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Implementation of hospital management information system at Vina Estetica Hospital

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ABSTRACT

The success of implementing a hospital management information system is influenced by the quality of the system used, the commitment of hospital human resources as users of the system, as well as the supervision and evaluation provided by management during the implementation of the hospital management information system. The purpose of this study was to examine the implementation of the hospital management information system at Vina Estetica General Hospital. The method in this research is qualitative with case study design by conducting in depth interviews, observation and documentation studies. The data collected were analyzed using Miles and Huberman's model, which includes stages of data reduction, data display, and conclusion drawing/verification. The results of the study found that the implementation of the hospital management information system at RSU Vina Estetica was not yet optimal, this was because the system used was still in development process and several doctors were reluctant to use electronic medical records.

Keywords:*Hospital informtion system, HMIS, SIMRS.*

INTRODUCTION

Hospital management information systems must be implement by all hospitals in Indonesia as stated in The Regulation of the Minister of Health of the Republic of Indonesia No. 82 of 2013 article 3 paragraph 1 (Kemenkes RI, 2013). As an organization engaged in public services that include various types of services, hospitals require a management information system that can support the entire service process in order to provide optimal service to achieve a high level of patient satisfaction. The hospital information system processes and integrates all service flows within the hospital (Sumiyem & Hartayu, 2024). In addition to requiring hospitals to implement SIMRS, in 2022 the Ministry of Health, through Minister of Health Regulation No. 24 of 2022, also requires hospitals to implement electronic medical records by the end of 2023 at the latest (Kemenkes RI, 2022). So, to achieve this, electronic medical records must be integrated into the hospital management information system.

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Vina Estetica General Hospital has implemented a HMIS since 2013. Initially, this system was limited to the registration, cashier, and logistics unit. Over the time, it has been developed to meet the hospital's needs. Base on this, the researher aims to investigate its implementation at Vina Estetica General Hospital. The preliminary survey found that not all units were integrated with the HMIS. In the inpatient unit, Electronic Medical Records (EMR) had not yet been implemented, and computers were only available in some spesialist clinics. These findings indicate that the implementation of the HMIS at Vina Estetica General Hospital was not yet optimal. Previous research indicates that several factors can hinder the proper funtioning of HMIS, including inadequate infrastructure, lack of commitment from human resources, unimplemented standard operating procedures, unclear main tasks and functions, ineffective supervision, insufficient management oversight, and issues related to external systems (Malahayati & Syamsuar, 2022). This study aims to provide insight that could enhance the implementation of HMIS at Vina Estetica General Hospital.

METHODS

This research is qualitative research using a case study research design. According to Bogdan and Taylor, qualitative research is described as a method that produces descriptive data in the form of written or spoken words from individuals and their observed behaviors (Sugiyono, 2016). Data collection for this study was carried out through in-depth interviews, observation of HMIS user activities, and document reviews. Respodents were selected using purposive sampling based on the following inclusion criteria: (1) they must be information technology staff or HMIS users, (2) have a minimum of two years of work experience, and (3) be willing to participate as informants. The instruments utilized in this study included interview guides and observation guides. Additionally, a smarthphone was used to record interviews and take photos during the document review, along with writing tools to note the results of observations.

Data analysis followed the Miles and Huberman model, which consists of data reduction, data display, and conclusion drawing/verification (Sugiyono, 2016). Data verification was carried out using source and method triangulation. This study was conducted at Vina Estetica General Hospital in April-May 2025 after the Health Research Ethics Committee approved the research protocol with letter 076/KEPK/UNPRI/IV/2025.

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RESULTS.

Table 1 shows the characteristics of the research informants, who had at least two years of work experience and worked as information technology staff or HMIS users.

Table 1. Characteristics of the informant

Informants Initials	Age (in years)	Gender	Education	Length of working (in years)	Position
EA	33	♂	Diploma of Computer Engineering	11	PIC of HMIS
SRM	25	♀	Diploma of Medical Record	2	Hospital Reporting Staff
RO	30	♀	Diploma of Informatic Engineering	8	Casemix Staff
RU	47	♂	Diploma of Computer	15	PIC of Registration/IT Staff
FT	42	♂	Pharmacist	7	Head of Pharmacy Instalation

Overview of the Implementation of the HMIS at Vina Estetica General Hospital

HMIS implementation in Front Office

Based on interviews and observation related to HMIS features to support primary services, these features include: Registration, Cashier, Emergency Room, Outpatient Care, Inpatient Care, EMR, Laboratory, Radiology, Anatomical Pathology, Nutrition, Operating Room Queue, Nursing, and Pharmacy. The HMIS has been successfully implemented in the Registration Unit. Registration staff can now perform online registrations for both outpatient and inpatient patients. The registration process for patients under the National Health Insurance (BPJS) is also operating smoothly, as the HMIS is integrated with the BPJS VCLAIM system, which generates the Patient Eligibility Letter (SEP). In the Cashier section, the HMIS is also functioning well. Examination fees, room charges, medication costs, and other expenses have been successfully entered into the system. This contrasts with the Registration Unit, where SIMRS implementation is functioning smoothly. From the interviews, we learned how HMIS is applied in both the Outpatient and Inpatient Units, EA stated,

> *"It has been implemented, but not fully."* When the researcher inquired why it wasn't fully implemented, EA explained, *"In outpatient care, I believe it's already over fifty percent, but there are still some modules that the vendor needs to develop"*.

According to EA, the HMIS module that needs to be developed is EMR. In the Outpatient Unit, EMR implementation is not yet complete, which aligns with the information provided by RU. RU said,

> *"For outpatient care, full EMR is still in the emergency room."*
> *"As for polyclinics, several clinics have already implemented EMR."*

The emergency room has fully implemented an Electronic Medical Record (EMR) system. Meanwhile, Of the fourteen specialist clinics, seven have adopted EMR, while the remaining clinics still have some doctors are not yet willing to switch to using EMR. In inpatient care, EMR is currently in the trial phase, some nursing assessment data has been entered into the EMR, but paper medical records are still being utilized. Despite the availability of the EMR feature for inpatient care in the HMIS, all inpatient medical records continue to rely on paper.

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This situation is due to the lack of digital forms that correspond to those used in manual medical records.

Furthermore, the implementation of the HMIS in the Laboratory department has led to the integration of outpatient laboratory test results into the system. However, inpatient laboratory test results are still processed manually and printed out. In the Radiology department, while test results can now be accessed within the system, test requests are still made manually, despite the system containing a list of available radiology tests.

The HMIS in Pharmacy is currently limited to drug input, even though the system already has e-prescribing. However, it is not compatible with compounded drug prescriptions. Additionally, the features for Anatomical Pathology, Nutrition, and Pharmacy within the system cannot be used at this time because they do not yet meet the hospital's needs.

HMIS implementation in Back Office

The HMIS in the Logistics department section has been implemented. Stocks of medicines and consumable materials have also been entered into the system. However, orders are still being placed manually. In the finance department, HMIS has also been implemented, but it is still only used by the casemix unit to retrieve data on BPJS outpatient billing files, and not yet for all outpatients, as the EMR system in the outpatient unit has not been fully implemented.

HMIS Integration and Interoperability

The HMIS at Vina Estetica General Hospital is already integrated with the Ministry of health's Satu Sehat platform and The social security agency for health (BPJS), namely VCLAIM, online queuing, doctor schedules, and availability of inpatient rooms. However, there are still occasional issues, such as slow updates. Currently, data reporting from Vina Estetica General Hospital to the Hospital Information System (SIRS) cannot be done directly through the HMIS. Instead, the necessary data is first collected manually from the HMIS and the ward, and then it is sent to the Hospital Information System (SIRS).

HMIS Security

The physical security of HMIS is well maintained, where only information technology staff and authorized personnel are allowed to enter the data center room. Each staff member who accesses HMIS uses their user name and password, but there are user names that can be shared by several staff members with the approval of the HMIS person in charge. In addition to physical security, data security is also guaranteed by the HMIS application provider.

Information Technology Governance

The organizational structure for managing the Health Management Information System (HMIS) is in place, but it is not entirely focused on HMIS management. The information technology staff are still engaged in various administrative tasks related to the hospital. Currently, there is only one Standard Operating Procedure (SOP) associated with HMIS, which addresses what to do during downtime.

Inhibiting Factors of HMIS Implementation

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The implementation of the Health Management Information System (HMIS) at Vina Estetica Hospital faces two main types of obstacles: system-related issues and challenges related to human resources. Regarding the system, the HMIS application providers are still in the process of developing the system to enhance user-friendliness, as many users have reported difficulties in navigating it. Furthermore, some modules, such as the Electronic Medical Record (EMR) for inpatient units, remain incomplete. On the human resources side, older doctors often struggle to learn the new system, leading to reluctance in adopting the HMIS.

DISCUSSION

The HMIS at RSU Vina Estetica meets the minimum design requirements according to The Regulation of the Minister of Health of the Republic of Indonesia No. 82 of 2013. However, the findings show that not all features can be used. Some are still in development, and even the available features are not being fully utilized. The system's suboptimal functioning impacts the success of HMIS implementation, as it will inevitably affect HMIS users.

The HMIS at Vina Estetica General Hospital is integrated with The Social Security Agency for Health (BPJS) and the Ministry of Health. The integration with BPJS, particularly with VCLAIM and Online Queuing, is functioning well. However, the integration with the Ministry of Health is currently limited to Satu Sehat. Currently, there is no data communication between The HMIS of Vina Estetica General Hospital and the Health Information System (SIRS) reporting system. This lack of integration does not comply with Ministerial Regulation No. 82 of 2013, which mandates that the HMIS must be integrated with the SIRS.

The physical security of the HMIS at Vina Estetica General Hospital is strong. Access to the data center is restricted to information technology staff only. Computer access is also well-regulated. Users must request permission from the HMIS administrator, ensuring that access to the HMIS is limited to authorized personnel. Research conducted by (Pujihastuti, 2021) indicates that access control to the HMIS is implemented by granting access rights to registered officers, preventing unauthorized system access. Additionally, the security of the data collected is assured by the vendor.

The IT staff at Vina Estetica General Hospital has additional responsibilities in other units, which impact the effectiveness of the IT human resources and lead to suboptimal management of the HMIS implementation. Furthermore, the application users themselves also play a crucial role in the success of HMIS implementation. For instance, the reluctance of several doctors to use the Electronic Medical Record (EMR) system negatively affects the overall success of HMIS. Additionally, the lack of Standard Operating Procedures (SOPs) hinders HMIS implementation, as the availability and proper implementation of SOPs would have a positive impact on HMIS implementation. The presence of clear SOPs and well-organized structures supports the implementation of SIMRS in hospitals (Anjar et al., 2025).

The use of HMIS is still intended to facilitate services and has not yet been used at the management level. If the Executive Dashboard can function and be used to its full potential, hospital management can monitor service performance based on data through the Executive Dashboard. Research conducted by (Pratama et al., 2021) also shows that HMIS utilization is still used for ease of service, while the management level has not utilized HMIS effectively.

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Several factors are hindering the implementation of HMIS, including human resource constraints and issues with the HMIS application itself. Additionally, some doctors' reluctance to use Electronic Medical Records (EMR) poses a significant obstacle to the successful implementation of HMIS. Adoption is a natural aspect of human behavior and is essential for the successful implementation of HMIS. Therefore, it is important to maintain appropriate levels of discipline and competence among human resources (Tangel et al., 2023). Furthermore, certain modules within the HMIS application remain non-functional, either because they are still under development or undergoing testing, which will also affect the success of the system. The quality of the system and its usage significantly influence the success of implementing a Health Management Information System (Tangel et al., 2023).

CONCLUSION

Research findings indicate that the implementation of the HMIS in the Registration and Cashier Units has significantly optimized and improved service efficiency. However, the system has not yet achieved optimal service efficiency in other areas such as the Emergency Room, Specialist Outpatient Clinic, Inpatient Unit, Laboratory Unit, and Radiology Unit. The primary obstacles to the successful implementation of the HMIS at Vina Estetica General Hospital are application issues and human resources constraints.

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