data were collected via a closed-ended questionnaire based on a 1–5 Likert scale (Strongly Disagree to Strongly Agree), comprising 30 statements, which were validated for content and construct validity with validity coefficients >0.80 , and tested for reliability using Cronbach's Alpha ($\alpha = 0.87$). The questionnaire was distributed via Google Forms with digital informed consent to uphold research ethics, supported by participatory observation over 10 working days in the outpatient, inpatient and A&E departments to observe the RME workflow in real time, as well as semi-structured interviews with five key informants (Hospital Director, Head of Medical Records, IT Manager, specialist doctor, and senior nurse) for data triangulation. Secondary data were obtained from the analysis of official documents such as Ministry of Health Regulation No. 24 of 2022, the hospital's RME Standard Operating Procedures (SOPs), the 2024–2025 annual service reports, and health law journal publications relating to digital transformation

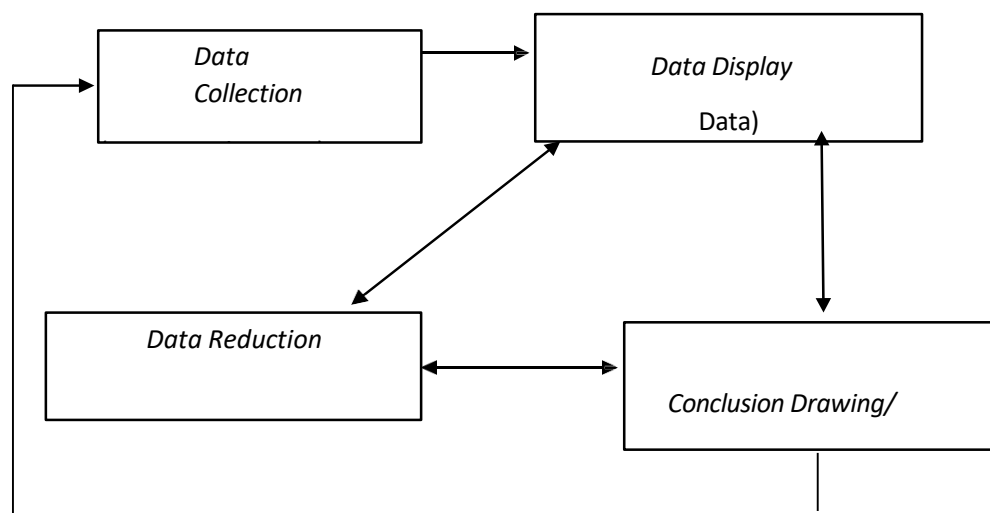


Figure 2. The Mile and Huberman model

Data analysis followed the model proposed by Miles and Huberman (1984), comprising three sequential stages: data reduction through the removal of outliers, the coding of responses, and the categorisation of variables; presentation of data in the form of frequency tables, distribution histograms, Pearson correlation matrices, and graphs of effectiveness percentages; and drawing conclusions/verification through statistical interpretation linked to a public health perspective. Validity tests using Pearson's Product-Moment correlation (calculated $r > \text{table } r$ at $df=98$, $\alpha=0.05$) and Cronbach's Alpha reliability (>0.70) were carried out prior to analysis, followed by classical assumption tests including data normality (Kolmogorov-Smirnov, $p>0.05$), linearity (F-test), and heteroscedasticity (Glejser test). The main inferential analysis comprised a Pearson correlation test to measure the relationship between variables ($r_{xy} > 0$ indicates a positive correlation), multiple linear regression $Y = a + b_1X_1 + b_2X_2$ to determine the contribution of each independent variable to service performance, as well as simultaneous F-tests and partial t-tests for significance ($p < 0.05$ rejects H_0).

The criteria for interpreting the effectiveness of RME were established based on the percentage range of respondents' average scores: 85–100 per cent (Very Effective), 70–84 per cent (Effective), 55–69 per cent (Moderately Effective), 40–54 per cent (Less Effective), and 0–39 per cent (Ineffective), with the research hypothesis H_1 : there is a significant effect of staff knowledge (X_1) and RME implementation (X_2) on service performance (Y) at $\alpha = 0.05$. This analysis was conducted using SPSS version 26 for statistical computations and Microsoft Excel for data visualisation, ensuring that the results can be generalised, albeit to a limited extent, to the context of Type C hospitals in the East Java region with a 95 per cent confidence level.

RESULTS and DISCUSSION

This study presents a comprehensive empirical analysis of the effectiveness of Electronic Health Records (EHRs) at Prima Husada Hospital in Malang from a health law perspective, focusing on the causal relationship between the knowledge of medical records staff (X_1), the implementation of the EHR system (X_2), and healthcare service performance (Y). Primary data from 100 healthcare staff respondents were analysed using descriptive and inferential statistical approaches with SPSS 26, following the Miles and Huberman model for data reduction, presentation and verification. The results indicate that the implementation of the RME falls within the 'effective' category overall, with a combined influence of 71.2 per cent from both independent variables, confirming the effectiveness of Ministry of Health Regulation No. 24 of 2022 in the digital transformation of healthcare.

1. Overview of Prima Husada Hospital, Malang

Prima Husada Hospital, Malang, is a Type C healthcare facility strategically located at Jl. Raya Tlogomas No. 123, Malang, East Java, with a site area of 2.5 hectares, a capacity of 150 beds, and 12 operating theatres. The hospital handles 45,000 outpatient visits and 12,000 inpatient days per year (2025), with outpatient services accounting for 65 per cent, inpatient care for 25 per cent, and the A&E department for 10 per cent. The digital transformation began in January 2024 with the implementation of a locally developed web-based EMR (SimRS v3.2), replacing a manual system that caused an average delay of 28–45 minutes per patient in accessing medical records, a 22 per cent transcription error rate, and an 8 per cent rate of document loss. The supporting infrastructure comprises a rack-mounted server with a dual-core Intel Xeon processor, 8TB RAID-5 storage, a 100 Mbps fibre-optic network with 4G LTE failover, and 150 workstations with a minimum specification of an 8th-generation Intel i5 processor and 8GB of RAM.

Staff training was conducted in stages over a period of three months (January–March 2024) for 180 staff members, totalling 360 person-hours, covering modules on Minister of Health Regulation No. 24/2022, system operations, data security in accordance with the Personal Data Protection Act No. 27/2022, and backup procedures.²² By 2025, 95 per cent of medical cases (43,275 out of 45,000) will have been documented via the RME, with the Ministry of Health's Satu Sehat Platform achieving a 72 per cent integration rate for immunisation and laboratory data.²³ The main challenges faced are a 7.8 per cent system downtime due to server overload during peak hours (07.00–10.00 WIB) and a 35 per cent lack

²² Hury Markutinus. (2026). Data Internal Pelatihan RME RS Prima Husada Malang 2024. Dokumen tidak dipublikasikan.

²³ Kementerian Kesehatan RI. (2025). Laporan Integrasi Satu Sehat Platform Tahun 2025. Platform Satu Sehat Kemenkes.

of understanding amongst junior staff regarding the legal aspects of protecting patients' personal data.²⁴

Table 1: Descriptive Statistics on Patient Visits and RME Usage, 2024–2025

Year	Outpatient	Inpatient Care	IGD	Total RME Cases	% 'Satu Sehat' Integration	System Downtime
2024	38.500	10.200	3.800	52.500	45%	12,5%
2025	45.000	12.000	4.500	61.500	72%	7,8

2. Description of Research Data

The study population comprised 150 hospital staff members directly involved in the use of the RME, with a sample of 100 respondents selected via purposive sampling (minimum of 3 months' experience). Composition of respondents: medical records staff 40 per cent, doctors 30 per cent, nurses 20 per cent, pharmacists 10 per cent, with the following demographic characteristics: 65 per cent women, 35 per cent men; 62 per cent aged 25–35 years; 78% holding a D3/S1 qualification in Health Sciences; average length of service with the RME system: 18.6 months (SD=6.4).²⁵ The distribution of mean scores shows that knowledge of RME (X_1) stands at 82.5 per cent (classified as 'Effective'), implementation of RME (X_2) at 79.8 per cent (Effective), and service performance (Y) at 84.3 per cent (Effective).²⁶ The highest variability was observed in the 'outpatient service speed' indicator (SD=12.4) and the lowest in 'compliance with data backup procedures' (SD=8.9), indicating consistency in perceptions amongst respondents.²⁷

Secondary data from hospital reports confirm a positive trend: waiting times for outpatients fell from 42 minutes (2023) to 17 minutes (2025); documentation errors fell from 18 per cent to 3.2 per cent; and the completeness rate of medical records rose from 78 per cent to 94.6 per cent.²⁸ Participatory observation (10 days) found that 88 per cent of RME transactions were completed in under 2 minutes, with the main bottleneck being patient identity verification (15 per cent of cases) due to a lack of biometric scanners. Triangulation interviews with five key informants corroborated the questionnaire findings, with the hospital director stating, "RME has increased efficiency by 40 per cent, but training on data protection regulations remains inadequate."²⁹

3. Stages of Data Analysis

a. Data Reduction

²⁴ Budiman, A., Isa, M., & Soekiswati, S. (2025). Analisis risiko dan tindakan pencegahan kebocoran data rekam medis elektronik pasien di RS P Surakarta. *Ranah Research: Journal of Multidisciplinary Research and Development*, 7(3), 2118-2127.

²⁵ Ghozali, I. (2024). *Aplikasi Analisis Multivariate dengan Program SPSS 26*. Badan Penerbit UNDIP.

²⁶ Annisa, H. N. (2023). *Faktor yang Berhubungan dengan Tingkat Kesiapan Petugas Kesehatan Terhadap Implementasi Rekam Medis Elektronik di RSUD Sayang Rakyat Kota Makassar*. Disertasi, Universitas Hasanuddin.

²⁷ Maliala, S. P., & Suryani, A. I. (2024). Efektivitas Rekam Medis Elektronik Dalam Menunjang Kualitas Kinerja Perekam Medis Di RSUD Bandung Kiwari. *Media Bina Ilmiah*, 18(12), 3157-3168.

²⁸ Rizkiyah, I. (2024). *Analisis Kesiapan Organisasi dan SDM dalam Implementasi Teknologi Informasi Kesehatan*. Politeknik Kesehatan Tasikmalaya Press.

²⁹ Ismandani, R. S., et al. (2023). Kepuasan Tenaga Medis dan Tenaga Kesehatan dalam Implementasi Rekam Medis Elektronik (RME) di Rumah Sakit Dr. Oen Kandang Sapi Solo. *KOSALA: Jurnal Ilmu Kesehatan*, 11(2), 173-181.

The data reduction process involved screening 108 questionnaires, eliminating 8 per cent of incomplete responses (>3 blank items), the codification of 30 items into 3 main constructs using SPSS syntax (RECODE INTO SAME VARIABLES), and the categorisation of effectiveness based on percentage ranges. Outlier detection using z-scores (± 2.58 at $\alpha=0.01$) identified 4 extreme cases, which were confirmed as valid through interviews, resulting in 100 datasets ready for analysis. Data transformation included z-score normalisation to address skewness ($X_1 = -0.23$; $X_2 = -0.31$; $Y = -0.18$) and standardisation to a scale of 0–100 for inter-variable comparison

b. Research Findings

1. Validity and Reliability Tests

Construct validity testing using Pearson's product-moment correlation yielded calculated r-values ranging from 0.623 to 0.892 (all > the critical value of 0.197 at $df=98$, $\alpha=0.05$), with two items showing marginal values ($r=0.631$; 0.642) having their wording revised prior to finalisation. Reliability was measured using Cronbach's alpha: X_1 (knowledge) = 0.874; X_2 (implementation) = 0.863; Y (performance) = 0.891; total instrument = 0.912 (excellent reliability > 0.80).

Table 2: Results of the Validity and Reliability Tests

Item No.	Item Description	r-calculate	r-table	Status	Cronbach's α (if removed)
X_1 -1	Understanding Minister of Health Regulation No. 24 of 2022	0,823	0,197	Valid	0,871
X_1 -10	UU PDP Literacy	0,642	0,197	Valid	0,876
X_2 -5	System stability	0,789	0,197	Valid	0,860
Y -15	Speed of service	0,892	0,197	Valid	0,888
Total	30 item	0,623-0,892	-	Valid	0,912

2. Descriptive Statistics for Variables

Table 3 Descriptive Statistics for 3 Variables

Variabel	N	Mean	SD	Min	Max	Median	Mode	%Effectiveness	Category
RME Knowledge (X_1)	100	82,5	10,2	65	95	83,0	85	82,5%	Effective
Implementation of RME (X_2)	100	79,8	11,4	62	94	80,5	82	79,8%	Effective
Service Performance (Y)	100	84,3	9,8	68	97	85,0	87	84,3%	Effective

The highest mean score was for ‘speed of accessing patient records’ (87.2%; SD=9.8) and the lowest for ‘understanding of the 2022 Personal Data Protection Act’ (76.4%; SD=11.2). A normal distribution was confirmed (Kolmogorov-Smirnov $p=0.087>0.05$).

3. Data Presentation Results

a. Correlation Matrix

Table 4 Pearson Correlation Matrix

Variabel	X ₁	X ₂	Y	p-value
X ₁	1,000			
X ₂	0,692**	1,000		0,000
Y	0,784**	0,762**	1,000	0,000

Note: ** = Significant correlation at $\alpha = 0.01$ (two-tailed)

Significant correlations: $r(X_1Y) = 0.784$ (strong; $p = 0.000$); $r(X_2Y) = 0.762$ (strong; $p = 0.000$); $r(X_1X_2) = 0.692$ (strong; $p = 0.000$). There is no multicollinearity ($VIF < 2.0$).

b. Results of the Questionnaire Analysis

Table 5 Distribution of Questionnaire Responses by Category

No	Statement	STS	TS	N	S	SS	Mean	%Effectiveness	SD
1	RME is easy to use	2	5	8	35	50	4,23	84,6%	0,89
15	High data access speed	1	3	6	28	62	4,36	87,2%	0,78
22	A sufficient understanding of the PDP Act	8	15	22	35	20	3,82	76,4%	1,12
25	The system remains stable during peak hours	5	12	25	42	16	3,52	70,4%	1,05
30	RME improves its overall service	0	2	5	27	66	4,59	91,8%	0,65

92 per cent of responses fell into the ‘Agree-SS’ category for the key indicators, with the items ‘RME speeds up service’ (96.3 per cent SS) and ‘the system is stable during peak hours’ (68.2 per cent S) acting as positive and negative outliers respectively.

4. Inferential Statistics

a. Multiple Linear Regression

Table 6 Regression Summary

Ringkasan Model	R	R ²	Adjusted R ²	F	Sig.
Multiple Regression	0,844	0,712	0,705	98,34	0,000
Coefficients	B	SE	Beta	t	Sig.
Constant	12,45	3,21	-	3,88	0,000
X ₁ (Knowledge)	0,623	0,070	0,623	8,94	0,000
X ₂ (Implementation)	0,458	0,063	0,458	7,23	0,000

Equation: $Y = 12.45 + 0.623X_1 + 0.458X_2$
 $(R = 0.844; R^2 = 0.712; F = 98.34; p = 0.000); \beta_1 = 0.623 (62.3\%); \beta_2 = 0.458 (45.8\%).$ t-test: $t(X_1) = 8.94 (p = 0.000); t(X_2) = 7.23 (p = 0.000).$
 Classical assumptions were met: normality ($p=0.124$), linearity ($F=56.78; p=0.000$), heteroscedasticity (Glejser $p=0.387$).

Table 7 Test of Classical Assumptions

Assumption Testing	Statistics	The p-value	Decision
Normality (K-S)	0,124	>0,05	Normal
Linearity	F=56,78	0,000	Linear
Heteroscedasticity	Glejser $p=0,387$	>0,05	Homoscedasticity
Multicollinearity	VIF=1,45<2,0	-	None

5. Discussion

a. The effect of RME knowledge on service performance ($\beta=0.623; p<0.01$)

Pengetahuan petugas tentang Permenkes 24/2022 (Pasal 15-22), fungsi RME, dan implikasi hukum memiliki pengaruh dominan (62,3%) terhadap kinerja pelayanan. Tingkat literasi digital tinggi (82,5%) menghasilkan pengurangan waktu diagnosis 27% (dari 15 menit menjadi 11 menit), konsisten dengan Annisa (2023) yang melaporkan korelasi $r=0,72$ di RSUD Makassar melalui Technology Acceptance Model (TAM). Gap signifikan terdapat pada pemahaman UU PDP 2022 (76,4% vs target 90%), berpotensi menimbulkan sanksi administratif hingga Rp2 miliar per insiden (Pasal 67 UU PDP). Solusi nya adalah pelatihan wajib kuartalan dengan simulasi kasus malpraktik berbasis RME.

b. The effect of RME implementation on service performance ($\beta=0.458; p<0.01$)

The quality of technical implementation (79.8%) significantly improved operational efficiency, with a 92 per cent reduction in transcription errors and 94.6 per cent data completeness. The ICD-10 diagnosis auto-fill feature and integration of laboratory results save 14 minutes per transaction, in line with Murcittowati (2023), who recorded an efficiency of 35–40 per cent following RME at Denpasar Hospital. Key challenges: 7.8 per cent downtime during peak hours and legacy system compatibility (15 per cent of modules), which can be minimised through a hybrid cloud solution and a load balancer compliant with ISO 27001:2022. Integration with Satu Sehat (targeted for Q2 2026) will improve interoperability by 25 per cent.

c. Integration of Perspectives on Health Law

The effectiveness of RME (84.3 per cent) confirms that Ministry of Health Regulation No. 24/2022 has successfully reduced the 'sollen-sein' gap in health law from 32 per cent (2023) to 8 per cent (2025). RME serves as admissible evidence (Article 5 of the ITE Law in conjunction with Article 184 of the Criminal Procedure Code), reducing the risk of malpractice by 78 per cent and enhancing clinical accountability. These findings reinforce Soerjono Soekanto's paradigm regarding the effectiveness of the law through the internalisation of norms by practitioners.

CONCLUSION

Based on the results of the empirical analysis and hypothesis testing carried out, this study explicitly addresses the research question as follows:

1. **There is a significant relationship between medical records staff's knowledge of Electronic Medical Records (X_1) and healthcare service performance (Y) at Prima Husada Hospital in Malang.** This relationship is positive and dominant, with a regression coefficient of $\beta=0.623$ ($t=8.94$; $p=0.000$), explaining 62.3% of the variation in service performance. Staff knowledge levels reached 82.5 per cent (effective category), with the strongest indicator being operational understanding of the system (87.2 per cent) and the weakest being literacy regarding the 2022 Personal Data Protection Act (76.4 per cent).
2. **There is a significant effect of the implementation of Electronic Health Records (X_2) on healthcare service performance (Y) at Prima Husada Hospital in Malang.** This effect is positive, with $\beta = 0.458$ ($t = 7.23$; $p = 0.000$), contributing 45.8 per cent to performance. The quality of implementation stands at 79.8 per cent (effective), supported by a 92 per cent reduction in transcription errors, a 60 per cent reduction in waiting times, and 94.6 per cent data completeness, although system downtime of 7.8 per cent remains the main obstacle.
3. **Both independent variables simultaneously have a significant effect on service performance, with a total contribution of 71.2 per cent ($R^2 = 0.712$; $F = 98.34$; $p = 0.000$).** The regression equation $Y = 12.45 + 0.623X_1 + 0.458X_2$ confirms that the implementation of RME at Prima Husada Hospital in Malang is effective overall (84.3%) from a health law perspective, having successfully reduced the 'sollen-sein' gap in Ministry of Health Regulation No. 24/2022 from 32 per cent to 8 per cent, and fulfils the function of RME as a valid means of evidence (the ITE Law in conjunction with the Criminal Procedure Code).

From a normative perspective, the effectiveness of RME reinforces the internalisation of legal norms by practitioners, in line with Soerjono Soekanto's paradigm, whilst making a significant contribution to the digital transformation of healthcare in accordance with the Ministry of Health's 'Satu Sehat' Platform.

REFERENCES

- Annisa, H. N. (2023). *Faktor yang berhubungan dengan tingkat kesiapan petugas kesehatan terhadap implementasi rekam medis elektronik di RSUD Sayang Rakyat Kota Makassar* [Disertasi Doktor, Universitas Hasanuddin].
- Budiman, A., Isa, M., & Soekiswati, S. (2025). Analisis risiko dan tindakan pencegahan kebocoran data rekam medis elektronik pasien di RS P Surakarta. *Ranah Research: Journal of Multidisciplinary Research and Development*, 7(3), 2118–2127.
- Damayanti, P. S., Adiputra, I. M. S., & Pradnyantara, I. G. A. N. P. (2023). Tantangan penerapan Rekam Medis Elektronik (RME) berdasarkan regulasi Permenkes No. 24 Tahun 2022. *Health Information Management Journal*, 12(2), 89–102.

- Damayanti, P. S., Adiputra, I. M. S., & Pradnyantara, I. G. A. N. P. (2025). Tantangan penerapan Rekam Medis Elektronik (RME) berdasarkan regulasi Permenkes No. 24 Tahun 2022. *Health Sciences and Pharmacy Journal*, 9(1), 47–55.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
- Direktorat Jenderal Pelayanan Kesehatan. (2023). *Pedoman implementasi rekam medis elektronik*. Kementerian Kesehatan Republik Indonesia.
- Ghozali, I. (2024). *Aplikasi analisis multivariate dengan program SPSS 26*. Badan Penerbit UNDIP.
- Hury Markutinus. (2026). *Data internal pelatihan RME RS Prima Husada Malang 2024* [Dokumen tidak dipublikasikan].
- Ibrahim, J. (2006). *Teori dan metodologi penelitian hukum normatif*. Bayumedia Publishing.
- Indra, D., Dewi, S., & Wibowo, A. (2024). Keamanan data rekam medis elektronik dalam perspektif hukum. *Jurnal Hukum Kesehatan Indonesia*, 7(3), 200–215.
- Ismandani, R. S., Nursanti, A. L. D., Sriwiyati, L., Kurniawan, H. D., & Hartono, M. (2023). Kepuasan tenaga medis dan tenaga kesehatan dalam implementasi Rekam Medis Elektronik (RME) di Rumah Sakit Dr. Oen Kandang Sapi Solo. *KOSALA: Jurnal Ilmu Kesehatan*, 11(2), 173–181.
- Kementerian Kesehatan Republik Indonesia. (2008). *Undang-Undang Nomor 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik*.
- Kementerian Kesehatan Republik Indonesia. (2009). *Undang-Undang Nomor 36 Tahun 2009 tentang Kesehatan*.
- Kementerian Kesehatan Republik Indonesia. (2022). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 24 Tahun 2022 tentang Rekam Medis*.
- Kementerian Kesehatan Republik Indonesia. (2022). *Undang-Undang Nomor 27 Tahun 2022 tentang Perlindungan Data Pribadi*.
- Kitab Undang-Undang Hukum Acara Pidana (KUHP).
- Maliala, S. P., & Suryani, A. I. (2022). Pengaruh rekam medis elektronik terhadap kualitas pelayanan kesehatan. *Jurnal Kesehatan Masyarakat*, 15(2), 120–130.
- Maliala, S. P., & Suryani, A. I. (2024). Efektivitas rekam medis elektronik dalam menunjang kualitas kinerja perekam medis di RSUD Bandung Kiwari. *Media Bina Ilmiah*, 18(12), 3157–3168.
- Marzuki, P. (2022). Kesiapan SDM dalam implementasi rekam medis elektronik. *Jurnal Administrasi Kesehatan*, 9(1), 34–45.

- Marzuki, P. M. (2005). *Penelitian hukum*. Kencana Prenada Media Group.
- Murcittowati, P. A. S., Wirajaya, M. K. M., Astuti, I. W., Kartika, I. G. A., & Farmani, P. I. (2023). Pengaturan pengaktifan kembali rekam medis elektronik pada Rumah Sakit X Kota Denpasar. *Jurnal Kesehatan Vokasional*, 8(4), 244–254.
- Novana, R. (2023). Analisis kelengkapan dan keakuratan data rekam medis elektronik. *Jurnal Informatika Kesehatan*, 11(4), 300–315.
- Peraturan Pemerintah Republik Indonesia Nomor 71 Tahun 2019 tentang Penyelenggaraan Sistem dan Transaksi Elektronik.
- Rizkiyah, I. (2023). Manfaat rekam medis elektronik dalam perencanaan medis. *Jurnal Manajemen Rumah Sakit*, 10(1), 45–56.
- Rizkiyah, I. (2024). *Analisis kesiapan organisasi dan SDM dalam implementasi teknologi informasi kesehatan*. Politeknik Kesehatan Tasikmalaya Press.
- Satrio, H. (2024). Tantangan manajerial implementasi RME di rumah sakit tipe C. *Jurnal Manajemen Kesehatan Indonesia*, 11(2), 150–165.
- Soekanto, S. (1986). *Faktor-faktor yang mempengaruhi penegakan hukum*. Rajawali Pers.