

## RESEARCH COMMUNICATION

# HPV Vaccination in Hong Kong: Implications for Medical Education

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### Abstract

**Objective.** To explore the experience and attitudes of physicians in clinics, and to facilitate physicians' promotion of HPV vaccination. **Data Sources.** Primary data collected from conducting semi-structural in-depth interviews from May to June 2010 with 12 physicians in one district in Hong Kong to understand their experience of providing HPV vaccines, the difficulties in promoting HPV vaccines, and their attitudes towards HPV vaccination. **Study Design.** Physicians identified 4 categories of factors related to their experiences of and attitudes to providing HPV vaccination: (a) background information on HPV vaccination provided by physicians, (b) factors influencing women to receive vaccination, (c) physicians' recommendations to the public on HPV vaccines, and (d) physicians' perspectives on HPV vaccine promotion. **Conclusions.** Our findings show that public knowledge on HPV and cervical cancer is insufficient and the role of government in vaccine promotion is unclear. Promotion strategies such as physicians' recommendation, financial assistance and health education provided by the government will influence HPV vaccination and its promotion.

**Keywords:** Cervical cancer - HPV - vaccines - Hong Kong - general practitioners

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### Introduction

Gardasil was the first prophylactic HPV vaccine to be approved by the US Food and Drug Administration in 2006 (Astbury and Turner, 2009). Cervarix was the second, approved in 2007. The Advisory Committee on Immunization Practices recommends routine vaccination of females aged 12 years with 3 doses of HPV vaccines, while it can be started at age 9 (Centres for Disease Control, 2010). These vaccines were approved for use in more than 55 countries in 2008 (Rogers, Eva and Luesley, 2008; World Health Organization, 2008). They are approved for use in humans and used for HPV vaccination in HK. Both vaccines are prepared through recombinant technology, i.e. they contain non-infectious live biological products or viral DNA (World Health Organization, 2009). HPV vaccines have shown safety and effectiveness in preventing HPV infection in females who have never been exposed to HPV types 16 and 18 (Astbury and Turner, 2009; Chan et al., 2009; Chao et al., 2009; Conroy et al., 2009; Gerend and Barley, 2009). Therefore, HPV vaccine prevents cervical cancer significantly and effectively.

Much research has been done regarding knowledge and attitudes towards HPV vaccination, collecting data from different people. Focused mainly on western physicians, few qualitative studies explored physicians' experience of HPV vaccination in Chinese. Generally, physicians in clinics are the key providers of HPV vaccination, because public hospitals in HK do not provide HPV

vaccine. Opinion among physicians regarding HPV vaccination is particularly important, as studies show that healthcare professionals' recommendations, experience and attitudes regarding the vaccines provided by suppliers are motivating factors affecting whether women and adolescent girls receive HPV vaccination (Dinh et al., 2007; Gerend et al., 2007; Ogilvie et al., 2007). We explored the experience and understanding of physicians in clinics who provide HPV vaccination, in order to provide contextual understanding of HPV research in Chinese societies.

### Materials and Methods

#### *Study Design and Setting*

To understand HPV vaccination and HPV vaccine promotion in primary care, data collection was aimed at exploring the current HPV vaccination experience among general practitioners in HK. This qualitative approach adopted semi-structured in-depth interviews with physicians providing HPV vaccination to women in HK. Data collection preformed from May to June 2010. A research team comprising ten final year nursing students and one research supervisor. The protocol was approved by the Human Subjects Ethics Application Review System of the university.

#### *Semi-structured Interview Guide Content*

We developed a semi-structured general practitioners'

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interview guide to collect data on general practitioners' experience of HPV vaccination and vaccine promotion. The interview guidelines were subjected to external review by a sexual health expert in UK. We conducted two pilot interviews with physicians to refine the final interview guidelines. Physicians were led through a discussion of (1) clinical situation in HPV vaccination; (2) factors influencing people to receive vaccination; (3) professionals' recommendations to the public on HPV vaccines; and (4) their perspectives on HPV vaccine promotion in HK.

#### *Recruitment and Data Collection*

We obtained a list of licensed general practitioners from the Hong Kong Medical Association, and purposively recruited physicians in the University Health Services (UHS) and general practitioners (GPs) from one district. Physicians received invitation letters, and were telephoned to confirm their interest and schedule for an interview in their clinic. Most interviews lasted about 30 minutes, and were audio recorded and transcribed with participants' signed consent. Physicians' participation was voluntary.

#### *Data Analysis*

The data were derived from narrative materials of the in-depth interviews (Polit and Beck, 2010). After converting the data into transcripts and reviewing them independently, we developed a coding scheme. We reviewed these themes with question guidelines to further clarify the core. Data collection and analysis continued until 12 interviews had been conducted. The research team reached 80% consensus that the full range of organising themes was identified.

Our data analysis was guided by Colaizzi's approach, with seven steps in the data analysis of qualitative research, to ensure that the informants' experiences are correctly transcribed (Colaizzi, 1978). Our research team monitored the research for trustworthiness. Peer debriefings continued to achieve external checks. After interviews, audio tapes were transcribed into checked written form. Written summaries were sent to the informants to check the accuracy.

## **Results**

There are 12 physicians, including 7 GPs and 5 physicians from the UHS.

#### *Background Information on HPV Vaccination*

In the qualitative interview, physicians were asked to describe the HPV vaccines provided in their clinics. Five of the physicians provided only one type of HPV vaccine, and 7 physicians provided both Gardasil and Cervarix. They were very effective against HPV types 16 and 18, causing most cervical cancers (Conroy et al., 2009). However, only Gardasil protect against HPV types 6 and 11. The average price per dose was US\$120 to 170. Physicians were asked how long they had been providing HPV vaccines. Most had been providing HPV vaccines for 2-3 years. Only one could not state the duration. The HPV vaccination rate was low in GPs' clinics, at just 2-3

per month. However, it was high in the UHS and reached up to 20-30% of female clients. UHS2 said "A lot! It depends on the timing ...vaccination rate is the highest in February... I am a female doctor and they usually like to consult us. In February, it can be up to 10 people per week, but just in my room, not for other doctors."

Based on the interviews, physicians showed understandings of the differences between two HPV vaccines, and most of them had been providing these vaccines since they became available in Chinese societies. Physicians also indicated that the differences in the vaccination rate between GPs' clinics and the UHS.

#### *Factors Influencing Women to Get Vaccinated*

Physicians were asked about how their clients got information about HPV vaccines. The sources include pamphlets, friends, public media and advertisements. Few people asked for information in the clinic, and this occurred about once or twice per week.

GP1 stated "I think they get the information from pamphlets. Some have the basic idea before coming, while others see the pamphlets in the clinic while waiting, and ask for more information when they see me." Clients' concerns and questions about HPV vaccination were also discussed. Physicians thought that clients were mostly concerned about the effectiveness and side-effects, when to get vaccinated, and which vaccine was more suitable. GP4 reflected that "They would ask if they needed it, its usefulness and benefits. They were also concerned about side-effects."

The interviews showed that women usually got information about the HPV vaccines through friends or public media, rather than physicians. The effectiveness and side-effects of the vaccines were important concerns.

#### *Physicians' Perceptions of HPV Vaccination*

Physicians' personal attitudes regarding the efficacy of the vaccines were explored. All of them believed that they were effective, especially for the target group. UHS2 said that "It is effective... In my opinion, younger females who do not have stable sexual partners should be vaccinated before engaging in sexual behaviour...The efficacy for HPV prevention is more than 90%, so it is effective."

Physicians' ideas about the safety and side-effects of the vaccines were discussed. Most physicians thought they were safe. One physician was concerned about the duration of vaccines' effectiveness. Another two believed that the vaccines had no serious side-effects. And one said that the side-effects of the quadrivalent HPV vaccine were more serious than those of the bivalence. UHS1 expressed "In western countries, they have launched public vaccination programmes... There are cases they vaccination caused death, but these clients had medical problems history. I don't think many of these incidents were related to the vaccine... serious side-effects are not common here... so it is not a big problem."

Physicians analyzed clients' reasons for accepting HPV vaccination. The main reason was that HPV vaccines prevent cervical cancer. Others were promotion, safety and price of the vaccines, and clients' health awareness. UHS3 said "There are five aspects affecting their

acceptance. First, I think the vaccine promotion is successful. Second, public awareness of cancer has risen. Third, society becomes more open-minded... Fourth, self-awareness of the disease has also risen with campaigns in schools... Fifth, safety of the vaccine is proven..."

Physicians also commented on why their clients refused HPV vaccination. The major reasons were the high price of vaccines and clients' needlessness as they have not engaged in sexual activity. Others were knowledge deficit about HPV vaccination and possible side-effects, and lack of recommendations from doctors, friends and family members.

GP2 stated "I think their self-knowledge is very important... if they do not know what cervical cancer is, they will not get this vaccine. Furthermore, if they think mortality from cervical cancer is low, they will not get this vaccine and vice versa."

In the interviews, effectiveness and side-effects of HPV vaccines were discussed; most physicians believed that the vaccines were effective and safe. Physicians also analysed the reasons why women accepted or refused them.

#### *Physicians' Comments on HPV Vaccine Promotion*

Physicians expressed views and suggested the promotion of HPV vaccination and the difficulties of doing so. Half of them thought that there was enough promotion. Most believed that the difficulties were related to the public's insufficient knowledge of the relationship between cervical cancer prevention and HPV vaccination. The other difficulties included high cost of vaccines and lack of government promotion. Their suggestions included reducing the price, clarifying the effectiveness and side-effects of HPV vaccines, and providing comprehensive education on cervical cancer prevention methods, such as vaccines, the Pap smear and safe sex.

GP2 suggested that "The government can promote HPV vaccination to the public, because only two drug manufacturers are producing HPV vaccines now... from general public's viewpoint, they don't know which brand is suitable. Therefore, the government should educate the public on the importance of HPV vaccination."

Physicians were asked if they would recommend HPV vaccination to their female relatives, friends and clients. Most physicians would do so, especially for the target group, i.e. young women aged 9 to 26 and without any sexual experience. Two of the physicians would only tell clients about the vaccines if they asked for the information. Physicians commented on whether their clients had enough knowledge about HPV vaccines. Most believed that their knowledge was insufficient. They only knew that vaccines prevent cervical cancer, but they did not understand the relationship between HPV and cervical cancer, or the details of the vaccines. So most physicians said they would list out the differences between two vaccines to their clients. Another suggestion included providing background information about cervical cancer and HPV vaccination.

UHS1 expressed the following: "I don't think they have enough knowledge about the vaccine, they just know that there are two vaccines, and they may simply think

that 4 in 1 are better than 2 in 1... Usually I will discuss and assess whether my clients belong to risk group... then I will investigate whether they have any misconceptions of vaccination. If I find any, I will correct them."

Physicians pointed out, knowledge insufficiency caused difficulty in promoting HPV vaccination; one key issue was the government lack of promotion. Furthermore, most reflected that they would recommend these vaccines to the target group

## **Discussion**

This study revealed GPs' personal perspectives on HPV vaccination. Their experiences offer unique perspectives. Current clinical information on HPV vaccination was explored. Physicians claimed to have provided vaccines for two to three years. However, most of the GPs only provided Gardasil, although some provided both. They adopted vaccines based on recommendations from suppliers. Vaccination rate between GPs' clinics and the UHS contrasted: only 2 to 3 clients per month in GPs' clinics, whereas the rate in the UHS was 20% to 30% of the female population. Physicians in the UHS noted the likely reason of higher vaccination rate: students are entitled to attractably lower vaccination prices prior to graduation.

With higher vaccination rate in the UHS, university campuses would be good promotion sites to increase young women's knowledge about cervical cancer prevention and methods of HPV vaccination. Moreover, their age, risk profile and education level make them good candidates for vaccination. Above findings enhance our understanding of factors governing people's decision to receive vaccination. They belonged to the same areas as their frequently asked questions: effectiveness, side-effects, when to vaccinate, which vaccine was suitable, any booster needed, and the price. Usually, people got information about HPV vaccines from pamphlets, friends and promotions through the media and advertisements. Clinical counselling became less common. However, physicians claimed that clients tended to ask for details during clinical counselling.

Physicians gave professional opinion regarding vaccine efficacy, safety, side-effects, acceptance and reasons for refusal. All agreed that vaccines were effective, particularly for target group. HPV vaccines are recommended by the Centers for Disease Control and Prevention as routine vaccinations for 11- to 12-year-old girls and as a catch-up vaccination for 13- to 26-year-old women (Hakim et al., 2007). It can be started as early as 9 years old (Rogers, Eva and Luesley, 2008). A prophylactic HPV vaccine should be given to adolescents before the initiation of sexual activity because HPV is transmitted through genital contact (Villa et al., 2006). Regarding the appropriate group for getting HPV vaccination, most physicians suggested females aged 9 to 26 before becoming sexually active. However, due to cultural differences, some Chinese physicians would consider later vaccination age of 14 to 15 years old. The second concern is the safety of the vaccine. 15,829 reports of adverse effects made after injection as of January 31, 2010. Among them, 8% were considered serious (National

Health Service, 2008). Our finding showed that most physicians were confident with the related statistics. They did not see any significant side-effects, while mild pain and numbness were normal. Their experiences revealed four reasons affecting the acceptance of HPV vaccination. Firstly, they viewed the promotion as successful. Women can get related information from advertisements and their social circle. Secondly, the efficacy of the vaccine is convincing. Both vaccines can potentially eliminate 70% of cervical cancers, and the quadrivalent may prevent 90% of Condyloma (Hakim et al., 2007). Thirdly, safety of vaccines is proved, and reasonable side-effects are acceptable. Fourth, general health awareness has been raised in the society, as prevention is always better than cure. Attention to cancer prevention among the public is high. However, concerns about price, side-effects and need for vaccination, knowledge about vaccination and others' recommendations are the major reasons for refusal. Physicians say, if the public lacks knowledge about sexual health, especially regarding to cervical cancer, the vaccine cannot arouse their interest. Knowledge also determines women's own definition of their need for vaccination. Findings reveal that recommendations from professionals influence their decision. Family members, especially mother's advice and peer pressure are also persuasive.

Physicians' perspectives on HPV vaccine promotion were studied. They indicated that promotion of HPV vaccine through mass media was enough, but the role of government was unclear. Government, rather than vaccine suppliers, can play an important role in education and promotion. The general public still needs clarification regarding the importance of HPV vaccination. Besides, price is always a tough factor affecting promotion. Physicians advised the government to provide financial assistance for HPV vaccination, further promotion and comprehensive education to enhance receptivity. For example, the public must be taught that the prevention of cervical cancer depends not only on current HPV vaccination, but also on regular Pap smears and safe sex. Public's insufficient knowledge leads to confusion in choosing a suitable vaccine and considering the need for vaccination. Although most physicians recommend HPV vaccination to their relatives and friends, especially those in the target groups, due to effectiveness of HPV vaccine, individual risk profiles will also be assessed to determine when to receive it or to choose other ways of prevention. Prior to HPV vaccination, physicians clarify the differences between two vaccines and assess clients' risk profile, providing information on the relationship between cervical cancer and HPV vaccine to correct any misconceptions.

The research findings from HK practitioners may not be representative in other countries. Variations from cultural differences are not indicated in this research. There was no comparison between general practitioners in HK and western countries. Their views of HPV vaccination are possibly different. Additionally, the sample size is relatively small: twelve clinicians (seven from the community and five from the university clinic) were interviewed. Clinicians from different districts and universities should be invited. Furthermore, this was a

cross-sectional study; data collected at one point in time. It can only describe participants' viewpoints on HPV and HPV vaccination in a particular period. A longitudinal study is recommended.

This study provides a contextual understanding of HPV vaccination from physicians' perspective. The research findings enable us to understand experiences of HK general practitioners in administering HPV vaccines. We identified current practices and difficulties in promoting HPV vaccination. Previous studies focused mainly on western physicians, with few qualitative studies exploring the HPV vaccination experience of general practitioners, particularly in HK, where we are the first to do so. In this qualitative study, we started identifying clinicians' perspectives on HPV vaccination in HK. In future, a cross-cultural study to compare and contrast the experience of administering HPV vaccines between HK general practitioners and those in western countries is needed.

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