



## Research Article

Ankara Med J, 2020;(2):281-289 // doi 10.5505/amj.2020.61214

# EVALUATION OF PATIENTS ADMISSING EMERGENCY CARE SERVICES FROM THE POINT OF VIEW OF FAMILY MEDICINE

## ACİL SERVİSE MÜRACAAT EDEN HASTALARIN AİLE HEKİMLİĞİ BAKIŞ AÇISIYLA DEĞERLENDİRİLMESİ

 **Burcu Kayhan Tetik<sup>1</sup>**,  **Bora Tetik<sup>2</sup>**,  **Aytaç Karaođlan<sup>3</sup>**  
 **Cem Alpađan<sup>4</sup>**,  **Burak Mete<sup>5</sup>**,  **Nur Paksoy<sup>6</sup>**

<sup>1</sup>Inonu University Medical Faculty, Department Of Family Medicine, Malatya, Turkey

<sup>2</sup>Inonu University Medical Faculty, Department Of Neurosurgery, Malatya, Turkey

<sup>3</sup>Inonu University Medical Faculty, Malatya, Turkey

<sup>4</sup>Malatya Research And Training Hospital Department Of Emergency, Malatya, Turkey

<sup>5</sup>Cukurova University Medical Faculty, Department Of Public Health, Adana, Turkey

<sup>6</sup>Yeşilyurt Community Health Center, Malatya, Turkey

### Yazışma Adresi / Correspondence:

Burcu Kayhan Tetik (e-mail: drburcukayhan@hotmail.com)

Geliş Tarihi (Submitted): 27.01.2020 // Kabul Tarihi (Accepted): 29.04.2020



## Öz

**Amaç:** Acil servislerin gerçek kullanılma nedenleri dışında uygunsuz kullanılması her geçen gün artmakta ve acil servislerin işleyişini bozmaktadır. Çalışmamızda Acil Servise müracaat eden hastaların bir yıllık verileri incelenerek, bu hastaların son tanılarına göre, ne kadarının acil servisleri uygun kullandığını belirlemek ve bu konuda oluşturulacak yeni politikalara yardımcı olmak amaçlanmıştır.

**Materyal ve Metot:** 1 Ocak -31 Aralık 2017 tarihleri arasında hastanemiz acil servisine müracaat eden hastaların dosyaları incelenmiştir. Veriler SPSS 22 programı ile değerlendirilmiş, analizde Ki-kare testi kullanılmıştır. Anlamlılık değeri  $p < 0,05$  olarak kabul edilmiştir.

**Bulgular:** Acil servise bir yıl içinde başvuranların %72,20'sinin (n: 42785\59282) birinci basamak veya uzman polikliniği başvurusu gerektiren nedenler ile başvurduğu, başvuru yapanların sadece %19,2'sinin (n: 11359\59282) gerçekten acil başvurusuna uygun olduğu bulunmuştur. Tüm müracaatlar içinde solumun sistemi ve ağrı şikâyetleri en sık başvuru nedenleridir.

**Sonuç:** Acil servise başvuran hastaların büyük çoğunluğunun aslında acil kategorisinde olmadığı görülmüştür. Acil servislerdeki iş yükünün azaltılması aile hekimliği sisteminin etkin kullanılması için sevk sisteminin uygulanması, acil servislerde triaj uygulanmasının kullanılması ve uygunsuz şekilde acil servisi kullananlardan ekstra ücret alınması gibi önlemlerin uygulanabileceği kanaatindeyiz.

**Anahtar Kelimeler:** Acil servisler, birinci basamak, sevk zinciri.

## Abstract

**Objectives:** Inappropriate use of Emergency Department (ED) for non-urgent complaints compromises the functioning of ED and has been increasing day by day. In this study, we examined the annual data of the patients who admitted to the Emergency Department in order to determine the ratio of appropriate usage according to the definitive diagnoses of the patients and to help forward new policies regarding this issue.

**Materials and Methods:** Files of patients, who admitted to our ED between January 1 and December 31, 2017, were examined. Data were evaluated by SPSS software version 22, and the analyses were performed by using the Chi-square test. A value of  $p < 0.05$  was accepted to be statistically significant.

**Results:** We found that 72.20% (n: 42785\59282) of the people who admitted to the ED during one year had admitted for complaints that should be addressed in the primary healthcare centers or specialist polyclinics and only 19.2% (n: 11359\59282) of the ED visits were appropriate. We also found that the most frequent reasons for ED visits were respiratory system symptoms and pain.

**Conclusion:** We found that the vast majority of the patients admitted to the emergency department were not actually urgent. We suggest that measures such as effectuation of the referral system for effective use of the family medicine system, use of triage in emergency departments, and extra fees for using the emergency department inappropriately can be implemented to reduce the workload in emergency services.

**Keywords:** Emergency department, primary care, gatekeeping.

## Introduction

Emergency departments (ED) are the facilities where first aid is available 24 hours a day to intervene in cases of need and unorganized diseases of patients are treated. When the literature is examined, it is seen that the emergency departments are preferred to have analyses, to get prescription to alleviate their symptoms or because the EDs are more quiet during working hours, rather than for indications that require admission to the ED.<sup>1</sup> This is a common problem in many country and compromises the actual functioning of emergency department by increasing the burden.<sup>2,3</sup> Occupation of emergency services, especially by non-emergency patients, disrupts provision of healthcare in real emergency cases and reduces the quality of the service.<sup>4</sup> This can lead to further increases in violence by disrupting both patient satisfaction and personnel satisfaction. In the last 20 years, the reasons for unnecessary use of emergency department have been investigated in many countries<sup>5</sup> and the most common reasons were summarized as low availability of community health centers<sup>6</sup>, faster operation of the ED<sup>7</sup>, more likely to be preferred by the elderly patients.<sup>8</sup> Turkish Republic Ministry of Health reported that a total of 295 million 808 thousand patients admitted to hospitals between January and October 2017, and the emergency services ranked first with 76 million 834 thousand (25.97%) patients.<sup>9</sup>

Family physicians can make referrals to get the opinion of other physicians and to apply for specialist knowledge.<sup>10,11</sup> However, currently, most countries do not have referral restrictions, so patients prefer to admit to ED rather than family physicians. The purpose of this study was to determine the extent to which emergency services were used appropriately, according to the preliminary diagnosis and the definitive diagnosis of the patients who weren't admitted to intensive care and received outpatient treatment, and to help forward new policies regarding this issue.

## Materials and Methods

The study was designed as a descriptive study. Patients who admitted to the Emergency Department between January 1 and December 31, 2017 constitute the universe of the work. A total of 59282 patients' files were examined. The study protocol was approved by the local ethical committee (Decision: Date: 10.04.2018; Decision Number: 2018 / 8-5). Patients' files were evaluated from a primary care perspective and what proportion of diagnosis and treatment could be done within the scope of primary health care. The admission symptoms were classified under 19 categories. Subsequently, the admission symptoms were grouped under 5 categories which is the symptoms of organs and systems in the body were classified. Including those that require emergency department treatment, those that can be treated in family medicine clinics, those requiring follow-up by outpatient clinics, those requiring long-term observation in inpatient services, and those that were not classified due to insufficient data. SPSS version 22 software was used for evaluation of the data and analyses were performed by using the Chi-square test. A value of  $p < 0.05$  was accepted as significant.

## Results

The mean age of the 59,282 individuals was  $42.56 \pm 19.77$  years (min: 1-max: 124); 50.3% (n:29827\59282) of the patients were female. The most frequently admitted patients were in 16-30 age groups and emergency department admissions were most often in summer. Table 1 shows the distribution of gender and age group of the patients and the periods for ED admission.

Regarding the reasons that patients admitted to the emergency department for, we found that the most common symptoms were upper respiratory tract infections, lower respiratory tract infections, and chronic diseases of the respiratory tract, with a maximum rate of 24.1% and the least common reason was cardiac arrest with a ratio of 0.1%.

After admission symptoms were evaluated, a reclassification was made according to urgency that requires an ED admission or not. The classification of the symptoms according to urgency is given in Table 2.

We found that only 19.2% of the ED admissions were due to actual urgencies. The remaining admissions were identified to be the symptoms that can be diagnosed and treated in family medicine, specialist outpatient clinics, and inpatient service conditions. The results of the analysis of the relationship between gender, age group, and season of admission and ideal classification are given in Table 3.

Regarding gender and age, we observed that women and those in 16-30 and 31-45 years of age group admitted to the ED with symptoms that need to be addressed in the family medicine clinics. Regarding seasons, we observed that the patients admitted to the ED for reasons that could be addressed in the family medicine clinics during summer, most frequently.

When we evaluated the admission symptoms according to primary care perspective, we found that 9.4% of those who admitted with pain in any body region, 9.7% of those who admitted with psychiatric complaints, 16.5% of those with cardiovascular symptoms, 14.4% of those with an upper respiratory infection, lower respiratory infection and chronic respiratory complaints, 18.8% of those with gynecological diseases, 20.6% of those with metabolic symptoms, and 40.1% of those with trauma-related complaints were required to be treated in the emergency department with actual urgencies ( $p < 0.001$ ).



**Table 1.** The distribution of gender and age group of the patients and the periods for ED admission

Gender	n	%
Female	29827	50.30
Male	29455	49.70
<b>Age group</b>		
0-15 years of age	2172	3.70
16-30 years of age	17996	30.40
31-45 years of age	15082	25.40
46-60 years of age	11123	18.80
61 years and older	12909	21.80
<b>Season</b>		
Winter	13605	22.90
Spring	13693	23.10
Summer	15688	26.50
Fall	16296	27.50
<b>Total</b>	59282	100.00

**Table 2.** The classification of the symptoms according to urgency

Classification	n	%
1. Symptoms that require admission to the ED	11359	19.20
2. Symptoms that require Family Medicine Clinics	42785	72.20
3. Symptoms that require outpatient follow-up	3058	5.20
4. Diagnoses that require long term inpatient follow-up	1390	2.30
5. Symptoms unclassified due to insufficient data	690	1.20

**Table 3.** The relationship between gender, age group, and season of admission and ideal classification

Gender	2 <sup>nd</sup> group	Other groups	p
Female	21829/73.20	7998/26.80	<b>&lt;0.001</b>
Male	20956/71.10	8499/28.90	
<b>Age group</b>			<b>&lt;0.001</b>
0-15 years of age	1321/60.80	851/39.20	
16-30 years of age	14485/80.50	3511/19.50	
31-45 years of age	11269/74.70	3813/25.30	
46-60 years of age	7998/71.90	3125/28.10	
61 years of age and older	7712/59.70	5197/40.30	
<b>Season</b>			<b>&lt;0.001</b>
Winter	9554/70.20	4051/29.80	
Spring	9313/68.00	4380/32.00	
Summer	11146/71.00	4542/29.00	
Fall	12772/78.40	3524/21.60	

## Discussion

The emergency departments of the medical faculties are tertiary healthcare facilities and expected to provide more specific care for more complicated diseases. However, the fact that the patients prefer the emergency department of the secondary and tertiary centers instead of the primary health care centers makes the working conditions of the emergency departments harder and causes unnecessary patient burden.<sup>12,13,14</sup> This is a common problem in many developed countries and solutions for decreasing patient concentration in the EDs have been sought. Evaluation of the patients, according to age reveals that inappropriate use of emergency departments is inversely related to age.<sup>12,13,15</sup> In the literature, it has been reported that inappropriate use of emergency services is more common among younger patients.<sup>16,17</sup> Rajpar et al<sup>18</sup>, reported that inadequate use of the emergency department is more common among the patients between 21 and 30 years of age and Carret et al<sup>4</sup>, reported it is more common among the patients between 15 and 49 years of. In our study, we found that the age groups mostly use EDs inappropriately were 16-30 and 31-45 age groups. We attribute this finding to the fact that the patients in these age groups are usually working individuals and the family medicine centers are closed after working hours.

In the literature, some studies report that there is no relationship between gender and inappropriate use of the emergency department.<sup>18,19</sup> However, Robert et al. in their study reported that inappropriate use of EDs is most common among women aged 18-40.<sup>20</sup> In the literature, there are other studies report that women use emergency departments inappropriately more than men.<sup>4,13,15</sup> In our study, we also observed that that inappropriate use among women is more frequent. This may be due to the fact that women are more likely to seek counseling on health issues and tend to use health services more frequently. Inadequate use of EDs is a worldwide problem. Particularly in the last 20 years, attempts have been made to establish a scale to determine the inappropriate use of EDs, but the studies could go further than determining the sociodemographic characteristics of the patients.<sup>21</sup> On the other hand, in USA, prevalence studies investigating the reasons of inappropriate use of EDs has been conducted and it has been suggested that inadequate use of EDs might be due to insufficiency of the emergency departments and the unsatisfying experiences related to the primary care services, but the studies couldn't reach a conclusion.<sup>5,8,22</sup>

In the literature that inappropriate use of EDs has been reported to vary between 10% and 90%, in related studies.<sup>4,6,14,15</sup> In our study, the inappropriate use rate of emergency services was found to be 75%. In our study, we found the rate of patients who actually should admit to family medicine as 72.2%. In the study of Young et al., it has been shown that individuals with regular primary care physicians, family physicians, use emergency services more appropriately.<sup>23</sup> In our country, family medicine provides comprehensive, continuous and holistic service to all individuals who apply to them. Furthermore, in the family medicine centers, a physician on duty and assistant health personnel were assigned every day after working hours, until 19:00 o'clock, in

order to prevent inappropriate admissions to the EDs. Carret et al. reported that family medicine centers were not convenient to admit due to transportation difficulties and the coinciding working hours, and therefore the EDs were used more frequently. In the same study, it has been emphasized that the most important factor for inappropriate usage of primary healthcare centers is the difficulty to access rather than the quality of the service.<sup>4</sup> Similarly, Biancoet al<sup>15</sup> and Carret<sup>4</sup> found that in cases where self-admission without a referral is possible, inappropriate use of emergency services was more frequent. Similarly, in Coleman's study, it is reported that two-thirds of the patients who visited the EDs inappropriately, directly admitted without referral.<sup>24</sup> In the literature, it has been reported that providing individuals a regular physician and health insurance that directs patients to the primary care centers at first can be effective in encouraging patients to prefer family medicine rather than emergency departments.<sup>25,26</sup> In our study, we found that 72.2% of patients admitted to the emergency department should admit to family medicine services. Supported by the literature, we attribute this condition to the fact that in our country, patients can admit to the EDs directly because there is no limit in referring from the primary care to the secondary and tertiary centers.

Tang et al., their study regarding the increasing number of admissions to the emergency departments and payment costs in the USA, during the last decade, reported that patients with Medicaid insurance use emergency services more than those with private health insurance.<sup>27</sup> In some countries, in cases of inappropriate Ed usage, sharing cost with adult patients has been emphasized, due to the increased pressure of inappropriate ED admissions on the state budget.<sup>28</sup> Similarly, a contribution of 15 \$ in California<sup>29</sup> and in 100 \$ Florida have been proposed for an inappropriate admission to the EDs.<sup>30</sup> Although these proposals have not been implemented, there are also studies suggesting that sharing the costs with the patients will be effective<sup>31</sup>. In another study, geographical conditions and easy accessibility of the EDs in comparison to family medicine was listed among the reasons for the inappropriate use of Eds.<sup>32</sup> Capp et al<sup>33</sup>, suggested that the most frequent cause of inappropriate use of ED was previous negative experience with staff in the primary health care facility.<sup>33</sup> The complaints about primary care include encountering different health personnel in each admission and not being listened to about the complaints completely. Another reason is that the family medicine centers work with an appointment system and do not have a reminding system for the appointments.

Kilicaslan et al<sup>34</sup> found that 47% of the patients admitted to the ED with non-urgent causes; the most common reasons for admission were chest pain, abdominal pain, respiratory disorders and headache. Another study found that about 32% of ED admissions were due to non- urgent causes. In the same study, the most important causes of using ED was patients' more reliance on the ED and the shorter distance of the ED.<sup>35</sup> In a study investigating admissions to the ED of Sisli Etfal Hospital in 3 years, the 3-year-old patients who had emergency services in Etfal Hospital were examined, the most common reasons for admission to the ED included abdominal pain, chest pain, general disorder, dyspnea and hemorrhage. Hemorrhage, fatigue, and dyspnea were more frequent in patients older than 65 years of age, whereas chest pain was more common in patients

younger than 65 years of age.<sup>36</sup> Vanpeeet al in the review reported that more than 20% of the elderly patients admitted to EDs with the general disorder; this condition was attributed to inadequate formal or informal social care and support.<sup>37</sup> In our study, we found that the most common reasons for admissions were respiratory system diseases, pain in any body area and traumatic complaints. We think that the higher ratios of the first two causes are due to the admissions of the relatives who seek inpatient treatment for their patients.

It has been seen that the vast majority of the patients who admitted to the ED are not actually urgent and should use primary health care services. Effective referral system application of triage for ED admissions, and collecting extra contribution fee for those admitting for non-urgent complaints can be suggested for reducing non-indicated workload in emergency departments.

#### *Ethical considerations*

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication, double publication and/or submission, redundancy, etc.) have been completely checked by the authors.

#### *Acknowledgments*

The authors declare that there is no conflict of interest.

## References

1. Carret ML, Fassa AC, Domingues MR. Inappropriate use of emergency services: a systematic review of prevalence and associated factors *Cad Saude Publica*. 2009 Jan;25(1):7- 28.
2. Gill JM. Use of hospital emergency department for non-urgent care: a persistent problem with no easy solutions. *Am J Manag Care* 1999;5:1565-8.
3. Plauth AE, Pearson SD. Discontinuity of care: urgent care utilization within a health maintenance organization. *Am J Manag Care* 1998;4:1531-7.
4. Carret ML, Fassa AG, Kawachi I. Demand for emergency health service: factors associated with inappropriate use *BMC Health Services Research* 2007;7:131 (doi:10.1186/1472-6963-7-131).
5. Roberts E, Mays N. Can primary care and community- based models of emergency care substitute for the hospital accident and emergency (A & E) department? *Health Policy* 1998;44:191-214.
6. Cunningham PJ. What accounts for differences in the use of hospital emergency departments across US communities? *Health Aff (Millwood)*. 2006;25:324–36.
7. Lowe RA, Localio AR, Schwarz DF, et al. Association between primary care practice characteristics and emergency department use in a Medicaid managed care organization. *Med Care*. 2005;43:792– 800.



8. Aminzadeh F, Dalziel WB. Older adults in the emergency department: a systematic review of patterns of use, adverse outcomes, and effectiveness of interventions. *Ann Emerg Med* 2002;39:238-47.
9. 2017 Yılı Ocak-Ekim Dönemi Acil Servislere İlişkin Veriler: Türkiye Kamu Hastaneleri Genel Müdürlüğü İstatistik, Analiz, Raporlama ve Stratejik Yönetim Dairesi Başkanlığı verileri Aralık 2017. [İnternet]; Available from: <https://dosyamerkez.saglik.gov.tr/Eklenti/23496,2017-ocak-ekim-donemi-acil-servis-verileri2pdf.pdf?0> (Erişim tarihi: 13.12.2018).
10. Wachter R M, Goldman L. The hospitalist movement 5 years later. *JAMA* 2002;287(4):487-94.
11. Mc Whinney, I. R. ve Freeman, T. (2009). *Textbook of Family Medicine*. United Kingdom: Oxford University Press, Inc.
12. Derlet RW: Overcrowding in emergency departments: increased demand and decreased capacity. *Ann Emerg Med* 2002;39(4):430-2.
13. Oktay C, Cete Y, Eray O, Pekdemir M, Gunerli A: Appropriateness of emergency department visits in a Turkish university hospital. *Croat Med J* 2003;44(5):585-91.
14. Afilalo J, Marinovich A, Afilalo M, Colacone A, Leger R, Unger B, Giguere C: Nonurgent emergency department patient characteristics and barriers to primary care. *Acad Emerg Med* 2004,11(12):1302-10.
15. Bianco A, Pileggi C, Angelillo IF. Non-urgent visits to a hospital emergency department in Italy. *Public Health* 2003;117:250-5.
16. Lang T, Davido A, Diakite B, Agay E, Viel JF, Flicoteaux B: Using the hospital emergency department as a regular source of care. *Eur J Epidemiol* 1997;13(2):223-8.
17. Shah NM, Shah MA, Behbehani J: Predictors of non-urgent utilization of hospital emergency services in Kuwait. *Soc Sci Med* 1996;42(9):1313-23.
18. Rajpar SF, Smith MA, Cooke MW. Study of choice between accident and emergency departments and general practice centres for out of hours primary care problems. *J Accid Emerg Med* 2000;17:18-21.
19. Finn JC, Flicker L, Mackenzie E, Jacobs IG, Fatovich DM, Drummond S, et al. Interface between residential aged care facilities and a teaching hospital emergency department in Western Australia. *Med J Aust* 2006; 184:432-5.
20. Lowe RA Fu R, Ong ET, McGinnis PB, Fagnan LJ, Vuckovic N, Gallia C. Community Characteristics Affecting Emergency Department Use by Medicaid Enrollees. *Medical Care* 2009;47(1):15-22.
21. Lowe RA, Bindman AB. Judging who needs emergency department care: a prerequisite for policymaking. *Am J Emerg Med* 1997;15:133-6.
22. Bezzina AJ, Smith PB, Cromwell D, Eagar K. Primary care patients in the emergency department: who are they? A review of the definition of the "primary care patient" in the emergency department. *Emerg Med Australas* 2005;17:472-9.
23. Young GP, Wagner MB, Kellermann AL, Ellis J, Bouley D. Ambulatory visits to hospital emergency departments. Patterns and reasons for use. 24 Hours in the ED Study Group. *JAMA* 1996;276:460-5.

24. Coleman EA, Eilertsen TB, Kramer AM, Magid DJ, Beck A, Conner D. Reducing emergency visits in older adults with chronic illness. A randomized, controlled trial of group visits. *Eff Clin Pract* 2001;4:49-57.
25. Stein AT, Harzheim E, Costa M, Busnello E, Rodrigues LC: The relevance of continuity of care: a solution for the chaos in the emergency services. *Fam Pract* 2002,19(2):207-10.
26. Mendoza-Sassi R, Beria JU: [Health services utilization: a systematic review of related factors]. *Cad Saude Publica* 2001,17(4):819-32.
27. Tang N, Stein J, Hsia RY, Maselli JH, Gonzales R. 2010. Trends and characteristics of US emergency department visits, 1997–2007. *JAMA* 304:664–70.
28. Mortensen K. 2010. Copayments did not reduce Medicaid enrollees' nonemergency use of emergency departments. *Health Affairs* 29:1643–50.
29. Centers for Medicare and Medicaid Services. 2013a. Cost sharing out of pocket costs [Online]. Available from: <http://www.medicare.gov/Medicare-CHIP-Program-Information/By-Topics/Cost-Sharing/Cost-Sharing-Out-of-Pocket-Costs.html>
30. Kaiser Family Foundation. 2012. Governors' budgets for FY 2013 — what is proposed for Medicaid? [Internet]. Available from: <http://www.kff.org/medicaid/upload/8294.pdf>
31. Saloner B, Sabik L, Sommers BD. 2014. Pinching the poor? Medicaid cost sharing under the ACA. *New England Journal of Medicine* 370:1177–80.
32. Billings J, Parikh N, Mijanovich T. Emergency department use in New York city: a substitute for primary care? *Issue Brief (Commonw Fund)*. 2000:1–5.
33. Capp R, Kelley L, Ellis P, Carmona J, Lofton A, et al. Reasons for Frequent Emergency Department Use by Medicaid Enrollees: A Qualitative Study. *Academic Emergency Medicine* 2016;23:476–81.
34. Kılıçaslan İ, Bozan H, Oktay C, Göksu E. Demographic properties of patients presenting to the emergency department in Turkey *Turkish Journal of Emergency Medicine* 2005;5(1):5-13. (In Turkish)
35. Ersel M, Karcioğlu Ö, Yanturalı S, Yürüktümen A, Sever M, Tunç MA. Emergency Department utilization characteristics and evaluation for patient visit appropriateness from the patients' and physicians' point of view. *Turkish Journal of Emergency Medicine* 2006;6(1):25-35. (In Turkish)
36. Karadağ B, Çat H, Öztürk AO, Basat O, Altuntaş, Y. Patient profile of patients who were admitted to the emergency polyclinic and who received observation: Three-year study. *Akademik Geriatri Dergisi* 2010; 2(2):176-85. (In Turkish)
37. Vanpee D, Swine C, Vandenbossche P, Gillet JB. Epidemiological profile of geriatric patients admitted to the emergency department of a university hospital localized in a rural area. *Eur J Emerg Med* 2001; 8: 301-4.