



Exploring the Status of HPV Vaccination on the University of South Carolina Columbia Campus

Rosemary Corriero, Student Researcher (rec21557@uga.edu)
Heather M. Brandt, PhD, CHES, Faculty Advisor (hbrandt@sc.edu)

Summary of Study Findings

What did we know before the study?

- South Carolina is ranked 14th in cervical cancer incidence and 7th in cervical cancer mortality in the United States and also has high rates of sexually transmitted infections (STI), including genital human papillomavirus (HPV), a very common and usually harmless STI. HPV is a main cause of cervical cancer. HPV causes genital warts and is also linked to other types of cancer.
- Two brands of HPV vaccination are available to prevent HPV infection, including protection against two types of HPV infection that cause about 70% of cases of cervical cancer. However, uptake of HPV vaccination is less than ideal nationally and in South Carolina.
- Awareness and knowledge of HPV and HPV vaccination among the general public is mixed. There is also reluctance on the part of parents to have their children receive the HPV vaccine and concerns about consistent recommendations for HPV vaccination by health care providers as part of routine adolescent vaccination. As a result, only about 27% of South Carolina females aged 13-17 have had three doses of HPV vaccine and only about 17% of males aged 13-17.
- Young adults, who have not received the HPV vaccine before turning 18 years of age and entering college, have the opportunity to get vaccinated. Thus, college students represent an ideal population in which to explore the status of HPV vaccination and investigate opportunities for intervention to increase uptake of HPV vaccination. This may result in increased HPV vaccination coverage until vaccination rates at younger ages increase.
- The purpose of this study was to explore the status of HPV vaccination among students and the perceptions of HPV vaccination among key leaders on the University of South Carolina - Columbia (USC) campus to inform future interventions. The study was conducted for independent study credit by Rosemary Corriero, an undergraduate student in biology with a health promotion, education, and behavior minor at USC.

What did we do in the study?

- The study had two specific aims. For *Aim 1*, de-identified, aggregate immunization data were obtained from the USC Thomson Student Health Center and compared to national HPV vaccination data. For *Aim 2*, in-depth, one-on-one interviews with key leaders (including faculty, staff, and students) were conducted to explore perceptions of HPV vaccination.

Who took part in the study?

- For *Aim 1*, de-identified, aggregate immunization data on USC students were obtained.

- For *Aim 2*, interviews were conducted with 21 participants. Most participants were female (81%) and white (71%). The age range of participants was 18-69 years with the majority (76%) in the 18-39 years age range. Most participants were students (57%) followed by 24% staff and 19% faculty.

What were the results?

- For *Aim 1*, the number of doses of HPV vaccine administered at USC Student Health Services (*Table 1*) was relatively low from 2009-2012. Beginning in 2009, USC students were able to report voluntarily receipt of the HPV vaccine (*Table 2*). From 2009-2012, there was an increase in the total number of individuals and total number of doses reported.
- Due to the limitations of data available, specifically the voluntary nature of reporting receipt of the HPV vaccine on the student immunization form, the actual number of students who have been vaccinated is unclear.
- Comparisons to national data were not possible due to limitations in reviewing existing immunization data.

Table 1. HPV Vaccination Data of Doses Administered at USC Student Health Services

Year	Total # of Doses of HPV Vaccine	# of Unduplicated (Individuals)	Total # of Doses of HPV Vaccine to Females	Total # of Doses of HPV Vaccine to Males
2009	231	181	231	N/A
2010	95	78	95	0
2011	151	103	142	9
2012	174	136	156	18

Table 2. (HPV Vaccination Data – From Student Immunization Forms)

Year	Total # of Doses of HPV Vaccine	# of Unduplicated (Individuals)	Total # of Doses reported by Females	Total # of Doses reported by Males
2009	924	596	920	4
2010	714	490	644	70
2011	817	564	588	229
2012	1203	860	696	507

- For *Aim 2*, one-on-one, in-depth interviews were conducted, including completion of a descriptive questionnaire and using an open-ended interview guide. In addition to questions to describe participants, questions about HPV knowledge were included (*Table 3*). Participants were asked to respond “true” or “false” to 16 HPV knowledge items. HPV knowledge was high among participants. Three-fourths of participants responded correctly to all knowledge items included in the assessment. Three items included in the questionnaire were excluded from analysis due to debate in the scientific literature.

Table 3. HPV Knowledge among Participants

Item	True	False
There are many types of HPV	86%	14%
HPV causes HIV/AIDS	5%	95%
Antibiotics can cure HPV	0%	100%
You can always tell when someone has HPV	0%	100%
HPV can cause abnormal Pap tests	76%	24%
Only women get HPV	0%	100%
HPV causes herpes	0%	100%
HPV can affect a woman's ability to get pregnant**	52%	48%
HPV is a virus	100%	0%
Once someone get HPV, he/she will always have it**	29%	71%
A vaccine may prevent some types of HPV	90%	10%
HPV causes genital warts	86%	14%
Someone can have HPV without knowing it	90%	10%
HPV cannot be cured**	33%	67%
HPV is a sexually transmitted infection	90%	10%
HPV causes cervical cancer	100%	0%

*Correct responses are in noted in black.

**A correct response for these three items is not included since these are debated in the scientific literature at this time.

- The in-depth interview guide included items for which participants responded with their thoughts and opinions about health issues among college students, knowledge of HPV and HPV vaccination, barriers to HPV vaccination, students' HPV and HPV vaccination informational needs, and methods for increasing students' HPV vaccine knowledge and uptake of HPV vaccine. Following is a summary of the main findings.
- *Health Issues among College Students*
 - The most commonly reported perceived health issues among college students were sexually transmitted infections, alcohol use/abuse, and other substance abuse.
 - Specific to HPV vaccination, participants commented that "HPV vaccination is not on the students' radar"; some students "don't feel there is a need for the vaccination"; and the influence of parents may continue into the college years.
- *Knowledge of HPV and HPV Vaccination among USC Students*
 - The overall sense among participants was that students had very little knowledge of HPV and HPV vaccination. Participants thought that students vaccinated previously would be among those students with more knowledge.
 - Some participants felt that females were more knowledgeable than males because there has been a focus on the link between HPV and cervical cancer, a condition effecting only females.
 - Participants also stated they had no knowledge of any males who had received HPV vaccination previously.
 - Some participants also expressed that students may be confused about HPV, such as with HIV.

- *Barriers to HPV Vaccination*
 - Participants identified several barriers to HPV vaccination among students, including lack of perceived risk; lack of knowledge; cost of HPV vaccination; lack of insurance coverage; parental influence; and not knowing where to go to get vaccinated.
 - Participants also mentioned lack of knowledge about sexual health, in general, and healthy sexual behaviors as one of the largest barriers regarding student's health. Most of these comments were also related to perceived lack of risk.
- *Students' HPV and HPV Vaccination Informational Needs*
 - Due to the perception among participants that students do not have high levels of knowledge, informational needs were high.
 - Specific information about HPV and HPV vaccination that should be communicated with students, per participants, included:
 - HPV affects both males and females
 - General information about HPV and HPV vaccination
 - External and genetic risk factors for HPV
 - Need for HPV vaccination, such as HPV vaccination is preventive
 - Age range of vaccination
 - Side effects of vaccination
 - Efficacy of vaccination
 - Cost of vaccination
 - Programs to help pay for HPV vaccination
 - Cost of treatment of HPV-mediated conditions, such as genital warts
 - Where students can get vaccinated
- *Methods for Increasing Students' HPV Vaccine Knowledge and Uptake of the HPV Vaccine*
 - In terms of current efforts on campus, most participants reported no current efforts or minimal efforts to increase students' HPV vaccine knowledge.
 - The Thomson Student Health Center was identified as an effective place through which information on HPV and HPV vaccination could be distributed to students.
 - Strategies for engaging students included using testimonials from students who have been vaccinated, using quotes from students who have been vaccinated, and focusing on using strong messages to convey risk and need for HPV vaccination.
 - Suggested communication channels included working with large campus organizations, using social media, ads in *The Daily Gamecock*, integrating content into classes, and holding campus events.

Next Steps

Building on this study, Rosemary Corriero applied for and was awarded a Mini-Magellan grant through the USC Office of Undergraduate Research for a project entitled "*Promoting Awareness of and Participation in HPV Vaccination through Health Communication Strategies.*" The purpose of the follow-up study is to develop appropriate messages and materials (using software such as InDesign and Pictograph Software) for college students about HPV vaccination. The messages would be in formats suitable for college students, such as print materials (e.g., flyers, posters, and pictograms/infographics) and social media (e.g., Facebook, Twitter, and Instagram).

Thank you for your participation! Please contact Rosemary or Dr. Brandt for more information or with any questions.