

Targeting Human Papillomavirus (HPV) Vaccination in International College Students

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BACKGROUND

The University of Wisconsin—Madison (UW) University Health Services (UHS) monitors vaccine coverage of UW students, including the HPV vaccine. HPV vaccine coverage for entering students mirrors National Immunization Survey (NIS) Teen Coverage¹ for 17-year-olds (an age cohort similar to entering freshmen). International students had significantly lower HPV vaccine coverage. HPV vaccines are not yet part of national immunization programs in 129 countries, including China and much of Asia, Eastern Europe, Africa, and most Middle Eastern countries². In the US, HPV vaccination rates remain below the Healthy People 2020 targeted coverage of 80%³.

Table 1: Immunization Coverage of Students Enrolled at UW-Madison, Fall 2015

Fall Term 2015	Career	Level	Residency	Citizen Status	NIS-Teen 2014 ¹			
All	Under-grad	Year 1	WI	Non-WI	US	Non-US	Age 17	
HPV Vaccine 1+ Doses								
Men	37.0%	40.1%	53.5%	37.5%	36.4%	40.7%	7.0%	41.8%
Women	69.2%	71.1%	73.7%	73.3%	63.4%	74.7%	18.8%	66.5%
HPV Vaccine 3 Doses								
Men	17.7%	19.2%	32.5%	17.3%	18.4%	19.6%	2.7%	23.3%
Women	56.0%	57.5%	60.4%	59.2%	51.5%	60.7%	12.5%	51.0%

GOAL and OBJECTIVES

Goal: To determine if peer-to-peer outreach and education during fall flu shot clinics could increase HPV vaccination among students aged 18-26 years who sought vaccination through UW UHS.

Objective #1: Increase HPV vaccination by 20% during the months of September and October of 2015, targeting international students, specifically Chinese students.

Objective #2: Increase awareness about HPV, HPV-related cancers, genital warts, and the HPV vaccine.

METHODS

The intervention engaged members of three student organizations to approach students in line for flu shots to complete a survey. The survey instrument, which was based on the Health Belief Model (HBM) served as an entree to discuss the HPV vaccine. HPV vaccines were administered by UHS nurses to interested, insurance-eligible students.

- Implemented through five off-site flu shot clinics.
- Members of the student organizations were trained to provide education and outreach about the HPV virus, disease, and vaccine.
- Provided business card-sized “palm card” that outlined options for obtaining the HPV vaccine.
- Provided CDC-authored HPV information and answered questions.
- The theme “HPV: It’s Not Rocket Science—Get Vaccinated” complimented the 2015 UHS flu shot theme of “Boost your Immunity.”



Chinese students receive the HPV vaccine at UHS off-site flu shot clinics (Angela Long photos).

TARGETING INTERNATIONAL STUDENTS

We specifically targeted the Chinese student population because of their low HPV vaccination rates and their Student Health Insurance Plan (SHIP) eligibility. At the time, the HPV vaccine was not yet approved in China.

- Two Chinese pharmacy students surveyed Chinese students at flu shot clinic #1.
- Chinese pharmacy students sent an e-mail about HPV vaccine availability to a UW Chinese student e-mail list.
- Provided a CDC VIS for HPV₉ in simplified Chinese.
- Results: **70.1%** of HPV vaccine recipients in September and October 2015 were Chinese (Table 3).

RESULTS

HPV vaccination in the months of September and October 2015 increased by 41% in both months, compared with 2014 (Table 2).

Table 2: Flu Shots and HPV Vaccines Provided at UHS and Off-site Flu Shot Clinics, 2014 vs 2015

Month	#Flu Shots in 2014	#Flu Shots in 2015	# HPV Vaccines 2014	# HPV Vaccines 2015	% Increase in HPV Vaccination	Year over Year change in # HPV Vaccines
September	2593	2904	113	159	41%	+46
October	8231	6840	122	172	41%	+50
Totals	10824	9744	235	331	41%	+96

Of the 4,155 total flu shot clinic participants, 1,884 (45.3%) of 18-26 year-olds completed the survey. A majority (277 of 331, 83.7%) of HPV vaccines administered were provided to international students (Table 3).

Table 3: HPV Vaccine Recipient by Home Country Location, September-October 2015

Country	Location		Total
	Clinic	Offsite	
Australia	1 (0.4%)	0 (0.0%)	1 (0.3%)
Brazil	3 (1.1%)	11 (15.9%)	14 (4.2%)
China	190 (72.5%)	42 (60.9%)	232 (70.1%)
Ecuador	1 (0.4%)	0 (0.0%)	1 (0.3%)
India	4 (1.5%)	2 (2.9%)	6 (1.8%)
Iran (Islamic Republic of)	0 (0.0%)	1 (1.4%)	1 (0.3%)
Japan	0 (0.0%)	1 (1.4%)	1 (0.3%)
Korea, Republic of	8 (3.1%)	1 (1.4%)	9 (2.7%)
Malaysia	2 (0.8%)	1 (1.4%)	3 (0.9%)
Netherlands	3 (1.1%)	0 (0.0%)	3 (0.9%)
Russian Federation	0 (0.0%)	1 (1.4%)	1 (0.3%)
Singapore	1 (0.4%)	0 (0.0%)	1 (0.3%)
Taiwan, Republic of China	2 (0.8%)	1 (1.4%)	3 (0.9%)
Turkey	0 (0.0%)	1 (1.4%)	1 (0.3%)
United States	41 (15.6%)	7 (10.1%)	48 (14.5%)
Unknown	6 (2.3%)	0 (0.0%)	6 (1.8%)
Total	262 (100.0%)	69 (100.0%)	331 (100.0%)

In the survey results, the perceived susceptibility of HPV and HPV related cancers is high with 91% aware and 9% unaware. There also is high self-efficacy (90.8%) to obtain or maybe obtain the HPV vaccine among students who are not HPV-vaccinated or not sure about their HPV vaccine status (Table 4). In addition, perceived barriers do not seem to deter survey participants from intending to obtain or maybe obtaining the HPV vaccine.

Table 4: Intent to Get Vaccinated

# of HPV Vaccine Doses	I have not received the HPV vaccine	Intent to Get Vaccinated								
		At today's flu shot clinic	Via appointment	At my private doctor	At Health Dept.	In the future	Maybe at some point	Subtotal intent to vaccinate	Never	Total
Count	78	41	31	4	68	203	425	48	473	
	%	16.5%	8.7%	6.6%	0.8%	14.4%	42.9%	90.0%	10.1%	100%
Count	6	5	14	0	21	45	91	4	95	
	%	6.3%	5.3%	14.7%	0.0%	22.1%	47.4%	95.8%	4.2%	100%
Total	Count	84	46	45	4	89	248	516	52	568
	%	14.8%	8.0%	7.9%	0.7%	15.7%	43.7%	90.8%	9.2%	100%

CONCLUSIONS

This program was highly successful in increasing HPV vaccination as a result of peer-to-peer outreach and education, especially among the international and Chinese student populations. We recommend that colleges and universities consider offering HPV vaccines as a routine part of flu shot clinics. We also recommend specific HPV-related educational campaigns targeted to the international student population attending U.S. universities, delivered in key native languages (e.g., Chinese, Spanish, others) by knowledgeable language-speaking students who can serve as role models to other students.

The following were the key takeaways of this project:

1. We can increase HPV vaccination as a result of peer-to-peer outreach and education.
2. International students, especially Chinese students, are interested in HPV vaccination.
3. 18-26-year-olds, if not yet vaccinated, have high self-efficacy to seek HPV vaccination.
4. The flu shot clinic environment is a conducive place for health-related outreach and research.

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