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Background

What is the Human Papillomavirus (HPV)?

HPV is contracted via skin to skin contact, commonly through engaging in vaginal, anal, or oral sexual intercourse. It causes a variety of lesions, from benign skin warts to malignant anogenital tract and oropharyngeal lesions. Its DNA is linked to cancers of the penis, anus, vulva, vagina, and cervix. Among the most highly correlated cancers to HPV is cervical cancer, where an estimated 99.7% of cervical cancers contain HPV DNA. 30,000 people in the United States develop a cancer linked to HPV each year.

The HPV Vaccine

There are currently three vaccines available for HPV immunization. A bivalent vaccine, quadrivalent vaccine, and 9-valent vaccine. The recommended age to begin the 3 dose series is between 11-12; with 3 dose given over 6 months. 98% of individuals develop an antibody response following completion of HPV series.

National Data:

As of 2016, 60.4% of adolescents have received at least one dose of a HPV vaccine (65.1% females, 56% males). This increased by 4.3% overall, 6.2% for males, from 2015

As of 2016, 43.4% of adolescents had completed the HPV vaccine series (49.5% females, 37.5% males). This increased by 2.2% overall, 3.4% for males, from 2015.

Objectives of Study:

- To increase awareness of HPV and its vaccine across Creighton's Campus.
- To increase vaccination rates against HPV across Creighton's campus through educational interventions.

Intervention Materials

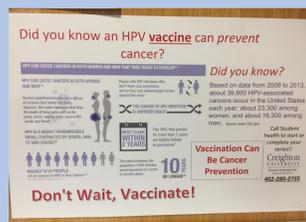


Figure 1: February 2018 Posters

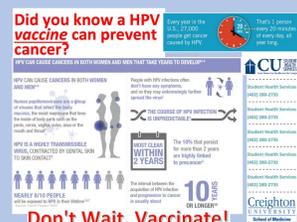


Figure 2: February 2017 Posters



Figure 3: March 2017 Table Tents

These are examples of the interventions. Figure 2 contained tabs with the phone number for student health services. Figure 3 is a free standing flyer placed on dining hall tables.

Methods

HPV

Posters, "table tents", and e-posters were created from content and images derived from public education tools from the Center for Disease Control. We followed two "cycles" of six months, 3/2017 - 8/2017 and 9/2017 - 2/2018. Our baseline data was collected from the six months preceding our first intervention, 9/2016 - 2/2017.

Timeline of Interventions:

February 2017

- Posters hung in residence halls, dining halls, academic buildings, and student activity areas across campus.

March 2017

- "Table tents" distributed across campus dining halls and cafes

October - November 2017

- Student Health Services offering HPV vaccine information at Flu vaccine clinics.

January 2018

- E-posters sent to each individual college list-serv.

February 2018

- New set of posters were posted around campus in the same areas.

Results

Table 1: Number of Students Who Received HPV Vaccination

Series	Number of Students Who Received HPV Vaccination		
	First Dose	Second Dose	Third Dose
Pre-intervention (09/2016 – 02/2017)	99	78 (78/99: 79%)	47 (47/99: 47%)
Cycle One (03/2017 – 08/2017)	136	62 (62/136: 46%)	17 (17/136: 13%)
Cycle Two (09/2017 – 02/2018)	81	39 (39/81: 48%)	5 (5/81: 6%)
			Total Cases = 4,672

Table 2: Male and Female Vaccination Rate on Campus Compared to National Rate

Gender	Received Initial Dose	Total students	Creighton Vaccination Rate	National Vaccination Rate
Female	3,296	5065	65%	65%
Male	1,376	3589	38%	56%

More Results

Table 3: Number of Students Receiving Initial Dose

	Received Initial Dose	Total	Vaccination Rate
Female	3,296	5065	65%
Male	1,376	3589	38%
College			
Arts and Sciences	1,765	2405	73%
Business	760	1036	73%
Dentistry	166	337	49%
Graduate School	8	646	1%
Law	93	296	31%
Medicine	481	620	78%
Nursing	678	961	71%
Pharmacy and Health Professions	675	1187	57%
Unknown College	46		
Total	4672	8654	54%

Discussion

- There was no statistical difference in the rate of HPV vaccinations between the pre-intervention and post-intervention campus populations.
- Table 1 shows the number of vaccines given in each cycle during our intervention, as well as the six months prior to our intervention. This is not the status of the total vaccinated population on Creighton's campus, but is showing the number of people vaccinated in a given time frame.
- The Creighton female vaccination rates for the first doses of the HPV series match the national data, while the Creighton male population lags by 18%.
- Table 3 shows the Creighton student body, represented by college and gender, who have initiated the HPV vaccination series as of April 2018. More than 70% of the Colleges of Arts and Sciences, Business, Medicine, and Nursing have begun the HPV series.
- There were many potential barriers to our intervention's success, such as: school holidays and our intervention timing, location of interventions, portions of student body living off campus, under reporting of vaccination rates, required office appointments for HPV vaccination, HPV stigma, etc.

Conclusion

- The HPV vaccine is safe and effective, but campus rates remain low.
- Interventions remained more passive, than active interactions with our target population.
- Future interventions must be active interpersonal engagement.

Acknowledgements

Immunize Nebraska Task Force, Creighton Student Health Center

References

- Kliegman, Robert, and Waldo E. Nelson. *Nelson Textbook of Pediatrics*. Elsevier, 2016.
- Franco, Eduardo L., Eliane Duarte-Franco, and Alex Ferenczy. "Cervical Cancer: Epidemiology, Prevention and the Role of Human Papillomavirus Infection." *CMAJ: Canadian Medical Association Journal* 164.7 (2001): 1017-1025. Print.
- "Vaccines and Preventable Diseases." *Centers for Disease Control and Prevention*, Centers for Disease Control and Prevention, 22 Nov. 2016. www.cdc.gov/vaccines/vpd/hpv/index.html.
- Smulian, Elizabeth A., Krista R. Mitchell, and Shannon Stokley. "Interventions to Increase HPV Vaccination Coverage: A Systematic Review." *Human Vaccines & Immunotherapeutics* 12.6 (2016): 1566-1588. PMC. Web. 4 May 2018.