

# Physician Attitudes toward the Herpes Zoster Vaccination in South Korea

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This survey investigated Korean physician attitudes toward the herpes zoster (HZ) vaccine. A total of 400 physicians answered a self-reported questionnaire. Most physicians knew that HZ poses a significant socioeconomic burden and had good knowledge about HZ and its vaccine. Physicians who did not recommend HZ vaccine were concerned about costs (90.7%, 78/86) and doubted the effectiveness of the vaccine (58.1%, 50/86). Patient demand had a profound effect on physicians' decisions; 84.9% (73/86) of them who said not recommending HZ vaccine reported that they would provide the vaccine upon patient request. In conclusion, educational initiatives should be targeted toward both physicians and patients.

**Key Words:** Herpes zoster; Physician; Vaccination; Awareness; Health surveys

## Introduction

Herpes zoster (HZ) is characterized by a painful, unilateral vesicular eruption, resulting from reactivation of a latent varicella-zoster virus infection within the sensory ganglia and poses a significant socioeconomic burden in Korea [1, 2]. Multiple studies have shown that the HZ vaccine is effective at significantly reducing the burden of HZ, and that the attitudes and recommendations of physicians have a substantial influence on patient intention to receive the vaccine [3-7]. Therefore, we investigated Korean physicians' attitudes toward the HZ vaccine and factors that might impact physician recommendations, in an effort to increase the vaccine coverage rate

in eligible individuals.

We surveyed physicians who attended one of five annual primary care physicians conferences held in the Seoul metropolitan area from October to December 2013. The survey was conducted using brief questionnaires about 1) attitudes toward adult vaccination, 2) awareness of HZ and the HZ vaccine, 3) behavioral factors that influence a physician's decision to recommend the HZ vaccine to patients, and 4) ways to improve the likelihood that a physician will administer the HZ vaccine. Behavioral factors were evaluated by sequential questions. We investigated changing physician intention to recommend HZ vaccine to patients with the following conditions: knowledge about potential severity of HZ and efficacy

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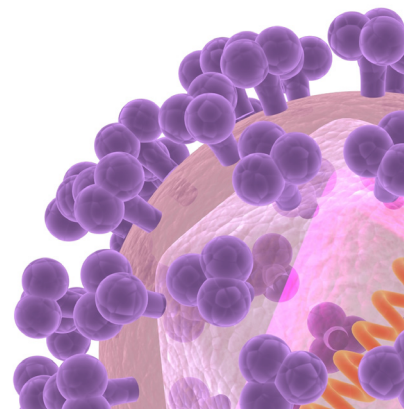
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**Table 1.** Changing intentions to recommend herpes zoster vaccination following exposure to information provided in a questionnaire

	Would you recommend the HZ vaccine to your patients? (yes)	After reading the information provided in the questionnaire, would you recommend the HZ vaccine? (yes)	Would you recommend HZ vaccination to your patients at its present cost? (yes)	Would you administer the HZ vaccine upon patient request? (yes)
	n/N <sup>a</sup> (%)	n/N (%)	n/N (%)	n/N (%)
	P-value	P-value	P-value	P-value
Total	349/393 (88.8)	365/388 (94.1)	311/379 (82.1)	380/388 (97.9)
	<sup>b</sup>	-	-	-
Age of physician				
30-39 years	90/101 (89.1)	96/101 (95.0)	73/102 (71.6)	98/99 (99.0)
40-49 years	88/103 (85.4)	94/102 (92.2)	83/103 (80.6)	98/101 (97.0)
50-59 years	93/103 (90.3)	92/99 (92.9)	83/104 (79.8)	96/100 (96.0)
≥ 60 years	77/84 (91.7)	83/84 (98.8)	71/86 (82.6)	86/86 (100.0)
Gender				
Male	260/289 (90.0)	271/284 (95.4)	237/293 (80.9)	282/288 (97.9)
Female	86/101 (85.1)	92/101 (91.1)	73/102 (71.6)	95/97 (97.9)
Specialty				
Internal medicine	164/179 (91.6)	164/175 (93.7)	148/181 (81.8)	174/178 (97.8)
Non-internal medicine	185/214 (86.4)	201/213 (94.4)	163/216 (75.5)	206/210 (98.1)
Personal history of HZ				
Yes	65/70 (92.9)	68/72 (94.4)	59/72 (81.9)	71/71 (100.0)
No	283/322 (87.9)	296/315 (94.0)	251/324 (77.5)	308/316 (97.5)
Received influenza vaccine				
Yes	317/355 (89.3)	329/349 (94.3)	288/358 (80.4)	345/351 (98.3)
No	32/38 (84.2)	36/39 (92.3)	23/39 (59.0)	35/37 (94.6)
Recommend seasonal influenza vaccine				
Yes	337/375 (89.9)	351/370 (94.9)	304/378 (80.4)	363/370 (98.1)
No	10/16 (62.5)	12/16 (75.0)	6/16 (37.5)	14/15 (93.3)

HZ, herpes zoster.

<sup>a</sup>N denotes the number of subjects who answered yes to the question and N is the total number of respondents in each category.<sup>b</sup>Not applicable.

of HZ vaccine, information about vaccine cost, and patient request. Continuous variables were reported as mean  $\pm$  standard deviation and were analyzed using the unpaired two-tailed *t*-test. Physician-related barriers to HZ vaccination were presented in a descriptive analysis. Chi-square tests were used to evaluate the associations between physician's intent to recommend the vaccine to patients and other behavioral factors. We conducted multivariate logistic regression analyses that included physician gender, age, employment status (clinic owner or not), specialty, history of HZ infection, influenza vaccination status, awareness of recent approval of HZ vaccine, and whether the physician routinely recommended the seasonal influenza vaccine to their patients in order to identify independent factors that may be associated with a physician's decision to recommend the HZ vaccine. All data were analyzed using SPSS version 20.0 (IBM Corporation, Armonk, NY, USA).

This study was approved by the Korea University Institutional Review Board (approval number: KUGH13104-001).

The questionnaires were distributed to 1,124 physicians, and a total of 400 of them voluntarily participated in the survey. The most common specialties were internal medicine (45.3%, 181/400), family medicine, and surgery. The respondents were predominantly male (74.8%, 295/400) with a mean age of 49.5  $\pm$  11.0 years. Most of the physicians worked in their own private clinic (62.3%, 249/400), and 18.3% (73/399) had suffered from HZ themselves. The majority of the respondents received the seasonal influenza vaccination every year (67.5%, 270/400), while 8.8% (35/400) reported that they never received the influenza vaccine. Two hundred eight physicians completed the entire survey, while 192 physicians partially answered the survey.

Almost all of the participants indicated that they recommend the seasonal influenza vaccine (96.0%, 381/397) and pneumococcal vaccine (86.0%, 326/379) to eligible patients. Those who do not strongly recommend adult vaccines stated "vaccines are too expensive to recommend to patients" (48.1%, 152/316) and "I'm aware of the importance of vaccines, but my patients rarely ask to be vaccinated, and therefore I find it difficult to recommend vaccines" (37.9%, 120/316).

Most of the respondents strongly agreed (39.7%, 156/393) or somewhat agreed (54.2%, 213/393) that prevention of HZ is important. Most of the physicians were aware that risks for HZ and postherpetic neuralgia (PHN) increase with age [98.2% (377/384) and 90.6% (356/393), respectively], that pain associated with HZ can last for months (95.1%, 372/391), and that

HZ can negatively impact quality of life (93.4%, 355/380). On the other hand, 15.7% (58/369) of respondents indicated that their perceived incidence of HZ was lower than the actual incidence of HZ. Finally, 315 of 397 (79.3%) physicians in this study were aware that the HZ vaccine is licensed for individuals aged  $\geq$  50 years.

Three hundred forty-nine participants (88.8%, 349/393) stated they would recommend the HZ vaccine to their patients. When adjusted for age, gender, specialty, physician's influenza vaccination status, and whether they work in their own clinics, variables significantly associated with intention to recommend the HZ vaccine to patients included awareness of recent approval of the HZ vaccine by Korea Food and Drug Administration (adjusted odds ratio (aOR): 2.626, 95% confidence interval (CI): 1.217 to 5.668) and routine recommendation of seasonal influenza vaccine (aOR: 4.992, 95% CI: 1.217 to 16.590).

About half of the physicians who would not recommend the HZ vaccine to their patients changed their mind when they were informed about HZ and benefits of the HZ vaccine (52.3%, 23/44). However, when these physicians learned the cost of the vaccine, 43.5% (10/23) reverted to their original stance of not recommending the HZ vaccine. Finally, 73 of 86 (84.9%) physicians who reported not recommending HZ vaccine even with awareness of HZ and the cost of HZ vaccine stated they would provide the vaccination upon patient request. Overall, consistent patterns were observed in each subgroup; higher level of knowledge, lower cost, and substantial patient demand increased the intention to recommend vaccination (Table 1).

When physicians were asked why they did not recommend the HZ vaccine to their patients, 90.7% (78/86) indicated that it was too expensive. Some physicians doubted the effectiveness of the vaccine (58.1%, 50/86) (Table 2). Even in the 65 physicians who stated they would vaccinate their patients, concerns about the cost (93.8%, 61/65) and effectiveness of the HZ vaccine (63.1%, 41/65) were reported.

Physicians thought the best way to increase use of the HZ vaccine was with public education via mass media (63.4%, 237/374), followed by physician-initiated vaccine recommendations (26.5%, 99/374), and education seminars for physicians (21.4%, 80/374). In addition, they thought it would be useful to provide posters and brochures to increase public awareness of the HZ vaccine (49.5%, 189/382), as well as articles about the latest HZ vaccine research (35.1%, 134/382) and governmental guidelines (25.1%, 96/382).

In this study, most physicians agreed that HZ is an import-

**Table 2.** Reasons for not recommending the herpes zoster vaccine to patients

	Physicians who stated they would not recommend the HZ vaccine (N=86)	
	n	%
The HZ vaccine is too expensive to recommend to my patients.	78	90.7
The efficacy of the HZ vaccine in adults does not seem significant.	50	58.1
HZ occurs infrequently.	43	50.0
Concern about the adverse effects of the vaccine.	25	29.1
HZ-related complications do not seem very serious.	18	20.9

Sum of responses exceeds the total number as the question permitted multiple choices.

HZ, herpes zoster.

ant health concern and were aware that the HZ vaccine was recently approved for individuals  $\geq 50$  years old. Physicians who were aware of the HZ vaccine and its licensure were more likely to recommend the vaccine. A previous survey about adoption of three new vaccines demonstrated that physicians tended to have a pessimistic view before vaccine licensure, but actually recommended vaccines after licensure more strongly than they had anticipated [8]. Therefore, increasing awareness of the HZ vaccine and its licensure is important for improving the likelihood that physicians will recommend the vaccine.

A physician's recommendation to vaccinate can significantly influence a patient's decision to be vaccinated, even among patients with negative attitudes toward immunization [6, 7, 9, 10]. According to a previous study, perceived risk of HZ, perceived benefits of the HZ vaccine, and physician recommendation positively impact the vaccination rate [4].

However, there are some additional obstacles to overcome to improve the rate of HZ vaccination. The vaccine cost is high and is not covered by the National Immunization Program in Korea so far. Most study participants were concerned about the cost and were uncertain about the effectiveness of the HZ vaccine, which is consistent with findings from other studies [11, 12]. Our findings were also comparable with previous studies of physician attitudes toward the human papillary virus vaccine, which is a relatively new and expensive vaccine, like the HZ vaccine. They showed that cost and provider concerns about vaccine safety, efficacy, and lack of education were major barriers [13, 14].

Approximately half of the physicians in the present study were uncertain about the effectiveness of the HZ vaccine in adults, although the HZ vaccine has demonstrated high efficacy and effectiveness in reducing the incidence of HZ as well as PHN, and the effectiveness of the HZ vaccine is comparable to those of other adult vaccines [3-5].

In Korea, no previous studies have explored whether the HZ vaccine is a cost-effective intervention in the epidemiological and clinical setting [15]. Furthermore, no clinical studies have yet evaluated which age groups will benefit from the HZ vaccine, in contrast with other countries that have conducted large clinical trials [5, 16]. Data evaluating the benefits of the vaccine for specific age groups would be useful in demonstrating the need for HZ vaccination and may help ensure its effectiveness and contribute to the implementation of public health policy.

A limitation of this study is that we did not separately evaluate the effect of each factor. In addition, we used a convenience sample of physicians who were present at conferences, and this may not be a representative sample of overall physicians in Korea.

Despite these limitations, this study provides valuable insight regarding obstacles to HZ vaccination. Physicians who are aware of the HZ vaccine and its recent licensure are more likely to recommend the vaccine to their patients. Also, patient attitudes toward HZ prevention may play an important role in increasing the HZ vaccination rate. In conclusion, educational initiatives regarding the HZ vaccine should be targeted toward both physicians and patients.

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## Conflicts of Interest

No conflicts of interest.

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