



# Pattern of diseases among visitors to Mina health centers during the Hajj season, 1429 H (2008 G)

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## KEYWORDS

Hajj;  
Saudi Arabia;  
Disease pattern;  
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## Abstract

**Background:** While performing the Hajj, hajjis face different risks related to the environment, their behaviors and their health conditions that can result in a variety of diseases. The objective of this study was to determine the pattern of diseases among pilgrims seeking medical services in Mina primary health care centers (PHCCs) during the Hajj season in 1429 (2008).

**Methods:** This is a descriptive study based on the medical records of a random sample of 4136 patients who attended 13 randomly selected Mina PHCCs from 8 to 12 Dhu-Alhijja, 1429 H (6–10 December 2008).

**Results:** The majority of the patients were men (70.7%), and most of the patients were between 45 and 64 years of age (42.8%). One-fifth (20.2%) of the patients suffered from multiple diseases. Respiratory diseases were the most common (60.8%), followed by musculoskeletal (17.6%), skin (15.0%) and gastrointestinal (13.1%) diseases. Diabetes, asthma and hypertension each constituted less than 3% of the total diseases. Respiratory diseases were the most common independent of nationality or the day of visit, while the frequency of the other diseases varied according to nationality and the day of visit. The most frequently prescribed drugs were analgesics, antipyretics, antibiotics and cough syrups.

**Conclusion:** This study describes the pattern of diseases among pilgrims attending Mina PHCCs, which may aid in providing the best possible health care services to pilgrims.

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## Introduction

The Hajj is the largest annual Islamic pilgrimage to Mecca. While performing the Hajj, pilgrims face different risks related to the environment, their behaviors and their underlying health conditions that can result in a variety of diseases. For these reasons, pilgrims are vulnerable and require focused medical support. The Saudi authorities spare no effort to ensure a safe and healthy environment during the Hajj period by providing guidance on pre-departure vaccination in the pilgrims' countries of origin, providing free health services in-Kingdom throughout the Hajj premises, improving housing and crowding conditions and educating and supervising all pilgrims and local support staff operating on the Hajj premises. Understanding the pattern of disease that occurs during the Hajj provides health policy makers with important information for the optimal provision of health services during the Hajj.

Although several studies have been conducted in the past few years to determine the pattern of diseases occurring among pilgrims, most of these were among pilgrims registered in hospitals, who constitute the minority of those seeking medical services and are usually have more advanced or severe diseases [1–4]. Compared to hospitals, primary health care centers (PHCCs), which are also open 24 h a day, receive more pilgrims (according to data from the Hajj in 1428 H data, 287,756 hajjis visited PHCCs, but only 78,762 visited hospitals), are considered first-level care facilities, and are more accessible and better distributed throughout the Mina area (there are only five hospitals but 25 PHCCs serving pilgrims in Mina, as shown in [Appendix A](#)). However, no studies have been conducted to determine the pattern of diseases in Mina PHCCs since 1998, and no pattern of diseases in Mina PHCCs has been reported by the Ministry of Health (MoH) statistical department [5,6].

This study aims to determine the pattern of diseases among pilgrims seeking medical services at Mina PHCCs to provide evidence-based information to guide the optimal allocation of health resources during future Hajj seasons.

## Materials and methods

A descriptive study was carried out among pilgrims seeking medical services in Mina PHCCs during the period from 8 to 12 Dhu al Hijjah 1429 H (6–10 December 2008). A sample size of 3732 was used to determine which diseases probably affected 2.5% or more of the study population with a precision of

0.5% at a 95% confidence level. The sample size was then increased to 5000 to compensate for the anticipated incompleteness of the forms. A two-stage, stratified, systematic sampling technique was used to select cases randomly. In the first stage, 13 out of the 25 centers were chosen using a simple random sampling technique ([Appendix A](#)). The sample was stratified according to the participating PHCC and the date of the patient visit. The size of the sample allocated to each center was based on the proportion of patients attending each participating health facility on a given date during the last Hajj season. In the second stage, a systematic technique was used to randomly select patient forms from the available forms in accordance with both the sample size allocated to each center on a given date and the actual number of patients who attended the health facility on a given date.

Upon entering a PHCC, each pilgrim is assigned a standard form ([Appendix B](#)) that documents the date, duty shift, demographic data (name, age, gender and nationality), diagnosis, treatment and type of intervention (referral to hospital, dressing or observation). Each form is completed by a doctor according to the pilgrim's condition and is then sent to the pharmacy so that medications can be dispensed and the form can be reported and stored. Each center sends a summary report on the demographic characteristics of its patients (total number of visitors, Saudis or non-Saudis, pilgrims or non-pilgrims, gender and age) three times daily to the statistical department of the Mina health center's administration, which in turn compiles these data to prepare summarized reports for Mina. However, at no stage are the data on diseases transmitted or analyzed.

Based on the prescription form, an electronic form was designed using the "make view" module of Epi info statistical software version 3.5.3 (centers for disease control and prevention), and all collected data were entered into the database.

For administrative purposes and according to the guidelines of the Ministry of Hajj, global nationalities were categorized into eight groups: Saudi Arabia; other Arab countries; non-Arab African countries; Iran; Turkey and developed countries (Europe, America and Australia); South Asian countries; Southeast Asian countries; and other or non-specified nationalities. Diseases were categorized, as on the prescription form, into five subgroups according to the anatomical system involved (cardiovascular, respiratory, gastrointestinal, skin and "eye and ear" diseases). The category "others" includes four types of disease that cannot be classified under the main anatomical systems (diabetes, urinary tract infections, musculoskeletal

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