Factors Affecting The Implementation of Ews (Early Warning Score)

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Abstract. Early Warning Score (EWS) focuses more on detecting emergencies before they occur, so it is hoped that with earlier management, life-threatening conditions can be handled more quickly or even avoided so that the resulting output is better. According to data for the last 3 months regarding Early Warning Score (EWS) data at RSBP Batam, especially in the Teratai room, there were 694 patients and the complete Early Warning Score (EWS) observation sheet was only 156 patients, while in the Orchid room there were 415 patients with Early observation sheets. Complete Warning Score (EWS) in only 203 patients. This study is to determine the factors that influence the implementation of the Early Warning Score (EWS) in the Lotus room and the Orchid Room of the RSBP Batam 2020. The research method used quantitative research design using correlation descriptive design with cross-sectional approach. The population in this study were all nurses in the room lotus and orchid room RSBP city of Batam in 2020 a total of 32 respondents. The analysis of this research is the univariate analysis and bivariate analysis and data processing using the chi-square test (p <0, 05). The results of the chi-square test analysis showed a p-value <0.025. This shows that there are knowledge factors, nurses‘ perceptions, skills, and external factors of system quality. Therefore, Ho refused and Ha is received so that it can be concluded that there are factors that affect the implementation of EWS Early Warning Score) at room lotus and orchid room RSBP city of Batam in 2020.

Keywords: Early Warning Score, Factors, Hospital

1 Introduction

Early Warning Score (EWS) is a system of requests for help to address patient health problems early. *The Early Warning Score* (EWS) is based on the assessment of changes in the patient‘s condition through systematic observation of all the patient‘s physiological changes. This system is a concept of a proactive approach to improve patient safety and better patient clinical outcomes by standardizing the assessment approach and establishing a simple physiological parameter scoring. (Nurmaila 2019) The early warning system establishes patient observation scores based on routine physiological measurements of vital signs. An early warning score was calculated for patients using five simple physiological parameters: mental response, pulse, systolic blood pressure, respiratory rate, temperature, and urine output (for patients with a urine catheter). Each parameter has a value over 3 and a score lower than 0 points than the total value using the early warning scoring system score, namely systolic blood

pressure, body temperature, heart rate, respiratory rate, level of awareness, blood oxygen saturation. (Daphne 2015).

Early Warning Score (EWS) has been widely implemented by several hospitals in Indonesia, especially since the Hospital Accreditation Commission in Indonesia (KARs) established EWS in the National Accreditation Standard known as SNARS Edition 1 of 2017. The explanation of EWS is listed in Patient-Focused Service Standards: Chapter 4 Patient Service and Care (PAP) 3.1 on Detecting (recognizing) Changing Patient Conditions. The EWS system allocates points in a weighted manner based on the disturbance of a predetermined set of vital signs from an arbitrarily agreed "normal" range. An *early warning scoring system* (EWSS) was introduced by Morgan, *et al.*, (1997) as a simple tool that ward staff can apply to identify patients with a critical illness. In 2012, the Royal College of Physicians conducted an evaluation and standardization of the EWSS. It became known as the *National Early Warning Score* (NEWS).

Hospitals in Indonesia that have implemented and implemented this *Early Warning Score* (EWS) are Siloam Hospitals. Siloam Hospitals Group or Siloam Hospitals received awards at the 2014 Patient Safety Awards at the fourth international congress regarding patient safety in Kolkata, India, 5 to 6 September 2014. (Dian Indriani Hidayat 2020)

Based on the results of previous research conducted by Putra et al (2019) with the title "Knowledge of Nurses in Implementing Early Warning Scoring in the Nursing Room at RSUD Dr. Soedirman Kebumen", the results of nurses' knowledge about EWS were good (35.9%), most of the education was a nurse. D3 (61.5%), attended BTCLS training (87.1%), working duration was less than 5 years (48.7%).

Early Warning Score is a standard national accreditation Hospital (SNARS), and therefore the health workers, especially nurses have to master the application of the concept of *Early Warning Score* (EWS) well. Currently, the Batam Government Agency Hospital has implemented this system but it is not optimal. According to the results of interviews from several nurses, they are aware of the importance of this EWS but because of the large number of patients and the organizational structure that is still not focused on, it makes the nurses not have time to fill out this EWS observation sheet. (RSBP Batam, 2020).

Based on the data obtained, only 1 person has just attended training on EWS (*Early Warning Score)*, namely the Head of the PIE RSBP Batam Room, but for the nurse implementing the EWS (*Early Warning Score)* this has been socialized, based on data according to education in the lotus room of professional education Nurse 3 people (0.15%), Bachelor of nursing 1 person (0.05%), and D3 education 15 people (0.75%) while in the orchid room nurse professional education 1 person (0.07%), Bachelor of nursing 1 person (0.07%), and 11 people with D3 education (0.84%), and based on the length of time working in the lotus room> 5 years as many as 18 people (0.94%), and <5 years as many as 1 person (0, 05%), while in the orchid room> 5 years there were 11 people (0.84%), and <5 years there were 2 people (0.15%).

According to the last 3 months of data regarding the *Early Warning Score* (EWS) data at RSBP Batam, especially in the Teratai room, there were 694 patients and the complete *Early Warning Score* (EWS) observation sheet was only 156 patients, while in the Orchid room there were 415 patients with the *Early* observation sheet. Complete *Warning Score* (EWS) in only 203 patients.

2 Methods

This research was conducted with a correlational quantitative design. The independent variable in this study is a factor internal: knowledge, skills, and perception of nurses, and external factors: quality system and the quality of the information in the room and the dependent variable of this research is the application of the *Early Warning Score* (EWS). This research will be conducted in January 2021. This research will be conducted in the Lotus room and Orchid room RSBP by distributing questionnaires to nurses in the lotus room and orchid room, with a population of 3 2 respondents. Univariate analysis using frequency distribution tables and bivariate analysis using the chi-square test.

3 Results and Discussion

3.1 Univariate Analysis

a. Nurse Knowledge Level About Implementation of *Early Warning Score* in Lotus Room and Orchid Room, Batam City Hospital

Table 1. Frequency Distribution of Nurses' Knowledge Level About *Early Warning Score* in the Lotus Room and Orchid Room at RSBP Batam City

Knowledge Level	Frequency (n)	Percentage (%)
Low	19	59.4
High	13	40.6
Total	**32**	**100**

According to the table 1 note that the average level of knowledge of nurses about the implementation of Early Warning Score is low that as many as 19 respondents (59,4%).

b. Perceptions of Nurses About Implementation of *Early Warning Score* in Lotus Room and Orchid Room, Batam City Hospital

Table 2. Frequency Distribution of Nurses' Perceptions About *Early Warning Score* in Lotus Room and Orchid Room, Batam City Hospital

Nurse Perceptions	Frequency (n)	Percentage (%)
Good	17	53.1
Not good	15	46.9
Total	**32**	**100**

According to the table 2 note that the average perception of nurses regarding the implementation of Early Warning Score well as many as 17 respondents (53, 1%).

c. Nursing Skills About Implementation of *Early Warning Score* in Lotus Room and Orchid Room, Batam City Hospital

Table 3 Frequency Distribution of Nurse Skills About the Implementation of *Early Warning Score* in the Lotus Room and Orchid Room of the RSBP Batam City

Nurse Skills	Frequency (n)	Percentage (%)
Good	15	46.9
Not good	17	53.1
Total	**32**	**100**

According to the table 3 note that the average skills of nurses on the implementation of Early Warning Score is not good, that as much as 17 respondents (53,1%).

d. Implementation of *Early Warning Score* in Lotus Room and Orchid Room at RSBP Kota Batam.

Table 4. Frequency Distribution of *Early Warning Score* Implementation in Lotus Room and Orchid Room, Batam City Hospital

Application of the EWS	Frequency (n)	Percentage (%)
Done	10	31.3
Are not done	22	68.8
Total	**32**	**100**

Based on table 4, it is known that the average nurse in the lotus room and orchid room did not fill in the EWS observation sheet as many as 22 respondents (68,8%).

e. External Factors of Implementation of *Early Warning Score* in Lotus Room and Orchid Room of RSBP Batam City

Table 5. Frequency Distribution of External Factors Implementation of *Early Warning Score* in Lotus Room and Orchid Room at RSBP Batam City

External Factors	Frequency (n)	Percentage (%)
1. System Quality		
Good	26	81.3
Not good	6	18.8
2. Quality of Information		
Good	30	93.8
Not good	2	6.3
Total	**32**	**100**

According to the table 5 note that the implementation of EWS in quality system runs fine in the amount of (81,3%), and quality of information (93.8%).

3.2 Bivariate Analysis

Bivariate analysis was carried out using chi-square to determine the factors of knowledge, perception, skills, system quality, and information quality on the application of the EWS. With the normality test using *Kolmogorov-Smirnov* with the results of all factors distributed normally (> 0,05) and then the chi-square test was carried out using SPSS statistical software.

a. The Nurse‘s Knowledge Factor Towards the Implementation of *Early Warning Score* in the Lotus Room and the Orchid Room of the RSBP Batam City.

Table 6. Analysis of the knowledge factor on the Implementation of the *Early Warning Score* in the Lotus Room and the Orchid Room at the RSBP Batam City

Knowledge Level	**Application of the EWS**				***P-Value***
	Done		**Are not done**		
	N	**%**	**n**	**%**	0.000
Low	0	0	20	90.9	
High	10	100	2	9,1	
Total	10	100	22	100	

According to the table 6 is known that nurses who have little knowledge and do not perform well EWS implementation of 20 respondents (90,9%). The results of the chi square test obtained a *p-value of* 0.000 (p <0,05) which means that there is a factor of knowledge of nurses on the application of EWS.

b. Nursing Skills Factors Toward Implementation of *Early Warning Score* in Lotus Room and Orchid Room RSBP Batam City

Table 7. Analysis of Nurse Skills Factors on the Implementation of *Early Warning Score* in the Lotus Room and Orchid Room at RSBP Batam City

Nurse Skills	**Application of the EWS**				***P-Value***
	Done		**Are not done**		
	N	**%**	**n**	**%**	0.003
Good	2	15.4	13	68.4	
Not good	11	84.6	6	31.6	
Total	12	100	19	100	

According to the table 7 known that nurses who have the skills are not good at doing the implementation of EWS as much as 11 respondents (84,6%). The results of the chi square test obtained a *p-value of* 0.003 (p <0,05) which means that there is a factor of nurse skills towards the application of EWS.

c. Perception Factors of Nurses Toward Implementation of *Early Warning Score* in Lotus Room and Orchid Room of RSBP Batam City

Table 8. Analysis of the Nurse‘s Perception Factors on the Implementation of *Early Warning Score* in the Lotus Room and Orchid Room of the Batam City Hospital RSBP

Nurse Perceptions	**Application of the EWS**				***P-Value***
	Done		**Are not done**		
	N	**%**	**n**	**%**	
Good	8	80.0	6	27.3	0.005
Not good	2	20.0	16	72.7	
Total	10	100	22	100	

According to the table 8 known that nurses have a good perception of dani did the application of EWS as many as 16 respondents (72.7%). The results of the chi square test obtained a *p-value of* 0.005 (p <0.05), which means that there is a factor of the nurse's perception of the application of EWS.

d. External Factors of System Quality on the Implementation of *Early Warning Score* in the Lotus Room and Orchid Room of the RSBP Batam City

Table 9. Analysis of External Factors of System Quality in the Implementation of *Early Warning Score* in the Lotus Room and Orchid Room of the RSBP Batam City

System Quality	**Application of the EWS**				***P-Value***
	Done		**Are not done**		
	n	**%**	**n**	**%**	
Good	13	100	13	68.4	0.025
Not good	0	100	6	31.6	
Total	13	100	22	100	

Based on table 9 it is known that external factors went well in helping to implement the EWS by 100%. The results of the chi square test obtained a *p-value of* 0.025 (p < 0.05), which means that there are external factors (system quality) in the application of the EWS.

e. External Factors of Information Quality on the Implementation of *Early Warning Score* in the Lotus Room and Orchid Room of the RSBP Batam City

Table 10. Analysis of External Factors Quality of Information in Implementation of *Early Warning Score* in Lotus Room and Orchid Room of RSBP Batam City

Quality of Information	**Application of the EWS**				***P-Value***
	Done		**Are not done**		
	n	**%**	**n**	**%**	
Good	12	92.3	18	94.7	0780
Not good	1	7,7	1	5.3	
Total	13	100	19	100	

According to the table 10 mind that external factors (quality information) is good but not done well in assisting the implementation of EWS by 94, 7%. The results of the chi square test obtained a *p-value of* 0.780 (p < 0.05) which means that there are no external factors (quality of information) in the application of the EWS.

4 Discussion

4.1 Description of Nurse's Knowledge Level Towards Implementation of *Early Warning Score* in Lotus Room and Orchid Room of RSBP Batam City

The results of the research note that the average level of knowledge of nurses about the implementation of Early Warning Score is low that as many as 19 respondents (59, 4%). The results of this study are not in line with the research conducted by (Zega, 2019) regarding the Description of Nurses 'Knowledge about the Nursing Early Warning Scoring

System in the RIC Inpatient Room at the General Hospital of the Adam Malik Center in Medan, the results of research on the majority of nurses‘ knowledge are good as many as 24 people (96, 0%) and a minority of less than 1 person (4.0%), all respondents *comprehension* knowledge is in the good category with 25 people (100%) and there are not enough and insufficient categories. Of the 20 questions contained in the questionnaire on the level of nurses‘ knowledge about EWS in the lotus room and the orchid room of RSBP Batam, there were questions with the dominant answer value that the nurse filled was “no”, namely the statement “ I use EWSS in assessing the condition of emergency patients “, “I give a yellow label to a patient with an EWSS score of 3”, “I give a red label to a patient who has respiratory and cardiac arrest “, “Patients with RR 18-20x / i, HR 101-110x / i and response confusion. will be labeled yellow, SpO2 <93 “. Nurses‘ knowledge about EWS in this study is still at a low level. Q: What Knowledge of nurses greatly affects nurses in identifying score EWS. A study conducted by the theory of Galen et al. (2016) that when nurses misidentify the EWS score, it will cause the patient‘s condition to worsen. The EWS assessment aims to detect patient health problems (Saaab et al., 2017). The application of the EWS is also important for patients on the ward, but in reality, there are still many nurses who have not implemented it so that it has an impact on EWS documentation. A study conducted by Kyriacos et al. (2009) identified that one of the factors associated with patient mortality on the seventh day after surgery in six wards (55 postoperative patients) was due to one of the nurses documenting EWS. Researchers in this study assumes that most of the nurses‘ knowledge about EWS is still low. This condition is most likely caused by the lack of training received by nurses on how to implement and identify EWS scoring in the lotus room and orchid room of RSBP Batam City. Therefore, training is needed to increase the knowledge level of nurses so that nurses in the lotus room and the orchid room of RSBP Batam City can fill in the EWS observation sheet appropriately and can prevent worsening of the patient‘s condition.

This research is supported by Sartika‘s (2017) theoretical research regarding the level of knowledge of nurses regarding the application of EWS, that knowledge is the result of “knowing” and this occurs after a person senses a certain object. Knowledge is closely related to education, that with high education the person will have a wider pattern of knowledge. Reinforced by Christin‘s research (2015), it explains that the knowledge of nurses is also an important factor in shaping the readiness of nurses to face unexpected conditions, such as sudden cardiopulmonary arrest and requiring quick resuscitation.

4.2 Overview of Nurses‘ Perceptions of the Implementation of Early Warning Score in the Lotus Room and Orchid Room of the Batam City Hospital Hospital

The results of this study show that the average nurse‘s perception of the implementation of the Early Warning Score is good, namely 17 respondents (53, 1%). Based on the results of hypothesis testing using Chi-Square, a significant *p-value was* obtained *of* 0.005 (p <0.05), which means that there is a factor of nurses‘ perceptions of the implementation of EWS in the Lotus room and the RSBP Orchid room in 2020. The results of this study are in line with the research conducted by Athika Diah (2020) regarding nurses‘ perceptions of the implementation of the Early Warning Score (EWS) in Banyumas Hospital, 41.7% of the results of treatment had a good perception and at the stage of assessing the perception of nurses at a good level (67.6%). This research is supported by Gibson‘s (2016) theory saying that perception is a process in which a person; selecting, receiving, organizing, and interpreting information from the environment. Perception involves cognitive and emotional sense will object perceived and refers to the

sensory receptors respond to the stimulus. This statement is supported by Bennet's theory (Luanaigh, 2018) that perception is a cognitive process experienced by each person in understanding information about their environment through the senses, and each person can give a different meaning. This can be influenced by: (1) the level of knowledge and education of a person, (2) factors on the perceptions and/or the perpetrators of the perception, (3) the perceived object or target factor, and (4) the factors of the situation in which the perception is carried out. On the part of the perpetrator, perceptions are influenced by personal characteristics such as attitudes, motivations, interests or interests, experiences, and expectations. The nurse's perception is the nurse's views, feelings, interpretations, and understanding of what happens to the client. The assumption of researchers in this study, the perception of nurses in the implementation of EWS RSBP hospital in the city of Batam should be preceded by a training program created through discussions with nurses, doctors, and medical directors of the hospital. The program includes lectures and applications learned through direct clinical guidance from nurses, as well as training of doctors on the application of the EWS as a detecting tool for patient deterioration.

4.3 Nursing Skills About Implementation of *Early Warning Score* in Lotus Room and Orchid Room, Batam City Hospital

The results of this study note that nurses who have poor skills in implementing EWS are 11 respondents (84, 6%). The results of the chi-square test obtained a *p-value of* 0.003 ($p < 0,05$) which means that there is a factor of nurse skills towards the application of EWS. The results showed that most respondents were not skilled in filling out the Early Warning Score (EWS) sheet. These skills include temperature, pulse, respiration, oxygen saturation, blood pressure, and level of patient awareness. The skills of nurses in filling out the EWS sheet were found to record vital signs on the EWS sheet. This shows that the problem in terms of EWS filling skills is a process that is maintained by nurses to follow up changes in vital signs that occur in patients.

The results of this study are not in line with research conducted by (Jamal, Nurul Aini 2019) on Knowledge, Attitudes and Skills Nurses on *the Early Warning Score* (EWS) in Dr. H. Adam Malik skills of nurses on *Early Warning Score* (EWS) shows that of Of the 136 respondents studied, all nurses had good skills in detecting early deterioration of patients using the *Early Warning Score* (EWS), namely 136 people (100%). This is because the majority of respondents have good knowledge and attitudes.

This research is supported by Abidin's (2011) theory. Skills are the skills a person has in doing a job based on education, high expertise, and responsibility for the job. The skills or actions suggested by Notoadmodjo (2012) are movements or actions of the body after stimulation or adaptation from within or from outside the body of an environment. The response to the stimulus is obvious in the form of an action or practice that can be easily observed by others.

The researchers in this study assumed that the skills to fill out the EWS sheet were made by making decisions by nurses in activating the Code Blue team. This is in line with research conducted by Massey, Chaboyer & Aitken, (2014) which states that skills in early detection of changes in patient conditions affect nurses' decisions in working with the Code Blue team fan at RSBP Batam. Skills and competencies are created through the capacity of the nurse to integrate the knowledge of abilities and experience in decision making. Nursing skills and decision-making are always followed by experience or years of service in the hospital.

4.4 Description of External Factors of System Quality Against Implementation of *Early Warning Score* in Lotus Room and Orchid Room RSBP Batam City

The results of this study show that external factors (system quality) work well in helping the implementation of EWS by 100%. Based on the results of hypothesis testing using Chi-Square, a significant *p-value of* 0.025 ($p < 0.05$) was obtained, which means that there is a system quality factor in the application of EWS in the Lotus room and the RSBP Orchid room in 2020.

This study is in line with Andika's research (2014) which states that system quality has a positive and meaningful relationship to system use so that system quality improvement and user training can increase system use. Research Soraya said that the better the quality of the system will be the higher the level of use of the system. Improving the quality of the system is a priority if you want to increase the intensity of system use. Past research Soraya (2014) found results that are in line that a quality system influences the use of the system. Soraya said that the hospital as an information system provider is expected to continue to improve the quality of the system to increase the use of the information system in the hospital.

This research is supported by the theory of Perwira (2017) regarding factor analysis related to the use of the Early Warning System inpatient clinical changes. Based on the results of observations, EWS work on patient clinical changes takes a long time, causing user perceptions about the quality of the system to be less good. In addition, the form and flow of the EWS in the clinical changes of the patient are felt to be too complex, difficult to study, and difficult to implement in the patient care process. The EWS form is not evenly distributed across all rooms. The old patient care habits in which PPA including DPJP monitor the clinical progress of the patient with a vital sign temperature chart form causes resistance to EWS in the patient's clinical changes.

This research is also strengthened by Andika's (2015) theory. System quality describes system performance and system views for users. A good quality system is easily accessible, easy to use and learn, efficient, and has complete features as needed.

The researchers in this study assumed that the quality of the EWS system on patient clinical changes was significantly related to the use of EWS in the lotus room and orchid room of the RSBP Batam city so that efforts to improve the quality of the system were needed so that it could be used more quickly and easily, and further training in system use was needed. for all care professionals, especially the nurse in charge.

4.5 Description of External Factors Quality of Information Against Implementation of *Early Warning Score* in Lotus Room and Orchid Room RSBP Batam City

The results of this research note that external factors (quality information) are good but not done well in assisting the implementation of EWS by 94, 7%. Based on the results of hypothesis testing using Chi-Square, a significant *p-value was* obtained of 0.780 ($p < 0.05$), which means that there is no information quality factor in the application of EWS in the Lotus room and the RSBP Orchid room in 2020. This is in line with the research. Perwira and Erlirianto (2016) where the quality of information does not have a significant effect on interest in using the system, but the use of the system is mediated by user satisfaction factors on system use. Searching for quality information is not the main motivation for users to use a system. Motivation tends to be influenced by other factors such as the speed and ease of the system.

This research is supported by Anjaryani's (2009) theory. The quality of information reflects the quality of the output of the information system, namely regarding the usefulness and reliability of data. The aspects of relevance and completeness of information are fundamental issues related to perceptions of the quality of information. Good quality information is important to avoid errors in the use of the system.

The assumption of researchers in this study, the quality of information does not have a significant effect on interest in using the system, but the use of the system is mediated by user satisfaction factors on system use. Searching for quality information is not the main motivation for users to use a system. Motivation tends to be influenced by other factors such as the speed and ease of the system.

5 Conclusion

It can be seen that the average level of knowledge of nurses about the application of the Early Warning Score is still low, namely, 19 respondents (59.4%), the perception of nurses about the implementation of the Early Warning Score is good, namely, 17 respondents (53.1%), the skills of nurses on application The Early Warning Score was not good, namely, 17 respondents (53.1%), and the implementation of EWS in the quality of the system was running well (81.3%), and the quality of information (93.8%). The analysis of this research is the univariate analysis and bivariate analysis and data processing using the chi-square test ($p < 0.05$). The results of the chi-square test analysis showed a value of $p < 0.025$. This shows that there are factors of knowledge, perceptions of nurses, skills, and external factors of system quality. Thus, Ho is rejected and Ha is accepted, so it can be concluded that there are factors that influence the implementation of the EWS Early Warning Score in the lotus room and orchid room RSBP Batam City in 2020.

References

[1] Agina, Son. 2019. " *NURSE'S KNOWLEDGE IN APPLYING THE EARLY WARNING SCORE SYSTEM (EWSS).* " *Nursing Health Scientific Journal* 15 (2): 64–73.

[2] Andika, B and Muhimmah, I. Evaluation of Success Factors in the Implementation of Hospital Management Information Systems at PKU Muhammadiyah Sruweng Using the Hot-Fit Method. 2013, National Seminar on Medical Information, Vol. 4.

[3] Athika Diah (2020) regarding nurses' perceptions of the implementation of the Early Warning Score (EWS) at Banyumas Hospital

[4] As'ad, Industry Psychology. Yogyakarta: Liberty

[5] Buist. 2015. " Monitoring Vital Signs Using the Early Warning Scoring System."

[6] Damanik, E 2016 The influence of gender, learning motivation, and career guidance on student goals. Journal of Sanata Dharma University

[7] Daphne. 2015. " National Early Warning Score." National clinical guideline No. 1, Ireland (ISSN 2009-6259).

[8] DeLone, WH and McLean, ER The DeLone and McLean Model of Information Systems Success: A Ten Year Update. sl: Journal of Management Information Systems, vol. 19, pp. 9-30, 2003.

[9] MOH RI (2009). Health Profile in 2008. Jakarta: Kemenkes RI

[10] Dharma. 2015a. Nursing Research Methods.

[11] Dharma, Kelana Kusuma. 2015b. "NURSING RESEARCH METHODOLOGY. ": 389.

[12] Dhiah, Atika. 2020. " Nurses ' Perceptions of the Implementation of Early Warning Score (EWS) at Banyumas Regional Hospital." Journal of Nursing and Midwifery 11 (1): 120–25.

[13] Dian Indriani Hidayat. 2020. "HIGEIA JOURNAL OF PUBLIC HEALTH Early Warning System on Patient's Clinical Changes to Service Quality" Early Warning System 4 (3): 506–19.

[14] Dian et al (2017) on the analysis of factors associated with the use of the Early Warning System on clinical changes in patients at hospital X.
[15] Erlirianto, LM, Ali, AHN and Herdiyanti, A. The Implementation of the Human, Organization, and Technology-Fit (HOT-Fit) Framework to evaluate the Electronic Medical Record (EMR) System in a Hospital. Procedia Computer Science 72, pp. 580 - 587, 2015, Procedia Computer Science, Vol. 72, pp. 580-587
[16] Firmansyah. 2016. " NEWSS: Nursing Early Warning Scoring System" TMRC RSCM.
[17] Jones. "National Early Warning Score (NEWS): Standardizing the Assessment of Acuteillness Severity in the NHS." 2017.
[18] Jordan. 2011. "Monitoring Vital Signs: Development of a Modified Early Warning Scoring (Mews)."
[19] Kaplan, B. Evaluating Informatics Applications - Some Alternative Approaches: Theory, Social Interactionism, And Call for Methodological Pluralism. sl: International Journal of Medical Informatics 64 (1), 2001.
[20] Kodarisman, R. Evaluation of the Use of Personnel Management Information Systems (Simpeg). 2012, Yogyakarta J Nas Tek Elekto and Technol Inf UGM, Vol. 2.
[21] Lestari. 2015. Collection of Theory for Health Research Literature Review. Yogyakarta: Nuha Medika.
[22] Morgen. 2017. " Initial National Warning Score (NEWS) Standardization of Acute Assessment Sever Severity Disease in the NHS. (978-1-86016472–9).
[23] Noe. 2016. "Fundamentals Of. Human Resource Management. "
[24] Notoatmodjo. 2015. Health Behavioral Science. Jakarta: Rineka Cipta.
[25] Nurmaila. 2019. "National Early Warning Score, National clinical Guideline No. 1. "(ISSN 2009-6259).
[26] Perry. 2010. "Fundamental of Nursing: Fundamental."
[27] Officer, Citra. HR Information System Information at BPK RI. 2016, JNTETI, Vol. 5.
[28] Putra et al 2019, Nurse's knowledge about the application of EWS in the treatment room
[29] Report, NHS. 2012. Initial National Warning Score (NEWS) Standardization of Acute Assessment of Severity Diseases in the NHS. London.
[30] Robbins, (2013). Organizational behavior: concepts, controversies, and applications (8 th Edition). Engelwood Cliifs: Prentice-Hall.
[31] Sari, Indriana and Sundarsi, Sri. Evaluation of the Implementation of Hypertension Crisis Clinical Pathway in the Inpatient Installation of PKU Muhamadiyah Hospital, Bantul. Yogyakarta: Proceeding Health Architecture, 2017. Vol. 1.
[32] Siloam Hospitals Group or Siloam Hospital Patient Safety Awards. Siloam Hospital Early Warning Score (EWS).
[33] Sugiyono. 2016. Quantitative Research Methods, Qualitative and R & D. Bandung: Alphabet.
[34] Waterson, P.Patient Safety Culture: Theory, Method and Application. sl: CRC Press, 2018.
[35] Welda 2012, Relationship of nurse characteristics, job content, and work environment with job satisfaction of nurses in the Inpatient Installation of MH Tamrin Salemba Hospital.
[36] Yulia. 2016. " Improved Understanding of Implementing Nurses in the Application of Patient Safety through Patient Safety *Training*." *Indonesian Nursing Journal* (15 (3), 185–192)