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### FACTORS RELATED TO THE ACCURACY OF THE IMPLEMENTATION OF THE MODERN TRIAGE *CANADIAN TRIAGE ACQUITY SYSTEM* (CTAS)

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#### **ABSTRACT**

*Some patients who visit the Emergency Department (IGD) are not in an emergency condition, one way to sort it out is by triage. There are still many hospitals that are not appropriate in implementing triage, increasing the risk of death and disability of emergency patients. The purpose of this study was to determine the factors related to the accuracy of the implementation of modern triage CTAS. This research was conducted at the IGD of Bengkalis Regional Hospital. The total population is 20 emergency room nurses, with sampling using the total sampling technique. The analysis used is frequency distribution and chi square statistical test. The results of this study concluded that: Ada significant relationship between the level of knowledge of nurses and the accuracy of the implementation of the Modern Triage of the CTAS system (p value 0.002); Ada significant relationship between nurse skills and the accuracy of the implementation of the Modern Triage of the CTAS system (p value 0.011); Ada significant relationship between the perception of nurse workload and the accuracy of the implementation of the Modern Triage of the CTAS system (p value 0.000); Ada significant relationship between the length of work of the nurse and the accuracy of the implementation of the Modern Triage of the CTAS system (p value 0.003); A significant relationship between nurse training and the accuracy of the implementation of the Modern Triage CTAS system (p value 0.033). This study recommends improving the competence of all emergency room nurses, particularly through BTCLS training and modern triage of the CTAS system.*

*Keywords: Factors, Accuracy, Triage, CTAS*

#### **INTRODUCTION**

Emergency Installation (IGD) is a service unit established by the hospital to provide emergency services (Khairina et al., 2018). The management of emergency patients in the emergency room of the hospital has a philosophy of *Time Saving it's Live Saving* which means that time is life or all actions taken during an emergency must be really effective and efficient, considering that patients can lose their lives in just a matter of minutes, stopping breathing for 2-3 minutes in humans can cause fatal death (Sutawijaya, 2009).

The phenomenon that occurs in some hospital emergency rooms turns out that not all cases of patients who come are cases with life-threatening emergency conditions, but there are some cases that include patients with *the category of false emergency*. One way for *false emergency* patients is to carry out triage in the emergency room (Ainiyah et al., 2018). Nurses are health workers who have the main role and responsibility in triage in the emergency room (Andersson

et al., 2006). The phenomenon that occurs in the emergency room, namely the application of triage, has not been carried out optimally, so there are still many patients who do not get fast and appropriate treatment according to their conditions (Rumampuk & Katuuk, 2019).

Triage is a complex decision-making process in order to determine which patients are at risk of dying, at risk of disability, or at risk of worsening their clinical condition if they do not get immediate medical attention, and which patients can safely wait (Habib et al., 2016). Triage is a way of sorting patients based on their therapeutic needs and available resources. Therapy is based on the state of ABC (*Airway with cervical spine control, Breathing and Circulation with bleeding control*). Triage applies to the sorting of patients, both in the field and in hospitals (Musliha, 2010).

The currently growing and widely researched hospital triage schemes for reliability, validity and effectiveness are Australian Triage System (ATS), Canadian Triage *Acquit System* (CTAS), United States Triage *Index* (ESI) and British Triage and most of Europe (*Manchester Triage Scale*). Modern triage is divided into five groups or called categories/levels (Habib et al., 2016). CTAS (*Canadian Triage and Acuity Scale*) is recognized as a reliable triage system in rapid patient assessment. Its reliability and validity have been demonstrated in triage in pediatric patients and adult patients (Lee et al., 2011). CTAS has an ideal time when the patient should be treated, where the ideal time is influenced by the severity of the patient (Puspitasari & Masruroh, 2015).

CTAS is used to establish the patient's emergency scale/level of acuity supplemented by a summary of complaints and specific clinical signs to help officers identify the patient's syndrome and determine the triage level. The CTAS method also requires repetition of triage (*re-triage*) within a certain period of time or if there is a change in the patient's condition when under observation. He said that like the ATS system, CTAS also makes a time limit on how long patients can wait for initial medical treatment, so one of the indicators of the success of this CTAS system lies in the *response time*. CTAS is a scale of 5 levels (levels) with the highest severity I (resuscitation) with a response time of 0 minutes, and the lowest severity V (not immediately) with a response time of at least 120 minutes (Habib et al., 2016).

The implementation of triage greatly affects the *response time*, if triage is not done properly, it will slow down the *response time* that will be received by the patient so that it will increase the

risk of organ damage or disability, and even to the death of the patient (Rumampuk & Katuuk, 2019) . A decrease in triage scale assessment or inaccuracy of triage will extend the treatment time that should be received by the patient according to his clinical condition and will then risk lowering the patient safety rate and the quality of health services (Khairina et al., 2018). *Response Time* is the speed in handling patients, calculated from the time the patient arrives until treatment is carried out with a measure of success is response time for 5 minutes and a *definitive time* of 2 hours (Suhartati, 2011).

Research (Maatilu et al., 2014) , *response time* in handling emergency patients at the IGD RSUP Prof. Dr. R.D. Kandoi Manado (Accreditation A) was obtained on average slow (>5 minutes). The nurse's response time in the management of emergency patients that extends can reduce patient rescue efforts and worsen the patient's condition. If the response time is slow, it will affect the patient's condition such as damage to internal organs or complications, disability and even death.

Research (Gustia, Mila., Manurung, 2018) on the relationship between the accuracy of triage assessment and the success rate of handling head injury patients at the IGD RSU HKBP Balige, Toba Samosir Regency, which is a type C hospital in North Sumatra, obtained the results of the success of the triage assessment of 14 people (82.36%) and found a relationship between the accuracy of triage assessment and the success rate of handling head injury patients. The research (Rumampuk & Katuuk, 2019) with the results that the response time at the IGD of GMIM Pancaran Kasih Manado Hospital and IGD of GMIM Bethesda Tomohon Hospital (Type C), obtained *response time* included in the slow category. Crosstab research results *for* respondents who triaged improperly had a slow response time of 14 people (38.9%) and with none of them had a *fast response time* (0%) .

Based on the results of some of the studies mentioned above, it can be concluded that there are still many hospitals that are not appropriate in implementing the triage system, causing late *response time* for handling emergency patients in the emergency room. According to (Andersson et al., 2006), factors influencing triage *decision making* are divided into two factors, namely internal factors and external factors. Internal factors reflect the skills of the nurse and personal capacity. External factors reflect the work environment, including high workload, shift settings, the patient's clinical condition, and the patient's clinical history. The work environment is divided into two, namely the physical and non-physical environments.

According to (Ainiyah et al., 2018) states that the physical environment includes the availability of resources or facilities and infrastructure, while the non-physical environment includes relationships with superiors, fellow colleagues and subordinates.

Research (Nurhanifah, 2015) states that the motivations that affect nurses, especially the implementation of triage in emergency installations, include education, workload, length of service, age, gender, and training. The study (Khairina et al., 2018) found that the level of knowledge factor is the dominant factor related to nurses' decision-making on the accuracy of filling the triage scale. Long work has a positive relationship with the accuracy of triage scale filling. Research (Evie et al., 2016) in the emergency room of a type C hospital in Malang found that the implementation of triage by implementing nurses in the emergency room of a type C hospital in Malang was not carried out properly, there was no significant relationship between the ratio of the number of nurses and patients to the implementation of triage, and there was a significant relationship between training factors and the implementation of triage..

Based on the Decree of the Director of Bengkalis Hospital Number: 83 / KPTS / I / 2017, that the IGD of Bengkalis Hospital has implemented one of the modern triage systems, namely CTAS. Although CTAS is a five-level triage system (category), the labeling of the results of the triage process at the IGD of Bengkalis Hospital gives the same label, especially for level I and II patients, namely the red label or *red zone*. The same labeling of level I and II patients, because patients at both levels are patients who are both in the first priority category in service actions. In addition, the emergency room also added a zone specifically for patients who experience respiratory problems (shortness of breath), namely the *Asthma Zone*.

Based on the results of the pre-survey, information was obtained that before the CTAS system was implemented, the IGD of Bengkalis Hospital implemented a conventional triage system, namely trauma and non-trauma. In conventional triage, there is no patient sorting (triage) based on the patient's emergency level, patient sorting is only based on trauma and non-trauma, and there is no resuscitation room available. Patients who come are handled by nurses together without any individual responsibility and the doctor who handles only one person for all emergency room patients. This condition causes a long queue of patients in the emergency room, with a slow response time and a fairly high mortality rate in the emergency room, so that the work system in carrying out actions is considered less efficient.

Based on the results of the pre-survey, information was obtained that the change of the conventional triage system to the modern triage of CTAS has been accompanied by changes in resources, so that existing resources can support the optimal implementation of the triage of the CTAS system. These resource changes include the construction of physical facilities and the provision of medical equipment according to the standards of the Ministry of Health Number 856 of 2009, the addition of nurses and the improvement of nurse skills through triage training. Since the implementation of the CTAS system at the emergency room at Bengkalis Hospital, long queues of patients have rarely occurred, the response time for emergency patient services has improved, and the risk of death in the emergency room has decreased quite significantly.

Based on Medical Record data from Bengkalis Hospital, the number of patients who visited the emergency room in 2017 was 10,440 people with a patient mortality rate of 63 people (0.60%) and patient visits in 2018 of 12,682 people with a mortality rate of 55 people (0.43%), thus there has been a decrease in patient mortality in the emergency room by 0.17%. In addition, the work system of nurses and emergency room doctors since the implementation of the CTAS system has begun to be directed according to the zones that are their respective responsibilities. In the concept of modern triage, CTAS is very relevant to be applied to improve health services at the IGD of Bengkalis Hospital, but its implementation is considered still not optimal. The determination of the patient's emergency level in some cases has not been appropriate, causing a death of patients in the emergency room. The mortality rate in 2018 of 0.43% is still considered quite high, ideally the death cases in the emergency room will no longer occur or the maximum is close to 0%. The response time in the implementation of triage of the CTAS system is also better than conventional triage, but it is still considered slow, especially when patient visits in the emergency room are crowded and increase the length of treatment time in the emergency room (*length of stay*). There are many differences of opinion between medical personnel at the IGD of Bengkalis Hospital when the triage process takes place due to different understandings and knowledge of CTAS, thus affecting the accuracy of triage, because some medical personnel still adhere to conventional triage understanding.

The better response time and the risk of death in the emergency room which has decreased significantly, should be able to improve the condition if the triage of the CTAS system can be applied optimally. Many factors are suspected to cause the application of CTAS in the IGD of Bengkalis Regional Hospital to be not optimal, including the difference in the level of understanding and knowledge of IGD medical personnel about CTAS and that there are no

emergency room nurses who have participated in triage training, especially CTAS. The triage science of the CTAS system was obtained by emergency room nurses only from socialization provided by the head of the IGD room and doctors who had participated in a comparative study program at Ishak Tulung Agung Hospital, East Java. The presence of nurses who have just entered the emergency room or nurses with a service period in the emergency room of less than 3 years, should also be suspected to affect the optimal application of triage. Nurses who have just entered the emergency room will need time to adapt and learn triage to become skilled nurses. Since the implementation of the CTAS triage system, most emergency room nurses feel that the workload is getting higher and also feel that the knowledge that has been studied is less relevant to the triage of the CTAS system, so it requires *updates* through CTAS trainings.

## RESEARCH METHODS

This type of research is quantitative, with the research design used is *cross sectional*. This research was conducted at the Emergency Installation (IGD) of the Bengkalis Regional General Hospital (RSUD). The population in this study was implementing nurses, which was 20 nurses. The entire population in this study was taken as a sample, which was 20 nurses. Data collection tools using questionnaires and observation sheets. The analysis used is frequency distribution and *chi square* statistical test to analyze the relationship between bound variables and free variables.

## RESEARCH RESULTS

This study aims to determine the relationship between free variables (triage factors) and bound variables (modern triage accuracy of the CTAS system) using the *Chi-Square* test. The results of the analysis in this study can be seen in the following table:

Table 1. The Relationship of Nurse Knowledge Level with the Accuracy of the Implementation of CTAS Modern Triage

Knowledge Level Variables	CTAS Triage Accuracy				Total		<i>p Value</i>
	True		Not Precise		N	%	
	n	%	n	%			
Good	4	100,00	0	0,00	4	100,00	0,002
Enough	6	66,67	3	33,33	9	100,00	
Less	0	0,00	7	100,00	7	100,00	
Total	10	50,00	10	50,00	20	100,00	

The results of the statistical test above can be seen that based on statistical uji using *Chi-Square* obtained a p value of 0.002 ( $p\text{ value } 0.002 < 0.05$ ). The results of these statistical tests can be concluded that there is a significant relationship between the level of knowledge of nurses and the accuracy of the implementation of modern triage of the CTAS system.

Table 2. The Relationship of Nurse Skills to the Accuracy of the Implementation of CTAS Modern Triage

Skill Variables	CTAS Triage Accuracy				Total	p Value	OR
	True		Not Precise				
	N	%	n	%	N	%	
Skilled	6	100,00	0	0,00	6	100,00	0,011 0,286
Unskilled	4	28,57	10	71,43	14	100,00	
Total	10	50,00	10	50,00	20	100,00	

The results of the statistical test above can be seen that based on the statistical uji using *Fisher's Exact Test*, a p value of 0.011 ( $p\text{ value } 0.011 < 0.05$ ) was obtained), with an OR value of 0.286. The results of these statistical tests can be concluded that there is a significant relationship between the skills of nurses and the accuracy of the implementation of modern triage of the CTAS system.

Table 3. The Relationship of Nurse Workload Perception with the Accuracy of CTAS Modern Triage Implementation

Workload Perception Variables	CTAS Triage Accuracy				Total	p Value	OR
	True		Not Precise				
	N	%	N	%	N	%	
Positive	9	100,00	0	0,00	9	100,00	0,000 11,00
Negative	1	9,09	10	90,91	11	100,00	
Total	10	50,00	10	50,00	20	100,00	

The results of the statistical test above can be seen that based on statistical uji using *Fisher's Exact Test*, a p value of 0.000 ( $p\text{ value } 0.000 < 0.05$ ) was obtained, with an OR value of 11.00. The results of these statistical tests can be concluded that there is a significant relationship between the perception of nurse workload and the accuracy of the implementation of modern triage of the CTAS system.

Table 4. The Relationship between the Length of Work of Nurses in the Emergency Room with the Accuracy of the Implementation of Modern Triage CTAS

Variable Length of Working	CTAS Triage Accuracy				Total	<i>p Value</i>	OR
	True		Not Precise				
	n	%	N	%	N	%	
< 3 Years	0	0,00	7	100,00	7	100,00	
3-6 Years	0	0,00	0	0,00	0	0,00	0,003
> 6 Years	10	76,92	3	23,08	13	100,00	4,333
Total	10	50,00	10	50,00	20	100,00	

The results of the statistical test above can be seen that based on statistical uji using *Fisher's Exact Test*, a *p* value of 0.003 (*p* value  $0.003 < 0.05$ ) was obtained), with an OR value of 4.333. The results of the statistical test can be concluded that there is a significant relationship between the length of work (service period) of nurses in the emergency room and the accuracy of the implementation of modern triage of the CTAS system.

Table 5. The Relationship of Nurse Training to the Accuracy of the Implementation of Modern Triage CTAS

Variable Training	CTAS Triage Accuracy				Total	<i>p Value</i>	OR
	True		Not Precise				
	N	%	N	%	N	%	
Ever	10	66,67	5	33,33	15	100,00	
Never	0	0,00	5	100,00	5	100,00	0,033
Total	10	50,00	10	50,00	20	100,00	3,000

The results of the statistical test above can be seen that based on the statistical uji using *Fisher's Exact Test*, a *p* value of 0.033 (*p* value  $0.033 < 0.05$ ) was obtained, with an OR value of 3,000. The results of these statistical tests can be concluded that there is a significant relationship between the training of nurses and the accuracy of the implementation of modern triage of the CTAS system.

## DISCUSSION

### The Relationship of Nurse Knowledge Level with the Accuracy of the Implementation of CTAS Modern Triage

Based on the results of the study, it was obtained that the frequency distribution of the level of knowledge of nurses (respondents) to the accuracy of the implementation of modern triage CTAS is the majority of knowledgeable, namely 9 respondents (45%), respondents who are less knowledgeable as many as 7 people (35%) and only 4 people (20%) who are well knowledgeable. The results of statistical tests using *chi-square* obtained a *p* value of 0.002 (*p* value  $0.002 < 0.05$ ), it can be concluded that there is a significant relationship between the level of



knowledge of nurses and the accuracy of the implementation of the modern triage of the CTAS system at the IGD RSUD Bengkalis .

The results of the aforementioned study are in line with the results of research by Khairina, Malini and Huriani (2018) at the IGD of Padang City hospital that the level of knowledge factor is the dominant factor related to nurses' decision making on the accuracy of filling the triage scale. Research (Yanty, 2014), also confirms that there is a meaningful relationship between the level of knowledge of IGD health workers towards *triage* actions based on priority.

Respondents' knowledge is closely related to respondents' education, the results of this study show that the minimum education of respondents is DIII Nursing which can be categorized as highly educated and the majority of respondents' employment period (65%) is over 6 years and the majority of respondents' age (60%) is in the early adult age range (26-35 years) which is the productive age. This is in accordance with the theory proposed by Hendra (2008) *in* (Ahmil, 2018), that the factors that influence knowledge are age, education and experience.

There were 10 respondents who were able to triage appropriately (50%), consisting of 4 respondents (20%) who were well informed and 6 respondents (30%) who were well-informed. Most knowledgeable nurses are quite able to triage appropriately, because the triage process during a patient's visit to the emergency room is not much, every nurse who is knowledgeable enough and less will be accompanied by a well-informed nurse. The small number of nurses who are well informed is because all emergency room nurses have not participated in the CTAS triage exercise and the training that has been attended by IGD nurses is only PPGD and BTCLS training. The triage science of the CTAS system is obtained by emergency room nurses only from the social studiesialisasi given by the Head of the IGD Room and doctors who have participated in a comparative study program to the Ishak Tulung Agung Hospital, East Java. In addition, 7 out of 20 emergency room nurses are new nurses with less than 3 years of service, with a low (unskilled) CTAS system triage skill level. To improve the knowledge of emergency room nurses, continuous education and training are needed.

### **1. The Relationship of Nurse Skills to the Accuracy of the Implementation of CTAS Modern Triage**

Based on the results of the study, it was obtained that the distribution of the frequency of nurse skills to the accuracy of the implementation of modern triage CTAS is mostly included in the category of unskilled nurses, namely 14 people (70%), while the respondents who are skilled as many as 6 people (30%). The results of the statistical test obtained a p value of 0.011 (*p*

value  $0.011 < 0.05$ ), it can be concluded that there is a significant relationship between the skills of nurses and the accuracy of triage implementation modern CTAS system in IGD RSUD Bengkalis. The Odds Ratio (OR) value, viewed based on the For Cohort value of accuracy=appropriate, obtained a value of 0.286 meaning that skilled respondents/nurses have a proper chance of triage implementation of 0.286 times greater than that of unskilled nurses, with a confidence interval  $[(0.125), (0.654)]$ . The confidence interval does not contain a relative risk value of 1, thus showing a relationship between skills and triage accuracy at a significance level of 5%.

In line with the results of the study (Lusiana, 2014), the implementation of triage in the IGD of RS Puri Indah can be influenced by the knowledge, attitudes and skills of nurses. The opinion (Andersson et al., 2006) also reinforces the results of the study that nurse skills and personal capacity influence *triage decision making*. The emergency room nurses at Bengkalis Hospital who are included in the skilled category are only 6 people (30%), this is because all emergency room nurses have not participated in the CTAS system triage exercise and the training that has been followed is PPGD and BTCLS. In addition, 7 nurses (35%) of the 20 emergency room nurses are new nurses with less than 3 years of service, with a low (unskilled) CTAS system triage skill level.

Based on the results of observations, it is known that out of 20 nurses who triage appropriately only 10 people (50%), thus the percentage of nurses who make mistakes in triage is still very large. Ideally the nurse's error in the triage process no longer exists, given that errors in triage will be at risk of fatalities that can lead to death or permanent disability in the patient. Based on the results of observations of the triage process of 60 patients and each respondent triaged 3 patients, it was found that only 40 patients (66.67%) were appropriately triaged and as many as 20 patients (33.33%) were improperly triaged. This condition shows that most nurses fall into the category of unskilled.

The low skill level of nurses, which causes errors in the implementation of triage, is one of the causes of death of patients in the emergency room is still relatively high. Based on Medical Record data from Bengkalis Hospital, the number of patients who visited the emergency room in 2017 was 10,440 people with a patient mortality rate of 63 people (0.60%) and patient visits in 2018 as many as 12,682 people with a mortality rate of 55 people (0.43%), thus there has been a significant decrease in patient mortality in the emergency room, which is 0.17%. The

mortality rate in 2018 of 0.43% is still considered quite high, ideally death cases in the emergency room will no longer occur or a maximum of close to 0% if the nurse's skills are adequate.

To improve the skills of emergency room nurses, continuous education and training are needed. A person's employability and skills can be obtained by training, education and length of service. The longer a person is used to get training and education, the higher the competence and ability to work, so that the level of performance is higher. (Evie et al., 2016) also state that training aims to improve a person's psychomotor skills in conducting assessments, decision-making and emergency interventions that are part of a comprehensive educational program. According to training on triage skills can allow emergency room nurses to carry out *triage* implementation more effectively, so that it will result in better and more accurate patient sorting.

#### The Relationship of Nurse Workload Perception with the Accuracy of CTAS Modern Triage Implementation

Based on the results of the study, it was obtained that the frequency distribution of the perception of nurses' workload to the accuracy of the implementation of modern triage CTAS, the majority was negative, namely 11 people (55%). The results of the statistical test obtained a p value of 0.000 ( $p\ value\ 0.000 < 0.05$ ), it can be concluded that there is a significant relationship between the perception of nurse workload and the accuracy of the implementation of Triage Modern CTAS system at IGD RSUD Bengkalis. The Odds Ratio (OR) value, viewed based on the For Cohort value of accuracy obtained a value of 11.00 meaning that respondents/nurses whose perceptions were positive had a right chance of triage being 11 times greater than nurses whose perceptions were negative, with an interval of trust [(1,697), (71,282)]. The confidence interval does not contain a relative risk value of 1, thus showing a relationship between the perception of workload and the accuracy of triage at a significance level of 5%.

The results of the aforementioned research are in line with the results of the study (Lusiana, 2014), that the implementation of triage in the IGD of RS Puri Indah can be influenced by the knowledge, attitudes and skills of nurses. Research (Yanty, 2014) also confirms that there is a meaningful relationship between the attitudes of emergency room health workers towards *triage* actions based on priority. An attitude is a still closed reaction or response of a person to a stimulus or object. Attitude is the tendency to respond (positively or negatively) to certain situations or objects (Yanty, 2014).

The higher the value of the perception of workload (attitude) will reflect the increasingly negative situation and vice versa if the value of the perception of workload (attitude) is lower, it will reflect an increasingly positive situation. Based on the researcher's analysis, the negative perception (attitude) of most respondents at the IGD of Bengkalis Hospital, can be caused by various factors and among them are:

- a. There is saturation in working for nurses whose work period is more than 6 years, a saturated attitude (boredom) can encourage individuals to be complaining and feel uncomfortable and burdened in doing every job. This condition is in line with the opinion of Mulyaningsih (2013) who said that people who have a longer length of work sometimes their productivity decreases due to boredom. Based on the results of interviews with some of the emergency room nurses at Bengkalis Hospital with a work period of more than 6 years, it was found that there were nurses who wanted to move to another installation (room), because they already felt saturated and wanted a refresher but had not been approved by their superiors.
- b. There are emergency room nurses whose service period is less than 1 year. The health care system in the emergency room with inpatient and outpatient (poly) rooms is very different and nurses who have just entered to work in the emergency room will face new challenges. IGD is the first entrance in health services in a hospital with a variety of disease cases that require immediate help and plus the large number of patient visits to the emergency room, so it requires priority treatment. To determine which patients, need priority services, adequate knowledge, experience and triage skills are needed. Meanwhile, nurses who have just worked in the emergency room, all of them do not have skills in triage, let alone modern triage of the CTAS system. This condition will be able to make nurses who are new to the emergency room uncomfortable and burdened. So that it can encourage people to be complaining, uncomfortable and burdened in doing every job.

Attitude is not carried from birth, but is learned and formed on the basis of experience and practice throughout the development of the individual. In line with the opinion (Yanty, 2014) that the formation of attitudes is influenced by several factors, namely personal experiences, culture, other people who are considered important, mass media, educational institutions or institutions and religious institutions, and emotional factors in the individual. The change in the attitude of health workers towards *triage* actions is because officers have knowledge, experience, intelligence and age. The negative attitude of health workers towards triage is influenced by several factors, namely due to the situation of patients who are busy, insufficient *triage* beds when patients come at the same time.

## The Relationship between the Length of Work of Nurses in the Emergency Room with the Accuracy of the Implementation of Modern Triage CTAS

Based on the results of the study, it was obtained that the distribution of the frequency of the length of work of nurses at the IGD of Bengkalis Hospital, the majority of nurses have worked in the emergency room for over 6 years, namely 13 people (65%). The results of the statistical test obtained a  $p$  value of 0.003 ( $p$  value  $0.003 < 0.05$ ), it can be concluded that there is a significant relationship between the length of work of nurses in the emergency room and the accuracy of the implementation of Triage Modern CTAS system at IGD RSUD Bengkalis. The Odds Ratio (OR) value, viewed based on the For Cohort value of accuracy=incorrect, obtained a value of 4.33 meaning that respondents/nurses whose length of work (length of service) is less than 6 years have a chance or risk of error (incorrect) in the implementation of triage 4.33 times greater than that of nurses whose service period is more than 6 years, with a confidence interval [(1,606), (11,691)]. The confidence interval does not contain a relative risk value of 1, thus showing a relationship between service life and triage accuracy at a significance level of 5%. In line with the results of the study (Khairina et al., 2018) at the IGD of the Padang City hospital, that long work has a positive relationship with the accuracy of filling the triage scale. Hasil research (Chen et al., 2010) also states that the factors identified as significantly influencing the accuracy of triage assessment by nurses are work experience in the emergency room.

A person's length of work will determine the amount of experience he gains. The level of maturity in thinking and behaving is influenced by the experiences of everyday life (Sunaryo, 2004). This shows that the longer the working period, the higher the level of maturity of a person in thinking so as to further increase the knowledge possessed. Length of work an emergency room health worker can do *triage* at least has a work period of  $> 2$  years.

## The Relationship of Nurse Training to the Accuracy of the Implementation of Modern Triage CTAS

Based on the results of the study, it was obtained that the distribution of the frequency of nurse training, the majority of nurses had attended training, namely BTCLS training as many as 15 respondents (68.18%). Of the 15 respondents who have attended BTCLS training, 2 respondents (9.09%) of them have also attended PPGD training. Based on the results of the study, information was also obtained that all respondents had not participated in the CTAS triage exercise and the science of triage of the CTAS system was obtained only from the social

given by the Head of the IGD Room and doctors who had attended the comparative study program to the Ishak Tulung Agung Hospital, East Java.

The results of the statistical test obtained a p value of 0.033 (*p value*  $0.033 < 0.05$ ), it can be concluded that there is a significant relationship between nurse training and the accuracy of triage implementation Modern CTAS system at IGD RSUD Bengkalis. The Odds Ratio (OR) value, viewed based on the For Cohort value of accuracy= incorrect, obtained a value of 3.00 meaning that respondents/nurses who have never attended the training have a chance or risk of error (incorrect) in the implementation of triage 3 times greater than nurses who have attended the training, with an interval of trust [(1,467),(6,137)]. The confidence interval does not contain a relative risk value of 1, thus showing a relationship between training and triage accuracy at a significance level of 5%.

In line with the results of the study (Evie et al., 2016) in the emergency room of the Malang type C hospital that there is a significant relationship of training factors with the implementation of triage. In line with the research (Ainiyah et al., 2018), that there is a significant positive correlation between triage skills and work experience, triage knowledge, and training experience. In line with the research (Ahmil, 2018), that there is a significant relationship between the level of education and emergency training with nurse compliance in the implementation of SPO triage in the IGD room of Undata Hospital, Central Sulawesi Province.

## **CONCLUSIONS AND SUGGESTIONS**

The results showed that factors related to the accuracy of the implementation of the modern triage system CTAS include knowledge factors, nurse skills factors in the emergency room, nurse workload factors, length of work factors, and nurse training factors about triage.

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