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## Measuring the attitudes of healthcare providers in Dane County toward adolescent immunization with HPV vaccine

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### Abstract

**Objective**—Evaluate regional healthcare practitioners' views of human papillomavirus (HPV) vaccination recommendations for adolescent patients through a mailed survey.

**Methods**—A 16-question self-administered questionnaire was mailed to 518 physicians, physician assistants, and nurse practitioners in Dane County, WI working in family medicine, pediatrics, or gynecology in September 2006. The survey addressed providers' willingness to recommend the HPV vaccine, as well as targeted patient populations to recommend the vaccine to in their own practices and justifications provided to patients regarding the benefits of HPV vaccination.

**Results**—We had a 39% response rate. The majority (95%) of providers were willing to recommend the HPV vaccine to their adolescent patients. Most practitioners (67%) are planning to recommend the vaccine to their female patients only and are most comfortable vaccinating patients >10 years of age. Healthcare providers are looking to their own health professional organizations for vaccination recommendations.

**Conclusion**—Healthcare providers in family medicine, pediatrics, and gynecology in Dane County, WI have positive attitudes regarding HPV vaccine recommendation in their adolescent patients.

### Introduction

The etiology of cervical cancer is closely linked to human papillomavirus (HPV) [1]. Approximately 70% of cervical cancer cases are directly linked to persistent infection with one of the high-risk HPV strains 16 or 18 [2,3]. While not all cases of HPV infection lead to cervical cancer, essentially all cases of cervical cancer can be attributed to HPV infection [4].

In June 2006 the FDA approved a quadrivalent (6/11/16/18) HPV vaccine (*Gardasil*<sup>TM</sup>) that is nearly 100% effective in prevention of vaccine-strain HPV infection, when administered prior to viral exposure. The FDA has approved the vaccine for females ages 9–26 years [5].

Research has separately examined (with different survey instruments) pediatricians' [6], family physicians' [7], and gynecologists' [8,9] views and attitudes regarding HPV vaccination and observed uniform high acceptance but variability in planned usage. We performed a pilot survey to examine the views and plans of healthcare practitioners in Dane County, WI regarding HPV vaccine use among adolescent patients after the vaccine was approved but before professional organizations made recommendations.

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## Materials and Methods

### Sample Selection

Our study population consists of 518 physicians, nurse practitioners, and physician assistants in pediatrics, family medicine, and gynecology in Dane County found on a list of providers kept by the University of Wisconsin Health Care Regional Development Center.

### Survey Design

An invitation letter, anonymous 16-question survey, and stamped and addressed return envelope was mailed to 518 healthcare providers in September 2006. A reminder postcard was sent two weeks after the initial mailing. The UW-Madison Health Sciences IRB approved the research protocol. The survey collected the following information: provider characteristics, patient population ages, knowledge of HPV and cervical cancer relationship, likelihood of recommending an HPV vaccine, specialty providers would refer patients to for vaccination, influences on recommendation decision willingness to recommend vaccine to male and female patients, comfort levels for vaccination by age groups, view of HPV vaccine compared to routine vaccines, explanation of HPV vaccine benefits, and intent of provider's clinic to track vaccine administration.

## Results

Of the 518 surveys mailed, 204 (39%) were completed and returned. The standard error of the estimates of the unconditional proportions is  $\leq 3.7\%$ . Table 1 describes participant characteristics.

Overall, 95% of providers expressed willingness to recommend HPV vaccination to their adolescent patients. The type of specialty showed minimal variation with 100% in pediatrics, 97% in gynecology, and 96% in family practice willing to recommend the vaccine. Two common reasons cited by the 10 providers for unwillingness to recommend vaccination included lack of fit within their practice or a "wait and see" approach. The two strongest influences on respondents' decisions about vaccine recommendations were their health professional association's (75%) or FDA recommendations (73%).

Of providers who were willing to recommend the HPV vaccine, 67% are planning to recommend the vaccine to female patients only, 14% to females and males equally and 13% to female patients mostly but also to some male patients. For female patients, the most common health benefit from vaccination that practitioners plan on discussing is decreased risk of cervical cancer. For male patients, providers plan on discussing cervical cancer risk for female partners, risk of HPV infection, genital warts, and HPV as an STD (Table 2).

Practitioners in general appear to be very comfortable vaccinating patients  $\geq 10$  years old (58% felt very comfortable for 10–14 year olds, 76% for 15–18 year olds, and 75% for  $>18$  year olds), but somewhat uncomfortable vaccinating patients  $<10$  years old (21% felt very uncomfortable and only 16% felt very comfortable) (Table 3).

## Discussion

This survey of Dane County healthcare providers in family medicine, pediatrics, and gynecology found that providers were very willing to recommend the HPV vaccine to adolescent patients and there was little difference across the specialties. Providers are planning to target female patients  $>10$  years old, which reflects the FDA guidelines available at the time of this survey. Interestingly 27% of providers also indicated a willingness to recommend the vaccine to some of their male patients, a population for which the vaccine is neither licensed

nor recommended at this time. This topic clearly warrants further investigation. In general, providers are planning to explain the benefits of HPV vaccination relative to protection against cervical cancer and HPV infection, emphasizing cervical cancer prevention to female patients.

This research provides direct insight into the initial plans and views of healthcare providers in Dane County about the HPV vaccine immediately after FDA approval and before professional organizations made recommendations. The specialties expressed similar opinions and these are reflected in national studies (6–8). The majority of respondents said their recommendations would be influenced by their professional organizations (75%), which suggests that providers' willingness to recommend HPV vaccination may change if recommendations from their professional organizations do not coincide with their current position.

There are several limitations of this study. Because the participation proportion is 39%, non-responder bias remains a concern. This is a descriptive, small, single county study that limits direct comparison to other regions and limits the ability to detect small differences among the specialties. A larger, more in-depth study would have been required to directly compare across specialties and determine if the same willingness to adopt the HPV vaccine existed among healthcare providers outside of Dane County at the time of this survey. The age divisions in our survey grouped patients <10 years old when assessing providers' comfort with vaccinating various age groups, a division that includes both 9 year old patients for whom the vaccine is licensed and younger patients for whom the vaccine is not licensed. Providers therefore may have had difficulty answering the question appropriately. Furthermore, this study reflects the intentions of healthcare providers rather than their actual practices. Even with these limitations, this study provides an interesting perspective into the views of Dane County healthcare providers regarding HPV vaccination, uninfluenced by professional organization's guidelines.

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**Table 1**

Characteristics of Healthcare Providers Practicing in Dane County, Wisconsin.

<i>Characteristic</i>	<b>Number of Respondents</b>	<b>Percentage of Respondents</b>
<i>Type of healthcare provider</i>		
Physician	159	78%
Physician Assistant	27	13%
Nurse Practitioner	18	9%
<i>Field of specialty</i>		
Family Medicine	110	54%
Pediatrics	44	22%
Gynecology	31	15%
Other	19	9%
<i>Primary Healthcare Setting</i>		
Urban	91	45%
Suburban	78	38%
Rural	25	12%
Other/missing	10	5%
Clinic	189	93%
Hospital	7	3%
Clinic & Hospital equally	3	~1%
Public Health Setting	2	~1%
Other/missing	3	~1%

**Table 2**

Distribution of the types of benefits of HPV vaccination that are explained to female and male patients and/or their parents/guardians.

<i>Protection against:</i>	<b>Female Patients</b>	<b>Male Patients</b>
Cervical cancer	95%	47%
HPV infection	72%	52%
Genital warts	53%	45%
An STD	45%	40%

**Table 3**

Comfort levels of healthcare providers in vaccinating various patient age groups.\*

	Very Uncomfortable	Somewhat Uncomfortable	Indifferent	Somewhat Comfortable	Very Comfortable	Other/No Response
<10 years old	21%	30%	14%	13%	16%	5%
10–14 years old	10%	8%	3%	18%	58%	3%
15–18 years old	9%	2%	<1%	10%	76%	2%
>18 years old	8%	1%	3%	7%	75%	6%

\* Numbers are rounded to the nearest full percentage.