Women's Health Narratives: A Cervical Cancer Prevention Program for College-Age Women in Portland, Oregon

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Abstract

Human Papillomavirus (HPV) is so common that about 80% of those in the United States will acquire it during their lifetime. In more serious cases, HPV can develop into cancer: each year in the U.S., there are around 32,000 HPV related cancer diagnoses. The HPV vaccine series can prevent the virus from advancing into cancer, but vaccine rates remain low nationally and locally. The purpose of the Women's Health Narratives (WHN) program is to provide an HPV catch-up vaccination time period and to increase HPV knowledge and awareness by using narrative videos and interactive health kiosks. The ultimate goal of WHN is to increase HPV immunization rates among college-age women (18-26 years) in Portland, Oregon who have not received an HPV vaccine, or who have not completed the series. The yearlong program will adapt videos and content for Spanish speakers and will expand implementation from University clinics to Planned Parenthood locations in the surrounding area. Participants will view one HPV narrative video after privately using the health kiosk, and the facilitators and coordinator will assess how HPV vaccination rates change among the target population.

A.1 Rationale

Background Information on Cancer caused by HPV

Human papillomavirus is a collection of more than 150 viruses that can cause genital warts and a variety of cancers including cervical, penile, vaginal, anal, and oropharyngeal cancer (Centers for Disease Control and Prevention [CDC], 2019a). Not all forms of the virus cause cancer. It is spread through skin to skin contact by having anal, vaginal, or oral sex with someone who has the virus (CDC, 2019b). Most people may not know that they have the virus, because it generally does not present any symptoms. Currently, there is no test to determine someone's HPV status, but there is an HPV test to check for cervical cancer (CDC, 2019b). In addition, there is no treatment for the virus, but options are available for health problems that the virus itself causes.

Human papillomavirus is a global public health threat as it is the leading cause of cervical cancer (Klein et al., 2018). Specifically, HPV is responsible for about 90% of cervical cancers (World Health Organization [WHO], 2019a). Each year, more than half a million women are diagnosed with cervical cancer, making it the fourth most common cancer among women in the world (WHO, 2019a). About 84% of these cervical cancer cases occur in low- and middle-income countries (Klein et al., 2018). In 2018, the World Health Organization reported that around 311,000 individuals died from cervical cancer (WHO, 2019a).

The virus is so common that around 80% of people in the United States will get HPV in their lifetime (CDC, 2019a). In the U.S., around 32,000 individuals are diagnosed each year with HPV related cancers, where 13,000 are cervical cancer diagnoses (Escoffery et al., 2019). Around 4,000 people die each year in the U.S. from cervical cancer, making the mortality rate 2.3 per 100,000 individuals (National Cancer Institute, 2020). Racial disparities exist among cervical cancer diagnosis as well: 25% of cervical cancers are among African American women, 24% among Hispanic women, and 18% among White women (Hirth, 2019).

HPV Immunization Rates Remain low

The Centers for Disease Control and Prevention recommends children ages eleven or twelve to receive two doses of the HPV vaccine; if the series is initiated after an individual's fifteenth birthday, then they should

receive three doses of the vaccine (CDC, 2019a). As of 2019, one hundred countries have introduced the HPV vaccine in their national schedules, but this only covers thirty percent of the global target population (WHO, 2019b). The United States has about fifty percent of adolescents up to date on their HPV vaccinations; this is very low compared to the national HPV immunization coverage goal of 80% of female and male adolescents (CDC, 2018; Healthy People, 2020). It is crucial for HPV vaccination rates to increase as it is estimated that 29,000 cancer cases can be prevented by the HPV vaccine (Escoffery et al., 2019).

HPV immunization rates in Oregon are similar to the national average: fifty percent of teenage girls and forty three percent of teenage males are up to date on HPV vaccinations, with an overall HPV vaccination rate of 43% (Oregon Health Authority [OHA], 2018). In Multnomah county, the most populated county in Oregon, forty-one percent of teenagers (13-17 years) have completed the entire HPV series (OHA, 2016). Only 37.4% of White female teenagers have completed the series, compared to 42.2% of Black female teenagers, and 48.5% of Hispanic or Latina female teenagers (OHA, 2016). Around 75.7% of these female teenagers have had at least one HPV immunization (OHA, 2016). Initiation and completion of the series needs to be encouraged in order to ensure full immunity against the virus.

There are HPV immunization coverage gaps as adolescents mature into adults: due to misinformation, over fifty percent of college students do not know that the HPV vaccine is recommended through 26 years of age (Kellogg et al., 2019). Research suggests that 53.6% of adult women ages 18 to 26 have received at least one HPV vaccination and 35.3% have received the three recommended doses (Boersma & Black, 2020). White women are more likely to have received at least one dose (57.9%), compared to Hispanic women (48.8%), and Black women (44.7%) (Boersma & Black, 2020).

Methods to Increase HPV Vaccination Rates

HPV knowledge, perceived accessibility, parental and peer influence, and healthcare provider recommendation all play a part in HPV vaccine initiation and completion. Research argues that 47% of people with no HPV knowledge were willing to be immunized, compared to 65% with basic HPV knowledge (Otanez et al., 2018). The same study suggests that White and Hispanic parents have more favorable attitudes toward

vaccines overall, compared to Black parents who may have a mistrust of the healthcare system, and fear of experimentation (Otanez et al., 2018). Hispanic college women utilize social networks, such as discussions with their mother and friends, as well as television commercials, when making decisions on HPV immunization (Stephens & Thomas, 2014). Another study found that those with greater self-perceived knowledge and accessibility of the vaccine were more likely to be vaccinated against HPV (Kellogg et al., 2019). Lastly, research suggests that the most influential source in encouraging HPV vaccination uptake is recommendation by a healthcare provider; HPV immunization coverage is higher among those with healthcare provider recommendation (74.7%) compared to those with no recommendation (46.7%) (Walker et. al., 2018).

Immunization rates among females in the U.S. are well below the 80% coverage goal, which suggests the need for a catch-up vaccination time period. College campuses and universities are the prime location to implement an HPV vaccination program as female college students (18 to 26 years) are becoming more sexually active, most now have the power to make their own health decisions, there may be greater access to the vaccine via campus clinics, and they make up 56% of those enrolled in post-secondary education (Digest of Education Statistics, 2018).

B.1 Evidence Based Intervention (EBI) Description

Overview of Program

Women's Health Narratives (WHN) is a clinical and school-based program that increases knowledge on the HPV vaccination among college age women. The intervention is modeled after the culture-centric narrative theory, which highlights the use of culturally appropriate narratives from the target population to influence health behavior (Hopfer, 2012). Narratives are advantageous for this intervention as they provide information to those who have little knowledge on the health topic, and they can benefit those who are in the early stages of behavior adoption. The model uses a video intervention with five decision narratives: a susceptibility story, self-efficacy reenactment, vaccine safety conversation, a peer cue-to-act story, and a healthcare provider cue-to-act with a mother-daughter discussion (Hopfer et. al., 2018). There are two versions of the video, one with the

mother-daughter narrative, and the other without the mother-daughter narrative. The participants watch either video in one session, and sometime later, behavior change is assessed by changes in HPV vaccination rates.

A randomized control trial among female college students at Pennsylvania State University was conducted to evaluate the effectiveness of Women's Health Narratives in increasing HPV vaccination rates. Four-hundred and four students who were primarily White (72%), had not been seen at the university health center, and who were not vaccinated against HPV, participated in the evaluation and viewed either a treatment or control video (Hopfer, 2012). Participants were assessed two months after the video session, and those who watched the peer-expert narrative video nearly doubled vaccination rates compared to the control group; 22% of participants in the peer-expert group received the HPV vaccination compared to 12% of the control (Hopfer, 2012). This evaluation was successful in increasing HPV vaccination, and therefore may be able to increase HPV vaccination rates among female college-age students in Portland.

A second trial to evaluate WHN incorporated health kiosks with the narrative videos (Hopfer et. al., 2018). The kiosk was placed in a Planned Parenthood waiting room over the span of two days, and not very many women interacted with the kiosk. It was concluded that future HPV health kiosks should be colorful and appealing, easy to use, and have someone available to explain its purpose and prompt the use of the kiosk (Hopfer et. al., 2018).

Core Components

- The program must teach about HPV
- The program must teach about the HPV vaccine
- Video messages must be delivered in narrative form
- Video actors must be representative of the target population
- Healthcare providers must be included in the videos
- A program facilitator must oversee video delivery and must be able to answer questions from participants

Key Features

- This intervention can be adapted based on racial/ethnic groups, age, gender, and location
- The language in the videos can be changed to better serve the target population
- The videos can be updated to better reflect the time period
- Participants' eligibility can be modified
- The program does not have to be implemented at a university clinic

Support Components

Women's Health Narratives will require program facilitators who will recruit participants, assess their eligibility, answer questions from participants, record participant information, and monitor program progress among assigned clinics. A program coordinator will be needed to oversee program functions and to guide program facilitators. The coordinator will become certified in WHN training through training materials provided by Pennsylvania State University. Facilitators will attend a weeklong training before implementation where they will learn about the human papillomavirus, patient confidentiality, core program elements, and how to best recruit and communicate with participants. There will be a brief refresher training every four months where facilitators can also provide feedback in order to ensure that they are effectively carrying out the intervention. There should be around two program facilitators for every twenty participants in order to divide work and provide team support.

Additional Program Needs

A private area with a computer will be required so participants can view the videos. The videos will need to be updated to better reflect the target population and time period. Actors that are representative of the target population will be recruited to act in the videos; the content in the videos will not be changed.

An HPV health kiosk machine will need to be placed in the waiting room of the participating clinics. Participants should be prompted to use the kiosk, and the kiosk should be easy to navigate.

Program Setting and Clients

Women's Health Narratives

WHN has been implemented as a school and/or clinical based program among college-age females. Participants have varied among racial and ethnic groups, and sociodemographic status. Similarly, the Portland WHN program will be school and clinical based with college-age females as the target population.

B.2 Adaptation Plan

In the WHN evaluation, eligible participants did not have any vaccinations against HPV. While 75.7% of Multnomah County females ages 13-17 have received at least one HPV vaccine, only 47.6% have completed the HPV series (OHA, 2016). This suggests that many females need to complete the series, therefore, WHN will include participants who have not started the series, as well as those who have not completed the HPV series. This will allow for the program to reach a wider range of the target population.

For successful implementation of the program, videos should be updated in order to best reflect the time period and to be more appealing to participants. The video content should be kept as it contains factual information about HPV, and the order of the narratives in the videos will remain the same. There will be separate videos for participants who have not received any HPV immunization and those who have not yet completed the HPV series. Actors that reflect the population should be recruited in order to develop narrative videos for those needing to complete the series. Videos should also be offered in Spanish as 8.4% of the population in Multnomah County speaks Spanish (World Population Review, 2020). Offering the videos in English and Spanish ensures that the information will be best communicated to the target population.

Not all college-age females attend a university or attend the university health clinic, thus, this program will be implemented at university clinics and Planned Parenthoods in Multnomah County. A discrete health kiosk on HPV that will include information on HPV related cancers, anatomy of the cervix, and prevention methods will be placed at each location. Facilitators will be trained on how to prompt eligible participants to use the kiosk, as well as provide a $10 incentive to a local café for those that use it.

B.3 Mission, Goals, and Objectives

Mission Statement

Women's Health Narratives

The mission of Women's Health Narratives is to decrease future morbidity and mortality caused by HPV among college-age females in Portland, Oregon.

Goals

- Increase HPV vaccination rates among college age females
- Increase knowledge on HPV
- Reduce the occurrence of cancers caused by HPV

Objectives

Process Objectives

1. Program facilitators will be trained before program implementation. Cultural competency training will be required in order for facilitators to be respectful of all participants.
2. The health kiosk machine will be monitored at least once a month by facilitators to ensure proper electronic function and healthcare information delivery.

Impact Objectives: Learning

1. At least ⅔ of participants that use the health kiosk will be able to locate the cervix and know the HPV related cancers.
2. At least 70% of participants that watch the narrative videos will be able to recognize that without HPV immunization, they are at risk for developing HPV related cancers.

Impact Objectives: Behavioral

1. At the post program follow up, around 20% of participants will have received their first dose of the HPV vaccine
2. About 15% of participants will have completed the HPV vaccine series by the post program follow up
3. Health communication regarding HPV with trusted guardians, friends, and/or healthcare providers will have increased at least 15% among participants.

Impact Objectives: Environmental

1. Health kiosks will be placed at all clinic locations, and a monetary incentive will be provided for participants that agree to use it.

Outcome Objectives

1. By the year 2023, there will be a 20% increase in the human papillomavirus vaccination among college-age females in Multnomah County.
2. Two years after program implementation, HPV infections among college-age females in Multnomah County will decrease by 30%.

C.1 Implementation

Timeline

The program will take a total of eighteen months to implement. A program coordinator will be hired to oversee program implementation and evaluation. University clinics and Planned Parenthoods in Portland will need to be contacted to determine what locations will allow the program to be implemented. By early to mid-August, the coordinator will need to hire and train the program facilitators. The number of facilitators hired depends on the number of clinics willing to implement Women’s Health Narratives. Program training should be complete by the end of August. The entire month of September will be dedicated toward hiring video actors, updating video content, recording the updated videos, and creating informational content for the health kiosks.

From October to the end of the year, the program will undergo pilot testing to identify any complications. Health kiosks will be placed at all the locations and will be closely monitored for electronic malfunctions. The coordinator will review the pilot test results and make any necessary program revisions. Any revisions must be made before the full implementation in January.

Program implementation will begin in January and last one year. Near the end of December, participants will be given a questionnaire where they will be asked if they received an HPV immunization while the program was being implemented. The coordinator will analyze program results to determine if the program should be continued.

Table 1. Implementation Timeline

	Month						
Task	**July-Sept.**	**Oct.-Dec.**	**Jan.-Mar.**	**April-June**	**July-Sept.**	**Oct.-Dec.**	**Jan.-Mar.**
Hire Program Coordinator	✓						
Contact University Clinics & Planned Parenthood	✓						
Hire Program Facilitators	✓						
Train Facilitators	✓						
Hire Video Actors	✓						
Update & Record Narrative Videos	✓						
Place health kiosks in clinics		✓					
Pilot Test		✓					
Revise Program Based on Pilot		✓					
Full Implementation			✓	✓	✓	✓	
Staff Refresher Training		✓		✓	✓	✓	
Administer & Collect Questionnaire							✓
Evaluation							✓
Continue Program if Beneficial							✓

Pilot Program

Prior to full implementation, there will be a two-month long pilot test at one clinic location. This will allow the coordinator to identify and address any complications and to ensure that the program will function at its highest capacity. The pilot program can also determine if there are any gaps in training, or if additional resources are needed. Facilitators and participants will be asked to provide feedback as to what needs to be improved and what is working well. The coordinator will have one month to revise the program based off the results and feedback during the pilot program.

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Budget

Table 2: Program Budget

Category	Base Salary (100% FTE)	% FTE	Total Salary	Benefit Costs	Number of Personnel	Sub Totals
Personnel						
Program Coordinator	$75,000	0.50 FTE	$37,500	$11,250	1	$48,750
Clinic Facilitator	$60,000	0.25 FTE	$15,000	$4,500	4	$78,000
Local Tech Support Consultant	$50,000	0.15 FTE	$7,500	$2,250	1	$9,750
Video Actor	$35,000	0.05 FTE	$1,750	$525	10	$22,750
					Personnel subtotal=	$159,250
Materials & Equipment	Per unit costs				Units/Number	Sub total
Spanish Translation	$40/hour				4	$160
Computer & Software	$1,500				5	$7,500
Camera	$1,000				1	$1,000
Health Kiosk	$3,500				4	$14,000
Training Material	$200/training session				5	$1,000
					M & E subtotal=	$23,660
Office Space	Per sq. foot	Square footage	# of months			Sub total
Office for Coordinator	$1.50	150	12			$2,700
Other Direct Costs	Per unit costs				Units/Number	Sub total
Participant Incentives	$10				300	$3,000
					Office subtotal=	$5,200
				Grand Total=	$188,110	

Budget Justification

The following budget justification includes the general budget guidelines in order to implement the Women's Health Narratives program for one year. This includes salaries and benefits for the coordinator and staff, program adaptations to better serve the target population, training materials, an office space, and participant incentives to encourage program participation.

Program Coordinator (50% FTE): Twelve months of salary and fringe benefits at a rate of thirty percent will be requested for the coordinator. They will be responsible for training facilitators, supervising program implementation at clinics, contacting tech support, and answering participant questions and concerns. Half of their time will be required to meet program responsibilities.

Clinic Facilitator (0.25% FTE): There will be four clinic facilitators required for twelve months who will need to provide a quarter of their time to the program. One facilitator will be at each clinic location, and they will be responsible to work directly with participants by showing the narrative video, prompting participants to use the health kiosk, answering questions, and directing participants to further resources. They will receive fringe benefits at a rate of thirty percent.

Technology Consultant (0.15% FTE): A local tech support consultant will be responsible to provide assistance whenever there are difficulties with the health kiosks, computers, or narrative video. This individual will be contracted for twelve months, provide fifteen percent of their time to the program, and will receive fringe benefits at a rate of thirty percent.

Video Actor (0.05% FTE): Ten video actors will be required for the adaptation of updating the narrative video. They will be a one-time cost and need to contribute five percent of their time.

Spanish Translation: Program videos are currently offered in English, therefore, to reach a greater population, the narrative videos and the health kiosk content will be translated into Spanish. The translation will be a one-time cost.

Computer and Software: Five computers with their necessary software will be required so participants can view the narrative videos. One of the computers will be for the coordinator in order to properly analyze program data.

Camera: One camera will be needed in order to record and upload the updated video content.

Health Kiosk: Four health kiosks, one at each clinic location, will be required in order to present HPV content. These kiosks will provide information such as the location of the cervix, and why the vaccine is crucial for prevention.

Training Material: The coordinator will lead a total of four trainings that the facilitators will be required to attend. These meetings can also provide an opportunity for facilitators to provide program feedback.

Office for Coordinator: An office for the coordinator will provide space for data analysis and day to day program tasks. Additionally, training will be held in this office.

Participant Incentives: A $10 gift card to a local café will be rewarded to participants that use the health kiosk. The incentive is intended to motivate eligible participants to use the kiosk.