

ANALYSIS OF THE APPLICATION OF HOSPITAL MANAGEMENT INFORMATION SYSTEM (SIMRS) IN OUTPATIENT SERVICES AT DR. M.M. DUNDA LIMBOTO

Tri Liswinda Umar¹⁾, Desi Novitasari²⁾, Darman³⁾
^{1,2,3}Bina Mandiri University Gorontalo, Indonesia
E-mail : indiumar9@gmail.com.

ABSTRACT

The implementation of Management Information System (SIM) for a hospital is very important in its application in the present era. This is supported by the increasing complexity of the problems that exist in the patient's medical data and other administrative data related to the implementation of hospital services received by the patient. This research was conducted at Dr. M.M. Dunda Limboto. the approach in the study is a qualitative approach and the type used is descriptive research that aims to analyze the application of Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto melalui 6 aspek PIECES (*performance, information, economy control, efficiency, dan service*). Based on the results of research conducted it can be concluded that the application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto melalui 6 aspek PIECES (*performance, information, economy control, efficiency, dan service*) sudah dilakukan dengan cukup baik. Related obstacles that arise in the field when implementing the hospital Management Information System (SIMRS) occur due to error constraints from the system, network and some features in the SIMRS application such as outpatient registration forms or medical and laboratory record forms).

Keywords: Management Information System, PIECES, Hospital

INTRODUCTION

Hospital (RS) is a very complex organization in providing health services through health maintenance approach (*promotive, preventive, curative and rehabilitative*) which is implemented as a whole in accordance with applicable laws and regulations. Hospitals are responsible for providing quality services in accordance with standards to meet the needs and demands of individual users (Putri & Mulyanti, 2023). Therefore, hospitals are required to be able to improve medical services, reduce medical errors, provide timely access to information and at the same time must be able to monitor service activities and control operational costs.

In fact, not all hospitals can meet these demands. Some hospitals still use manual systems that are quite difficult to use. The inefficiency of manual systems themselves

often involves lengthy processes and are prone to human error. The manual system itself also has limitations that can hinder the speed in providing the information needed by the medical team which can affect the speed and quality of patient care (Sofianto, 2020).

In addition, manual systems used in hospitals can also have an effect on data inaccuracies, which in turn can affect the quality of clinical decision-making and medical diagnosis. The quality of hospital services is one of the important elements in health services. This is due to the quality of Service is one of the indicators used to measure the performance of the hospital. Therefore. the quality of care should receive serious attention from the hospital management. In its services, hospitals are always under pressure to be able to improve medical services, reduce medical errors,

provide timely access to information, and at the same time must be able to monitor service activities and control operational costs, therefore to be able to meet these demands, hospitals must have an Integrated Management Information System (SIM) which can exchange information in *real-time*, precisely and accurately.

One of supporting the implementation of good service quality is the implementation of Hospital Management Information System (SIMRS) which is reliable, effective and efficient and can always follow developments. Indonesia has required every hospital to apply SIMRS in accordance with law no. 44 of 2009 on hospitals “every hospital is obliged to record and report on all hospital management activities in the form of Hospital Management Information System (SIMRS)”. In addition, regulations related to hospital information systems, namely the regulation of the minister of health No. 82 of 2013 on the SIMRS standard which reads “Every hospital is required to organize a hospital Management Information System (SIMRS)”, from the statement it can be concluded that SIMRS is very important to be applied so that hospitals can provide maximum service to customers (Pratiwi et. al, 2023).

In organizing the Management Information System (SIM) in a hospital is very important in its application in the present era. Hospital Management Information System (SIMRS) is a computer system that processes and integrates the entire health service process in the form of a coordination network, reporting and administrative procedures that are useful for obtaining information quickly, precisely and accurately (Hadiyanti, 2021). This can help the hospital in managing and supported by the increasingly complex problems that exist in the patient's medical

data and other administrative data related to the implementation of hospital services received by the patient.

According to the *World Health Organization (WHO)*, an information system is a system that provides information for decision-making processes at every level in an organization and a hospital Information System (SIRS) is a system that integrates data collection, processing, reporting, and use of information necessary to improve the efficiency and effectiveness of Health Services through better management at various levels of health services, while the hospital Management Information System (SIMRS) is an information system specifically designed to assist in the management and planning of health programs (Santosa, 2024). This management information system cannot run automatically if it is not supported perangkat lunak (*by software systems*) that are embedded in the hospital server.

The implementation of Management Information System (SIM) for a hospital is very important in its application in the present era. This is supported by the increasingly complex problems that exist in the patient's medical data and other administrative data related to the implementation of hospital services received by the patient. However, in providing Management Information System (SIM) services is not an easy thing, especially if associated with the cost of procurement of Management Information System (SIM) is not small. Implementation of Management Information Systems (mis) requires a thorough planning. If done in a hurry without going through the planning stage, it is feared that it will cost more and the risk of failure of

the functioning of the Management Information System (SIM).

If the hospital does not or less implement the hospital Management Information System (SIMRS) properly, it will affect the quality of Service and decision-making at the hospital. Among them can cause *human error* and *mismanagement* in recording data and Patient Information, long waiting times, patient control to the poly room service is not good and optimal, errors in taking prescription drugs in pharmacies, as well as the risk of administrative errors.

Every hospital is required to implement SIMRS. The obligation to apply SIMRS is contained in Article 3 Paragraph 1 of regulation of the Minister of Health number 82 of 2013 concerning SIMRS standards. Although the implementation of SIMRS has become mandatory, the fact is that there are still quite a number of hospitals that have not implemented SIMRS. From the results of a survey by the Central Statistics Agency (BPS), information was obtained in 2021 from 2,5882 hospitals in Indonesia, there are 425 hospitals (16%) that still do not have SIMRS. In 2022, out of 2,595 hospitals in Indonesia, 304 hospitals (22%) still do not have SIMRS while until the end of 2023, out of 3,155 hospitals, there are 519 hospitals that still do not have SIMRS (BPS, 2023).

Gorontalo province is one of the provinces with a number in Indonesia that has a number of hospital Health Services 19 hospitals spread across the city/district in Gorontalo province. Based on data from KLIKDATA SIMRS Klinik Medik Indonesia, information was obtained that from 19 hospitals in Gorontalo province 9 hospitals have implemented Hospital Management Information System (SIMRS) including Prof. Dr. dr. H Aloei Saboe, Hospital dr. Hasri

Ainun Habibie, Bunda hospital, Otanaha hospital, Bumi Panua Hospital, dr hospital. Zainal Umar Sidiki, Toto Kabila hospital, Bhayangkara Hospital, and Dr. M.M. Dunda (Click Data, 2024).

Dr. M.M. Dunda Limboto is one of the regional public hospitals in Gorontalo province is one of the hospitals that have implemented the hospital Management Information System (SIMRS) since 2015 and still use the old application, but the system used is not optimal because the output produced has not been in line with expectations. Furthermore, at the end of 2017 RSUD Dr. M.M. Dunda Limboto started using the new application SIMRS from the first version of RME however, the application is also still found many obstacles and the resulting output is still not as expected.

In 2019 Dr. M.M. Dunda Limboto updated the SIMRS 2 application, but the obstacles encountered were that he had not yet done inputting data in outpatient settings, some IT staff of Dr. M.M. Dunda Limboto broke the contract so that the use of the SIMRS version 2 application was abandoned. Currently until 2024 Dr. M.M. Dunda Limboto has formed a team to continue the use of SIMRS version 2 in collaboration with BPJS kesehatan until now SIMRS has applied its use in all matters related to the implementation of services (ranging from anamnesa, radiology results) has been input in SIMRS version 2. However, the use of SIMRS version 2 has not yet arrived at filling in medical records because currently the hospital is still focusing SIMRS version 2 to the outpatient section, starting from the patient register, filling diagnosis, Anamnesis).

In addition, there are still problems that are often encountered when the hospital both from users, systems and organizational

support Hospital Management Information System (SIMRS). The results of the initial observation were conducted by interviewing one of the staff who manages the SIMRS Section at Dr. M.M. Dunda Limboto obtained information that there are several complaints from SIMRS users regarding the functional operation of the hospital Management Information System (SIMRS) including, used does not respond so that data can not be inputted (at the time of application use, outpatient participant data can not be inputted in the system due to constraints/errors in the system so that the application can not respond) the system often errors and sometimes stops itself (*force close*) while in use, resulting in hampered user activity.

One important part of the hospital Management Information System (SIMRS) in outpatient hospitals Dr. M.M. Dunda Limboto is a place for outpatient registration (TPPRJ) or outpatient registration counters. TPPRJ is the leading part in a health care facility that regulates admissions, patient registration and gives a first impression to patients. Therefore, some patients decide to seek treatment in a health care facility by considering a comfortable place to receive patients and satisfying staff. In addition, the obstacles faced in the application of SIMRS in outpatient hospitals Dr. M.M. Dunda Limboto is facilities and infrastructure that have not been met and adequate. The hospital explained that if all supporting facilities and infrastructure are met, the implementation of SIMRS will be carried out in the outpatient clinic of Dr. M.M. Dunda Limboto will go well.

This is in line with research conducted (Ariska, 2023) related to the analysis of Hospital Management Information Systems with the PIECES method at rumah sakitIlma

Kedal hospital which informs that in the use of the hospital Management Information System (SIMRS), a problem that often occurs is when *logging* in the system suddenly *logout* itself, when inputting the doctor's signature in the hospital Management Information System (SIMRS) must be scanned first one by one after it is input to SIMRS so that it takes a lot of time and employee performance is hampered (Ariska, 2023).

The research related to the analysis of the application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto has never been studied before and in the application of Hospital Management Information System (SIMRS) in the outpatient unit is often found constraints/obstacles, especially in the network. Often the system is updated automatically due to the *maintenance* of the system from the navel of the server or the system suddenly closed itself due to network constraints from the server that caused the inhibition of services in the outpatient unit that led to the hospital Dr. M.M. Dunda Limboto is often obstructed and the patient has to wait a long time until the tissues of the system return to normal.

Based on the description above, the researchers are interested in conducting an analysis on the application of Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto. This analysis will be done through 6 aspects *PIECES*

RESEARCH METHODS

This type of research uses qualitative research with descriptive research that aims to analyze the application of Management Information (SIMRS) in outpatient services at Dr. M.M. Dunda Limboto.

The research method for analyzing vitamin B complex in triglycerides using spectrophotometric methods involves several important steps. First, a sample of triglycerides containing vitamin B complex is

RESEARCH RESULTS

1. Research Informants

Table 1.11 Research Informants

| Position | number | of age (years) | Gender | last Education |
|---|----------|----------------|--------|-----------------------|
| PJ SIMRS and database | 1 person | 31 | male | S1 Informatics |
| Officer SIMRS | 1 person | 30 | male | S1 Information System |
| PJ outpatient installation (Administration) | 1 person | 30 | female | S1 Public Health |
| Officer outpatient registration | 1 person | 34 | female | S1 Public Health |
| Officer outpatient registration | 1 person | 31 | women | S1 Public Health |

In this study based on the table above, there are 5 informants used as a source of information in this study including PJ SIMRS and database, officer SIMRS, PJ outpatient installation (Administration), Officer outpatient Registration, Officer outpatient registration

2. Interview Results

a. Application of Hospital Management Information System (SIMRS) from the aspect of system performance analysis (performance)

Table 1.2 interview results of the application of Hospital Management Information System (SIMRS) from the aspect of system performance analysis (performance)

| No | Inquiry | Conclusion |
|----|--|--|
| 1 | Bhow many outputs are generated by the hospital Management System (SIMRS)? | The Output generated by the hospital Information Management System (SIMRS) per day 100-300 for Poly, inpatient 30-50, monthly inpatient sampe 100 outpatient 300.2 |
| 2 | how long does it take Hospital Management System (SIMRS) to process the work? | The length of time it takes the hospital Information Management System (SIMRS) to process the work is about 10 minutes to 20 minutes. |
| 3 | are the work functions performed by the hospital Information Management System (SIMRS) in accordance with the standard but for implementation in the field are still in the stage of not reaching 100 % with the established standards ? | The work functions carried out by the hospital Information Management System (SIMRS) are in accordance with the standard but for implementation in the field are still in the stage of not reaching 100 %. |
| 4 | How complete is the work function of Information Management | The work functions carried out by the hospital Information Management System (SIMRS) are in accordance but still gradually 60%. |

| | | | |
|---|--|---|--|
| | System (SIMRS), is it in accordance with the established standards? | | used do not experience problems such as loading and cannot be opened. And what solutions can be provided so that the SIMRS application can be updated? |
| 5 | How much damage was done to the hospital Information Management System (SIMRS) when it made a mistake ? | The damage that occurs to the hospital Information Management System (SIMRS) when making a mistake is about 5% of the damage depending on the error of who is the usual patient due to incorrect data or communication. | |
| 6 | depends large updetan app. But still waiting for access from the center because it is still in the process of 1 hour 30 minutes? | The time required to update the SIMRS application is at least 3 hours depending on the network. | |
| 7 | What impact will occur if the SIMRS application used has not been updated? | The impact caused if the SIMRS application used has not been updated, the clinical referral data is also not <i>updated</i> . | |
| 8 | What obstacles cause the SIMRS application used today has not been updated? | The constraints that cause the SIMRS application used today have not been updated because there are still errors found in some features in the SIMRS application such as outpatient registration forms or medical and laboratory record forms that are still pending updates. | |
| 9 | What solutions can be done so that the applications | The solution is the addition of network capacity, the addition of large server capacity large storage. | |

Based on the results of interviews to 5 informants of the study, obtained a picture of system performance (*performance*) Hospital Management Information System (SIMRS) as shown in the table above, it can be concluded that SIMRS has been applied in the hospital service system capable of producing health care output of 100-300 patients per day. In its use, the obstacles that cause the SIMRS application used today have not been updated because there are still errors found in some features in the SIMRS application such as outpatient registration forms or medical and laboratory record forms that are still pending updates. This can impact clinic referral data is also not *updated*. The solution that needs to be done to prevent the SIMRS application error is the addition of network capacity, the addition of large server capacity large storage

b. Application of Hospital Management Information System (SIMRS) from the aspect of information analysis (*information*)

Table 1.3 interview results of the application of Hospital Management Information System (SIMRS) from the aspect of Information Analysis (*information*)

| No | Inquiry | Conclusion |
|----|---|---|
| 1 | What is the accuracy of the existing computing process in the hospital Information Management System (SIMRS) when running ? | The accuracy of the existing computing process in the hospital Information Management System (SIMRS) is still 85% because there are still many orders from several installations that are typed incorrectly in certain actions. |
| 2 | is the information generated in accordance with the needs ? | The resulting information has been in accordance with the needs. |
| 3 | is the information presented in accordance with the needs ? | The information presented has been in accordance with the needs. |
| 4 | What are the difficulties encountered if the information obtained is not in accordance with the needs ? | Difficulties encountered if the information obtained is not in accordance with the needs such as during the preparation of reports, errors in the order of data from each unit. |

Based on the results of interviews to 5 informants of the study, obtained an overview of the accuracy of the existing computing process in the hospital Information Management System (SIMRS) is still 85% because there are still many orders from several installations that are typed incorrectly in certain actions. However, the information presented and produced has been in accordance with the needs.

c. Application of Hospital Management Information System (SIMRS) from the aspect of Economic Analysis (*economy*)

Table 1.4 interview results of the application of Hospital Management

Information System (SIMRS) from the aspect of Economic Analysis (*economy*)

| No | Inquiry | Conclusion |
|----|---|---|
| 1 | is the use of available time data sources with available labor effective ? | The use of available time data sources with available labor has not been fully effective. If Labor is still a bit difficult. |
| 2 | What resources are needed in the care and control of Hospital Information Management System (SIMRS) ? | The resources needed in the care and control of Hospital Information Management System (SIMRS) is the most important human resources, because in Dunda hospital that handles SIMRS only 2 people. |
| 3 | is the implementation of Hospital Information Management System (SIMRS) can reduce the cost of hospital expenses? | With the implementation of Hospital Information Management System (SIMRS) can at least reduce the cost of hospital expenses and increase hospital revenues because with SIMRS services become faster so that many patients can be served every day. |

Based on the results of interviews to 5 informants of the study, information was obtained that the application of Hospital Information Management System (SIMRS) can at least reduce the cost of hospital expenses and increase hospital revenues because with SIMRS services become faster so that many patients can be served every day. However, human resources are needed in the care and control of Hospital Information Management System (SIMRS) because human resources at Dunda hospital that handles SIMRS only 2 people

d. Application of Hospital Management Information System (SIMRS) from the aspect of control (*control*)

Table 1.5 interview results of the application of Hospital Management Information System (SIMRS) from *the control aspect*

| No | Inquiry | Conclusion |
|----|--|---|
| 1 | How is the supervision in the hospital Information Management System (SIMRS) and security applied to the hospital Information Management System (SIMRS)? | Supervision is carried out 24 hours through a system that can be accessed anytime and anywhere, which is important that the internet network is available. |
| 2 | is there a potential that the data can be accessed by people who have no interest in the system? | The potential for data to be accessed by people who have no interest in the system does not exist because the security level has reached 90% and only the IT Part can access. |

Based on the results of interviews to 5 informants of the study, information was obtained that surveillance is carried out 24 hours through a system that can be accessed anytime and anywhere that is important to have an internet network available. In addition, the potential for data to be accessed by people who have no interest in the system does not exist because the security level has already reached 90% and only the IT Part can access.

e. Application of Hospital Management Information System (SIMRS) from the aspect of efficiency

Table 1.6 interview results of the application of Hospital Management Information System (SIMRS) from the aspect of *efficiency*

| No | Inquiry | Conclusion |
|----|---|--|
| 1 | What is the level of difficulty in operating the hospital Information Management System (SIMRS)? | Until now, there have been no difficulties encountered in accessing SIMRS, it's just that often the problem is the network that causes loading. |
| 2 | how difficult and how long does it take to fix errors/errors that occur in the hospital Information Management System (SIMRS) ? | The time required to correct errors /errors that occur in the hospital Information Management System (SIMRS) depends on the error. If the error in the system is likely 15 minutes. But if the error occurs in the hospital database is not up to 1 day at most 3 hours. |

Based on the results of interviews to 5 informants of the study, information was obtained that until now, there have been no difficulties encountered in accessing SIMRS, it's just that often the problem is the network that causes loading. The time required to fix the Error /error is if the error in the system is likely 15 minutes. However, if the error occurs in the hospital database is not up to 1 day at most 3 hours.

f. Application of Hospital Management Information System (SIMRS) from the aspect of Service analysis (*service*)

Table 1.7 interview results of the application of Hospital Management Information System (SIMRS) from the service analysis aspect *service*

| No | Inquiry | Conclusion |
|----|---|--|
| 1 | How is the application and accuracy of Hospital Information Management System (SIMRS) in service ? | Accuracy in the application of Hospital Information Management System (SIMRS) in the service currently reaches 85%. |
| 2 | does the hospital Information Management System (SIMRS) support services in the hospital, give one example ? | Hospital Information Management System (SIMRS) supports services in hospitals. For example complaints in service support and make it easier for outpatients to register. |
| 3 | does the hospital Information Management System (SIMRS) in the hospital produce accurate, consistent and reliable information ? | Hospital Information Management System (SIMRS) has produced accurate, consistent and reliable information. |
| 4 | is the hospital Information Management System (SIMRS) in the hospital <i>updated</i> regularly updated ? | Hospital Information Management System (SIMRS) in the hospital <i>is updated</i> regularly by the IT department. |

Based on the results of interviews to 5 informants of the study, information was obtained that the hospital Information Management System (SIMRS) supports services in hospitals and produces accurate, consistent and reliable information. Hospital Information Management System (SIMRS) in the hospital *is updated* regularly by the IT

Discussion

The application of Hospital Management Information System (SIMRS) in outpatient care is a strategic effort to improve the

efficiency and quality of services in health facilities. SIMRS integrates various hospital administrative and operational functions, such as patient registration, appointment scheduling, electronic medical record management, and medication management.

The existence of SIMRS, the administration process becomes faster and more accurate, patient waiting time can be minimized, and patient medical information can be accessed more easily by medical personnel. This not only speeds up clinical decision making but also reduces the potential for medical errors. Although the implementation of SIMRS faces several challenges, such as technical constraints and user adaptation, the benefits obtained in improving operational efficiency and service quality make it an important solution to be implemented in hospitals.

a. Application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto in terms of aspects of system performance analysis (performance)

Performance or performance, is a description of the level of achievement of the implementation of a program of activities or policies in realizing the goals, objectives, vision and mission of the hospital or organization as outlined through the strategic planning of an organization.

System performance analysis (performance) was conducted to assess how well SIMRS supports hospital operations, such as how quickly and reliably the system processes patient data, manages medical records, and accesses important information. A well-performing SIMRS will increase the speed of Service and reduce patient waiting times.

Performance analysis has an important role to assess whether existing processes or procedures might be improved performance, and see how far and how reliable an information system in the process to produce the desired goals. Inputs and processes until the output generated from a system will be input in the next stage (Marwati, 2021).

Performance analysis is the ability to quickly complete business tasks so that goals can be achieved immediately. Performance is measured by the amount of production (throughput) and response time (response time) of a system. The amount of production (throughput) is the amount of work that can be completed during a certain time (Aditya & Jaya, 2022).

Based on the existing results, obtained an overview of system performance (performance) Hospital Management Information System (SIMRS) has had a system performance (performance) that is good enough to produce health service output of 100 -300 patients per day. The length of time it takes the hospital Information Management System (SIMRS) to process the work is about 10 minutes to 20 minutes. However, the current obstacle is that the SIMRS application used today has not been updated because there are still errors found in some features in the SIMRS application such as outpatient registration forms or medical and laboratory record forms.

Performance in Information Systems refers to the ability of a system to perform the tasks assigned to it efficiently and effectively. Performance includes various aspects such as data processing speed, the ability of the system to respond to user requests, and the capacity of the system to handle specific workloads.

Performance analysis is a process of systematic assessment of the performance or job performance of a person or an organization. The purpose of the performance analysis is to measure the success or failure of the implementation of activities in accordance with the program to then be improved or improved in order to achieve a particular vision or mission. Analysis of the performance of staff or systems used is very important to assist the hospital in making decisions or developing the quality of employees and the development of a good patient registration information system (Oktaviani et.al, 2021)

The performance component focuses on the system's capabilities in terms of speed and responsiveness to existing tasks. Literature studies show that system performance analysis is essential to ensure that the system is able to handle the required workload efficiently. Performance is often measured by runtime and user response time (Dharmalau & Simbolon, 2021)

b. Application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto in terms of information analysis (information)

Information is to assess whether the existing procedures can still be improved so that the quality of the information produced becomes better. What is meant by the quality of information that is getting better is the more relevant, accurate, reliable, and complete and presented in a timely manner.

Information analysis was conducted to assess the quality of information produced by SIMRS. This includes the accuracy, relevance, and availability of data needed by medical personnel and hospital management

to make quick and informed decisions. Effective SIMRS must provide accurate and easily accessible information to improve the quality of patient care.

With SIMRS will greatly assist officers in obtaining information, which they need about services in the hospital and the system provides information that is easy to understand and needed for officers and patients. An information must be accurate because from various sources of information to the recipient of the information is likely to occur a lot of interference that can change or damage the information.

Information is said to be accurate if the information is misleading, free from errors inaccuracies in an information can occur because the source of information or data is impaired or intentionally so as to damage or change the original data. Some things that can affect the accuracy of information include (Ariska, 2023) :

1. Accurate information must have good completeness, because if the information produced in part will certainly influence decision making or determine overall action, so it will affect its ability to control or solve a problem properly.
2. The information generated by the data processing process must be correct in accordance with the calculations in the process.
3. Information must be safe from any interference can change or damage the accuracy of the information with the main purpose

Based on the existing results, obtained a picture of the accuracy of the existing computing process in the hospital Information Management System (SIMRS) is still 85% because there are still many orders from

several installations that are typed incorrectly in certain actions. However, the information presented and produced has been in accordance with the needs. In terms of functions in delivering information, SIMRS provides easy access for officers who need time so that their main purpose as appropriate information can be carried out.

c. Application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto in terms of aspects of Economic Analysis (*economy*)

Economy to determine whether a system is appropriate to be applied to an information institution in terms of financial and costs incurred. This is very important, because a system is affected by the amount of costs incurred (Ariska, 2023).

Economic analysis considers the cost aspects associated with the implementation and operation of SIMRS. These include initial implementation costs, maintenance costs, and long-term economic benefits such as savings in operating costs and increased revenue through improved efficiency and service. This analysis helps assess whether the investment in SIMRS adds value to the hospital. With the availability of SIMRS, the administrative payment process can be more targeted in a short time, and the availability of data information and minimize hospital expenses.

Based on the existing results, information was obtained that the application of Hospital Information Management System (SIMRS) can at least reduce the cost of hospital expenses and increase hospital revenues because with SIMRS services become faster so that many patients can be served every day. However, human resources are needed in the care and control of the hospital Information

Management System (SIMRS) because human resources at Dunda hospital that handles SIMRS are only 2 people.

d. Application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto in terms of aspects of control (control)

Control involves evaluating the extent to which SIMRS assists in hospital operational control, including monitoring of data access, control of drug use, and compliance with Standard Operating Procedures (sops). Systems that have good control will increase the security of patient data and reduce the risk of medical errors.

Control analysis is an improvement of control to detect and correct errors and deficiencies that will occur in the future. Control in the system is needed to avoid and detect misuse or errors in the system and ensure the safety of data and information. control, in the presence of all impaired performance can be immediately corrected. Control and security analysis is focused on the security of applications from virus attacks that can interfere with computer performance and the security of user data and information.

This analysis is used to improve system performance, detect system abuse and ensure data security from outside parties who are not interested and ensure the security of data and information generated. With the control, the performance tasks that experience interference can be improved (Ariska, 2023).

Based on the results, information was obtained that surveillance is carried out 24 hours through a system that can be accessed anytime and anywhere that is important to have an internet network available. In addition, the potential for data to be accessed by people who have no interest in the system

does not exist because the security level has reached 90% and only the IT Part can access.

e. Application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto in terms of efficiency

Efficiency relates to how resources can be used as best as possible with the least waste. This analysis is done to determine whether a system is efficient or not. Efficiency measures how SIMRS assists hospitals in utilizing resources more optimally. This includes a reduction in the time required to complete administrative and clinical processes, a reduction in manual errors, and an increase in staff productivity. An efficient system will minimize waste and increase healthcare output.

Based on the existing results, information was obtained that until now, there have been no difficulties encountered in accessing SIMRS, it's just that often the problem is the network that causes loading. The time required to fix the Error / error is if the error in the system is likely 15 minutes. However, if the error occurs in the hospital database is not up to 1 day at most 3 hours.

Efficiency analysis deals with how resources are used to avoid waste. A system is said to be efficient or successful if it can achieve the desired goals, does not spend a lot of time and excessive labor of officers.

Efficiency assesses whether a system is using its available resources (time, Labor, and energy) optimally. Literature studies show that this aspect is closely related to cost savings and efforts to minimize waste of resources. Efficiency is especially important in the context of large systems that require effective resource management (Oktaviani et. al, 2021). Efficiency in Information Systems

refers to the extent to which the system can use existing resources optimally to achieve the desired results. Efficiency is often measured based on the system's ability to minimize time, effort, cost, and other resources in completing certain tasks (Aditya & Jaya, 2022).

f. Application of Hospital Management Information System (SIMRS) in outpatient care at Dr. M.M. Dunda Limboto in terms of Service analysis (service)

Service analysis assesses the impact of SIMRS on the quality of services provided to patients. This includes patient satisfaction, ease of access to services, and speed of response to medical needs. A well-implemented SIMRS will improve the patient experience by providing faster, more accurate, and tailored services.

This analysis is used to determine the level of service provided by the information system to the satisfaction of users and customers. Service analysis is an improvement on the services produced by the system. The system that is being run or used at home aims to improve the performance of services to the process of inputting patient data by not knowing the space and time, and the information can be received optimally.

Based on the existing results, information was obtained that the hospital Information Management System (SIMRS) supports services in hospitals and produces accurate, consistent and reliable information. Hospital Information Management System (SIMRS) in the hospital is updated regularly.

The last component in PIECES is service, which evaluates how the quality of service provided by the system to its users. Factors such as user satisfaction, system reliability, and response to technical problems are often

measured in this aspect. Literature studies highlight that high service quality contributes greatly to the successful implementation of the system (Dharmalau & Simbolon, 2021).

Conclusion

1. **Analysis of system performance.** Hospital Management Information System (SIMRS) has had a system performance (*performance*) is good enough. However, the current obstacle is that the SIMRS application used today has not *been updated* because there are still errors (cannot be *updated* and cannot be accessed) in some features in the SIMRS application such as outpatient registration forms or medical and laboratory record forms.
2. **Analysis of information.** The information presented and generated has been in accordance with the needs, but the accuracy of the computing process is still 85 %.
3. **Economic analysis (*economy economics*).** The application of Hospital Information Management System (SIMRS) can at least reduce the cost of hospital expenses and increase hospital revenues because with SIMRS services become faster so that many patients can be served every day.
4. **Control (*control*).** The security level of SIMRS has reached 90% and only the IT department can access and supervision is carried out 24 hours through the system by IT.
5. **Efficiency (*efficiency*).** There have been no difficulties encountered in accessing SIMRS, but SIMRS applications often have problems that cause network loading. The time required to fix the Error /*error* is if the error in the system is likely 15 minutes. However, if the error occurs in the

hospital database is not up to 1 day at most 3 hours.

6. **Analysis of Service (*service*).** Hospital Information Management System (SIMRS) supports services in hospitals and produces accurate, consistent and reliable information. Hospital Information Management System (SIMRS) in the hospital *is updated* regularly.

BIBLIOGRAPHY

- [1] Aditya, B. M. N., Jaya, U. N. J. 2022. Application of the PIECES Framework method at the satisfaction level of the Myindihome Application Service Information System. *Journal of computer systems and Informatics*. Vol. 3 (3). Pp. 325-332.
- [2] Ariska, Y. S. 2023. Analysis of Hospital Management Information System with PIECES method in Kedal Islamic hospital. Thesis. Universitas Widya Husada: Semarang.
- [3] Central Bureau Of Statistics. 2023. Health Statistics Profile. Vol. 7 Catalog 4201005: Jakarta.
- [4] Dharmalau, A., Simbolon, Y. B. 2021. Application of the PIECES method in the analysis of Data Information Systems Repair of goods at PT. Petra Abadi Integration. *Journal of Information Engineering Swadharma (JRIS)*. Vol. 1 (2). Ex. 1 – 6.
- [5] Hadiyanti, U. T. 2021. Evaluation of the implementation of Hospital Management Information System (SIMRS) in the outpatient Unit. Panakkukang College Of Health Sciences. Scientific Papers: Makassar.
- [6] Marwati. 2021. Analysis of patient registration information system with PIECES method in Sheikh Yusuf Regional General Hospital, Gowa regency. Thesis. Alauddin State Islamic University: Makassar.
- [7] Oktaviani, I., Sumarlinda, S. My Teacher, P. 2021. Application of PIECES method in Pharmacy Management Information System Analysis. *Infokes*. Vol. 11 (1). Ex. 94 – 98.
- [8] Daughter, H. R., Mulyanti, D. 2023. Literature Review on implementation analysis of Hospital Management Information System (SIMRS). *Scientific journal of Medicine and health*. Vol. 2 (2). Ex. 14 – 28.
- [9] Pratt, I., Ahmad, I. A. O. L., Effendy, S. D. 2023. Analysis of the implementation of the hospital Management Information System (SIMRS) in the medical record Unit at the Buton Regency hospital in 2023. *Journal of Health Administration and Policy (JAKK-UHO)*. Vol. 4 (2). Ex. 82 – 91.

- [10] Sofianto, A. 2020. Information technology-based service innovation in hospitals as a form of Bureaucratic Reform. *Journal Of Research And Development Of Central Java Province*. Vol. 18 (1). Ex. 81-10.
- [11] Santosa, V. I., Subti, N. M., Jagaddhito, S. G., Susanti, D. A. 2024. Analysis of the implementation of Hospital Management Information System (SIMRS) in improving efficient Hospital Management in Surakarta Regional General Hospital. *Sejahtera: Jurnal Inspirasi Berdadi Untuk Negeri*. Vol. 3 (1). Ex. 189 – 197.