



- Relationship of Optimism Attitude with Academic Resilience Indeveloping Final Assignments of Nursing Science Students
- Nursing Diagnosis Frequently Enforced by Nurse to Clients with Ischemic Stroke
- The Relationship Nurses' Knowledge and Implementation of Early Warning Score (EWS) In Critical Patients at Sulianti Saroso Infectious Disease Hospital
- Nurse Experience in Providing Holistic Care to Covid-19 Patients in Indonesia: A Qualitative Research
- Perception of Anxiety Levels in Families of Patients Given Informed Consent Ventilator Installation at ICU Cileungsi Hospital
- The Relationship of Long Time Hemodialization with Anxiety Level in Chronic Kidney Failure Patients
- The Effect of Reproductive Health Education on "Bridge to Be" Knowledge in Pre-Marriage Preparation in the Working Area of Sukadami Public Health Center
- Implementation of Fetal Welfare Monitoring with CTG in Third Trimester Pregnant Women at Gatot Soebroto Hospital Jakarta
- Community Knowledge and Attitude to Conduct Covid-19 Booster Vaccination
- The Influence of Social Media on the Knowledge of Youth about People with HIV and AIDS
- The Effect of Cork Fish (*Channa Striata*) Extract on Perineum Wounds among Post-partum Clients
- Interventions to Improve Nurse Therapeutic Communications in the Context of Palliative Care: Literature Review
- The Effect of Social Support on the Parents with Disabilities Children in Experiencing Stress: Literature Review
- Music Therapy on Pain Management Among Post-Operative Patients: A Systematic Review
- Interventions among Child and Adolescent Inmates with Anxiety: A Literature Review
- Moving Cupping and Wet Cupping Based on Bibliometric Analysis and Review: The Novelty of Combination Cupping

JURNAL KEPERAWATAN KOMPREHENSIF	VOL. 8	NO. 3	Page 294 - 432	Bandung July 2022	ISSN 2354-8428 e-ISSN 2598-8727
------------------------------------	--------	-------	-------------------	-------------------------	--

## Research Article

# The Relationship Nurses' Knowledge and Implementation of Early Warning Score (EWS) In Critical Patients at Sulianti Saroso Infectious Disease Hospital

Nuning Handayani<sup>1\*</sup> | Achmad Fauzi<sup>2</sup> | Romaida Romaida<sup>3</sup> | Farida Murtiani<sup>4</sup>

<sup>1,3,4</sup>Department of RSPI Prof Dr Sulianti Saroso, Jakarta, Indonesia

<sup>2</sup>Department of STIKes Abdi Nusantara, Jakarta, Indonesia

### \*contact

kiraniashazia@gmail.com

Received : 01/02/2022

Revised : 22/07/2022

Accepted : 27/07/2022

Online : 31/07/2022

Published : 31/07/2022

### Abstract

**Aims :** To find out the relationship between nurses' knowledge of EWS and the implementation of EWS in critically ill patients.

**Design :** Quantitative research with cross sectional design

**Methodos :** The sample was taken using a total sampling technique of 109 nurses at Sulianti Saroso Infectious Disease Hospital for the period of December 2021. Data collection used questionnaires and observation. Univariate analysis using frequency distribution, bivariate analysis using chi-square analysis.

**Results :** The results showed that of the 109 nurses, most of the knowledge about EWS had good knowledge about the Early Warning Score (EWS), namely 61 respondents (56%). Most of the EWS implementations are Early Warning Score (EWS) implementations in the appropriate category, namely 69 respondents (63.3%). There is a relationship between knowledge and the implementation of EWS in critical patients P value = 0.000.

**Conclusions :** The study recommends the need for policies and standard operating procedures (SOPs) for EWS and it is necessary to carry out socialization and training on EWS SOPs to all health workers on a regular basis accompanied by regular evaluations.

### Keywords:

Knowledge, Early Warning Score (EWS), Nurse

## INTRODUCTION

Nurses have an important role in patient care management and early detection of clinical deterioration of patients by doing the basic things, namely monitoring vital signs (1). Improper interpretation of changes in physiological parameters, failure to stabilize the patient's condition and delays in moving to a higher unit are problems of patient management (2). The success of assistance to emergency patients is highly dependent on the speed and accuracy in carrying out the initial

assessment carried out by the patient. will determine the success of nursing care in the patient emergency system (3).

The Royal College of Physicians (2017) recommends EWS to be implemented in all hospitals because EWS is estimated to have saved 6,000 lives annually (5). The use of EWS in Indonesia itself has been regulated in the National Standard for Hospital Accreditation/SNARS (6).

Documentation of EWS implementation that does not reach 100% is estimated to occur because there is a decrease in nurse

compliance in documenting every patient being treated. Research in Australia states that one of the causes of the failure of EWS implementation is human resource error. This is because the implementation of EWS has not become a habit or culture for nurses in hospitals and is perceived as an additional workload (7). However, the results showed that nurses lacked the knowledge and skills to recognize the patient's health condition and that the nurse's decision making was different from the EWS procedure so that it would be bad for the patient's health (8,9).

Knowledge is the mental components that result from any process that is achieved through experience. In addition, Notoatmodjo explained that knowledge is a very important domain in shaping one's actions. The level of knowledge of nurses who are less can cause complications and complaints that endanger the patient, so that it can cause death. (10)

The level of knowledge of nurses plays an important role in improving the quality of patient health. This means that nurses must ensure that the resulting data must be properly recorded and communicated with other health workers, so that there is no information asymmetry between nurses and other health workers. The role of nurses in implementing EWS is related to observations made by nurses through monitoring the patient's vital signs, so that nurses can find out the patient's health condition and can take effective action when the patient's condition has the potential to worsen. The aim is to reduce patient length of stay and patient mortality rate, particularly with regard to death as a result of Unexpected Events (11).

Sulianti Saroso Infectious Disease Hospital (SSIDH) is one of the Ministry of Health Hospitals with a capacity of 147 beds that has been fully accredited in the 2012 SNARS version in 2019. According to the SSIDH accreditation standards, it has carried out early detection of clinical deterioration using EWS in Inpatient and Emergency

Installations since February 2019 This is done as an effort to improve health services and patient safety by early detection of clinical deterioration of patients in hospitals.

Based on the background above, it shows the importance of implementing EWS, so nurses' knowledge is very much needed in implementing EWS. Therefore, researchers are very interested in examining the relationship between nurses' knowledge of the Early Warning Score (EWS) and the implementation of EWS in critically ill patients.

## METHODS

This research is a quantitative research type with a cross sectional approach. The research was conducted at Sulianti Saroso Infectious Disease Hospital (SSIDH) in December 2021. The sample of this study was all 109 nurses in the Emergency Room and Inpatient Installation of the SSIDH. The sampling technique in this study is Total Sampling. Data was collected using a questionnaire consisting of demographic characteristics (age, gender, education and years of service). The knowledge questionnaire about EWS was taken from a previous study that had tested its validity and reliability, namely Roshy Damayanti's research entitled Effects of Early Warning Score (EWS) Tutorial Simulation on Nurses' Knowledge and Clinical Performance, consisting of 20 multiple-choice questions with four answer choices. which consists of the concept of the EWS 7 item questions and the implementation of the EWS in 3 patient cases as many as 13 question items. (12) Answers to the questionnaire will be given a value of 1 if correct and 0 if wrong, the results of correct answers will be divided by 20 and multiplied by 100%. The results of the knowledge score obtained will be presented as a percentage and divided into 2 categories, namely the poor category if the answer score is < 75% and good if the answer score is between 75%. The observation sheet on the implementation of

the EWS in the previous research, namely Liaw Sok Ying and has been translated by Roshy Damayanti with the title Effects of Early Warning Score (EWS) Tutorial Simulation on Nurses' Knowledge and Clinical Performance consists of three parts, 1) assessment of clinical deterioration; 2) clinical response and 3) clinical communication. All checklist items consist of 25 sub items with a value of 1 if it is done

and a value of 0 if it is not done. (12) All items that are filled in will be divided by 25 times 100% (the percentage of values collected will be categorized accordingly if all are filled or correct, namely 100% and not appropriate if < 100%). Data were analyzed by univariate and bivariate with chi square test. This research has passed the ethical review from KEPK SSIDH with No.42/XXXVIII.10/XI/2021.

## RESULTS

### Characteristics of Respondents

**Table 1.**  
**Frequency Distribution of Respondents' Characteristics at SSIDH in 2021 (n = 109)**

Characteristics of Respondents	Frequency	%
<b>Age</b>		
▪ Late Adolescence (17-25 Years)	3	2,8
▪ Early Adults (26-35 Years)	31	28,4
▪ Late Adults (36-45 Years)	65	59,6
▪ Early Elderly (46-55 Years)	10	9,2
<b>Gender</b>		
▪ Male	30	27,5
▪ Female	79	72,5
<b>Education</b>		
▪ D3 Nursing	68	62,4
▪ S1 Nursing	36	33,0
▪ S2 Nursing	5	4,6
<b>Years of service</b>		
▪ < 5 years	16	14,7
▪ ≥ 5 years	93	85,3
<b>Total</b>	<b>109</b>	<b>100</b>

Source: Primary Data December 2021

Based on Table 1, it is known that most of the 109 respondents are in the late adult category (36-45 years), namely 65 respondents (59.6%), most of them are female as many as 79 respondents (72.5%), most of them have D3 education. Nursing, namely 68 respondents (62.4%) and most of them with the most tenure of 5 years, namely 93 respondents (85.3%).

## Knowledge Overview

**Table 2.**  
**Frequency Distribution of Nurses' Knowledge About Early Warning Score (EWS) (n=109)**

Nurse Knowledge	Frequency	Persentase
Not enough	48	44
Good	61	56
<b>Total</b>	<b>109</b>	<b>100</b>

Source: Primary Data December 2021

Based on Table 2, it is known that from 109 respondents, most of them have good knowledge about the Early Warning Score (EWS), namely 61 respondents (56%).

### Overview of EWS Implementation

**Table 3.**  
**Distribution of Early Warning Score (EWS) Implementation Frequency (n=109)**

EWS Implementation	Frequency	Persentase
It is not in accordance with	40	36,7
In accordance	69	63,3
<b>Total</b>	<b>109</b>	<b>100</b>

Based on Table 3 it is known that from 109 respondents, most of the Early Warning Score (EWS) implementations are in the appropriate category, namely 69 respondents (63.3%).

## The Relationship of Nurses' Knowledge About Early Warning Score (EWS) With EWS Implementation

**Table 4.** Relationship of Nurse's Knowledge About Early Warning Score (EWS) with EWS Implementation in critical patients (n = 109)

Knowledge	Implementasi EWS				Total		P Value
	It is not in accordance with		In accordance		n	%	
	n	%	n	%			
Not enough	28	58,3	10	41,7	48	100	0,000
Good	12	19,7	49	80,3	61	100	
<b>Total</b>	<b>40</b>	<b>36,7</b>	<b>69</b>	<b>63,3</b>	<b>109</b>	<b>100</b>	

Source: Primary Data December 2021

The results of the cross table between knowledge and EWS implementation are known from 48 respondents with less knowledge, mostly 28 respondents (58.3%) with inappropriate EWS implementation, while from 61 respondents with good knowledge, most of them are 49 respondents (61%) with the appropriate EWS implementation. Further analysis with chi square test obtained P value 0.000 < 0.05 using alpha 5% (0.05) it can be concluded that Ho is rejected and Ha is accepted, which means that there is a relationship between knowledge and implementation of EWS in critical patients.

## DISCUSSION

### 1. Respondent Characteristics

#### a. Age

The results showed that of the 109 respondents, most of them were in the late adult category (36-45 years), namely 65 respondents (59.6%). This is in line with the research by Prihati and Wirawati (2019) which states that the age characteristics of the respondents are mostly 20-40 years old. The results of Silvana's research (2016) show that most nurses are in the early adulthood stage (20-40 years), as many as 90 people (81.8%).

Age is a general indicator of when a change will occur. Age describes the experience in a person so that there is a diversity of actions based on the age they have. The stages of young adulthood (20-40 years) are the stages where individuals are active in their careers and this stage is a productive phase for doing work (15). The young adult age stage is the stage of a person's development where at this stage independence arises, competence begins, there is a change in lifestyle and a relationship with the surrounding environment. (14) Individual age affects physical, mental condition, work ability, responsibility and tends to be absent. On the other hand, employees who are older are less physically fit, but work tenaciously and have greater responsibility (16).

The researcher argues that early adulthood is the level of productive age at work so that they can perform various nursing actions. Age affects the capture power and mindset so that the knowledge gained is getting better. The older the nurse, the more responsible and experienced they will be in accepting a job. The increasing age

will increase the wisdom of a person's ability to make decisions, think rationally, control emotions and tolerate other people's views, so that it affects his performance improvement.

#### b. Gender

The results showed that from 109 respondents, most of them were female as many as 79 respondents (72.5%). In line with the results of Prihati and Wirawati's research (2019) which states that the characteristics of nurses in RSUD K.R.M.T. Wongsonegoro Semarang are mostly women, namely 25 (64.1%).(13) Jamal's research (2020) states that the characteristics of nurses at H. Adam Malik Hospital Medan are mostly women, namely 127 (93.4%).(17)

In the world of nursing, there are more female nurses than male nurses. There are more nursing graduates from college than women than men. The world of nursing reflects the figure of a woman in providing nursing care, compassion and assistance to her patients. Women have a higher level of motivation based on Maslow's hierarchy to enter health education than men.(14)

The proportion of female sex is more in line with the reality in Indonesia where the health profession is dominated by women. This happens because usually the nursing profession is more in demand by women, considering that the nursing profession is closer to mother instinct problems, even though in the era of globalization or other reasons such as gender equality or also because of needs or maybe also because of the development of science and technology then the number of male nurses also began to be considered and taken into account.

### c. Education

The results showed that from 109 respondents, most of them had D3 Nursing education, namely 68 respondents (62.4%). The results of this study were supported by Damayanti, Trisyani and Nuraeni (2019), from 84 nurses, the most with D3 nurses education was 62 people (73.8%). (12) Supported by research by Silvana (2016), from 110 nurses in the study, nurses with D3 education Nursing as many as 72 (65.5%).(14)

Education is an organizational development method in which staff gain knowledge and skills for positive purposes and staff acquire knowledge that is essential to their performance in cognitive, psychomotor and attitude. Education is an indicator that shows an individual's ability to complete the work that is his responsibility (16).

Education can influence a person, including a person's behavior so that they tend to behave in good obedience. Lack of education will hinder the development of a person's attitude towards values or newly introduced information, on the contrary, the higher a person's level of education, the easier it is to receive information so that the more knowledge one has. (10)

When viewed from the educational qualifications of nurses, it is in accordance with the provisions according to the Nursing Law that the minimum education in the field of nursing is diploma III so that SSIDH to develop again from the cognitive, affective and psychomotor aspects of nurses, efforts have been made to provide opportunities for senior nurses with permanent employee status to continue their education to the

strata I level of nursing followed by the nursing profession.

Researchers argue that the higher a person's education, the better the skills they have, because with a high education, a person's knowledge is also getting better or the higher a person's education, the easier it is for them to receive information and the more knowledge they have.

### d. Years of service (Experience)

The results showed that of the 109 respondents, most of them had the most tenure of 5 years, namely 93 respondents (85.3%). In line with the research results of Pradnyana et al., (2021) which stated that the tenure of nurses at BIMC Kuta Hospital was the most nurses who worked more than five years as many as 35 people with a percentage of 60.3%. (20) Jamal's Research (2020) ) stated that most of the nurses working period at H. Adam Malik Hospital in Medan were > 6 years, namely 98 (72%).(17)

Working period is the period of a nurse who works in a hospital from the start of work to the time a nurse stops working. The longer a person's working period at work, the more knowledge and experience he has, this can help in improving the performance of a nurse. The more years the nurse has worked, the more experience the nurse has in providing nursing care in accordance with applicable standards or fixed procedures.(21)

Experience is a way of ownership of knowledge that is experienced by a person in an unspecified period of time. Psychologically all human thought, personality and temperament are determined by sensory experience. Thoughts and feelings are not causes of action but by causes of the past. What a person experiences will help shape and



influence the appreciation of social stimuli. The response will be one of the basis for the formation of attitudes. To be able to have responses and appreciation, one must have experience related to psychological objects. (10)

Researchers argue that work experience can affect a person's knowledge. Work experience is a source of knowledge or a way to prove the knowledge that someone already has. Experience is also something that is experienced by a person directly. A person through his experience acquires many new things. New things that are found at work can increase their knowledge in doing the work.

## 2. Knowledge of EWS

The results of the univariate analysis showed that most of the 109 respondents had good knowledge of the Early Warning Score (EWS), namely 61 respondents (56%). In line with the research of Pradnyana et al., (2021) which stated that the level of knowledge of nurses about EWS at BIMC Kuta Hospital was the most with a good level of knowledge, namely 50 people with a percentage of 86.2%. (19) Jamal's research at H. Adam Hospital Malik Medan showed that of the 136 respondents studied, the majority of nurses had good knowledge of EWS, as many as 112 people (82.4%). (17)

Knowledge is the result of human sensing, or the result of someone knowing about objects through the senses they have (eyes, nose, ears, and so on). By itself at the time of sensing so as to produce knowledge is strongly influenced by the intensity of attention and perception of the object. (10)

Knowledge is the capital needed in implementing clinical practice guidelines in the health care environment. (22) An individual's knowledge is obtained from the

experiences he has gone through during his life. A person is said to have good knowledge if he knows, understands, applies, analyzes, synthesizes and evaluates what he learns. (10)

A nurse must have curiosity to gain knowledge both about the assessment of the patient's worsening and its management. Related research knowledge about EWS has been carried out by Galen et al. (2016) that nurses who are not correct in identifying the value of the EWS score will lead to worsening of the patient. (24)

Researchers argue that knowledge is one of the things that supports a person at work and can help improve performance at work, including nurses in understanding triage. All the things that have been discussed such as age, education level, and work experience can contribute to respondents' knowledge, so that respondents have good knowledge about EWS.

## 3. EWS Implementation

The results of the univariate analysis showed that of the 109 respondents, most of the Early Warning Score (EWS) implementations were in the appropriate category, namely 69 respondents (63.3%) and 40 (36.7%) the implementation of the EWS was not appropriate. In assessing the implementation of the EWS using an observation sheet consisting of 3 parts, namely the assessment of clinical deterioration, clinical response and clinical communication.

This is in accordance with research conducted by Subhan et al. (2017) where only 72% of complete EWS data were filled in. (26) Supported by the research results of Rorimpandey et al. (2019) to get an overview of EWS implementation in Siloam Hospitals Balikpapan inpatients seen from compliance with EWS SOPs by 80%. (27) The implementation of EWS is the application of a simple algorithm based





on physiological parameters to detect a decrease in the patient's clinical condition during hospitalization. The implementation of EWS is targeted at 100% so that all patients can be detected early if there are physiological changes so that patients do not experience clinical deterioration.

The evaluation of the flow was not carried out because there was no standard operating procedure/SPO regarding the implementation of the EWS so that it was not clear on the flow or procedure for reporting on the scoring results, which currently reporting is only based on habit. The EWS implementation process refers to a joint activity where all professionals are involved according to their respective duties from time to time. The EWS implementation process requires a workflow with clear guidelines and in its implementation requires training on how to use the EWS, when and who will run the EWS. During the implementation process, the commitment of all professionals is required to maintain the use of the EWS. Prior to implementation, it is necessary to have clear communication about the objectives and how to overcome obstacles that may occur during implementation. (28)

#### 4. Relationship of EWS Knowledge with EWS Implementation

The results of the cross table between knowledge and EWS implementation are known from 48 respondents with less knowledge, mostly 28 respondents (58.3%) with inappropriate EWS implementation, while from 61 respondents with good knowledge, most of them are 49 respondents (61%) with the appropriate EWS implementation. The results of the chi square test obtained P-value 0.000 <0.05 using alpha 5% (0.05) it can be concluded that  $H_0$  is rejected and  $H_a$  is accepted, which means that there is a

relationship between knowledge and implementation of EWS in critical patients with a POR value of 5.717 (95% CI = 2.436-13.417) which means that respondents with good knowledge have a 5.7 times greater chance of conforming to EWS implementation than those with less knowledge.

This is in line with the research of Pradnyana et al., (2021) at BIMC Kuta Hospital which stated that there was a significant relationship between the level of knowledge and nurse compliance in carrying out the early warning score. The results of the study obtained a correlation coefficient value of 0.619 which means the level of a strong relationship, with a positive relationship direction which means that if the level of knowledge of nurses is high, the level of nurse compliance in carrying out the early warning score is increasingly obedient, on the contrary if the level of knowledge of nurses is less then the level of nurse compliance. in carrying out the early warning score did not comply.

Supported by the results of research by Aswiati et al., (2020) which stated that nurses' knowledge about EWS was positively and significantly related to EWS documentation in the adult inpatient ward of Dr. Hospital. Soetarto Yogyakarta (Pvalue=0.045). That is, the higher the knowledge of nurses about EWS, the higher the suitability of EWS documentation, on the contrary, the lower the knowledge of nurses about EWS, the less appropriate the EWS documentation.(29)

The implementation of EWS for nurses is related to observations made by nurses through monitoring the patient's vital signs, so that nurses can find out the patient's health condition and can take effective action when the patient's condition has the potential to worsen. The factor that affects the suitability of the EWS implementation is the level of knowledge of nurses about EWS.

The level of knowledge of nurses plays an important role in improving the quality of patient health. This means that nurses must ensure that the resulting data must be properly recorded and communicated with other health workers, so that there is no information asymmetry between nurses and other health workers. The role of nurses in implementing EWS is related to observations made by nurses through monitoring the patient's vital signs, so that nurses can find out the patient's health condition and can take effective action when the patient's condition has the potential to worsen. The aim is to reduce patient length of stay and patient mortality rate, particularly with regard to death as a result of Unexpected Events (11).

Good knowledge of EWS will improve EWS implementation. Nurses who already have good knowledge will behave and try to increase their role in EWS implementation efforts. However, there are still nurses who do not perform well in the implementation of EWS. This can happen because they do not apply the knowledge they have in implementing the EWS implementation. EWS implementation efforts are very dependent on the knowledge of nurses. If the nurse implements the EWS based on adequate knowledge, the behavior of the EWS implementation will be long lasting.

## CONCLUSION

Most of the implementing nurses have good knowledge of EWS category and implementation is appropriate. There is a relationship between knowledge and the implementation of EWS in critical patients. It is recommended to recommend the need for policies and standard operating procedures (SOPs) for EWS and the need for socialization and training on EWS SOPs to all health workers on a regular basis accompanied by regular evaluations.

## REFERENCES

1. Dalton M, Harrison J, Malin A, Leavey C. Response To Acute Deterioration. 2018;27(4).
2. Sutherasan J, Theerawit P, Suporn A, Nongnuch A PP and KC. The impact of introducing the early warning scoring system and protocol on clinical outcomes in tertiary referral university hospital. *Ther Clin Risk Manag.* 2018;2089-96.
3. Zuhri M, Nurmalia D. Pengaruh Early Warning System Against Nurse Competence: literature review. Pros of Nursing Nas Seminar "Development of Self-Management in Health Services." 2018;
4. The Royal College of Physicians. National Early Warning Score National Early Warning Score ( NEWS ) 2. 2017.
5. Gerry S, Birks J, Bonnici T, Watkinson PJ, Kirtley S, Collins GS. Early warning scores for detecting deterioration in adult hospital patients: A systematic review protocol. *BMJ Open.* 2017;7(12):1-5.
6. Tim KARS. National Standard for Hospital Accreditation Edisi 1. In 2018.
7. Bellomo R, Chan M, Guy C, Proimos H, Franceschi F, Crisman M, et al. Laboratory alerts to guide early intensive care team review in surgical patients: A feasibility, safety, and efficacy pilot randomized controlled trial. *Resuscitation.* 2018;133(August):167-72.
8. Cooper S, Kinsman L, Buykx P, McConnell-Henry T, Endacott R, Scholes J. Managing the deteriorating patient in a simulated environment: nursing students' knowledge, skill and situation awareness. *J Clin Nurs.* 2017 Aug;19(15-16):2309-18.
9. Hart PL, Spiva L, Dolly L, Lang-Coleman K, Prince-Williams N. Medical-surgical nurses' experiences as first responders during deterioration events: a qualitative study. *J Clin Nurs.* 2016 Nov;25(21-22):3241-51.

10. Notoatmodjo S. Health Promotion and Behavioral Science. In Jakarta: Jakarta : Rineka Cipta; 2015.
11. Yasmi Y, Thabrany H. Factors Related to Patient Safety Culture at Karya Bhakti Pratiwi Hospital, Bogor in 2015. 2015;4:98-109.
12. Damayanti R, Trisyani Y, Nuraeni A. Effects of Early Warning Score ( EWS ) Tutorial Simulation on Nurse s ' Knowledge and Clinical Performance. 2019;9(2):231-41.
13. Prihati DR, Wirawati MK. Nurses Knowledge About Early Warning Score in Early Assessment of Critical Patient Emergency. J Keperawatan. 2019;11:237-42.
14. Silvana S. The Relationship Between Nurse Characteristics And Knowledge Level About Early Warning Score In Irna Prof. Dr. Soelarto Rsup Fatmawati Jakarta. Universitas Indonesia; 2016.
15. Potter PA, Perry AG. Nursing fundamentals textbook: concepts, processes, and practices. Jakarta: EGC; 2014.
16. Hasibuan. Human Resource Management. Edisi Revi. Jakarta: Bumi Karya.; 2016.
17. Jamal NA. Knowledge, attitudes and skills of nurses regarding the Early Warning Score (EWS) at H. Adam Malik Hospital Medan. Universitas Sumatra Utara; 2020.
18. Silvana S, Adam M. The relationship between the characteristics of nurses and the level of knowledge about the early warning score. FIK UI. 2016;1-16.
19. Pradnyana IGBA, Susila IMDP, Hakim NR. The Relationship between Knowledge Level and Nurse Compliance in Running the Early Warning Score at BIMC Hospital Kuta. J Online Keperawatan Indones. 2021;4(1):35-42.
20. Pradnyana IGBA, I Made Dwie Pradnya Susila NRH. The Relationship between Knowledge Level and Nurse Compliance in Running the Early Warning Score at BIMC Hospital Kuta Sekolah Tinggi Ilmu Kesehatan Bina Usada Bali; 2021.
21. Nursalam. Nursing Management: Applications in Professional Nursing Practice. In Jakarta: Jakarta : Salemba Medika; 2016.
22. Jun J, Kovner CT, Stimpfel AW. Barriers and facilitators of nurses' use of clinical practice guidelines: An integrative review. Int J Nurs Stud. 2016 Aug;60:54-68.
23. Galen LS Van, Dijkstra CC, Ludikhuizen J, Kramer MHH. A Protocolised Once a Day Modified Early Warning Score ( MEWS ) Measurement Is an Appropriate Screening Tool for Major Adverse Events in a General Hospital Population. PLoS One. 2016;65:1-12.
24. van Galen LS, Dijkstra CC, Ludikhuizen J, Kramer MHH, Nanayakkara PWB. A Protocolised Once a Day Modified Early Warning Score (MEWS) Measurement Is an Appropriate Screening Tool for Major Adverse Events in a General Hospital Population. PLoS One. 2016;11(8):e0160811.
25. Subhan N, Giwangkencana GW, Prihartono MA, Tavianto D. Implementation of Early Warning Score on Cardiac Arrest Events in the Treatment Room of Dr. Hospital. Hasan Sadikin Bandung, Handled by the Code Blue Team in 2017. J Anestesi Perioper. 2017;7(1):33-41.
26. Subhan N, Giwangkencana GW, Prihartono MA, Tavianto D. Implementation of the Early Warning Score on Cardiac Arrest in the Treatment Room of Dr. Hasan Sadikin Bandung, Handled by the Code Blue Team in 2017. 2019;7(1):33-41.
27. Rorimpandey DN, Rivai F, Muis M. Analysis Of Early Warning System Score Implementation At Inpatient Room In Siloam Hospitals Balikpapan. Int J Adv Res [Internet]. 2019;7(6):777-85. Available from: <https://www.journalijar.com/article/28644/analysis-of-early-warning-system-score-implementation-at->



- inpatient-room-in-siloam-hospitals-balikpapan/
28. Bergs J, Lambrechts F, Simons P, Vlayen A, Marneffe W, Hellings J, et al. Barriers and facilitators related to the implementation of surgical safety checklists: A systematic review of the qualitative evidence. *BMJ Qual Saf.* 2015;24(12):776–86.
29. Aswiati L, Syarifah NuY, Ernawati Y. The Relationship between Nurses' Knowledge About Early Warning Score and EWS Documentation in the Adult Inpatient Room at Dr. Hospital. Soetarto Yogyakarta. *Maj Ilmu Keperawatan dan Kesehat Indones.* 2020;9(1):27–37.