

The contribution of hospital-based home health services in pulmonary diseases

Current Practice in Turkey

Tarkan Ozdemir, MD^{a,*}, Cigdem Ozdilekcan, MD^a, Fatih Goksel, MD^b

Abstract

Background: The medical management of chronic respiratory diseases becomes more difficult with the increase in the rate of the elderly population. Monitoring and treating chronic respiratory diseases at home are more comfortable for both the patient and their relatives. Therefore, countries need to develop policies regarding home health services (HHS) according to the state of their social, cultural, and financial infrastructure.

Objective: The objective of this study is to show the role and contribution of hospital-based HHS regarding respiratory disorders, and to evaluate the model and its efficiency.

Study Design: The design of this study was cross-sectional. Data were obtained from the Ministry of Health of Turkey with official permission. Data were collected for HHS concerning respiratory diseases between 2011 and 2017. Age and sex distribution, the number of recorded patients, the number of visits for pulmonary diseases, the distribution of institutional visits, and the quantitative alterations within the years were investigated.

Study Population: The study population was based on patients with respiratory disorders who were given HHS as directed by the Ministry of Health of Turkey.

Results: Between 2011 and 2017, the majority of patients with pulmonary diseases, mostly those with chronic obstructive pulmonary disease, asthma, and lung cancer, visited government hospitals (78%). The number of house visits concerning pulmonary disorders increased nearly ten times, but hospitalization due to respiratory diseases decreased (13.5% in 2011 to 12.9% in 2017).

Conclusion: Hospital-based HHS in pulmonary diseases can be considered as an appropriate model for implementation for countries like Turkey, those that have inadequate hospice-type health service infrastructure.

Abbreviations: ACOS = asthma-COPD overlap syndrome, COPD = chronic obstructive pulmonary disease, HHS = Home health services, SSI = Social security institution, SPHM = Statistics of principal health module, USA = United States of America.

Keywords: homebound, respiratory diseases, healthcare

1. Introduction

Home is where emotional and physical togetherness, memories, and comfort occur, and it is crucial to obtain health services in such a personal space.^[1] The health and social services that are provided are getting promoted every day. Although the available

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^a Department of Chest Diseases, ^b Department of Radiation Oncology, University of Health Sciences Dr. Abdurrahman Yurtaslan Oncology Research and Training Hospital, Ankara, Turkey.

* Correspondence: Tarkan Ozdemir, University of Health Sciences Dr. Abdurrahman Yurtaslan Oncology Research and Training Hospital, Ankara, Turkey (e-mail: tabiptarkan@hotmail.com).

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health services differ from country to country, in many European countries, it has taken its place as one of the effective and important services. It is mainly caused by the population getting older and the noncontagious diseases occurring more than ever.^[1,2] Studies show that such services enhance the quality of patients' lives, decrease the need for emergency services, especially reoccurring emergency service needs, the period of time spent in hospital, and associated healthcare expenses.^[3,4]

Health services differ from country to country because of the different health systems in the countries and the sociocultural differences.^[5] In Turkey, the Turkish Ministry of Health has issued the "Directive of principals and procedures of home health services (HHS) provided by the Ministry of Health" in February 2010, and the "Directive of principals and procedures of palliative healthcare" in July 2015 in order to govern patients with chronic diseases in hospitals and at home, and provide palliative care support.^[6,7]

After the related documents were published, the process of providing healthcare services at home was implemented by the primary healthcare system, which is related to public hospitals, and primary base healthcare services began initiating support from 2011. After 2015, palliative care clinics were established in hospitals. Integration is also provided for following patients who have stayed at palliative care clinics.

In order for patients to gain access to HHS, either telephone systems can be used or the patient can present to the nearest HHS directly. They can also be directed to these units while staying at hospitals, by the doctor or other healthcare personnel. Appointments are arranged for each patient, and after that, if the patient is going to be evaluated at home for the first time, a visit by a doctor should be provided. If recurrent visits are needed, visits are performed either by a physician or by healthcare professionals. The patient is consulted by physicians regarding the issues of medicine application, periodic laboratory examinations, pulmonary rehabilitation, psychological support, the evaluation of social service expertise, nutritional support, monitoring of the medication of the patient, and follow-up for chronic medication. Also, due to the nature of the diseases and essential need of the patients, anti-decubitus air mattresses, disposable underpads, airway support devices (noninvasive mechanical ventilation devices and long-term oxygen treatment devices), and nebulizers are used and must be prescribed by the physicians. For all these needs, patients are also able to be consulted by the specialist if necessary.

The financing of these needs also vary from country to country.^[1] The majority of people who live in Turkey (98.6%) are given benefit for the expenses from an government establishment called the Social Security Institution (SSI). The aforementioned homecare services are included in this scope.^[8]

It is inevitable that HHS have a huge impact on patients with pulmonary diseases who usually report severe symptoms, low life quality, and social isolation.^[9] The most frequent primary symptoms of respiratory diseases include dyspnea, fatigue, chronic cough (productive/non-productive), and hemoptysis. Disorders related with psychological and social isolation due to pulmonary symptoms are secondary symptoms in patients with pulmonary diseases. Patients with chronic pulmonary disease are affected by the symptom burden as much as patients with cancer, and they last for a long period of time.^[10–12] It is known that palliative care reduces symptoms and enhances the quality of life. Accordingly, it is crucial to include patients with the primary symptoms of respiratory disease in the palliative care system.^[13] Also, it is realized that healthcare services including pulmonary rehabilitation have an impact on enhancing quality of life, additional to medical treatments.^[14] Despite the positive effects, surprisingly, advanced healthcare services regarding patients with chronic pulmonary diseases are not prevalent internationally.^[15]

There are no previous data-based studies including all Turkish data that define HHS in terms of respiratory disorders. This study aimed to show the role and contribution of hospital-based HHS in regard to respiratory disorders using data obtained from Turkish Republic Ministry of Health, also, to observe the rate of respiratory disorders among all diseases, to evaluate the model of provided service, and to determine the efficiency of the health service given.

2. Methods

2.1. Study design

The design of this study was cross-sectional. Data were obtained from the Ministry of Health of Turkey with official permission. Data were collected for HHS concerning respiratory diseases between 2011 and 2017. Age and sex distribution, the number of recorded patients, the number of visits for pulmonary diseases,

the distribution of institutional visits, and the quantitative alterations within the years were investigated.

This study was approved by special permission of the Ministry of Health of Turkey (Date: April 24th, 2018; Protocol Number: 32693113). For this reason, no additional local ethics committee approval was warranted.

2.2. Data collection

In Turkey, all data of patients admitted to hospitals, including those under HHS care, are recorded in the software systems of each hospital. HHS data are passed onto the database of the Ministry of Health via a module called “Health-net.” The same data are processed and controlled via the statistics units of the hospitals and manually transferred to the Module of Basic Health Statistics, and by following the same process, they are transferred to the Ministry of Health’s database.

The data used in our study were taken with written consent and all data were anonymous. Regarding these facts, all pulmonary diseases data are suited to the principal of privacy of personal life. This healthcare system was initiated in 2011; therefore, accurate data started to be collected from that time. This is the reason why the data for the study comprised 2011–2017. Data safety was ensured by the Ministry of Health of Turkey. Patient-based data containing definitive information incompliant with data safety were not shared with the investigators. Querying was accomplished through a data miner appointed by the Ministry of Health.

2.3. Definitions

The Turkish Republic Ministry of Health published a booklet regarding the following data definitions made by the hospitals and how to record them.^[16]

Statistics of Principal Health Module (SPHM): The database from which data of Health Ministry institutions are collected.

Hospital-based HHS: Institutions within Ministry of Health public hospitals that provide coordination between the patient and the hospital.

Public health-based HHS: This defines Ministry of Health-based primary care physicians within the healthcare services and homecare services run by public health centers and public health management.

Total number of (active) registered patients: This description includes all patients registered at home health services and visited in their homes when needed.

The number of diseases of the visited patients: Bearing in mind that a patient may have more than one disease, this shows the number of patients who are classified by their diseases and visited at home by the time the data are sent to the Ministry of Health.

2.4. Data analysis

Descriptive statistical analyses were performed using the SPSS software version 24.0 (IBM, Chicago).

3. Results

At the end of the year, the active number of patients registered in HHS was 80,625 in 2011, and reached 336,758 in 2017. These values represented the number of patients diagnosed as having either pulmonary or non-pulmonary diseases (Fig. 1).

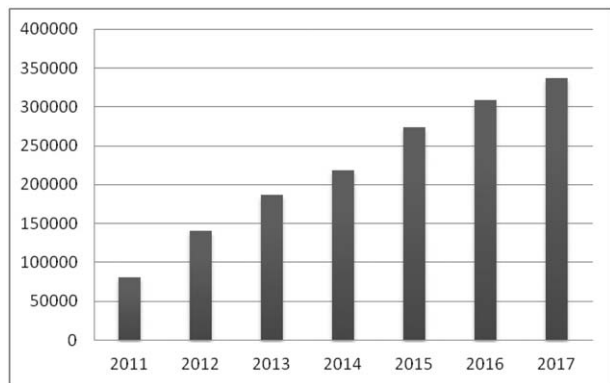


Figure 1. The number of patients enrolled in home healthcare units in Turkey increased gradually.

Of the total visited patients, 59% were female, and 41% were male (female:male ratio 1.44). It was found that female patients and patients aged over 65 years (71%) were visited more often.

Hospital-based HHS provided 78% of health services for pulmonary diseases. The remaining 22% was given by public health-based HHS. The rate of pulmonary diseases (among all disease groups) among those visited by HHS was 5.8% (Table 1).

The most visited respiratory disease by hospital-based HHS in hospitals was chronic obstructive pulmonary disease (COPD) (64.9%). This was followed by asthma (12.6%) and lung cancer (11.1%). Other lung diseases were bronchiectasis, interstitial lung disease, pneumoconiosis, obesity-hypoventilation, cystic fibrosis, chest deformities, and pulmonary hypertension (Table 2).

It was shown that the most visited disease by healthcare services at home units affiliated with Public Health Directorates representing level one health services was COPD (58.6%), followed by asthma (16.7%) and lung cancer (11.3%) (Table 3).

4. Discussion

When all visits including those made by HHS in which patients with pulmonary disease and extra pulmonary diseases were considered, pulmonary diseases accounted for 5.8%. The majority of the patients with pulmonary diseases were visited by government hospitals (78%); the contribution of primary base health services was much less (22%). The patients who were visited in government hospitals were mostly those with COPD, followed by patients with asthma and lung cancer (64.9%, 12.6%, and 11.1%, respectively). The sequence in primary base health services was the same, and the ratio was similar (58.6%, 16.7%, and 11.3%, respectively). The number of visits performed by government hospitals for pulmonary diseases increased up to 9.6 times between 2011 and 2017. During this period, the majority of the patients were women (59%) and those aged over 65 years (71%). According to end-of-year data from 2017, the number of patients benefiting home health care services was 336,758, accounting for 0.4% of the population of Turkey.

The five pulmonary diseases that have the most difficulties are: COPD, asthma, acute respiratory infections, tuberculosis, and lung cancer. COPD, asthma, and lung cancer are classified as non-contagious, but have the greatest disease burden.^[17] A report established by the National Hospice and Palliative Care Organization found that the rate of respiratory disorders among all diseases was 11% in patients who needed palliative care and were followed up in hospices. However, in our study, the calculation of data was based on the number of home visits, thus the rate of respiratory disorders was 5.8%. Therefore, we think that in the practice of Turkey, the number of home visits was much higher in patient groups other than pulmonary diseases.^[18]

It is certain that patients with COPD were visited by homecare health services more than others in Turkey. In other studies, it was found that COPD was diagnosed with a percentage of 20% in adults aged over 40 years.^[19,20] According to reports of the World Health Organization (WHO), 5% of deaths are caused by this disease.^[21] The symptom burden of COPD is greater, the

Table 1
Institutional distribution of respiratory diseases visited at home and comparison with non-respiratory diseases.

Disease group	Hospital-based HHS n (%)	Public health-based HHS n (%)	Total n (%)
Respiratory diseases	409,337 (78)	115,340 (22)	524,677 (100)
Comparison with non-respiratory diseases			
	Hospital-based HHS n (%)	Public health-based HHS n (%)	Total n (%)
Respiratory diseases	409,337 (5.7)	115,340 (6.0)	524,677 (5.8)
Non-respiratory diseases	6,757,627 (94.3)	1,802,274 (94.0)	8,559,901 (94.2)
Total	7,166,964 (100)	1,917,614 (100)	9,084,578 (100)

Hospital-based HHS = Hospital-based home health services, Public health-based HHS = Public health-based home health services.

Table 2
Distribution of patients with pulmonary diseases visited by hospital-based HHS in hospitals by years.

	2011 n	2012 n	2013 n	2014 n	2015 n	2016 n	2017 n	Total n (%)
COPD	6536	27,836	34,617	40,675	45,897	48,351	62,014	265,926 (64.9)
Asthma	1180	5013	6423	7464	8660	9536	13,324	51,600 (12.6)
Lung cancer	1346	5612	6954	7395	7996	7329	9206	45,838 (11.1)
Others	1129	3976	5658	6305	7539	7845	13,521	45,973 (11.2)
Total n (%)	10,191 (2.4)	42,437 (10.3)	53,652 (13.1)	61,839 (15.1)	70,092 (17.1)	73,061 (17.8)	98,065 (23.9)	409,337 (100)

COPD = Chronic obstructive pulmonary disease, HHS = Home health services.

Table 3
Distribution of pulmonary diseases visited by public health-based HHS affiliated with Public Health Directorate by years.

	2011	2012	2013	2014	2015	2016	2017	Total n (%)
COPD	175	2261	6179	8767	12,303	23,548	14,402	67,635 (58.6)
Asthma	181	432	1314	2111	3412	7302	4518	19,270 (16.7)
Lung Cancer	207	569	1074	1726	2256	4537	2693	13,062 (11.3)
Others	243	581	795	1868	3141	5572	3173	15,373 (13.3)
Total n (%)	806 (0.7)	3843 (3.3)	9362 (8.1)	14,472 (12.5)	21,112 (18.3)	40,959 (35.5)	24,786 (21.4)	115,340 (100)

COPD = Chronic obstructive pulmonary disease, HHS = Home health services.

most frequent of which is dyspnea.^[22] It is inevitable that COPD, which has high incidence, morbidity and mortality rate, is one of the most visited diseases.

In our study, the second most frequently visited patients were those with asthma. It is estimated that there are 235,000,000 people around the world with asthma, which causes approximately 180,000 deaths every year.^[23,24] By defining asthma as reversible airway obstruction, the patients who are visited are either in advanced age, have asthma-COPD overlap syndrome (ACOS) or comorbidities, thus they are classified as “immobile-unable to leave home” and need to be visited at home.^[25]

Between all the visited pulmonary diseases, lung cancer is the third most visited, and this is the most mortal of all cancers.^[26] Besides the adverse effects of treatment, the predicted symptoms of the disease are also challenging.^[27] As the burden of the symptoms increase, support is needed for both the patient and their relatives.^[28] Palliative health care, which targets patients’ symptoms, decreases the severity of symptoms and anxiety, and also lowers the cost of treatment.^[29] Regarding both the primary healthcare services and government hospital visits, the less frequently evaluated pulmonary diseases include bronchiectasis, interstitial lung disease, pneumoconiosis, obesity, hypoventilation, cystic fibrosis, chest deformities, and pulmonary hypertension.

The total number of registered patients in hospital-based HHS multiplied four times between 2011 and 2017, reaching 336,758, which is 0.4% of the population of Turkey. The total number of patients who benefited from such services in the United States of America (USA) in 2000 was 1,355,300 per year. This number is equal to 0.5% of the US population. As it can be seen, Turkey has come to a crucial point in seven years in patient potential. According to our data, the population aged over 65 years was highly visited in 2017 (71%), and the rate of female patients was higher (59%). Similarly, in the USA,

70.5% of patients who benefited from HHS were aged over 65 years and women were in the majority (70%).^[30] Also, an epidemiologic study conducted in the USA in 2011 showed that 1,974,406 people, which accounts for 0.6% of the population of the USA and 5.6% of the population aged over 65 years, benefit from HHS.^[31] Three-quarters of the population aged over 75 years in France was reported to benefit from HHS, whereas only 6.3% of the population aged over 65 years in Finland was using HHS, and more than 60% of the population aged over 75 years in Denmark was being visited for preventive reasons.^[32–34]

In our study, the contribution of hospital-based HHS in terms of respiratory diseases was obviously found at high rates (78%) when compared with the rates of public health-based HHS (22%). When taken into account that primary health care centers are responsible for a population of 3267 people per physician, it is inevitable that government hospital-based health services (with advanced medical devices and many more healthcare workers) have priority for this healthcare situation.^[35]

When the Annual Health Statistics data published by the Ministry of Health between 2011 and 2017 were evaluated, the rate of the advanced-age population had an ever increasing pattern (from 7.5% to 8.3%); however, the rate of hospitalization for respiratory diseases did not increase (from 13.5% to 12.9%). Even though fluctuations occurred in hospitalization rates for pulmonary diseases after 2015, the rates decreased when compared with 2011 (Fig. 2). We think that this slight decrease can be attributed to the contribution of HHS.^[35–38]

4.1. Limitations of the study

An analysis of morbidity and health costs was not possible because of the lack of patient-individualized data. The data of hospital-based house health care services in Turkey are only available in the database of the Health Ministry. Of the data available from hospitals via SPHM forms, only the number of visited patients and age and sex distribution can be determined, there is no other topic such as “disease.” The only information that can be found under the topic of “disease” is the recorded number of visits in that month. Therefore, the data recorded as “pulmonary diseases” do not reflect the number of patients but the number of diseases. The other issue is age distribution. The age distribution was provided by age groups; therefore, the mean or median age could not be given.

5. Conclusion

Hospital-based HHS have gradually increased in the respiratory diseases group in Turkey and have taken over majority of the workload compared with public health-based HHS. Although

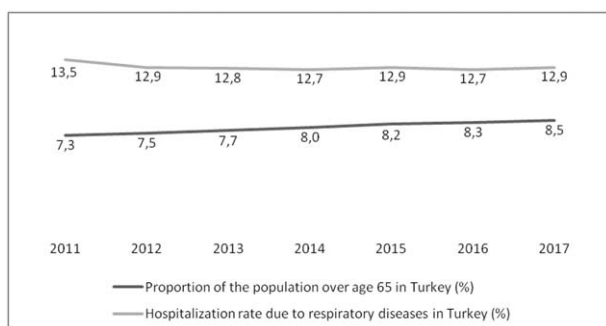


Figure 2. Between 2011 and 2017, although the population aged over 65 years increased, hospitalization rates due to pulmonary diseases decreased.

the age of the population has gradually increased, it is observed that the rate of hospitalizations due to respiratory diseases has not increased. Hospital-based HHS are considered to have contributed to this result. Hospital-based HHS in pulmonary diseases can be considered as an appropriate model for implementation in countries like Turkey, those that have inadequate hospice-type health service infrastructure. Such an implementation, which was started in Turkey primarily to provide comfort for both patients and their caregivers, requires further analytical studies evaluating the effects on morbidities and costs related to respiratory diseases.

Author contributions

Conceptualization: Tarkan Özdemir, Fatih Göksel.

Data curation: Tarkan Özdemir, Fatih Göksel.

Formal analysis: Tarkan Özdemir, Cigdem Ozdilekcan, Fatih Göksel.

Investigation: Tarkan Özdemir, Fatih Göksel.

Methodology: Tarkan Özdemir, Fatih Göksel.

Project administration: Tarkan Özdemir.

Supervision: Tarkan Özdemir, Cigdem Ozdilekcan, Fatih Göksel.

Visualization: Tarkan Özdemir.

Writing – original draft: Tarkan Özdemir, Cigdem Ozdilekcan.

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