

# Evaluation of reasons for staying and waiting for more than 24 hours in the emergency ward of Imam Hossein hospital

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## Abstract

**Objective:** Standardization of hospital emergency units is a major goal in developed countries to decrease the duration of patients stay in these units. The present study was undertaken to evaluate the prevalence of long-term staying in an emergency ward.

**Methods:** In the present 2-month cross-sectional study, patients referring to the emergency ward of Imam Hossein hospital were assessed. The patients' demographic data, including age, the presenting symptoms and signs, reasons for delays, and the final outcome in relation to the location of hospitalization and discharge information were recorded. Data were reported as frequencies and percentages. The results were reported as means and standard deviations using SPSS version 20.

**Results:** Of 10087 patients admitted into the emergency ward during a 2-month period, 75 patients (0.7%) needed to stay and wait for more than 24 hours. The mean  $\pm$  standard deviation of the patients' ages was  $62.5 \pm 20.2$  years, with 60% of the patients being over 60 years of age. The most common reason for overcrowding in the emergency ward was a lack of empty beds, with the need for ICU beds as the most important reason for bed deficiency in 59% of the cases. Nervous system problems were the most common reasons for referring to the emergency unit (41%) in patients under study. Finally, 81% of the patients were hospitalized, 10% died, 7% were discharged based on personal request and 1.3% were transferred to another hospital.

**Conclusion:** The prevalence of patients staying and waiting in the emergency ward for more than 24 hours was 0.7%. Lack of empty ICU beds was the most important reason for such delays; however, paraclinical problems had no role in these delays which were associated with the death of 10% of patients.

**Keywords:** Emergency, Staying, Long, Overcrowding

## Introduction

The usual standard for making a decision about the status of a patient in an emergency unit is 2-3 hours (1). The problem of controlling overcrowding in emergency units has been considered in developed countries (2-4). It appears that overcrowding in emergency units not only increases mortality rate but also can lead to social violence, decreasing the quality of health care provided by physicians directly and indirectly (5-11).

In a study in a developing country, the prevalence of staying and waiting for more than 6 hours in a hospital was 20% (12). In a study in a developed country, the statistics were not favorable either, and 3.6% of patients stayed in the emergency unit for more than 72 hours (13). Several studies have evaluated the reasons for patients waiting for a long time in emergency units, particularly in developed

countries, and various reasons have been reported including deficiencies which should be identified and resolved (14-16). Considering the studies carried out in 2005 and 2008 in Imam Hossein hospital (17,18), the results of the present study can be very useful.

## Methods

After the protocol of the present cross-sectional descriptive study was approved by the Ethics Committee of Imam Hossein hospital, trauma and nontrauma patients of the emergency ward of the hospital in November and December 2012 were included and evaluated in the study. All the patients during the time interval mentioned above, who had been admitted into the emergency ward and had been delayed in the ward for more than 24 hours, were included. A questionnaire was used to collect data. This



questionnaire included patients' demographic data, the duration of staying in the emergency ward, the patients' background conditions, reasons for delays in transferring the patients to a medical ward, the patients' status at admission in relation to vital signs and their status at discharge in relation to hospitalization in a medical ward, and discharge from the hospital based on personal request or death in the emergency ward. The study was carried out descriptively based on data provided by the questionnaire. The results were reported in frequencies, percentages and ratios. Data were analyzed by SPSS version 20. Frequencies and frequency percentages were calculated for qualitative variables; and means and standard deviations were calculated for quantitative variables.

### Results

Of 10087 patients admitted into the emergency ward, 75 patients were included in the present study, with 41 (54.7%) and 34 (45.3%) patients being female and male, respectively. Of all the patients admitted, 0.7% had stayed and delayed in the emergency ward for more than 24 hours. The mean and standard deviation of the age of patients included in this study was  $62.5 \pm 20.2$  years. The majority of patients in the present study were over 40 years of age, comprising 80% of the patients. Consciousness level at admission was normal in 47 patients (15 on Glasgow Coma Scale [GCS]), with 9 patients in coma with a Glasgow Coma Scale of 8. In relation to respiratory problems, 38 patients (50%) needed respiratory ventilation through a tracheal tube.

Sixty-five patients (86.7%) needed cardiac monitoring and 10 patients (13.3%) did not. A need for a paraclinical procedure, which was out of the capacity of the hospital, was recorded in 16 patients (21.3%) (Table 1). The most common problem in the patients under study was CNS problems, which comprised a total of 41% of the problems when they were added up with vascular accidents. Patients with chronic renal problems, who needed dialysis, comprised less than 1% (1 patient) of the subjects (Figure 1). The main reason for staying for more than 24 hours in the emergency unit was a lack of empty ICU beds for 50% of the patients; lack of empty CCU beds for 8% and lack of empty beds in the relevant medical wards without the need for intensive care (13%) were other reasons for overcrowding of patients in the emergency ward. Yet other rea-

sons were lack of a definitive diagnosis (4%), patients on the brink of dying (3%) without any need for therapeutic intervention and lack of coordination between the physicians in admitting patients due to multiplicity of diagnoses (4%). The final location for hospitalization of patients was evaluated based on the patients' needs: 54% in the ICU, 9% in the CCU, with 9% waiting in the emergency unit due to unresolved problems such as lack of admission and difficult-to-treat conditions. In this context, 81% of patients were hospitalized, 6.6% were discharged based on a personal request, almost 10% died and a small number (1.3%) were transferred to other hospitals.

### Discussion

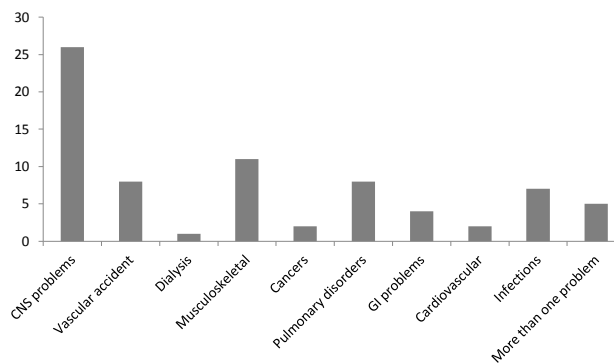
Overcrowding in emergency units decreases patient satisfaction on one hand (19,20) and treatment quality on the other (21,22). Two studies in Iran were carried out on this subject in 2005 and 2008 in Imam Hossein hospital (17,18).

In the study carried out in 2005, 7% of patients had stayed and were delayed in the emergency unit for more than 24 hours. The study results showed that the main reason (30%) for waiting in the emergency unit longer than usual was a lack of empty beds (17). However, in the study carried out in 2008 and in the present study this rate was 83% and 84%, respectively, indicating a worsening of the problem of empty hospital beds in the referral centers such as Imam Hossein hospital. A lack of definitive diagnosis was high (14.8%) in the study carried out in 2005, which gradually decreased, with 4% in the present study. In addition, the absence of definitive paraclinical test results, including laboratory tests and imaging results, was the reason for 14.8% of overcrowding in emergency units in 2005; however, the problem had been resolved in the present study. Furthermore, in the studies carried out in 2005 and 2008, 7% and 12% of patients, respectively, had no hope of survival, which decreased to 2.7% in the present study (17,18).

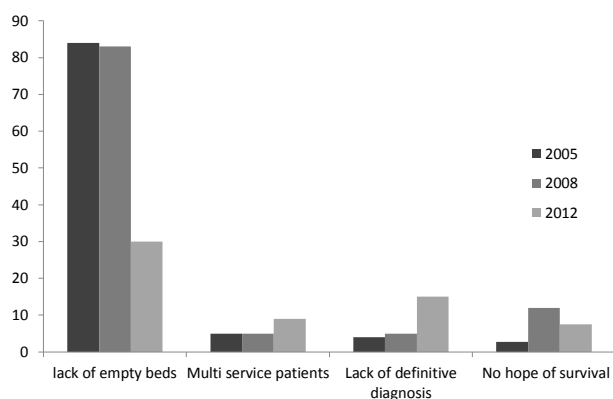
In the present study, 0.7% of patients were delayed in the emergency unit for more than 24 hours. This trend had a decrease in comparison to studies carried out in 2005 and 2008, with 7% and 1%, respectively. In the present study, the main reason for waiting in the emergency unit for more than 24 hours was a deficiency in the number of beds, consistent with the results of studies in 2005 and

**Table 1.** Evaluation of the clinical characteristics and age of the patients

Age	Under 20	20-39	40-60	Above 60
Number	2	13	15	45
Consciousness level (GCS)	15	12-14	8-11	3-11
Number	47	10	17	1
Need for mechanical ventilation (no.)	Yes (38)		No (37)	
Need for cardiac monitoring (no.)	Yes (65)		No (10)	
Need for unusual paraclinical procedure (no.)	Yes (16)		No(59)	



**Figure 1.** Number of patients based on their problems.



**Figure 2.** Reasons for staying since 2005 till 2012.

2008 (17,18) (Figure 2).

In fact, the problem of deficiency in the number of beds in the emergency unit, resulting in overcrowding, was seen not only in the present study but also in other studies (23,24). The first step to solve this problem is to increase the capacity of hospitals to admit patients into emergency units (25). Since increasing the number of hospital beds, especially ICU beds, is a measure requiring time and funding, in such cases the presence of a section to monitor patients can help render better care to patients who need a longer time for treatment (26).

In the present study, the majority of 75 patients who were delayed for more than 24 hours in the emergency unit (84%) were faced with the problem of hospital bed deficiency and the remaining patients were faced with other problems such as multiple services, no chance of survival or being hopeless and lack of definitive diagnosis. None of these 75 patients were faced with the problem of the lack of definitive diagnosis due to a delay in receiving the results of paraclinical tests.

Inter-hospital transfer of patients is another method which can be carried out after initial therapeutic measures and elimination of life-threatening risks by coordination between treatment centers. However, an effective and systematic protocol should be prepared for transferring patients between hospitals to decrease the potential complications (27). Unfortunately, in the present study, despite

the severe overcrowding of patients in the emergency unit only 1.3% of patients, literally one patient, were transferred, indicating a deficiency in inter-hospital coordination. The mean age of the patients in the present study was  $62.5 \pm 20.2$  years and the majority of patients (60%) were over 60 years of age, ie, they were elderly. In such patients, apart from a high rate of the recurrence of chronic background conditions, multiorgan disturbances and involvements can explain the presence of a background etiologic factor for a delay in evacuation of emergency beds, which was observed in 5% of the patients in the present study. However, the rate exhibited a decrease of up to 4% compared to the study carried out in 2005, which is not very noticeable. The decrease was the result of a managerial reform in enabling the emergency unit physicians to hospitalize patients in the relevant medical wards if deemed necessary (17).

In the present study, 6% of patients left the hospital based on a personal request and decided to refer to another hospital to continue their treatment; 10% of the subjects died, with 2.7% being hopeless from the beginning and the remaining 7.3% died because it was not possible to transfer them to the ICU.

Finally, 81% of patients who were delayed in the emergency unit for more than 24 hours were hospitalized: 59% in the ICU and 4% in other medical wards. Although these statistics are higher, compared to previous studies in which 47% of patients were hospitalized, the need for hospitalization in the ICU in the present study was 59% compared to 7% in previous studies.

## Conclusion

In the present study, 0.7% of patients stayed and waited in the emergency unit for a long time, which is less than that in previous studies in the same hospital. The decrease might be attributed to correct management through granting permission to emergency physicians to hospitalize patients in medical wards, provision of necessary laboratory facilities in the emergency unit, and increasing the number of ICU beds.

## Ethical issues

The study was approved by the local ethic committee. We completed the informed consent form for all patients in the experimental group.

## Authors' contributions

All authors contributed to drafting/revise the manuscript, study concept or design, analysis or interpretation of data.

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