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Pharmacy Technician Workload and Workforce Requirements at MOH Primary Health Care Center during Ten years Mass Gathering Hajj (2006-2015) in Makah Region, Saudi Arabia

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Abstract

Purpose: To explore the pharmacy technician workload analysis and workforce requirements at Ministry of Health Primary health care centers during mass gathering Hajj ten years (2006-2015), Saudi Arabia. **Methods:** It is a retrospective of ten years (2006-2015) of primary health care center (PCC) pharmacy technician workload during mass gathering Hajj period. The duration of workload collection was 15 days. The pharmacy technician prepares medications and provide pharmaceutical for dispensing through the pharmacist all patients either Pilgrim or not Pilgrim at Makah region. It included Muna holy places hospitals; Arafat holy places hospitals, and Makah city. The workforce requirements calculated based on MOH workforce standards of primary health care center and the workload drives as central pharmacy technician services, patient specific pharmacy technician activities, and general administration specific pharmacy technician activities. **Results:** The total number of pilgrims (1,952,817-3,161,573) with average (2,445,208). The total number of prescriptions (226,824-505,753) with average (411,317), it represented (7.12-20.25%) with average (16.77%) of all pilgrims. The average number PCC prescription at holy places were (275,820) and (138,388.40) from Makah city. The average number of pharmacy technician needed (12.46FTE) per each PCC at holy places, and (13.99 FTE) per each PCC at Makah city with a total number of pharmacy technician was (26.45 FTE) per each PCC. The grand average number of pharmacist based on MOH standards for PCC was (1725.86 FTE) while the mean number pharmacy technician needed based on workload was (135.7 FTE) for all PCC. **Conclusion:** There is very high demand of pharmacy technician workforces during mass gathering Hajj time at primary health care center in Makka region. Targeting to change pharmacy technician workforces MOH standards requirements improve pharmacy technician services at primary care centers provided to all pilgrims in Makka region, Saudi Arabia.

Keyword: pharmacy technician, Workload, Workforces, Primary care center, Mass Gathering, Hajj, Makka, Ministry of Health, Saudi Arabia

INTRODUCTION

The primary care centers are elementary to build and implement the services to the public to provide fast and quick medical facilities. Also, most of the patient prefer to

visit primary care center than hospital easy to communicate with the very simple disease in regular days, and it is critical during mass gathering events like for instance Hajj period. The number of primary care center is much more several time than hospital during mass gathering hajj in both Makka and Al-Madina the holy places in the kingdom of Saudi Arabia.^[1] Every year the ministry of health arrange temporary and permanent primary care centers during mass gathering Hajj periods with expanding over past several years in Makka region with emphasis on Makka city and holy places. The most efficient and very easy to reach the patient with mass gathering during Hajj with preferable to most patients. The primary care centers operated by medical professionals including a physician, pharmacist, and nurses on regulars days while during mass gathering event other suppressive allied health care professionals including assistant nurses and assistant pharmacist of pharmacy technicians. They help and support pharmacist and clinical with their activities and performance to best medical care to all pilgrims.^[2-6] However, the number of pharmacy technician's demand and requirements during mass gathering Hajj period is unknown. Several studies were done to assess mass gathering medicine, the patterns of diseases, and vaccination effectiveness during hajj, but Alomi et al. first studied the national mass gathering pharmaceutical care in Saudi Arabia.^[7-11] However, after very extensive literature review and absent of studies discussed the utilization of pharmacy technician at primary care centers mass gathering events but not pharmacy technician at primary care centers. The author not familiar with any study to investigate the workforce of pharmacy technicians during mass gathering hajj time published in Saudi Arabia, or Gulf countries, or even worldwide countries and very seldom to find it. The objective of the study to explore the pharmacy technicians workforce and workload analysis during mass gathering hajj time over past ten years (2006-2015) in Makka region, Saudi Arabia.

METHODS

It is a retrospective analysis of ten years (2006-2015) of primary healthcare center (PCC) pharmacy technician workload during mass gathering Hajj period. The duration of workload collection was 15 days. The primary healthcare is the first and the easiest level the patient could reach if they have any health problem. All the data derived from Ministry of Health. Health Statistical Year Books.^[12-21] At primary healthcare centers, the patient will receive safe and fast health services such as; medical examination, some blood analysis, and patient follow-up. The patients also will receive their medications with proper counseling and education.^[22] There are about 158 primary care centers

in Makah region; 46 in Makah city and 112 in holy places (Mina and Arafat). The pharmacy technicians prepare medication and pharmaceuticals for dispensing to all patients (Pilgrim or not Pilgrim). The pharmacy technician at primary care centers may work to help the pharmacist in; administrative affairs unit, total quality unit, medical supply unit, medication safety unit, clinical pharmacy unit, and pharmacy unit but mainly in the pharmacy stores. The pharmacy technician can help the pharmacists there manage patients with acute and chronic common illnesses and provide sufficient care for patients who do not need a hospital.^[22] 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 keywords. All setting of patient care services; hospitals inpatient or ambulatory care or community services included. The search included Pharmacy technician. Pharmacist and clinical pharmacist excluded from the study. The location of studies included Saudi Arabia as top propriety if not existed Gulf or Middle East countries included, and if not found overall countries included. The workforce pharmacy technician requirements calculated based on MOH workforce standards at primary health care center. In addition, the workload drove as central pharmacy services, patient-specific pharmacy activities, and general administration specific pharmacy activities based on the internal literature.^[2-4,23-26] The workload calculation based on pharmacy administration database in Makka region with considered that is an average time of Pharmacy technician preparation for dispensing PCC prescription was two minutes and the mean number of medication per each prescription was three minutes. All calculation done used Microsoft Excel version ten.

RESULTS

The total number of pilgrims was (1,952,817-3,161,573) with average (2,445,208). The total number of prescriptions (226,824-505,753) with average (411,317), it represented (7.12-20.25%) with average (16.77%) of all pilgrims. The number of primary care centers in Makah was (36 – 46) with an average of (41.7), while in holy places there was (80–112) with a mean of (4.9) Primary Care Centers as explored table 1. The average number PCC prescription at holy places were (275,820) and (138,388.40) from Makah city. The average number of PCC order at sacred sites was (18,388) per day

Table 1: Number of Pilgrims, Primary care centers (PCC) at Makka city and Holy places over ten years in Makkah region				
		Makah City	Holy Places	
Year	Pilgrims number	No of PCC	No of PCC	Total PCC
2006	2,378,636	36	89	125
2007	2,454,325	40	80	120
2008	2,408,849	38	80	118
2009	2,313,278	42	99	141
2010	2,789,399	43	96	139
2011	2,927,717	43	96	139
2012	3,161,573	43	96	139
2013	1,980,249	43	96	139
2014	2,085,238	43	96	139
2015	1,952,817	46	112	158
Average	2,445,208.10	41.70	94.00	135.70
				18,178.52

Table 2: Number of calculated Full-Time Employee Pharmacy Technician based on workload of Primary care center (PCC) services prescriptions at Makka city and Holy places over ten years in Makka region							
		Makah city		Holy Places			
Y (H)	Y (G)	Pilgrims number	No of PCC Prescriptions	FTE	No of PCC Prescriptions	FTE	Total No of PCC Prescriptions
1427	2006	2,378,636	146,821	17.00	287,383	13.46	434,204
1428	2007	2,454,325	156,338	16.29	287,756	14.99	444,094
1429	2008	2,408,849	165,105	18.11	319,633	16.65	484,738
1430	2009	2,313,278	167,336	16.60	301,127	12.68	468,463
1431	2010	2,789,399	155,333	15.05	321,053	13.94	476,386
1432	2011	2,927,717	148,065	14.35	286,057	12.42	434,122
1433	2012	3,161,573	164,333	15.93	341,420	14.82	505,753
1434	2013	1,980,249	101,158	9.80	244,484	10.61	345,642
1435	2014	2,085,238	77,733	7.53	215,210	9.34	292,943
1436	2015	1,952,817	101,662	9.21	154,077	5.73	255,739
Average		2,445,208.10	138,388.40	13.99	275,820.00	12.46	414,208.40
							26.45

Table 3: Number of calculated Full-Time Employee Pharmacy Technician based on workload of Primary care centers (PCC) services prescriptions at Makka city and Holy places over ten years in Makka region									
Year	Makah City			Holy Places			Total No of pharmacy technician MOH Standards	Total No of pharmacy technician Workload	No of fold times
	No of PCC	No of pharmacy technician MOH Standards	No of pharmacy technician Workload	No of PCC	No of pharmacy technician MOH Standards	No of pharmacy technician Workload			
2006	36	36	611.82	89	89	1197.50	125	1809.32	14.47
2007	40	40	651.40	80	80	1198.80	120	1850.20	15.42
2008	38	38	687.99	80	80	1332.00	118	2019.99	17.12
2009	42	42	697.20	99	99	1254.83	141	1952.03	13.84
2010	43	43	647.15	96	96	1337.76	139	1984.91	14.28
2011	43	43	616.84	96	96	1191.84	139	1808.68	13.01
2012	43	43	684.78	96	96	1422.72	139	2107.50	15.16
2013	43	43	421.40	96	96	1018.56	139	1439.96	10.36
2014	43	43	323.79	96	96	896.64	139	1220.43	8.78
2015	46	46	423.59	112	112	649.49	158	1065.58	6.74
Average	41.70	41.70	576.6	94.00	94.00	1150.014	135.7	1725.86	12.72

and contained (55,164) medications, while at PCC in Makah city was (9,255.86) prescriptions per day and contained (27,677.6) drugs. The average number of pharmacy technician needed (12.46 FTE) per each PCC at holy places, and (13.99 FTE) per each PCC at Makah city with a total number of pharmacy technician was (26.45 FTE) per each PCC. The grand average number of pharmacy technician based on MOH standards for PCC was (135.7 FTE) while the mean number pharmacy technician needed based on workload was (1725.86 FTE) for all PCC. It is (12.72 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.

DISCUSSION

The Ministry of health started comprehensive strategic plan through past year with an increased number of primary care centers, organization, and services, with workforces of healthcare providers.^[27] The primary care centers have different based on population served. They designed special medication list for the primary care centers. They received all patient with simple and initial of common chronic diseases. The plan covered all Kingdom of Saudi Arabia regions including Makka. The MOH paid particular attention during mass gathering hajj time at all primary care centers located in Makka region. Most of the work as ambulatory care services and provide emergency services. They are very easy to access them rather than hospitals especially during very crowded area with mass gathering population Hajj time. Over several years of primary care centers improvement, they developed computerized Physician order entry at some them with fully-equipped advance machines.^[1] One of the major primary care preparation was human resources of health care professional including Physician, pharmacist, and nurses. Also, to supportive personal, as assistant or technician during mass gathering period and pharmacy technician were among them.^[1] The number pharmacy technician participated during mass gathering hajj bigger than pharmacist gathers on an annual basis due to a limited number of a pharmacist at MOH institution. The author investigated the workforces of pharmacy technician and requirements during mass gathering hajj due high demanding. The finding had several times fold incremental demanding as compared to MOH standards based on workload calculation. The most of the pilgrims visited the primary care centers in Makka city and holy places than hospitals. After very extensive literature review an only limited number of studies discussed utilized

physician and nurses during mass gathering events but not pharmacy technician at primary care centers.^[28-30] There was one study showed based population calculation.^[31] The limitation of comparing the results of this study; it was in the population with normal PCCs with normal days nor during the mass gathering event. The authors cannot compare the results of another study because it very had to find looks like the first study about workforces of primary care pharmacy technician during mass gathering Hajj period. These results reflect the real needs of pharmacy technician during Hajj period and the shortage present in pharmacy technician staff. The authors suggested updating the pharmacy technician workforces to be twelve per each primary care center during mass gathering Hajj time. The study excluded the pharmacists and clinical pharmacists with another study in the future investigated.

Limitation: Despite the importance of the study, finding the study had several limitations and the author could not control them. The missing of an official of general administration of pharmaceutical care the documentation of pharmacy technician activities at PCC. Also, the type and quantities of medication dispensed through PCCs missed.

Conclusion: The primary health care centers had very high demanding of a pharmacy technician during mass gathering Hajj period in Makka region, Saudi Arabia. Targeting to change MOH pharmacy technician workforces is required. The requirment of an electronic documentation of pharmacy technician activities. That would reflect actual of pharmacy technician workforces and improve role of pharmacy technician services offered to all pilgrims during mass gathering Hajj time visit Makka region in 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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