

# HPV Vaccination Rates Among Creighton University Medical Students

Y. Esteban, C. Wichman PhD, J. Vasudevan MD, S. Weston RN, M. Varman MD  
Creighton University School of Medicine, Omaha, NE 68102

## Abstract

### Background

The human papilloma virus (HPV) is the most common sexually transmitted infection.<sup>1</sup> Of the 40 HPV genotypes, 13 have an association with causing cervical cancer.<sup>3</sup> The quadrivalent HPV4 vaccine was released in 2006, approved for females 9-26 years old. In 2009, it was approved for males 11-21 years old. In December 2014, the FDA approved the use of Gardasil 9, which protects against HPV types 16, 18, 31, 33, 45, 52, and 58. The paucity in vaccination rates in both genders is evident in various studies.

### Methods

Our survey focuses on surveying Creighton University medical students about their HPV vaccination rates as well as their views of the vaccine's importance.

### Results

The results showed that students younger than 26 years are more likely to have received the vaccine than those older than 26 years. Although there may be multiple factors involved, it is interesting to note that females are more likely than their male peers to perceive the vaccine as important and to have received and completed the vaccination series.

### Conclusion

These results as well as future studies can help shape the way the vaccine is presented to patients, and to develop strategies to increase vaccine uptake in primary care clinics.

## Background

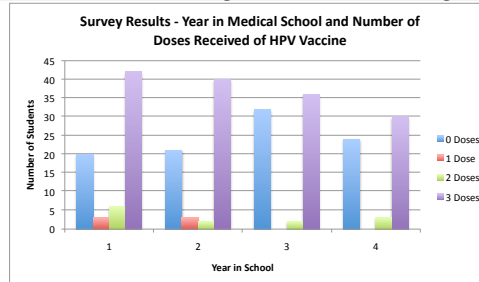
Among sexually transmitted infections (STIs) in young adults, the human papilloma virus (HPV) is the most common.<sup>1</sup>

- According to a study in 2008, there is an estimated 6.2 million cases per year<sup>2</sup>
- HPV genotypes 16 and 18 cause approximately 70% of cervical cancer cases, and HPV genotypes 6 and 11 cause about 90% of genital warts cases
- The HPV quadrivalent vaccine (Gardasil, Merck & Co, Inc.) was released in 2006 and approved for females ages 9-26 years, and was also approved in 2009, for ages 11-21 years old
- In 2010, 22.7% of women ages 18-26 had initiated the HPV vaccine series, and only 12.7% had completed it
- According to the CDC, 6 out of 10 adolescent males remain unvaccinated
- No studies have been conducted in regards to medical student vaccination rates

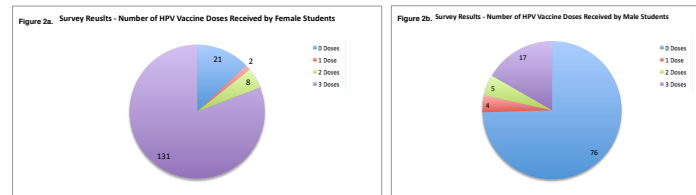
## Methods

- IRB Approval obtained
- Survey Monkey, five questions for medical students:
  1. Region of residence, age, gender; year in school
  2. Have you received the HPV vaccine? If yes, how many doses?
  3. If you have not received the vaccine, are you willing to receive it?
  4. How did you learn of the vaccine? Healthcare provider? School? Media? Other?
  5. How important is the vaccine to you? (Not at all, Somewhat important, Very Important)
- Statistical analysis using summary response study, comparison study, and a proportional odds model. Alpha level 0.05.
- Follow-up and intervention - monthly emails encouraging students to receive HPV vaccine from student health, as well as placing informational posters about the HPV vaccine and where to receive it in student lounge areas

## Results - Survey and Analysis

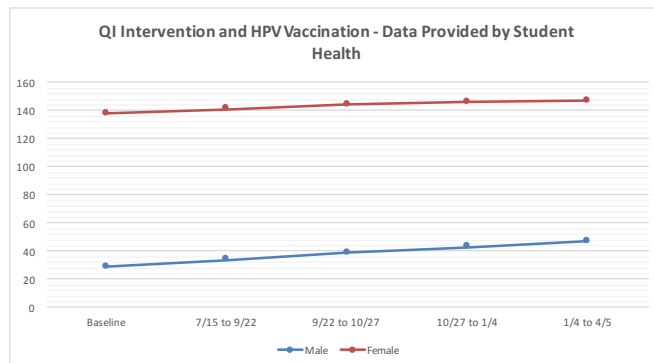


**Figure 1.** Survey results representing the year in medical school and the number of HPV vaccine doses received. Of first year medical students who responded to the survey, 37.04% of male and 85.42% of female students reported receiving at least one dose of the vaccine. Of second year medical students who responded, 29.17% of male and 90.48% of female students reported receiving it; of third year medical students, 12.50% of male and 94.87% of female students who responded reported receiving at least one dose. Of fourth year medical students who responded, 19.05% of males and 70.27% of females reported receiving at least one dose. There was no association ( $p < 0.09$ ) between the year in medical school and receiving at least one dose of the HPV vaccine.



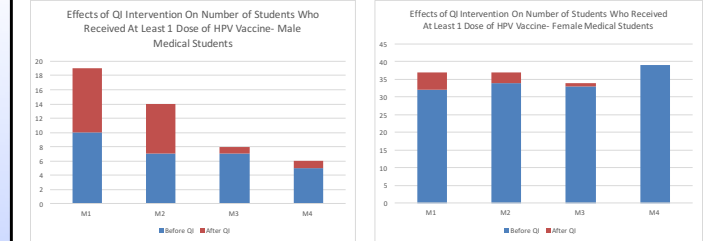
**Figures 2a and 2b.** Female students were more likely to receive three doses and complete the vaccine series than male students. (OR 6.8,  $p < 0.0003$ ).

## Results - Quality Improvement



**Figure 3.** The graph indicates the total number of medical students receiving at least 1 dose of the HPV vaccine starting from before the quality intervention in July 2015 until April 2016.

## Results - Quality Improvement



**Figure 4a.**

**Figure 4b.**

**Figure 4a and 4 b.** The graph depicts the number of male (4a.) and female (4b.) students who have received at least 1 dose of the HPV vaccine since the quality improvement intervention, as well as the proportion of students who had been vaccinated before the intervention.

## Discussion

- Overall, gender and age were the main factors that contributed to students reporting receipt of the vaccine.
- Females were more likely to perceive the HPV vaccine as "very important," were more likely to complete the series as well. This could be due to the more direct risk of cervical cancer in this population.
- When controlling for gender, age was no longer a contributing factor.
- These results have implications on how healthcare providers can strategize in presenting the vaccine to patients and their families
- Though this study focused mainly on Creighton University medical students, it would be intriguing to evaluate the survey responses and HPV vaccination rates of other schools of the health sciences, or even the undergraduate population

## Conclusion

- Female medical students of Creighton University are more likely than male medical students of the same school to have received the vaccine.
- Students less than 26 years old are more likely than students 27 years old and older to have received the vaccine.
- Though these results have implications on how to strategize in increasing HPV vaccine uptake, more studies must be conducted on other young adult and adolescent populations.

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- Lora Freberg, Curriculum Coordinator

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