Vaccine xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Attitudes and perceptions among the pediatric health care providers toward influenza vaccination in Qatar: A cross-sectional study

Ahmed Alhammadi*, Mohamed Khalifa, Hatem Abdulrahman, Eman. Almuslemani, Abdullah Alhothi, Mohamed Janahi

Pediatrics Department, Hamad Medical Corporation, PO Box 3050, Doha, Qatar

ARTICLE INFO

Article history:
Received 21 January 2015
Received in revised form 28 May 2015
Accepted 22 June 2015
Available online xxx

Keywords:
Influenza
Perception
Health care provider
Child immunization
Qatar

ABSTRACT

Background: Influenza is a communicable but preventable viral illness. Despite safe and effective vaccine availability, compliance rates are globally low. Neither local data on percentage of vaccination nor reasons for poor compliance among pediatric health providers are available in Qatar.
Aim: To estimate the percentage of vaccinated health care providers at pediatrics department and know their perception and attitudes toward influenza vaccinations.
Methods: Cross-sectional survey, conducted on 300 pediatrics healthcare professionals from January through April 2013 at the main tertiary teaching hospital in Qatar, included details of demographics, frequency, perceptions and suggestive ways to improve the compliance.
Finding: From among 230 respondents, 90 physicians and 133 allied health care professionals participated in this survey. Our study showed that percentages of participants who received flu vaccination were 67.7% and those who did not receive vaccination were 32.3%. Allied HCPs (69%) are more likely to get the vaccine compared to the physicians (66%). flu vaccination was approximately 5 times likely to be higher in the age group more than 40 years ($P = 0.002$) compared to age less than or equals 40 years. Overall 70% healthcare providers were willing to recommend immunization to colleagues and patients compared to 30%, who were not willing. The reasons for noncompliance included fear of side effects, contracting the flu, vaccine safety and lack of awareness about the effectiveness. In order to promote immunization, participants believe that use of evidence-based statement, participating in an educational campaign, provides no cost/on site campaigns and leadership support is the most practical interventions.
Conclusions: In the present study, the vaccine coverage among pediatrics HCPs seems higher than previously reported rates. Despite their positive attitude toward influenza vaccination, low acceptance and misconceptions of seasonal influenza vaccination by pediatric HCPs may have a negative effect on the successful immunization delivery and children immunization rate. Our findings would be useful for designing and implementing educational programs targeted to improve vaccination coverage rates.

1. Background

Influenza, a communicable but preventable viral illness, is considered a major threat to public health worldwide [1]. At least one in every 300 adults over the age of 65 years and one in every 200 children under the age of one year are hospitalized due to influenza each year [2]. The virus is remarkable for its high rates of mutation, compromising the ability of the immune system to protect against the new variants [3]. Hence, new vaccines are produced each year to add more new viral strains to the existing vaccines [4]. While about one in 20 healthy unvaccinated adults is infected with influenza each year, as many as one in six unvaccinated healthcare workers (HCWs) get influenza [5]. This higher rate of infection among the unvaccinated HCWs not only results in the disruption of health services, but also causes major financial impacts on healthcare organizations [6]. Therefore, in order to protect patients from illness and death associated with this disease and to maintain patient care uninterrupted, it is equally important to immunize health care providers (HCPs) against vaccine-preventable diseases. Further, immunizing HCPs protects them from infecting with the virus, thus, keeping them healthy to attend their work during outbreaks; otherwise absence of HCPs would further negatively affect patient care [7].

* Corresponding author.
E-mail addresses: aalhammadi@hamad.qa (A. Alhammadi), Mohamedsob7y@yahoo.com (M. Khalifa), Hatimmohamedahmed@gmail.com (H. Abdulrahman), ealmuslemani@hamad.qa (Eman. Almuslemani), Al7outhi@yahoo.com (A. Alhothi), mjanahi@hamad.qa (M. Janahi).

http://dx.doi.org/10.1016/j.vaccine.2015.06.082
0264-410X/

In most countries, the rates of immunizations of HCWs with recommended vaccines are not satisfactory [8]. To protect HCP and their patients, the Advisory Committee on Immunization Practices (ACIP) recommends that all HCP be vaccinated against influenza during each influenza season [9]. Although it does not provide 100% protection, with a good match to circulating strains, immunization can prevent illness in about 60% of healthy children and adults [10]. HCPs have infrequent contact with high-risk patients; thus, they can easily transmit influenza virus before the onset of symptoms or during the illness [11]. Patients admitted to the hospital with confirmed influenza A virus infection need treatment. Antiviral treatment is recommended as soon as possible for all persons with suspected or confirmed influenza requiring hospitalization or for persons who have progressive, severe or complicated illness regardless of previous health or vaccination status. Muthuri et al. [12] found approximately 20% reduction in the mortality if the neuraminidase inhibitor drugs were used as compared to no treatment, irrespective of the timing of treatment initiation.

In Qatar, the national immunization program under supreme council of health makes changes in the schedule according to all World Health Organization (WHO) recent recommendations and provide vaccination programs to public and all HCPs accordingly.

In addition, Health care system currently requires proof of immunity for most of communicable diseases such as measles, mumps and rubella for all health care providers.

Hamad Medical Corporation (HMC), the main tertiary health care provider in Qatar holds a yearly influenza vaccination campaign, free of charge and easy accessible to all HCPs starting from October to March each year. The influenza target was set at $\geq$70% vaccination rates. Data from HMC-flu vaccine campaign showed; in 2011, the rate was 37% compared with 68% in 2012.

There are limited studies of the relationship between knowledge, perception and the need for influenza vaccination in HCPs in Qatar. Few have focused on influenza A/H1N1 vaccination coverage among the HCPs in primary health care setting, with no information about the actual knowledge and practices of this topic in the tertiary hospital facility.

Taking into account these observations, there is no recent published data to show the response rates of seasonal influenza vaccine among HCPs in the state of Qatar.

In this study, we focused on four main areas; estimate the percentage of vaccinated HCPs at pediatrics department, study their attitudes and perception toward seasonal influenza vaccinations, identify the common reasons for taking or not taking the seasonal influenza vaccine and factors that influence influenza vaccination acceptance and coverage rate.

2. Material and methods

2.1. Study site and population

A cross-sectional type of study was conducted through the distribution of an anonymous questionnaire (Annexure-I) to all HCPs at our tertiary institution, Hamad Medical Corporation, in Doha, Qatar, from January to April 2013. Our main target population was all HCPs working at different locations in the pediatric department of our hospital such as pediatrics inpatients ward, pediatric intensive care unit, neonatal intensive care unit and pediatrics emergency department. The questionnaires were distributed by hand to everyone, and the response either was collected on the spot or received in a known mailbox in the pediatric department.

As our main target was to estimate the prevalence of vaccination versus non-vaccinated individual among HCPs in the pediatric department, the size of the sample needed was not pre-estimated. The questionnaire was designed after reviewing related literatures on the subject. Initially, piloting of the questionnaire was conducted among a small group of contributors to assess its validity.

The survey consisted of items on demographic characteristics including sex, age, job characteristics including; division and position (resident/fellows/specialist/consultant/nurses and others), In addition, uptake of influenza vaccine in the current year (yes/no), recommend Flu vaccine to their friends/patients/colleagues (yes/no), reasons for up-taking or not-taking vaccine and factors influencing vaccine uptake among pediatrics health care providers was assessed.

Ninety physicians and 133 allied HCPs at the main pediatrics tertiary teaching hospital participated in this survey. The positions in seven-response sheet were not stated.

2.2. Statistical analysis

Although 230 participants returned the questionnaire, some fields of some response sheets were missing; hence, the *N* values for different parameters varied slightly during SPSS analysis. Descriptive statistics and frequency statistics of vaccinated and non-vaccinated healthcare professionals was determined for doctors, nurses and other HCPs based on different demography. Associations between two or more qualitative variables were assessed using chi-square test and Fisher Exact test as appropriate.

Univariate and multivariate logistic regression analysis was carried out to assess the association of various potential predictors and covariates such as such as age, gender, professional category, and place of work with outcome variable flu vaccination. Covariates and predictors included in the multivariate logistic regression (stepwise method) analysis were age, gender, professional category, and place of work. Logistic regression analysis results were presented in terms of odds ratio (OR) and associated 95% CI.

Pictorial presentations of the key results were made using appropriate graphs. A two-sided *P* value <0.05 was considered to be statistically significant. All Statistical analyses were done using statistical packages SPSS 22.0 (SPSS Inc. Chicago, IL).

2.3. Ethical clearance

The study protocol and Questionnaire was reviewed and approved by the Medical Research Centre. Hamad Medical Corporation, Doha, Qatar. We provided an information sheet of the study, verbally described its content and the public health importance to potential participants. We also described and ensured anonymity of the interview. Verbal informed consent was obtained from all participants.

3. Results

Among 300 distributed questionnaires, 230 were returned, representing a response rate of 76.6%. Among the valid responders, 151 (67.7%) received the vaccine in winter 2013, while 73 (32.3%) did not get the vaccine. Within the vaccinated group, allied HCPs (69%) are more likely to get the vaccine compared to the physicians (66%); however, it is statistically not significant ($P = 0.571$).

The results of univariate and multivariate logistic regression analysis testing for each predictive variable and its association with flu vaccination are presented in Tables 1.1 and 1.2. Logistic regression analysis revealed that higher age, place of work, and gender were common factors and covariates associated with an increased flu vaccination compliance.

Univaraite logistic regression revealed that the odds of flu vaccination was approximately 5 times likely to be higher in the age group more than 40 years [unadjusted OR = 4.89; 95% CI (1.82, 12.98); $P = 0.002$] compared to age younger than or equals 40 years.

Please cite this article in press as: Alhammadi A, et al. Attitudes and perceptions among the pediatric health care providers toward influenza vaccination in Qatar: A cross-sectional study. Vaccine (2015), http://dx.doi.org/10.1016/j.vaccine.2015.06.082