

RESPONSE TIME IN THE EMERGENCY ROOM OF BANDUNG ADVENTIST HOSPITAL

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ABSTRACT

Response time is a very important element in the emergency service of a hospital. Response time can determine the well-being of a patient. The objective of this study is to analyze the response time in the Emergency Room of Bandung Adventist Hospital. Data collection method used in this study is an analytical research using documentation in the emergency room of Bandung Adventist Hospital in the period of five months, January-May 2015. In the overall there are 3037 cases recorded, descriptive analysis showed 1775 (58%) cases according to the standard (<5 minutes) and 1262 (42%) cases not according to the standard (> 5 minutes). For life threatening case (red triage) there are 217 cases (174 or 80% of the cases according to the standard and 43 or 20% not according to the standard), potentially life threatening case (yellow triage) there are 1304 cases (743 or 57% according to the standard and 561 or 43 % not according to the standard), and less urgent case (green triage) there are 1516 cases (858 or 57% according to the standard and 658 or 43% not according to the standard). Statistical result on these differences using Kruskal-Wallis Anova statistical test, it showed that the difference of means in response times by triage category is significant ($p = .000$). Post hoc test shows that red triage differ significantly with yellow and green triages.

Keywords: Time Response, Emergency Room, Triage, Hospital

BACKGROUND OF THE STUDY

Hospital is a health care institution for the community with characteristics of its own which is influenced by the development of health science, technological advances, and the socio-economic life of society who must remain able to provide quality and affordable services for the people to manifest to the highest degree of health. (UU No. 44, 2009).

Services to patients required immediate care, fast, precise, and accurate to prevent death and/or disability. "Time saving is lifesaving" this means, time is lives. Categories of patients requiring treatment in a hospital, especially in the Emergency Room (ER), are patients with immediate life threatening case, potentially life threatening case, and less urgent case (Fadhilah, Harahap, and Lestari, 2013).

ER is a major gateway handling emergency cases in hospitals and plays an important role in efforts to save the patient's life (McCarthy, 2006). One of the indicators of a successful response to emergency medical patients is the speed in providing adequate relief to patients either in a state of emergency, daily routine or during a disaster. The speed and accuracy of aid given to the patients who

come to the ER depends on the ability and competence of doctors and nurses as a team working in this institution (Foreo, Sally and Ken, 2011). The Decree of the Ministry of Health of Indonesia number 856/2009 on Standard of Emergency Room at the Hospital stated, "*Response Time of handling patient in the Emergency Room should be addressed no more than five minutes upon arrival*".

RESEARCH METHODOLOGY

The type of research used is an analytic retrospective. Retrospective studies are research groups that are already experiencing the effects, then traced, exactly the same as the cohort study but data taken in the documentation has happened in the past (Santosa, 2007).

The object of this research is data of patients who received treatment in the ER of Bandung Adventist Hospital over a period of five months, January to May 2015. The data is the result of recorded record of activities in the ER of Bandung Adventist Hospital, the time of arrival and the handling time. The data in this study are the immediate life threatening patient case data, the potentially life threatening case patient data, and the less urgent case patient data.

Data collection instrument used in this study is documentation recorded in the book of records (time of arrival and time of handling) of the activities of nurses and doctors.

Data processing was done after the collection of the necessary. The data were then analyzed descriptively. The hypothesis in this

study stated that, "There is no difference in response time by triage categories in the Emergency Room of Bandung Adventist Hospital"

RESULT OF THE RESEARCH

Research which was conducted in June-July 2015 in the ER of Bandung Adventist Hospital showed the following results:

Table 1. Response Time of the Red Triage (Life Threatening Case)

Triage Category	Month	Response Time Category				Total
		According to the Standard		Not According to the Standard		
		Total	Percentage	Total	Percentage	
Red	January	28	80%	7	20%	35
	February	24	77%	7	23%	31
	March	50	86%	8	14%	58
	April	38	78%	11	22%	49
	May	34	77%	10	23%	44
Total		174		43		217

In the response time of Life Threatening case (table 1) the results of the descriptive analysis of the data in this study it was found that the number of cases by category of immediate life threatening case

(red triage) during January to May 2015, in the ER of Bandung Adventist Hospital is totaled 217 cases, with 174 cases according to standard and 43 cases not according to the standard.

Table 2. Response Time of the Yellow Triage (Potentially Life Threatening Case)

Triage Category	Month	Response Time Category				Total
		According to the Standard		Not According to the Standard		
		Total	Percentage	Total	Percentage	
Yellow	January	186	59%	131	41%	317
	February	174	63%	103	37%	277
	March	124	55%	100	45%	224
	April	138	56%	107	44%	245
	May	121	50%	120	50%	241
Total		743		561		1304

In the response time of the Potentially Life Threatening case (table 2), From the analysis of the above data, it was found that the number of cases by category of potentially life threatening case (yellow triage) during

January to May 2015, in the ER of Bandung Adventist Hospital is totaled 1304 cases, with 743 cases according to the standard and 561 cases not according to standard.

Table 3. Response Time of the Green Triage (Less Urgent Case)

Triage Category	Month	Response Time Category				Total
		According to the Standard		Not According to the Standard		
		Total	Percentage	Total	Percentage	
Green	January	168	55%	139	45%	304
	February	143	60%	97	40%	240
	March	195	60%	128	40%	323
	April	166	54%	141	46%	307

	May	186	54%	156	46%	342
Total		858		658		1516

In the response time of the Less Urgent case (table 3), from the analysis of the above data it was found that the number of cases by category less urgent case (green triage) during January to May 2015, in the ER of Bandung Adventist Hospital is totaled 1516 cases, with 858 cases according to the standard and 658 cases not according to the standard.

In summary, total cases of based on the standardized response time, with the recorded time of arrival and the time of handling the patients, there are 3037 cases, with a response time that is according to the standards (<5 minutes) 1775 cases (58%) and with a response time that is not according the standard (> 5 minutes) 1262 cases (42%). On the other hand the cases based on the triages cases the number of cases of immediate life threatening case (red triage) is 217 cases (7%), potentially life threatening case (yellow triage) is 1304 cases (43%), and less urgent case (green triage) is 1516 cases (50%).

STATISTICAL DATA ANALYSIS

The difference response time data (according and not according to the standard) obtained in this research were analyzed using the three triage categories (red, yellow, green).

Descriptive analysis of the data shows the distribution of response times in the ER of Bandung Adventist Hospital shows a positive slope values (slope of the curve to the left), skewness of 15.141 and kurtosis 335.282. This indicates that the data response time where the amount of data of a smaller value, which in this case the response time (<5 minutes) is more than the number of larger data, which in this case the response time is longer (> 5 minutes). In the interpretation of descriptive, this shows that the response time in the ER of Bandung Adventist Hospital is closer to the response times standards, *i.e.*, < 5 minutes. Therefore, the non-parametric Kruskal-Wallis ANOVA test is used to determine the significance of differences.

The results of non-parametric Kruskal-Wallis ANOVA statistical test is used to determine differences in response time according to the category of triage in the ER of Bandung Adventist Hospital can be seen in the table below.

Kruskal-Wallis ANOVA Test for Differences in Response Time

According to Triage Categories

	Response Time
Chi square	57.594
Degrees of Freedom	2
Significance	.000

The results of the analysis shows that the difference in response times by triage category is significant, with ($p = .000$).

Post hoc test was conducted to determine the category of triage that provides the significance of the test.

Post Hoc Test of Response Time by Triage Categories

Triage Categories	N	Subset for alpha = 0.05	
		1	2
Red	217	3.8756	
Yellow	1304		7.9494
Green	1516		8.6128
Sig.		1.000	.531

The post hoc test results in the table above shows that the difference between red triage and yellow and green triage make the differences significant in the results Kruskal-Wallis ANOVA statistical test and analysis.

INTERPRETATION

The analysis of the first statement of the problem, it was found that the response time for immediate life threatening case (red triage) in the ER of Bandung Adventist Hospital during a period of 5 months are 217 cases. In response time, time of arrival and handling time, there are 174 cases (80%) according to the standard that is under 5 minutes. This is in accordance with the decree of Indonesian's Ministry of Health number 856/2009 on Standard Emergency at the hospital, stated that, "*Response Time of handling patient in the Emergency Room should be addressed no more than five (5) minutes upon arrival*" While only 43 cases (20%), that is not according to the standard of care in handling time is over five minutes, this means not in accordance with the decree of the Ministry of Health of Indonesia. According to Oman (2008), Emergency, is a life-threatening conditions caused by interference of ABC (Airway, Breathing/respiratory, Circulation),

if not treated promptly, it can lead to death/disability, a case such as CAD, SVT, Cardiac Arrest, severe trauma, open fractures etc. There is also a possible reason why the response time is not yet fulfilled 100% is because of the ER factors as proposed in the Emergency Medicine Journal, such as lack of medical personnel, limitations of stretcher or bed.

The analysis of the second statement of the problem, it was found that the response time for potentially life threatening case (yellow triage) in the ER of Bandung Adventist Hospital during a period of 5 months are 1304 cases. In response time, time of arrival and handling time, there are 743 cases (57%) according to the standard that is under 5 minutes. This is in accordance with the decree of the Indonesian's Ministry of Health number 856/2009 on Standards ER Emergency at the hospital, stated that, *"Response Time of handling patient in the Emergency Room should be addressed no more than five (5) minutes upon arrival"* While only 561 cases (43%), that is not according to the standard of care in handling time is over five minutes, this means not in accordance with the decree of the Ministry of Health of Indonesia. According to Oman (2008), distress is not an emergency, a circumstance that is likely to be life threatening or vital function if not immediately addressed in the short term, a case such as tuberculosis, HIV, stroke, asthma etc. There is also a possible reason why the response time is not yet fulfilled 100% is because of the ER factors as proposed in the Emergency Medicine Journal, such as lack of medical personnel, limitations stretcher or bed.

The analysis of the third statement of the problem, it was found that the response time for less urgent case (green triage) in the ER of Bandung Adventist Hospital during a period of 5 months are 1516 cases. In time response, time of arrival and handling time, there are 858 cases (57%) according to the standard that is under 5 minutes. This is in accordance with the decree of the Indonesian's Ministry of Health number 856/2009 on Standards Emergency at the hospital, stated that, *"Response Time of handling patient in the Emergency Room should be addressed no more than five (5) minutes upon arrival"* While only 658 cases (43%), that is not according to the standard of

care in handling time is over five minutes, this means not in accordance with the decree of the Ministry of Health of Indonesia. According to Oman (2008), less urgent case, is a condition that is not life threatening but requires appropriate handling of urgency, a case such as GEA, typhoid fever, mild vertigo etc. There is also a possible reason why the response time is not yet fulfilled 100% is because of the ER factors as proposed in the Emergency Medicine Journal, such as lack of medical personnel, limitations stretcher or bed.

The analysis of the fourth statement of the problem, it was found that the response time in the ER of Bandung Adventist Hospital during a period of 5 months are 3037 cases. In time response, time of arrival and handling time, there are 1775 cases (58%) according to the standard that is under 5 minutes. This is in accordance with the decree of the Indonesian's Ministry of health number 856 year 2009 on Standards Emergency at the hospital, stated that, *"Response Time of handling patient in the Emergency Room should be addressed no more than five (5) minutes upon arrival"* While 1262 cases (42%), that is not according to the standard of care in handling time is over five minutes, this means not in accordance with the decree of the Ministry of Health of Indonesia. There is also a possible reason why the response time is not yet fulfilled 100% is because of the ER factors as proposed in the Emergency Medicine Journal, such as lack of medical personnel, limitations stretcher or bed.

The analysis of the fifth statement of the problem shows on the results of data analysis and statistical tests were conducted to test the hypothesis in the research found that there are significant differences, so the research hypothesis which states "There is no difference in response time by triage category of red, yellow and green in the ER of Bandung Adventist Hospital, is rejected. This means that there are significant differences on response time, according to the standard and not according to the standard, according to the three categories of triage (red for immediate life threatening case, yellow for potentially threatening case, and green for less urgent case, in case of emergency (triage red) has a number of cases according to the standard (<5 minutes) higher, with a higher percentage (80%) of the cases that is according to the standards for the red triage. Hospitals in Indonesia has an obligation to hold emergency services 24 hours a day as one of the hospital

permit requirements. In emergency services were not allowed to ask for advance payment as a requirement of service delivery. Response time of <5 minutes is the standard response time in the ER, and a fast response time to determine the effect on the lives of patients (Arkun et al, 2010).

CONCLUSIONS

This study concluded that:

1. Response time in the ER of Bandung Adventist Hospital for immediate life threatening cases (red triage) January to May 2015 is according to the standards (<5 minutes) is 174 cases or 80% and that is not according to the standard (> 5 minutes) is 43 cases or 20%.
2. The response time in the ER of Bandung Adventist Hospital for potentially life threatening cases (yellow triage) January to May 2015 according to the standards (<5 minutes) is 743 cases or 57% and that is not according to the standards (> 5 minutes) is 561 cases or 43%.
3. The response time in the ER of Bandung Adventist Hospital for less urgent cases (green triage) January to May 2015 according to the standard (<5 minutes) is 858 cases or 57% and that is not according to the standards (> 5 minutes) is 658 cases or 43%.
4. The response time in the ER of Bandung Adventist Hospital for the treatment of cases in January to May 2015 that is according to the standards (<5 minutes) is 1775 cases or 58% and that is not according to the standard (> 5 minutes) is 1262 cases or 42%, with an average response time of 6 minutes 25 seconds.
5. There is a significant difference ($p=.000$) between the response time (appropriate and not appropriate) on triage category (immediate life threatening case, potentially life threatening case, and less urgent case) in the ER of Bandung Adventist Hospital. The post hoc test shows the average rank is found that the response time of triage yellow (1520.25) and green triage (1578.16) are in one subset and the red triage (1098.15) is in the other subset.

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