Perceived Barriers toward Standard Precautions Implementations among Nurses in the Emergency Department

Dina Pranita, Ati Surya Mediawati, Ristina Mirwanti
Faculty of Nursing Universitas Padjadjaran
Email : pranitadina140194@gmail.com

Abstract

Standard precautions is an action to prevent infection in any cases of medical treatment toward patients. However, some studies have shown that the implementation of standard precautions has not been optimal due to the barriers perceived by nurses. This study aimed to identify the barriers perceived by nurses in the implementation of standard precautions. Descriptive-quantitative method was used with cross-sectional approach in 37 nurses in General Hospital Emergency Department by using total sampling technique. The data were collected by using questionnaires consisting of 48 statements, including five action of standard precautions (hand hygiene, use of PPEs, safe injection, environmental disinfection, and respiratory hygiene practices/ethics of cough and sneezing) and have been through the content and face validity test. The data were analyzed by using frequency distribution and presented in percentage. The results showed that there were some barriers perceived by nurses on standard precautions action. The most perceived barriers are limited PPEs equipment (45.9%), equipment that irritates the skin on hand hygiene (37.8%), increased number of patients in environmental disinfection (32.4%), limited support and supervision in the implementations of standard precautions for safe injection (16.2%), and equipment limitations on respiratory hygiene practices/ethics of cough and sneezing (10.8%). Based on this research, the hospital should strengthen the function properly and regularly to overcome some equipment, seek hand hygiene equipment containing emollient/moisturizers and alcohol type hand rub n-propanol to overcome skin irritation, and pay attention to the study of the ratio of nurses and patients to safe working practices. In addition, the hospital should create a practice program, socialize rewards or penalties to improve it in standard precautions.

Keywords: Emergency department, nurses, perceived barriers, standard precautions.

Introduction

Emergency Department (ED) is part of the hospital which plays a major role in the response to the emergency incident to conduct initial inspection of emergency cases, resuscitation, and stabilization (Ministry of Health, 2015). In Indonesia, according to data from the Directorate General of Medical Services of the Ministry of Health in 2007, the number of data on visits to the ED was 4,402,205 which is 13.3% of the total visits at the General Hospital (Harding, Almquist, & Hashemi, 2011). From the number of patient visits to the ED, one of the diseases that are often found is infectious diseases (World Health Organization (WHO), 2001).

Infection is one of the main causes of mortality and morbidity in hospitals and other health care facilities. The reported incidence of infection continues to increase from 1% in several European and American countries, to more than 40% in Asia, Latin America and Africa (Ministry of Health, 2013). The incidence of infection will continue to increase in many countries and hospital care settings.

The Centers for Disease Control (CDC) recommends preventing infections in providing health services by adhering to the implementation of standard precautions (WHO, 2001). However, awareness of the implementation of standard precautions is still low in most health workers (Sari et al., 2011). Based on the results of preliminary studies, the results of adherence recapitulation use of personal protective equipment (PPE) in 2017 at the Regional General Hospital obtained an average percentage of compliance in the ER room only at 42.33% and is the second lowest compliance rates in hospitals (General Hospital Sumedang, 2017). Non-compliance in the implementation of standard precautions can indicate the presence of barriers perceived by nurses (Rosenstock (1974) in Efstathiou et al., 2011).

Perceptions of barriers is one of the components contained in the conceptual model or theory of the Health Belief Model (HBM) (Glanz et al., 2008). The perceived barriers become the most influential component compared to other components in prevention and health promotion (Carpenter, 2010). One of the factors that is a barrier to nurses that can affect compliance in implementing standard precautions, including patients considered not at risk, inhibits nurse performance, and patient discomfort (Efstathiou et al., 2011). So it is important to identify barriers perceived by nurses in implementing standard precautions. This study aimed to identify the barriers perceived by nurses in the implementation of standard precautions.

Research Method

The research method used is descriptive quantitative with cross sectional approach. Sampling was done by total sampling technique so that 37 nurses were obtained at the emergency department of the Sumedang General Hospital, in March-April 2018.

The variables in this study are the barriers perceived by nurses in implementing standard precautions at the Regional General Hospital. In this study, using a sub-variable barriers perceived by nurses in the implementation of standard precautions in the practice of hand hygiene, the use of Personal Protective Equipment (PPE), the practice of injection safe handling safely to the equipment or surfaces that may be contaminated in the patient environment, and respiratory hygiene/ ethics of coughing and sneezing (CDC, 2015).

The instrument used was a questionnaire developed by the researchers themselves based on the related literature. The questionnaire consisted of 24 sub barriers indicators with a total of 48 statements from all standard precautions using the Likert scale. Indicator barriers consist of barriers from within the nurse, barriers from the environment, and barriers from management. The questionnaire has been through the content and face validity test, and declared valid and reliable. In addition, the data were analyzed using frequency distribution.

The research ethics in this study was obtained from the Health Research Ethics Committee of Universitas Padjadjaran with the number: 91 / UN6.KEP / EC / 2018. Data collection was carried out beginning with giving informed consent to respondents regarding the research conducted by observing

the principles of research ethics, namely, respect for human dignity, beneficience, and justice.

Research Results

Table 1 Characteristics of Nurses (n=37)

Research Respondent	f	%
Age		
21–40 years	33	89.2
41–60 years	4	10.8
Gender		
Male	16	43.2
Female	21	56.8
Last Education		
Diploma 3	27	73
Bachelor/Ners	10	27
Postgraduate	0	0
Length of Work at the Hospital		
< 1 year	0	0
1–5 years	7	18.9
6–10 years	13	35.1
> 10 years	17	45.9
Length of Work at the ED		
< 1 year	8	21.6
1–5 years	15	40.5
6–10 years	7	18.9
>10 years	7	18.9
Standard Precautions Training		
Yes	26	70.3
No	11	29.7
Reading Literature		
Ever Accessed	26	70.3
Never Access	11	29.7

Table 2 Frequency Distribution of Nurse Barriers in the Implementation of the Standard Precautions on Hand Hygiene Practices (n = 37)

Barrier	Total	
	f	%
Nurse's Self		
Poorly trained in hand hygiene practices	2	5.4
Lack of knowledge	1	2.7
Patient needs are more priority	5	13.5
Have worn gloves	3	8.1
forget	5	13.5
Environment		

Emergency situation	4	10.8
Increasing number of patients	8	21.6
Equipment		
Equipment limitations	13	35.1
Equipment causes skin irritation	14	37.8
The smell of alcohol hand rub is very strong	10	27
Management		
Limited support and supervision	7	18.9
Low work safety culture	2	5.4

Table 3 Frequency Distribution of Nurse Barriers in the Implementation of Standard Precautions in the Use of PPE (n = 37)

Barrier	Total	
	f	%
Nurse's Self		
The patient's condition is not risky	4	10.8
Less trained in using PPE	1	2.7
Inhibits performance	1	2.7
Make patients uncomfortable	1	2.7
Environment		
Emergency situation	5	13.5
Increasing number of patients	3	8.1
Equipment		
Limited number of PPE equipment	17	45.9
Management		
Limited support and supervision	8	21.6

Table 4 Frequency Distribution of Nurse Barrierss in the Implementation of Standard Precautions in Safe Injection Practice (n = 37)

Barrier	Total	
	f	%
Nurse's Self		
Training that has been followed is less applicable in safe injection practices	1	2.7
Equipment		
Equipment limitations	5	13.5
Management		
Limited support and supervision	6	16.2
Limitations of standard operating procedures	4	10.8
Lack of hospital policy regarding post-injury reporting procedures	2	5.4

Table 5 Frequency Distribution of Nurse Barriers in the Implementation of Standard Precautions in Safe Handling of Potentially Contaminated Surfaces or Equipment in the Patient Environment (n = 37)

Barrier	Total	
	f	%
Nurse's Self		
Lack of knowledge	4	10.8
Lack of clear documentation in medical records	7	18.9
Environment		
Increasing number of patients	12	32.4
Lack of communication between health care workers	6	16.2
Management		
Limitations of standard operating procedures	6	16.2

Table 6 Frequency Distribution of Nurse Barriers in the Implementation of Respiratory Hygiene/Ethics of Coughing and Sneezing (n = 37)

Barrier	Total	
	f	%
Nurse's Self		
Lack of knowledge	2	5.4
Forget	1	2.7
Environment		
Emergency situation	2	5.4
Equipment		
Equipment limitations or access to equipment (tissue and masks) far away	4	10.8

Table 7 The Biggest Barriers Perceived by Nurses in Every Action in the Implementation of Standard Precautions (n = 37)

Barriers	%
Hand Hygiene	
Equipment causes skin irritation	37.8
Limited equipment (sink, water, liquid soap, bar soap, alcohol hands rub, antiseptic liquid, and other hand hygiene tools, as well as towels/tissue)	35.1
The smell of alcohol hand rub is very strong	27
Use of PPE	
Limitations on the number of PPE equipment (gloves; gowns; mouth, nose and eye protection; surgical masks; and N95 masks)	45.9
Limited support and supervision of the implementation of standard precautions	21.6
Safe Injection Practice	
Limited support and supervision of the implementation of standard precautions	16.2

Equipment limitations (aseptic technique, syringes, solvents/flushing)	13.5
Limitations of standard operating procedures	10.8
Safe Handling of Potentially Contaminated Equipment or Surfaces in the Patient's Environment	
Increasing number of patients	32.4
Lack of clear documentation in medical records	18.9
Respiratory Hygiene/Ethics of Coughing and Sneezing	
Equipment limitations or access to equipment (tissue and masks) far away	10.8

Table 7 shows the biggest barriers in each standard precautions action. The frequency range of the biggest barriers in each action was 10.8% to 45.9%. Actions that have low frequency barriers are the limitations of standard precautions in breathing/coughing and sneezing. While the actions that have the highest frequency constraints are the limitations of standard precautions in the use of PPE. Equipment limitations also fall into the biggest barriers that appears in all four standard precautions (hand hygiene, use of PPE, safe injection practices, and respiratory/ ethical coughing and sneezing).

Discussion

The Biggest Barriers Perceived by Nurses on Hand Hygiene Practices in the Implementation of Standard Precautions

After an analysis of perceived barriers to hand hygiene practices in implementing standard precautions, it was found that the barriers that had the highest frequency in the practice of hand hygiene appeared in the equipment aspects, namely equipment that caused skin irritation as many as 14 people with a percentage of barriers (37.8%). The same finding was also found by Pittet (2001) that the reasons reported related to non-compliance with the implementation of hand hygiene practices were hand hygiene equipment agents that could cause skin irritation.

The same thing was stated by the World Health Organization (2009) where the use of hand hygiene products that are used frequently and repeatedly, especially soap and other detergents, is an important cause of chronic irritant contact dermatitis among health care workers. The potential for detergents that can cause skin irritation varies greatly. Skin irritation caused by the use of antimicrobial soap may be caused by antimicrobial agents or ingredients from its formulation. The use of soap has a significant disadvantage compared to the use of alcohol-based antiseptic agents, such as can cause skin irritation (Bessonneau, Clément, & Thomas, 2010).

The Regional General Hospital itself has provided hand hygiene equipment agents such as soap and alcohol handrub but the use of soap and alcohol handrub is not routinely carried out because the soap and alcohol handrub available in the hospital are perceived by nurses to cause irritation to the skin. This could be due to the use of hand hygiene equipment agents to make nurses uncomfortable because the intensity that is too frequent in the use of hand hygiene equipment such as soap, detergent and alcohol handrub can cause texture changes in the hands until the skin becomes irritated.

The negative effects caused by the use of soap and alcohol handrub can be overcome by seeking high-quality soap and alcohol handrub products that already contain emollients/moisturizers. In addition, the need for the use of hand hygiene equipment agents with the basic ingredients of n-propanol type alcohol with a content of 60-90% to prevent skin irritation when used by nurses. Health care policy makers at the Regional General Hospital must consider this matter which is expected to be able to reduce the incidence of skin irritation in nurses and minimize barriers to the implementation of standard precautions so that compliance with the implementation of standard precautions in hand hygiene practices can increase.

The second barriers that is widely perceived by nurses in implementing standard precautions on hand hygiene practices is the limited equipment with a percentage 35.1%. This barrier arises from the aspect of equipment. Equipment that supports the implementation of standard precautions on

hand hygiene practices include washbasins, water, liquid soap, bar soap, alcohol hands rub, antiseptic fluids, and other hand hygiene tools, and towels/tissues. The same was stated by Sari et al. (2011) that awareness of compliance with the implementation of standard precautions in the practice of hand hygiene in particular is still not optimal. This happens because hand washing places far from the location of the provision of health services and the availability of water are not comparable to the number of sinks available.

In addition, according to Kotwal, Anargh, Singh, Kulkarni, and Mahen (2013) that equipment limitations in hand hygiene practices occur due to the unavailability of paper towels so that an understanding of guidelines for turning off hand-operated taps using towels after hand washing is not considered important by 81% nurses. Barriers to the limitations of equipment that can affect compliance in hand hygiene practices were also assessed because of the low availability of alcohol handrub (11%) with a frequency of 1 per 4 beds found in Kotwal et al. (2013).

ED Regional General Hospital has adjusted the equipment to the implementation of hand hygiene practices with guidelines for implementing standard precautions. However, this is perceived by nurses to be the second biggest barrier in hand hygiene practices in implementing standard precautions. Based on the results of previous studies it can be concluded that the limitations of this equipment occur due to several factors. One of the tools needed is far from the reach of nurses in providing health services as well as in the ED General Hospital The sink area is not provided on each patient's bed so that nurses perceive it to be a barrier to the unavailability of equipment. Another thing that might happen is that the availability of equipment from the hospital is still low. Therefore, the need for facilities for hand hygiene facilities must be considered and prioritized by the hospital to be able to improve compliance in hand hygiene practices in the implementation of standard precautions. This was also stated by Kotwal et al. (2013) where the need for hand hygiene facilities has been shown to be directly related to compliance with hand hygiene practices in the implementation of standard precautions.

The third barriers that many nurses perceive in the practice of hand hygiene arises from the equipment aspect, namely the smell of alcohol handrub is very strong. This barrier was felt in the practice of hand hygiene by (27.0%). As many as 22.9% of nurses perceive increased non-compliance in the implementation of hand hygiene due to the strong smell of alcohol handrub (Santosaningsih et al., 2017). The use of alcohol handrub allows nurses to be more obedient in the practice of hand hygiene, but the reason for the strong smell of alcohol handrub is a barrier in carrying out hand hygiene practices. The type of alcohol used is able to make nurses headache and hangover because it has a very strong smell (Mearkle et al., 2016).

Products with a strong smell can cause discomfort and respiratory symptoms in some health workers who are allergic to perfumes or fragrances. Coupled with many of the patients complaining about fragrant products (World Health Organization, 2009). This can be the reason for the nurses in this study to perceive that the smell of alcohol handrub is very strong as a barrier in the implementation of standard precautions on hand hygiene practices.

The Regional General Hospital itself has provided alcohol handlers on each patient's bed to improve compliance with the implementation of standard precautions, but some nurses consider this to be a barrier. Perception of nurses on the smell of alcohol handrub can only make the nurse or the patient is not comfortable and the smell of alcohol handrub can create a headache or a hangover so that compliance in the implementation of standard precautions nurse on hand hygiene practices are still lacking. Therefore, consideration is needed to choose alcohol handrub products with mild fragrances or no additional fragrances.

The Biggest Barriers Perceived by Nurses on the Use of PPE in the Implementation of Standard Precautions

The biggest barrier that many nurses perceive in implementing standard precautions arises from the aspect of equipment, namely the limitations of equipment. This barrier is felt in the use of PPE (45.9%). The use of

PPE is barrier with the highest frequency value, this can happen because the use of PPE requires more equipment to support the implementation of standard precautions. The same barriers were found in many studies. Most of the respondents (74%) reported the absence or insufficiency of tools such as masks, gloves, and protective goggles to be the main barriers to compliance in implementing precautions (Akagbo et al., 2017). One study in Malaysia reported that 44% of nurses stated that gloves were not available especially in emergency situations (Naing et al., 2001). In addition, in India as many as 25% stated that barriers were clearly seen as a barrier to implementing standard precautions, namely equipment that was not available during emergency situations (Punia et al., 2014). This shows that the results of this study are consistent with the results of other studies.

The equipment required to support the implementation of standard precautions in the use of PPE includes gloves, gowns, protective mouth, nose, and eyes, surgical masks and N95 masks (Regulation of the Minister of Health No. 27, 2017). The Regional General Hospital itself has made efforts to prevent infectious diseases by implementing the implementation of standard precautions such as sinks, water, liquid soap, alcohol handlers, antiseptic fluids, gloves, mouth, nose and eye protectors, and other equipment but some nurses perceive the existence of such equipment is still not optimal. The lack of supporting facilities used in implementing precautions will affect the level of compliance with the implementation of precautions so that they will increase the incidence of infectious diseases.

According Efstathiou et al., (2011) the nurse's perception about the limitations of the equipment caused a lot of equipment to measure the standard precautions are low quality and inadequate, the lack of supply of tools such as the unavailability of equipment needed at the time booked, and PPE ordered does not fit the size so that many nurses do not use PPE. In addition, different aspects of the unavailability of equipment, namely the storage of equipment needed far from the place of nursing care while in providing health services to patients in the emergency department requires fast action so that the desired equipment is needed immediately when needed. Equipment stored in a place that is not close to the patient chosen by the nurse is one reason for the unavailability of equipment and choosing to provide health services to patients without protection such as the use of PPE rather than having to find it.

In addition to that, a study conducted by Dorgham & Obied (2016) suggests that the lack of supply of equipment occurs due to limited maintenance resources because hospitals provide services for various clients and the budget is charged by the government. This is the same as the care resources at the Regional General Hospital, where the care resources at the Regional General Hospital itself in providing its budget health services are charged to government agencies. Another reason can occur because the need for equipment in patients with emergency situations in the ED is more than in other rooms. The suggested improvement is the need for attention from the hospital management to review and strengthen the needs related to the provision of facilities that are needed correctly and regularly for the implementation of standard precautions in IGD in particular.

The second biggest barrier perceived by nurses on the use of PPE in implementing standard precautions arises from management aspects, namely the limited support and supervision of the implementation of standard precautions such as the existence of a system of reward and punishment. This barrier is perceived by nurses to be a barrier with a percentage of 21.6%. The same was stated by Quan et al. (2015) in his research stated that inadequate staff supervision can contribute to making safe work practices. Similar to the research conducted by Haile et al. (2017) who suggested that inconsistent management support could be a potential reason for the low performance of health workers in providing health services. In this case, support and supervision in the use of PPE is very necessary and must be obeyed considering that the use of PPE requires more understanding related to the suitability of the use of PPE that is good and correct with existing guidelines because some of the equipment needed and used in providing

health services is different for certain types of patients.

In addition, management support can also improve the compliance of health workers in implementing standard precautions by recognizing the role and building of a system that is beneficial for those who consistently apply the recommended guidelines and policies. Management support will be able to help strengthen infection prevention activities by designing control mechanisms and taking corrective measures for non-compliant health workers (Haile et al., 2017). In this case, the reward system can provide benefits for nurses who consistently apply the guidelines and appropriate policies and punishments can be given to nurses who are not compliant in the use of PPE in implementing standard precautions.

Health workers who have more frequent management support for hospital safety environments are 2.23 times more likely to always adhere to the implementation of standard precautions compared to health workers who are less often given management support (Haile et al., 2017). Other supporting studies conducted in Brazil by Brevidelli and Cianciarullo (2009) suggest management support has a positive impact on compliance with the implementation of standard precautions. Support and supervision of management bodies play a key role and are responsible for preparing all the safety equipment needed for health workers who need it and to build safe workplace safety for the management themselves, health workers, and patients in general. Without management support and decisions, it would be very difficult to renovate infrastructure that is compatible with infection control and it is almost impossible to allocate sufficient budget for infection prevention activities (Haile et al., 2017).

Therefore, strong support and supervision is highly recommended. To overcome the limitations of support and supervision in the use of PPE in the implementation of standard precautions is to strengthen support and supervision that can be done by forming a team/community of practice in which will be able to provide support and supervise others by re-socializing the reward and punishment to comply with the implementation standard precautions. This is expected to strengthen support and supervision within the team itself so that it will improve compliance with the use of PPE in implementing standard precautions.

The Biggest Barriers Perceived by Nurses on Safe Injection Practices in the Implementation of Standard Precautions

The limited support and supervision in implementing standard precautions was the biggest barrier perceived by nurses that emerged from the management aspect of safe injection practices with a percentage of 16.2%. Another study found a problem in the perception of nurses who do not practice safe injection is the lack of support and supervision from colleagues such as reward and punishment systems (Gershon et al., 2007; Pittet, 2001; World Health Organization, 2009). This is due to the lack of opportunities to support safe work practices, as well as the increased burden of patient care. Lack of supervision from nurses who are more experienced in work can cause injury in the implementation of injection practices (Gershon et al., 2007).

This is supported by research conducted by Akagbo et al., (2017) which shows that only 17% of respondents use eye protection, 34% reuse needles that have been used and always report the incidence of needle stick injuries. The incidence of needle syringe often causes major injury due to work and exposure to harmful bacteria and infections among health workers.

In addition, it can affect the psychological factors of nurses in complying with the implementation of standard precautions. The absence of support and supervision such as the reward and punishment system of nurses who are more experienced in implementing standard precautions can make nurses embarrassed when they follow standard operating procedures that are in accordance with the implementation of standard precautions, especially if the standard operating procedures are not routinely used in the department where they work. In addition, the lack of support and supervision has made it difficult for nurses to change their current behavior in following standard operating procedures for standard

precautions (Efstathiou et al., 2011).

Lack of support and supervision in the implementation of standard precautions can occur because of the increasing number of patients so that the workload of nurses increases which can lead to lack of support and supervision by providing reward or punishment in implementing standard precautions from nurses who are more experienced with newly employed nurses. This is supported by research by Gershon et al., (2007) which suggests that a lack of support and supervision can occur due to a lack of preseptorship programs and ratios between new nurses and more experienced nurses who are not balanced, where more experienced nurses have a workload that high to provide patient care in addition to its role to oversee and guide new nurses. In addition, more experienced nurses did not receive sufficient training to carry out their roles. Without the structural support provided by centrally coordinated infection prevention controls, commitment from more experienced nurses, and adequate vision of safety equipment, it will be difficult to build harmony in the hospital with the implementation of standard precautions.

Support and supervision such as the existence of a reward and punishment system from more experienced coworkers are needed to be able to set up a system that can enforce compliance with the implementation of standard precautions. Support and supervision are expected to make the reporting and supervision system more coordinated so that transmission, needle injury, and any activities that cause non-compliance with standard precautions are recorded and reported. All health workers must be careful of implementing precautions and ensure that their colleagues adhere to the implementation of standard precautions, without compromise (Akagbo et al., 2017).

According to Akagbo et al. (2017) all health workers must encourage the formation of a practice community where health staff can learn from colleagues and share experiences about compliance with the implementation of standard precautions. Thus, to overcome the limitations of support and supervision of the implementation of standard precautions in safe injection practices, it is necessary to encourage a community of practices where health workers, especially nurses, can provide mutual support and supervision as well as learning from colleagues and sharing experiences about implementing standard precautions and systems. reward and punishment must be socialized to limit negative behavior and strengthen positive behavior in implementing standard precautions.

Equipment limitations are the second barrier that many perceive as safe injection practices. This barrier arises from the aspect of equipment. 13.5% of nurses perceive the limitations of equipment as a perceived barrier. This is supported by research by Yousafzai et al. (2015) which states that the barriers to implementing standard precautions on safe injection practices are limited equipment. This study is also consistent with the results of a study conducted by Kermode et al. (2005).

According to Kermode et al., (2005) occupational safety of health workers in low-income countries is a neglected problem, although the risk of contracting blood-transmitted infections is higher because of the higher prevalence of the disease. In health care settings, low-income countries tend to be more selective in implementing standard precautions such as carrying out standard precautions only if patients are infected not thoroughly in all patients. Awareness of the risk of transmission by exposure to blood is still lacking, because supplies of equipment are indeed inadequate.

Regional General Hospital is a general hospital in Sumedang, where in providing health care to patients the care budget is charged to government agencies. So that the perceived constraints, namely the limitations of this equipment can occur because the Regional General Hospital is more selective in the use of equipment as well as injection practices that are in accordance with the standard precautions implementation procedure will only be performed on patients who have been diagnosed with infection or suspected infection and not all patient care. Thus, a review and provision of adequate equipment is needed to improve nurse safety in providing care to patients so as to improve compliance with the implementation of

standard precautions.

Furthermore, the barrier s that many nurses perceive arise from management aspects, namely the limitations of standard operating procedures. This barrier was felt in safe injection practice measures of (10.8%). Similar findings regarding the limitations of operational standard procedures also took place in Egypt conducted by Dorgham & Obied (2016) revealing the lack of practical procedures for a clear reporting system or post-injury policy in the implementation of injection practices to be an barrier in implementing standard precautions in safe injection practices so that it will be at risk of contracting blood-borne diseases.

At the Regional General Hospital itself, standard operating procedures are available regarding standard precautions that are made in accordance with the Republic of Indonesia Minister of Health Regulation Number 27 concerning guidelines for prevention of infection control. In the Minister of Health Regulation, the standard operating procedures were published on five standard precautions, but the limitations of standard operating procedures were perceived to be barriers even though very few nurses perceived this. According to Dorgham & Obied (2016) this can occur because there is no orientation at the beginning of each nurse rotation to remind nurses of knowledge, this is because of the lack of nurses and the level of education in the hospital.

In this study, the data from the respondents' characteristics showed that 27.0% of nurses in the emergency department of the Regional General Hospital had less than 1 year of work experience in the ED and 21.6% had less than 6 years of work experience in the hospital. In addition, there was a rotation of nurses from the emergency room to another room and vice versa at the beginning of 2018 at the Regional General Hospital so that this barrier could occur because when the new nurses were admitted to the emergency department the orientation of the standard precautions procedures was not applied.

In addition, another reason could occur because the operational standards of the existing procedures were not updated so the nurses perceived that the operational standards of the existing procedures were felt to be lacking. The operational standard procedure at the Regional General Hospital was made in the form of a book so that not all nurses could read the standard operating procedures simultaneously or the existing standard operating procedures could not be disseminated by nurses. Thus, a program is needed to remind and provide orientation on infection control, implementation of standard precautions, standard operating procedures for standard precautions so that all nurses at the Regional General Hospital can provide optimal health services.

The Biggest Barrier Perceived by Nurses on Handling Environmental Decontamination

The increase in the number of patients is the biggest barrier perceived by nurses is the safe handling of equipment or surfaces that can be potentially contaminated in the patient's environment. This barrier arises from environmental aspects and other aspects Wulandari, A. E., Susilaningsih, F. S., & Somantri, I. (2018). About 32.4% stated that the increase in the number of patients would increase the workload of nurses in safe handling of equipment or surfaces that could potentially be in the patient's environment so that it was perceived as a barrier in carrying out these actions. The same study was also found by (Gershon et al., 2007) which states that the number of patients who continue to increase when performing health services will be able to influence safe work practices because the workload of nurses will increase. This may be due to excessive workload due to improper ratio of nurses and patients (Dorgham & Obied, 2016).

Field findings, the ratio between nurses and patients at the Regional General Hospital varied, namely three patients compared to one nurse or two patients compared to one nurse but a small proportion of nurses perceived the number of patients as a barrier. This can happen if nurses in this study work more often when the patient ratio is more than the nurse care ratio, or it can be caused by high workloads and other tasks that are considered more priority to be carried out so that the implementation of standard precautions becomes less optimal. Therefore, more attention in conducting studies related to the

ratio of the number of nurses and the number of patients treated is needed to support safe work practices.

The lack of clear documentation in the medical record is the second biggest barrier that nurses perceive in the act of safely handling potential equipment or surfaces in the patient's environment. This barrier arises from aspects in nurses where 18.9% of nurses perceive this to be a barrier. The same barrier was also found by Liang et al. (2015) of 81.1%. In his study reported that 12.7% of nurses did not disinfect their work environment if they did not know that the patient was infected with an illness. Conversely, 87.3% stated that they disinfected the work environment if they knew that the patient was infected with a particular disease.

The Regional General Hospital itself has made efforts in preventing infection control by providing patient documentation records but this is still perceived to be a barrier by a small number of nurses. This can happen because the nurse is too busy. Emergency situations require nurses to focus on many patients so as to reduce the accuracy of nurses in disfiguring patient documentation, patients cannot communicate well with health workers so that documentation is not optimal. Lack of communication between nurses, for example nurses who conduct studies do not provide or write information clearly or nurses who work in the next shift do not read the documentation notes completely will have an impact on decreasing the level of alertness of nurses to patients while doing health services. Nurses should have an awareness that the implementation of standard precautions, especially environmental disinfection, must be carried out in all patient care without exception both to protect themselves, fellow HCPs or prevent the spread of infection among patients. Socialization of the importance of implementing standard precautions is important because in implementing the precautions standard, infection prevention practices apply to all patient care so that documentation of medical records that are considered to be lacking should not be a barrier. Regardless of the status of absence of infection, infections that are still suspected or confirmed in providing health services.

The Biggest Barriers Perceived by Nurses on Respiratory Hygiene/Coughing and Sneezing Ethics in the Implementation of Standard Precautions

In respiratory hygiene/ethics of coughing and sneezing, limited equipment became the biggest barrier perceived by nurses with a percentage of 10.8%. This barrier arises from the aspect of equipment. The same finding was also raised by Martel et al. (2013) that as much as 20.3% of the research respondents stated that the availability of respiratory cleaning equipment/ethics of coughing and sneezing such as masks and tissues was not available. This is due to the inaccessibility of respiratory hygiene equipment/ethics of coughing and sneezing needed (masks and tissues) so that compliance with the use of masks is significantly reduced.

According to Martel et al., (2013) provide positive reinforcement of compliance with respiratory hygiene regarding respiratory hygiene/ethics of coughing and sneezing in nurses recommended to improve accessibility and flexibility and reduce costs. IGD Regional General Hospital has provided masks and tissue as a form of implementing the implementation of standard precautions. However, this is still an barrier that is perceived by nurses at the IGD Regional General Hospital and is the biggest barrier in the act of respiratory hygiene/ethics of coughing and sneezing. This could happen to equipment (masks and tissues) available at the Regional General Hospital far from where the nurses provide health care services to patients.

Although these barriers become barriers with the smallest percentage compared to the biggest barriers to other actions in implementing standard precautions. Barriers to the limitations of respiratory hygiene equipment/ethics of coughing and sneezing should be minimized by the hospital, considering that only a minority of respondents in this study felt that equipment limitations were an barrier they perceived in breathing hygiene/coughing and sneezing in the implementation of standard precautions. Therefore, it is important to review and strengthen the provision of facilities and accessibility that are expected to improve compliance with respiratory hygiene/ethics of

coughing and sneezing in the implementation of standard precautions.

In this study it is important to identify and overcome the perceived barriers of nurses. From several constraints perceived by nurses in implementing the precautions standard described above, this study found that perceptions of the biggest barriers felt by nurses in implementing standard precautions between one and the other actions were different.

The results of this study indicate that the biggest barrier to the practice of hand hygiene is equipment that causes skin irritation. This equipment that causes skin irritation has the highest frequency of resistance compared to the limitations of hand hygiene equipment and the smell of alcohol handrub is very strong. Another case with the biggest barrier most felt in the use of PPE is the limited equipment. This barrier is the biggest barrier to the use of PPE with the highest frequency of resistance compared to the frequency of barriers from lack of support and supervision of the implementation of standard precautions but in safe injection practices, support and supervision of the implementation of standard precautions is the biggest barrier felt by nurses. This barrier has the highest frequency compared to the limitations of injection practice equipment and the lack of standard operating procedures.

In addition to the safe handling of equipment or surfaces that can be potentially contaminated in the patient's environment, the increasing number of patients is the biggest barrier to this action compared to the barriers to lack of clear documentation in medical records while in respiratory hygiene/ ethics of coughing and sneezing, equipment limitations become barriers with the highest frequency compared to other nurses' perceived barriers to this action.

Conclusions

Based on the results of the research barriers perceived by nurses in implementing standard precautions in the Emergency Room of the Regional General Hospital, the most perceived barriers were limited PPE equipment, equipment that made skin irritation on hand hygiene, increased number of patients on environmental disinfection, limited support and supervision in implementing standard precautions on safe injection practices, and limited equipment in the practice of respiratory hygiene/ethics of coughing and sneezing. The use of PPE was the most felt by nurses, namely the limited number of PPE equipment. The barrier most felt by nurses from hand hygiene practices is equipment that causes skin irritation. The increasing number of patients is the most felt barrier of handling safely against equipment or surfaces that can be potentially contaminated in the patient's environment. In safe injection practices the most felt barriers are limited support and supervision in implementing standard precautions. While the limitations of equipment are the most felt barriers from respiratory hygiene/ethics of coughing and sneezing.

The hospital should strengthen the needs related to the provision of facilities that are needed correctly and regularly, seek hand hygiene equipment agents that contain emollient/moisturizer and alcohol handrub n-propanol with a content of 60-90%, and pay attention to the study of the ratio of nurses and patients to practice safe work. In addition, the hospital can form a community of practices and a system of reward and punishment that is socialized to limit negative behavior and strengthen positive behavior in implementing standard precautions.

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