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## Overview of Nurses' Knowledge of Hand Hygiene in Implementing Patient Safety in Intensive Care Units

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### Abstract

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Hand hygiene is a simple step that is effective in reducing infection rates, but is often overlooked by health workers. Low hand hygiene in health workers is partly influenced by health workers' ignorance of how hands can be contaminated and ignorance of the importance of hand hygiene in reducing the spread of infection. This study aims to explore nurses' knowledge of hand hygiene in intensive care units. Methods: This study used a qualitative study design with a phenomenological approach. This study involved 15 clinical nurse supervisors who were interviewed in-depth using semi-structured interview guidelines with inclusion criteria: aged 25-45 years, being a clinical supervisor in the room, work experience > 8 years. Data from in-depth interviews were transcribed and data were analyzed using the Van Mannen analysis method. Results: Knowledge of hand hygiene nurses is based on: understanding of germ transmission, so that nurses are able to prevent transmission and accompanied by regulations on the implementation of hand hygiene which are guidelines for its implementation. Conclusion: Clinical nurse supervisors in hand hygiene are based on knowledge, social support and behavior in implementing hand hygiene. The implications of the results of this study are information in efforts to improve the fulfillment of hand hygiene so that in meeting health needs, they not only meet patient needs but also pay attention to the risk of germ transmission.

### Keyword:

Compliance, Transmission of germs, hand hygiene

## INTRODUCTION

A simple but effective step in protecting patients and staff from infection is hand hygiene (Peter et al. 2018). Hand hygiene is considered the most important, cheapest and most effective measure of infection control in order to prevent horizontal transmission of pathogenic bacteria that cause nosocomial infections. In the implementation of nursing, many nurses were found to neglect hand hygiene and the use of Personal Protective Equipment (PPE) (Victor D. Rosenthal et al. 2015). The implementation of hand hygiene according to procedures by health workers is still low. The hand hygiene program promoted by the Hospital Infection Prevention and Control Committee (KPPIRS) since 2006 has not been able to reduce the incidence of Healthcare Associated Infections (HAIs) at Dr. Soetomo Hospital, Surabaya. Poor hand hygiene compliance was found among nurses at Dr. Soetomo Hospital, Surabaya. In general, the level of fulfillment of hand hygiene according to procedures by health workers is still below 50% (Sopirala et al. 2014). Good hand hygiene implementation is estimated to prevent around 15% to 30% of nosocomial infections (McClung et al. 2017). Healthcare Associated Infections (HAIs) occur in a broader sense not only in hospitals but also in other health facilities. These infections are not limited to patients alone, but also infections in health workers obtained when carrying out patient care behaviors. The thing that is considered the most important, cheapest and most effective for measuring infection control in order to prevent horizontal transmission of pathogenic bacteria that cause nosocomial infections is hand hygiene.

When depression appears, a person's spirituality will be disturbed due to changes in the meaning of self, others and God. Disacceptance of the situation will also trigger disruption in the relationship between each other and God. It is very important to remember that the families of patients treated in the Intensive Care Room can experience depression at different physical and mental levels. As professional health workers, critical nurses have the greatest opportunity to provide comprehensive health services both biological, psychological, social and spiritual. Health workers must also provide support to patients and families to always improve their spirituality by praying to God and always thinking positively in all events they experience in the hope of preventing

depression during the patient's treatment period. Therefore, researchers are interested in identifying the level of family depression in patients undergoing treatment in the Intensive Care Room at the Haji Hospital, East Java Province.

Survey data shows that the implementation of hand hygiene by nurses in the Aster Surgical Room of Dr. Soetomo Hospital, Surabaya, shows that the fulfillment of hand hygiene implementation has not reached 100%. Of the 21 nurses in the room, 10 nurses (48%) were found to be not yet compliant in implementing hand hygiene. Meanwhile, those who implemented up to 50% of the time set by WHO were 2 nurses (9.5%), and only 7 nurses (33%) whose implementation exceeded 50%. On average, the fulfillment of hand hygiene by nurses in the Aster Surgical Room has only reached 58%. The preliminary study obtained data that Dr. Soetomo Hospital, Surabaya has a hand hygiene implementation program, but the results have not been optimal. The implementation of hand hygiene is only around 40% to 50% of health workers (Victor D. Rosenthal et al. 2015). In general, health workers know about the importance of hand hygiene in preventing infection. However, the implementation of hand hygiene according to procedures is still low among health workers (Medeiros et al. 2015). Low hand hygiene among health workers is influenced by several factors. Factors that contribute to low hand hygiene implementation among health workers include health workers' ignorance of how hands can be contaminated and their ignorance of the importance of hand hygiene in reducing the spread of infection (Peter et al. 2018).

The problem of lack of manpower and dense workload are also reasons why hand hygiene implementation is still low. In addition, access to hand hygiene facilities and skin irritation due to exposure to soap and water are also reasons why hand hygiene implementation is still low in the journal (Ataei et al. 2013). Institutional commitment factors for good hand hygiene implementation also contribute to hand hygiene implementation. Factors in hand hygiene implementation due to limited time, increased workload, decreased number of manpower, belief that using gloves no longer requires hand hygiene, far to reach the sink, nurses' indifference and disagreement with the rules (Arntz et al. 2016).

Models Precede-Procedee Health Behavior Theory Laurence W. Green and Kreuter MW., 1991.

Models Precede-Proceedee can analyze human behavior from the level of health. The behavior itself is determined or formed from 3 factors, namely; predisposing factors, enabling factors, and reinforcing factors. Predisposing factors are internal factors that exist in individuals, enabling factors include the availability of facilities and infrastructure, reinforcing factors are reinforcing factors in attitudes and behavior. Based on the description above, qualitative research will explore the theory of behavior on nurse compliance using Models Precede-Proceedee Health Behavior Theory Laurence W. Green. Qualitative methods appropriately offer a way to collect descriptions of each individual's personal experiences (Perrett, 2007). The method used in this study attempts to describe the experience of nurse compliance. The nurse participants in this study were Clinical Supervisors as role models in the implementation of health services and had experience in providing guidance.

## METHODS

The type of research used in this study is qualitative phenomenology because this study tries to explore in-depth information about hand hygiene knowledge in nurses. Participants in this study were clinical nurse supervisors with inclusion criteria: Aged 25-45 years and Work Experience > 8 years. The selection of clinical nurse supervisors in this study was by purposive sampling where researchers chose clinical supervisors based on the objectives or problems of the study. The research instrument or tool in this qualitative study is the researcher himself. The underlying reason is because everything is not yet clear, not yet certain and still needs to be developed during the study so that humans as human instruments function to determine the focus of the study, choose clinical supervisors as data sources, collect data, assess data quality, interpret data and make conclusions on the findings. In addition to humans as research instruments, other data collection tools that support the research process are in-depth interview guidelines, field notes, and recording devices. Qualitative data analysis in this phenomenological study, namely using Van Manen's (1997) media, the researcher approached the clinical supervisor to try to understand the significance of the experience being studied (Polit and Beck 2013).

## RESULTS

The results of the study showed that the demographic characteristics of nurses. The majority of nurses who became clinical supervisors were female, only 33% were male. The education of the majority of clinical supervisors was Nurses (73%) while the rest were D3 graduates (28%). All clinical supervisors had a minimum of 10 years of work experience and the longest was 33 years. All clinical supervisors had provided hand hygiene education to students. Interviews were conducted twice, the first interview aimed to collect data, while the second interview was to verify data.

The theme of knowledge about hand hygiene explains the level of understanding of clinical nurse supervisors regarding hand hygiene knowledge. This theme is identified through the sub-theme of knowledge about hand hygiene. Health knowledge about hand hygiene is provided by health professionals to nurses, which contains information about germ transmission. Based on the results of the in-depth interview, the clinical supervisor stated that the knowledge about hand hygiene received was very useful. In this sub-theme, there are 4 categories identified, including: germ transmission, impact, types, and five moments.

### a. Germ transmission

The clinical supervisor stated the information received from health professionals regarding germ transmission that can occur in patients and staff. The information received by most clinical supervisors regarding germ transmission that can occur is that nurses must perform hand hygiene and for information on hand hygiene in an effort to break the chain of transmission, the clinical supervisor received information that has the same meaning, namely preventing the spread of germs such as; not transmitting to patients, performing hand hygiene can prevent transmission. The category of germ transmission is supported by the statements:

*"by maintaining hand hygiene, the chain of transmission can be broken, if you don't wash your hands, you can transmit them to patients" (N01)*

*"in my opinion, performing hand hygiene can really prevent the transmission of nosocomial infections" (N3, N11, N15)*

*"the officer said to avoid the spread of germs to prevent HAIs" (N05, N14)*

## b. Impact

Participant knowledge regarding the impact or consequences of infection transmission in patients undergoing hospitalization in the hospital. Infection increases the length of hospitalization, harms oneself and others. Clinical supervisors understand that the transmission of germs has an impact on infection, and that hospital germs have developed resistance to various types of antibiotics. The category of knowledge of the impact of germ infection is supported by the statement:

*"especially if there is an MDRO infection" (N01, N06, N11, N12)*

*"spread to other patients especially if there are those who show MRSA germ culture results" (N13)*

*"infections suffered by ESBL patients can spread to other patients if they do not wash their hands (N07)*

Based on the statement above, it can be analyzed that the knowledge of clinical supervisors in the impact of infection is based on information, namely that infections suffered by patients can result in increasingly widespread transmission of resistant germs such as ESBL, MRSA which can be entered by MDRO germs

## c. Types of hand hygiene

The means used to implement hand hygiene behavior carried out by clinical supervisors in increasing hand washing compliance are 2 types, namely: hand washing and hand rub while there are 6 steps of movement. This category is supported by the statement:

*"I have memorized the 6 steps of washing hands, only the implementation is lacking" (N09, N10)*

*"There are two ways to hand rub and hand wash, the steps are already there but the implementation for each stage is not yet appropriate" (N11, N13, N14)*

*"With hand rub before and after, hand wash there is running water" (N15)*

Based on the statement above, it can be analyzed that the types of hand washing have been understood, information by nurses will increase the motivation and knowledge of nurses in their implementation.

## d. Five moments

Education is a health professional intervention in increasing knowledge and awareness related to the five moments that must be carried out by nurses.

Most clinical supervisors stated that health professionals are providers of information related to the five moments. This category is supported by the statement:

*"hand washing compliance must have a role model that functions as an example to remind both teach, explain the function, then explain the five moments when to wash hands" (N04, N05, N07,)*

*"remind both teach, explain the function, then explain the five moments when to wash hands" (N08)*

*"Wash hands properly according to theory, will do the behavior after the environment,?, before doing the behavior yes 5 moments, before touching the patient" (N07)*

From the statement above, it can be analyzed that nurses play an important role and are needed actively provide information about hand hygiene, because health workers meet and come into contact with health professionals at all times.

## DISCUSSION

The theme of understanding hand hygiene identified sub-themes, namely: knowledge of hand hygiene. Sub-themes are related to each other in forming an understanding of hand hygiene. The sub-themes provide an overview of the process of understanding to clinical supervisors. Based on the results of the study, understanding of hand hygiene is still lacking between one and another, this is due to information provided by various sources among health professionals. Clinical supervisors stated the information that had been received from health professionals regarding the transmission of germs that can occur in patients and officers. The information received by most clinical supervisors regarding the transmission of germs that can occur is that nurses must carry out hand hygiene and for information on hand hygiene in an effort to break the chain of transmission, clinical supervisors receive information that has the same meaning, namely preventing the spread of germs such as; not transmitting to patients, carrying out hand hygiene can prevent transmission of sources of knowledge obtained from the sensing process so that an observation process occurs that produces knowledge that can shape behavior (Niven 2008).

Health education provided by health professionals is routinely given to nurses will increase nurses' understanding of hand hygiene compliance (Xia Wu, Yan Xu at all 2016). Nurses' lack of



understanding of hand hygiene due to the absence of guidelines and learning (booklets/brochures), and it is necessary to actively interact with other nurses to discuss hand hygiene. As part of the education program, namely attending all meetings and providing hand hygiene technique education, this behavior must be repeated many times (Xia Wu, Yan Xu at all 2016.) The most preferred health education is multidisciplinary because it can increase compliance after health workers are educated (Mustarim et al., 2017). Measuring hand hygiene compliance objectively by providing definite goals can increase hand hygiene compliance because nurses feel they have an obligation to carry it out. The active role of professional nurses in providing hand hygiene education to nurses and evaluating each time periodically regarding hand hygiene compliance is very important, in addition, the role of health professionals in providing education supports in increasing understanding of hand hygiene. The information conveyed should use media, such as: brochures, educational videos, booklets, modules, etc. The media plays an important role in the process of understanding nurses to remember and reread what has been conveyed. Nurses' knowledge of hand hygiene is also based on health education provided by both health workers and the nurses' own experiences.

## CONCLUSION

Knowledge of hand hygiene related to germ transmission and impacts, types of hand hygiene obtained from training, simulation, recertification, supervision (PPI Team, SKP Team), Knowledge of hand hygiene is based on: understanding of germ transmission, so that nurses are able to prevent transmission and accompanied by regulations on the implementation of hand hygiene which serve as a guide in its implementation.

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