Flu vaccine among health workers in Qatar

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ABSTRACT

الأهداف: تقيم هذه الدراسة معدل التطعيم ضد الأنفلونزا بين موظفي الرعاية الصحية في مؤسسة حمد الطبية وذلك في حملة التطعيم المقررة لعام 2006م، كما أنها تحدد أسباب عدم التطعيم بين صفوف الأطباء والممرضات.

الطريقة: تم إجراء دراسة ملاحظية في مؤسسة حمد الطبية، الدوحة، قطر وذلك خلال الفترة من إبريل 2007م إلى أغسطس 2007م حيث تم تحليل نتائج حملة التطعيم المقررة لموسم 2006م من أجل تحديد معدل التطعيم ضد الأنفلونزا بين جميع موظفي مؤسسة حمد الطبية في ستة مرافق مستقلة، ثم تم توزيع استبيان ذاتي لتقييم أسباب عدم تلقي لقاح الأنفلونزا بين مجموعة عشوائية من الأطباء والممرضات الذين لم يأخذوا لقاح الأنفلونزا.

النتائج: تكشف النتائج بأن معدل التطعيم بين العاملين في مؤسسة حمد الطبية كانت حوالي 19.4% فقط وكانت هناك اختلافات واضحة بين الأطباء والممرضات وذلك اعتماداً على نوع المرافق الصحية. ولقد قام 58% من المجموعة العشوائية التي تضم 1261 طبيباً وممرضة بالإجابة على أسباب عدم التطعيم في الاستبيان، وكانت الأسباب الأكثر شيوعاً هي ضيق الوقت (16.5%) والمخاوف بشأن الآثار الجانبية للقاح (13.6%).

خاتمة: تشير الدراسة بأن معدل التطعيم ضد الأنفلونزا بين العاملين في مجال الرعاية الصحية منخفضة كما أنها متغيرة تبعاً لنوع المرفق الصحي، لذلك من الضروري تحديد أسباب تدني معدل التطعيم في مختلف المرافق الصحية وهذا من شأنه تحسين معدل التطعيم في السنوات المقبلة.

Objectives: To assessed the coverage rate of influenza vaccination among Health Care Workers at Hamad Medical Corporation in 2006 vaccination campaign and also assessed the reasons for non-vaccination in among physicians and nurses.

Methods: This is an observational study conducted in Hamad Medical Corporation, Doha, Qatar between April 2007 and August 2007. The 2006 vaccination campaign records were analyzed to determine the influenza vaccination coverage rate among all staff in 6 independent facilities. We used a self-administrative questionnaire to assess the reasons for not getting the influenza vaccine among a random sample of non-vaccinated physicians and nurses.

Results: Approximately 19.4% of all staff were vaccinated and there were statistically significant differences between the type of health care facilities among physicians and nurses group. Approximately 58% of the random sample of 1261 physicians and nurses returned the questionnaire. The most frequently cited reasons for non-vaccination were lack of time to get immunized (16.5%) and concerns on vaccine side effects (13.6%).

Conclusion: Influenza vaccination coverage of health care workers is low and variable depending on type of health care setting, therefore, it is essential to identify the reasons for low vaccination rate in different health care facility in which assists the guidance to improve the coverage rates for the following years.

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Influenza infection causes an average of 36,000 deaths and nearly 200,000 hospitalizations annually in the United States alone.[1,2] Although most cases are mild and self limited, influenza infections can have serious consequences, especially when affecting high risk groups such as the elderly and patients with low immunity.[3] Annual vaccination with inactive influenza vaccine is found to be efficient in reducing influenza associated morbidity and mortality.[4,5] Nosocomial influenza outbreaks have been confirmed in different health care setting (acute and long term care).[6-8] Health Care Workers (HCWs) were epidemiologically linked to the nosocomial transmission of influenza causing outbreaks of the disease within the health care setting,

with serious patient morbidity and mortality.[6] However, nosocomial transmission of influenza can be prevented through HCWs vaccination with an effective influenza vaccine.[1,6] Increased rate of HCWs vaccination corresponds to significant decrease in the incidence of healthcare-associated influenza infection.[1,3,6] Studies conducted in various regions, showed that the overall HCW vaccination coverage rate is low with a mean range of 26.47%,[9-13] hence; one of the US national health objectives for 2010 is to achieve HCW vaccination coverage levels of 60%.[14] Hamad Medical Corporation (HMC), the largest health care provider in Qatar, launched annual influenza vaccination campaign for its HCWs; however, the coverage rate among these particular groups has not yet been assessed. This study was conducted primarily to measure the uptake of influenza vaccination coverage rate among medical and non-medical staff working at HMC during 2006 influenza vaccination campaign and the secondary aim is to assess the main reasons for non-vaccination among high risk health care workers, which are physicians and nurses.

Methods. This observational study started on April 2007 until August 2007, applied at HMC, which consists of 6 independent facilities. Primary Health Care services were offered in 21 Health Centers (PHC), and 5 hospitals, which provide secondary and tertiary heath care services. These hospitals are Hamad General Hospital (HGH), Women Hospital (WMH), Al Amal Hospital (AML), Rumailah Hospital (RMH), and Al Khour Hospital (NHA). The influenza vaccine was offered free of charge to all health care workers and the vaccination was voluntary. For the records, all vaccinated staff required to register as part of the campaign. The data sheet include: staff name, staff ID number, gender, type of work, and working department. The influenza vaccination campaign for 2006-2007 influenza seasons was started on 28th of November 2006 and it was lasted for one week. The campaign was a stationary clinic held in 4 locations; WMH, Pediatric Emergency Center at HGH, RMH and NHA, aiming to cover all HMC employees including both medical and non-medical staff. The staff was informed about the campaign time and locations through a memorandum directed to the head of different departments and sections.

Data on the vaccinated staff were obtained from 2006 influenza vaccination campaign records. Then these data was matched with the recorded data from HMC Human Resources Department to reduce error. A self-administrated questionnaire was distributed randomly to assess the reasons for declining influenza vaccination from non-vaccinated physicians and nurses. The sample size was calculated using 95% confidence interval with 3% absolute precision and 20% probability of the event occurs within the population. We used the stratified sampling according to the working facility, and the proportionate sample selection was carried out depending on the percentage of physicians and nurses in each facility. The total sample size was 1261.

All eligible employees were included in the study. Those employees were permanent active staff during the actual vaccination campaign period. The staff were categorized into medical and non-medical staff based in the HMC Human Resource Department. Staff on leave and on study training during the vaccination campaign period were excluded from the analysis.

Only the vaccinated physicians and nurses during 2006 campaign were excluded from the secondary objective. The HMC Research Committee and Institute Review of Board approved the study. Subjects were informed that participation is voluntary, and verbal consent was obtained after clarification of data treated with strict confidence.

Statistical analyses were performed using SPSS version 11.5 to estimate the vaccination rate. For categorical variables, frequency tables were used for data summary and the significant differences for different groups' proportions were examined using Chi-square test.

Results. From 14292 total eligible HMC staff, only 19.4% received the influenza vaccine based on the records of 2006 influenza vaccination campaign. This percentage includes medical and non-medical staff. Approximately 17.2% (1563/9064) of all medical staff were getting the vaccine and 23.4% (1166/4991) of all non-medical staff were vaccinated during the campaign. We all know that physicians and nurses staff were considered the highest risk group for contracting and/or transmitting the virus from their patients; only 6.3% of physicians and 16.7% of nurses were vaccinated during 2006 campaign. The rate of vaccination was different according to the facility and type of work; among physicians, the rate was highest in NHA Hospital (15.4%) whereas WMH showed the lowest rate (0%). The results were statistically significant differences between the facilities; $p<0.05$ (2-sided), $x^2=53.4$. Similarly, nurses' vaccination coverage rate was highest in NHA hospital (46.2%) whereas PHC showed the lowest rate (3%). The results show that there were statistically significant differences between the facilities and nurses group $p<0.05$ (2-sided), $x^2=443.4$. The total response rate for the secondary objective was lower among the study group (58% [730/1261]) because some staff were refused to complete the questionnaire and the other were on leave at the time of data collection (45% physicians and 60.4% nurses). Off all respondents, approximately 32% (236/730) were vaccinated for

the influenza in season of 2006-2007, but outside the HMC campaign.

Table 1 demonstrates the characteristic of the participant according to type of work in relation to demographics data, which include; gender, age, marital status, years of employment at HMC.

Approximately 98.4% of non-vaccinated respondents (486/494) answered the question concerning reasons for non-vaccination. The 2 most common reasons for non-vaccination were lack of time to get immunized (16.5%) and concern about the vaccine side effects (13.6%). Among those who selected "other" as an answer; most indicated they were on emergency leave during the campaign period and the other gave answers indicating knowledge problems such as not getting vaccinated due to pregnancy (**Table 2**).

Discussion. Vaccination of HCWs against influenza is believed to be an important component of prevention.[1,3] Studies show that improving influenza vaccination rate among HCWs is an effective approach to reducing nosocomial transmission of influenza infection to patients with high risk of complications.[15-17] For more than 20 years, the Centers for Disease Control and Prevention and Advisory Committee on Immunization Practices have been recommending annual vaccination for HCWs with direct patient contact, to enhance both HCW and patient safety.[18] Additionally, one of the US national health objectives for 2010 is to achieve HCW vaccination coverage levels of 60%.[14] This study is the first one in Qatar measuring the influenza vaccination among HCWs. Despite the international recommendations, the vaccination among HMC staff in Qatar is very low. Similarly, recent studies conducted in various developed countries, show that the overall HCW vaccination coverage rate is less than 60% at approximately 38% in US,[10] 17.5% in Ireland,[11] 31.2% in France,[9] 19.65% in Spanish,[12] and 26% in Germany.[13] Furthermore, the vaccination rate was found to be variable depending on the type of work, our study shows that nurses were significantly enthusiastic to be vaccinated more than physicians in all HMC facilities as this similarly seen by Rothan-Tondeur et al[9] and Walker et al.[19] Also, this study found that the vaccination rate was significantly depending on the type of health care setting, for example; HGH is consider the largest HMC facility and has the highest patient load that admits the majority of acute cases and this may have made it more difficult for HGH staff to find the opportunity to get vaccinated, whereas PHC did not have a vaccination station in any of its centers and its staff needed to access a vaccination station outside their work location. Therefore, understanding reasons for not getting the vaccine is necessary as it allow for targeted efforts to improve the vaccination coverage rate for the following years. Nevertheless, different approaches have been approved to increase uptake among HCWs with a range of successful rate depending on the type of intervention used.[17,20,21]

Our study had some limitations, the overall vaccination rate was considered overestimated as the matched data from Human Resource Department showed a vaccination records of resigned and/or

Table 1 - Demographic characteristic of the participants according to type of work.

Characteristic	Physicians (n=129) n (%)	Nurses (n=601) n (%)
Gender		
Male	80 (62.0)	64 (10.6)
Female	48 (37.2)	533 (88.7)
Missing data	1 (0.7)	4 (0.7)
Age		
≤30	6 (4.7)	261 (43.4)
31-40	44 (34.1)	190 (31.6)
41-50	39 (30.2)	63 (10.5)
>50	37 (28.7)	77 (12.8)
Missing data	3 (2.3)	10 (1.7)
Marital status		
Single	11 (8.5)	92 (15.3)
Married	116 (89.9)	487 (81)
Divorced	1 (0.8)	8 (1.3)
Widowed	1 (0.8)	10 (1.7)
Missing data	0 0	4 (0.7)
Years of employment at HMC		
1-5	42 (32.6)	261 (43.4)
6-10	37 (28.7)	190 (31.6)
11-15	21 (16.3)	63 (10.5)
>15	28 (21.7)	77 (12.8)
Missing data	1 (0.8)	10 (1.7)

Table 2 - Self reported reasons of non vaccination participants for 2006 campaign.

Reasons of non-vaccination	Total n (%)
Lack of time to get immunized	80 (16.5)
Inconvenience of accessing vaccine campaign	39 (8.0)
Unaware of vaccine availability	26 (5.3)
Not at high risk for acquiring influenza	54 (11.1)
Influenza disease is not severe enough	19 (3.9)
Vaccine is not effective	33 (6.8)
Concern about side effect	66 (13.6)
Concern about getting influenza from the vaccine	17 (3.5)
Previous vaccine related adverse effect	40 (8.2)
Fear of injection	23 (4.7)
Due to permanent contraindication	4 (0.8)
Other	85 (17.5)
Total	**486 (100.0)**

terminated HMC staff. As well as there were few writing error in the data records that the investigators not able to identify the person in collaboration with Human Resource Department; therefore, this will underestimate the numerator. Because of these 2 errors; each one would overcome the other, so the exact vaccination rate would be on the same range as we calculated.

In conclusion, despite national recommendation in Qatar, the vaccination rate among HCWs is low. Special efforts is required for identifying the reasons for low vaccination rate in different facilities and such challenges is needed to improve the vaccination rate among HCWs for the following year influenza vaccination campaign.

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