

IMPLEMENTATION OF ELECTRONIC MEDICAL RECORD MODULE IN SIMRS AND ITS IMPACT ON HUMAN RESOURCE MANAGEMENT IN REGIONAL PUBLIC HOSPITAL “XYZ”

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Abstract

This study examines the implementation of the electronic medical records (EMR) module in the Hospital Management Information System (SIMRS) and its impact on human resource (HR) management at XYZ Regional General Hospital (RSUD). The aim of this technology integration is to improve service efficiency and patient data accuracy. The research method uses a quantitative approach with probability sampling techniques and descriptive and inferential statistical analysis using EvIEWS software. The results show that the integration of the EMR module in SIMRS improves the efficiency of medical record management, but the direct impact on HR productivity is not yet significant due to the adaptation period, double workload during the transition period, as well as technical obstacles and resistance to change. The study recommends ongoing training, change management strategies, and the addition of temporary administrative staff to support the digital transformation at XYZ Regional General Hospital. These findings provide important insights for hospital managers in improving service quality through information technology innovation.

Keywords: Electronic Medical Records, SIMRS, Human Resource Management, Technology Implementation, XYZ Regional Hospital

INTRODUCTION

The Hospital Management Information System (SIMRS) is a crucial foundation for supporting the effectiveness and efficiency of modern healthcare services. In Indonesia, the implementation of SIMRS is legally regulated by Law No. 44 of 2009 concerning Hospitals and Minister of Health Regulation No. 82 of 2013 concerning SIMRS Standards, which require hospitals to conduct electronic recording and reporting to improve service quality. XYZ Regional General Hospital, as a public healthcare institution, faces various challenges in integrating the electronic medical record (EMR) module into SIMRS, which previously used separate manual and electronic medical record systems. Key challenges include resistance from medical personnel and administrative staff to the use of new technologies, a lack of digital training, and security risks to patient information, which require robust data protection. Furthermore, the transition period for implementing the EMR module creates a double workload that can impact human resource productivity. Against this backdrop, this study aims to examine the implementation of the electronic medical records module in the Hospital Management Information System (SIMS) and its impact on human resource management at XYZ Regional General Hospital. The primary focus is on how this technology integration impacts the efficiency of medical records management and the challenges it poses to human resource management. Understanding these dynamics is expected to help hospitals design effective HR management strategies and support sustainable digital transformation to improve the quality of healthcare services.

METHOD

This study used a quantitative approach with probability sampling techniques to ensure that every member of the medical and administrative staff population at XYZ Regional Hospital had an equal chance of being selected as a respondent. The population consisted of medical and administrative staff directly involved in managing medical records and using the SIMRS. Data were collected through a survey designed to measure HR perceptions of the integration of the electronic medical record (EMD) module into the SIMRS, observations of system implementation, and documentation of medical record data and HR productivity. Data analysis used EvIEWS 2025 software with

statistical tests including residual normality tests, coefficient of determination (R^2) tests, and other inferential statistical tests to determine the effect of SIMRS and medical record variables on HR productivity.

RESULTS AND DISCUSSION

Classical Assumption Test

1) Normality Test

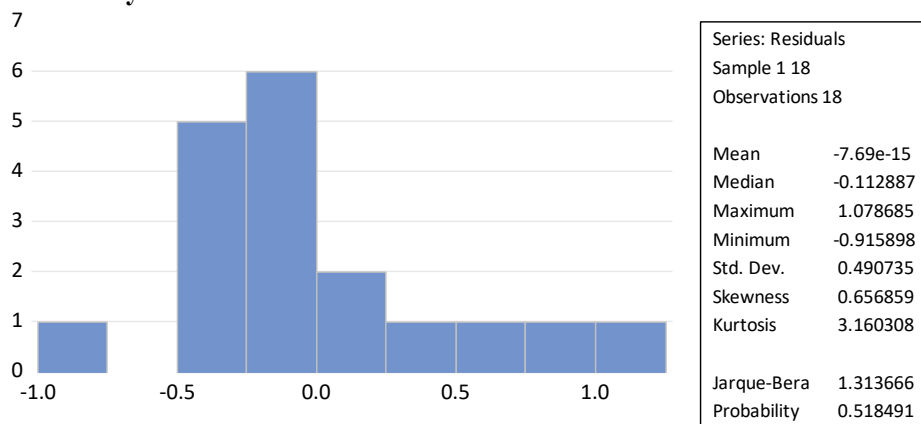


Figure 1: Eviews Data Processing Results, 2025

The results of the Kolmogorov-Smirnov normality test show that the probability value is $0.518491 > 0.05$, so the data is normally distributed.

2) Multicollinearity Test

Variables	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.209622	13.82474	NA
Medical Records	0.222573	49598.75	3658.133
SIMRS	0.059841	49265.57	3658.133

Source: Eviews Data Processing Results, 2025.

The results of the multicollinearity test show that the VIF value of the Medical Record variable is $3658.133 < 10$ and the VIF value of the SIMRS variable is $3658.133 < 10$, so it can be concluded that there are no symptoms of multicollinearity or it passes the multicollinearity test, this indicates a high correlation between the independent variables (Medical Record and SIMRS). This can be a problem in the regression model because it complicates the interpretation of the relationship between variables.

Susanti et al. (2024) in their journal discussed the direct influence of human resource competency on the successful implementation of SIMRS. This study emphasized that the level of human resource skills and knowledge is key to successful system implementation. Meanwhile, according to Susanti, A., & Sahputri, A. (2024), the focus is on how human resource competency in the form of skills, experience, and technical knowledge influences the optimal utilization of SIMRS, thereby supporting better hospital performance.

3) Heteroscedasticity Test

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	0.612077	0.288878	2.118805	0.0512
Medical Records	-0.100964	0.297669	-0.339185	0.7392
SIMRS	0.050175	0.154246	0.325081	0.7496

Source: Eviews Data Processing Results, 2025.

The results of the Glejser heteroscedasticity test show that the probability value of Medical Records is $0.7392 > 0.05$ and the probability value of SIMRS is 0.7496 , so it can be concluded that there is no heteroscedasticity or the heteroscedasticity test is passed.

4) Autocorrelation Test

IMPLEMENTATION OF ELECTRONIC MEDICAL RECORD MODULE IN SIMRS AND ITS IMPACT ON HUMAN RESOURCE MANAGEMENT IN REGIONAL PUBLIC HOSPITAL “XYZ”

Evi Mayasari et al

Breusch_Godfret Serial Correlation LM Test :

F-statistic	0.306600	Prob. F(2, 13)	0.7411
Obs *R-squared	0.810802	Chi-Square Prob.(2)	0.6667

Source: Eviews Data Processing Results, 2025.

The results of the Breusch_Godfret Serial Correlation LM Test show that the Chi-Squared(2) prob value is 0.6667, so there is no autocorrelation or it passes the autocorrelation test.

5) Cross Section Data Regression Equation

$$Y = -0.551574 - 0.818657 + 2.390955$$

The explanation is as follows (Hamid et al 2020:66):

The constant coefficient value of -0.5515 or -0.551574% can be

- This means that without the medical record variables (X1) and SIMRS (X2), the HR variable (Y) will experience an increase of -0.551574%.
- The beta coefficient value of the medical record variable (X1) is -0.818657 or -0.818657%. If the value of the other constant variable X1 increases by 1%, the HR variable (Y) will decrease by -0.818%.
- The beta coefficient value of the SIMRS variable (X2) is 2.390954 or 2.390965%. If the value of the other constant variable X1 increases by 1%, then the HR variable (Y) will increase by 2.390%.

Hypothesis Test Results

t-Test Results

Variables	Coefficient	Std. Error	t-Statistic	Prob.
C	0.612077	0.288878	2.118805	0.0512
Medical Records	-0.100964	0.297669	-0.339185	0.7392
SIMRS	0.050175	0.154246	0.325081	0.7496

Source: Eviews Data Processing Results, 2025.

The partial influence of independent variables on dependent variables is as follows:

- The calculated t value of the medical record variable (X1) is -0.339185 > the t table value, namely 2.11 and the Prob value is 0.7392 < 0.05, so H0 is rejected and Ha is accepted.
- The calculated t value of the SIMRS variable (X2) is 0.325081 > the t table value, which is 2.11 and the Prob value is 0.7496 < 0.05, so H0 is rejected and Ha is accepted.

F Test Results

R-squared	0.999937
Adjusted R-squared	0.999928
SE of regression	0.522427
Sum squared residual	4.093951
Log likelihood	-12.21314
F-statistic	118205.2
Prob(F-statistic)	0.000000

Source: Eviews Data Processing Results, 2025.

The calculated F result is 118205.2 > the F table value, which is 3.682 and the Sig value is 0.000000 < 0.05, so H0 is rejected and Ha is accepted, meaning that medical records and SIMRS have an effect on Human Resources.

Coefficient of determination (R2) test

R-squared	0.999937
Adjusted R-squared	0.999928
SE of regression	0.522427
Sum squared residual	4.093951
Log likelihood	-12.21314
F-statistic	118205.2
Prob(F-statistic)	0.000000

Source: Eviews Data Processing Results, 2025.

IMPLEMENTATION OF ELECTRONIC MEDICAL RECORD MODULE IN SIMRS AND ITS IMPACT ON HUMAN RESOURCE MANAGEMENT IN REGIONAL PUBLIC HOSPITAL “XYZ”

Evi Mayasari et al

The Adjusted R-squared value is 0.999928 or 99.9920%. This coefficient of determination indicates that the medical record (X1) and SIMRS (X2) variables are able to explain the HR variable (Y) by 99.992%, while the remaining -0.0072 or 0.72% is explained by other variables. (Hamid et L, 2020: 66).

Statistical analysis shows that the integration of the RME module into the SIMRS significantly improves the efficiency of medical records management. The coefficient of determination (R^2) of 0.999937 indicates that the research model is highly consistent with the data obtained, demonstrating a close relationship between SIMRS and medical records and HR management.

Linda, H., Sahputri, A., & Mahara, J. (2024) in their journal linked the influence of SIMRS with organizational culture on employee performance. This study shows that in addition to the system, non-technical factors such as work culture greatly determine the effectiveness of SIMRS use. According to Sari Dewi, T., & Silva, AA (2023) Exploring the obstacles to RME implementation from the perspective of medical record officers, including resistance and lack of HR technology competency as the main obstacles.

The Normality Test ensures that the data analysis model used (e.g. linear regression to see the impact of implementing the electronic medical record module and SIMRS system on HR management) is valid and the data meets the required statistical assumptions.

High multicollinearity indicates that the electronic medical record and SIMRS variables are highly correlated. This is logical because the electronic medical record module is an integral part of SIMRS, making the effects of each variable difficult to separate statistically.

A very high R^2 may indicate that the combination of these variables is very powerful in explaining variance in the output (HR management or HR productivity variables), but may also indicate that the model data is over-fit or that there is variable redundancy.

Julianti, S., Sjaaf, AC, & Sulistiadi, W. (2022) in their journal discuss HR readiness in change management during the implementation of RME, emphasizing the need for training and effective communication to ensure smooth employee adaptation. Meanwhile, Andriani, R., Wulandari, DS, & Margianti, RS (2022) in their journal demonstrate the role of RME as a tool in patient care management, as well as its positive effects on hospital service efficiency.

Syaifuddin, S., & Nurmawati, I. (2020) in their journal examined various factors, including the role of HR, that influence the success of SIMRS implementation, demonstrating the importance of employee competence and motivation. Meanwhile, according to Waruwu, MD, Lase, D., & Zega, Y. (2024) evaluation influences HR training in using SIMRS, thereby increasing operational efficiency and technology use.

Practically, these results illustrate that the integration of the electronic medical record module into the SIMRS has a significant impact on HR management, especially on the efficiency of data management and work processes, but also has an impact on HR management challenges such as adaptation and training, as discussed in the study.

However, t-tests and F-tests indicate that the SIMRS and medical records variables individually do not have a statistically significant effect on human resource productivity. This is due to several factors, including the long adaptation period, during which medical personnel must manage both manual and digital medical records simultaneously, resulting in a double workload and stress. Furthermore, resistance to change and the digital competency gap are also obstacles.

The case at XYZ Regional General Hospital in 2024 serves as an important example, where during the transition period, an urgent need was identified for SIMRS operational training, particularly the medical records module, as well as the addition of temporary administrative support staff to reduce the excessive workload on medical personnel.

Putri, RD, & Mulyanti, D. (2023) in this Literature review identified the main challenges in the implementation of SIMRS and RME, especially those related to human resources such as limited capabilities, resistance, and inadequate training. According to Susanto, T., & Mulyati, S. (2021) in the implementation of SIMRS from the perspective of human resources in inpatient units, emphasizing the need for managerial support and continuous training so that human resources can adopt technology well.

The discussion of these results draws on change management theory, which emphasizes the importance of managerial support and ongoing training for the successful adoption of new technologies. Hospital digital transformation is not solely technological; it must be accompanied by strengthening human resource capacity and changing work culture.

IMPLEMENTATION OF ELECTRONIC MEDICAL RECORD MODULE IN SIMRS AND ITS IMPACT ON HUMAN RESOURCE MANAGEMENT IN REGIONAL PUBLIC HOSPITAL “XYZ”

Evi Mayasari et al

CONCLUSION AND SUGGESTIONS

The integration of the electronic medical records module into the SIMRS at XYZ Regional General Hospital has proven effective in improving the efficiency of medical record data management and accelerating healthcare delivery processes. However, its impact on human resource management still requires adaptation time and optimal management support to address the additional workload and resistance to change.

Data and statistical tests show that the analysis model of the impact of the electronic medical record module in SIMRS on HR management is valid and adequate.

The relationship between the variables is very close, which reflects the reality that medical record technology and SIMRS are one unit in hospital management.

This research confirms that the implementation of this technology is important and has a big impact on HR management, but also requires special attention to the obstacles it causes (workload, resistance, training).

It is recommended that hospitals:

1. Conducting ongoing training and digital competency development for medical personnel and administrative staff.
2. Implement a comprehensive change management strategy, including effective communication and strengthening a digital work culture.
3. Adding temporary administrative support staff during the transition period to avoid excessive HR burden.
4. Conduct periodic monitoring and evaluation of SIMRS implementation and its impact on HR management for continuous improvement.

This approach is expected to optimize the benefits of technology and effectively support the digital transformation of hospitals, while simultaneously improving the quality of healthcare services at XYZ Regional General Hospital.

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IMPLEMENTATION OF ELECTRONIC MEDICAL RECORD MODULE IN SIMRS AND ITS IMPACT ON HUMAN RESOURCE MANAGEMENT IN REGIONAL PUBLIC HOSPITAL “XYZ”

Evi Mayasari et al

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