

# Causes of Delay in Patient Triage in the Emergency Departments of Tabriz Hospitals

Tebriz Hastaneleri Acil Servislerinde Hasta Triajında Gecikme Nedenleri

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## SUMMARY

### Objectives

Organized triage has been useful method in immediate classification of large number of patients. Urgent intervention and evaluation of patients in Emergency Department result in shorter patient waiting time and, therefore, intensifying the quality of supervision. This study aimed at determining the causes of delays in patient triage in Emergency Departments (EDs) in the city of Tabriz.

### Methods

This descriptive study was conducted in 18 hospitals of Tabriz, Iran. A questionnaire developed for this study was the only tool used in data collection. They were filled in by selected sample of ED staff, consisting 22 physicians and 135 nurses. The data was analyzed using the SPSS v.15.0 statistical software and descriptive analyses were used.

### Results

Findings of this study indicate that 75% of the survey was conducted in public and 25% in private hospitals. Based on the study results, major reasons of delay in patients priority processing include shortage of nursing staff (65%), large number of patients (50.3%), shortage of medical staff (38.2%), shortage of hospital resources (31.2%), shortage of medical equipment (26.8%), patients evaluation (13.4%), diagnostic tests (12.1%), advanced age of patients (5.7%), early age of patients (5.1%).

### Conclusions

Results of the study indicate that some of the major reasons of delay in priority processing of patients include shortage of nursing staff and large number of patients. Therefore, increasing staff number can be an efficient way to effectively manage the patient population in Emergency Department.

**Key words:** Emergency department; patients; triage.

## ÖZET

### Amaç

Organize triaj sistemleri, çok sayıda hastanın hızlı bir şekilde sınıflandırılması için kullanışlı bir yöntem olagelmıştır. Acil servis hastalarının hızlı değerlendirme ve girişim, bekleme zamanını kısaltmakta, bu da hasta bakım kalitesini artırmaktadır. Bu çalışma, Tebriz kentindeki hastanelerin acil servislerinde hastaların triajında görülen gecikme nedenlerini araştırmaktadır.

### Gereç ve Yöntem

Bu tanımlayıcı çalışma, Tebriz'de (İran) bulunan 18 hastanede gerçekleştirildi. Bu çalışmada verileri toplamak için bir anket formu oluşturuldu. Formlar, seçilmiş acil servis personeline dolduruldu. Katılımcıların 22'si acil servis hekimi ve 135'i hemşireydi. Veriler SPSS v.15 istatistik programında analiz edildi ve tanımlayıcı istatistik yöntemleri kullanıldı.

### Bulgular

Katılımcıların %75'i devlet, %25'i ise özel hastane çalışanıydı. Hastaların triajında gecikmelerin en önemli nedenleri arasında yetersiz hemşire sayısı (%65), hasta sayısının fazlalığı (%50.3), sağlık personeli eksikliği (%38.2), hastane kaynaklarının yetersizliği (%31.2), tıbbi ekipman eksikliği (%26.8), hastaların değerlendirilmesi (%13.4), tanısal testler (%12.1), hastaların ileri yaşta olması (%5.7) ve hastaların genç yaşta olması (%5.1) bulunmaktadır.

### Sonuç

Çalışma sonuçlarımız, acil servis triajındaki gecikmenin en temel nedenlerinin hemşire sayısındaki eksiklik ve yüksek hasta sayısı olduğunu göstermiştir. Bu nedenle, personel sayısının artırılması, acil servisteki hastaların daha etkin yönetilmesine yardım edebilir.

**Anahtar sözcükler:** Acil servis; hasta; triaj.

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## Introduction

Triage is derived from French word "trier" and means "separating out".<sup>[1-3]</sup> Successful triage forms supervision base in ED and all of the patients referring to the ED should be triaged.<sup>[2,4,5]</sup> Triage is defined as study and decision making process of priority processing of medical interventions required by patient(s) and should be carried out in a appropriate environment.<sup>[1,6]</sup>

The first role of triage is to study the patients and make clinical decision. So, the primary goal of triage personnel (triage nurse, etc.) is immediate evaluation of patients in order to determine priority based on the clinical requirements. This process includes collecting data about patient's history, chief problems, objective and subjective findings, and a set of other analyses.<sup>[7]</sup> The object of triage process is to collect data for priority processing of patients according to medical necessity and keep in touch with patient and his/her family.<sup>[2]</sup>

When there are too many patients waiting for initial evaluation by a nurse for a long time and the triage system is too busy to deal with, the triage nurse should seek help from other nurses available in the ED or from the shift supervisor. Triage process is completed when data gathered from the process and evaluation process is precisely recorded. Patient record is often the first part of nursing record in ED. Record tool can be as the patient's comprehensive or summery data report.<sup>[4]</sup>

In some of the hospitals in Tabriz, triage is done by nurses who had completed triage courses and follow the five-stage emergency severity index (ESI).

Since the staff dealing with triage process in EDs encounter various problems and challenges, we all set to make our efforts to improve triage process in ED.

## Methods

This descriptive study was carried out in 18 hospitals in Tabriz. Research sample included 22 ED physicians and 135 ED nurses. They have all been selected by census. In this study, data collection tool was a questionnaire which was completed by an interview which administered according to the objectives of the research. In order to assess the validity of the tool, re-trial method was used for final assessment of content validity. After reaching the appropriate validity, the correlation coefficient between the first and second round of questions was estimated as 87%. After explaining study objectives and being assured of sample's tendency to participate in the research, the questionnaires were handed to study subjects. In order to analyze findings, SPSS v.15.0 statistical software and statistical-descriptive analysis was used.

## Results

Of all the hospitals participated in the study, 75% of them were public and 25% were private. The mean age of participants was  $32.7 \pm 6.7$ . There were 56.7% of female respondents and 73.4% of the respondents had previous experience in ED. Of those, 58.21% have worked as a triage staff just for a year or two. About 64.3% of the respondents declared that the entrance time of the patients' is recorded in ED. Just 29.9% of them stated that patients' waiting time is recorded in ED (Table 1).

Based on the study findings, it has been reported that some of the major reasons of delay in patients priority processing include shortage of nursing staff (65%), large number of patients (50.3%) and shortage medical staff (38.2%) (Table 2).

## Discussion

Triage is one of the key elements of supervision in Emergency Department. If it is not carried out at standard level, the outcomes of clinical care of patients and efficiency of ED will be compromised.<sup>[8]</sup> One of the most significant factors in ED is waiting time of patients in the first visit. Researches have indicated that by decreasing initial evaluation of the patients and waiting time, fewer patients will leave the ED without being seen.<sup>[9,10]</sup> Studies indicate that crowd in triage section is often due to small dedicated area within the ED in comparison to the number of the patients. This causes delay in patients' triage, repeated evaluation of them, while it may disturb their privacy and make them leave the ED without being seen.<sup>[11,12]</sup>

In the present research study, it is reported that some of the most effective factors involved in delayed priority processing of patients include shortage of nursing staff, large number of patients and shortage of medical staff, whereas

**Table 1.** Frequency of recorded items in triage from the staff point of view in Tabriz Emergency Departments

Triage records	n	%
Entrance time	101	64.3
Exit time	55	35
Waiting time	47	29.9
Physical evaluation	37	23.6
Paitence history	34	21.7
Pain evaluation	32	20.4
Extremities evaluation	24	15.3
Nervous system evaluation	17	10.8
Others	7	4.5

**Table 2.** Frequency of delay reasons considering medical personnel working in Tabriz Emergency Departments

Total	No		Yes		Delay reasons
	n	%	n	%	
157	35	55	65	102	Shortage of nursing staff
157	49.7	78	50.3	79	Number of patients
157	61.8	97	38.2	60	Shortage of medical staff
157	68.8	108	31.2	49	Shortage of hospital resources
157	73.2	115	26.8	42	Shortage of equipment
157	86.6	136	13.4	21	Patients study
157	87.9	138	12.1	19	Diagnostic tests
157	94.3	148	5.7	9	Advanced age of patients
157	94.9	149	5.1	8	Early age of patients

the least effective factors were age extremes of patients (advanced and early age). In their research in 2001, Fry and Burr stated that 75% of respondents believe that growing number of patients in ED is the most important reason of delayed priority processing. Additionally, other factors such as lack of clear clinical report, interview time with patients, and lack of enough nursing and medical staff are regarded as secondary factors. In this research, the least effective factor of the delay in patients priority processing is the shortage of medical equipment.<sup>[13]</sup> In their study, Mary et al., as previous studies, indicated that checking patients' vital signs, evaluating their nervous system and providing first aid to them are some of the reasons of delayed triage.<sup>[14]</sup> The previous studies are all in accordance with the present one and it seems that increasing the number of ED staff, will partially lead to decrease of delay time in priority processing of the patients. To increase staff number is definitely an efficient way to control patient population and it is suggested that adding to the number of clinical nurses at peak times of crowd in ED would ease the problem.<sup>[11,12]</sup>

From the ED staff's point of view, the most frequently recorded case (64.2%) is "entrance time" and other cases are respectively "leaving time", "waiting time", "physical evaluation" and so on. Grossman Valerie (1999) believes that triage process is considered to be completed when all the data gathered from patient study processes are recorded precisely.<sup>[4]</sup> Fry and Burr's study (2001) has indicated that majority of nurses believe that triage record must include patient history (96%), pain evaluation (92%), vital signs check (88%), neurovascular evaluation (85%), and physical evaluation (82%).<sup>[13]</sup> According to the present study, it is concluded that triage records are not very often submitted in EDs.

## Conclusions

The results of the study, similar to those conducted in other countries, indicate that factors such as increasing patient numbers, small physical size of ED, interview time, lack of precise clinical report, shortage of nursing and medical staff lead to delayed triage in ED. Therefore, increasing staff number will be an effective way to control the crowd of patients in ED. It is suggested that increasing staff number and eliminating some shortages of the ED can partially decrease delays in patient triage time and improve their recorded triage.

## Conflict of Interest

The authors declare that there is no actual or potential conflict of interest.

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