

## RESEARCH ARTICLE

## OPEN ACCESS

# Pharmaceutical Care Workload and Human Resources Requirements at MOH Primary Health Care Center Over Nine years Mass Gathering Hajj (2006-2014) in Al-Medina Region, Saudi Arabia

Yousef Ahmed Alomi<sup>\*1</sup>, Khairat Alhennawi<sup>2</sup>, Nizar Khayayt<sup>3</sup>

<sup>1</sup>*The Past General Manager of General Administration of Pharmaceutical Care and Head, National Clinical pharmacy, and pharmacy practice and Pharmacy R and D Administration, Ministry of Health, Riyadh, KSA*

<sup>2</sup>*Clinical pharmacy staff, General Administration of Pharmaceutical Care, Ministry of Health, Riyadh, KSA*

<sup>3</sup>*Medication Safety Officer General Administration of Pharmaceutical care, Makkah Region, Ministry of Health, Riyadh, KSA*

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**\*Correspondence to:**

**Dr. Yousef Ahmed Alomi,**

*The Past General Manager of General Administration of Pharmaceutical Care, Head, National Clinical pharmacy, and pharmacy practice, Head, Pharmacy R and D Administration, Ministry of Health, P.O.BOX 100, Riyadh 11392, Riyadh, Saudi Arabia.*

Email: [yalomi@gmail.com](mailto:yalomi@gmail.com)

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## Abstract

**Purpose:** To explore the pharmacy services workload analysis and workforce requirements at Ministry of Health Primary care center during mass gathering Hajj nine years (2006-2014) in Al-Medina Region, Saudi Arabia. **Methods:** It is a retrospective analysis of nine years (2006-2014) of primary care center pharmacies workload during mass gathering Hajj period. The duration of workload collection was 15-30 days. The pharmacist and pharmacy technicians provide pharmaceutical to all patients either Pilgrim or not Pilgrim at Al-Medina region. The workforce requirements calculated based on MOH workforce standards per primary care centers (PCC), the workload drives as central pharmacy services, patient specific pharmacy activities, and general administration specific pharmacy activities. **Results:** The total number of Pilgrims (1,952,817-3,161,573) with average (2,445,208) and with an average of (210,765.91) pilgrims visited each primary care center. The average number of pharmacist needed based on MOH standard was (66.67 FTE), while the mean number pharmacist required based on workload was (1,183.99 FTE). It is (17.76 fold) more incremental than MOH pharmacist workforce standards. **Conclusion:** The pharmacy workload analysis reflects the real demand of pharmacist during mass gathering Hajj period in Al-Medina Region. Targeting to update the MOH standards of primary care center pharmacy workforces during mass gathering Hajj time is required in Al-Madina region in Saudi Arabia.

**Key word:** Pharmaceutical Care, Workload, Workforces, Primary Care Center, Mass Gathering, Hajj, Al-Medina, Ministry Of Health, Saudi Arabia.

## INTRODUCTION

The Hajj considered the fifth pillar of Islam that all able Muslims must perform it once in their life. It done in Makah and sacred places (Mina and Arafat), however many people take the chance of nearness and visit Al-Medina. Hajj is considered a great challenge for Saudi Arabian authorities every year. It was due to a significant number of people, more than 2 million, that come annually to perform hajj rituals. One of the most affected systems by this huge mass gathering is the health care system,



due to the associated health risks that may occur to the pilgrims during this period. Due to the crowding, heat, and exhaustion during Hajj, some people get sick, and they seek health care services. Also, many people with chronic conditions need to manage during this period. They are usually in a hurry during this time, to save their time and spend it in performing rituals. So, most of them prefer primary health care centers over hospitals.<sup>[1-4]</sup> Therefore, Ministry of Health in Saudi Arabia put tremendous efforts to ensure that pilgrims receive the best medical services during this period including human resources of health care providers. Many studies have conducted to assessing health care services during Hajj. Mass gathering medicine in Saudi Arabia was first published by Memish *et al.* in 2012.<sup>[5]</sup> While the pharmaceutical care for the mass gathering was in 2016.<sup>[6-7]</sup> After very extensive literature review and only limited number of studies discussed utilized physician and nurses during mass gathering events but not pharmacists with the emphasis of primary care centers.<sup>[8-10]</sup> The author not familiar with published studies discussed primary care center pharmacy workforces during mass gathering meeting or even during Hajj period in Saudi Arabia or Gulf countries and the Middle East countries and even worldwide countries. The goal of the study was the workload and workforce requirements of pharmacists during this period in Al-Madina region primary health care centers over nine years (2006-2014).

## METHODS

This study is a retrospective analysis of nine years (2006-2014) of primary care center pharmacies workload during mass gathering Hajj period. The workload collection duration was 15-30 days. All the data derived from Ministry of Health. Health Statistical Year Books.<sup>[11-19]</sup> All primary care centers in Al-Medina region (19 centers) included in this study. These centers provide all medical services the patients may need during Hajj period and refer patients who need an advanced level of care to hospitals. The pharmacist and pharmacy technicians during hajj provide pharmaceuticals to all patients either Pilgrim or not Pilgrim at Al-Medina region. They provide drug information services and patient education, or they may work in medical supply unit, pharmacoeconomic unit, medication safety unit, research and statistics unit, in pharmacy or clinical pharmacy units. Clinical pharmacy competencies example may include; general medicine for adults, or pediatrics competency. The Psychiatry competency, family medicine competency, or other specific competencies.<sup>[20]</sup> Also, there was extensive literature review search at open date periods with fifty databases. It included the type of

studies (meta-analysis, randomized controlled studies, and observational studies, books, reports, etc.) in the English language. The search for the term of Hajj and workforce, Hajj and workforce, Hajj and human resources or mass gathering and workforce, mass gathering and workforce, mass gathering and human resources. The search term was in the title and key words. All setting of patient care services primary care center or ambulatory care or community services included. The search included pharmacist and clinical pharmacist. Pharmacy technician excluded from the study. The location of studies included Saudi Arabia as top propriety if not existed Gulf or Middle East countries included, if not found overall counties included. The workforce requirements calculated based on MOH workforce standards per primary care centers (PCC). The workload calculation based on pharmacy administration database in Al-Madina region with considered that is an average time of pharmacist dispensing PCC prescription was 4 min and the mean number of medication per each prescription was three. The workload drives as central pharmacy services, patient specific pharmacy activities, and general administration specific pharmacy activities.<sup>[21-24]</sup> All calculation done used Microsoft Excel version ten.

## RESULTS

The total number of Pilgrims (1,952,817-3,161,573) with average (2,445,208) and with an average of (210,765.91) pilgrims visited each primary care center. The number of primary care centers in Al-Medina was (7-19) with an average of (13.33) PCC mentioned in the MOH statistical books as explored in Table 1. The total number of prescriptions was (35,149-207,444) with a mean (142,080.44). It represented (1.48-8.35%) with a mean (5.79%) of all pilgrims as explored in Table 2. The mean number of primary care center prescription per day (710.58) contained (2,131.74) medications. The average number of pharmacist needed based on MOH standard was (66.67 FTE), while the mean number pharmacist required based on workload was (1,183.99 FTE). It is (17.76 fold) more incremental than MOH pharmacist workforce standards as explored in Table 3. There were not any central pharmacy activities, and clinical pharmacy services or administrative pharmacy activities.

## DISCUSSION

One of the holy places in Islam is Al-Madina city. The health care services development and expanded since more than nine years with an emphasis on primary care centers.<sup>[19]</sup> It almost increases 3-5 incremental fold based on MOH

**Table 1: Number of Pilgrims and Primary care centers over nine years in Al-Medina region**

Al-Medina			
Year	Pilgrims number	No of PCC	No of Pilgrims / PCC
2006	2,378,636	7	339,805.14
2007	2,454,325	7	350,617.86
2008	2,408,849	15	160,589.93
2009	2,313,278	16	144,579.88
2010	2,789,399	11	253,581.73
2011	2,927,717	15	195,181.13
2012	3,161,573	15	210,771.53
2013	1,980,249	15	132,016.60
2014	2,085,238	19	109,749.37
Average	2,499,918.22	13.33	210,765.91

**Table 2: Number of calculated Full-Time Employee (FTE) based on workload at Primary care centers (PCC) services prescriptions over nine years in Al-Medina region**

Al-Medina						
Y (H)	Y (G)	Pilgrims number	No of PCC Prescriptions	Percentage from Pilgrims (%)	No of PCC Prescriptions/day	FTE
1427	2006	2,378,636	35,149	1.48	2,343.27	41.84
1428	2007	2,454,325	105,557	4.30	7,037.13	125.66
1429	2008	2,408,849	198,842	8.25	13,256.13	110.47
1430	2009	2,313,278	185,228	8.01	12,348.53	96.47
1431	2010	2,789,399	207,444	7.44	13,829.60	157.15
1432	2011	2,927,717	187,063	6.39	12,470.87	103.92
1433	2012	3,161,573	86,521	2.74	5,768.07	48.07
1434	2013	1,980,249	165,433	8.35	11,028.87	91.91
1435	2014	2,085,238	107,487	5.15	7,165.80	47.14
Average		2,499,918.22	142,080.44	5.79	9,472.03	91.40

**Table 3: Comparison of number of calculated Full-Time Employee based on workload and MOH standards over nine years in Al-Medina region**

Al-Medina				
Year	No of PCC	No of pharmacist MOH Standards	No of pharmacist Workload	No of fold times
2006	7	35	292.88	8.37
2007	7	35	879.62	25.13
2008	15	75	1,657.05	22.09
2009	16	80	1,543.52	19.29
2010	11	55	1,728.65	31.43
2011	15	75	1,558.80	20.78
2012	15	75	721.05	9.61
2013	15	75	1,378.65	18.38
2014	19	95	895.66	9.43
Average	13.33	66.67	1,183.99	17.76

strategic planning of medical care services 2010-2020.<sup>[25]</sup> The primary care services are essential for all Al-Madina visitors including pilgrims. It provided the management of single and chronic diseases to all pilgrims and visitors. The general administration of Pharmaceutical Care started the pharmacy strategic plan including primary health care services.<sup>[26]</sup> They updated the workforces of pharmacists; setup the pharmacist competency of different specialties inducing pharmacy administrators, pharmacy practice programs, and clinical pharmacy specialty.<sup>[20-21-27]</sup> The authors did the study to evaluate the number of pharmacist demand based on MOH standards and workload dispensing prescriptions during mass gathering Hajj period. Although not all pilgrims visit Al-Medina during hajj, we can notice the huge number of prescriptions that needed to prepare by pharmacists in PCC. The number of prescriptions increased in the last years compares with the past. MOH standards assessed the number of pharmacists needed, but these figures were not enough to cover the expected workload. Although those numbers considered normal if compared with another study which has also conducted in Saudi Arabia, this study was different, and we cannot compare the results because it is in mass gathering event, not normal situation.<sup>[21]</sup> Therefore, we have calculated the number of pharmacists needed based on the number of prescriptions and the workload of pharmacists during hajj. Also, the results reflect the high demand for pharmacists and pharmacists related activities in mass gathering events, hajj in particular. The study cannot compare with other studies due to limited published data, and it was the first done study during mass gathering events. The authors excluded the pharmacy technician and clinical pharmacist with another study in the future.

### Limitation

The finding of the study was very beneficial. However, the study had several limitations, for instance, an official documentation of some pharmacy workforces and pharmaceutical both clinical and nonclinical activities through the general administration of pharmaceutical care missed. Also, the number and type medication dispensed missed in MOH statistical books.

### CONCLUSION

The requirement pharmacy workforces during mass gathering Hajj time were very higher than pharmacist workforce's requirement during regular days. The pharmacy workload analysis reflects the real demand of pharmacist despite both clinical and nonclinical pharmacy activities missed. An electronic documentation of pharmacy

workload for actual calculation of pharmacy workforces during mass gathering Hajj time in Al-Madina region, Saudi Arabia.

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### CONFLICT OF INTEREST

None

### ABBREVIATION USED

KSA: Kingdom of Saudi Arabia, MOH: Ministry of Health, PCC: Primary care center.

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