# Characteristics of Patients Presenting to the Academic Emergency Department in Central Anatolia

## Orta Anadolu'da Akademik Bir Acil Servise Başvuran Hastaların Özellikleri

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## SUMMARY

**Objectives**

Determining the properties of patients admitted to the emergency department (ED) is important to plan for future and quality assurance. In this study, we aimed to evaluate the properties of patients admitted to our ED to improve the quality of care within our hospital.

**Methods**

In the study period, the patients: (i) who have their full information in hospital information and management system (HIMS) and (ii) older than 17 years of age were included into the study. Demographic information, admission and discharge rates, mean staying time in the ED, triage categories, International Classification of Diseases – 10 (ICD-10) diagnoses were evaluated.

**Results**

During the study period, 32,117 cases were seen by the ED. However, 22,955 patients (71.4%) had complete information in the HIMS. The mean age was 44.92±19.50 and female gender was found 52.2%. The patients who were located in 18-29 age group was the major group of all cases (30.8%). Emergent and urgent cases were 26.1% and 14.8%, respectively. Non-urgent cases were also found (59.1%). The mean age of patients located in the emergent group (55.19±18.59) were significantly higher than urgent and non-urgent group (p<0.01). The highest patient volume was seen on Sunday, between 20:00 and 22:00 o'clock. The mean staying time in the ED was 183.6 minutes and the admission rate was 17.6%. The three most noted ICD-10 codes were respiratory (16.6%), gastrointestinal (11.3%), musculoskeletal (11.2%) codes.

**Conclusions**

The data that was correctly uploaded into the system did not reach our expectation. Data can be more appropriately uploaded by medical secretaries. Registering patient information in a digital atmosphere while performing analyses will undoubtedly have an effect on future focused studies.

**Key words:** Data base management systems; demography; emergency department.

## ÖZET

**Amaç**

Acil servise başvuran hastaların özelliklerinin bilinmesi, acil servis (AS) hizmetlerinin planlanması ve kalitesinin artırılması için önem taşımaktadır. Bu çalışmada, AS hastalarımızı bu perspektifte değerlendirmeyi amaçladık.

**Gereç ve Yöntem**

Çalışma periyodunda 17 yaş üstü ve hastane bilgi ve yönetim sistemine (HBYS) kaydı olan hastalar çalışmaya dahil edildi. Demografik bilgiler, yatış ve taburculuk oranları, AS'de ortalama kalış süresi, triyaj kategorileri, International Classification of Diseases – 10 (ICD-10) tanıları değerlendirildi.

**Bulgular**

Çalışma süresi boyunca 32117 olgu AS'de görüldü. Verileri eksiksiz olan 22955 hasta (%71.4) HBYS'den alındı. Hastaların yaş ortalaması 44.92±19.50 ve kadın cinsiyet %52.2 olarak bulundu. 18-29 yaş grubundaki hastalar tüm olguların majör grubunu oluşturmaktaydı (%30.8). Acil olmayan olgular %59.1, çok acil ve acil olanlar ise sırasıyla %26.1 ve %14.8 olarak bulundu. Çok acil kategorisindeki hastaların yaş ortalaması (55.19±18.59) acil ve acil olmayan gruptan anlamlı olarak yüksek bulundu (p<0.01). En çok başvurunun yapıldığı gün Pazar ve gün içinde saat 20:00 ile 22:00 arasıydı. Hastaların AS'de ortalama kalış süresi 183.6 dakikaydı. Hastalarda %17.6 yatış oranı saptandı. En çok not edilen ICD-10 kodları, solunumsal (%16.6), gastrointestinal sistem (%11.3), kas iskelet sistemi (%11.2) olarak saptandı.

**Sonuç**

Sistemden yüklenen veriler bizim beklentilerimizi karşılamamaktaydı (%71.4). Verilerin tıbbi sekreterler tarafından yüklenmesi daha uygun olabilir. Hastaların bilgilerini dijital atmosferde kayıt altına alınması ve analizlerinin yapılması gelecekte yapılacak çalışmalar üzerine etkili olacaktır.

**Anahtar sözcükler:** Acil servis; demografik; veritabanı yönetim sistemi.

## Introduction

The emergency service department requires a high level of public relations within the hospital. That is why public opinion regarding a hospital is mostly based on the healthcare service that people receive and the quality of time they experience within the ED.

Throughout the world, emergency medicine has been a 'medical specialty' of clinical medicine in its own right for thirty years. In particular, countries such as the United States, Canada, Japan, and the United Kingdom have pioneered this field.[1] In our country, academic emergency medical services have been established for twenty years and continue to develop and become increasingly structured.[2,3] According to the latest data, there are 1,350 hospitals and hospital affiliated EDs operating in Turkey.[4] However, there is no up-to-date and accurate patient data information in the majority of these units due to the lack of sufficient personnel and the appropriate registration systems.

In recent years, advances in computer-aided data recording programs have been used particularly in EDs offering developed medical services. Nevertheless, the development of a data registration system eligible for use in all emergency departments has not been implemented due to financial difficulties.[5]

There is a need to evaluate and review the services presently offered in order to improve the future healthcare and patient service quality of EDs. In particular, a need to store and retrieve patient data quickly, practically, and accurately is warranted.[6] Characteristics of patients of the ED are important in order to plan for the future and improve quality assurance. In this study, we aimed to evaluate our ED patients from this perspective. Current developments in data storage technologies may not only reduce data loss but also contribute to the planning of future services.

## Materials and Methods

This is a retrospective descriptive study based on computer-based records of all adult patients that were admitted to the ED between February 17, 2009 and February 16, 2010. The ED was associated with a medical faculty training and research hospital offering tertiary health services and approximately 900 beds in a central Anatolian city in Turkey. The study began after having received approval from the Ethics Committee (Eskisehir Osmangazi University Ethical Committee-21.05.2010/107).

The Hospital Information and Management System (HIMS), used by the computer center to record information on patients presenting to the emergency department, was employed to gather data required for this study.

Recordings of HIMS were used to access information on patients' age and gender, date on which they presented to the emergency department, admission and discharge time, patients' triage categories and diagnoses, the clinics where patients stayed in the hospital, and medical results when they were discharged from the emergency department. A three level system of triage categories were used in classification: emergent (triage 1), urgent (triage 2) and non-urgent (triage 3).

The data obtained from HIMS allowed us to study the following: (i) demographic information on patients (distribution by age and gender, distribution of patients' gender by age groups), (ii) triage categories, (iii) triage categories by age groups, (iv) triage categories by gender, (v) date and hour of presenting to the hospital, (vi) average period of stay in the emergency department, (vii) average period of stay in the emergency department by triage categories, (viii) distribution of patients by residents offering treatment, (ix) medical results of patients, (x) referral to other clinics for inpatient hospitalization from the emergency department, (xi) and distribution of diagnoses by body systems defined according to ICD-10 diagnosis coding system.

The Statistical Package for Social Sciences (SPSS) for Windows 17.0 was used for the statistical analyses of data collected for this study. In addition to descriptive statistical methods (i.e. frequency distribution, percentile distribution, standard deviation), Pearson's Chi-square test was used to compare qualitative data. For the analysis of quantitative data, independent samples t-test was used to compare parameters between groups in cases where there were two groups. One-way ANOVA was used to compare the groups' parameters, which showed a normal distribution, and the Tukey test was used to specify the group that caused difference in cases where there was more than one group. The results were evaluated bidirectionally at the confidence interval of 95% with a significance level of $p < 0.05$.

## Results

Between February 17, 2009 and February 16, 2010, 32,117 patients were admitted to the adult emergency department of the hospital. Out of this number, 9,262 patients (28.5%) whose data were incomplete or inaccurate in HIMS were excluded from the study and 22,955 patients were included in the study.

The average age of the patients was 44.92±19.50. The majority of patients were in the young group (age 18 to 29, 30.8%). In the distribution of patients' age groups, the patients aged from 20 to 23 constituted the largest group in the distribution (Table 1).