

OVERVIEW OF THE NURSE'S KNOWLEDGE ABOUT BUNDLE VENTILATOR ASSOCIATED PNEUMONIA IN INTENSIVE CARE UNIT ROOM PUBLIC HOSPITAL IN THE CITY OF DUMAI

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ABSTRACT

Ventilator Associated Pneumonia (VAP) is Healthcare Associated Infections (HAIs) found in the hospital and it's a pneumonia infection that occur after 48 hours of mechanical ventilation both endotracheal tubes and tracheostomy. The risk of nosocomial infection increases 6-21 times through the use of a ventilator and the mortality rate is 24-70% resulting in an increase in ICU admission time and increase in medical cost. Data from the Infection Control Prevention Committee of the Dumai City general hospital in 2018 there were 107 patients on ventilators and 3 patients were experiencing VAP and 50% of nurses did not fully know about the VAP bundle and all nurses didn't received training on the VAP bundle. The type of this study was a quantitative research with descriptive design to know the knowledge of nurses about VAP bundle. The research was done on August 2020 in the ICU room of the Dumai City general hospital with a total sampling 20 nurses. The data were collected using a questionnaire sheet about nurses knowledge of the VAP bundle. The results showed that the level of knowledge of nurses about the VAP bundle was 60% having sufficient knowledge, so the conclusion is more ICU nurses having sufficient knowledge about the VAP bundle. knowledge does not always guarantee implementation and compliance, but lack of knowledge can be barrier to nurse implementation and compliance. It is expected to the hospital to provide nursing training based on standardization procedure of the VAP bundle to patients on ventilators and to carry out monitoring and evaluation such as nursing audits especially on apply the VAP bundle and implementation a reward and punishment system in order to create nurse discipline in implementation the VAP bundle.

Keywords: Knowledge, Nurses, VAP bundle, ICU

1. INTRODUCTION

Ventilator Associated Pneumonia (VAP) is one of the HAIs that is often found in hospitals / health care facilities and it is a pneumonia infection that occurs after 48 hours of using mechanical ventilation either endotracheal tube or tracheostomy (Permenkes number 27, 2017). Patients who are put on a ventilator have the potential for nosocomial infection to be in the form of VAP. The mortality rate for patients who experience VAP is 30% and can increase to 70%

along with other comorbidities such as age, medical history and other chronic Diseases (Purnama and Fikri, 2020).

The results of research on HAIs by the Center for Disease and Control (CDC) stated that there were 721,800 cases of HAIs in the world and 39% of them had VAP, amounting to 157,000 cases (CDC, 2016). 543 patients in UK hospitals die each year from VAP (Saxby et al., 2013). In Thailand, there were 621 VAP during 6 years with a high mortality rate (Inchai, et al, 2015). Then it was found that several Type A hospitals that have complex intensive care experienced VAP incidents, such as Cipto Mangunkusumo Hospital, as many as 201 patients experienced VAP from 2003 - 2012 (Saragih, et al, 2014). The medical data of the Friendship Hospital Jakarta were 45 patients from 2012 - 2016 (PPI Committee of Friendship Hospital, 2017), 15 patients in Sanglah Hospital in Bali in 2011 (Azis, et al, 2013). Based on data at Arifin Achmad Hospital Pekanbaru, showed that the number of patients installed on a ventilator in 2010 were 176 patients, in 2011 there were 324 patients and there were 11 patients experiencing VAP and from January to June 2012 there were 102 patients and there were 14 patients experiencing VAP. (Yanti, et al, 2012). Data from the Infection Control Prevention Committee (PPI) Dumai City Hospital in 2018 there were 107 patients on ventilators and there were 3 patients experiencing VAP.

Nursalam (2014) explained that the role of health workers in infection control must maintain the health or safety of themselves and others by being responsible for implementing policies set by the hospital. Health workers are also responsible for using the facilities and infrastructure, which have been provided properly and correctly, as well as maintaining the facilities and infrastructure so that they are always ready to be used as long as possible. Especially nurses, because nurses are one of the health service providers, whose role cannot be excluded from the forefront when providing hospital services, besides that nurses are also health workers who have the longest contact with patients, even up to 24 full hours in providing care, then the nurse also plays a role in contributing to the significant incidence of HAIs.

Knowledge is one of the indicators of the success of the VAP bundle, because knowledge affects the formation of nurses' behavior in implementing the VAP bundle. Knowledge needs to be

possessed by nurses so that what is done, has a basis and can be accounted for. Good knowledge will underlie good skills, but skills without knowledge or with low knowledge will result in less than optimal quality of nursing services. The success of the VAP bundle in intensive care by nurses depends on the standard operating procedures, the level of knowledge of the nurses on the VAP bundle, and compliance with nursing actions. A person's behavior is formed from knowledge, attitudes and actions that influence each other, where knowledge is an important condition for the formation of one's actions. In other words, the knowledge of nurses is very important in maintaining mechanical ventilation which affects the behavior of nurses in implementing good mechanical ventilation measures (Notoatmodjo, 2010). Through high knowledge, updated information about the VAP bundle with the holding of trainings related to the management of patients on ventilators, it is hoped that it can provide a good implementation of critical nursing, so it is imperative to implement the VAP bundle properly in the ICU room.

Until now, there has been no data or research on VAP bundles by nurses in the ICU room at the Dumai City Hospital. With the description and background and phenomena mentioned above, researchers are interested in conducting research on the description of nurses' knowledge about the application of the VAP bundle in the ICU Room at the Duami City Hospital in 2020 as an effort to prevent HAIs.

2.MATERIAL AND METHOD

This research uses quantitative research with descriptive design with the aim of describing or describing important events that occur in the present. The sampling technique used was total sampling, with a total sample of 20 ICU nurses at the Dumai City Hospital. The instrument used for data collection was a questionnaire sheet about the nurse's knowledge of the VAP bundle. The research was conducted in August 2020 in the ICU Room at the Dumai City Hospital.

3.RESULTS

RESPONDENT CHARACTERISTICS

Table 1: Respondent Characteristics

No	Respondent Characteristics	f	%
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1	Age		
	(25-35 years) Early Adult	14	70
	(36-45 years) Late Adulthood	6	30
2	Gender		
	Man	5	25
	Women	15	75
3	Education		
	DIII Nursing	15	75
	S1 Nursing	5	25
4	Length of working		
	0-8 tahun	8	40
	9-16 tahun	12	60

Based on the table above, it can be seen that the majority of respondents are in the early adult age group (25-35 years) as many as 14 people (70%). The dominant gender of the respondent is female as many as 15 people (75%), most of the respondents' education is 15 people (75%) who are D III graduates (75%), the most respondents are in the 9-16 year group, namely 12 people (60%).

RESPONDENT VAP BUNDLE KNOWLEDGE

Table 2

Variable	Category	f	%
Knowledge	Less	0	0
	Intermediet	12	60
	Good	8	40
Jumlah		20	100

Based on the table above, it shows that most of the respondents' knowledge about the VAP bundle is in the sufficient knowledge category, namely as many as 12 people (60%).

4.DISCUSSION

Description of Nurse Characteristics

1. Age

From the results of the research analysis, it was found that the majority of nurses were in the early adult age group (26-35 years), as many as 14 people (70%). The same results were shown by research by Sadli et al. (2017) who found that the age of nurses in the ICU was in the range of 30 years as much as 74%. Likewise, Saodah's research (2019) showed that the majority of nurses in the ICU were nurses in the early adult age group.

Knowledge is influenced by one of the factors, including age. Age describes the physical, psychological and social maturity that affects the teaching and learning process. In the sense that age is one of the factors that influence information retrieval which ultimately affects a person's knowledge (Cahyaningrum and Masrurroh, 2020).

2. Gender

From the results of the research analysis, it was found that the majority of nurses were female at 75%. Sadli, et al (2017) also show the same results, namely the characteristics of nurse respondents are dominated by female gender by 74%. This is also supported by the results of Saodah's research (2019) which found that the majority of nurses in the ICU were female (52%). According to Moehijat (2009) in Wahyudi (2016) which states that female nurses have instincts and have a gentle nature because the initial concept of nursing in its history was a mother's instinct. Therefore, female nurses tend to be more caring for patients. Actually there is no relationship between gender and the ability to carry out nursing care, but women tend to analyze a problem more deeply and thoroughly before making decisions than men, so that they will behave ethically better than male nurses..

3. Education

From the results of the research analysis, it was found that most of the respondents' education was 15 people (75%) who graduated from DIII Nursing. This is in line with the results of research by Sadli et al. (2017) who also obtained research results regarding the characteristics of the latest ICU nurse education, the majority of which were Diploma III of Nursing as much as

65%. Aryani & Durhayati (2018) obtained the same result that the most nursing education in the ICU room was Diploma III of Nursing with a percentage of 86.7%.

Rivai (2010) explains that a person's education level can affect his or her ability level. The ability that can be improved with the level of education is through intellectual ability, with the increased intellectual ability of a person, it is hoped that he can make the right decisions including the decision to act.

4. Length of Work

From the results of the research analysis, it is known that the most respondents working in the ICU room were in the 9-16 years group, namely 12 people (60%). Sadli, et al (2017) also showed the same research results, namely 76% of nurses in the ICU, the majority were over 5 years old. Likewise with the results of research by Rahma and Ismail (2019) which showed that most nurses had a work period of more than five years, namely 51%.

According to Notoatmodjo (2010), who argues that the length of work related to one's experience greatly affects knowledge, the more someone experiences about something, the more one's knowledge of it will be. Furthermore, Rifai (2016) states that the length of work is one of the factors related to knowledge. Nurses who have a lot of field experience, both positive and negative experiences, will increase their sensitivity to problems in their fields, so that the longer the work, the more experience they get, the better the knowledge gained.

2. Nurse Knowledge Overview

Based on the results of the research analysis, it is known that most of the nurses' knowledge in the ICU room about the VAP bundle is in the sufficient category, namely 12 people (60%). The results of this study are in line with the research of Rahma and Ismail (2019) which showed that 65% of nurses in the ICU had moderate or sufficient knowledge. This is also strengthened by the research of Aryani and Durhayati (2018) which obtained results that the knowledge of the majority of nurses 42.22% was at a moderate / sufficient level. A 2014 study in Yemen aimed at evaluating the knowledge of nurses in the ICU as a prevention strategy for VAP illustrated that the average score for the questionnaire was only 47.3% regarding the general standard of VAP prevention. A 2015 study in Lebanon described that less than 50% of ICU nurses were aware of

the definition and diagnosis of VAP as well as the mechanical ventilator complications associated with VAP. The success of the VAP bundle in the intensive care room by nurses depends on standard operating procedures, the level of nurse's knowledge of the VAP bundle, and compliance with nursing actions (Sadli, et al, 2017). Moderate / sufficient knowledge of ICU nurses is due to the fact that the research sample is HIPERCCI nurses who always upgrade their knowledge through training or member discussion at meetings held regularly. This is in accordance with the theory that the environment affects the process of entering knowledge (Budiman & Riyanto, 2013). The moderate / sufficient knowledge that ICU nurses have about the VAP bundle is also due to the fact that treating patients with mechanical ventilation is a competency that ICU nurses must have. ICU nurses will try to meet these competency standards to qualify as ICU nurses, so that nurses will be encouraged to try to learn the VAP bundle in order to prevent infection in patients with mechanical ventilation to the maximum in accordance with the standard of care for patients with mechanical ventilation. Constraints in the field are that ICU nurses do not fully know about the VAP bundle and its application to patients who have ventilators installed and not all ICU nurses have received training on VAP bundles as well as the cause of sufficient knowledge of nurses.

A higher level of education and knowledge will make it easier for someone, especially nurses to absorb information and implement it in the behavior and implementation of daily nursing care to patients. The higher the level of education, it is hoped that it will be easier to absorb information and also quickly implement the knowledge possessed by nurses, especially to prevent pneumonia in bed rest patients. A person's behavior towards health is largely formed by intellectual variables consisting of knowledge. This knowledge will influence a person's mindset and use the knowledge he has in an effort to provide nursing action in the form of pneumonia prevention (Marlina and Hairanisa, 2013).

The importance of training related to VAP and the application of VAP bundles to prevent pneumonie cases in the ICU is one of the main efforts in increasing the knowledge of nurses apart from obtaining a higher education level than the previous one, but if this is not possible then training is a short and fast way. to achieve it. Knowledge is the principal asset that is useful in determining the success or failure of preventive efforts in the form of implementing a VAP

bundle by nurses in the ICU, so that it can contribute directly to recognizing patients on a ventilator who have a high risk of suffering from pneumonia. Through the knowledge or cognitive abilities of a nurse it is hoped that it can become the right factor according to the needs of the patient, so that every action of nurses in the ICU room based on knowledge and experience can improve the application of standardized VAP bundles to be even better in the future.

5.CONCLUSION

The results of this study indicate that the level of knowledge of nurses about the VAP bundle is 60% sufficient, so it can be concluded that there are more ICU nurses who have sadang knowledge than nurses who have less knowledge about the VAP bundle. Knowledge does not always guarantee implementation and compliance, but lack of knowledge can be a barrier to nurse implementation and compliance.

REFERENCES

- Aryani. D. F., Durhayani. Y. (2018). Gambaran Tingkat kepatuhan Dan Faktor-Faktor Yang mempengaruhi Kepatuhan Perawat Dalam Penerapan Bundle Associated Pneumonia. Jurnal Riset Ketahanan Nasional. Institut Teknologi dan Kesehatan. Bali. Vol. 2, No. 2.
- Azis, A., sawitri & Parwati, T. (2013). Handwashing As a Risk Factor For Increasing Ventilator Associated Pneumonia (VAP) Incidence at Sanglah Hospital, Denpasar, 2012. Journal. Universitas Udayana: Public Health and Preventive Medicine Archive Vol 1, No 2.
- Budiman & Riyanti, A. (2013). Kapita Selekta Kuisisioner Pengetahuan Dan Sikap Dalam Penelitian Kesehatan. Jakarta: Salemba Medika.
- Cahyaningrum & Masruroh. (2020). Analisis Pengetahuan Wanita Usia Subur Tentang Bahaya Bahan Kosmetik Pada Kesuburan Di Klinik Kecantikan Kanaya. Indonesian Journal of Midwifery. Vol 3, No 1.
- CDC. (2016). National and State Healthcare Associated Infections Progress.
- Inchai, Pothirat dan liwsrisakun. (2015). Ventilator Associated Pneumonia: Epidemiology And Prognostic Indicators of 30-days Mortality, 181-186. <http://doi.org/10.7883/yoken.JJID.2014.282>.
- Komite PPI RSUD Kota Dumai
- Marlina & Hairanisa. (2013). Pengetahuan Perawat Pelaksana Dan Pencegahan Pneumonia Pada Pasien Tirah Baring Di RSUD Zainal Abidin Banda Aceh. Idea Nursing Journal. Vol . IV No. 1.
- Notoatmodjo, s. (2010). Metodologi Penelitian Kesehatan. Jakarta: PT Rineka Cipta.
- Nursalam. (2014). Manajemen Keperawatan: Aplikasi Dalam Praktik Keperawatan Profesional. Jakarta: Salemba Medika.
- Peraturan menteri Kesehatan Republik Indonesia Nomor 27. (2017). Pedoman Pencegahan dan Pengendalian Infeksi di Fasilitas Pelayanan Kesehatan.
- Purnama. A, Fikri. R. (2020). Perbandingan Efektifitas Oral Hygiene Menggunakan Enzim Lactoperoxidase Dengan Chlorhexidine Dalam Pencegahan VAP Di RS X. Jurnal Surya Muda, 2(1). 54-64.
- Rahma, A. W. & Ismail, S. (2019). Gambaran Pengetahuan Perawat tentang Intervensi Mandiri Ventilator Associated Pneumonia Bundle Care Pada Pasien Dengan Ventilasi Mekanik Di Unit Perawatan Intensif. Jurnal Perawat Indonesia. Vol 3 No 1, Hal 1-7

- Rifai, A. (2016). Analisis faktor-Faktor Yang Berhubungan Dengan Pengetahuan Perawat Tentang Pencegahan Ventilator Associated Pneumonia (VAP) Di Ruang ICU RSUD Dr. Moerwadi. *Jurnal Keperawatn Global*. 1(20), 64-72.
- Rivai, V. (2010). *Manajemen Sumber Daya Manusia Untuk Perusahaan dari Teori Ke Praktek*. Jakarta: Rajawali Pers
- Sadli, M. F., Tavianto, D., & Redjeki. (2017). Gambaran Pengetahuan Klinisi Ruang Rawat Intensif Mengenai Ventilator Associated Pneumonia (VAP) Bundle Di Ruang Rawat Intensif RSUP Dr. Hasan Sadikin Bandung. *Jurnal Anestesi Perioperatif*. 5(2), 85-93.
- Saadah, S. (2019). Knowledge Of Guideline VAP Bundle Improves Nurse Compliance Levels in Preventing Associated Pneumonia (VAP) Ventilation inthe Intensive Care unit. *Media Keperawatan Indonesia*. Vol 2. No 3.
- Saragih, R. J., amin, Z., Sedono, R., Pitoyo, C. W., & Rumende, C. M. (2014). Prediktor Mortalitas Pasien Dengan Ventilator Associated Pneumonia Di RS Cipto Mangunkusumo. *e-Journal Kedokteran Indonesia*. 2(20). Universitas Indonesia.
- Saxby, R., Taylor, M., PA, S., JA, W., Gadhok, A., & Winquist, E. (2013). Discrete Choice Experiment Modelling To Assess Prefences For Health System Characteristic in The United Kingdom And Australia. *Value in Health*, 12(7), A243. [http://doi.org/10.1016/S1098-3015\(10\)74189-9](http://doi.org/10.1016/S1098-3015(10)74189-9).
- Wahyudi. (2016). *Faktor-Faktor Yang Berhubungan Dengan Perilaku Caring Perawat Di Ruang Perawatan Interna RSUD Sinjai*. Skripsi. Jurusan Keperawatan Fakultas Kedokteran Dan Ilmu Kesehatan universitas Islam Negeri alauddin Makasar.
- Yanti, P., Erwin, Jumaini. (2012). Efektifitas Oral Hygiene Dengan Suction Menggunakan Larutan Chlorhexidine 0,2% terhadap Pencegahan Ventilator Associated Pneumonia (VAP) Pada Pasien Yang Terpasang Ventilator Meka