Research Article

Factor Associated with Nurse Hand Washing Handrub Compliance at the Time of Infusion Installation in X Hospital in East Java

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ABSTRACT:
Nurses compliance in hand washing was one of the factors that have a major influence on the health of nurses and patients in the prevention of nosocomial infections, since the nurses were interacting with patients for 24 hours. Problems that occur in X Hospital East Java number of nosocomial cases were greater than the number of nosocomial standards which was more than 1.5 %. This study were to determine the factors associated with nurses compliance in hand washing handrub during infusion installation in X Hospital in East Java,. This research was a quantitative research with cross sectional approach. The method used by observing handrub washing 4 times in 2 acts at the time of infusion installation. Subjects were nurses who were in five inpatient unit. The sample size were 53 nurses. Data were collect by direct observation using a check listable based on Standard Operating Procedures (SOP) that are applicable in X Hospital in East Java.

The results showed that education was a determinant factor with the OR value 24.357, it means that nurses with diploma education are 24 times likely to disobey washing their hands compared with undergratuated educated nurses. Education showed impacts and mostly determine the compliance of nurses hand washing handrub their hands.

Keywords: Handrub, compliance, nurse.

INTRODUCTION
The hospital is a workplace that provides health services to the public as a treatment place, it is also a workplace that has the potential danger. One potential biological hazards in hospitals is patient safety that is nosocomial infections. Nosocomial infections can be obtained from the unhealthy hygiene behavior of health workers which is causing transmission of microorganisms to patients (Indonesian Health Ministry, 2007).

Nurses have a major role in the chain of transmission of these infections, because most of the time they make a lot of contacts with the patient in providing care (Sudarma, 2008). One of the nurse job is to install a drip, infusion mounted on the patient if the patient do not able to meet the needs of fluids and electrolytes, the patient do not able to meet the nutritional needs orally and for drug delivery. During infusion installation process, there may occur transmission of microorganisms from nurse to the patient because of poor hand hygiene, therefore hand washing before and after the infusion to the patient's actions are needed to be conducted(Indonesian Health Ministry, 2007).
On the skin of the hands there are microorganisms that are not settled in the skin and some are settled in the skin, normal skin microorganisms occupied approximately 1 \( \times 10^4 \) Colony Forming Units (CFU), whereas in the skin on the hands of health workers contained approximately 3.9 \( \times 10^4 \) to 4.6 \( \times 10^6 \) CFU microorganisms (WHO, 2009a).

Phlebitis is a complication of intravenous therapy, where 22.7% of patients occurs phlebitis. Phlebitis marked by pain, heat around the veins, redness, swelling at the site of insertion of the veins. Phlebitis can be caused by mechanical, chemical and bacteria factors. Mechanical factors are including venous catheters that are too large that led to friction in the veins and inflammation, as well as inadequate veins stabilization. Chemical factors are the type of drugs that is a lower pH <5 or higher pH> 9. The bacterial factors are contamination by bacteria at the time of the stabbing vein, it is due to inadequate hand washing techniques, non-sterile equipment, an inadequate way linking equipments intra venous (Tartari, 2012).

Health minister's decision number 129 of 2008 sets a standard of incidence of nosocomial infections is \( \leq 1.5\% \), the data of nosocomial infections in every hospital can be used as a reference for the prevention of infection to improve medical care for patients (Indonesian Health Ministry, 2008b).

Hand washing is an important way to control infection and is the only one of the most important clinical procedure because hands are the main intermediary occurrence of cross-infection.

Research of hand washing compliance before infusion is 39% and after installing the infusion is 33.3% (Zeinab, 2004; The Joint Commission, 2009).

**RESULTS AND DISCUSSION**

**Nurses Hand Washing Handrub Compliance Implementation At The Time of Infusion Installation in X Hospital in East Java.**

Observations of nurses hand washing handrub compliance showing less than 4 times, and not according to SOP are 25 nurses, less than 4 times and according to SOP is one nurse, four times practices and according to SOP are 13 nurses, four times, and not according to SOP is 14 nurse. The results showed nurses perform hand washing handrub compliance is low at 24.5%, according to WHO, hand washing compliance should be more than 50%.

Researchers stated that in the observations there is a possibility that the observer are making mistakes in recording while doing observation, where officers talk to her friend and forget or do estimates in recording. In addition, nurses sometimes carry out acts infusion when the time for going home so there is a possibility nurses do not handrub washing their hands. Likewise nurses have a lot of work to be done that make them forgetting the acts, did not think to do hand washing handrub as well as forgetting the sequence of hand washing handrub.

**Correlation of Age, Gender, Education With Nurses Hand Washing Handrub Compliance at the time of Infusion Installation Infusion In X Hospital in East Java.**

There is no correlation between age with nurses hand washing handrub compliance. This research was supported by Zeinab research (2004) that there is no correlation between sex and nurses hand washing handrub compliance because of there are other factors such as attitudes, goals and beliefs. Researchers found the age difference does not affect the compliance of nurses in action hand washing handrub, this is due to the influence of some other factors such knowledge. Youth with a good knowledge will demonstrate their attitude in taking decisions and actions. Vice versa in older people with poor knowledge will affect them in the act and make decisions. This can be demonstrated in this study, where the knowledge associated with nurses in hand washing compliance.

**RESEARCH METHODS**

This study has a quantitative research approach. Based on the aspects of data collection, this study is an observational research because the study only observed without treatment. This study used cross sectional approach for data collection. Population were 110 with the sample size of 53 nurses in inpatient surgery, inpatient interna and inpatient children. Data analysis used logistic regression with forward method to obtain significant influencing factor.
The results of gender research showed no correlation between gender with nurses hand washing handrub compliance. This occurs because male nurses - male and female, over 70% do not comply in performing hand washing handrub. This research was supported by research Zeinab (2004) which showed no correlation between the sexes with and nurses compliance hand washing handrub because of the existence of other factors such as attitude.

Researchers believe that nurses could be compliance or discompliance when the situation allows, such as the state of emergency patients who require quick treatment to save a patient's life, the preparation of urgent surgery, it is possible that nurses do not wash their hands.

Education research results showed correlation between education with nurses hand washing handrub compliance. This occurs because the nurses that were undergratuated educated 61.1% compliance in carrying out hand washing handrub. This research was supported by the Green stating that education has an important role in changing and strengthening the three factors: predisposing, enabling and reinforcing.

Researchers argue undergratuated educated nurses has a different thought pattern with diploma educated nurses, nurses with higher education level will be easier to absorb the information, having the better level of knowledge, including the ability to remember the theory, apply the handrub washing procedure. Higher education followed with awareness and willingness of the nurses will be strengthening the hand washing handrub compliance.

**Correlation of the presence of room head, Responsibility With Nurse Hand Washing Handrub Compliance At The Time Of Infusion Installation In Hospital in East Java.**

The presence of the room head in the research results showed no correlation between the presence of the head of the room with nurses hand washing handrub compliance. This research differs from research conducted by Milgram who show that compliance increases with the presence of the head of the room. Researchers suggest no correlation between the presence of the head of the room with nurses hand washing handrub compliance because the design of the room does not allow the head of the room to see the activities of nurses in performing handrub washing. Room design in the ICU is showing there is a glass partition between the room of the patient which allows the head of the room can see the activity of nurses who provide nursing services.

Research results show that there is no correlation between the responsibilities with nurses hand washing handrub compliance. It was differs from research conducted by Milgram which showed increased compliance with their responsibilities.

**Independent Variables Correlation With Nurse Hand washing Handrub Compliance at the time of Infusion Installation In X Hospital in East Java.**

The logistic regression analysis showed that education is a determinant factor towards the nurses compliance hand washing handrub, which means showing that the education gives impact and the most decisive in the compliance of nurses hand washing handrub. The higher of the nurses educational level, the more easily in receiving the information, the more knowledge, skill, so that the pattern of thinking will affect the behavior, or it can be said that the mindset of nurses with higher education will be different with the less educated nurses.

**CONCLUSION**

1. The factors: age, sex does not have a correlation with nurse hand washing handrub compliance at the time of infusion installation.
2. Responsibility Factor does not have a correlation with nurse hand washing handrub compliance at the time of infusion installation.
3. The presence of the head of the room does not have a correlation with nurse hand washing handrub compliance at the time of infusion installation.
4. The education factor is the dominant factor that has a correlation with nurse hand washing handrub compliance at the time of infusion installation.

**SUGGESTION**

1. Based on the conclusions obtained advice that can be given to the hospitals Gambiran Kediri and the respondents are as follows:
2. X Hospital in East Java need to monitor and evaluate the effectiveness of programs for the...
improvement and prevention of nosocomial infections especially nurses perform hand-washing compliance among other handrub with TPPI down directly spaciousness to know the truth and the success on the program.

3. Nurses who have a diploma of education, especially having a working period > 5 years should be given education and training to increase awareness of and compliance with hand washing handrub do so safety, health nurse and the patient can be maintained.

REFERENCES


