

# Differences Between Rural and Urban Primary Care Units in Turkey: Implications on Residents' Training

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## ABSTRACT

**Context:** Family practice training takes place at primary care based training centers linked to Education and Research State Hospitals in Turkey. There is a discussion if these units are adequate to train primary care staff and if the patients of these units reflect the applicants of primary care. **Aims:** The aim of our study is to investigate the demographic characteristics, the effect of distance on primary care utilization, and most common diagnosis of the patients who applied to two different outpatient clinics: One urban and one rural. **Settings and Design:** Study was conducted from the electronic health records of the patients applied to outpatient clinics of Ankara Diskapi Yildirim Beyazit Training and Research Hospital Department of Family Medicine between 1 January and 31 December 2009. **Results:** Total number of patients applied to both of the outpatient clinics was 34,632 [urban clinic: 16,506 (47.7%), rural clinic: 18,126 (52.3%)]. Leading three diagnoses were upper respiratory tract infection (URTI), general medical examination (GME), and hypertension (HT) in the most common 10 diagnosis. **Conclusion:** In our study, the rural outpatient clinic is regarded as a primary care unit in the neighborhood of living area and the urban clinic as close to working environment. We found statistically meaningful differences in most common diagnosis, gender, age, and consultation time between the rural and urban clinics. According to our results, family practitioners' field training should take place at different primary care units according to sociodemographic characteristics of each country.

**Keywords:** Family medicine, primary care setting, residents, rural, urban

## Introduction

Primary Care is responsible for first contact, continuing, and primary care of the entire population from birth to death. A primary health care approach is the most efficient, fair, and cost-effective way to organize a health system. It can prevent much of the disease burden, and it can also prevent people with minor complaints from flooding the emergency wards of hospitals. It is more than just the level of care or the gate-keeping – it is a key process in the health system.

In developed countries, primary health care is well integrated into the health system by mainly the contribution of family physicians (FPs). In Turkey, The Ministry of Health plays a coordinating role in the reform process and a primary care

model, based on family medicine has been actively implemented since 2003. Because of some social, economical, and political reasons, reform process is not completed successfully, yet. Referral system is the first and main step to carry FPs to the center of the health system. In Turkey, there is a confusion about the referrals to secondary care and the gate keeping role of the FPs. In fact, there is not a real working referral system, so patients can prefer to go directly to the secondary care units. Only 33% of people first go to primary care with a new health problem. According to Alma Ata Declaration, 85% to 90% of health problems can be solved at primary care. Also, by increasing the ability to do clinical tests and procedures, it is possible to keep the patients at primary care by 96%.<sup>[1]</sup>

Primary care traditionally refers to family-centered and community-oriented care, and tends to include preventative care (e.g., health screening, health promotion), help to self care, maintenance of long-term health (e.g., day to day management of stable chronic conditions), community health projects, minor

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illnesses, etc. This work should be managed by specifically educated primary care staff. However, there was a conflict about totally hospital-based training of the residents in Turkey. Since the whole clinical training used to take place in secondary care units, residents wouldn't have enough chance to gain ability to practice in primary care units.

In Turkey, according to the revised program made in 2011, hospital rotations are shortened and family practice trainings included to the curriculum for 18 months. Family practice training takes place at primary care-based training centers linked to Training and Research State Hospitals and University Departments. Some of these training centers are located in the hospital building and most of them located far from the hospitals, at rural regions. Patients can directly apply to these centers independent of the referral system, so these centers are accepted as primary care units although the issues like financing, patient record system, and official correspondence are linked to the training and research hospitals. Training and Research hospitals in Turkey are non-university hospitals, in charge of postgraduate training in various clinical specialties. Diskapi Yildirim Beyazit Training and Research Hospital is the first of its kind to have family medicine department in Turkey. Primary care training of the residents takes place at two outpatient clinics located at different locations in Ankara. Infrastructure and diagnosis capabilities such as ultrasonography and other radiodiagnostic tests of both of the outpatient clinics are different. Then a discussion came up if these units are adequate to train primary care staff and if the patients of these units reflect the applicants of primary care.

The aim of our study is to investigate the demographic characteristics (age in years and gender), the effect of distance on primary care utilization and most common diagnoses of the patients that applied to our outpatient clinics, one urban and one rural, during year 2009. We would like to find out whether there are differences between two kinds of clinical settings which can affect the specialty training curriculum, in order to offer modifications about the outpatient clinic settings for resident training hospitals.

## Subjects and Methods

### Study design and selection of study subjects

Study was conducted from the electronic health records of the patients applied to outpatient clinics of Department of Family Medicine in Ankara Diskapi Yildirim Beyazit Training and Research Hospital, between 1 January and 31 December 2009. Ethical approval was obtained from the ethical committee of the hospital.

Ankara is a city with a population of 4.5 million and Diskapi Yildirim Beyazit Training and Research Hospital is serving to the biggest number of patients in the city. Family Medicine outpatient clinics serve around 40,000 patients in a year. Diskapi Yildirim Beyazit Training and Research Hospital is the first of its kind to have family medicine department in Turkey. For the opportunity to work in outpatient settings and training in medical fields, two outpatient clinics are designed. One of the outpatient clinics is located in the urban and the other in the rural region of Ankara.

Both of the outpatient clinics serve as the point of first contact and the patients are not filtered beforehand. There is not a referral system and patients can go directly to any clinic they want. So all clinics of the health care system, according to accessibility and availability, apply as "primary care" in Turkey.

Urban outpatient clinic is located close to working areas in city center and hospitals. However, rural clinic is located close to living areas and far from the city center and hospitals. Infrastructure and technological capabilities such as laboratory and radiodiagnostic opportunities used in urban and rural clinics are different. While the urban clinic has the diagnostic tools with the most advanced technology, the rural clinic does not have. In fact, according to the diagnostic tools, the rural clinic is more similar to the actual primary health care settings in Turkey.

### Measurements

From the electronic records, it is possible to reach the patients' ID number, age, insurance type, time passed to complete the examination, diagnosis of the patient, and referrals if needed. In the study, only the information regarding the patients' age, gender, time passed to complete the examination, and the diagnoses were used. "Time passed to complete the examination" is calculated starting from the time the patient is registered by the receptionist, till the time the physician enters the diagnosis on the computer. There is not an appointment system and there is not any more contact other than physicians. Physicians work alone without a nurse and patients can directly see the physicians. Time starts with the arrival of the patient, includes the waiting time and the actual time patients spend face-to-face with the doctor in the consultation.

"General medical examination" term refers to routine health examination of the patients. These patients do not have any complaint or pathological physical examination finding.

### Outcomes and statistical analysis

Statistical 18.0 package was used for statistical analysis. All numeric values were expressed as mean  $\pm$  SD and number (%). For comparisons between groups, the Chi-square test was used for categorical data, compare means and independent samples *t* test were used for normally distributed variables. A *P* value of <0.05 was considered statistically significant.

## Results

The total number of patients applied to both of the outpatient clinics was 34,632 [urban clinic: 16,506 (47.7%), rural clinic: 18,126 (52.3%)]. The mean age of the patients was  $41.2 \pm 20.7$  years (minimum: 0, maximum: 100). The mean age for the urban and rural clinics was 45.2 and 37.4 years, respectively.

Among patients, 66.9% (*n*: 23181) were women and 33.1% (*n*: 11451) were men. When compared according to the outpatient

clinics, at the urban clinic there were 59.2% (*n*: 9770) women, 40.8% men (*n*: 6736) and at the rural clinic there were 74.0% women (*n*: 13411), 26.0% men (*n*: 4715). The gender difference between clinics was statistically significant (*P*: 0.000).

Median consultation time was 49 minutes for both of the clinics. For urban and rural clinics, the median time was 25 and 73 minutes, respectively, and the difference was statistically significant (*t*: 24, 79; *P*: 0.000).

The 3 leading diagnoses in both of the clinics were upper respiratory tract infection (URTI), general medical examination (GME), and hypertension (HT) in the most common 10 diagnosis [Table 1]. At the urban clinic, the three leading diagnoses were HT, GME and URTI, but at the rural clinic they were URTI, GME, and HT, respectively. The most common 10 diagnosis and their frequencies are statistically different between rural and urban outpatient clinics (*P*: 0.000).

Most common 10 diagnoses according to gender [Table 1] and outpatient clinics [Table 2] are shown in tables.

Overall, the top 5 diagnoses are similar between rural and urban outpatient clinics. Among women, the top 10 diagnoses are quite similar between urban and rural outpatient clinics except for back pain and osteoporosis (urban) and urinary tract infection (UTI), and dermatologic diseases (rural), respectively. Among men, the top 10 diagnoses are also quite similar except for back pain, coronary artery diseases and gastritis (urban) and dermatologic diseases, lower respiratory infections, and gastroenteritis (rural), respectively.

## Discussion

Distance to care has been cited as an important variable in several utilization studies. Distance to care is important in determining the number of regular health care visits a person has in a year, with greater distance resulting in fewer regular check-up visits.<sup>[2]</sup> Recent advances in the field of geographic medicine have greatly improved our understanding of the role played by geographic distribution of health services in population health maintenance. However, most of this knowledge has occurred for hospital and specialty services and services in rural areas. Much less is known about the

**Table 1: Most common 10 diagnoses according to gender**

Women Diagnosis (n, %)	Men Diagnosis (n, %)	Total Diagnosis (ICD codes) (n, %)
URTI <sup>1</sup> ( <i>n</i> =2704, 11.7%)	URTI ( <i>n</i> =2179, 19.0%)	URTI (J06) ( <i>n</i> =4883, 14.1%)
HT <sup>2</sup> ( <i>n</i> =2609, 11.3%)	GME <sup>3</sup> ( <i>n</i> =1753, 15.3%)	GME (Z00.0) ( <i>n</i> =4175, 12.1%)
GME ( <i>n</i> =2422, 10.4%)	HT ( <i>n</i> =1092, 9.5%)	HT (I10) ( <i>n</i> =3701, 10.7%)
DM <sup>4</sup> ( <i>n</i> =1690, 7.3%)	DM ( <i>n</i> =786, 6.9%)	DM (E10-14) ( <i>n</i> =2476, 7.1%)
Anemia ( <i>n</i> =1700, 7.3%)	Back pain ( <i>n</i> =449, 3.9%)	Anemia (D64) ( <i>n</i> =1940, 5.6%)
Thyroid diseases ( <i>n</i> =1150, 5.0%)	Hyperlipidemia ( <i>n</i> =399, 3.5%)	HL <sup>5</sup> (E78) ( <i>n</i> =1386, 4.0%)
UTI <sup>6</sup> ( <i>n</i> =1080, 4.7%)	Lower RTI <sup>7</sup> ( <i>n</i> =281, 2.5%)	Thyroid diseases (E00-07) ( <i>n</i> =1287, 3.7%)
Hyperlipidemia ( <i>n</i> =987, 4.3%)	Joint disorders ( <i>n</i> =284, 2.5%)	UTI (N39) ( <i>n</i> =1250, 3.6%)
Back pain ( <i>n</i> =670, 2.9%)	Dermatologic diseases ( <i>n</i> =271, 2.4%)	Back pain (M54) ( <i>n</i> =1119, 3.2%)
Joint disorders ( <i>n</i> =643, 2.8%)	Anemia ( <i>n</i> =240, 2.1%)	Joint disorders (M20-25) ( <i>n</i> =927, 2.7%)

<sup>1</sup>Upper respiratory tract infection; <sup>2</sup>Hypertension; <sup>3</sup>General medical examination; <sup>4</sup>Diabetes mellitus; <sup>5</sup>Hyperlipidemia; <sup>6</sup>Urinary tract infection; <sup>7</sup>Lower respiratory tract infection

**Table 2: Most common 10 diagnoses according to outpatient clinics**

Urban			Rural		
Women (n, %*)	Men (n, %*)	Total (n, %**)	Women (n, %*)	Men (n, %*)	Total (n, %**)
HT <sup>1</sup> (1255, 12.8)	GME <sup>2</sup> (1134, 16.8)	HT (1918, 11.6)	URTI <sup>3</sup> (1824, 13.6)	URTI (1331, 28.2)	URTI (3155, 17.4)
URTI (880, 9.0)	URTI (848, 12.6)	GME (1799, 10.9)	GME (1757, 13.1)	GME (619, 13.1)	GME (2376, 13.1)
DM <sup>4</sup> (705, 7.2)	HT (663, 9.8)	URTI (1728, 10.5)	HT (1354, 10.1)	HT (429, 9.1)	HT (1783, 19.8)
Anemia (666, 6.8)	DM (441, 6.5)	DM (1146, 6.9)	Anemia (1034, 7.7)	DM (345, 7.3)	DM (1330, 7.3)
GME ( <i>n</i> =665, 6.8)	Back pain (375, 5.6)	Back Pain (907, 5.5)	DM (985, 7.3)	HL <sup>5</sup> (196, 4.2)	Anemia (1134, 6.3)
Back pain (532, 5.4)	HL (203, 3.0)	Anemia (806, 4.9)	UTI <sup>6</sup> (843, 6.3)	Dermatologic diseases (181, 3.8)	UTI (938, 5.2)
Osteoporosis (482, 4.9)	Joint disorders (182, 2.7)	Thyroid diseases (580, 3.5)	HL (734, 5.5)	Lower RTI <sup>7</sup> (147, 3.1)	HL (930, 5.1)
Thyroid diseases (476, 4.9)	CAD <sup>8</sup> (168, 2.5)	Osteoporosis (528, 3.2)	Thyroid diseases (674, 5.0)	Gastroenteritis (103, 2.2)	Thyroid diseases (707, 3.9)
Joint disorders (315, 3.2)	Gastroenteritis (153, 2.3)	Joint disorders (497, 3.0)	Dermatologic diseases (411, 3.1)	Joint disorders (102, 2.2)	Dermatologic diseases (592, 3.3)
HL (253, 2.6)	Anemia (140, 2.1)	HL (456, 2.8)	Joint disorders (328, 2.4)	Anemia (100, 2.1)	Joint disorders (430, 2.4)

\*% within gender; \*\*% of total; <sup>1</sup>Hypertension; <sup>2</sup>General medical examination; <sup>3</sup>Upper respiratory tract infection; <sup>4</sup>Diabetes mellitus; <sup>5</sup>Hyperlipidemia; <sup>6</sup>Urinary tract infection; <sup>7</sup>Lower respiratory tract infection; <sup>8</sup>Coronary artery disease

effect of distance to and supply of primary care on primary care utilization. Travel impedance to the nearest primary care provider has been assumed to be a good measure for rural areas, where provider choices are very limited and the nearest provider is also the most likely to be used.<sup>[3]</sup>

In our study, the rural outpatient clinic is regarded as a primary care unit in the neighborhood of living area and the urban clinic as close to working environment. Henceforth, this study covers geographically different primary care units. We found statistically meaningful differences in most common diagnosis, gender, age, and consultation time between the rural and urban clinics.

Many studies show that the young, elderly, and females report higher rates of utilization in primary care.<sup>[4]</sup> Likewise, among our patients, the dominance of women and youth in the population of the rural outpatient clinic is clear compared to the urban outpatient clinic.

In our study number of applicants is higher in rural clinic. The reason may be due to lack of secondary care hospitals in the neighborhood that leads to increased number of patients. Especially for primary care units, distance and availability are critically important. Research works in different countries show that utilization of primary care units is mainly affected by the distance to the living area<sup>[5,6]</sup> and it seems that the key themes are age, gender, employment and proximity to the primary care unit.<sup>[7]</sup>

According to our results, median consultation time is approximately half an hour in urban and 1 hour in the rural clinic. This may be due to the long queue. It is known that consultation time is affected by the total number of patients attending a particular surgery.<sup>[8]</sup>

In the rural clinic, the most common diagnose is URTI and unlike urban clinic, UTI is included in the most common 10 diagnoses. This might suggest that patients tend to apply to the closest and most available unit for unimportant infectious situations according to their beliefs. GME is common in both of the clinics, but HT is ahead of other diagnosis in the urban clinic.

Most common 10 diagnoses according to gender are almost similar. Predominance of anemia, thyroid diseases, and UTIs among women is noteworthy. When compared according to outpatient clinics, among women, the top 10 diagnoses are quite similar except for back pain and osteoporosis (urban) and UTIs and dermatologic diseases (rural), respectively. Similarly, among men, the top 10 diagnoses are also quite similar except for back pain, coronary artery diseases (CAD) and gastritis (urban) and dermatologic diseases, lower respiratory infections (RTI), and gastroenteritis (rural), respectively. For back pain, osteoporosis, CAD, and gastritis patients primarily prefer urban clinic probably due to the expectation of radiological tests, endoscopy and similar advanced technology.

The UEMO (European Union of General Practitioners) consensus document-1994 stated that a minimum of 50% of clinical training time should be spent in a general practice environment.<sup>[9,10]</sup> But the differences of conditions of the primary care setting units are not mentioned. To produce a competent family physician, residency programs should primarily aim at developing primary health care skills.

If the whole clinical training of the residents takes place in hospital-based units with an infrastructure of advanced technology such as ultrasonography and other radiodiagnostic tests, that training would not overlap with the realities of actual primary health care units of the entire country. Our study is unique for Turkey, as Diskapi Yildirim Beyazit Hospital is the only hospital that has two primary care units at both urban and rural locations. From this perspective, it makes a meaningful comparison possible.

Study would be stronger if we could make a comparison of our data with the data of primary health care settings from all over the country. However, it is not possible to extract data from electronic health records of a primary health care unit in Turkey, yet.

There are still problems like the mismatch between the training and practice, lack of appropriate infrastructure, and financial and organizational problems in family medicine in Turkey and in other countries with similar system of education and socioeconomic settings. We need to improve the conditions to integrate training and practice for family medicine training.

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