

## The Correlation Between Nursing Knowledge Of Surgical Wound Infections And The Method Of Surgical Wound Infection Prevention In Inpatient Ward Of Prima Husada Hospital

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### ABSTRACT

*Keywords:*

*Nurses knowledge of Surgical*

*Wound Infection, Surgical Wound*

*Infection prevention*

(SWI) Surgical Wound Infection is an infection that often occurs in patients after surgery. Most of Surgical Wound Infection comes from the pathogen endogenous flora of the patient's skin, mucous membranes. In addition there are exogenous *Suber* from the operating area. In this case the knowledge of nurses in Inpatient Installation greatly influences the method of nurse in prevention of the Surgical Wound Infection. The design of this study is a correlation study. The populations were nurses at the Inpatient Installation of Prima Husada Hospital, with inclusion and exclusion criteria by using purposive sampling technique. The results of research on nurses 'knowledge of the Surgical Wound Infection were not good; 19 respondents (45.2%) and nurses' method on prevention of Surgical Wound Infection was not good; 20 respondents (47.6%). The results of normality test data with Chi square test can be known that (p) obtained is 0,000 (p <0.05). The obtained data is normal data. The results of correlation test using the Pearson Correlation between nurses 'knowledge of the SWI and SWI Prevention method in the Inpatient Installation of Prima Husada Hospital can be found that (p) obtained on nurses' knowledge is 0.023, and on nurse method is 0.023 (p <0.05) . It mean there is a correlation between nurses' knowledge of the Surgical Wound Infection and Surgical Wound Infection preventive method at the Prima Husada Hospital Inpatient Installation. The statistical correlation can be said that the better the knowledge of nurses and the better the prevention method of the Surgical Wound Infection. This result will reduce the number of Surgical Wound Infection.

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### I. Introduction

Surgical wound infection (SWI) is an infection that often occurs in post-surgical patients (Pandjaitan, 2013). The World Health Organization (WHO) survey reports that SWI case in the world ranges from 5% to 15% (WHO, 2015). WHO data shows that around 5% to 34% of the nosocomial infection data is SWI (Haryati et al, 2013). *National Nosocomial Infection Surveillance* (NNIS, 2010) United State America indicates that the SWI is the third most common infection that occurs in hospitals. Around 14% to 16% of the total patients in hospitals experience the SWI. Research in Nigeria in 2009 reported that from postoperative patients who carried out culture examinations of Surgical wound infection, 5% to 10% of them had positive cultures containing bacteria (Setyarini, Barus & Dwitari, 2013).



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According to the Republic of Indonesia Health Department in 2011, the number of SWI on government hospitals in Indonesia were 55.1% (Asyifa, Suarniant & Mato, 2012). The number of SWI in Prima Husada Hospital in the period January - March 2018 reached 1.7%, while in the previous month, it was 0%. The SWI was found as early as the third day and the most was found on the fifth day and the longest was the seventh day. The number of SWI that occurred in the East Java regional health office was 20% and for Malang district reaching 10% (East Java Health Office, 2017).

SWI factors include patients with diabetes mellitus, obesity, severe malnutrition, and the location of wound factors include shaving the operating area, poor blood supply to the operating area, and the location of easily contaminated wounds, such as surgery, prophylactic antibiotics, ventilation of operating room, operating technique (Septiari, 2012). The SWI case factors in preoperative includes skin preparation; absence of cleaning the operating area or not shaving in the surgical area with thick hair (Riyadi & Hatmoko, 2012). One of the SWI's intraoperative case factors is the surgical technique. It must be performed well to avoid excessive tissue damage, bleeding, infection, length of operation, use of drainage (Septiari, 2012).

SWI events related to surgery are also caused by pathogenic microorganisms that contaminate the area of the surgical wound during the operation or after surgery when the patient is hospitalized (Kurnia, Tripriadi & Andriani, 2013). SWI postoperative case factors include nutrition, personal hygiene, mobilization and wound care (Riyadi & Hatmoko). According to Rosaliya (2010) days of wound care > 5 days will increase the incidence of the SWI. Wound care procedures must be carried out according to the intended purpose in order to speed up the healing process and be free from wound infections caused by nosocomial infections. In this case the officer in the inpatient installation who is in charge of doing wound care is a nurse. For that the thing that plays an important role in the emergence of the SWI is the nurse's knowledge of the SWI and the method of nurses in the prevention of SWI in carrying out wound care actions. Nurses' knowledge of the SWI plays a major role in preventing the occurrence of SWI during the postoperative hospitalization process (Noch, Rompas & Kailo, 2015).

Nurses' method in preventing SWI can be seen in the application of its bundles and wound care after surgery. Nurses in charge of inpatient care for postoperative wound must do treatment in accordance with SWI bundles to avoid SWI. Those nurse's act includes protecting wounds that have been sewn with sterile bandages for 24 to 48 hours after surgery, doing hand hygiene according to the requirements (before and after changing bandages or coming into contact with surgical wounds), using aseptic techniques when changing bandages, providing education to patients and his family regarding correct surgical wound care, symptoms of surgical wound infection and the importance of reporting these symptoms (PMK No.27 of 2017).

Prevention that must be done to reduce the number of SWI include the use of disposable clippers or shavers, prophylactic antibiotics given hours before surgery, the patient's normal body temperature, and normal blood sugar measurement for the patient, washing and cleaning the surgical site and surrounding areas to remove contamination before making skin preparations with antiseptic, using skin antiseptic that is suitable for skin preparation, applying antiseptic to the skin in a circular motion starting from the middle to the outside (Pandjaitan, Costy, 2013).

The results of the preliminary study conducted on January 1, 2018 to January 31, 2018 obtained from the Inpatient Installation of Prima Husada Hospital found that the number of SWI that occurred were 1.7%, with lacking knowledge of nurses in inpatient; 20% and preventive treatment of nurses for surgical wound infections are still low at 20%, while the ILO standard is 1.5%. Based on that fact, the researchers are looking for the correlation between nurses' knowledge of surgical wound infection and the method of preventing surgical wound infections and this case in Prima Husada Hospital has never been studied before

## II. Method

This study uses a correlational study design (relationship or association) which aims to investigate, search and explain the correlation between knowledge of nurses of surgical wound infection and the method of surgical wound infection prevention in the Prima Husada Hospital Inpatient Installation. The approach used is cross sectional. It means this research emphasizes the time of measurement or observation of independent and dependent variable data only once, at one time

### III. Results and Discussion

The general data in this study consisted of the characteristics of respondents based on the general, education, and SWI preventive behavior.

1. Respondents frequency distribution based on age group

The following Table is Respondent frequency distribution by age group :

Tabel 1.1 Respondent frequency distribution by age group :

No	Age	Total	Percentage
1	22 – 26 Year old	22	40
2	27 – 31 Year old	10	30
3	32 – 36 Year old	10	30
	Total	42	100

Table 1.1 shows the majority (40%) of respondents aged 22-26 years old .

2. Respondent frequency distribution based on Education Level

The following Table is Respondent frequency distribution by Education Level :

Table 1.2 Respondent frequency distribution based on Education Level

No	Education	Total	Percentage
1	DIII Nursing	37	88
2	S1 Nursing	5	11,9
	Total	42	100

Table 1.2 shows the majority (88%) of respondents have a education level of DIII Nursing

3. Respondent frequency distribution based on the length of work

The following table is respondent frequency distribution based on length of work

Table 1.3 Respondent frequency distribution based on length of work

No	length of work	n	%
1	< 1 year	13	30,9
2	2 – 3 years	20	47,6
3	4 – 6 years	8	19,0
4	7 – 9 years	1	2,3
5	>10 years	0	0
	Total	42	100

Table 1.3 shows the majority (47.6%) of respondents have a working period of 2-3 years.

4. Frequency of nurse knowledge about surgical wound infections

The following table is Frequency of Nurse Knowledge about Surgical Wound Infections

Table 1.4 Frequency of Nurse Knowledge about Surgical Wound Infections

No	Nurse Knowledge	n	%
1	Good Knowledge	2	4,7
2	Moderate Knowledge	9	21,4
3	Less Knowledge	19	45,2
	Total	42	100

Table 1.4 shows that the majority (45.2%) of respondents have poor knowledge about surgical wound infections

5. Frequency distribution of Prevention method of Surgical Wound Infections

The following table is Frequency distribution of Prevention method of Surgical Wound Infections

Table 1.5 Frequency distribution of Prevention method of Surgical Wound Infections

No	Prevention method of Surgical Wound Infections	n	%
1	Good method	10	23,8
2	Moderate method	12	28,5
3	Less method	20	47,6
	Total	42	100

Table 1.5 shows that the majority (47.6%) of respondents had less method to prevent surgical wound infections

**IV. DISCUSSION**

SWI (Surgical Wound Infection) is an infection that often occurs in patients after surgery. Most infections in the operating area are from the pathogen endogenous flora of the patient's skin, mucous membranes. In addition, there are exogenous sources of infection in the operating area, including the surgical team, the operating room environment, equipment, instruments, medical devices, microorganism colonization, body endurance, the length of the patient being hospitalized, and postoperative wound care.

Postoperative SWI case factors can be affected by nutrition, personal hygiene, mobilization and wound care (Riyadi & Hatmoko). Rosaliya (2010) states the days of wound care > 5 days will increase the incidence of the SWI. Wound care procedures must be carried out according to the intended purpose in order to speed up the healing process and free from wound infections caused by nosocomial infections.

The SWI in postoperative patients can be prevented, one of preventions is that by increasing nurses' knowledge and nurses' method in conducting SWI prevention in postoperative patients. In this study, it was found that most (45.2%) respondents had poor knowledge of surgical wound infections. This is due to the lack of nurses' knowledge about surgical wound infections, thus influencing nurses' method of preventing surgical wound infections performed while the patient is being treated at the hospital. Beside that it is also caused by nurses in the Inpatient Installation have never attended the training on wound care.

Based on the matters above, the emergence of SWI is caused by the lack knowledge of nurse on SWI and the method of nurses in preventing the SWI in carrying out wound care. Nurses' knowledge of the SWI plays a major role in preventing the occurrence of the SWI during the postoperative hospitalization process (Noch, Rompas & Kailo, 2015).

To improve nurses' knowledge about surgical wound infections and improve nurses' method of preventing surgical wound infections, it is necessary to have better access to treatment, by giving training on surgical wound infections and how to prevent surgical wound infections.

In this study nurses' method towards SWI prevention showed not good predicate, it is shown by only 20 respondents (47.6%). This happened because there were no nurses in the Inpatient Installation who attended wound care training and lack of nurses understanding about surgical wound infections, thus it affects the method of nurses in preventing surgical wound infections carried out as long as the patient is admitted to the Hospital.

Nurses' method in preventing SWI can be seen in the application of SWI bundles and wound care after surgery. Nurses in charge of inpatient care for postoperative wounds must be in accordance with SWI bundles in order that SWI does not occur. Nurse's method includes protecting wounds that have been sewn with sterile bandages for 24 to 48 hours after surgery, doing hand hygiene according to the provisions (before and after changing bandages or coming into contact with surgical wounds), using aseptic techniques when changing bandages, providing education to patients and his family regarding the correct surgical wound care, seeing symptoms of surgical wound infection and the importance of reporting these symptoms (PMK No.27 of 2017).

Method for preventing surgical wound infections can be done before surgery, during surgery and after surgery, namely wound care. Prevention before surgery is that 1) if found signs of infection, it must be cured first, 2) controlling blood sugar levels, 3) bathing patients with antiseptic substances. Prevention during surgery includes the entilation of a positive pressure operating room, cleaning or doing disinfection of environmental facilities, sterilizing operating room instruments, sterilizing surgical clothing and drape and doing *aseptic tecsin* in surgical techniques. Prevention after surgery includes protecting the wound that has been sewn with sterile bandages for 24 to 48 hours after surgery and doing wound care techniques correctly.

Pandjaitan, Costy, (2013) states that precautions that must be taken to reduce SWI numbers include the use of a disposable clipper or shaver, prophylactic antibiotics given hours before surgery, normalizing patient body temperature, and measuring of patients' blood sugar and cleaning the surgical site and its surroundings to eliminate contamination before making skin preparations with antiseptic, using the appropriate antiseptic skin for skin preparation, and applying antiseptic to the skin in a circular motion starting from the middle towards the outside.

The results of the Correlation test with Pearson correlation between nurses' knowledge of surgical wound infection and Prevention of Surgical Wound Infection method in the Inpatient Installation of Prima Husada Hospital can be found ( $p$ ) obtained on nurses' knowledge is 0.02 ( $p < 0.05$ ) and on nurses' method was 0.02 ( $p < 0.05$ ). It means there is correlation between nurses' knowledge of surgical wound infection and the prevention method of surgical wound infections in the Prima Husada Hospital Inpatient Installation.

## V. Conclusion

There is a correlation between nurses' knowledge about surgical wound infections toward the method of prevention of surgical wound infections in the Prima Husada Hospital Inpatient Installation with a significance value of  $p < 0.05$ .

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