

## RESEARCH COMMUNICATION

# Female Hospital-based Healthcare Professionals' Knowledge of Cervical Cancer, HPV and Attitudes towards HPV Vaccination

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### Abstract

**Objective:** To find out female hospital-based healthcare professionals' knowledge of cervical cancer, HPV and attitudes towards HPV vaccination. **Design:** A descriptive cross-sectional hospital-based study. **Setting:** Ramathibodi Hospital, Mahidol University, Bangkok, Thailand. **Sample:** A total of 350 female hospital-based healthcare professionals who had not been diagnosed as having any cancer and willing to participate in the study. **Methods:** Participants completed written consent and an anonymous questionnaire and knowledge of cervical cancer, HPV and attitudes towards HPV vaccination were the main outcome measures. **Results:** Among 300 responders, the mean age was 36.1 years. Most of them were married with children and had received university education. Nursing assistants accounted for 47.1%, and their income per month was about 5,001-15,000 baht. Most (56.3%) had only one lifetime sexual partner. Sixty-eight to 85.3% have a good knowledge of cervical cancer and Pap smear. However, only 12.0 to 58.3% have some knowledge of HPV, and less than fifty percent of them have knowledge of HPV vaccination. Nevertheless, 51.7 to 60.7% of them have good attitudes toward vaccination. Their age and income might influence their attitudes about having themselves vaccinated, and their career might be a factor which altered their attitudes about having their daughter vaccinated if they have one. **Conclusions:** Female hospital-based healthcare professionals have a good knowledge about cervical cancer and Pap smears, but they need motivation to have Pap tests regularly. More information regarding HPV and vaccination is needed to provide to them for cervical cancer prevention and best practices.

**Keywords:** Knowledge - Cervical cancer - HPV

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### Introduction

Cervical cancer is a preventable cancer. There are many preventive methods including avoiding risk factors, HPV (human papilloma virus) vaccination and performing the Pap test regularly. Healthcare professionals are the key persons to provide both knowledge and facilities towards the goal of cervical cancer prevention.

To our knowledge, only limited information on female hospital-based healthcare professionals' knowledge of cervical cancer, HPV and vaccine is available in the literatures (Anyu et al., 2005; Mutyaba et al., 2006; Nganwai et al., 2008; Yaren et al., 2008). We, then, examined our female healthcare professionals' knowledge using a questionnaire at Ramathibodi Hospital. The aims of the study were to find out our female healthcare professionals' knowledge of cervical cancer, HPV and attitudes towards HPV vaccination in our hospital.

### Materials and Methods

The research proposal was approved by the Ramathibodi Hospital Ethics Committee. The questionnaire was prepared in four topics: 1) demographic characteristics, 2) knowledge of cervical cancer and Pap smear, 3) knowledge of HPV and 4) knowledge and attitudes of HPV vaccination. Questions were formulated in such a way that a clear answer from multiple choices was always possible, and for some questions open responses were allowed.

In our descriptive cross-sectional study, three hundred and fifty female healthcare professionals including nursing assistants, laboratory workers or ancillary staff, licensed practical nurses, physicians and pharmacists irrespective of status who had not been diagnosed as having any cancer and who were willing to participate were recruited for the study by simple randomisation. They were invited to answer the questionnaire by themselves. Information on

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**Table 1. Demographic Characteristics of the Responders (n=300)**

Demographic characteristics	n	%
<b>Ages (years)</b>		
< 26	46	15.3
27-50	229	76.3
> 50	258.3	
<b>Career</b>		
Nursing assistants	125	41.7
Laboratory workers or ancillary staff	95	31.7
Licensed practical nurses	53	17.7
Physicians	19	6.3
Pharmacists	8	2.7
<b>Number of lifetime sexual partners</b>		
None	103	34.3
1	169	56.3
2	20	6.7
More than 2	8	2.7

demographic characteristics profile, knowledge of cervical cancer, HPV and attitudes towards HPV vaccination were collected. Data was analyzed using descriptive statistics and Pearson Chi-square test where appropriate, with  $P < 0.05$  considered statistically significant. All analyses were performed with SPSS version 11.5 for Windows.

## Results

Of 350 questionnaires which were sent to our female hospital-based healthcare professionals at Ramathibodi Hospital, 300 were returned. The response rate was 85.7%. The mean age of responders was 36.1±9.7 years (range 19-62 years) and forty-six responders (15.3%) were 26 years old or less. Forty-two point seven percent of them are married with children, and 34.3% are single. The majority of them have received university education (53%), 35% have received college or lower education. Their careers are nursing assistants (41.7%), laboratory workers or ancillary staff (31.7%), licensed practical nurses (17.7%) and physicians (6.3%). Fifty-three percent had incomes of 5,001-15,000 baht per month, whereas only eight percent had more than 30,000 baht per month. The majority of them have had only one lifetime sexual partner (56.3%)(Table 1).

Seventy-five percent knew that cervical cancer is preventable and caused by the virus. Sixty-eight percent knew that the Pap smear is a test done by scraping cervical cells to look for abnormality, but twenty-six percent thought that it is only for visualization of the cervix or looking for any sexual transmitted diseases. Forty-one percent have never had a Pap test, and 22.6 percent have done it for more than one year. We found that only thirty-six percent of the responders have done the Pap test within the previous year. Even though more than eighty percent know that everyone should do a Pap test every year, and eighty-five percent know the meaning of an abnormal Pap smear which is to detect precancerous cells at the cervix (Table 2).

Only fifty-eight percent know that HPV is a virus. Moreover only seventeen percent know that HPV can be

**Table 2. Knowledge of Cervical Cancer and Pap Smear of the Responders (n=300)**

Knowledge	n	%
<b>Cervical cancer is</b>		
Preventable, and caused by a virus	226	75.3
Don't know	25	8.3
Incorrect knowledge	49	16.3
<b>Pap smear is</b>		
A test by scraping cervical cells to look for abnormality	204	68.0
Don't know	17	5.7
Incorrect knowledge	79	26.3
<b>Your last Pap smear was</b>		
Within one year	109	36.3
More than 1 year-5 years ago	52	17.3
More than 5 years ago	16	5.3
Never	123	41.0
<b>How frequently should women do a Pap test?</b>		
One year or less	241	80.3
Every 2-3 years	22	7.3
Every 5 years	5	1.7
Don't know	32	10.7
<b>An abnormal Pap smear means</b>		
Precancerous cells at the cervix	256	85.3
Don't know	28	9.3
Incorrect knowledge e.g. infection, cancer	16	5.3

**Table 3. Knowledge of HPV of the Responders (n=300)**

Knowledge	n	%
<b>HPV is</b>		
Virus	175	58.3
Don't know	84	28.0
Incorrect knowledge	41	13.7
<b>HPV transmitted by</b>		
Contact and sexual transmission	52	17.3
Sexual transmission	184	61.3
Don't know	61	20.3
Incorrect knowledge e.g. blood transmission	3	1.0
<b>The risks of HPV infection</b>		
Multiple sexual partners and single partner with his multiple partners	44	14.7
Multiple sexual partners only	55	18.3
Don't know	156	52.1
Incorrect knowledge		
<b>HPV caused</b>		
Condyloma accuminata and cervical cancer	36	12.0
Only condyloma accuminata or cervical cancer	128	42.7
No problem	9	3.0
Incorrect knowledge	127	42.3

transmitted by sexual transmission and direct contact. Thirty percent know that multiple sexual partners and/or her single partner with his multiple partners are the risks. However there is an incorrect knowledge (52%) about the condom which some thought could protect them from HPV infection. Only 12% know that HPV can cause both

**Table 4. Knowledge and Attitudes of HPV Vaccination of the Responders (n=300)**

Knowledge and attitudes	n	%
<b>Heard of a HPV vaccine from</b>		
Medias	124	41.3
Physicians	102	34.0
Family and friends	6	2.0
Others	6	2.0
Never	62	20.7
<b>Recommended age to have a HPV vaccine</b>		
Is less than 9 years	24	8.0
9-26 years	146	48.7
More than 26 years	75	25.0
Don't know	55	18.3
<b>You consider having yourself vaccinated with this vaccine</b>		
Not need	76	25.3
Uncertainly	69	23.0
Need	143	47.7
Vaccinated already	12	4.0
<b>Women should do a Pap test after they have been vaccinated</b>		
Not need	9	3.0
Every 1 year	257	85.7
Every 2-3 years	21	7.0
Don't know	13	4.3
<b>If you have a daughter, do you consider having her vaccinated</b>		
Not need	29	9.7
Uncertainly	89	29.7
Need	179	59.7
Vaccinated already	3	1.0
<b>The cervical cancer you estimate can be prevented by the vaccine</b>		
50 percent or less	38	12.7
70 percent	121	40.3
90-100 percent	39	13.0
Don't know	102	34.0

condyloma acuminata and cervical cancer. There was a small number of responders who had correct knowledge of HPV (12.0 to 58.3%)(Table 3).

Most of them have heard about HPV vaccine from media (41.3%) and physicians (34%), whereas 20% have never heard about it. Forty-eight percent know about the recommended age of 9-26 years, and twenty-five percent thought that more than 26 years old is also recommended. Forty-seven percent thought that they themselves need vaccination, and four percent have already vaccinated. Fifty-nine percent consider that if they have a daughter, their daughter need to be vaccinated, and one percent has already had their daughter vaccinated. Most of them know that women should still have a Pap test every year after vaccination. Only 40% have correct knowledge that vaccine can prevent cervical cancer in an estimated seventy percent of cases. Their knowledge of HPV vaccine is quite fair (Table 4).

Regarding factors which influence attitudes to HPV vaccination, age and income of the female hospital-based healthcare professionals affect their attitudes on having themselves vaccinated with statistical significance. Only careers might be a factor which altered their attitudes on having their daughter vaccinated if they have one with

statistical significance. Education and number of lifetime sexual partners did not influence their attitudes to HPV vaccination (Table 5).

## Discussion

Cervical cancer is a major cancer burden in developing countries (Ferlay et al., 2005). Accounting for an age standardized incidence rate of 24.7 per 100,000 women-year in Thailand, more than 3,000 cases of cervical cancer die each year (Srivatanakul, 2007). Fortunately, cervical cancer is preventable. In 2008, Prof. Dr. Harald zur Hausen was awarded the Nobel Prize for medicine. He first suspected a connection between HPV infections and cervical cancer 30 years ago. There are many preventive methods including avoiding risk factors such as multiple sexual partners, performing Pap test and recent HPV vaccination.

In June, 2006, the U.S. Food and Drug Administration (FDA) approved the use of a new vaccine to prevent infection from four types of HPV. Two of the HPV types targeted by the vaccine (HPV-16 and HPV-18) are responsible for approximately 70 percent of the cases of cervical cancer worldwide. The Thailand FDA also has approved the HPV vaccine since March, 2008. Now both quadrivalent and bivalent vaccines are available in both public and private hospitals around Thailand. In our policies, the vaccines are recommended in females aged 9-26 years and 10-25 years for quadrivalent and bivalent vaccines respectively. In contrast it is an individual choice for females aged more than 26 years old who have any HPV risks under their physician's supervision besides standard cervical cytology screening. To date there has been no Thai policy on the male issue, so a female population was chosen in this study. There is no routine vaccination of all girls/women recommended in Thailand, and also no free vaccine offered.

Healthcare professionals are the key persons to provide both knowledge and facilities towards the goal of cervical cancer prevention. Even though some of them including laboratory workers or ancillary staff are not directly involved in clinical care and health education, they still need an accurate knowledge about cervical cancer, HPV and the vaccine for preventing themselves from cervical cancer. Therefore, we are concerned about their knowledge on this issue. We found out that the female healthcare professionals have a good knowledge about cervical cancer and screening by Pap smear, but their rate of having a Pap test regularly is quite low (36.3%) similar to some reports (Anya et al., 2005; Mutyaba et al., 2006; Yaren et al., 2008). Therefore, they need motivation to do Pap test regularly to be a role model for the female population, even though most of them had a low risk for cervical cancer by having only one lifetime sexual partner. There has also been a free Pap smear screening program for female healthcare professionals and workers in our hospital since 2008. An intensive Pap smear screening program provided from a hospital plays an important role for their convenient access toward successful screening in developed and developing countries.

Our high response rate was due to the convenience

**Table 5. Factors Influencing Attitudes of HPV Vaccination**

Factors influenced attitudes	You consider having yourself vaccinated, n(%)		p-values	You consider having your daughter vaccinated, If you have one, n(%)		p-values
	Not need or Uncertain	Need or vaccinated		Not need or Uncertain	Need or vaccinated	
<b>Age (years)</b>						
< 26	16(11.0)	30(19.4)	0.001*	15(12.7)	31(17.0)	0.256
27-35	47(32.4)	68(43.9)		40(33.9)	75(41.2)	
36-50	63(43.4)	51(32.9)		51(43.2)	63(34.6)	
> 50	19(13.1)	6(3.9)		12(10.2)	13(7.1)	
<b>Careers</b>						
Physicians	5(3.4)	14(9.0)	0.261	3(2.5)	16(8.8)	0.003*
Licensed practical nurses	30(20.7)	23(14.8)		20(16.9)	33(18.1)	
Nursing assistants	59(40.7)	66(42.6)		40(33.9)	85(46.7)	
Pharmacists	4(2.8)	4(2.6)		4(3.4)	4(2.2)	
Laboratory workers or ancillary staff	47(32.4)	48(31.0)		51(43.2)	44(24.2)	
<b>Education</b>						
Lower than university	56(38.6)	50(32.3)	0.174	50(42.4)	56(30.8)	0.097
University	69(47.6)	90(58.1)		54(45.8)	105(57.7)	
Higher than university	20(13.8)	15(9.7)		14(11.9)	21(11.5)	
<b>Income (baht**)</b>						
< 5,000	5(3.4)	6(3.9)	0.019*	6(5.1)	5(2.7)	0.631
5,001-15,000	68(46.9)	92(59.4)		61(51.7)	99(54.4)	
15,001-30,000	54(37.2)	51(32.9)		40(33.9)	65(35.7)	
30,001-100,000	18(12.4)	5(3.2)		11(9.3)	12(6.6)	
> 100,000	0(0)	1(0.6)		0(0)	1(0.5)	
<b>Number of lifetime sexual partners</b>						
None	51(35.2)	52(33.5)	0.538	41(34.7)	62(34.1)	0.662
1	81(55.9)	88(56.8)		69(58.5)	100(54.9)	
2	11(7.6)	9(5.8)		6(5.1)	14(7.7)	
>2	2(1.4)	6(3.9)		2(1.7)	6(3.3)	

\*Indicates that P-values are significant, \*\*1 US dollar = 33.95 baht

of the recruitment and familiar population in a single site. We found that their knowledge of HPV and the vaccination are incorrect and lower than expected, so it is necessary to inform them by many ways including media, brochure, CD-Rom, internet, intranet, e-learning and an intensive educational program. In our hospital there were some conferences and lectures about cervical cancer prevention and HPV vaccine provided in annual and occasional meetings, but these were not systematic. The knowledge of healthcare providers does not mean their active involvement. Therefore, female healthcare professionals especially nurses and physicians must be skilled and have an important task to give women advice and education about cervical cancer preventive behaviors and encourage them. Only 79.3% of responders have ever heard about HPV vaccination which was a little lower than other reports in developed countries (Giles and Garland, 2006; Donders et al., 2008; Ragin et al., 2009), but it was higher than the another report from Asia (Kwan et al., 2009). Even though the majority of the female hospital-based healthcare professionals incomes per month is quite low about 5,001-15,000 baht in comparison with the vaccination total cost of about 6,500-10,000 baht, they still have good attitudes about the HPV vaccine. There are similarities between the positive attitudes expressed by responders in this study and those described by Duval et al in (2009).

We compared the factors which might be related to the attitudes of HPV vaccination among female hospital-based healthcare professionals. Then we found that the female hospital-based healthcare professionals who were young, age 26 or less need HPV vaccination more than the ones who were older. Moreover the ones who were more than 50 year old thought that they did not need or were uncertain about having HPV vaccination. In general, the female hospital-based healthcare professionals who had low income need to be vaccinated, although in contrast most of the ones who had an income more than 30,000 baht per month thought that they did not need or were uncertain about HPV vaccination. We postulated that low income might not change their attitudes to decide about having the vaccination. It might be interesting to take a look at the career of the responders which influenced the decision on having their daughter vaccinated if they have one. Eighty-four percent of physicians thought that HPV vaccine is needed for their daughter, contrary to laboratory workers or ancillary staff who thought they did not need it or were uncertain. Experience and health educated careers might influence their decisions. Community education campaigns about cervical cancer and HPV are recommended as a strategy for increasing vaccine acceptance (WHO, 2009).

Going through successful cervical cancer prevention needs more intensive knowledge, attitudes and practices

of healthcare professionals on issues of primary HPV vaccine prevention and secondary Pap smear screening prevention especially in developing countries which have much more cervical cancer incidence and mortality than developed countries. The results of our study may provide important baseline information about the knowledge of cervical cancer, HPV and HPV vaccination during the beginning of the HPV vaccine era in the female hospital-based healthcare professionals of the developing countries.

In conclusion, the female hospital-based healthcare professionals have a good knowledge about cervical cancer and screening by Pap smear, but they need motivation to perform Pap tests regularly. Even though they have some good attitudes to HPV vaccine, more information regarding HPV and HPV vaccination by many media and/or an intensive education program are needed to encourage them about their cervical cancer prevention and their best practices.

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