# Evaluation of the Request for Consultations in the Emergency Department of Okmeydanı Training and Research Hospital Between 2014 and 2015

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#### Abstract

**Objective:** Emergency clinics encounter a wide range of patients. Therefore, the consultation request rate is high. A consultation system is the basic important factor that impacts the operations of emergency clinics. The objective of the present study was to evaluate the consultations requested by the emergency clinic and how they were replied.

**Methods:** The consultations requested by the emergency clinic in the Okmeydani Training and Research Hospital between January 1, 2014 and December 31, 2015 were screened retrospectively through the database of the hospital's Information Management System.

**Results:** In our hospital, the percentage of patient admission to the emergency clinic was 31.9%. A consultation was requested in 15.5% of all emergency clinic admissions. Regarding the distribution of the consultation requests to the departments, the Internal Medicine Department had the highest percentage with 67.1%. Of the consultation requests, 91.4% were replied on the system. The median reply time was 96 min. The rate of the consultations requested from more than one clinic for the same patient was 11.7%, and the reconsultation request rate from the same clinic within 24 h was 11.8%. There was a statistically significant correlation between the reconsultation requests within 24 h and multiple consultations (p=0.001). We determined that no record was kept in 82% of the consultation requests related to the outcome of the admissions to the emergency clinic.

**Conclusion:** To our knowledge, this is the first study that focused on the consultation system of the hospital, where the study was conducted. Data related to the quality and quantity of the consultations were obtained during the study. The evaluation of all data including the consultation systems, which are performed to support the development of the emergency care services and emergency departments in Turkey, can only be done with a regular recording and analysis of the data.

Keywords: Consultation, emergency clinic, emergency medicine, waiting period

## INTRODUCTION

Currently, specialty branches are on the rise with the development of medical science and the increase of scientific knowledge. Consultation of physicians from different fields is needed for the development of a holistic approach to the patient. Consultation is exchanging ideas and/or receiving technical support from different areas of specialties in order to maintain patient-centered diagnosis, treatment, and follow-up processes.

Emergency departments are places that continuously accept patients, and where health care is offered to those who consult with various complaints. In metropolises with high population density, such as Istanbul, the population density reflects the density of admissions to the emergency services.

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©Copyright 2018 by European Archives of Medical Research - Available online at eurarchmedres.org Excess admissions cause disruption of the operation in the emergency department and prolongation of the cycle in which a patient is admitted and leaves the emergency service after completing the required procedures. It is thought that one of the problems in this process originates from disruptions in the consultation system. It became necessary to examine the consultations requested from the emergency departments and the responses given to them in order for the consultation to be accurate, proper, and functional, especially after the emergency medicine itself became a clinic.

The United States was the first to begin to attribute importance to emergency medicine in the 1950s and published a related report in 1966 (1). In 1970, the first emergency medicine specialty (EMS) was established in a university in the US (2). In Turkey, the first EMS was established in the beginning of the 1990s in parallel with European Union countries (3). The Okmeydani Training and Research Hospital offers 3<sup>rd</sup> level emergency service (4). Despite this, the first EMS started to work, and the emergency department was established in 2006. In our hospital and in many places, long duration of stay in the emergency services and excessive patient density are priority issues to be resolved.

The main reasons for the increase in the number of admissions to the emergency services include health policies that facilitate admissions to the emergency services; abolishment of the gradual health system and referral chain; increase in lifespan and, correspondingly, increase in chronic diseases; repeated admissions to the emergency services with the same complaints; reasons that include late diagnosis, inadequate treatment, low educational level, low health literacy, and distrust of medicine and health institutions; admission of non-emergency patients to the emergency services; physically and technically easier access to the emergency services; scheduling clinic appointments to a later date; the fact that the family health centers are not used effectively consistent with the purpose of the 1<sup>st</sup> and 2<sup>nd</sup> level emergency services and referring the patients to the 3<sup>rd</sup> level emergency departments; and regional war and migration situations (5-8).

The parameters affecting the patients' duration of stay in the emergency services are patient density and insufficiency in the number of beds, capacity, and service conditions in the intensive care units; insufficiency of the emergency service area for health personnel, physicians, and assistant personnel in terms of demand satisfaction; problems in consultation systems; delays in diagnostic tests; development of defensive medicine due to the increase of malpractice suits; increase in the number of test requests; need to keep the observation period long; and increase in record documentation procedures.

Most of the above-mentioned parameters that increase the duration of stay in the emergency service are problems that are not possible to be resolved within the hospital (9, 10). The main aim of the present study was to examine the consultation system, which is one of the parameters that can be resolved in the hospital, to make the problems visible and to find a solution.

Consultation is an important method that provides a multidisciplinary approach (11). Consultation in the emergency services is frequently used (12). For the consultation system to be implemented as required, the procedures of the consultation system should be determined in hospitals, and the physicians should be required to abide by this (13). Consultation is derived from the Latin word that means consulting of a physician, who is mainly responsible of the patient, to the opinions of physicians from other specialties when needed or upon the request of the patient (14). The word "danışım" can be used as an equivalent in Turkish. It is known that the origin of consultation dates back to ancient ages when the art of medicine was performed, and that old Mesopotamian and ancient Egyptian doctors were invited for consultation from country to country (15). There are expressions that correspond to consultation in today's conditions in the Hippocratic Oath, which is regarded as the beginning of modern medicine (16).

Written proposals regarding consultation in Turkey were first mentioned in the 1960 Medical Deontology Regulation (17). Thereafter, the Central Council of the Turkish Medical Association published a booklet including the proposals for consultation and updates it over time (18).

## **METHODS**

The ethics committee of Okmeydanı Training and Research Hospital (Date: 12.01.2016/Number: 403) approved the study. Due to the retrospective design of the study, informed consent was not taken. Between January 1, 2014 and December 31, 2015, routinely recorded information of all patients who were admitted to the Okmeydanı Training and Research Hospital Emergency Medicine Clinic was reached by Hospital Information Management System (HIMS) with the permission of the chief physician. Patients who were >18 years old and for whom official consultation was requested were included in the study. Of 232,737 cases who met the criteria, 608 were selected through simple random sampling method. The total number of cases who should be included in the study was determined as a minimum of 245 persons for power, with 0.80 when the values were placed in the formula of sample width estimation in the simple random sampling. It was aimed to examine >245 cases during the planned period of study.

#### **Statistical Analysis**

For evaluation of the findings obtained in the present study, the IBM Statistical Package for the Social Sciences Statistics version 22 (IBM SPSS Corp.; Armonk, NY, USA) was used for statistical analyses. The chi-square test was used for comparison of qualitative data in addition to the descriptive statistical methods, such as mean, median, standard deviation, and frequency. A p-value <0.05 was considered to be statistically significant.

## RESULTS

In 2014, 760,773 (31.93%) of 2,382,784 hospital admissions were made to the emergency service in the Okmeydani Training and Research Hospital. It was observed that the rate of patients for whom consultation was requested to all the patients was 15%. When the distribution of the clinics from which the consultation was requested was examined, the ratio of the general internal medicine (67.1%) and neurology (11.3%) clinics was found to be significantly high (Figure 1).

Of the consultations requested by emergency physicians, 52 (8.6%) were not responded by the system, whereas 556 (91.4%) were responded. The rate of re-consultation from the same clinic within 24 h was 11.8% (n=72), and it was 12.3% (n=75) within



Figure 1. Proportional distribution of the clinics from which the consultation was requested

Table 1. Distribution of parameters related to consultation

|                                   | n   | %    |
|-----------------------------------|-----|------|
| Response status                   |     |      |
| Responded                         | 52  | 8.6  |
| Did not respond                   | 556 | 91.4 |
| 24 h                              |     |      |
| Re-consultation was not requested | 536 | 88.2 |
| Re-consultation was requested     | 72  | 11.8 |
| 72 h                              |     |      |
| Re-consultation was not requested | 533 | 87.7 |
| Re-consultation was requested     | 75  | 12.3 |
| Consultation request              |     |      |
| Single clinic                     | 537 | 88.3 |
| More than one clinic              | 71  | 11.7 |

72 h (Table 1). The rate of re-consultation during the day is the highest in the anesthesia clinic with a rate of 53.3%. While consultation was requested from a single clinic at the same admission in 537 (88.3%) patients, it was requested from more than one clinic in 71 (11.7%) patients.

The response time ranged from 2 min to 9549 min with an average of  $220.4\pm557.64$  min and a median of 96 min when all consultations were examined (Table 2). No statistically significant difference was found among the disease outcome distributions in terms of the re-consultation requests to the same clinic within 24 h (p>0.05). A statistically significant relationship was found between requesting re-consultation and requesting multiple consultation for patients within 24 h (p=0.001 and p<0.01, respectively). There was no statistically significant difference among the disease outcome distributions in terms of multiple consultation requests (p>0.05, Table 3).

### DISCUSSION

When 12 hospitals affiliated to the Public Hospitals Association, which our hospital is also affiliated to, were taken into account, 34.16% of the emergency service admissions

| Duration   |     |      |         |                |        |  |
|--|-----|------|---------|----------------|--------|--|
| Clinic   | n   | %    | Min-Max | Mean±SD        | Median |  |
| Orthopedics  | 1   | 0.2  | 1280    | 1280           | 1280   |  |
| Neurosurgery                                       | 2   | 0.4  | 55-1307 | 681±885.3      | 681    |  |
| Gynecology   | 1   | 0.2  | 336     | 336            | 336    |  |
| Neurology  | 65  | 11.7 | 12-9549 | 747.42±1436.42 | 305    |  |
| Infection  | 25  | 4.5  | 10-1076 | 253.36±295.95  | 143    |  |
| Chest diseases                                     | 3   | 0.5  | 42-134  | 90.33±46.18    | 95     |  |
| Anesthesia   | 12  | 2.2  | 15-1301 | 197.83±356.23  | 90.5   |  |
| General internal medicine                          | 391 | 70.3 | 2-1774  | 144.82±181.75  | 89     |  |
| Dermatology  | 34  | 6.1  | 7-496   | 117.32±121.62  | 86     |  |
| Plastic surgery                                    | 1   | 0.2  | 74      | 74             | 74     |  |
| Cardiovascular<br>surgery                          | 6   | 1.1  | 21-158  | 79.67±57.03    | 67.5   |  |
| Urology  | 2   | 0.4  | 6-111   | 58.5±74.25     | 58.5   |  |
| Oncology   | 1   | 0.2  | 60      | 60             | 60     |  |
| Chest surgery                                      | 2   | 0.4  | 35-78   | 56.5-30.41     | 56.5   |  |
| Cardiology   | 7   | 1.3  | 9-128   | 64±41.83       | 56     |  |
| Psychiatry   | 1   | 0.2  | 48      | 48             | 48     |  |
| Eye  | 2   | 0.4  | 24-28   | 26±2.83        | 26     |  |
| General surgery                                    | -   | -    | -       | _              | -      |  |
| Total  | 556 |      | 2-9549  | 220.4±557.64   | 26     |  |
| Min: minimum; Max: maximum; SD: standard deviation |     |      |         |                |        |  |

| Table 3. Effect of multip | le consultations o | n disease result |
|---------------------------|--------------------|------------------|
|---------------------------|--------------------|------------------|

|   | Multiple consultation     |                                  |       |  |
|---|---------------------------|----------------------------------|-------|--|
| Disease result                          | Single<br>clinic<br>n (%) | More than<br>one clinic<br>n (%) | р     |  |
| No information                          | 441 (82.1)                | 57 (80.3)                        |       |  |
| Discharged                              | 90 (16.8)                 | 11 (15.5)                        |       |  |
| Hospitalized in service                 | 2 (0.4)                   | 2 (2.8)                          | 0.106 |  |
| Hospitalized in the intensive care unit | 4 (0.7)                   | 1 (1.4)                          |       |  |

were made to the emergency service of Okmeydanı Training and Research Hospital (19). The most important reasons for the Okmeydani Training and Research Hospital to have the highest patient density are that it is close to E-5 (D 100) and the TEM highways. It is on the route of many public transportation vehicles, such as 500A, Istanbul's longest line, and Metrobus. There are frequent referrals from family health centers and secondary state hospitals, daytime population increases especially due to the employment created by the 3<sup>rd</sup> Bosphorus Bridge and Northern Marmara Highway Project and the construction of the third airport in the region, and the immigrant population and recurrent admissions in the region have increased in recent years. In the present study, it was determined that the ratio of consultation requests in 2014 was 13.19%, and it was 16.92% in 2015. In the thesis study by Gursoy (20) in 2014, they reported that the rates of consultation made from the emergency services are between 20% and 56.4% in studies conducted in many countries worldwide, and this rate changes between 19.6% and 39.1% in Turkey.

When all the consultations are examined, it is understood that the consultations of the general internal medicine and neurology constitute an important part, and the rate of consultations of other clinics is lower. The percentages of clinics, such as General Surgery, Orthopedics and Traumatology, and Brain Surgery, which should be closely interrelated with the emergency departments, are below the expected levels. This can be considered as an interesting finding. However, since the field of emergency medicine was performed by specialized physicians of General Surgery, Orthopedics, and Brain Surgery, which are outside of the emergency medicine team, and since these branches completed the primary patient admission and evaluation processes during the period from the establishment of our emergency department to its involving all active regions, the consultation rates are statistically significantly lower.

In many studies conducted in Turkey and worldwide, internal medicine consultations rank first in terms of the rates of consultations requested from the emergency services, and these rates are between 19.6% and 39.1% (21, 22). In the present study, the general internal medicine ranks first among the departments from which the consultation was requested with a rate of 67.1%. It was the clinic from which the consultation was requested with the highest rate of 72% in the study by Karakaya et al. (23). The duration of response to consultation was found to be  $29\pm43$  min. When compared with our study in terms of duration, it suggests that the consultation system operates in more suitable conditions.

Records were not kept in 82% of the consultations requested in order to determine how the admissions to the emergency services were ended. Even if the responsibility belongs to the physician theoretically, if a problem occurs with the responsible nurse, medical secretary, data entry staff, any step of the billing process, and HIMS, all these records can be lost when the system is updated. Instead of a medical secretary who is normally concerned and has a sound grasp of the issue, employing persons who have not received the related training and insufficient number of employees lead to deficiencies in patient records. This makes the retrospective scientific research and access to in-hospital qualitative and quantitative data difficult. A follow-up cannot be conducted by years in any subject.

The rate of patients who were admitted to the emergency service and for whom consultation was requested from a single clinic was 88.3%. The rate of patients for whom consultation was requested from more than one clinic was found to be 11.7%. On the same day, re-consultation was requested from the same clinic for 11.8% of the patients. However, it was found that neither the consultation request from more than one clinic nor the re-consultation request from the same clinic had an effect on how patients would leave the emergency department. In the study by Onder (24), consultation was requested from more

than one clinic for 31.2% of the patients, whereas re-consultation was requested from the same clinic for 14.4% of the patients. The fact that these rates are lower in our hospital may be related to the fact that such consultation requests do not change the outcome of the patient. In addition, Cho et al. (25) noted in their study that requesting one, two, or more consultations for patients admitted to the emergency service has an increasing influence on the waiting period in the emergency service.

When the consultation periods are examined, it is observed that the consultations are responded to the system in at least 2 min and in 9549 min at most. The median duration of the consultations was calculated to be 96 min. In their study in which they investigated the risk management for emergency physicians, Hexter and Henry (26) showed that the urgency of the patient is the most important factor affecting the duration of consultation. When compared with the 30-minute period that was recommended for urgent consultations by our hospital quality unit, this period was observed to be almost three times longer (median: 96 min) than the recommended duration, and this was considered to be one of the risky situations, which would seriously affect the operation of the emergency service (27). In their study, Onder (24) found that the median duration for coming to the consultation is 17 min in the otorhinolaryngology clinic and 57.5 min in the general internal medicine clinic. This was a prospective study. It was possible to record the consultant's arrival time rather than the duration of the official consultation response through the computer system.

Disruptions in the consultation system throughout the hospital are due to the fact that there are no written procedures related to the consultation system, no consensus meetings are held, and no decisions are made regarding situations that require multidisciplinary approach and are frequently encountered (e.g., diabetic foot treatment, postrenal acute renal failure, lower gastrointestinal bleeding, decompensated heart failure, and renal insufficiency, among others). The responsibility of consultancy is assigned to specialty students instead of specialized physicians, the monthly list of consultant physicians and their contact information are not arranged in an easily accessible way, and unnecessary consultation requests are made without thinking as a result of the workload.

No consultation recommendations are determined with written rules in the hospital where the present study was conducted. The Regulation for Consultation Services of Ege University Medical Faculty Hospital is an important reference document in this respect. The relevant regulation states that the list of consultant physicians should be announced monthly with the contact information at least 5 days before the start of each month. In addition to this, it has been emphasized that specialty students can work in the consultation service in order to gain the consultation skills under the responsibility and supervision of the responsible specialist physician and/or lecturer for at least 2 years to complete training period. It has been reported that the evaluation and follow-up of the consultation service should be performed by the responsible physician of each clinic, and it should be provided through the regular consultation meetings that the hospital management will organize with the clinics every 6 months (28).

Disruptions in the consultation system for the emergency physicians include late arrival to consultation; physicians on duty for consultation having other responsibilities and being relatively busy; the consultant physician wishing to respond to the consultation on the phone without seeing the patient; while there are available beds for the referral of patients who are recommended to be hospitalized inside or outside the hospital, the consultant physician does not take responsibility for referral procedures; the necessity for hospitalized patients to be followed up for a while in the emergency service; requests for non-urgent examinations, consultations, blood transfusion, and interventional procedures to be transferred to the clinic where the patient has been decided to be hospitalized; reactive approaches to the requested consultations at late hours; and requesting consultations from additional branches instead of requesting suggestions from related branches (12).

It has been stated in the Regulation for Consultation Services of Ege University Medical Faculty Hospital that the consultant physician is as responsible as at least the physician responsible for the patient, that he/she should respond to the consultation by evaluating the patient in place within 30 min at the latest, and should mediate the hospitalization or referral procedures (28).

For the consultant physicians, the problems in consultations that are requested from the emergency services are due to the fact that the consultation is requested before the examinations required for the patient are completed, the emergency physician does not have comprehensive knowledge of the important issues related to the patient, the consultant physician is called back in a short time, non-urgent consultation requests for patients who are hospitalized in other clinics are made while they are still in the emergency service, and incompatible or unnecessary consultation requests are made. In the study by Gursoy (20), it is suggested that consultation should be requested after proper triage, and evaluation is made by the responsible physician. It is specified that there must be predefined written algorithms to prevent disruptions of consultation services.

## CONCLUSION

In our study, it was found that patients for whom re-consultation was requested within 24 h were those for whom consultation was requested from more than one clinic. It was observed that the re-consultation request for patients from the same clinic or consultation request from more than one clinic did not affect how the patient's emergency service ended. The evaluation of the consultation system as one of the parameters affecting the operation of the emergency department and the duration of the patients' emergency stay in the hospital will provide prospective contributions. In addition, it is necessary that consultation regulations that describe the consultation requests made from the emergency medicine clinics to the other clinics and from the other clinics to each other and in which the necessary medical, administrative, and legal precautions are clearly stated should be prepared. In addition to the fact that consultation procedures should be put in writing at each hospital to ensure appropriate conditions for consultation, meetings should be organized to form a consensus on chronic unresolved situations; the list of consultant physicians should be prepared and published to be accessible for everyone at the start of the

month; the availability of wireless phone, consultation button, and technical equipment should be increased so as to quickly access the consultant doctors; the patient for whom consultation will be requested should be prepared for the consultation in accordance with the urgency of the situation; and the consultant physicians should be selected by qualified specialists.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Okmeydanı Training and Research Hospital (Date: 12.01.2016/Number: 403).

**Informed Consent:** Due to the retrospective design of the study, informed consent was not taken.

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