Physicians’ knowledge, attitude, and practices toward HPV disease and vaccination in Al Ain city, UAE

Latifa Sarhan AlMansoori¹, Manal Salem AlKatheeri¹, AlYazia Ahmed AlHallami¹, Marwa Yaqoub AlMarzooqi¹, Moyasar Al-Tatari², Hossam Al-Tatari³

¹Pediatric Resident. Department of Pediatrics. Tawam Hospital. UAE.
²Medical Student. Colleague of Medicine and Health Sciences. UAE University. UAE
³Director of Pediatric Infectious Diseases services. The Heart Medical Center. UAE

Abstract:

Introduction: Human papillomavirus (HPV) infection is the world’s most common sexually transmitted disease. It accounts for 70% and 72% of all cervical cancer cases and anal cancer cases worldwide, respectively. Annually, over 470,000 women are diagnosed globally with cervical cancer, and 233,372 of them die.

Objective: The HPV vaccine could now largely prevent cervical cancer and potential death. However, uptake of the vaccine is variable in our population due to many factors. We believe that one major factor is the physician’s knowledge, attitude, and practices (KAP) toward HPV disease and vaccination. Although the HPV vaccine has been added to the UAE vaccination schedule since 2010, the physician’s KAP toward HPV disease and vaccination in our country have been poorly studied. This study aims to examine and identify the gaps in the physician’s KAP. These gaps can later be targeted in a quality improvement project in the future.

Methods: A 20-question survey was distributed to different physicians working in departments such as the pediatrics, obstetrics and gynecology, internal medicine, and family medicine, both in the primary health care and government sectors. A total of 110 surveys were collected and analyzed through Microsoft Excel.

Results and conclusion: The survey results revealed some gaps in knowledge, although a good percentage of the surveyed physicians seem to recommend the vaccine.

Keyword: HPV, HPV vaccine, knowledge, attitude, practice, KAP, cervical cancer

Introduction:

Human papillomaviruses (HPV) are non-enveloped double-stranded DNA viruses that peculiarly infect humans, causing significant morbidity and mortality in the host. At least 100 types of these viruses are identified and classified on the basis of their tissue tropism; some of these types cause malignancy in humans¹. The well-known and preventable malignancy that is related to HPV infection is cervical cancer. Among the HPV types, HPV-16 and HPV-18 account for 70% of all
cervical cancer cases. Other types are HPV-31, HPV-33, HPV-45, HPV-52, and HPV-58, which account for 19% of these cases\(^2\). Cervical cancer is currently the 4\(^{\text{th}}\) leading cancer worldwide\(^3\). In 2018, approximately 570,000 new cervical cancer cases were reported globally, and approximately 311,000 died of it\(^4\).

According to statistics conducted in 2018 in the UAE, cervical cancer was the 4\(^{\text{th}}\) leading cause of female cancer, with an estimated 108 new cases reported annually. Furthermore, in the UAE, approximately 56 deaths of cervical cancer occur annually\(^5\).

With the advent of research and medical trials, vaccines have been produced to prevent this hidden and fatal form of cancer. These vaccines aim to prevent infections caused by the HPV types and their resultant sequelae. In the UAE, following vaccines are currently licensed for use: Gardasil, Cervarix, and Gardasil 9, which were approved by the FDA in 2006, 2009, and 2014, respectively. Efficacy of these vaccines in preventing cervical cancer had been extensively studied, and the results were favorable. They proved to greatly reduce the incidence of cervical cancer and other cancer types among populations\(^5\). In the UAE, the use of these vaccines was implemented in 2008, and it is currently gaining popularity among the citizens.

As per the Advisory Committee on Immunization Practices, HPV vaccination is recommended for all females starting at the age of 9 years. Catch-up vaccinations are recommended for females aged 13–26\(^6\).

**Methodology:**

**Research design:** In 2016 and 2017, a descriptive cross-sectional study was designed and conducted to explore the knowledge, attitude, and practices (KAP) of physicians who encounter vaccine candidates. The survey included physicians working in Al Ain city, which is one of the largest cities in the UAE with a population of about one million descending from different backgrounds and enjoying mostly medium to high socioeconomical status. Most of the participating physicians were from Tawam Hospital, which is a major tertiary hospital in the city of Al Ain. Participants were from departments that encounter patients for HPV vaccination. The departments included pediatrics, internal medicine, obstetrics and gynecology, and primary health care centers.

**Material:** After reviewing a large number of previously published surveys, we developed a 20-question survey\(^7\). A self-administered questionnaire (Appendix I) was used to assess the health care providers, specifically physicians, regarding KAP toward HPV disease and vaccination. The survey was pretested on a convenience sample of 10 physicians working outside the study area for content validity and relevance. The survey would take approximately 10 min to complete. The first seven questions explore the broad view of the demographics of the physicians (e.g., sex, age, specialties, and level of experience), and the following 13 questions assess the KAP.

**Sample size:** A total of 201 survey questionnaires were randomly distributed among physicians, and 129 of them were collected back. However, 19 collected surveys were excluded because some questions were not answered. Thus, 110 surveys were analyzed.

**Inclusion criteria:** All physicians who were HPV vaccine providers from all subspecialties in a government health facility in Al Ain city were included.

**Exclusion criteria:** Physicians who were part of the research team, or were practicing in the private sectors were excluded. Additionally, uncompleted surveys were eliminated.

**Data:** Statistical analysis was performed using Microsoft Excel data sheets. The answers were analyzed by Chi-square test for independent samples. Moreover, grouped pie charts were used to compare categorical and continuous variables, given that the data were randomly distributed.

**Result:**

**Participant Characteristics:**

Among the 110 qualifying surveys, 75\% of the participants were females, whereas 25\% were males.
Latifa Sarhan AlMansoori et al. Physicians’ knowledge, attitude, and practices toward HPV disease and vaccination in Al Ain city, UAE

(Figure 1). The participants were from the department of pediatrics, internal medicine, obstetrics and gynecology, and family medicine at the following rates 54%, 21%, 10%, and 15%, respectively (Figure 2). Most participants were residents or consultants (55% and 22%, respectively) (Figure 3). Moreover, age was between 25 and 30 years or >45 years. Specifically, 75% of them had an experience of administering HPV vaccine in less than 5 years, and 25% were 5 to more than 15 years (Figure 4). Approximately 50% of the participants were Emirati or Arabs (40% and 44%, respectively) (Figure 5).
Knowledge:
The significant impact of HPV in cervical cancer was unclear to the participants, given that 55% of the participants incorrectly answered the questions. Meanwhile, 58% correctly answered that HPV causes anal cancer and genital warts, and 77% were aware of the HPV strains that can cause cervical cancer. In relation to the target gender for the HPV vaccine, 58% correctly answered. Approximately 68% failed to recognize the acceptable age for HPV vaccination that was approved by the FDA. Furthermore, 81% incorrectly answered the Abu Dhabi vaccination schedule, and 65% could not identify the proper timing for HPV vaccination. (Appendix I & Figure 6)

Attitude and practice:
Approximately 86% of the participants agreed that the HPV vaccine is safe. In the final analysis, 75% would likely recommend the HPV vaccine for their patients. However, almost one third of the participants were unsure of parents would accept the vaccine and about one fourth believed that parents would not accept it all together. In the comparative data, physicians agreed that families preferred the HPV vaccine to be provided at school, accounting for 78% of the surveyed physicians. In the physicians’ view, not only 82% of the adolescents will accept the HPV vaccine, but also, 49% of adolescents would seek it. (Appendix I & Figure 7 & 8)
Discussion:
This cross-sectional study mainly aims to assess the physicians’ KAP toward HPV disease and vaccination in Al Ain city. HPV is a vaccine preventable disease. And since HPV is the main cause of cervical cancer, this form of cancer is now a vaccine preventable cancer.

The study included diverse subspecialties involving pediatrics, internal medicine, obstetrics, and gynecology, and family medicine. Correspondingly, a wide range of experienced physicians with 5 to more than 10 years of experience participated. However, physicians in training with less than 5 years of experience dominated.

The knowledge of physicians regarding the HPV disease and vaccination in Al Ain city was overall sufficient. However, they incorrectly estimated the significant impact of HPV disease in cervical cancer, which in itself is a major challenge. Additionally, they were confused about the standard timing of HPV vaccination based on the Abu Dhabi vaccination schedule. We believe that the main reason was that HPV vaccination is mainly delivered through school vaccination programs compared with other vaccinations that are provided in hospitals. (Appendix 1 & Figure 6)

The attitude and practice toward HPV vaccination were positive, considering that 86% of the physicians answered that it is a safe vaccine, and they will recommend it. Meanwhile, 78% were in favor to provide vaccinations through school programs, thereby reflecting a deficiency in our health care facility vaccination program. (Appendix 1 & Figure 7 & 8)

Several cross-sectional studies regarding the physicians’ and other health care providers’ KAP toward HPV vaccination were conducted in different parts of the world. The study results about the use and acceptance of HPV vaccines were positive. In 2018, a similar study was conducted in Saudi Arabia. The study assessed the awareness of physicians on HPV vaccination and concluded that enhancing physicians’ KAP on the use of HPV vaccines will boost the physicians’ confidence to recommend HPV vaccination.⁸
Conclusion:

Although this study was limited by the relatively small sample size and the fact that most of the participants were residents in training, we still believe that the study has managed to identify some gaps in the KAP of the participating physicians regarding HPV disease and vaccination. Although a wider survey with a larger number of participants may be needed, the identified gaps in the KAP should be the focus of the upcoming quality improvement projects of the participating departments to improve the HPV vaccination program.

This study has several important implications. For physicians to improve their perceived importance of prescribing HPV vaccine to their patients, more educational initiatives should be undertaken. These initiatives should highlight and emphasize the HPV vaccines’ ability to achieve strong protection with long-lasting immunity, their certain degrees of cross-protection against the important oncogenic types of HPV, and their good safety profiles.

In view of the current results, future studies should be conducted to assess methods that can effectively improve physicians’ KAP and eventually HPV vaccine uptake.
Conflict of interest:

The authors declare that they have no conflict of interest with the contents of this article.

Ethical Approval:

This study was performed after ethical approval for distributing the surveys among physicians in Tawam Hospital.

Acknowledgment:

We thank all the doctors who participated in this study.

Reference:

1. Levinson, W., Chin-Hong, P., Joyce, E.A., Nussbaum, J., Schwartz B. eds. 2018. Review of Medical Microbiology & Immunology: A Guide to Clinical Infectious Diseases, 15e New York, NY: McGraw-Hill; Herpesviruses, Poxviruses & Human Papilloma Virus.
2. De Sanjose, S., Quint, W.G., Alemany, L., et al. (2010). Human papillomavirus genotype attribution in invasive cervical cancer: a retrospective cross-sectional worldwide study. Lancet Oncol; 11:1048.
3. Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R. L., Torre, L. A., & Jemal, A. (2018). Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA: A Cancer Journal for Clinicians, 68(6), 394-424. doi:10.3322/caac.21492
4. Ferlay, J., Ervik, M., Lam, F., Colombet, M., Mery, L., Piñeros, M., Znaor, A., Soerjomataram, I., & Bray, F. (2018). Global cancer observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer. HPV information center. https://hpvcentre.net/statistics/reports/ARE.pdf, Retrieved on 06/05/2019.
5. Prevention. (n.d.). Retrieved November 01, 2016, from http://www.haad.ae/simplycheck/tabid/73/Default.aspx
6. Wong, M. C., Lee, A., Ngai, K. L., Chor, J. C., & Chan, P. K. (2013). Knowledge, attitude, practice and barriers on vaccination against human papillomavirus infection: A cross-sectional study among primary care physicians in Hong Kong. PLoS ONE, 8(8), E71827. doi:10.1371/journal.pone.0071827
7. Almughais, E. S., Alfarhan, A., & Salam, M. (2018). Awareness of primary health care physicians about human papilloma virus infection and its vaccination: A cross-sectional survey from multiple clinics in Saudi Arabia. Infection and Drug Resistance, Volume 11, 2257-2267. doi:10.2147/idr.s179642
8. Arbyn, M., Xu, L., Simoens, C., & Martin-Hirsch, P.P. (2018). Prophylactic vaccination against human papillomaviruses to prevent cervical cancer and its precursors. Cochrane Database Syst Rev. 2018;5:CD009069. Epub 2018 May
9. Cox, J. T., MD, & Palefsky, J. M., MD. (2016, November 29). Recommendation for use of human papillomavirus vaccine. Retrieved December 01, 2016, from https://www.uptodate.com/contents/recommendations-for-the-use-of-human-papillomavirus-vaccines?source=search_result&search=hpv
evaccine&selectedTitle=1~81
10. Human Papillomavirus (HPV). (2015, September 30). Retrieved November 01, 2016, from https://www.cdc.gov/hpv/hcp/resources.html
11. S. S. (2016, May 21). Greater understanding of HPV in UAE may help reduce cervical cancer cases. The National UAE. Retrieved October 01, 2016, from http://www.thenational.ae/uae/greater-understanding-of-hpv-in-uae-may-help-reduce-cervical-cancer-cases
12. Patel, H., Austin-Smith, K., Sherman, S. M., Tincello, D., & Moss, E. L. (2016). Knowledge, attitudes and awareness of the human papillomavirus amongst primary care practice nurses: An evaluation of current training in England. Journal of Public Health. doi:10.1093/pubmed/fdw063
13. Chawla, P., Chawla, A., & Chaudhary, S. (2016). Knowledge, attitude & practice on human papillomavirus vaccination: A cross-sectional study among healthcare providers. *Indian Journal of Medical Research, 144*(5), 741. doi:10.4103/ijmr.ijmr_1106_14

14. Gustavson, J. M., Schommer, J. A., & Reimer, R. A. (2014). Social and demographic influences on human papillomavirus (HPV) knowledge, beliefs, and barriers to recommend vaccination among Physician and Physician Assistant students. *PsycEXTRA Dataset.* doi:10.1037/e514472015-191

15. Balla, B., Terebessy, A., Tóth, E., & Balázs, P. (2016). Young Hungarian students’ knowledge about HPV and their attitude toward HPV vaccination. *Vaccines, 5*(1), 1. doi:10.3390/vaccines5010001

**Corresponding Author:** Latifa Sarhan AlMansoori  
**Email ID:** almansouri.ls7@gmail.com  
Received: 2019-06-02  
Accepted 2019-06-15  
Publish Online 2019-06-17
Appendix 1 (Survey questions):

Dear colleagues,

We invite you to participate in a research study entitled “Physician’s knowledge, attitude, and practices toward HPV disease and vaccination in Al Ain city, UAE.”

Your participation in this research project is completely voluntary. You may decline all together or leave any questions blank that you do not wish to answer. There are no known risks in this participation. Your responses will remain confidential and anonymous. Data from this research will be analyzed by the primary investigator and reported only as a whole. Thank you in advance for taking the time to participate.

Q.1 Gender:
- Female
- Male

Q.2 Age:
- 25–30
- 31–35
- 35–40
- 41–45
- >45

Q.3 Citizenship
- Emirati
- Other Arab
- North American
- European
- African non-Arab
- Asian non-Arab

Q.4 Department:
- Family Medicine
- Internal Medicine
- Pediatrics
- OB/GYN

Q.5 Level of Training:
- General Practitioner
- Resident (Please indicate whether R1, R2, R3, R4, or R5)
- Specialist
- Consultant

Q.6 Years of experience:
- <5 years
- 5–10
- 11–15
- >15

Q.7 Where do you work mainly?
- Private Practice Office
- Primary Health care
- Government Hospital
- Others (please specify) …………..

Q.8 HPV is considered as the cause of cervical cancer in
- a. 10%
- b. 25%
- c. 50%
- d. 75%
- e. 90%

Q.9 Other than cervical cancer, which of the following diseases could be caused by HPV?
- a. Genital warts
- b. Bladder cancer
- c. Anal cancer
- d. A and C
- e. I don’t know

Q.10 Which strains of HPV are responsible for most of the cervical cancer cases?
- a. 16 only
- b. 18 only
- c. 16 and 18 only
- d. 6, 11, 16, and 18 only
- e. I don’t know

Q.11 Who should get the HPV vaccine?
- a. Males only
- b. Females only
- c. Both genders
- d. I don’t know

Q.12 The HPV vaccines are licensed by the FDA for use in what age group?
- a. 9–16 years
- b. 9–26 years
- c. 11–16 years
- d. 11–26 years
- e. I don’t know

Q.13 According to the Abu Dhabi vaccination schedule, HPV vaccine is given in which grade?
- a. Grade 9
- b. Grade 10
- c. Grade 11
- d. Grade 12
- e. I don’t know

Q.14 HPV vaccine is considered as a safe vaccine because it does not lead to serious morbidity or mortality.
- a. I strongly agree
- b. I agree
- c. I am not sure
- d. I disagree
- e. I strongly disagree

Q.15 HPV vaccines should be given:
- a. To girls before the beginning of sexually active lifestyles
- b. To boys before the beginning of sexually active lifestyles
- c. To all sexually active males and females
- d. Only to individuals who have many sexual partners
- e. I don’t know
Q.16 I am currently (or will be) recommending HPV vaccination to all my patients.
   a. Very likely
   b. Likely
   c. I am not sure
   d. Unlikely
   e. Very unlikely

Q.17 Parents will accept HPV vaccination for their children less than 14 years of age.
   a. Very likely
   b. Likely
   c. I am not sure
   d. Unlikely
   e. Very unlikely

Q.18 Parents will prefer HPV vaccination to be given at school.
   a. Very likely
   b. Likely
   c. I am not sure
   d. Unlikely
   e. Very unlikely

Q.19 Adolescents and young adults will accept HPV vaccination.
   a. Very likely
   b. Likely
   c. I am not sure
   d. Unlikely
   e. Very unlikely

Q.20 Adolescents and young adults will seek HPV vaccination.
   a. Very likely
   b. Likely
   c. I am not sure
   d. Unlikely
   e. Very unlikely