CORE
Metadata, citation and similar papers at core.ac.uk
Provided by University of Montana

University of Montana
ScholarWorks at University of Montana

Undergraduate Theses and Professional Papers

2017

University of Montana Students and the Gardasil Vaccine

Markie C. Glidewell
The University Of Montana, markieglidewell@gmail.com

Follow this and additional works at: https://scholarworks.umt.edu/utpp

 Part of the Community Health and Preventive Medicine Commons, Female Urogenital Diseases and Pregnancy Complications Commons, Health Services Administration Commons, Health Services Research Commons, Neoplasms Commons, Public Health Education and Promotion Commons, and the Women's Health Commons

Let us know how access to this document benefits you.

Recommended Citation
Glidewell, Markie C., "University of Montana Students and the Gardasil Vaccine" (2017). *Undergraduate Theses and Professional Papers*. 176.
https://scholarworks.umt.edu/utpp/176

This Professional Paper is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in Undergraduate Theses and Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

UNIVERSITY OF MONTANA STUDENTS AND THE GARDASIL® VACCINE

By

MARKIE COLLINS GLIDEWELL

Undergraduate Professional Paper
presented in partial fulfillment of the requirements
for the University Scholar distinction

Davidson Honors College
University of Montana
Missoula, MT

May 10, 2017

Approved by:

Donna Beall, Faculty Mentor
Pharmacy Practice

ABSTRACT

Glidewell, Markie, Pharm.D., May 2017 Pharmacy

University of Montana Students and the Gardasil® Vaccine

Faculty Mentor: Donna Beall

Gardasil® is a vaccine for human papilloma virus (HPV), a sexually transmitted virus that can cause genital warts, cervical cancer, and other diseases. Males and females ages 9-26 are recommended to receive the Gardasil® vaccination. Most students attending the University of Montana (UM) are within the recommended age range for Gardasil® vaccination and would benefit from receiving it if they have not yet done so. Gardasil® is available at the Health Services Pharmacy on the UM campus and is often covered by insurance plans with no patient copay. In the fall semester of 2016, surveys were given to patients at the Health Services Pharmacy that inquired about the student's Gardasil® vaccination status, barriers to vaccination they may encounter, their knowledge of HPV, and the student's opinion of the Gardasil® vaccine. The results of the survey highlight a low vaccination rate in UM students, particularly in male students. Respondents were unaware of both the vaccine and its availability at the Health Services Pharmacy. In addition, a difference in knowledge about HPV was seen between vaccinated and unvaccinated individuals, with more vaccinated respondents correctly answering questions regarding Gardasil® and HPV. The results of this study suggest that a Gardasil® educational campaign should increase HPV awareness and vaccination rates in the student population at UM.

University of Montana Students and the Gardasil® Vaccine

Introduction

Gardasil® is a vaccination that protects against human papilloma virus (HPV), which can cause seven different types of cancers, in addition to genital warts and precancerous lesions. HPV is the most common sexually transmitted disease, with over 14 million new infections occurring each year in the US, half of which occur in people ages 15-24 years old.[1] The majority of students that attend the University of Montana are within the recommended age range for Gardasil® vaccination. Gardasil® is available at the Health Service Pharmacy, a pharmacy located on the UM campus that is exclusively available to UM students.

The purpose of this study is to assess the Gardasil® vaccination status of students at the University of Montana as well as their knowledge and opinion of the vaccine.

Background

The Gardasil® vaccine was introduced in the US in 2006. It provided protection against HPV types 6, 11, 16, and 18. HPV is transmitted through sexual contact and can cause genital warts, precancerous lesions, and cancers such as cervical, vulvar, vaginal, oropharyngeal, penile, anal, and rectal cancers.[2] While some strains of HPV are mild and resolve spontaneously, approximately 13 strains are linked to the development of cancer.[3] Gardasil 9®, which recently replaced Gardasil®, was approved in 2014 and provides coverage against five additional strains of HPV. Vaccination with Gardasil 9® is recommended for both males and females ages 9 through age 26. Limitations of Gardasil® include the continued necessity of regular cervical and anal cancer screening, the inability to protect against HPV strains that a person has been exposed to prior to the vaccine, and the inability to treat active precancerous lesions and cancers.[4] Even though the ideal time of vaccination is before the individual becomes sexually active, vaccination of sexually active individuals is still recommended because the individual may have not been exposed to every strain of HPV covered by the vaccine.

A recent CDC analysis found that between 2008 and 2012, the rates of HPV-associated cancer incidence increased compared to 2004 to 2008, from 10.8 per 100,000 to 11.7 per 100,000. Between 2008-2012, approximately 38,793 HPV-associated cancers were diagnosed annually in the United States, with approximately 79% of those cases being attributed to HPV.

Of those cases attributed to HPV, 93% are due to the HPV strains that are preventable with the Gardasil 9® vaccine.[3]

Universal vaccination with Gardasil 9® has the potential to decrease the incidence of HPV-associated cancers by over two-thirds. Cervical cancer can theoretically be eradicated with universal vaccination, which would also reduce the need for additional medical care and invasive procedures that result from an abnormal cervical screening. Non-cervical HPV-associated cancers, including oropharyngeal, penile, anal, and rectal cancers, do not have established screening programs and the rates of these cancers will also dramatically decrease as a result of the Gardasil® vaccination.[5]

While this vaccine holds great promise for decreasing the incidence of many cancers, vaccination rates have remained low. In 2014, national HPV vaccine coverage was 60% for adolescent girls and 42% for adolescent boys, leaving the unvaccinated adolescents at risk for contracting an HPV infection that may otherwise be preventable.[6]

Methods

Optional anonymous surveys (see Appendix A) were given to patients at the Health Services Pharmacy. If a patient chose to participate, they completed the survey and returned it to a collection box and were offered additional Gardasil® educational materials (see appendix B). The survey was offered to patients at the pharmacy from August 31 through November 24, 2016. After the survey period, surveys were analyzed to compare vaccination rates, knowledge of HPV, and opinion of the importance of vaccination.

Results

Eighty-six surveys were completed and submitted. Of the submitted surveys, 19 (22%) respondents were male and 67 (78%) were female. The most common age range of respondents was 18-22 years old (n=71, 83%), followed by ages 23-26 (n=11, 13%), and ages over 26 (n=4, 5%). Thirty-two respondents (37%) reported that they had received the Gardasil® vaccine, 26 respondents (30%) had not received the vaccine, and 28 respondents (33%) did not know if they had received the vaccine. Eleven percent of males reported that they had received the vaccine, and 45% of females reported vaccination.

If you have not received the vaccine, what are your reasons for not getting it?

The most common reason for not receiving the vaccine was that respondents were not aware of the vaccine. Thirty-eight of respondents did not answer this question, the majority of whom reported that they had received the vaccine.

Table 1: Reasons for non-vaccination

Reason	**Frequency (n)**
Time	12% (8)
Cost	3% (2)
Against vaccines	3% (2)
Unaware of the vaccine	31% (27)
Safety concerns	6% (4)
Other	7% (5)
Did not answer question	44% (38)

If the cost of the Gardasil® vaccine prevents you from getting it, would you get it if it were free?

Forty-one respondents (48%) answered that they would get the vaccine if it were provided for free, 2 respondents (2%) would not get the vaccine if it were free, and 31 respondents (36%) answered 'not applicable', most likely because they had already received the vaccine.

Did you know that the Gardasil® vaccine is available at the Health Services Pharmacy on campus?

Twenty-one respondents (24%) knew that Gardasil® is available at the Health Services Pharmacy while 60 respondents (70%) did not know of the vaccine's availability. Five respondents (6%) did not answer this question.

To the best of your knowledge, the Gardasil® vaccine is used to protect people from what pathogen?

Most respondents selected the correct answer, human papilloma virus. The second most common answer was pertussis. Of the respondents who received the vaccine, 31 (96%) selected the correct answer, while only 17 (65%) of respondents who were unvaccinated answered this question correctly.

Table 2: Pathogen Gardasil® protects against

Pathogen	**Frequency (n)**
Pertussis	7% (6)
Measles	3% (3)
Human Papilloma Virus	76% (65)
Typhoid	2% (2)
Multiple answers chosen	1% (1)
No response	10% (9)

To the best of your knowledge, what condition can Gardasil® help prevent people from acquiring?

The correct answer, cervical cancer, was selected by most respondents. The second most common answer was hepatitis. Of the respondents who received the vaccine, 26 (81%) answered this question correctly, while only 9 (35%) respondents who were unvaccinated were correct.

Table 3: Condition Gardasil® protects against

Condition	**Frequency (n)**
Influenza	7% (6)
Cervical Cancer	51% (44)
Hepatitis	20% (17)
Meningitis	6% (5)
Multiple answers chosen	7% (6)
No response	9% (8)

In your opinion, how important is getting the Gardasil® vaccine?

While 40% of respondents thought that receiving the Gardasil® vaccine was 'very important', 29% had no opinion on the value of Gardasil®. More respondents who had received the vaccine believed the vaccine to be 'very important' compared to those who had not received the vaccine (23 [71%] versus 3 [11%], respectively).

Table 4: Importance of Gardasil®

Opinion	**Frequency (n)**
No opinion	29% (25)
Not important	1% (1)
Somewhat important	23% (20)
Very important	40% (34)
No response	7% (6)

Discussion

If vaccination data obtained from this study is correct and extrapolated to the UM student population, vaccination rates of UM students are much lower than the national averages for both men and women. This data also highlights a stark contrast in vaccination rates between men and women at UM. A possible explanation for this occurrence is that Gardasil® was initially recommended exclusively for females; it was not until 2016 that the American Cancer Society updated its recommendations on HPV vaccination to include males.[7]

Lack of knowledge of HPV may be influencing low vaccination rates in this population, which is supported by responses to the knowledge-based survey questions. More respondents who were vaccinated answered the knowledge questions correctly compared to unvaccinated respondents. This data shows that people who have received the vaccine may be more likely to have knowledge of HPV and its associated cancers. Additionally, most respondents did not know that Gardasil® is available on campus. These results support the implementation of a Gardasil® education campaign on campus to increase awareness about HPV and vaccination. This would likely increase vaccination rates and support of Gardasil® among the student population.

Possible limitations to these results include sample size, recall bias, and selection bias. With over 13,000 undergraduate students enrolled at UM, 86 is a very small sample size and may not give a true reflection of this population. Respondents may also not remember if they received the vaccine if they were vaccinated as an adolescent. In addition, students utilizing the Health Service Pharmacy may be more likely to be vaccinated due to their interest in accessing healthcare.

References

1. Human Papillomavirus. In: Hamborsky J, Kroger A, Wolfe S, editors. 13th ed. Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases. Washington D.C. Public Health Foundation;2015.
2. Gardasil [package insert]. Whitehouse Station, NJ: Merck & Co.; 2011.
3. Viens LJ, Henley SJ, Watson M, et al. Human papillomavirus-associated cancers-United States, 2008-2012. MMWR Morb Mortal Wkly Rep 2016;65(26):661-666.
4. Gardasil 9 [package insert]. Whitehouse Station, NJ: Merck & Co.; 2015.

5. Lowy DR, Schiller JT. Reducing HPV-associated cancer globally. Cancer Prev Res 2012;5(1):18-23.
6. Reagan-Steiner S, Yankey D, Jeyarajah J, et al. National, regional, state, and local area vaccination coverage among adolescents aged 13-17 years-United States. MMWR Morb Mortal Wkly Rep 2015;64(29):784-792.
7. Simon S. American Cancer Society updates HPV vaccine recommendations to include males. American Cancer Society (July 19, 2016). Available at: https://www.cancer.org/latest-news/american-cancer-society-updates-hpv-vaccine-recommendations-to-include-males.html. Accessed May 1, 2017.

APPENDIX A

Gardasil® Survey

Student Gardasil® Survey 2016

What is your gender?	□ **Male**	□ **Female**	□ **Prefer not to answer**	
What is your age range?	□ **18-22**	□ **23-26**	□ **> 26**	
Have you received the Gardasil® vaccine?	□ **Yes**	□ **No**	□ **Don't know**	
If you have not received the vaccine, what are your reasons for not getting it? (*mark all that apply*)	□ **Time**	□ **Cost of the vaccine**	□ **Don't believe in vaccines**	
	□ **Unaware of this vaccine**	□ **Safety concerns**	**Other_____**	
If the cost of the Gardasil® vaccine prevents you from getting it, would you get it if it were free?	□ **Yes**	□ **No**	□ **Not applicable**	
Did you know that the Gardasil® vaccine is available at the Health Service Pharmacy on campus?	□ **Yes**	□ **No**		
To the best of your knowledge, the Gardasil® vaccine is used to protect people from what pathogen?	□ **Pertussis**	□ **Measles**	□ **Human Papilloma-virus**	□ **Typhoid**
To the best of your knowledge, what condition can Gardasil® help prevent people from acquiring?	□ **Influenza**	□ **Cervical cancer**	□ **Hepatitis**	□ **Meningitis**
In your opinion, how important is getting the Gardasil® vaccine?	□ **No opinion**	□ **Not important**	□ **Somewhat important**	□ **Very important**

The purpose of this anonymous survey is to assess student knowledge and values pertaining to the Gardasil® vaccine.

Please place completed surveys in the drop box at the pharmacy

If you have any questions regarding the Gardasil® vaccine, please consult the pharmacist.

Thank you for participating in the survey!

APPENDIX B

Gardasil® information provided to respondents

HPV* Vaccine

A Guide for Young Adults

*human papillomavirus

HPV is a very common virus that can lead to:

- Cancers of the mouth and throat
- Cancer of the cervix
- Cancer of the penis, vagina, vulva, or anus
- Genital warts

HPV vaccine can prevent these!

Do I really need HPV vaccine? Yes!

You should get HPV vaccine because it can prevent some types of cancer and genital warts.

Do I need it if I haven't had sex yet? Yes!

- You don't have to have sex to catch HPV, but sex increases your risk.
- You can get HPV by skin-to-skin intimate contact.
- People can get and spread HPV without knowing it.
- It's best to get vaccinated before you ever have sex.

Should I get HPV vaccine if I've already had sex? Yes!

You still need to get vaccinated even if you have had sex. The vaccine provides a lot of protection.

Why do I need more than 1 shot?

You need a series of HPV shots to be fully protected.

I didn't get the vaccine at age 11 or 12. Should I get it now? Yes!

HPV vaccination is recommended for people ages 9 through 26. Even though it is ideal to get HPV vaccine at age 11–12, it is still highly effective in teens and young adults.

Is HPV vaccine safe? Yes!

- Millions of doses of HPV vaccine have been given without any problem.
- You may get a sore arm.
- Occasionally, a few people faint, so sit for 15 minutes after getting the vaccine.

Make sure you get all your HPV shots. Complete your series!

For more information on vaccines for teens and young adults, visit www.vaccineinformation.org/teens or www.vaccineinformation.org/adults

Adapted with permission from the Academic Pediatric Association

When Should I Get HPV Vaccine?

Make sure your healthcare provider reviews with you when you should be vaccinated.

AGE AT FIRST DOSE	DOSE #2	DOSE #3
9 years until 15th birthday	6–12 months after dose #1	Not needed
15 years or older	1–2 months after dose #1	Approximately 4 months after dose #2

NOTE: If you have problems with your immune system, you will need to receive 3 doses of HPV vaccine.

immunization action coalition
IAC
immunize.org

Technical content reviewed by the Centers for Disease Control and Prevention

Saint Paul, Minnesota • 651-647-9009 • www.immunize.org • www.vaccineinformation.org

www.immunize.org/catg.d/p4251.pdf • Item #4251 (1/17)