

Appropriateness of Emergency Department Visits in a Turkish University Hospital

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Aim. To determine the patterns and appropriateness of patients' use of a university hospital emergency department.

Methods. During a 14-day period in November 1998, we collected demographic and socio-economic data, reasons for preferring emergency department care, and patient visit data from consecutive patients visiting our tertiary-care university hospital emergency department. The principle investigator reviewed the study information forms and classified visits according to the classification of Afilalo into three categories: category I – emergent emergency department visits; category II – needing evaluation within 6 hours, either in emergency department or elsewhere; or category III – needing evaluation after more than 6 hours. Three emergency medicine residency-trained physicians determined the appropriateness of emergency department evaluation. Patients in the categories II and III were retrospectively reclassified as appropriate or inappropriate, according to availability of care at the outpatient facility at the hour of initial emergency department presentation.

Results. Complete data were collected from 1,155 (96.2%) of 1,201 patients visiting our emergency department during the study period. There were 69% (n = 795) appropriate of visits. The mean stay at emergency department of inappropriate users lasted 66 min. The main reasons of inappropriate users to prefer emergency department care were its proximity, satisfaction with care, worsening symptoms, and unavailability of care in a regular clinic.

Conclusion. Although inappropriate emergency department usage was high, these patients had relatively short emergency department stays. The impact on emergency department resource utilization and "over-crowding" by these patients may not be as great as commonly perceived.

Key words: *clinic visits; delivery of health care; emergencies; emergency medical services; emergency service, hospital; emergency treatment; Turkey*

Emergency departments have traditionally provided care to anyone requesting it, including patients with non-urgent complaints. Because of its unique practice setting, emergency departments have the capacity to deliver full range of medical services to acutely ill or injured patients and have round-the-clock accessibility: 24 hours a day, seven days per week, regardless of patients' ability to pay (1). The demand for emergency services has resulted in overcrowded emergency departments, especially those in teaching hospitals, leading to prolonged patient waits, delayed treatment of seriously ill patients, quality assurance issues, and patient dissatisfaction (2,3). Crowding in emergency departments has been a much-publicized health care concern in the United States (4-6), and is increasingly becoming an issue of concern for emergency departments in Turkey, a country with a completely different health care system.

A review of the emergency medicine literature regarding emergency departments use and access to care over the past 20 years reveals significant evolu-

tion. In the 1980s, nonurgent emergency department visits were regarded as "inappropriate" and targeted as a source of potential savings (1). This led to multiple attempts to identify inappropriate visits and develop strategies to triage them away from the emergency departments (1,2,7).

Studies that measured the urgency level of visits found widely varying percentages of nonurgent ones (8,9). The main reasons were the lack of standardized categorization and wide discrepancy among the physicians. Many authors are against limiting emergency department care, but some government officials, policy makers, insurers, and managed care organizations still try to control emergency department utilization (1). As denying emergency department care may lead to undesirable outcomes, current research is now focused on overcrowding in emergency departments (1).

Access to emergency department care in Turkey is ensured by the national law. Emergency department physicians must examine all people who seek care, regardless of their income status, ethnicity, in-

insurance status, or special needs. The policy is that emergency care is patient-demanded, and a patient visiting emergency department is seriously ill until proven otherwise. Almost all hospitals in Turkey offer emergency care. Also, most are run either by the government, universities (which are government funded), or by one of a few specific government insurance programs; private hospitals exist in big cities. Emergency care in government hospitals is provided by general practitioners, whereas residency-trained emergency medicine physicians and residents from various other specialties offer emergency care in almost 30 government research and education hospitals. Residency training in emergency medicine in Turkey began in 1994, at Dokuz Eylul University. Today, there are 20 residency programs where emergency medicine residents mostly work with emergency medicine specialists. Other university hospitals, which do not have residency programs in emergency medicine, have residents from other specialties to provide emergency care. In the city of Izmir with a population of one million, there are two university hospitals and three governmental hospitals responsible for almost all emergency patients. These five hospitals have a total of 2,000 emergency department visits daily. In approximately a thousand hospital-based emergency departments in Turkey, no data on the actual number of emergency department visits or on patient acuity are routinely collected.

The purpose of our study was to determine the patterns of use and patient acuity in a Turkish university hospital with an emergency medicine residency program for physicians. We assessed the reasons of patients for preferring visits to emergency departments, even when the visits were inappropriate.

Subjects and Methods

We conducted a prospective observational study of all patients visiting a 680-bed tertiary-care teaching hospital over a two-week period in November 1998. The study had two parts: analysis of data collected from patient interviews and the emergency department medical record and retrospective categorization of appropriateness of patient visits.

The University Research and Ethics Committees approved the research protocol. Patients were aware that they were being enrolled into a study, but informed consent was not obtained.

Interviews and Data Collection

Each emergency medicine resident and attending physician in our department was informed on the study and a 24-h pilot study was conducted to ensure that data collection and recording proceeded smoothly. The data from the pilot study were not used in the final statistical analysis.

The primary physician seeing the patient (an emergency medicine resident) recorded the information on patient's age, sex, income, educational level, insurance status, duration of emergency department visit, method of transportation to the emergency department, chief complaint and its duration, medical history, vital signs, requested laboratory tests, emergency department procedures (including intravenous line placement, intramuscular injections, nasogastric tube placement), consultations requested, and the patient's disposition. The physician also asked the patient an open-ended question, "Why did you choose to come to the emergency department?" The final diagnosis did not appear anywhere on the form and was not taken into consideration. Data not recorded on the data form were collected by chart review or by a telephone call to the patient.

Categorization of Visit Appropriateness

All patients were assigned to one of the three categories according to the methodology described by Afilalo et al (4) (Table 1). The principle investigator reviewed the study forms and classified the visits. Category I included patients who could have been treated only in an emergency department. Category II included patients who needed to be assessed within 6 hours of initial presentation at an emergency department or other adequately equipped outpatient facility. Category III patients were those whose assessment in an emergency department or outpatient facility could have been safely delayed for more than six hours.

Table 1. Definition of categories of appropriateness of emergency department use (according to the ref. 4)

Category I – any of the following:

1. Triage Code 1 or 2
 - Code 1: patients require immediate attention. The illness or injury threatens life or limb in the immediate future.
 - Code 2: patients require attention within 20 minutes. The illness or injury is acute and severe and may threaten patients' life or limb.
2. Referral to the emergency department
 - This indicated that patients were referred to the emergency department by an outside physician, nurse or by the prehospital emergency care system.
3. Emergency Investigation in the emergency department
 - Patients required a minimum of two blood tests: complete blood count, SMA-7 (sodium, potassium, chloride, carbon dioxide, glucose, blood urea nitrogen, creatinin) in addition to one other test such as urinalysis, radiography, or electrocardiogram.
4. Emergency treatment in the emergency department
 - Patient required treatments not available at other outpatient facilities, such as intravenous fluid, or medication administration, indwelling foley catheter, rapid tranquilization, gastric lavage, or decompression, etc.
5. Observation and reassessment in the emergency department
 - Patients had an emergency department stay greater than four hours. The time spent at the emergency department was based on the period between entering the examination cubicle and the disposition decision.

6 Emergency consultation and admission

Category II – any one of the following:

1. Acute and severe discomfort
2. Acute and severe psychosocial distress
3. Potential emergency in the differential diagnosis

Category III – none of the above criteria

Subsequently, three emergency medicine residency-trained physicians blinded to one another's judgments independently reviewed each patient's chart and decided whether the patient's visit to the emergency department was appropriate or not.

Category I patients, by definition, were those who required emergency department care, thus their visits were all 'appropriate'. Although visits in category II were defined as acute, these patients could have waited and obtained medical care within 6 h in another outpatient facility. Some of these visits were inappropriate, especially taking into account the time of the visit to emergency department and the availability of an outpatient care (during business hours, when government health clinics are open for service). Although category III patients could have waited at least 6 hours to be evaluated, we reviewed the patients' charts to see if some of these were in fact appropriate emergency department visits. The day of the week and hour of patient visit, as well as aspects of their medical problems may have made treatment in an outpatient facility difficult or impossible for some of these patients, thus their visit to our emergency department was sometimes appropriate.

The appropriateness of category II and III patient visits were retrospectively determined based on patient's medical complaints and their duration, time of visit to emergency department, laboratory tests ordered, and emergency department procedures performed. Patient visits were designated inappropriate if medical care was available at an outpatient facility at the time of triage within a timely manner and the type of care needed could be received at these facilities. Agreement by two of the three attending

physicians was sufficient for final assignment into the category of appropriate or inappropriate.

Statistical Analysis

Data analysis was performed using SPSS 6.0 (SPSS Inc., Chicago, IL, USA). The data were analyzed using the chi-square test, Pearson, Yates, or trend; Kruskal Wallis analysis of variance; or t-test for independent samples. We performed bivariate and multivariate logistic regression to determine the association between the variables and inappropriate emergency department use. Kappa statistics was used to determine inter-rater reliability for classification as "appropriate" or "inappropriate".

Results

During the study period, 1,201 consecutive patients aged 17-99 years visited the emergency department. Forty-six patients (3.8%) were excluded from the analysis because they left without being seen or interviewed (n=9); refused to participate in the study (n=8); were unable to provide data because of altered mental status or other reasons (n=17); or their forms were incomplete (n=12). Data forms were completed for 1,155 patients (96.2% of total visits) during the study period (Fig. 1). There were no unusual events during this period that would change the number or the type of emergency department visits.

The mean age (\pm standard deviation) of patients was 44.9 ± 18.1 years (median, 44); 19% of patients were over 65 years old. There were 503 (43.5%) male and 652 (56.5%) female patients.

The principal investigator categorized 563 (48.7%) patients under the category I, 343 (29.7%) under the category II, and 249 (21.6%) under the category III.

Three emergency medicine residency-trained physicians who reviewed category II and III patients' study forms to determine the appropriateness of emergency department visits, decided that 232 visits were appropriate (220 visits in category II and 12 vis-

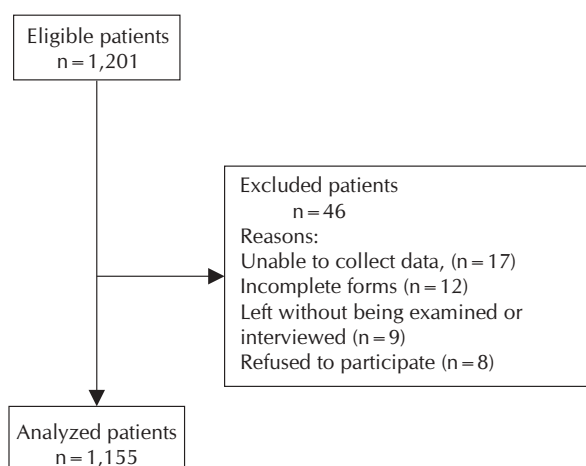


Figure 1. Flow diagram of the study patients.

its in category III), and 360 were inappropriate (123 visits in category II and 237 visits in category III). The emergency medicine residency-trained physicians all agreed on the classification of 413 (69.7%) patients, and two of three agreed on the categorization of the remaining 179 (30.3%). Kappa coefficients for measurement of agreement between the first and the second, the second and the third, and the first and the third emergency medicine residency-trained physician were $\kappa=0.54$, $\kappa=0.59$, and $\kappa=0.61$, respectively.

According to both the category assignment and physicians' review, 795 patients' visits (68.8%) were assessed as appropriate and 360 (31.2%) as inappropriate. The mean age of patients making appropriate and inappropriate visits was 46.9 ± 18.6 and 40.6 ± 16.1 years, respectively (Table 2).

Table 2. Demographic characteristics and educational and insurance status of appropriate and inappropriate emergency department users

Parameter	No. (%) of visits			p*	Odds ratio
	appropriate	inappropriate	total		
Total	795 (68.8)	360 (31.2)	1,155 (100.0)		
Sex:					
men	370 (73.6)	133 (26.4)	503	0.003	
women	425 (65.2)	227 (34.8)	652		
Mean age	46.9 ± 18.6	40.6 ± 16.1	44.9 ± 18.1		
Median age	47	38	44		
Marital status:					
single	148 (64.3)	82 (35.7)	230	0.093	
married	544 (69.0)	244 (31.0)	788		
widow/er	103 (75.2)	34 (24.8)	137		
Education status:					
illiterate	74 (80.4)	18 (19.6)	92	<0.001	1.00
primary	236 (73.8)	83 (26.3)	320		0.68
junior high	73 (69.5)	32 (30.5)	105		0.55
high school	235 (67.5)	113 (32.5)	348		0.51
university	177 (61.0)	113 (39.0)	290		0.38
Insurance status:					
full governmental	468 (66.2)	239 (33.8)	707	0.018	
self-pay	327 (73.0)	121 (27.0)	448		
Regular income (million TL/month) [†] :					
none	210 (71.7)	83 (28.3)	293	0.026	
<49	70 (75.3)	23 (24.7)	93		1.00
50-99	253 (69.7)	110 (30.3)	363		0.76
≥100	262 (64.5)	144 (35.5)	406		0.60

*Chi-square test.

[†]10⁶ Turkish liras (TRL) = €0.63.

The mean age of category I patients was 48.7 ± 19.0 years; category II was 41.3 ± 16.6 ; and category III was 41.2 ± 16.2 years ($p < 0.001$; Kruskal-Wallis analysis of variance). There were 150 (26.6%) patients over 65 years of age in category I, 40 (11.7%) in category II, and 30 (12.0%) in category III. The proportion of appropriate emergency department visits was significantly greater for men than for women (73.6% vs 65.2% appropriate visits, $p = 0.003$; Table 2).

Over half of the patients (535, or 52.9%) sought health care during the evening hours (between 4:00 p.m. and midnight). Four hundred and thirty-three patients (37.5%) visited the emergency department between 8:00 a.m. and 3:59 p.m. (day shift) and less than 10% of patients ($n = 187$) visited the department between midnight and 7:59 a.m. (night shift). With respect to the hours of visitation, 58.8% of visits between 8:00 and 9:59 a.m. and 86.5% of visits between 6:00 and 7:59 a.m. were deemed appropriate. During the peak visitation period (8:00–9:59 p.m.), over two-thirds (67.5%) of visits were appropriate, and after 2:00 a.m., 80% of visits were appropriate (Fig. 2).

The majority of patients (76.1%) came to the emergency department directly from home, whereas

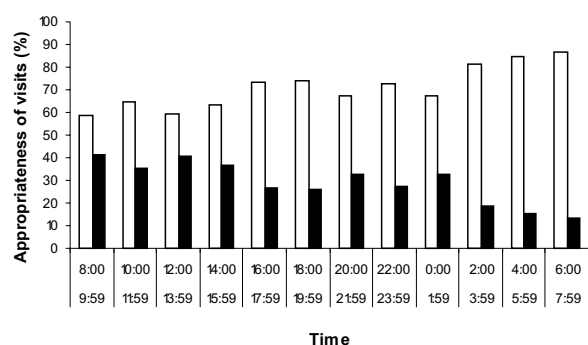


Figure 2. Appropriateness of emergency department visits according to the time of presentation at the Department of Emergency Medicine, Dokuz Eylul University School of Medicine, Izmir, Turkey. Open bars – appropriate users; closed bars – inappropriate users.

Table 3. Patterns of emergency department (ED) use by 1,155 patients

Parameter	No. (%) of patients
Initial location of care:	
house	879 (76.1)
private physician	11 (1.0)
primary health care office	15 (1.3)
hospital	98 (8.5)
police station	10 (0.9)
others	142 (12.3)
Mode of transportation to emergency department:	
ambulance	84 (7.3)
walked	71 (6.1)
taxi	207 (17.9)
private car	711 (61.6)
other	82 (7.1)
Disposition from emergency department:	
discharged	949 (82.2)
admitted	118 (10.2)
transferred	37 (3.2)
refused ED care	45 (3.9)
died in the ED	6 (0.5)

only 10.9% of patients were transferred from another hospital (Table 3). Seven hundred eleven (61.1%) patients arrived at the emergency department by a private car. Only 84 (7.7%) patients were brought by ambulances (Table 3).

With respect to marital status, 68.2% of patients were married, 19.9% were single, and 11.9% were widowed or divorced, and there was no statistically significant difference among these three groups of patients in the appropriateness of their emergency department visits ($p = 0.093$; Table 2).

A quarter of patients ($n = 290$) had a college education, and 8% ($n = 92$) had not finished primary school or were illiterate. Higher education correlated with increased number of inappropriate emergency department visits ($p < 0.001$).

With respect to insurance status, only 61.2% of the patients had government insurance, which meets all the emergency department costs. The rest of the patients were self-paying. Patients whose visits were fully paid by health insurance accounted for a significantly greater number of inappropriate visits ($p = 0.018$).

Two hundred ninety-three patients (25.4%) had no regular income. When divided into three income classes, the patients in the highest income group made significantly more inappropriate visits than the two lower-income groups ($p = 0.026$).

Factors that could affect the appropriate emergency department use were analyzed by multiple logistic regression. Age, sex, insurance status, and regular income were again found as independent, statistically significant factors. For example, the appropriateness of emergency department use increased with age of the patients (Table 4). Although higher education

Table 4. Multiple logistic regression for any appropriate visit to the emergency department

Parameter	Any appropriate visit*	Overall p
Age	1.024 (1.016-1.032)	0.001
Sex:		
men	1	0.003
women	0.658 (0.501-0.863)	
Insurance status:		
full governmental	1	0.001
self-pay	1.597 (1.204-2.119)	
Regular income (million TL/month) [†] :		
none	1.767 (1.251-2.495)	0.010
≤49	1.573 (0.924-2.678)	
50-99	1.187 (0.869-1.621)	
≥100	1	

*Odds ratio (95% confidence interval).

[†]10⁶ Turkish liras (TRL) = €0.63.

level seemed statistically significant for inappropriate emergency department visits, after adjusting for the covariates by using multiple regression analysis, it was shown as not significant.

Nine hundred forty-nine patients (82.2%) were discharged from the emergency department, 118 patients (10.2%) were admitted, and 37 (3.7%) were transferred to another hospital because of the lack of empty beds in the hospital. Forty-five patients (3.9%) refused medical care and six (0.5%) left the emergency department without permission.

The average hospital admission rate (admitted to our hospital and/or transferred to another hospital for admission) was 13.9%. The probability of hospital admission was 22.9% for patients visiting the department between 2:00 and 03:59 a.m. Fifty-eight patients required admission during business hours (8:00–3:59 pm), 68 during the evening (4:00 p.m. to midnight), and 29 after midnight (midnight to 7:59 a.m.). The ratio of admissions to the total number of patients seen in the emergency department was 13.4%, 12.7%, and 15.5%, respectively ($p=0.627$; Fig. 3).

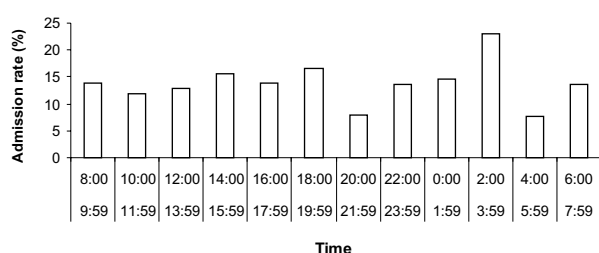


Figure 3. Patients requiring admission according to the time of emergency department presentation at the Department of Emergency Medicine, Dokuz Eylul University School of Medicine, Izmir, Turkey.

The mean emergency department length of stay of all patients, appropriate users, and inappropriate users was 160.8 ± 190.2 , 203.8 ± 213.8 , and 65.8 ± 45.5 minutes, respectively ($t = 17.35$, $p < 0.001$).

Patients were free to declare more than one reason for their emergency department visit: 58 declared two reasons, whereas five declared three. The main reasons for preferring emergency department care by 360 inappropriate users were proximity (23.3%), satisfaction with care (14.7%), pain or worsening symptoms (13.6%), and unavailability of clinic care (13.3%) (Table 5).

Table 5. Reasons of inappropriate users to prefer emergency department (ED) care

Reasons	No. (%) of responses
Proximity	84 (19.8)
Satisfaction with care	53 (12.5)
Pain and worsening symptoms	49 (11.5)
Clinic care unavailable	48 (11.3)
Quick care and laboratory results	35 (8.5)
Always get care in this hospital	32 (7.6)
Perception of serious illness	27 (6.4)
Told to go to ED by relatives or others	20 (4.7)
Trust our ED care	12 (2.8)
Thought symptoms would become intensified	11 (2.6)
Told to come to our ED for follow up	10 (2.4)
Relatives work in our ED	9 (2.1)
Miscellaneous	33 (7.8)
Total	423 (100.0)

Discussion

It is fundamentally difficult to comment on the appropriateness of patient visits because measuring urgency is a difficult task. In our study, we found almost one-third of visits inappropriate. However, mean emergency department stay of these patients

was relatively short. The parameters that significantly influenced the appropriateness of emergency department visits were older age, male sex, health insurance, and regular income.

In studies that measured inappropriate use of emergency departments, the percentage of inappropriate visits varied from 5% to 82% (8,9). The most important reason for such a wide variation is the lack of standard criteria to measure appropriateness. Some studies used the physician's perception, whereas others relied on the patient's perception of the appropriateness of the visit (4,10).

Signal and colleagues (11) reported that elderly patients seeking emergency care had a high level of acuteness and use more health resources than non-elderly adults. Elderly emergency department patients also had more comorbid conditions, spent significantly more time in the emergency department, and were admitted more frequently to the hospital. Elderly patients tended to have high-urgency complaints more often than the non-elderly adults (11).

Other authors reported wide discrepancies in physician perceptions of what constituted an appropriate emergency department visit. Foldes et al (10) found that judging appropriateness of an emergency department visit differed greatly between physicians of different training, ie, internal medicine and emergency medicine-trained physicians. Furthermore, poor inter-rater agreement and incongruities also limit the value of studies in appropriateness of emergency department use (1).

It is clear that studies relying on individual physician perception of the urgency degree of a visit will be hampered by imperfect inter-rater reliability. Because of inconsistency in agreement among physicians, the appropriateness of emergency department visits should not be assessed before a complete evaluation of the patient has been performed. Emergency physicians are responsible for the evaluation and, where indicated, for the initial treatment of all patients who request care at a hospital emergency department. Emergency care should be patient-demanded, continuously available, and accessible to all (12).

Although there are other systems of categorization of emergency department patients (2,4,7,9), we chose to use the Afilalo's methodology because it does not list chief complaints *a priori* as appropriate or inappropriate, as other methods do. Moreover, Afilalo's method was formulated in a hospital environment similar to ours, and the categories corresponded to the realities in our own health system.

A previously unreported finding is the higher rate of inappropriate emergency department use by women in our patient population. This may result from the difficulty men in Turkey have getting time off work, so they may only present to us when they really feel the need for emergency care. To discover the exact reasons behind this finding, further studies should be done in emergency departments and outpatient facilities, obtaining more detailed information on the reasons for visit with respect to the time of visit.

Guterman (13) found that inappropriate use of the emergency department was very low after 2 a.m. He also found that patients who presented during the night shift had illnesses requiring hospital admission at a rate nearly twice that of daytime patients, and required immediate care more frequently (13). However, our admission rates did not significantly differ with respect to the time of the day. Indeed, the proportion of our patients requiring admission during the busiest shift in the evening hours was as high as during the night shift. Thus, in our emergency department, we cannot claim that night shift patients require more intensive care than other patients.

The percentage of patients referred to the emergency department by their private or primary care physicians was very small. The primary health care system in Turkey is understaffed and inefficient, which is one of the reasons why patients prefer the emergency department care. This pattern of use differs from that in the US, where 62% of patients have a regular physician and 13% visit the emergency department on the basis of their physicians' instructions, with only 10% visiting an emergency department because they have not been able to make an appointment with a physician at the office or clinic (13).

Recently introduced 911-type of emergency medicine system in Turkey is still new to most of the patients, and about 80% of them still come to the emergency department by a taxi or private car in spite of the seriousness of their illness or injury.

Lower-income patients had a higher rate of appropriate visits than higher-income patients. This is probably because they preferred less expensive public health clinics or government hospital emergency departments for minor health problems. Shesser et al (14) also found that patients with minor health problems were generally well-educated, well-insured, employed, and had an income similar to (if not higher than) that of the average emergency department population. Although patients of different background had rather different reasons for emergency department use, all study groups wanted to receive quickly (within a day) professional attention for their minor illness, and patients were much more comfortable than their physicians with the use of emergency services for minor illness (14).

When the government or a health insurance company pays for the charges, the number of inappropriate visits increases. Not having to pay out of pocket allows patients the freedom to visit the emergency department whenever they want, regardless of the seriousness of their condition. However, health insurance status is not associated with children's overall emergency department use or use for non-urgent complaints (15,16). Convenience is a significant factor in pediatric emergency department visits for nonurgent complaints (16).

The mean emergency department length stay of patients making inappropriate visits was shorter than that of appropriate visits. In our study, the short emergency department stay, and minimum impact on emergency department resource utilization indicate that "inappropriate" visits probably do not exert a

negative effect on emergency department operations. Inappropriate use has been claimed to contribute to overcrowding in emergency departments. However, Pereira et al (4) found that this overuse was not the greatest contributor to overcrowding in Portuguese hospitals, and that this problem could be solved if a primary care network gave workable alternatives, attending all types of patients, including those who cannot afford private physician, in a timely, comprehensive, and readily accessible manner.

Afilalo et al (4) determined the following main reasons for choosing to visit the emergency department: other health facilities closed (25%); patient's perception of condition as serious (20.7%); familiarity with or trust in the emergency department (12.1%); proximity (10.7%); unawareness of services available elsewhere (8.6%); and dissatisfaction with other outpatient facilities (8.6%). The most frequent reasons for emergency department use found by Shesser et al (13) were the ease of emergency department use (23.7%); no previously identified source of medical care (22.1%); inability to make appointment with usual health care source (19.0%); and referral to the emergency department by regular medical provider or employer (14.5%). Young and colleagues (18) determined that 45% of patients thought they needed urgent medical care or were too sick to go elsewhere, 19% of patients were sent to the emergency department by a health care professional, and 11% declared that clinics did not open at night or they could not get off work. The results of the Portuguese study showed that the reasons for inappropriate use were patients' greater trust in the hospital than primary care (51.1%), inappropriate use of service by patients (18.2%), and inappropriate referrals by primary care physicians (19).

In our study, proximity was the main reason for preferring emergency department care, which may be related to difficulties with or high cost of transportation. During hours when financially accessible outpatient facilities were open, satisfaction with the care delivered in such facilities became an important factor. If patients could not find satisfactory care in outpatient facilities, they continued to use the emergency department for minor problems.

As far as limitations of our study are concerned, the major one is the methodology we used to determine the appropriateness of emergency department use. Afilalo's methodology (4) has not been extensively validated, but no such validated methodology exists and the definition of appropriateness varies from source to source. The second limitation is that our data collection might have been more objective if obtained by researchers blinded to the study objectives. We attempted to reduce this bias by training the interviewers to read the questions verbatim, and not leading the respondents on to any particular answer. The third limitation is that the retrospective assessment of appropriateness was done by chart review. The written record may not contain information relevant to the patient's reasoning for coming to the emergency department, and thus may have been overlooked by chart reviewers. Having three senior physi-

cians interview the patient at the time of presentation would have been more valuable, but logistically impossible. Finally, this study does not show the overall appropriateness of emergency department use in Turkish hospitals. There may be great differences between hospitals and different regions of the country. However, this study and the review of the literature support the suggestion not to deny patients care they seek in emergency departments, because of the lack of any standard criteria and uniform categorization methodology. A recent study suggested that improving satisfaction with and access to usual source of health care may help to decrease discretionary emergency department use (20). Thus, supporting primary health care facilities, increasing the number of outpatient clinics, and public education should solve the problem of crowding in emergency department.

In conclusion, inappropriate emergency department use was higher among women, those with higher income, and those with full-pay government insurance. As a group though, these patients had relatively short emergency department stays. Thus, patients using the emergency department "inappropriately" may not cause as great a negative impact on emergency department resources as is commonly believed. Further studies should be done to determine the exact impact of such a situation on the emergency department staff and institution. As a policy, we should keep on taking care of every person requesting emergency department care, since alleviating overcrowding needs other strategies.

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