

**ANALYSIS OF HAND HYGIENE COMPLIANCE AND OFFICIAL PERSONAL PROTECTIVE EQUIPMENT COMPLIANCE ON THE INCIDENCE OF NOSOCOMIAL INFECTION IN OUTPATIENT KARANGANYAR REGENCY HOSPITAL TO SUPPORT OF HOSPITAL ACCREDITATION**

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**ABSTRACT**

**Background:** A nosocomial infection is an infection acquired or acquired in a hospital related to the provision of health services in health care facilities, where caregiver behavior includes hand washing, the use of protective equipment, the handling of medical equipment, the disinfection of the action site, the prevention of care and treatment, wound closure, and waste management.

**Objective:** To assess officers' compliance with hand hygiene and use of personal protective equipment on the incidence of nosocomial infections in outpatients at Karanganyar District Hospital in support of hospital accreditation.

**Methodology:** This study uses a type of quantitative research. The sample technique used total sampling with a population of all outpatient employees at Karanganyar District Hospital.

**Result:** Compliance with hand hygiene and adherence to the use of personal protective equipment by officers affected the incidence of nosocomial infections where the F count exceeded the F table ( $47.313 > 3.10$ ). Meanwhile, partially, handwashing compliance and compliance with the use of personal protective equipment for officers had an effect on the incidence of nosocomial infections.

**Conclusion:** Compliance with hand hygiene and adherence to the use of personal protective equipment by officers affected the incidence of nosocomial infections.

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**INTRODUCTION**

According to the World Health Organization (WHO), the hospital is an integral part of a functioning social health organization that provides plenary (comprehensive), disease healing (curative), and disease prevention (preventive) services to the community. According to Kementrian Kesehatan RI Volume 21 Number 2, Agustus 2023

(2009), a hospital is a health service institution that organizes full individual health services that provide inpatient, outpatient, and emergency services. Other health service facilities are faced with the risk of infection, either due to treatment or coming to visit the hospital. One type of infection is nosocomial. The incidence of nosocomial infection recorded in various  
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countries is around 3.3%–9.2%, meaning that a certain percentage of patients treated are infected with nosocomial infection, which can occur acutely or chronically (Poerwani & Sopacua, 2018).

Nosocomial infection is an infection acquired in a hospital or related to the provision of health services in health care facilities, where caregiver behavior includes washing hands, using protective equipment, handling medical equipment, disinfecting the action site, preventing care and treatment, wound closure, and waste management. Infection control techniques should be applied in routine practice to prevent nosocomial infections in both patients and healthcare workers. The caregiver's ability to prevent infection transmission in the hospital and its prevention efforts are the first step in providing quality services. The mistake nurses often make is not washing their hands frequently while doing so. Some nurses use gloves when performing the procedure (Kusumawardhani, Adj, et al., 2021).

Compliance with hand hygiene and adherence to the use of personal protective equipment by hospital staff is an indicator of hospital quality that must be met (Pasaribu, 2020). The quality of hospital services is an illustration of the system that

runs in the hospital. To create, maintain, and improve the quality of hospital services, all units in the hospital need to be considered. The hospital service quality program that creates, maintains, and improves quality cannot be separated from the existence of standards because the main activities of the program are determining problems, causes of problems, ways of solving problems, assessing results, and making suggestions for improvements, referring to previously set standards as a tool towards quality assurance (Kusumawardhani, 2019).

To increase employee compliance in using PPE, it needs to be supported by routine monitoring and evaluation, both during the process of using and removing it and also when on duty in the room. Several strategies can be carried out to improve the quality of monitoring and evaluation, namely by giving attention or concern to the head of the room for his staff, one of which is ensuring that the results of the implementation of the monitoring and evaluation activities are documented so that they can be reported.

Integrated quality control is seen as a strategic and operational tool to gain a competitive advantage. Integrated quality control is expected to help overcome various changes, including health

information technology and systems, service delivery systems, health planning, partnerships, and better patient understanding related to service quality. According to (Kusumawardhani, Rejeki, et al., 2021), in order to improve the quality of public hospital services, managers carry out integrated quality control of hospitals based on the availability of medical facilities and equipment. very reliable in his field. Excellent integrated quality control improves the quality of hospital services. A quality hospital depends on the resources available at the hospital, such as the quality of the services provided by doctors, nurses, staff, and employees, as well as the available facilities and infrastructure (Kusumawardhani, 2020). In connection with the preliminary results found by the researcher, the researcher is interested in learning about "Analysis of Compliance with Hand Hygiene and Compliance with the Use of Personal Protective Equipment for Nosocomial Infections in Outpatient Care of Karanganyar Regency Hospital in Supporting Hospital Accreditation."

## **METHODS AND MATERIALS**

This type of research is quantitative research; this can be seen in the research title. According to Sugiyono Prof (2011),

"quantitative research is research with the intention of obtaining numerical data or numerical qualitative data." Quality indicators in hospitals greatly affect the performance and accreditation of hospitals. Quality indicators are the goals of the vision and mission of hospitals in Indonesia, which are outlined in the formulation of strategies and work plans that will later be implemented in service activities at the hospital.

In this study, researchers conducted research on compliance with hand hygiene and compliance with the use of personal protective equipment for nosocomial infections in outpatient care at Karanganyar District Hospital in support of hospital accreditation. A population is a collection of individuals or objects that can potentially be measured as part of research. The population in this study were outpatient employees at the Karanganyar District Hospital. The sample is part of the population. This study uses a total sampling technique. The sampling technique used is total sampling, i.e., every element in the population has the same opportunity to be selected as a sample. The location of this research is Karanganyar District Hospital. The data used is secondary data obtained from the hospital. The data used are about hand hygiene

compliance, personal protective equipment adherence, and the incidence of nosocomial infections. Analysis using multiple linear regression with SPSS 22.

and adherence to the use of personal protective equipment by officers, it has an effect on the incidence of nosocomial infections. can be seen in Table

## RESULTS AND DISCUSSION

Based on the results of the analysis of the data on hand hygiene compliance

**Table 1. Results of Data Analysis**

Variable	$\beta$	std. Error	t count	sign.
(Constant)	3,430	1,288	2,663	0.000
Hand Washing (X1)	0.060	0.027	2,199	0.031
PPE (X2)	0.997	0.104	9,548	0.000
R 0.722	Fcount 47.313			
R Square 0.521	Probability F 0.000			
Adjusted R <sup>2</sup> 0.510				

Source: Data 2021

For compliance with hand hygiene and adherence to the use of personal protective equipment for officers, it has an effect on the incidence of nosocomial infections where the F count > F table (47.313 > 3.10) with a significance of 0.05 (0.000). Meanwhile, partially, handwashing compliance and compliance with the use of personal protective equipment for officers had an effect on the incidence of nosocomial infections. With a t count > t table (2.199 > 1.67) and a significance value of 0.05 (0.031), the value of hand hygiene adherence to the incidence of nosocomial infection was found to be significant. Compliance with the use of personal protective equipment for officers

affected the incidence of nosocomial infections with a t count > t table (9.548 > 1.67) and a significance value 0.05 (0.000).

(Firsia Sastra Putri, 2018) stated that hospitals are required to provide good service according to standards, including nurse compliance in performing hand hygiene to prevent nosocomial infections in the community. The hospital has an SPO related to an international institution, namely the WHO. In general, the nurses did a great job. The existing area and infrastructure are adequate for the implementation of hand washing to run as expected. However, the presence of these infrastructure facilities did not increase the

nurse's approval rate. In implementing hand hygiene for nurses at Wonosari Hospital, there are still nurses who do not wash their hands according to the SPO, namely using the three to five hand washing methods, the percentage of which is 80%. In the hand washing method, from the third to the sixth step, the hand rubbing method, the percentage is 86%. The approval of nurses to perform hand hygiene is based on the five-moment hand hygiene principle, which is based on the percentages of the first moment before touching the patient (66.7%), the second moment before being aseptic (73%), and the third moment after touching the body.liquid, and the fourth time after patient contact, the percentage is 100%; the fifth time after environmental contact, the percentage is 80%. Monitoring and evaluation of hand washing are carried out at the Wonosari Hospital. Monitoring is carried out once a month, and the evaluation results are used as a reference for the next program. the third moment after touching the body. liquid, and the fourth time after patient contact, the percentage is 100%; the fifth time after environmental contact, the percentage is 80%. Monitoring and evaluation of hand washing are carried out at the Wonosari Hospital. Monitoring is carried out once a month, and the evaluation results are used

as a reference for the next program. the third moment after touching the body; liquid; and the fourth time after patient contact, the percentage is 100%; the fifth time after environmental contact, the percentage is 80%. Monitoring and evaluation of hand washing are carried out at the Wonosari Hospital. Monitoring is carried out once a month, and the evaluation results are used as a reference for the next program.

(Diantoro & Rizal, 2021) note that one indicator of the quality of hospital services is hospital infection control. The hospital ward is a hospital facility that cannot be differentiated as a source of hospital transmission. This is because patient care involves a large number of staff and is one of the intermediary factors in patient cross-contamination. Nosocomial infections can occur, and one way to prevent them is by washing hands effectively. Compliance with hand washing by nurses is very influential on the incidence of nosocomial infections. One of the efforts to prevent infection is to increase adherence to hand washing with six steps and five moments.

(Suara & Isnaeni, 2021), regarding the implementation of nurses' knowledge about hand washing against nosocomial infections during the COVID-19 pandemic

at the Bekasi District Hospital, used a descriptive research design with a cross-sectional approach and processed their results with the Chi-Square test. The results obtained from 40 samples had a p-value of 0.023 < 0.05, which means that there is a significant relationship between nurses' knowledge of handwashing and nosocomial infections in the ICU room of Bekasi District Hospital. Nurses' knowledge of hand washing is very good, with the result that 90.5% of nurses understand the importance of hand washing, and the rest still do not understand well, even though hand washing prevents nosocomial infections.

(Rahmatilah et al., 2020) regarding the influence of nurses' behavior and adherence to the use of personal protective equipment in preventing nosocomial infections in the inpatient rooms of RSUD, Dr. R. M. Djoelham Binjai uses a type of quantitative research with a cross-sectional study. The results obtained with a p-value of 0.05 are knowledge (0.651), attitude (0.013), action (0.001), and compliance (0.044). It can be interpreted that attitudes and actions influence nurse compliance in the use of personal protective equipment in preventing nosocomial infections.

(Amirullah et al., 2022) regarding the description of adherence to using personal protective equipment (PPE) for nurses to prevent nosocomial infections at the Makassar City Pulmonary Health Center with descriptive research. The results of the nurses' adherence to using PPE showed sufficient results for 30 people (80.3%) and less for 22 people (19.7%). Nurses' knowledge of using PPE was sufficient for 14 people (19.4%) and less for 38 people (80.6%). 19 people (29.1%) had a sufficient attitude, while 33 people (70.9%) had a less favorable attitude. The action was sufficient for 38 people (78.3%) and less for 14 people (21.7%) at the Makassar City Lung Health Center. Hospitals are expected to carry out various activities and improve the quality of human resources to better understand PPE.

## **CONCLUSIONS AND SUGGESTIONS**

The conclusion in this study is that hand hygiene compliance and compliance with the use of personal protective equipment have an effect on the incidence of nosocomial infections. There is an effect of compliance with hand hygiene on the incidence of nosocomial infections, and there is an influence on compliance with the use of personal protective equipment on the incidence of nosocomial infections.



Suggestions for future research include hand hygiene compliance, adherence to the use of personal protective equipment for officers, and the incidence of nosocomial infections in separate studies to further deepen.

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