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Analysis of Inpatient Registration Information System on The Timeliness of Inpatient Services at Hamba Regional Hospital

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ABSTRACT

This research aims to evaluate the inpatient registration information system at RSUD Haji Abdoel Madjid Batoe. This research is a descriptive qualitative research with the research respondents being inpatient registration admission officers at RSUD Haji Abdoel Madjid Batoe. This research is a qualitative research using the scrum method. Findings from interviews with admissions officers showed several factors affecting the timeliness of registration, including human resource shortages, delays in procurement of materials, suboptimal procedures, slow computer systems, and limited funding. The analysis resulted in recommendations for improvement, additional staff, improved technological equipment, material and fund management, and consistent implementation of SOPs. In addition, regular training and evaluation for staff is required to ensure that procedures are followed correctly and efficiently.

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Introduction

A hospital is an institution that provides complete individual health services, including inpatient, outpatient, and emergency services (Permenkes, 2019). One of the services provided is inpatient care, which provides medical services to patients in less than 24 hours. The inpatient registration place is a front-line service unit and is the responsibility of medical records in each hospital, starting from registration to recording patient document data. Therefore, medical records are documents containing patient identity data, examinations, treatments, patient actions, and other services that have been provided to patients (Permenkes, 2022). In today's information era, information plays an important role in decision-making by individuals and government agencies. Information is now easier to obtain, more diverse in form, and its usefulness is increasing. With the rapid development of technology, the need for information has become very important so that it must be accessible anytime and anywhere. This facilitates fast and accurate access to information, thereby reducing unwanted errors and including important information related to patient data (Rusman & Suwardoyo, 2022).

The system is a unit of procedures that are combined and created to record and supervise the implementation of activities related to one of the fields in a hospital or company. In the hospital there are inpatient services. According to Endang Sutisna (2022, p. 322) inpatient

services are services for patients for observation, diagnosis, treatment, nursing, medical rehabilitation by staying in an inpatient room at a health facility with a place of care that due to illness the patient must stay in the hospital. The hospital has an inpatient registration system that aims to register patients to manage patient data who are treated until they are discharged from the hospital (Ripriyanti & Hidayati, 2021).

Hospitals are part of social and health organizations that provide curative and preventive services, and function as centers for health training and medical research (Tanjung et al., 2023). Hospitals also have an important role in providing health services evenly, prioritizing healing and health recovery, and supporting health worker education and research, in accordance with Article 1 paragraph 1 of the Indonesian Minister of Health Regulation No. 159 of 1988. To carry out its duties, hospitals have several main functions (Article 4 of Law No. 44 of 2009). These functions include: 1) providing standard treatment and health recovery services, 2) maintaining and improving individual health through second and third level health services according to medical needs, 3) organizing education and training for human resources to improve their ability to provide health services, and 4) conducting research and development of technology in the health sector by paying attention to scientific ethics (Haryanti et al., 2024).

Medical records are files containing notes and documents about patient identity, examinations, treatments, actions, and other services that have been provided to patients at health facilities. These files include anamnesis, diagnosis, examinations, and medical actions given to patients both in inpatient, outpatient, and emergency services (Amran et al., 2022). Medical records aim to provide information about patients to all parties providing care or treatment. According to Minister of Health Regulation Number 269/ MenKes/Per/III/2008, medical records are divided into two types: 1) Conventional Medical Records, which are paper files with contents according to applicable regulations, and 2) Electronic Medical Records, which use electronic information technology and are regulated by separate regulations (Putri et al., 2024).

A system is a collection of subsystems, components, or procedures that interact with each other to achieve certain goals and produce the desired output. This system is an integrated network of procedures to carry out the main activities in a company, organization, or hospital. Within the system there are procedures and components that involve people and are designed to ensure the handling of transactions in companies, organizations, and hospitals. System components include: system components that interact to form a whole, system boundaries that separate the system from its external environment, the external environment that affects system operations, connections between components for resource flow, input as processed data, output that is useful as input for other subsystems, processing to convert input into output, goals and objectives that direct the system, and feedback to control deviant processes. Systems can be classified as abstract and physical systems, natural and man-made, certain and uncertain, and closed and open systems (Irianto et al., 2021).

Inpatient care is an individual health service that includes observation, diagnosis, treatment, nursing, medical rehabilitation, with an overnight stay in an inpatient room at a hospital health facility where for medical reasons the patient must stay overnight. There are four types of inpatient care in hospitals: 1) Emergency care for patients who need immediate assistance, 2) Complete inpatient care that provides comprehensive health services according to patient needs, 3) Referral services for patients referred by other health facilities for diagnosis or therapy, and 4) Outpatient surgery services that perform surgery with patients being discharged on the same day (Haryanto et al., 2023).

According to the KBBI, analysis is an investigation of an event (an essay, action, etc.). To find out the actual situation (cause, cause, problem, etc.). According to Goverde (2017, p. 111) punctuality means that the implementation of services in the community can be completed

within a specified time period. Increasing punctuality can be done if there is synergy between regulators and operators with a good planning system, setting operational standards.

Addressing these issues is crucial to improving hospital service delivery. This study aims to evaluate the inpatient registration information system at Haji Abdoel Madjid Batoe Regional Hospital, focusing on identifying factors influencing timeliness and providing actionable recommendations for system improvement.

Research methods

The research design in this study uses qualitative descriptive. The subjects in this study were officers at the inpatient registration and inpatients. And the objects in this study were inpatients. The variables in this study were divided into 5 elements, namely man, material, method, machine, and money. The instruments in this study were interviews and observations. The location of the study was carried out at the inpatient registration at the Haji Abdoel Madjid Batoe Regional Hospital in Rengas Condong, Muara Bulian, Batang Hari Regency, Jambi. The data in this study were primary data obtained from interviews and observations and secondary data obtained or collected by researchers from various existing sources or research data obtained indirectly. The stages in qualitative descriptive research are as follows:

1. Determining research objectives
2. Selection of research subjects.
3. Identification of research variables
4. Selection of research location
5. Data collection.

Furthermore, this research also uses data collection techniques which are divided into:

1. Semi-structured or structured interviews were conducted with inpatient registration officers and inpatients. Questions were designed to explore information about the predetermined research variables (man, material, method, machine, and money).
2. Participatory or non-participatory observation, where the researcher observes the situation and records everything relevant to the research variables.
3. Collect data from existing documents, reports, or records related to the inpatient registration process at Haji Abdoel Madjid Batoe Regional Hospital.
4. Literature study, begins with the process of searching for information related to the creation of web applications through research journals, articles, and books so that in the application design process, strategic steps can be planned in the application creation process.

Fishbone diagram, also known as cause-effect diagram, is a quality improvement tool developed by Dr. Kaoru Ishikawa in 1915. This diagram systematically depicts the path leading to the root cause of a quality problem. The steps in creating it include defining the problem, brainstorming potential causes, drawing the diagram with main categories such as raw materials, methods, people, machines, measurements, and environment, placing the causes in the appropriate category, finding the root cause, and developing collective action based on the analysis results. The advantages of this diagram include identifying the root cause, generating solution ideas, further investigating the facts, creating desired results, discussing the issue comprehensively, and generating new ideas (Coccia, 2020).

The inpatient registration system using the fishbone method includes elements of man, material, method, machine, and money. Man refers to the involvement of human resources that affect the medical record system, including health workers such as doctors and nurses. Material includes the infrastructure needed, such as computers and HVS paper. Method is the registration procedure or workflow. Machine involves equipment such as printers and barcode machines to

support operations. Money refers to the funds needed to support the medical record system and other operations, including purchasing equipment and paying salaries to workers (Anggryani et al., 2024).

Results and Discussion

Results

From interviews with the head of the room and admissions officers at Haji Abdoel Madjid Batoe Hospital, information was obtained regarding the inpatient registration process. Patients who require hospitalization must first obtain an inpatient order (SPRI) from a doctor in the ER or polyclinic. Furthermore, the patient's family brings this letter to the admissions department to complete the administrative data and search for a room. After the room is available, the admissions department contacts the room that will receive the patient. If the patient has been placed in a room, the responsibility is transferred to the nurse. The archives of patients who have been discharged are returned to the medical records unit. The data required for inpatient registration include KTP, Family Card, and BPJS card or other health insurance. This process involves recording the identity of the person in charge of the patient and completing the administrative files in the hospital system. Socialization regarding the inpatient registration process has been carried out and followed by the ER admissions officers. SOPs regarding inpatient registration also exist, and their benefits are recognized as important by officers to speed up the process and make work easier. The registration process can be seen in the following image:

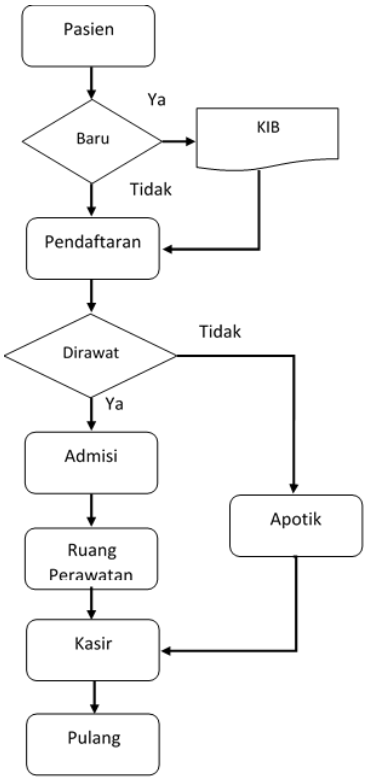

Figure 1. Patient Registration Flow

Source: Research data, 2024

Then, behind that, there are still some obstacles in the implementation of inpatient care. Problems that often occur in the implementation of inpatient registration include errors in writing data, slow computer systems, and lack of manpower in the admissions department. Admissions officers often have to go back and forth because of incomplete SPRI such as the absence of the name of the doctor in charge. The timeliness of inpatient services is generally good but sometimes constrained by a slow system. This causes the waiting time for the patient's family to be longer. Lack of staff also results in less than optimal service.

Discussion

By using the fishbone diagram method, the analysis of the inpatient registration information system at Haji Abdoel Madjid Batoe Hospital includes five main elements, namely man, material, method, machine, and money. From the results of interviews with related officers, the following results were obtained.

1. Man (Human Resources)

Human resources in the admissions department play a crucial role in inpatient registration. Interviews with admissions officers 1 and 2 showed that understaffing slowed down the administration process and reduced service delivery. Additional staff and continuous training are needed to improve efficiency and reduce errors in data entry. The performance of superiors was also considered quite good by admissions officers in directing and disciplining staff. The provision of SOP training was also very helpful in ensuring that procedures were followed correctly.

2. Materials (Materials and Infrastructure)

The materials used include hardware such as computers, scanners, and printers. Interviews showed that problems often arise when there is a delay in the procurement of necessary materials, such as paper or printer ink. The provision of sufficient and timely materials must be ensured for smooth administrative processes. Admissions officers stated that materials that are not available quickly can cause delays in the patient registration process. Therefore, management needs to improve the procurement system to ensure that operational needs are met.

3. Method (Procedure and Workflow)

Clear SOPs and workflows have been in place and socialized. Interviews with ward heads and admissions officers indicated that consistent implementation and regular evaluation are needed to ensure that all procedures are followed correctly. This will help reduce patient waiting times and increase their satisfaction with hospital services. Officers also suggested that SOPs be updated regularly to keep up with technological developments and hospital needs. Regular evaluation and feedback from field officers are also important to ensure that the implemented SOPs are truly effective.

4. Machine (Equipment and Technology)

Slow computer system constraints often hamper the registration process. Interviews indicated that investment in better equipment and technology and regular maintenance are needed to speed up the administration process and reduce patient waiting times. Admissions officers 1 and 2 also stated that the system often experiences errors that hinder their work. Improving the quality of the network and hardware can help overcome this problem. In addition, training on the use of technology for officers is also needed to improve efficiency.

5. Money (Funds)

The availability of adequate funds for operations is very important. Funds are used to purchase equipment, materials, and labor salaries. Interviews with officers showed that good financial management will ensure that all operational needs are met and support the smooth running of the inpatient registration process. Management needs to ensure that the budget for purchasing equipment and procuring materials is always available and sufficient. In addition, investment in technology and staff training also requires adequate financial support to improve the quality of hospital services. Based on the discussion of the 5 elements of the fishbone diagram above, the following is a fishbone diagram that illustrates the factors that influence the timeliness of inpatient registration at Haji Abdoel Madjid Batoe Hospital.

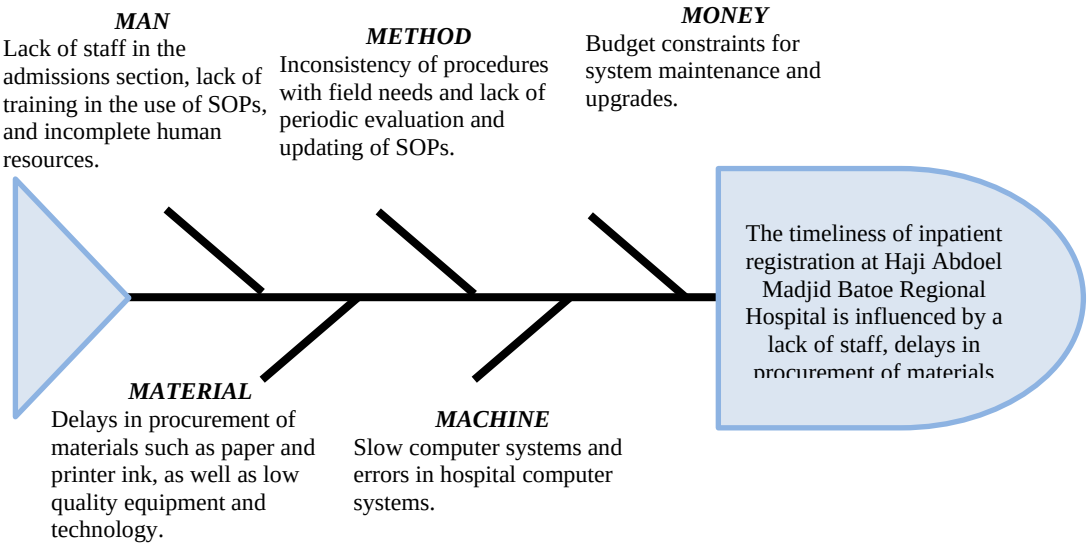

Figure 2. Fishbone Diagram of Inpatient Registration

Source: Research data, 2024

Program Creation Needs

There are server device requirements and user device requirements (users) used in running the inpatient registration information system program, among others:

Server device requirements used:

1. CPU: 4 Core
2. RAM: 4 GB
3. Storage: 120 GB
4. PHP, MySQL, NodeJs, Git
5. Programming Language: PHP, JavaScript
6. Framework: Laravel, Filament
7. Library Styling: Tailwind
8.Database: MySQL

User device requirements that are used:

1. CPU: 2 Core
2. Ram: 4 GB / 1 GB Free
3. Storage: 64 GB / 10 GB Free
4. Web Browser (Chrome, Mozilla, Firefox, Edge, Safari)
5. Keyboard, Mouse, Monitor
6. OS (Win 7 and above, Mac OS 10.10 and above, Ubuntu 18 and above)

System implementation

1. Login Menu

The login menu is the first page that will appear when the application website is run. The Login menu has an email and password to enter the application. If the officer enters the wrong email and password, the display will return to the login menu.

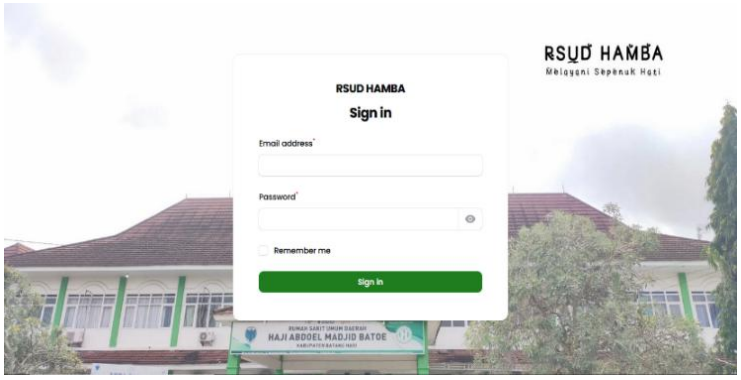

Figure 3. Login Menu

2. Dashboard View

Dashboard view is a visual display that presents various types of data in one centralized place. In the dashboard there is a menu of the total number of stored patients, the total handling of igd patients, the total hospitalization of patients and the total number of outpatients.

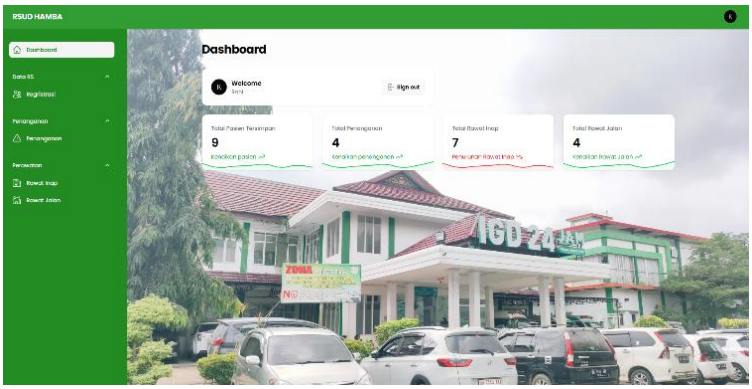

Figure 4. Dashboard view

3. Registration form

Registration form is a collection of patient identification data in the form of administrative data in medical records containing identities that will facilitate the process of searching for patient medical record data. On the website page select new registration to register a patient,

fill in all patient identity data except the medical record number and then create. if the data is successfully saved, a patient display will appear on the registration menu.

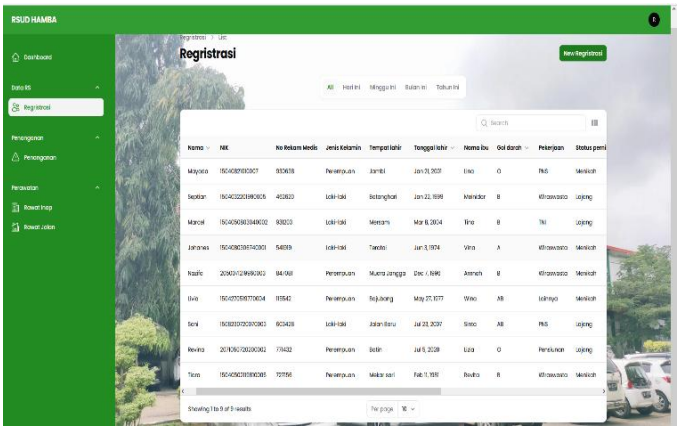

Figure 5. Registration form

4. handling display

The handling display is a process of action taken in providing services in an emergency such as an igd. On the handling page, select the patient's name that has been registered, fill in the doctor's name and other data then click create. If successfully saved, the data will appear on the handling menu.

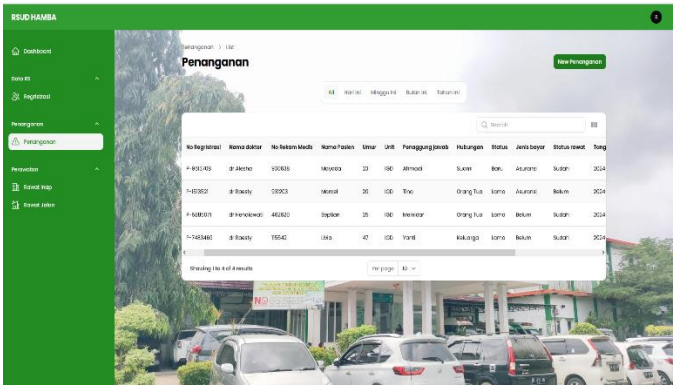

Figure 6. handling display igd

5. hospitalization form

The hospitalization form is a form that contains the identity of patients who have been registered and treated in the IgD section. Patients who need special care and must stay overnight at the hospital. On the hospitalization page, select the patient's name, fill in the room and class type, pay type, admission date and time, discharge date and time, return status then click create. If the data is successfully saved, the patient will appear in the inpatient menu.

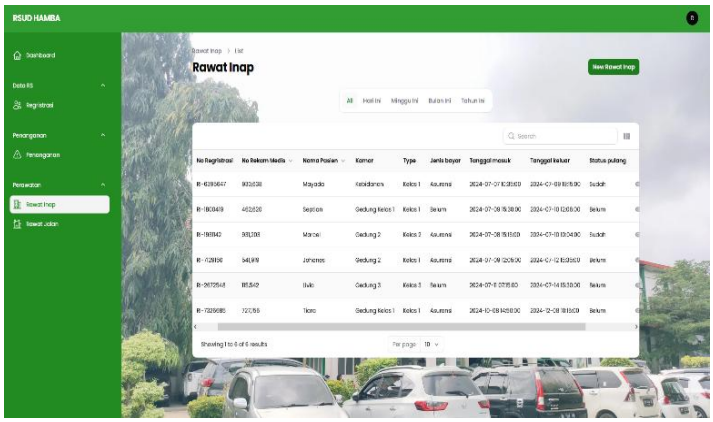

Figure 7. hospitalization form

6. outpatient form

The outpatient form is a form that contains the identity of patients who have registered with the admissions department without the patient having to stay overnight. On the outpatient page click the patient's name, date of admission, doctor's name and poly unit and patient status then create. Patient status is filled in if the patient needs treatment and the data will move to inpatient care. If the data is successfully saved, the patient data will appear in the outpatient view.

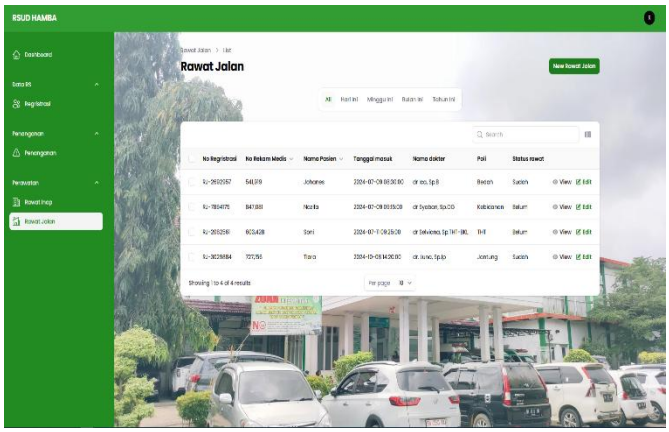

Figure 8. outpatient form

Conclusion

Based on the results of the analysis, it can be concluded that the inpatient registration information system at RSUD Haji Abdoel Madjid Batoe still needs improvement in several aspects. To evaluate and improve the inpatient registration information system at RSUD Haji Abdoel Madjid Batoe, it is recommended to increase the number of staff in the admission section based on workload and patient volume to ensure faster and more efficient service. Procure and maintain the necessary technological equipment to support a faster and more accurate registration process. Optimize the use of materials and funds to support daily operations, ensuring availability and consistent service quality. Implement existing SOPs consistently to improve service standards and reduce errors in the registration process. Conduct regular training and evaluation for officers to ensure they understand and apply procedures correctly and efficiently, and stay up-to-date with the latest technological developments and service methods.

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