



# Analysis of Implementation of Infection Prevention and Control at Royal Prima Marelan General Hospital

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Received: September 21, 2023

Revised: November 7, 2023

Accepted: December 20, 2023

Published: December 31, 2023

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DOI: [10.29303/jppipa.v9i12.5421](https://doi.org/10.29303/jppipa.v9i12.5421)

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**Abstract:** Nosocomial infections or Healthcare-Associated Infections (HAIs) are a serious problem for global public health, including Indonesia. HAIs are infections experienced by patients during treatment and health care procedures  $\geq 48$  hours and  $\leq 30$  days after leaving the health facility. This study aims to analyze the implementation of infection prevention and control at the Royal Prima Marelan General Hospital. This research is a quantitative study with an observational analytical approach with a Cross Sectional Study design, namely in the form of data collection aimed at analyzing the implementation of infection prevention and control at the Royal Prima Marelan General Hospital for the period July to August 2023. The population in this study was 100 people who included hospital management who were considered competent in providing information. The population sample for this study that met the inclusion and exclusion criteria was 50 people. The results of bivariate analysis show that the variables related to infection prevention and control are knowledge, motivation, supervision and workload. The results of multivariate analysis show that the variable that partially influences the prevention and control of nosocomial infections in hospitals is knowledge.

**Keywords:** Infection; Prevention and control

## Introduction

A hospital is a health service facility that has a very important role in efforts to improve the level of public health through comprehensive individual health services by providing inpatient, outpatient and emergency services (Agusti et al., 2019). Hospitals provide health services in all fields and types of diseases, one of which is infection services. Based on this, hospitals are the main source of infection for medical personnel, patients and visitors. The risk of infection in hospitals, called nosocomial infections, is a global health problem (Alemania et al., 2018; Voss, 2009).

Nosocomial infections or Healthcare-Associated Infections (HAIs) are a serious problem for global public health, including Indonesia. HAIs are infections experienced by patients during treatment and health care procedures  $\geq 48$  hours and  $\leq 30$  days after leaving the health facility (Azhari, 2020; Filaemi, 2022). Based on

the prevalence of hospital HAIs in the world, more than 1.4 million or at least 9% of inpatients worldwide have HAI infections (Ginting et al., 2018; Handiyani et al., 2014).

One effort to reduce the prevalence of HAIs is by providing infection prevention and control (PPI) services as an effort to prevent and minimize the incidence of infection among patients, staff, visitors and the health care environment. Infection prevention and control policies are very important to implement in hospitals (Alemania et al., 2018; Haque et al., 2018).

All health facilities must implement infection control to protect patients, medical staff and visitors from infection while still considering cost-effectiveness. The implementation of PPI in health institutions must be managed and integrated between structural and functional departments/departments/units of health institutions in accordance with the philosophy and objectives of PPI (Heriyati et al., 2020).

## How to Cite:

Sahputra, F., Girsang, E., & Napih Nasution, A. (2023). Analysis of Implementation of Infection Prevention and Control at Royal Prima Marelan General Hospital. *Jurnal Penelitian Pendidikan IPA*, 9(12), 11790–11795. <https://doi.org/10.29303/jppipa.v9i12.5421>

Based on the results of a survey conducted by the Ministry of Health of the Republic of Indonesia and the World Health Organization (WHO) in various hospitals in provinces/districts/cities, it was concluded that the Hospital Infection Prevention and Control Committee (KPPIRS)/PPIRS Team did not perform optimally as expected (Madjid et al., 2017). WHO data shows that the incidence of infection in hospitals is around 3-21%, where infection is a serious problem that can be a direct or indirect cause of patient death. WHO also conducted a prevalence study in 55 hospitals in 14 countries reflecting 4 WHO regions (Europe, Eastern Mediterranean, Southeast Asia and West Pacific), data obtained that an average of 8.7% of patients in Mediterranean hospitals were infected with Hospital Acquired Infections (HAIs) and at any time there are 1.4 million people in the world suffering from complications due to HAIs (3). The incidence of HAIs in 10 general teaching hospitals in Indonesia is quite high, namely between 6-16% with an average of 9.8% and the incidence of HAIs in RSUs. Royal Prima Marelán is 1.6%, where the incidence of HAIs should not be more than 1.5% (Haque et al., 2018; Kementrian Kesehatan RI, 2017; Madjid et al., 2017).

Analyzing the implementation of infection prevention and control can provide positive outcomes regarding the incidence of HAIs in health facilities. In an effort to reduce the incidence of HAIs, and the absence of related research at RSU Royal Prima Merelán, which is one of the private hospital referral centers for the community, especially Medan City and the community of North Sumatra in general, encourages researchers to conduct research related to "Analysis of the Implementation of Prevention and Control Infection at Royal Prima Marelán General Hospital".

## Method

This research is a quantitative study with an observational analytical approach with a Cross Sectional Study design, namely in the form of data collection aimed at analyzing the implementation of infection prevention and control at the Royal Prima Marelán General Hospital for the period July to August 2023. The data collected as a whole will be collected, analyzed, and the research results presented in table form with specific explanations and presented at the final stage of the research.

## Result and Discussion

Product The results of the statistical test show a p value = 0.001 (<0.05), so it can be concluded that there is the relationship between knowledge and prevention of

nosocomial infections in Royal Prima Marelán General Hospital. The results of this research are in line with Purnawan et al's research, which states that level of knowledge in line with prevention of nosocomial infections in hospitals. The statistical test results obtained a value of  $p=0.008$  (<0.05) which shows that there is a relationship between knowledge and prevention of nosocomial infections in hospitals (Agusti et al., 2019). Pratiwi et al's research supports the results of this study which shows that there is a relationship between nurses' knowledge in preventing nosocomial infections in hospital inpatient rooms with P-value = 0.000 (<0.05) (Alemania et al., 2018).

Knowledge is what is known about something that occurs after sensing an object or event. Knowledge can shape a person's actions or behavior. Behavior will change if it is based on knowledge, awareness and positive attitudes. Knowledge is related to infection prevention and has a significant positive correlation value. The better the knowledge of nurses or medical personnel regarding nosocomial infections (HAIs), the better the infection prevention measures taken. It is hoped that the knowledge possessed by nurses or medical personnel can make everyone aware of the importance of preventing nosocomial infections (HAIs) so that they can practice preventing nosocomial infections correctly (Alemania et al., 2018).

The results of the statistical test show a p value = 0.039 (<0.05), so it can be concluded that there is the relationship between motivation and prevention of nosocomial infections in Royal Prima Marelán General Hospital. The results of this study are in line with research by Astari et al, which states that motivation is related to IPCLN performance in preventing and controlling infections in hospitals with a significance value of  $p=0.00$  (<0.05) in a positive direction (Azhari, 2020). This research is supported by the results of Asmara et al's research, which shows that there is a significant relationship with a value of  $p = 0.03$  (<0.05) between motivation and IPCN performance in controlling and preventing infections in hospitals (Filaemi, 2022). This research is strengthened by the results of Afriani et al's research al, which states that motivation is significantly related to the performance of IPCLN nurses in controlling and preventing infections in hospitals (Ginting et al., 2018).

Work motivation is anything that creates enthusiasm or encouragement to work either individually or in a group towards a job in order to achieve a goal. High work motivation can supply energy for work or direct all activities during work. Work motivation depends on length of work and level of education. Motivation will become an internal strength and can encourage each person's performance so that a

relationship will arise between motivation and performance. Motivation is a basic factor in improving performance. If nurses or health workers are not motivated then the work done is not optimal and can reduce performance. High motivation can improve performance so as to produce quality patient care.

The results of the statistical test show a p value = 0.017 ( $<0.05$ ), so it can be concluded that there is the relationship between supervision and prevention of nosocomial infections in Royal Prima Marelán General Hospital. The results of this study are in line with research by Irawati et al, which states that there is a significant relationship with p value = 0.001 between supervision and actions in preventing infection through the use of PPE in hospitals. This research is supported by the results of Hamzah's research which shows that there is a relationship between supervision with the performance of implementing nurses in preventing nosocomial infections in hospitals with a p value = 0.000 ( $<0.05$ ).

Supervision is a process that includes planning, directing, guidance and improvement so that staff can carry out their duties optimally. The supervision carried out must have certain targets to be achieved. Superiors must be able to manage and direct staff and other resources through supervision so that staff are motivated to continually improve their performance. Support and supervision from superiors or room heads regarding the performance of nurses or implementing health workers is very much needed in efforts to prevent nosocomial infections (HAIs). Supervision is carried out to determine the abilities of nurses or implementing medical personnel in carrying out measures to prevent nosocomial infections (HAIs).

The results of the statistical test obtained a p value = 0.046 ( $<0.05$ ), so it can be concluded that there is a relationship between workload and the prevention of nosocomial infections at the Royal Prima Marelán General Hospital. The results of this study are in line with Purnawan et al's research, which states that there is a significant relationship with p value = 0.025 between workload and infection prevention in hospitals. This research is supported by research results Sinaga et al, which shows that there is a significant relationship between nurses' workload and the implementation of nosocomial infection prevention in hospitals with a value of p = 0.002 ( $<0.05$ ).

Workload is included in one of the variables that trigger stress or pressure in the work environment. The workload of nurses or medical personnel includes the number of patients treated every day in each unit, the condition or level of patient dependency, the average number of days of treatment, the frequency of treatment actions required by patients, and the average patient

treatment time. This workload is the responsibility of every nurse or medical personnel so that it can trigger increased performance. Workload based on proportion is divided into excessive workload and insufficient workload. The majority of nurses have a workload in the good category, which means that the tasks they are responsible for can be carried out according to the time and activities that have been determined, including the implementation of prevention and control of nosocomial infections (HAIs).

The results of statistical tests on all variables are only the knowledge variable which has a value sig = 0.019 ( $p < 0.05$ ) so it can be concluded that there is a partial influence on knowledge of preventing nosocomial infections in Royal Prima Marelán General Hospital. Other variables (motivation, supervision, and workload) have sig values ( $p < 0.05$ ) so it can be concluded that there is no partial influence on knowledge, motivation and workload with the prevention of nosocomial infections in Royal Prima Marelán General Hospital.

The variable that has the highest Odds Ratio is knowledge with an Odds Ratio (95% CI) of 11.0 (2.49-48.46) so it can be concluded that insufficient knowledge will lead to 11 times greater prevention of nosocomial infections. Motivation has an Odds Ratio (95% CI) is 3.9 (1.02- 14.99) so it can be concluded that lack of motivation will result in 3.9 times greater prevention of nosocomial infections. Supervision has an Odds Ratio (95% CI) of 4.7 (1.25- 17.41) so that it can be concluded that insufficient supervision will result in 4.7 times greater prevention of nosocomial infections. The variable that has the lowest Odds Ratio is workload with an Odds Ratio (95% CI) of 3.6 (0.98- 13.13) so it can be concluded that insufficient knowledge will lead to 3.6 times greater prevention of nosocomial infections. which is lacking.

This research is in line with research by Purwan et al, which states that there is a relationship between the knowledge of nurses or health workers and the prevention of nosocomial infections with a p value = 0.008 and OR (95% CI) = 9.2 (1.47-58.4). These results show that good knowledge of nurses or health workers will lead to good prevention of nosocomial infections in hospitals. Insufficient knowledge of nurses or medical personnel will result in 9.2 times greater prevention of nosocomial infections.

Pratiwi et al's research strengthens the results of this study which states that there is a significant relationship between the knowledge of nurses or health workers and the prevention of nosocomial infections in hospitals with a value of p = 0.000 and OR = 10.3. Insufficient knowledge of nurses or medical personnel

will result in 10.3 times greater prevention of nosocomial infections.

This research is supported by the results of Irawati et al's research, which analyzed the dominant factors between motivation and supervision regarding measures to prevent nosocomial infections in hospitals. The results of this study stated that the two variables (motivation and supervision) had a significant relationship with measures to prevent nosocomial infections in hospitals with values of  $p = 0.008$  and  $p = 0.006$ . The most dominant factor between these two variables is supervision with grades  $\beta = 0.304$  compared to motivation with  $\beta = 0.199$  so it can be concluded that the most dominant factor or variable influencing actions in preventing infection is the supervision variable rather than motivation.

Asmara et al.'s research also supports the results of this study which shows that from the results of a multivariate analysis of the variables that determine performance in infection control and prevention, the supervision variable has an Odds Ratio (OR) of 12.4, meaning that good supervision has a chance of 12.4 times to improve performance in infection control and prevention compared to other variables. However, these two studies did not assess the variable knowledge of infection control and prevention in hospitals.

Afriani et al's research is inversely proportional to this research. This research conducted a multivariate analysis of motivation and supervision of nurses' performance in infection control and prevention. Motivation has a value of  $p = 0.003$ , while supervision has a value of  $p = 0.790$  on nurse performance in infection control and prevention. From these results it can be concluded that motivation has a more significant value than supervision on nurses' performance in infection control and prevention. This study also did not assess the knowledge variable on nurses' performance in infection control and prevention.

Knowledge about nosocomial infections (HAIs) is what a person knows about nosocomial infections, such as knowing about the risks of nosocomial infections, how to prevent nosocomial infections, and implementing control and prevention of nosocomial infections (HAIs). The higher the level of knowledge of nurses or medical personnel, the higher the level of knowledge of nurses or medical personnel. the better practice in implementing the prevention of nosocomial infections (HAIs). Good knowledge possessed by nurses or medical personnel is expected to be able to realize the importance of controlling and preventing nosocomial infections (HAIs) so that nurses or medical personnel can carry out proper and correct practices for preventing nosocomial infections.

Medical personnel's knowledge about HAIs depends on many factors, including individual characteristics, education, training courses, managerial factors and motivation. 10 A reduction in the incidence of nosocomial infections can be realized by making maximum and comprehensive efforts to prevent nosocomial infections in each unit that is considered to be at risk. can transmit nosocomial infections. To achieve optimal results, monitoring and evaluation must always be carried out so that it can be carried out systematically and directed so that the results are as expected, namely reducing the incidence of nosocomial infections in hospitals.

Motivation is the process of influencing a person or work group to be able to carry out something that has been determined in a directed manner to achieve goals. Motivation at work is one of the variables that really determines a person's performance. Good motivation is expected to make people behave positively and collectively with their abilities, resulting in efficient performance. 6 A pro-active and positive mental attitude towards work situations will strengthen work motivation to achieve maximum performance. Motivation can also arise by understanding the shortcomings experienced by individuals.

Supervision is a process of planning, directing, guiding and improving so that staff can carry out their duties optimally. Observations are carried out directly and periodically by superiors on the work carried out by subordinates (Lubis et al., 2021). 12 Front managers who directly manage staff in order to improve service to clients, such as The head of the room must be able to manage nursing staff and other resources through supervision. The aim of supervision is to motivate staff to continually improve their performance and coordinate with other health workers.

Performance improvement must receive management support in the form of evaluation through supervision. Lack of management and supervisor support in the nosocomial surveillance program is one of the factors in reducing the performance of nurses or medical personnel. The more frequently managerial supervision is carried out, the more the performance of nurses or medical personnel will improve. The performance of nurses or medical personnel is also influenced by supervision, poor supervision can cause Healthcare Associated Infections (HAIs). Through training, medical personnel are expected to develop knowledge in their respective fields regarding the prevention and control of nosocomial infections (HAIs). However, many nurses or medical personnel feel that there is no opportunity to take part in training to improve their skills and abilities.

Workload is an important aspect that needs to be considered because workload can increase work productivity. Every job a person does becomes a workload for him. The workload of medical personnel can be calculated from the effective time used to complete the tasks that are their burden. There are differences in the proportion of incidents in the level of implementation of infection prevention between nurses or medical personnel who have light, medium and heavy workloads. The heavy workload experienced by medical personnel when carrying out close observations and the large number of activities being carried out sometimes makes medical personnel forget to implement the prevention of nosocomial infections so that the control and prevention of nosocomial infections is neglected.

## Conclusion

Based on the research results, it can be concluded that: a) There is a relationship between knowledge and prevention of nosocomial infections in Royal Prima Marelan General Hospital. b) There is a relationship between motivation and prevention of nosocomial infections in Royal Prima Marelan General Hospital. c) There is a relationship between supervision and prevention of nosocomial infections in Royal Prima Marelan General Hospital. d) There is a relationship between workload and prevention of nosocomial infections in Royal Prima Marelan General Hospital. e) There is a partial influence on knowledge of preventing nosocomial infections in Royal Prima Marelan General Hospital.

## Acknowledgments

Thank you to all parties who have helped in this research so that this article can be published

## Author Contributions

All authors contributed to writing this article.

## Funding

No external funding.

## Conflicts of Interest

No conflict interest.

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