

Improving the Quality of Recording and Reporting as Well as the Quality of Data and Risk Management Information at Kolonodale Hospital, North Morowali Regency with the Website-Based Sip-Menko-Rs Application

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Abstract:- Background: IKP reporting in Indonesia in 2019 was 7,310 incidents. The risk factor for incidents is the lack of implementation of a reporting culture, which has not been implemented systematically. Innovations that can be used to change risk management recording and reporting, namely through risk management information system models, are expected to improve the quality of recording and reporting and risk management data and information in hospitals. **Method:** The method used is Research and Development (R&D) with a qualitative and quantitative approach, the stages are identification of needs, design, expert validation, feasibility test 1, and feasibility test 2. This research uses a pre-experimental design with a one-group pre-design. **Post-test.** Data collection techniques are interviews, observation, and questionnaires and the data is processed using non-parametric tests. The sampling technique was purposive sampling consisting of 32 room heads and 1 K3RS person who were given intervention for 1 month. **Results:** The results of the validity of the risk management information system model show a p-value = 0.000, meaning the model is suitable for use. This model is effective in improving the quality of recording and reporting as well as data and information (p=0.000). In feasibility test 2, the result obtained was p=0.000, meaning the model was suitable for use independently by the head of the room and K3RS.

Keywords:- Risk management, Recording and Reporting, Data and Information.

I. INTRODUCTION

A Health Information System is a set of arrangements that includes data, information, indicators, procedures, devices, technology, and human resources that are interrelated and managed in an integrated manner to direct actions or decisions that are useful in supporting health development. Progress in the field of Health Information Technology is used to improve the quality of health services as a support for increasing the effectiveness and efficiency of administration and facilitating communication [1].

The National Health System (SKN), Health Information System (SIK) is part of one of the sub-systems, namely the health management, information, and regulation sub-system. The health management and information subsystem is a subsystem that manages the functions of health policy, health administration, health information, and health law which are adequate and capable of supporting the implementation of national health efforts so that they are successful, efficient, and support the implementation of other subsystems within the SKN as one integrated unit [2].

Based on Minister of Health Regulation No. 4 of 2019 concerning standards for fulfilling the quality of basic services in the health sector service standards, states that the quality of service for each type of basic service in the Quality Fulfillment Standards in the Health sector is determined in technical standards consisting of standards for the quantity and quality of goods and/or services, standards for the number and quality of health personnel/human resources and technical instructions or procedures for fulfilling standards [3].

Based on Minister of Health Regulation No. 46 of 2015, health facilities are required to pay attention to the quality of service and patient safety in every service activity and carry it out on an ongoing basis. Health service quality management is a process of a series of activities carried out with a level of perfection in health services carried out by established codes of ethics and service standards [4].

Several factors cause service quality to not be optimal, namely inadequate human resources and inadequate facilities and infrastructure [5]. Poor service quality can have an impact on patient safety. Patient safety and security are still the main focus of attention in health services because the risks associated with providing these services cannot be eliminated and the impact they cause is very large. Health services that are unsafe and have potential life-threatening risks are the main cause of death and increased mortality rates in hospitalized patients in various countries [6].

The World Health Organization (WHO) estimates that 64 million people experience disability every year due to unsafe care worldwide. This means that patient injury due to adverse events is one of the 10 leading causes of death and disability in the world [7]. In the period January-March 2021, the National Patient Safety Agency reported the number of patient safety incidents from the UK as many as 1,879,822 incidents. The Indonesian Ministry of Health in the 2015–2020 period, KPPRS reported that there were 877 patient safety incidents. The high number of patient safety incidents is the basis for the importance of patient safety efforts in healthcare facilities [8].

Lots of factors That cause a high number of Patient Safety Incidents in healthcare facilities. Factors that influence the occurrence of injuries include the unavailability of competent human resources, the condition of facilities, and the availability of medicines and health equipment that do not meet standards. The impact resulting from Patient Safety Incidents are also diverse, such as having a significant influence on socioeconomic factors and causing a very significant financial burden on the health care system [9].

Information technology systems have become an important component in the success of a hospital organization as an organization that deals a lot with information is required to be able to make adjustments and changes. The implementation of information systems in hospitals is expected to encourage hospitals to carry out service activities more productively, quickly, easily, accurately, integrated, safely, and efficiently. For hospital management, the information obtained will be used as a basis for making decisions or assessing the performance of a section in the hospital which is commonly known as the Management Information System [10].

Risk management has a very important role in preventing and dealing with medical errors. Several studies show that creating a broad and in-depth understanding of medical error management can improve services to patients related to incident reporting and that the application of risk management has been proven to reduce the number of errors in the emergency department [9].

The Ministry of Health emphasizes the need to implement risk management in health services, namely the 2016 Work Safety and Health Risk Management Manual in Health Service Facilities and Minister of Health Regulation No. 25 of 2019, explains that risk management has components in the process, namely implementation preparation, risk identification, risk analysis, risk evaluation, risk control, communication and consultation, monitoring and review. Management of all potential risks and applied to all units/sections/programs/activities starting from the preparation and implementation of programs and budgets, accountability and monitoring, and evaluation and reporting [11], [12].

One of the risk factors for incidents is the lack of implementation of a reporting culture. Some of these shortcomings are the level of compliance of officers in reporting patient safety incidents (IKP), the availability of facilities and infrastructure, inadequate assistance in reporting IKP, and the evaluation process for reporting IKP is not yet running [12].

Regulation of the Minister of Health of the Republic of Indonesia Number 82 of 2013 concerning Hospital Management Information Systems (SIMRS) is a communication information technology system that processes and integrates the entire flow of hospital service processes in the form of a network of coordination, reporting, and administrative procedures to obtain information precisely and accurately and is part of the Health Information System. SIMRS must be able to be integrated with Government and Regional Government programs. Hospitals can also develop SIMRS by adding supporting architecture in the form of a Picture Archiver System, Document Management System, Clinical Equipment Interface System, as well as Data Warehouse and Business Intelligence [13].

Kolonodale Regional General Hospital is a regional hospital in North Morowali with classification C which provides direct services, especially health services. Services at the Kolonodale Regional General Hospital also use SIMRS. SIMRS at Kolonodale Regional Hospital is currently still in the development process so SIMRS can only be used for the online patient queuing process, creating RM numbers, information on the number of patients, and hospital staff. Based on risk data available at the Kolonodale Regional General Hospital in 2022, there are 54 risk points consisting of undesirable events (KTD) with 2 risk points, near-injury events (KNC) with 3 risk points, potential injury conditions (KPC) as many as 49 risk points and sentinel 0 case points. These include damaged walls and ceilings, cables not arranged neatly (electrical short circuits), unergonomic work attitudes, equipment that quickly breaks down due to frequent power outages, medical equipment without maintenance information, being pricked by needles, falling on stairs and slipping on the floor.

Based on observations made by researchers, the process of implementing risk management at the Kolonodale Regional General Hospital in preparation for implementation, risk identification, risk analysis, risk evaluation, risk control, communication and consultation, monitoring and review, in the process of implementing risk management at the regional general hospital Kolonodale is still not running optimally. The implementation process still has weaknesses, namely when collecting risk register data in each service unit. Providing paper forms to service units and filling out and recording forms manually means that data can easily be scattered and lost, making it easy to forget, resulting in the reporting process being disrupted. This will disrupt the service process and the resulting risks will impact patients and hospital staff.

The process of implementing risk management is still considered to have not been implemented effectively, so other, more effective methods are needed so that the implementation of risk management at Kolonodale Hospital is better and the service process is better. Efforts need to be made to improve quality, especially the quality of risk management which includes identification, analysis, evaluation, and monitoring of risks. The support of the latest technological developments can be used as a resolution for manual monitoring activities that are transferred to an information system. The existence of an industrial strategy in the era of Industrial Revolution 4.0, for the health sector, the Health Information System (GIS) is described as integrated management used to guide decisions and actions related to information, data, procedures, technology, indicators, and human resources in the health development process [14].

With the development of increasingly sophisticated technology, the use of web-based information system tools as support, especially in the health sector. Web-based information system technology can be flexible, can be accessed at any time, information is easily distributed and service settings are easier. The use of the Web in the health sector also aims to make it easier for patients to carry out services, services that can be provided quickly, making it easier for officers to provide information to nurses and doctors in implementing actions [15].

The use of online service systems can improve the quality of service in hospitals. Online services are one of the assessments contained in the hospital accreditation assessment because the online system is expected to reduce obstacles and facilitate the running of services to support excellent services in hospitals [16].

The benefits of using applications are easier access, information is easily distributed, platform-free, and

information can be presented by a web browser on the system [17]. The application also increases the capacity and ability of health workers in recording and reporting [18]. Based on the problem phenomena above, as well as the existence of underlying theories and the importance of the need for a monitoring information system, researchers are interested in researching the Risk Management Monitoring Information System (SIP-MENKO-RS) at Kolonodale Regional Hospital.

II. RESEARCH METHODS AND SAMPLES

The research model carried out is the ADDIE research and development (R&D) model. There are five steps in the ADDIE Research and Development model research, needs identification, engineering design, expert validation, feasibility test 1, and feasibility test 2/End user.

The model design method uses the Rapid Application Development method where the development carried out consists of the requirements analysis phase, modeling analysis phase, modeling design phase, and construction phase.

Feasibility testing is also carried out to see whether the product being made is successful by initial expectations or not. Test feasibility through assessment objective and subjective, namely carrying out direct observations and filling out questionnaires assessing the feasibility of the model by the head of the room and K3RS using observation checklist instruments and questionnaires assessing the feasibility of the model.

The research design used a Pre-Experiment Design with a Group Pre-posttest Design. The research sample consisted of 33 people.

III. RESEARCH RESULT

A. Respondent Characteristics

Tabel 1 Respondent Characteristics

| No | Variable | Hospital Employees | |
|----|------------------------|--------------------|------|
| | | N | % |
| 1. | Age | | |
| | 17-25 years old | 1 | 3.0 |
| | 26-35 years old | 9 | 27.3 |
| | 36-45 years old | 23 | 69.7 |
| 2. | Computer skills | | |
| | Yes | 33 | 100 |
| | No | - | - |

Characteristics of respondents aged 17-25 years were 1 person, aged 26-35 years were 9 people, and aged 36-45 years were 23 people. The ability to use computers in research subjects, subjects can use computers as many as 33 people.

B. Data Normality Test

Tabel 2 Data Normality Test

| Variable | Pre-test | | Post-test | |
|---|---------------|---------|---------------|---------|
| | Mean±SD | p-value | Mean±SD | p-value |
| Quality of Recording and Reporting | 1.52 ± 1.278 | 0,000 | 6.88 ± 0.415 | 0,000 |
| Data and Information Quality | 26.94 ± 6.814 | 0.017 | 41.03 ± 2.201 | 0,000 |

**Shapiro-Wilk*

Data recording quality and reporting and quality of data and information are not normally distributed because the p-value is ($p < 0.05$), so the data is processed non-parametrically, namely the Wilcoxon test for paired data.

C. Effectiveness Test

Tabel 3 Effectiveness Test

| Variable | Mean±SD Pre-test | Mean±SD Post-test | p-value |
|--|---------------------|----------------------|---------|
| Recording Quality and Reporting | 1.52 ± 1.278 | 6.88 ± 0.415 | 0,000 |
| Data and Information Quality | 26.94 ± 6.814 | 41.03 ± 2.201 | 0,000 |

There are average differences in recording and reporting quality variables before and after model administration. The p-value before and after implementing the model on the risk management recording and reporting quality variable is p-value 0.000 ($p < 0.05$), meaning that the "SIP-MENKO-RS" model is effective in improving the quality of risk management recording and reporting.

There is an average difference in the data and information quality variables before and after giving the model. The p-value before and after applying the model to the data quality and risk management information variables is p-value 0.000 ($p < 0.05$), meaning that the "SIP-MENKO-RS" model is effective in improving the quality of data and information.

D. Due Test by End User

Tabel 4 Data Test by End User

| Variable | N | Average (%) | P-value |
|---------------|----|-------------|---------|
| Eligibility 2 | 33 | 79 | 0.018 |

The quality of recording and reporting carried out by 32 heads of rooms and 1 K3RS person, obtained an average score of 79% with a very decent category. The resulting p-value (< 0.05) means that SIP-MENKO-RS is feasible as an effort to improve the quality of recording and reporting as well as the quality of data and information at Kolonodale Regional Hospital, North Morowali Regency.

IV. DISCUSSION

A. Effectiveness of the Quality of Risk Management Recording and Reporting

A hospital's Management Information System (MIS) is the recording and reporting of all hospital administration activities in the form of a Hospital Management Information System [19]. It is necessary to record and process data completely and correctly to produce accurate and continuous information [20]. The results of the data effectiveness test on the quality of risk management recording and reporting have increased as evidenced by the p-value ($p < 0.05$) which means the "SIP-MENKO-RS" model is effective in improving the quality of risk management recording and reporting as well

as the quality of management data and information risk at Kolonodale Regional General Hospital.

The assessment indicators are seen from the ease and speed of the recording and reporting process. "SIP-MENKO-RS" can provide convenience and speed of processing for the quality of recording and reporting as well as the quality of data and information on risk management activities. The ease of entering data and searching for data will help health workers make work easier and more efficient in reporting risk management implementation, including ease of information [21].

The development of a website-based recording and reporting system provides more advantages of virtualization, methods that were initially manual can easily be oriented into an information system. Recording and reporting using an information system has other advantages, such as being more flexible in implementing the quality of recording and reporting because it can identify the needs of health workers.

B. Effectiveness of Data Quality and Risk Management Information

The results of the data effectiveness test, the quality of data and information increased after being provided the "SIP-MENKO-RS" model was compared before being given a model. This is proven by the p-value ($p < 0.05$) which means the "SIP-MENKO-RS" model is effective in improving the quality of data and risk management information at the Kolonodale Regional General Hospital.

Assessment indicators are seen from data completeness, timeliness, accuracy, suitability, and security of data and information. Completeness of data and information is very important in determining the next actions in making decisions [22]. If a system is timely, accurate, and relevant in processing data and information, it can be said that the system has good quality.

The accuracy of information must have complete data and must be safe from all interference that could affect the accuracy of the information. Thus, accurate data and information are free of errors so that they can be used in certain situations according to needs.

Suitability in this research is seen in the available risk management data to be able to produce information that suits user needs. The suitability of the information system produced by the health information system can provide benefits for analyzing health problems according to program needs.

Security is assessed by the data stored in a database remaining protected and maintaining its availability by the information system and ensuring that the data is only available to authorized parties, and cannot be accessed by unauthorized parties [69]. Access rights in the "SIP-MENKO-RS" model are also limited to avoid misuse of the system and access by irresponsible people.

An information system for reporting risk management activities can assist room heads in inputting risk management activity report data more practically, making it easier to make decisions in carrying out services to achieve the goals of their activities.

C. Feasibility of "SIP-MENKO-RS" to be used independently by the Head of Room and K3RS

The head of the room collects risk data in each room and K3RS as the end user carries out risk analysis within 1 month. The assessment is seen from the level of difficulty of the head of the room and K3RS in implementing the "SIP-MENKO-RS" Model based on preparation aspects, implementation aspects, and evaluation aspects. The feasibility test results show that the p-value = 0.018, which means the model is declared suitable for use independently by the head of the room and K3RS as the end user.

Health workers have an important role in improving the maximum quality of health services to the community so that people can increase their awareness, will, and ability to live healthily so that the highest level of health can be achieved as

an investment in the development of productive human resources. Health workers also have good abilities in terms of clinical skills, providing care to patients, management in managing their work and responsibilities, and complying with applicable standards.

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