



# Evaluation of home respiratory therapy delivered to patients in the Ministry of Health's Home Medical Program (HMP) and administered through the Madinah HMP Center, Kingdom of Saudi Arabia, 2013

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**Abstract** This was an evaluation of home respiratory therapy (HRT) services administered through the Madinah Home Medical Program (MHMP) Center of the Ministry of Health (MoH), Kingdom of Saudi Arabia (KSA). Using a retrospective design and descriptive analyses, we analyzed 83 patient records for the clinical care received, outcomes, and patient satisfaction. We also assessed a subset from an economic perspective. Demographically, 72% were >60 years of age, 80% were female, and 90% were Saudi. Asthma accounted for 34% of the diagnosed respiratory diseases, followed by chronic obstructive pulmonary disease (11%). Most patients (71%) required two or three respiratory modalities: 94% used oxygen therapy and 14% were on mechanical ventilation. A full 90% of HMP patients expressed a high level of satisfaction with the HMP overall care, and 43% saw an improvement in their condition. The MHMP lowered healthcare costs for HRT-receiving patients by decreasing the frequency of emergency room (ER) and outpatient visits by 50.8% from 59 to 30 visits. HRT administered through the MHMP Center improved clinical outcomes and increased patient satisfaction while reducing hospital utilization and associated costs. A prospective study is recommended to assess HMP services in comparison with hospitalization.

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## 1. Introduction

The Ministry of Health (MoH) of the Kingdom of Saudi Arabia (KSA) has made several attempts to address the increasing costs and the problem of high bed occupancy [1] while providing better quality services and more effective utilization of resources. These programs include the 1-day operation program, more participation from the private sector in funding healthcare services, and the establishment of home healthcare (HHC) facilities.

One of the most cost-effective ways to lower the hospital occupancy rate is by providing HHC services, which is like having a hospital at home [2,3]. HHC is a comprehensive, regulated program operated by a multidisciplinary team of healthcare professionals in the patient's home [4,5].

The various benefits of incorporating HHC in the health system are known worldwide [6]. The services provided through HHC programs are different from country to country, but most programs are community-based, staffed mainly by professional nurses, and regulated by standard guidelines, which reflect the standard of care for all home health agency interactions [4].

In March 2009, the MoH launched a General Administration of Home Medical Program (HMP) which would operate all over the KSA. KSA's HMP is government run, and healthcare services are provided by a multidisciplinary team of professionals working in a patient's home [7].

Currently, the MoH operates the HMP in each region of the Kingdom; the Madinah HMP (MHMP) Center, which is the focus of this study, was the kingdom's original HHC center and remains unique, handling the majority of home health patients in that city [8].

There is evidence that HHC services relieve bed over-occupancy and offer a reasonable alternative to hospital stays [2], but 6 years after the establishment of the HMP Center in the KSA, it remains unclear if the program is achieving its aims of reducing hospital admissions, lowering bed occupancy rates, and promoting patient-centered treatment by maintaining the same or better level of care with more satisfaction and better health outcomes than traditional hospital-based care.

Internationally, respiratory therapy is considered one of the most important HHC services, thought to be more cost-effective than hospital care [3,9]. Despite the importance of this subject and the need to study it, there are no previous studies that estimate the costs of respiratory therapy or any other HMP service in the KSA.

To assess the achievement of the HMP's goals for patients needing respiratory therapy through the MHMP Center, we have to evaluate the performance and impact measures for home respiratory therapy (HRT) in the center. In this study, we will use impact evaluation to assess the outcome measures. As part of the evaluation, we will perform an economic evaluation as a pilot study in a subset of HRT patients.

## 2. Methods

Using a retrospective design and descriptive analyses, we evaluated HRT delivered through the MHMP Center. First, this study describes the characteristics of patients who were receiving HRT through the HMP Center, and second, it describes the clinical care they received through the HMP and the outcomes. Finally, we present a cost assessment of a subset of 30 patients for the economic evaluation.

### 2.1. Study area

The study was conducted in Al Madinah Al Muna-warah, which is situated in the Hejaz region in western KSA, with a population of 1,180,770 (2010 estimate) [10]. Madinah is home to the kingdom's first HMP Center. It remains unique among HMP centers, serving as KSA's main training center and a model for the home care program in the KSA: whatever is implemented at this center is disseminated throughout the KSA.

### 2.2. Study population and sample size

In our study, we included any patients with respiratory diseases according to the 10th International Classification of Diseases or needing any respiratory therapy enrolled through the HMP Center in Madinah, KSA, in July 2013. At this time, there were a total of 574 patients actively enrolled in the HMP Center.

A total of 83 patients with respiratory diseases or needing respiratory therapy were enrolled in the MHMP Center and included in the study.

This study has two parts. The first part assesses 83 patients with regard to their characteristics, the clinical care they received through the HMP Center, and the outcome measures. The second part examines 30 randomly selected patients with complete medical records, those having more information about hospital admission before enrollment to HMP, as a pilot study for a cost evaluation of HRT and medical services utilized prior to and subsequent to enrollment in the HMP

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