

## Assessment of Staff Nurse's knowledge and Performance Regarding Triage

Shaimaa Ahmed Mustafa, Samia Adam, Hemat Abd elazem

Nursing Administration Department - Faculty of Nursing, Ain Shams University

### Abstract

**Background:** Emergency department is an integral unit in a hospital because it serve large number of people so triage is needed to decrease overcrowding of Emergency department. Triage is defined as the process of sorting a group of patient in a hospital. **The study aimed to assess** emergency staff nurses' knowledge and performance regarding triage. **Design:** A comparative descriptive design was used in carrying out the study. **Setting:** Emergency departments of Ain Shams University Specialized Hospital affiliated to university hospitals and Naser institute hospital affiliated to Ministry of health and population (MOHP). **Subjects:** 36 nurses from Ain shams university specialized hospital who worked in emergency department and 30 nurse from Naser institute hospital who worked in emergency department. **Tool:** the data collection forms consisted of observational checklist to assess performance of nurses regarding triage and questionnaire to assess knowledge of nurses regarding triage. **Results:** the results showed that above half of the studied nurse had unsatisfactory knowledge regarding triage and more than three quarter of them had inadequate performance regarding triage. **Conclusion:** the studied nurse had unsatisfactory knowledge and inadequate performance regarding triage. **Recommendation:** developed triage nurse roles and triage process in the curriculum of nursing schools, nursing institutes and faculties of nursing, development of standards, specifications and qualifications of triage nurse by the Ministry of Health and population, developed training programs to all emergency health team personnel to determine the triage nurse qualifications, role, and how to use triage process, developed the protocols and policies of emergency department to facilitate the triage system and triage nurse work.

**Key words:** Triage, Triage nurse, knowledge, Performance.

### Introduction

An emergency medicine is a field of medical practice comprised of a unique set of competencies required for the timely evaluation, diagnosis, treatment and disposition of all patients with injury, illness and/or behavioral disorders requiring expeditious care. These conditions are often undifferentiated but are not limited to those

that are life threatening, acute and urgent. This care is typically delivered in emergency department (ED) (*Canadian Association of Emergency Physicians, 2016*). So The ED is an integral unit of a hospital and experience of patients attending the ED significantly influences the public image of the hospital offering medical services (*Shaalan et al., 2008*).

The primary mission of emergency department is providing the best care possible in the shortest time. But most emergency departments do not have the necessary and appropriate facilities for referrals of patients (*Weihai, 2012*). Overcrowding in emergency departments is considered as a serious problem in all parts of all the world . Sometimes patients wait more than 60 minutes and this is especially important when care is delayed, leading to patients' dissatisfaction (*Golaghaei et al., 2010*).

The basic strategy to resolve this problem is usage of a triage system or prioritizing patients based on their clinical status. So triage used in disaster or war is brief assessment of victims that allows a nurse to classify victims according to severity of the injury, urgency of treatment, and place for treatment and triage in emergency department is defined as a brief assessment of clients that allow nurse to classify clients according to their need for care and establishing priorities of care; the type of illness or injury, the severity of problem and resources available govern the process(*Silvestri, 2011*).Triage also defined as the method of prioritizing victims according to their care needs, from most severe to least injured o ill(*Qureshi, and Veenema, 2014*): In the last century, due to patient overcrowding and case mix, triage has been widely used in civilian hospital EDs to classify patients for management priority.

In the last century, due to overcrowding of patients in ED and case mix, triage has been widely used in civilian hospital EDs to classify patients for treatment priority to manage life threatening conditions as immediate (first priority), potentially life, or limb threatening patients as emergent (second priority), followed by the less or possibly serious as urgent cases (third priority) and, lastly, the non-urgent

patient (fourth priority). The ideal triage system should be simple, and should satisfy the hospital and patients' needs. It should prove to be sensitive (reliable and valid); namely, priority I/II patients will be admitted to critical care units within the target time frame (*Elgammal, 2015*).

The purpose of triage in the (ED) is to prioritize incoming large number of patients who come to ED and to identify those who cannot wait to be seen, so the triage nurse must perform a brief, focused assessment and assigns the patient a triage acuity level, which is a proxy measure of how long an individual patient can safely wait for a medical screening examination and treatment (*American College of Emergency Physicians, 2010*).

The emergency nurse must initially have all the core competencies to function within the emergency department such as (Basic Life Support, CPR and Pediatric Advanced Life Support) and also she must have completed a unique triage program. For the first assessment as the patient arrives, this nurse has the initial set of eyes to identify the signs of a patient in distress. For this reason, the emergency nurse making triage decisions must have a diverse knowledge base and strong physical assessment skills (*Susan, 2015*).

There are many factors that affect emergency nurses' performance. Those factors may be job regulation related factors or nurses related factors, so human resources policies need to focus on overcoming the factors that may affect negatively on the nurses' performance. Also, it is important to develop nurses' knowledge and skills, so efforts should be directed towards enhancing creativity among nurses and access to update information and continuous educational opportunities (*Delucia et al., 2012*).

## Assessment of Staff Nurse's knowledge and Performance Regarding Triage

### Significance of study

In order to ensure patient safety and quality outcomes, hospitals must be certain that every patient who presents to the emergency department receives the right care from the right provider at the right time. This consequently will help emergency nurses make sound clinical judgments at the initial point of emergency care (*Victoria's Emergency Department, 2011*).

Hence triage is a learned skill. Emergency nurses spend many hours learning to classify different illness and injuries to ensure proper management of the emergency (*Stachy et al., 2011*). Triage is a highly important activity and solves many problems of emergency services, such as overcrowding by patients and improves the quality of health outcomes cost-effectively. Rising health care costs, poor quality of health care costs, poor quality of care and patient dissatisfaction are evident in settings where emergency department are not applying triage. Therefore triage needs to be applied in all emergency departments (*Ahmed, 2011*).

In emergency departments nurses make triage but without triage knowledge and defect in performing process of triage. From my observation They are lacking in knowledge and skills related to triage. If the triage is activated in the emergency department, will lead to save life of a lot of patients using of minimum time. Therefore this study will be conducted to assess the knowledge and performance of emergency nurse regarding to triage.

### Aim of the study

This study aims to assess emergency staff nurses' knowledge and performance regarding triage through:

1. Assessing knowledge of emergency staff nurses' regarding to triage.

2. Assessing emergency staff nurses' performance regarding to triage.

### Subjects and Methods

#### Research design and setting

A comparative descriptive design was followed in carrying out this study at the emergency departments in Ain Shams University Specialized Hospital and Naser Institute hospital.

#### Subjects:

The subject of this study included two groups namely: staff nurses group and jury group.

a-Staff nurses group included staff nurse assigned to work in the emergency departments in the aforementioned settings as follow:

- 1- 35 out of 36 nurses from Ain Shams University Specialized Hospital because there was one nurse was in maternity leave .
- 2- 30 nurses from Naser Institute hospital.

All nurses accepted to participate in the study from both genders, with different educational level and working in the previous mentioned setting in emergency department.

b-Jury group: this group included experts from faculties of nursing, commerce and from ministry of health to test the validity of the developed tools. The jury was 7 experts, two of them professors of administration at faculty of nursing, Cairo university, one professor and one lecturers of critical care nursing at faculty of nursing, Cairo University, Two doctors from ministry of health from emergent care unit and one professor from disaster department in faculty of commerce, Ain shams university.

**Tools of data collection:**

The data were collected through using three tools, namely knowledge questionnaire sheet, nurse performance observational checklist and opinionnaire sheet.

**Shalan et al., 2008, Ahmed, 2011, Tony, 2009** and Iso papper from Elsalam international hospital). It consisted of two parts:-

**First part:** is concerned with the nurses' characteristics as nurse's name, age, gender, marital status, years of experience and qualification.

**I. knowledge questionnaire sheet (appendix. I):**

To assess the knowledge of emergency nurse regarding to triage, it was written in Arabic language and prepared by the researcher based on (**Khalil, 2014,**

**Second part:** it included 40 MCQ questions to assess nurses' knowledge regarding triage as follow.

**Table (3):** Dimension of knowledge questionnaire sheet

Dimension	Number of items	Example
1-Definition of triage.	1	Definition of triage .
2-Aim of triage.	2	Main aim of triage is
3-Triage process.	1	When a large group of clients arrive to ER the first step of triage nurse is
4-Most common accidents with variable clients and need emergency care.	1	Most common accidents with variable clients and need emergency care
5-Characteristic of effective triage system.	1	Characteristic of effective triage system is
6-First action of triage nurse for evaluation of patients.	2	The importance 3 area which must be evaluated y triage nurse are
7-Vocabulary used in triage system.	1	Vocabulary which used in triage system are
8-Qualifications of triage nurse.	2	Triage nurse must to be able to
Dimension	Number of items	Example
9-Role of nurse in triage .	5	Role of triage nurse in evaluating emergency patients
10-Color system used in triage.	4	Red color in triage refer to
11-Appropriate time for intervention in every color of triage system.	3	Appropriate time of intervention for red color in triage system is.
12-Applied use of colors in triage.	17	According to triage system, pregnant mother with vaginal bleeding which color is take

**II. Nurses performance observational checklist.**

This checklist was developed by the researcher based on (**White et al.,**

**2013, Shalan et al., 2008, Thelanel., 1998, and Ahmed, 2011)** to assess performance of emergency nurse regarding triage. This checklist was divided into two parts as the following:

## Assessment of Staff Nurse's knowledge and Performance Regarding Triage

**First part:** is concerned with the nurses' characteristics as nurse's name, age, gender, marital status, years of experience and qualifications.

**Second part:** it contains 109 items covering 5 basic phases of triage (assessment of triage, nursing diagnosis, nursing planning, nursing implementation and nursing evaluation) described in the following table.

**Table (4):** Dimension of performance observational checklist

Phases	No of items	Example
<b>1-Assessment of triage room for availability of</b>		
• Equipment	5	Assess triage room for availability of blood pressure apparatus .
• Supplies	13	Assess triage room for availability of airway (all sizes).
• Medications.	11	Assess triage room for availability of KCL ampoules.
• Records.	8	Assess triage room for availability of patients identification.
• Patient's safety	8	Assess triage room for availability of sharp containers.
<b>Assessment of triage</b>		
• Patient identification.	7	Assess triage room for availability of patient's safety precautions as bed side rails, upstairs.
• Subjective evaluation	3	Triage room assessment for availability of electrical safety.
• Objective evaluation.	15	Triage room assessment for availability of hazardous materials as sharp instruments.
<b>2- Nursing diagnosis.</b>	2	Make nursing diagnosis.
<b>3-Nursing planning.</b>	2	Planning for patient care according to patient's need.
<b>4-Nursing implementation :</b>		
• General care.	10	Arrange for all types of treatment to the case.
• Direct care.	20	Assist in cardiopulmonary resuscitation.
<b>5-Evaluation</b>	5	Evaluation for progress of triage cycle.

**Oppenionnaire sheet:** to test validity of the developed knowledge questionnaire sheet and observational checklist by taking opinion of experts from faculties of nursing and MOH regarding the developed tools.

A pilot study was conducted to test feasibility and applicability of the tools used in this study. It was carried out on 10% of total study subjects (7 nurses). Some modifications on tools were done based on pilot study. The nurses who included in the pilot study were excluded from the main study group.

### Field Work:

Upon securing official permissions, the researcher met the study subjects and explains the aim of study to the nurses who agreed to participate in the study prior to data collection. Data collections took about 6 months started from October 2014 to march 2015. Data were collected by the researcher through four days per week from 7.30am to 3.30pm about 8 hours per day (early morning and afternoon shift) from Naser institute hospital and Ain Shams specialized hospital. The observational

checklist was used prior to administration of the questionnaire to ensure the maximal realistic observations of the nurses' performance & minimize the possibility of bias. The Nurses' practice was assessed by the researcher at first while they assess availability of equipment, supplies, medications and records of emergency room and then while they caring for patients in emergency through how they deal with the patients, assessment, diagnosis, planning, implementation and evaluation of patients, how they deal with relatives of patients, how they notifying supervisor and physician about patient conditions. The observational checklist observed for every nurse for 3 times, Then, the self-administered questionnaire sheet was filled by the nurses in emergency unit and it took about 30 minutes. The answers were recorded by the nurses themselves.

#### **Ethical consideration:**

---

The research approval of protocol was obtained from Scientific Research Ethical Committee in Faculty of Nursing at Ain Shams University before starting the study. The researcher clarified the objective and aim of the study to the nurses included in the study.

The researcher assured maintaining anonymity and confidentiality of the subject data. Nurses were informed that they allowed choosing to participate or not in the study and that they had the right to withdraw from the study at any time without giving any reasons.

#### **Statistical design:**

Data entry and statistical analysis were done using SPSS20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for qualitative variables. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, fisher exact test was used instead, in larger than 2x2 cross tables, no test could be applied whenever the expected value in 10 % or more of the cells was less than 5 . Spearman rank correlation was used for assessment of the interrelationships among qualitative variables and ranked ones. Statistical significance was considered at p-value <0.05.

## Assessment of Staff Nurse's knowledge and Performance Regarding Triage

### Result

**Table (1):** Socio-demographic characteristics of nurses in the study sample (n=65).

Items	Frequency	#
<b>Hospital</b>		
Nasser institute hospital	30	46.2
Ain Shams Specialized hospital	35	53.8
<b>Age</b>		
<30	25	38.5
30+	40	61.5
Range	19.0±47.0	
Mean±SD	30±7.3	
Median	32.00	
<b>Gender</b>		
Male	13	20.0
Female	52	80.0
<b>Marital status</b>		
Married	43	66.2
Single	22	33.8
<b>Experience years</b>		
5	17	26.2
5-10	7	10.8
10	41	63.1
<b>Nursing qualification:</b>		
Secondary nursing diploma	22	33.8
Specialty diploma	5	7.7
Technical institute	19	29.2
Bachelor	18	27.7
Master	1	1.6

**Table (1):** shows socio-demographic characteristics of nurses in the study sample, the table indicated that less than half (46.2%) of the studied nurses worked in Naser institute hospital and more than half (53.8%) of the studied nurses worked in Ain Shams Specialized Hospital, Regarding their age, more than half of them (61.5%) are over 30 years with mean age  $30.9 \pm 3.7$ . Also highest number (80%) of them were female, more than half of them (66.2%) were married, more than half of them (63.1%) had years of experience more than 10 years. In addition, more than quarter (33, 8%) of the studied nurses qualifications were diploma while only one of them had master.

**Table (2):** Total knowledge of nurses regarding triage in the study sample.

Items	Satisfactory		Unsatisfactory	
	No	%	No	%
Ain Shams University Specialized Hospital	20	57.1	15	42.9
Naser institute Hospital	21	70.0	9	30.0
Total knowlege	24	37	41	63
X2-Test	1.15			
P-Value	0.28			

**Table (2):** displays total knowledge of nurses regarding triage in the study sample, it summarizes that more than half of the studied nurse (63.1%) had unsatisfactory knowledge regarding triage, while less than half of them (36.9 %) had satisfactory knowledge regarding triage and also displays Comparison of nurse's knowledge regarding triage in the two of the study hospitals, it is observed that there was insignificance difference between the studied nurses of the two hospitals.

**Table (3):** total nurse's performance regarding triage among study nurse (n=65).

*Practice	Frequency.	Percent.
<b>Assessment of triage room:</b>		
Equipment.	34	52.3
Supplies.	31	47.7
Medications.	42	64.6
Records.	33	50.8
Patient safety.	34	52.3
Total triage room assessment.		
Adequate.	24	36.9
Inadequate	41	63.1
<b>Assessment of triage.</b>		
Patient identification.	29	44.6
Subjective evaluation.	26	40.0
Objective evaluation.	4	6.2
Communication.	8	12.3
Total triage assessment.		
Adequate.	16	24.6
Inadequate.	49	75.4
<b>Nursing process.</b>		
Nursing diagnosis.	3	4.6
Nursing planning.	28	43.1
Implementation (general care).	24	36.9
Implementation (direct care).	6	9.2
evaluation.	21	32.3
<b>Total nursing process.</b>		
Adequate.	8	12.3
Inadequate.	57	87.7

\*Adequate practice at 60%



### Assessment of Staff Nurse's knowledge and Performance Regarding Triage

**Table (3):** describes total nurse's performance regarding triage among studied nurses, it shows that more than half (63.1%) of the studied nurses had inadequate practice regarding assessment of triage room, about three-quarters (75.4%) of them had inadequate practice regarding assessment of triage also more than three-quarters (87.7%) of them had inadequate practice regarding nursing process during care of patients.

**Table (4):** Relation between nurse's knowledge regarding triage and their performance.

Knowledge.	Performance				X <sup>2</sup> -test	p-value
	Adequate		Inadequate			
	NO	%	NO.	%		
-Definition of triage.	0	0.0	0	0.0	0.0	1.00
-Aim of triage.	0	0.0	4	8.2	Fisher	0.56
-Triage procedure.	15	93.8	28	57.1	7.22	0.007*
-Most common accident with variable victims and need emergency care.	0	0.0	0	0.0	Fisher	1.00
-Characteristics of accurate triage system.	3	18.8	7	14.3	Fisher	0.70
-First action of triage nurse for evaluation of patients.	0	0.0	0	0.0	0.00	1.00
- Vocabulary used in triage system	0	0.0	0	0.0	0.00	1.00
-Qualifications of triage nurse.	3	18.8	7	14.3	Fisher	0.60
-Role of nurse in triage.	0	0.0	0	0.0	0.00	1.00
-Color system used in triage.	2	12.5	6	12.2	Fisher	1.00
-Appropriate time for intervention in every color of triage.	2	12.5	6	12.2	Fisher	1.00
-Applied use of colors in triage.	3	18.8	7	14.3	Fisher	0.70
<b>Total knowledge:</b>						
Satisfactory.	12	75.0	29	59.2		
Unsatisfactory.	4	25.0	20	40.8	1.30	0.26

**Table (4):** displays the relation between nurse's knowledge regarding triage and their performance, it shows that there was insignificance relation between the studied nurse's total knowledge and performance regarding triage and subtitles except regarding triage procedure however there was significance relation between knowledge and performance.

**Table (5):** Correlation between nurse's knowledge and performance of triage and their personal characteristics.

	Spearman's rank correlation coefficient	
	Knowledge scores	Practice scores
Practice	0.08	
Age	0.12	0.02
Experience years	0.03	0.01
Nursing qualification	0.01-	0.13

**Table (5):** summarizes correlation between nurse's knowledge and performance of triage and their personal characteristics, it demonstrates that no statistically significant

correlation between nurse's performance and knowledge, and between these and their age, experience years, and nursing qualifications.

## **Discussion**

---

The present study demonstrated that less than half of the studied nurses worked in Naser institute hospital and more than half of the studied nurses worked in Ain Shams Specialized Hospital, their age was more than half of them are over 30 years, This explains that most of those nurses were elderly graduated because more nursing qualification of them was secondary nursing diploma and they are old to tolerate the nature of the work in EDs, regarding their gender the current study found that highest number of the study subjects were female, this result may be due to the most nursing schools were for female and also in the past there was a concept that is shame for the males to be a nurse, this finding is consistent with that of (*Taha, 2007*) who reported that most of the nurses in Egypt were female, the rational of these is concerning years of experiences, the current study shows that more than half of them their years of experience was more than 10 years, the researcher show that as result as all the most newly graduated nurse travelling abroad for great financial status, this result is against (*Maarouf, 2012*) who reported that more of nurses' experiences years less than 10 years so most of nurses were newly graduated and consequently have few years of experience.

Regarding their qualifications, the current study found that more than quarter of the studied nurses qualifications were diploma while only one of them master, this result may be due to the most nurses not complete the studying in nursing institutes and faculties of nursing as result of difficulties in studying and also

difficulties for taking master degree, This finding is consistent with what was reported by (*Mohamed, 2009*) who found that all of the nurses under the study and working were nursing diploma, these reflect the need of improving educational level of nurses who worked in critical area such as EDs .

The current study illustrated that generally more than half of the studied nurses had unsatisfactory knowledge regarding triage, while less than half of them had satisfactory knowledge regarding triage, these results may attribute to insufficient training programs regarding triage in nursing schools, faculties of nursing and also in the hospitals, This is agreed with, (*Ahmed, 2011*) where the study sample had unsatisfactory knowledge regarding triage, and also agreed with (*Haghdust et al., 2010*) also reported that the nurses which worked in Emergency room had unsatisfactory knowledge regarding triage.

Unsatisfactory knowledge regarding triage may be due to lack of orientation program for the newly nurses, lack of job description of triage nurse, perception of the nurses regarding their role in saving life of emergent patient and the physician in the responsible for life saving of patient and the nurse is assistance to physician, and also the perception of the physician regarding role of nurse in emergent situations is only assistant and carrying out their orders.

Concerning the performance of emergency nurses regarding triage, The present study results demonstrated that more than three-quarters of the studied nurse had inadequate practice regarding

---

## Assessment of Staff Nurse's knowledge and Performance Regarding Triage

---

triage, This is may be attributed to lack of nurses' knowledge which reflected on their performance, inadequate in-service training program, lack of qualification as more than half of nurses were diploma nurses, lack of number of nursing staff and other job regulation factors. These agreed with (*Mirhaghi and Roudbari, 2010, Wahhabi, 2010 and Taheri et al., 2005*)whostated that performance of emergency nurse's regarding triage was inadequate.

In the current study results shows that there was insignificant relation between nurse's knowledge and their personal characteristics, these may be due to faulty choosing of right person in right place, all nurses still in their place for long time and insufficient training programs regarding triage in nursing schools, faculties of nursing and also in the hospitals, this agree with (*Ahmed, 2011*) who reported that there was insignificant difference between nurse's knowledge regarding emergency triage and their age. Also the current study was in agreement with (*Tweed and Tweed, 2008*) who reported that there was insignificant difference between nurse's knowledge regarding emergency triage and different level of experience and qualifications. In contradictory with (*Blegen et al., 2001*) who reported that more experienced nurse provide higher quality care. Also the current study results were in agreement with (*Mirhaghi, and Roudbari, 2010*) and (*Wahhabi, 2009*),who mentioned that emergency nurses had low level of knowledge regarding triage, giving poor treatments in EDs, so there are need of giving sessions regarding triage and importance of triage for patients, patient's family, nurses and for community to improve their knowledge regarding triage . Concerning the relation between nurse's performance regarding triage and their nursing qualifications, the present study showed that there was insignificant relation between their performance and

their qualifications, these result may be due to the state of unrefreshing of knowledge for nurses and decrease of training program regarding triage. These disagree with (*Ahmed, 2011*)who showed that the nurses with diploma and specialty had adequate level of performance, but the scores of nurses who are graduated of technical institute were middle, and were mostly statistically significant and higher than those with diploma.(*Youssef, 1999*)who mentioned that the number of years of education and training and also the level of education affects positively on the level of knowledge and performance.

Regarding the relation between nurse's performance regarding triage and their experience years, the present study showed that that there was insignificant relation between their performance and their experiences years, these may be due to state of unrefreshing state of the nurses and also spending all time of working in the same departments and absence of training program in hospitals. These agreed with (*Ahmed, 2011*) who stated that there was insignificant relation between nurse's practice and their experiences years. Also there was insignificant relation between nurse's practice regarding triage and their personal characteristics, their work place, their age, their gender and marital status.

As regard the relation between nurse's knowledge regarding triage and their practice, the present study illustrated that there were insignificance relation between the studied nurse's total knowledge and practice regarding triage and subtitles except regarding triage process however there was significance relation between knowledge and practice, these result may be due to deficit of training program regarding knowledge and performance of triage, presence of some instructions regarding triage but not all nurses read these instruction, unrefreshing state of the emergency

nurses and The majority of emergency nurses have performed triage process collaborated with a physician that may help nurses to have a triage skill for precise decisions at some circumstance, These result agreed with [\(Brysiewicz, 2014\)](#) who stated that there are deficit and significant relation in the triaging knowledge and skills of nurses working in the ED, so there is need for establishing training programmers regarding triage that will help to establish and improve emergency nurses' knowledge and skills on triaging.

### **Conclusion and Recommendation**

Based on this study finding, it can be concluded that about more than half of the studied nurse had unsatisfactory knowledge regarding triage, while less than half of them had satisfactory knowledge regarding triage. Furthermore about more than three-quarters of the studied nurses had inadequate performance regarding triage, while less than quarter of them had adequate performance regarding triage.

**Based on the study findings, the following recommendations will be provided to improve triage nurse's knowledge and performance:**

- Triage nurse roles and triage process should be included in the curriculum of nursing schools, nursing institutes and faculties of nursing.
- Development of standards, specifications and qualifications of triage nurse by the Ministry of Health and population.
- There is an urgent need for proper infrastructure for ED to facilitate triage process.
- There is an urgent need for availability of appropriate supplies and equipment in the emergency unit to facilitate the triage implementation.
- There is a need for training programs to all emergency health team personnel to determine the triage nurse qualifications, role, and how to use triage process.
- The hospital management must have insight about the importance of the triage nurse role and the advantages of triage process to put the appropriate number of the nurse in emergency department.
- The hospital manager must have the protocols and policies of EDs to facilitate the triage system and triage nurse work.
- The role of triage nurse and triage process must be announced to prevent conflict between patient and patients relatives and emergency health team.
- Planning for continuous training program to emergency health team regarding triage and triage process.
- There is a need for continuous evaluation for triage nurse's knowledge and performance.
- There is a need of further research regarding effect of knowledge and performance of triage on the percentage of morbidity and mortality rate in ED.

### **References**

**Ahmed, H. (2001):** Effect of an Educational Intervention Program on Emergency Department Triage Nurses, Psychological Empowerment

---

## Assessment of Staff Nurse's knowledge and Performance Regarding Triage

---

- and Decision Making Ability in a Military Hospital. Master Thesis in Nursing Administration. Military Institute of Health and Epidemiology, Military Medical Academy.
- American College of Emergency Physicians (2010):** ACEP policy statements: Triage scale standardization. Dallas, TX: American College of Emergency Physicians. Retrieved January 30, 2017, from <http://www.acep.org/Content.aspx?id=29828&terms=triage%scale>.
- Blegen M, Thomas V & Colleen J. (2001):** Nurse Experience and Education: Effect on quality care. *Journal of nursing administration*; 31:33-9.
- Brysiewicz P (2014):** Assessment of knowledge and skills of triage nurse working in emergency centers in Dar es Salaam in Tanzania: *African journal of emergency medicine*. Vol(4).pp14-18.
- Canadian Association of Emergency Physicians (2016):** *Position statement on emergency medicine definition*, [www.caep.ca/sites/caep.ca/files/caep/position\\_statement\\_on\\_emergency](http://www.caep.ca/sites/caep.ca/files/caep/position_statement_on_emergency). Accessed January 19, 2017 at 11:00 am .
- DeLucia, P. R., Ott, T. E. & Palmieri, P. A. (2012):** Performance in Nursing. In Faculty of Durso, *Reviews of Human Factors and Ergonomics*, 3rd ed., Santa Monica, CA: Human Factors and Ergonomics Society, pp. 1-40.
- Elgammal M. (2015):** Emergency department triage why and how. *Saudi Med*. Vol (35). N 8 .
- Golaghaei, F. Sarmadian, H. Rafiei, M. and Nejat, N. (2010):** A Study on Waiting Time and Length of Stay of Attendants to Emergency Department of vali-e-asr hospital, Arak-Iran. *Arak Medical University Journal*; 11 (2): 8-74.
- Haghdust, Z et al., (2010):** Effect of Training on Knowledge, Attitude and Practice of Triage Nurses in Emergency Hospital pouring, *Guillan nursing and mid wifely* ; 64: 14-21.
- Maarouf, D.M. (2012):** Nurses' Performance for Patients with Traumatic Head Injury during Golden Hour. Thesis submitted for partial fulfillment of requirements of Master Degree in Nursing Science, Faculty of Nursing, Ain shams University.
- Mirhaghi, A.H., Roudbari, M. (2010):** A Survey on Knowledge Level of the Nurses about Hospital Triage, *Iranian Journal Crit Care Nurse* ;3 (4): 74-167.
- Qureshi, K. and Veenema, T.G. (2014):** Disaster Triage and Chemical Decontamination: Disaster Nursing and Emergency Preparedness for Chemical, Biological, and Radiological Terrorism and other Hazards. New York: Springer.
- Shaalán, H., Elhosainy, N. and Moro.H., (2008):** Emergency Department Unified Protocol, Ministry of Health and Population, Egypt.
- Silvestri, L.A., (2011):** Saunders Comprehensive Review NclexRN Examination, 5th ed., Leon Wilson, USA, P75, 76.
- Stachy A. Australian College of Emergency Medicine,(2011).** Guide Lines for Implementation of the Australian Triage scale in Emergency Departments, Victoria ,Australia,PP 60:62.

- Susan E. (2015):** Emergency nursing triage, keep it safe. Journal of Emergency Nursing. July 2015. Vol.41.N (4).PP 496-502.
- Taha, H. A. (2007):** Nurses' Performance in Emergency Management of Patients with Spinal Cord Injury, master thesis, Faculty of Nursing- Ain Shams University.
- Victoria's Emergency Department, (2011):** Consistency of Triage, Guide lines for Triage Education and Practice, Monash Medical Centre, Australia, PP.22-35.
- Wahhabi, S. (2010):** Comparison of triage training and lectures on the method of virtual learning for nurses Care. Intensive Care, 3rd ed., pp.8-32.
- Weihai, Y. (2012):** Principles of Emergency Management. Advances in Computer Science and Engineering. Advances in Intelligent and Soft Computing, 5th ed., pp.141:581.
- Youssef, M. (1999):** Sources of Infection control in Intensive Care Unit and Suggested Control System. Master Thesis submitted to Faculty of Nursing, Ain Shams University.
- Taheri, N.etal. (2005):** Assessment of knowledge and Activity of Nurses in Triage Field in Hospitals of Kerman university of medical sciences, 3rd ed., Emergency congers, Tehran, Iran.
- Tweed, C.&Tweed, M. (2008):** Intensive Care Nurse's Knowledge of Pressure Ulcers: Development of assessment tool and effect of an educational program, American Journal of critical care; 17:338-346.
- Victoria's Emergency Department, (2011):** Consistency of Triage, Guide lines for Triage Education and Practice, Monash Medical Centre, Australia, PP.22-35.