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Pharmacy Technician 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

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Abstract

Objective: To explore the pharmacy technician 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 pharmacy technician prepares medications and provides pharmaceutical for dispensing through the pharmacist 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) pilgrim visited each primary care center. The mean number of primary care center prescription per day (710.58) contained (2,131.74) medications. The grand average number of pharmacy technician based on MOH standards for PCC was (13.33 FTE) while the mean number pharmacy technician needed based on workload was (591.99 FTE) for all PCC. **Conclusion:** The pharmacy technician workload analysis showed the massive demand of pharmacy technician during mass gathering Hajj period in Al-Medina Region. Targeting to change the MOH standards of primary care center pharmacy workforces during mass gathering Hajj time is necessary for Al-Madina region in Saudi Arabia.

Keyword: Pharmacy technician, Workload, Workforces, Primary care center, Mass Gathering, Hajj, Al-Medina, Ministry of Health, Saudi Arabia

INTRODUCTION

Al-Madina region is third geographic area after Riyadh and East provinces. It is bigger than Makka region biographic area while less than Makka in the population. The primary care centers at Al-Marina region is representative very critical through distributed at large scatter area. The primary health centers are essential to provide medical services

to their population during regular days.^[1] During the mass gathering, hajj time some pilgrims visited Al-Madina and the importance of primary care centers increased to meet the requirements of demand of healthcare services. One of the most affected medical facilities with the huge mass gathering is the associated health risks that may occur to the pilgrims during this period. Because of 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 during a critical situation. So, most of them prefer primary health care centers over hospitals.^[2-5] The primary care centers operated by physicians, pharmacists, and nurses during regular days, however during the mass gathering hajj time the workforce of health care professionals increased. The supportive staff with additional assistant or technicians with different specialties are required. The pharmacy technician's workforce part of them. They prepare medication and pharmaceutical for distribution by a pharmacist, also, to help the clinical pharmacist by assistant through clinical activities.^[6-10] With this demand, the question raised how many pharmacy technicians needed to meet the requirements. The Ministry of Health in Saudi Arabia setup hospital and primary care standards of pharmacy technician's requirements.^[11] However, the MOH standard requirements missed during mass gathering hajj period. The authors are not familiar with any study in Saudi Arabia or Gulf countries or Middle East countries investigated this issue. In addition to worldwide countries. The goal of the study was the workload analysis and workforce requirements of pharmacy technician during this period in Al-Madina region at primary health care centers over nine years (2006-2014).

METHODS

This study is a retrospective analysis of nine years (2006-2016) pharmacy technician workload at primary care center 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.^[12-20] 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 pharmacy technicians during hajj prepare medications and pharmaceuticals for dispensing to all patients either Pilgrim or not Pilgrim at Al-Medina region. They help the pharmacist to provide drug information services and patient education and mainly may work in medical supply unit. Also,

the pharmacy technician can help the pharmacist in the pharmacoeconomic unit, medication safety unit, research and statistics unit.^[21] Also, there was extensive literature review search at open date periods with fifty databases included. 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 pharmacy technician and excluded the pharmacist and clinical pharmacist. 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).^[11] The workload calculation based on pharmacy administration database in Al-Madina region with considered that is an average time of pharmacy technician preparation for dispensing PCC prescription was 2 minutes and the average number of medication per each prescription was three. The workforces derived as central pharmacy technician services, patient specific pharmacy technician activities, and general administration specific pharmacy technician activities based on literature.^[6-8,22-24] 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) pilgrim 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 grand average number of pharmacy technician based on MOH standards for PCC was (13.33 FTE) while the mean number pharmacy technician needed based on workload was (591.99 FTE) for all PCC. It is (44.4 fold) more incremental than MOH pharmacy technician workforce standards per PCC as explored table 2 and table 3. There were no any central pharmacy technician activities and clinical pharmacy technician services or administrative pharmacy technician activities.

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) Pharmacy Technician 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	20.92
1428	2007	2,454,325	105,557	4.30	7,037.13	62.83
1429	2008	2,408,849	198,842	8.25	13,256.13	55.24
1430	2009	2,313,278	185,228	8.01	12,348.53	48.24
1431	2010	2,789,399	207,444	7.44	13,829.60	78.58
1432	2011	2,927,717	187,063	6.39	12,470.87	51.96
1433	2012	3,161,573	86,521	2.74	5,768.07	24.04
1434	2013	1,980,249	165,433	8.35	11,028.87	45.96
1435	2014	2,085,238	107,487	5.15	7,165.80	23.57
Average		2,499,918.22	142,080.44	5.79	9,472.03	45.70

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

Al-Medina				
Year	No of PCC	No of pharmacy technician MOH Standards	No of pharmacy technician Workload	No of fold times
2006	7	7	146.44	20.92
2007	7	7	439.81	62.83
2008	15	15	828.53	55.24
2009	16	16	771.76	48.24
2010	11	11	864.33	78.58
2011	15	15	779.40	51.96
2012	15	15	360.53	24.04
2013	15	15	689.33	45.96
2014	19	19	447.83	23.57
Average	13.33	13.33	591.99	44.40

DISCUSSION

One of the holy city in the kingdom of Saudi Arabia is Al-Madina. Each year there are several hundreds of people visited it, and pray in the holy mosque. Also, several thousands of pilgrims visited the city beside the Hajj performances.^[1] That has required comprehensive health care facilities and perfect medical assistance services to the mass gathering. The MOH expanded their services over past years with hospital and primary care centers. Al-Madina region had twenty hospital and more than 100 primary care centers distributed over the entire city, but the MOH reported not exceed more twenty of them. Majority of pilgrimage prefer to visit PCCs with simple diseases and very easy to reach them during mass gathering events. The primary care centers divided into several types based on population served and contained internal medicine, pediatric, obstetrics and gynecology, and dental clinics. Moreover, some time emergency section and subspecialty of neurology and psychiatry.^[1] The general administration of Pharmaceutical Care implemented pharmacy strategic plan for pharmacist and pharmacy technician to need the primary care centers services.^[25] The workforce of pharmacy staff updated including pharmacy technician.^[11] The committee of primary care centers formulated to follow up the Pharmaceutical Care implementation at PCCs. The pharmacy administration skeleton updated and included pharmacy practice unit, clinical pharmacy services, medication safety, Pharmacoeconomic unit, and drug information services.^[11] All previous projects need pharmacy and pharmacy technicians to help and support the pharmacist in their performances. Due to shortages of a pharmacist at MOH and a huge number of pharmacy technicians, some of the pharmacy activities done by pharmacy technicians including but limited to the following; prepare the medications for dispensing Inpatient, OPD, Emergency Pharmacy, assistant for extemporaneous preparation. In addition to Management of medicines and pharmacy store documentation of medication safety officer reports. Assist the pharmacist in the pharmacy total quality management, documentation of patient counseling, help the pharmacist in the medication reconciliation, an assistant the pharmacist in the transition care system, and monitoring the medication Computerized Physician Order Entry (CPOE).^[6,7] All the previous primary care centers services provide to all pilgrims visited Al-Madina during regular days and mass gathering Hajj time. The author tried to investigate the pharmacy technician's workforce and requirements during mass gathering Hajj time. The author found very high demand for pharmacy technicians during mass gathering Hajj period as compared to MOH standards of primary care centers. The reason behind referred to the enormous

number of prescriptions workload based calculation and the limited number of primary care centers in the MOH statistical book and with a huge number of prescriptions. After very extensive literature review and only small number of studies discussed utilized physician and nurses during mass gathering events but not pharmacy technician with the emphasis of primary care centers.^[26-28] The author could not compare the findings with other studies. It seems the first study in the world of calculating pharmacy technician's workforce during mass gathering Hajj time. To solve the enormous demanding of pharmacy technician during the mass gathering hajj time by the implementation of the new system of Saudi Managed Care Pharmacy through utilized the community pharmacies to dispense primary care centers prescriptions.^[29-30] The authors excluded the pharmacist and clinical pharmacist from the study for further investigation 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 technician included nonclinical and clinical activities missed and the MOH statistical books not included all primary care centers in Al-Madina region. Also, the type and quantities medication dispensed missed in MOH statistical books.

CONCLUSION

There are very high demanding of pharmacy technician workforces during mass gathering Hajj time compared to pharmacy technician workforce's requirement during regular days. An electronic documentation of pharmacy technician workload is required 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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