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Factors related to the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado



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ABSTRACT

Nosocomial infection is an infection acquired when someone had ever been in a hospital or other health care facility. The high incidence rates of nosocomial infections indicate low quality of health services in the hospital. In this regard so that the implementation of universal precautions is an action to control against infections by health workers to reduce the infection transmission risk. The aim of this study is to determine factors related to the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

Quantitative research design was employed with analytical survey method and by using *cross sectional* study approach. The study was conducted in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado since September – December 2016. Total sampling technique employed to obtain 65 people. Data was collected through validated questionnaires.

The result shows a significant relationship between knowledge and the implementation of universal precautions ($p < 0,005$), but there is no significant relationship between the availability of facilities and motivation with the implementation of universal precautions ($p=0,271$ and 0.338 , respectively). Multiple logistic regression showing that knowledge is the most predominant factor regarding the implementation of universal precautions by nurses.

Overall, it can be concluded that there is a significant relationship between knowledge with the implementation of universal precautions by nurses. Thus, various efforts to improve the knowledge of nurses regarding with the implementation of universal precautions are necessary in preventing nosocomial infection.

Keywords: Universal Precautions, Nosocomial Infections, Knowledge

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BACKGROUND

Nosocomial infection is an infection acquired when someone had ever been in hospital and also a serious infection where it will provide adverse effect to people. Hospital as a health service facility has quality indicators, one of them is incidence percentage rates of nosocomial infections. The high number of nosocomial infections indicate low quality of health services. Thus, universal precaution effort has been known as one of infection control by all health workers to prevent the infection transmission risks where blood and other body liquids have a potency for disease transmission, either from patients or health workers.^{1,2}

Incidence of nosocomial infections in developed countries varies between 5-10%, whereas in developing countries the ratio is reported up to 25%.³ According to types of nosocomial infection: pneumonia, urinary tract infections (UTI), and bloodstream infections (BSI) are the most common ICU acquired infections. According to EPIC study, the most frequent infections were pneumonia (46.9%),

other infections of the respiratory tract (17.8%), UI (17.6%) and BSI (12%).⁴

Spiritia (2006) said that the universal precaution was created and should be implemented to protect everyone against accident which could happen. The health workers must have good knowledge in preventing infection transmission, behave and act right in every intervention. This is very necessary to notice because every person works in hospital community or other central health services risk for infection. However, the implementation of universal precautions in Indonesia is still poor.⁵ For example a study published by Purwaningtias (2007) about the implementation of universal precautions by health workers for health services toward HIV/AIDS patients at Dr. Sardjito Hospital Yogyakarta was still not effective. This was related to lack of instrument needed in hospital as well as the health worker's attention with their duty, thus the implementation of universal precaution's neglected.

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Yassi et al (2007) and Sukriani et al (2013) said there were a strong relationship between two environment factors and organization as well as compliance which reported by himself.⁶ There was no relationship found in individual factor. It's only 5% from respondents evaluated in infection control as very good. This results is in accordance with Yusran (2008), he said there were 3 main factors affect the compliance of universal precaution implementation by health workers in hospital.⁵ They are organization factor, demography/individual factor, and psychosocial factor. Each of them has their own subfactor where if tabulated there are 10 items. Every item need to be notice in evaluating the compliance of universal precaution implementation for every hospital in Indonesia.⁵

There are some previous studies associated factors toward nurse compliance in the universal precautions implementation. Nurkhasanah (2013) and Hariyono (2011) study showed the relationship between knowledge and nurse compliance in the universal precautions implementation.^{7,8} The nurses with poor knowledge toward infection transmission have possibility risk 7.08 times less compliance to the universal precautions implementation.⁹ Then, the study by Varleni (2015) at Ibnu Sina Hospital Padang shows the knowledge for infection transmission prevention by nurses still poor. Lack of knowledge about infection control prevention by nurses is important to get serious attention from hospital management.¹⁰ One of them is by giving information periodically and continually about universal precautions. Varleni (2015), her study concerning with the relationship of organization factor with nurse compliance in the universal precaution implementation at Ibnu Sina Hospital Padang shows 62% as obey, 63% have good information, 62.9% good occupational safety, and 66.1% the availability of facilities for complete prevention.¹⁰ These results indicate there is a significant relationship between information organization factors, occupational safety climate, and the availability of infection prevention facilities with nurse compliance in the universal precautions implementation.^{11,12,13}

Prof. Dr. R. D. Kandou Central General Hospital Manado is a general hospital owned by ministry of health at the same time as Type A Teaching Hospital. An initial survey made by previous researchers show some nurses weren't using gloves, mask, or gown when assessing patients for universal precautions. According to Infection Prevention and Control Team (PPI) Prof. Dr. R. D. Kandou Central General Hospital Manado prevalence rates for cross infection in 2015 was 10.6% and infection incident rate in the inpatient

unit (IRINA F) since January until May 2016 was 3.41%. It is far from ministry of health expectation about minimum service standards in 2008, where the incidence for nosocomial infection expected $\leq 1,5\%$. Hence, it shows the implementation of universal precaution by health workers in the inpatient unit of Prof. Dr. R. D. Kandou Central General Hospital is still not implemented properly.

Based on these reasons, the researchers are interested to carry out this study to know factors related to the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

RESEARCH METHODOLOGY

This study is quantitative with analytical survey method as well as using *cross sectional* study approach. This study was conducted in the inpatient unit Prof. Dr. R. D. Kandou Central General Hospital Manado in September-December 2016.

The population study are all nurses who work in the inpatient unit Prof. Dr. R. D. Kandou Central General Hospital Manado with 65 people. Total sampling method was used from the entire population and determined with inclusion and exclusion criteria.

RESULTS

Univariat Analysis

- a. The Implementation of Universal Precautions
Respondent's distribution according to the implementation of universal precautions in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado as seen on [Table 1](#).

Data shows that majority who answering well for universal precaution implementation around 34 respondents (52.3%) and poorly around 31 respondents (47.7%).

- b. Knowledge of Nurses

Respondent's distribution according to the knowledge of nurses about universal precautions can be seen on [Table 2](#). Data shows that majority who answering well for knowledge of nurses as much as 36 respondents (55.4%) and poorly around 29 respondents (44.6%).

- c. The Availability of Facilities

Respondent's distribution according to the availability of facilities can be seen on [Table 3](#). Data shows that majority who answering it already adequate around 34 respondents (52.3%) and the others who said the availability

of facilities are inadequate around 31 respondents (47.7%).

d. Motivation

Respondent's distribution according to the respondent's motivation can be seen on Table 4. Data shows that majority who answering well around 33 respondents (50.8%) and poorly around 32 respondents (49.2%).

Bivariate Analysis

Bivariate analysis was conducted to know the relation between independent variables (knowledge,

facilities, and motivation) with dependent variables (the implementation of universal precautions), *Chi Square* test used with P value < 0.05.

- a. The Relationship between Knowledge of Nurses with The Implementation of Universal Precautions in The Inpatient Unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

The relationship between knowledge and the implementation of universal precautions by nurses can be seen on Table 5.

Based on cross tabulation between knowledge and the implementation of universal precautions by nurses, data shows respondents who answering well for knowledge are 36 respondents (55.4%) with universal precautions implementation well around 25 respondents (38.5%) and poorly around 11 respondents (16.9%); while respondent numbers who answering poorly for knowledge are 29 respondents (44.6%) with universal precautions implementation well around 9 respondents (13.8%) and poorly as much as 20 respondents (30.8%). According to the *Chi Square* test, the result for *p* value is 0.002 (< 0.05) which showing the significant relation between knowledge and the implementation of universal precautions by nurses in the inpatient unit Prof. Dr. R. D. Kandou Central General Hospital Manado. Analysis results acquired showing OR value from knowledge variable amount to 55.051 which mean nurses who have good knowledge about universal precautions 5 times more likely to implement it if compared with nurses who have poor knowledge.

- b. The Relationship Between Facilities Availability and The Implementation of Universal Precautions by Nurses in The Inpatient Unit Prof. Dr. R. D. Kandou Central General Hospital Manado.

The relationship between the availability of facilities and implementation of universal precaution by nurses can be seen on Table 6. According to cross tabulation which is conducted between the availability of facilities with the implementation of

Table 1 Respondent's distribution according to the implementation of universal precautions

The Implementation of Universal Precautions	Frequency (n)	Percentage (%)
Well	34	52.3
Poorly	31	47.7
Total	65	100,0

Table 2 Respondent's Distribution According to Knowledge

Knowledge	Frequency (n)	Percentage (%)
Well	36	55.4
Poorly	29	44.6
Total	65	100.0

Table 3 Respondent's Distribution According to The Availability of Facilities

The Availability of Facilities	Frequency (n)	Percentage (%)
Adequate	34	52.3
Inadequate	31	47.7
Total	65	100.0

Table 4 Respondent's Distribution According to Motivation

Motivation	Frequency (n)	Percentage (%)
Well	33	50,8
Poorly	32	49,2
Total	65	100.0

Table 5 The Relationship between Knowledge and The Implementation of Universal Precautions by Nurses in The Inpatient Unit Prof. Dr. R. D. Kadou Central General Hospital Manado

Knowledge	The Implementation of Universal Precautions						P value	OR
	Well		Poorly		Total			
	n	%	n	%	n	%		
Well	25	38,5	11	16,9	36	55,4	0,002	5,051
Poorly	9	13,8	20	30,8	29	44,6		
Total	34	52,3	31	47,7	65	100,0		

Table 6 The Relationship Between Facilities Availability Factors and The Implementation of Universal Precautions by Nurses in The Inpatient Unit Prof. Dr. R. D. Kandou Central General Hospital Manado

The Availability of Facilities	The Implementation of Universal Precautions						P value
	Well		Poorly		Total		
	n	%	n	%	n	%	
Adequate	20	30,8	14	21,5	34	52,3	0,271
Inadequate	14	21,5	17	26,2	31	47,7	
Total	34	52,3	31	47,7	65	100,0	

Table 7 Relation Between Motivation Factor and The Implementation of Universal Precautions by Nurses in the Inpatient Unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

Motivation	The Implementation of Universal Precautions						P value
	Well		Poorly		Total		
	n	%	n	%	n	%	
Good	19	29,2	14	21,5	33	50,8	0,338
Poor	15	23,1	17	26,2	32	49,2	
Total	34	52,3	31	47,7	65	100,0	

universal precautions, data shows respondent numbers who answering adequate around 34 respondents (52.3%) and universal precautions well as much as 20 respondents (30.8%), others who answering poorly 14 respondents (21.5%) whereas number of respondents who answering inadequate for facilities availability around 31 respondents (47.7%) with universal precautions implementation well around 14 respondents (21.5%) and poorly around 17 respondents (26.2%). Based on *Chi Square* test analysis *P* value obtained 0.271 (>0.05) where it indicates there is no significant relationship between facility availability factors and the implementation of universal precautions by nurses in IRINA F Prof. Dr. R. D. Kandou Central General Hospital Manado.

- c. The Relationship Between Motivation and The Implementation of Universal Precautions by Nurses in The Inpatient Unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

The Relationship between motivation factor and universal precautions implementation by nurses can be seen on Table 7. Based on cross tabulation conducted between motivation factor and the implementation of universal precautions, data showed that number of respondents who answering good motivation as much as 33 respondents (50.8%) with the universal precautions implementation well around 19 respondents (29.2%) as well as poorly 14 respondents (21.5%); while number of respondents who answering the motivation

are poor around 32 respondents (49.2%) with the universal precautions implementation well around 15 respondents (23.1%) as well as poorly 17 respondents (26.2%). According to *Chi Square* test analysis the *P* value obtained 0.338 (> 0.05) where it indicates there is no significant relationship between motivation factor and the implementation of universal precautions by nurses in the inpatient unit Prof. Dr. R. D. Kandou Central General Hospital Manado.

Multivariate Analysis

Multivariate analysis test result was conducted by logistic regression test. Step before the logistic regression is carried out, independent variables with *P* value ≤ 0.05 should be determined in relation with dependent variables test (*Chi square* test) in bivariate test mention above. According to bivariate test from three independent variables (knowledge, the availability of facilities, and motivation), knowledge has *P* value $\leq 0,05$ so it can be said that knowledge variable as the only variables which related to the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

CONCLUSION

1. There is significant relationship between knowledge of nurses and the universal precautions implementation by nurses in the inpatient

unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.

2. There is no relationship between the availability of facilities and motivation with the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado.
3. Knowledge is the only variables which related to the implementation of universal precautions by nurses in the inpatient unit (IRINA F) Prof. Dr. R. D. Kandou Central General Hospital Manado

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