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Increasing HPV Vaccination Rates Using Social Marketing Strategies

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The University of Southern Mississippi

INCREASING HPV VACCINATION RATES USING
SOCIAL MARKETING STRATEGIES

by

Sharon Wilson Catledge

Abstract of a Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

December 2014

ABSTRACT

INCREASING HPV VACCINATION RATES USING
SOCIAL MARKETING STRATEGIES

by Sharon Wilson Catledge

December 2014

The human papillomavirus (HPV) is the most common sexually-transmitted infection (STI). Approximately 20 million Americans between the ages of 15 and 49 years currently have HPV with > 6.2 million new HPV infections estimated to occur each year. Yet, HPV vaccination rates remain relatively low. More than 40 strains of HPV are transmitted through genital contact during vaginal, anal, or oral sex and can infect males and females. In addition to causing genital warts, HPV is associated with cervical, vulvar, vaginal, anus, penile, and oropharyngeal cancers. In women, the most prominent type of cancer is cervical with > 12,000 diagnoses each year and 4,000 expected to die. In Mississippi, a total of 1,829 HPV-associated cancers were diagnosed between 2004 and 2008, with an average of 33,369 cases in the United States (Centers for Disease Control and Prevention [CDC], 2012a). In 2000, the estimated cost of management of HPV for individuals between the age of 15 and 24 years totaled \$2.9 billion. The aim of this study was to increase vaccination rates using social marketing strategies. The study was guided by an integrative approach using education sessions and pretest/posttest design to evaluate knowledge of HPV. Research data were obtained from 25 participants between the ages of 18 and 20 years. According to the CDC (2012c), males and females between the ages of 9 and 26 years should be offered the Gardasil® vaccine to achieve

disease prevention. Research findings revealed increasing knowledge about HPV caused an increase in the number of students that received the vaccine after the intervention.

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A Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

Approved:

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December 2014

DEDICATION

First and above all, I give reverence to God who is the giver of every good and perfect gift. I thank Him for being my sustainer and granting me the capability to proceed successfully. I never would have made it without Him.

Earning this doctoral degree has not been an easy task, but the love I have for my children, Jasmine and Jessica, gave me the motivation and determination I needed to persevere. Both of you have been my best cheerleaders. I love you both.

Lexie Grace spoke no words but was always present offering so much love and joy during this process – RIP.

A special feeling of gratitude to my mother, Rena, whose words of encouragement meant so much.

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LIST OF ABBREVIATIONS

<i>CDC</i>	Center for Disease Control and Prevention
<i>HPV</i>	Human Papillomavirus
<i>STI</i>	Sexually Transmitted Infection
<i>USM</i>	The University of Southern Mississippi
<i>HPM</i>	Health Promotion Model
<i>DNP</i>	Doctorate of Nursing Practice
<i>H.P.V.</i>	Help Prevent the Virus
<i>RA</i>	Residents Assistant
<i>Pr</i>	Pretest
<i>Po</i>	Posttest

CHAPTER I

INTRODUCTION

Problem Statement

According to the Centers for Disease Control and Prevention (CDC, 2012a), human papillomavirus (HPV) is the most common sexually-transmitted infection (STI). Approximately 20 million Americans between the ages of 15 and 49 currently have HPV with more than 6.2 million new HPV infections estimated to occur each year. Yet, HPV vaccination rates remain relatively low (Cermak, Cottrell, & Murnan, 2010; Cox, 2006; Mahoney, 2006; Ylitalo, Lee, & Mehta, 2013). In the United States 70% of cervical cancers and 90% of genital warts are caused by the most common HPV types 6, 11, 16, and 18 (Mississippi State Department of Health [MSDH], 2011). The HPV vaccine protects against most of the common strains (CDC, 2012b; MSDH, 2011). Currently, two vaccines protect against HPV; however, only Gardasil® (quadrivalent vaccine) is recommended for males and females and protects against cervical cancer, vulvar cancer, vaginal cancer, anal cancer, and genital warts (Mahoney, 2006). The CDC (2012a) recommends initiating the vaccine between the ages of 11 and 12 years but may be given as early as 9 years of age. Additionally, catch-up vaccines are recommended for those between the ages of 13 and 26 years who did not have all three doses when they were younger (CDC, 2012a). There is no cure for HPV infection, but some of the problems it causes are treatable. In 2000, medical costs for the treatment of HPV for ages 15 to 24 years were estimated at \$2.9 billion, putting HPV ahead of other STIs, such as genital herpes, chlamydia, and gonorrhea. Males and females between the ages of 9 and 26 years should be offered the Gardasil® vaccine to achieve disease prevention (Ylitalo et al., 2013).

The purpose of this capstone project was to increase the HPV vaccination rates of students between the ages of 18 and 20 years on The University of Southern Mississippi (USM) Hattiesburg Campus through the use of social marketing strategies. For this project, social marketing strategies included education and active promotion of the HPV vaccine to change healthcare outcomes by raising awareness and increasing the actual number of HPV vaccines administered at the USM Health Clinic. Education and recommendations are critical for the students if the vaccine rates are to increase.

Needs Assessment

Of the 16,000 students enrolled at USM, 13,652 are undergraduates and 2,819 are graduate students. The project director, who works at the USM Health Clinic, offers services to entering freshmen through graduate school between the ages of 16 years and 60+ years. The 3-dose HPV vaccine is available at the clinic. The vaccine costs approximately \$140 for each dose and is covered by most insurance plans. For the uninsured, the clinic partners with Merck™ in the patient assistance program for payment. During the last 3 years there were 62,698 patient visits to the USM Health Clinic. Care was provided to > 16,000 male students and > 33,000 female students. However, only about 200 doses of the HPV vaccine were given during that 3-year period. A chart audit was conducted to verify how many of the students had the HPV vaccine. A random sample of 200 charts was reviewed ($n = 150$ females and $n = 50$ males), and 5 females were found to have had the HPV vaccine.

The clinical staff at USM Health Clinic consists of 3 providers (2 doctors and 1 nurse practitioner) and 5 nurses. During an interview conducted by the project director earlier this year, all 3 providers reported they are aware of HPV, support the HPV vaccine, but seldom recommend the vaccine. Additionally, the providers reported that if

they discuss HPV, then they recommend the vaccine. All of the nurses reported they are aware of the vaccine, support the vaccine, but never discuss the vaccine.

Background and Significance

According to the CDC (2013c), “79 million Americans have HPV with approximately 14 million new infections each year” (p. 1). HPV infection can result in cancer of the cervix, other female genital cancers, penile cancer, and anal cancers (MSDH, 2011). Cervical cancer, the second most common cancer in women, claims the lives of > 300,000 worldwide each year. In the United States, > 10,000 women are diagnosed with cervical cancer each year with > 3,000 women expected to die each year (MSDH, 2011; Ratanasiripong, Cheng, & Enriquez, 2013). As part of Healthy People 2020’s 10-year objectives for improving the nation’s health, there is an initiative to increase cervical cancer screenings and reduce the number of HPV infections. Persistent HPV infection is implicated in 70% to 90 % of cervical cancers and 80% of penile cancers (MSDH, 2011; Ratanasiripong et al., 2013). Men who have sex with men have a higher incidence of anal cancer, and most of them are linked to HPV (MSDH, 2011). “Vaccinating males, especially before the age of sexual activity, helps protect both men and women from disease” (MSDH, 2011, p. 1). Oral cancers account for > 20,000 Americans each year, and HPV is indicated in nearly one fourth of those affected (CDC, 2012a).

HPV is a papillomavirus that invades human epithelial cells and manifests in mucosal membranes throughout the body (American Cancer Society [ACS], 2014). The most common membranes where the virus is found are the throat, mouth, feet, fingers, nails, anus, and cervix (ACS, 2014). Many strains of HPV can affect the genital area and are classified as either high-risk or low-risk (CDC, 2012a). “Both low-risk and high-risk

strains can cause the growth of abnormal cells, but generally only high-risk type lead to cancer” (Cermak et al., 2010, pp. 229-230). Most known strains of HPV cause no symptoms; however, some can cause condylomata (genital warts) while others can develop into cancer (ACS, 2014). Types 16, 18, 33, 35, 45, 51, 52, 56, 58, 59, 68, 73, and 82 can cause cancer (CDC, 2012a). Strains 16 and 18 are considered high-risk and most commonly associated with cervical, vulvar, vaginal, anus, and penile cancer; whereas, HPV 6 and 11 are low-risk types associated with genital warts and some low-grade cervical cell abnormalities (CDC, 2012; Cermak et al., 2010; Cox, 2006; Pollack, Balkin, Edouard, Cutts, & Broutet, 2007).

There are no signs or symptoms of HPV until warts appear or changes are seen in genital tissue. In 90% of the cases, the body’s immune system will clear HPV naturally within 1 to 2 years; therefore, most individuals infected with HPV do not develop symptoms or health problems (CDC, 2012a). However, individuals with high-risk HPV that does not clear up are at greatest risk for cancer (Cox, 2006). Male and females are at risk for HPV with the first sexual encounter with an average age of 14 years for first intercourse (French & Dishion, 2003).

There are no urine tests or blood tests that would specifically assess for HPV. The only available test is a cervical smear examination performed on females using the Pap test (American Congress of Obstetricians and Gynecologists [ACOG], 2012). Yet, according to the ACOG (2012) guidelines, the use of the Pap test is recommended for females after the age of 21 years. The U.S. Preventive Services Task Force, the American Cancer Society, and the American Society for Colposcopy and Cervical Pathology do not recommend pap test for females under the age of 21 years regardless of sexual history (ACOG, 2012). HPV screening in combination with the Pap test is not

recommended before age 30 years due to risk versus benefit analyses, indicating that the harm outweighs the benefits (ACOG, 2012). Unfortunately, there is no test for males.

Once detected, there is no treatment for the HPV, but there are treatments for the problems caused by the virus (CDC, 2012c). The body's immune system can fight off HPV naturally within 1 to 2 years (CDC, 2012c). However, not all infections are cleared and eventually may manifest most commonly as genital warts and/or cancer. The genital warts may form in the vulva, vagina, cervix, urethra, penis, scrotum, anus, and under the foreskin of an uncircumcised penis (CDC, 2011). Providers can treat genital warts with the use of cryotherapy, electrocauterization, or laser therapy; and topical solutions can be used for home treatment (CDC, 2011). In some cases, they are treated with injections of interferon, a medication that boosts the immune system response and suppresses cell proliferation (CDC, 2011).

Genital warts can cause physical symptoms (e.g., pain, bleeding, and itching) as well as psychological symptoms (embarrassment and poor self-image) and serves as a constant reminder of an STI (CDC, 2011). Treating warts does not insure the virus is gone, and the warts may reappear. Even if the warts are not visible, it is important to note that the virus can still spread (CDC, 2011, Cox, 2006; Planned Parenthood, 2013). Without treatment, visible genital warts can be self-limiting, remain unchanged, or multiply in size or in number (CDC, 2011). Therefore, the aim of treatment is for cosmetic purposes to remove growths and reduce the virus by stimulating the immune response to help control the infection. Removing the warts can be painful and may require multiple treatments (CDC, 2011).

Understanding HPV and HPV-related illness and the stress that it can cause is important. "The emotional toll of dealing with HPV is often as difficult as the medical

management of the disease” (National Cervical Cancer Coalition [NCCC], 2013, p. 1). The diagnosis of HPV, cost of treatment, and the stigma of having a STI can lead to stress. Additionally, anxiety is associated with a positive cancer screening, discomfort from additional diagnostic and treatment procedures, bleeding from treatment, and an increased risk of pregnancy complications (ACOG, 2012). Removing the warts can be painful and may require multiple treatments, which further add to the stress (Cox, 2006). Although the body can rid itself of the virus, if genital warts develop, most individuals prefer to have the warts treated immediately (Cox, 2006).

If high-risk HPV is detected during the Pap test, the female is then referred to a provider who can further evaluate the cervical changes. Most often a colposcopy (using a special magnifying device to look at the vulva, vagina, and cervix) is recommended to view the problem area more clearly. The vagina and cervix may be swabbed with vinegar (acetic acid) and sometimes iodine (Lugol's solution) to see problem areas more clearly. If dysplasia is found with the colposcopy, additional treatment, such as cryotherapy, laser, loop electrocautery excision procedure (LEEP), or a cone biopsy, may be indicated. Specimens obtained with the LEEP and cone biopsy procedures are assessed microscopically to be sure the abnormal cells are not cancerous (National Cancer Institute [NCI], 2010).

In Mississippi, from 2004-2008, there were 1,829 HPV-associated cancers diagnosed with an average of 33,369 cases in the United States (CDC, 2012b). Financial constraints should be taken into consideration when looking for ways to improve vaccination rates (Pourat & Jones, 2012). Medical management of HPV costs billions of dollars, putting the treatment above the cost of other STIs (CDC, 2012c).

With the lack of tests for males and curative options for both male and females, the best treatment for HPV is prevention. Gardasil® is the only quadrivalent HPV vaccine licensed for use among females and males between the ages of 9 and 26 years for prevention of vaccine HPV-type related cancers (CDC, 2012a). The vaccine is administered by intramuscular injection, and the recommended schedule is a 3-dose series with the second and third doses administered 2 and 6 months after the first dose. Catch-up vaccines are recommended for males and females between the ages of 13 and 26 years who have not completed the 3-dose series (CDC, 2012a; Marchand, Glenn, & Bastani, 2012; Ylitalo et al., 2013).

Review of Relevant Literature

A comprehensive literature search was conducted using databases and Internet searches. The databases consisted of Medline, CINAHL, EPCOHOST, PUB MED, and Bio Med Central. Internet sites used were Centers for Disease Control and Prevention and Mississippi State Department of Health. A review of 165 articles and 20 abstracts was conducted with 26 articles included in this literature summary, which assisted with focus of increasing HPV vaccine rates. Keywords used for search were human papillomavirus, HPV in females, HPV in males, HPV vaccinations, HPV between the ages of 17 and 20 years, HPV in college students, and combinations of keywords. Excluded were articles addressing HPV in pediatrics, adolescents, parental consent, and cancer.

The summary of the literature will address HPV, HPV-related cancers, and the relationship of the HPV vaccine to HPV. The findings were limited to HPV related to females, males, and college students, provider recommendation, lack of uptake of the vaccine, and barriers and benefits of the HPV vaccine. The review of literature will be

divided into three sections: (a) knowledge of HPV, (b) effects of HPV, and (c) provider recommendation of the HPV vaccine.

Knowledge of HPV

HPV is transmitted through genital contact during vaginal or anal sex although it can be transmitted during oral sex and genital-to-genital contact (CDC, 2012a; Cox, 2006). According to Cox (2006), the higher the number of sex partners within 2 years of initiating sexual intercourse, the higher the chance of contracting HPV. At least half of all sexually active men and women get genital HPV at some time in their lives (CDC, 2012a).

In 2006, the Food and Drug Administration (FDA) licensed the HPV vaccine and the Advisory Committee on Immunization Practices (ACIP) recommended HPV vaccination for girls between the ages of 11 and 12 years but can be started at the age of 9 years. In 2009, vaccination recommendations for boys were published (CDC, 2012a). After risk and benefit analyses, the HPV vaccination was approved to prevent HPV and its associated diseases, such as cervical cancer, vaginal cancer, vulvar cancer, anal cancer, and genital warts (CDC, 2012c; Marchand et al., 2012; Saraiya, Rosser, & Cooper, 2012; Ylitalo et al., 2013). Although the recommended ages are 11 to 12 years, the CDC states the vaccine can be given through the age of 26 years. For those who do not receive the HPV vaccine between the ages of 9 and 11 years or do not complete the 3-dose series, catch-up vaccines are recommended for ages 13 to 26 years (CDC, 2012b; Marchand et al., 2012; Ylitalo et al., 2013). Two vaccines are approved to aid in protecting against HPV. However, only Gardasil® (quadrivalent vaccine) is recommended for both males and females and protects against cervical cancer, vulvar

cancer, vaginal cancer, anal cancer, and genital warts (Mahoney, 2006; Rubin, Kuttub, Rihani, & Reutzel, 2012; Tomljenovic & Shaw, 2012).

Since 2006, the quadrivalent HPV vaccine has been studied extensively for safety and efficacy (Pomfret, Gagnon, & Gilchrist, 2010). In a systematic review of evidence, Pomfret et al. (2010) concluded that the quadrivalent vaccine was well tolerated and effective in the management of HPV, thus preventing precancerous lesions. Disease prevention was evident by numerous clinical trials that included over 21,000 females between the ages of 9 and 26 years (Pomfret et al., 2010). The review revealed > 23 million doses of the quadrivalent vaccine had been given in the United States through December 2008. Of the reported adverse events through the Vaccine Adverse Event Reporting System (VAERS), the Vaccine Safety Datalink (VSD), and the Clinical Immunization Safety Assessment (CISA), 94% were considered non-serious and 6% were viewed as serious (Pomfret et al., 2010). After evaluation of the report, the CDC then concluded there was no link between the vaccine and the serious events (Pomfret et al., 2010).

Effects of HPV

Most people infected are asymptomatic (CDC, 2012b). More than 40 strains of HPV can infect the genitals of males and females (CDC, 2012a; Cermak et al., 2010; Cox, 2006). The high-risk HPV strains 16 and 18 are most commonly associated with genital cancers (Cermak et al., 2010; Cox, 2006; Pollack et al., 2007). In contrast, HPV 6 and 11 are associated with genital warts and some low-grade cervical cell abnormalities and are considered low-risk (Cox, 2006; Pollack et al., 2007). In Mississippi from 2004-2008, there were 1,829 HPV associated cancers with an average of 33,369 cases in the United States (CDC, 2012b). In the United States, about 12,000 women get cervical

cancer every year, and about 4,000 are expected to die from it (CDC, 2012a). The costs of treating HPV and related diseases are estimated at or above \$4 billion annually (Pourat & Jones, 2012).

HPV is as common in the male as it is in the female, although rarely causing significant health problems. Men with HPV can develop genital warts and penile cancer; for men who have sex with men, HPV can lead to anal cancer (CDC, 2012c). College-age males are considered a high-risk population for STIs because of their sexual promiscuity, unsafe sex habits, lack of concern, lack of knowledge, and perceived risks (Katz, Krieger, & Roberto, 2011). Katz and colleagues astutely made the connection that, “vaccinating males will indirectly assist with preventing HPV-related diseases (e.g. cervical cancer) in females” (p. 176).

Although most individuals never know they have HPV, about 10% to 13% will progress to a high-grade lesion, and about 70% to 91% will regress within 2 years (Cox, 2006). In women, cervical cancer is the second leading cause of cancer with > 12,000 diagnoses each year in the United States and 4,000 expected to die (CDC, 2012; Cermak et al., 2010; Cox, 2006; Pollack et al., 2007). The incidence of anal cancer has been on the rise since the 1970s, and HPV is implicated in most anal cancers and about 80% of penile cancers (Cox, 2006). Oropharyngeal and oral cancers occur in > 20,000 Americans each year, and HPV is indicated in nearly 25% of those affected (Cox, 2006).

The annual medical costs of HPV in 2000 for ages 15 to 24 years were estimated at \$2.9 billion, putting HPV ahead of the costs of other STIs, such as genital herpes, chlamydia, and gonorrhea (Mahoney, 2006). Management of abnormal Pap tests is the driver for a large portion of the \$2.9 billion costs (Cox, 2006; Mahoney, 2006). In addition to the \$2.9 billion, the costs of treating cervical cancer and increased needs for

screening bring an added financial burden to health care with costs reportedly at \$2.3 billion annually (Cox, 2006).

Pourat and Jones (2012) identified lack of knowledge and financial costs as barriers to receiving the HPV vaccine. “Understanding the impact of financial barriers on adherence to HPV vaccination is needed to improve HPV vaccination rates and to prevent HPV infection and its disease” (Pourat & Jones, 2012, p. 323). Each Gardasil® injection costs approximately \$140, resulting in a total of \$420 for the three injections (CDC, 2012a; Pourat & Jones, 2012). The Gardasil® vaccines can be financed by private insurance, Medicaid for those under the age of 18 years, and Federal programs such as Vaccines for Children (VFC) to assist the uninsured (CDC, 2012a). Moreover, there are patient assistance programs to assist with the cost.

Negative connotations can be associated with an HPV diagnosis. These connotations include anxiety, unnecessary cancer screenings which cause discomfort and increased risk for future complications, and the shame of having an STI (ACOG, 2012).

Provider Recommendation of HPV Vaccine

Healthy People 2020 (2013) reported 16.6% of females received the HPV vaccine in 2008, and their objective was to increase the coverage to 80% by 2020. Despite the growing epidemic, < 50% of adolescents receive the HPV vaccine (Ylitalo et al., 2013). An explanation for the low number receiving the HPV vaccine may be attributed to a lack of recommendations from the healthcare providers (Ylitalo et al., 2013). According to the researchers, healthcare professionals’ failure to recommend the vaccine is among the leading barriers concerning the HPV vaccinations. The researchers reported that adolescent females are five times as likely to receive the HPV vaccine with a provider’s recommendation (Ylitalo et al., 2013). Research reveals that the prevalence of provider

recommendation for HPV vaccine is low, which suggests that healthcare providers are missing patient education opportunities. Increasing HPV vaccination rates hinges on healthcare providers and other healthcare professionals recommending both the vaccine and educating patients (Moon, 2013). According to Moon (2013), healthcare providers are not recommending the HPV vaccine. However, if the vaccine rates are to increase, it is imperative that the providers use each patient encounter to educate and recommend the HPV vaccine. Historically, if healthcare providers promote a product with a strong endorsement, patients are more likely to accept it. Addressing issues regarding vaccine safety, adverse effects, and appropriate age for vaccination in a clear concise manner may be a way healthcare providers can reduce concerns and misconceptions about the vaccine (Moon, 2013). Strategies to increase HPV vaccination rates include educating healthcare professionals and the general public about the importance of vaccinating adolescent males, females, and ensuring that underserved populations are informed about and given access to the vaccine (Moon, 2013).

Theoretical Framework

Social marketing is a well-defined marketing discipline and served as the framework for this capstone project as a basis to increase HPV vaccination rates on the Hattiesburg Campus of USM for students between the ages of 18 and 20 years. Social marketing is a process that uses marketing principles and techniques to promote a target audience to voluntarily accept, reject, modify, or abandon behaviors that will benefit the individuals, groups, or society (Lee & Kotler, 2011). The process follows 10 steps: (a) identifying the problems, (b) obtaining a detailed description of the situation, (c) reviewing strengths and weaknesses in the environment, (d) identifying target audience, (e) establishing objectives and goals, (f) identifying benefits and competition, (g) creating

a firm position, (h) developing marketing strategies, (i) developing a plan for monitoring, and (j) reporting outcomes.

The Social Marketing Process

Step 1. The background history of HPV is discussed under the background significance and literature review. Based on the needs assessment, the problem identified was a lack of HPV vaccinations. The campaign focus of the social marketing strategy was to increase the HPV vaccination rates on the Hattiesburg Campus of USM.

Step 2. SWOT (strengths, weaknesses, opportunities, and threats) analysis was used to identify the present situation within the campus for strengths, weaknesses, opportunities, and threats of the environment. The purpose of SWOT analysis is to gather, evaluate, and analyze information to determine key issues of an organization and facilitate a strategic approach. Strengths for implementing the project were as follows: (a) resources, (b) key stakeholders who support the project, (c) easy accessibility of the vaccine, and (d) a potential grant opportunity with MerckTM. Weaknesses for the project included the following: (a) cost of vaccine, (b) series of injections, and (c) overcoming barriers to vaccine. Opportunities included (a) increasing knowledge of HPV and HPV vaccine, (b) increasing the rates of HPV vaccines, (c) decreasing the number of HPV-related cancers, (d) decreasing the genital warts, (e) decreasing the medical costs for treatment of HPV and HPV-related illness, and (f) the potential to impact policy. Threats were (a) perceived barriers, (b) vaccine not mandatory, and (c) personal feelings regarding injections.

Step 3. The three steps to identify target audiences included segmenting the market, using established criteria to evaluate the segments, and choosing one or more of the segments to target. According to the CDC (2012a), 20 million Americans have HPV

and millions of others are expected to get it during their lifetime. According to the current author's research, the number receiving the HPV vaccine remains relatively low. The quadrivalent vaccine is recommended for males and females as early as age 9 years, and catch-up vaccines can be given through the age of 26 years. Sexually-transmitted infections are very prevalent on the campus of USM. The target audience for the social marketing campaign was students between the ages of 17 and 20 years on the USM Hattiesburg Campus. Identifying key stakeholders was crucial in implementing a successful project. The stakeholders associated with the social marketing project to increase HPV vaccine included the Doctor of Nursing Practice student, medical director of the clinic, and other providers, such as nurses in the clinic, pharmacists, administration, Merck patient assistance representatives, and private insurance carriers.

Step 4. The social marketing component of step 4 included the objectives that identify the behaviors which needed to be changed, knowledge level that was needed, and the belief that nurse practitioners needed to make the necessary change. According to Lee and Kotler (2011), behavior, knowledge, and belief are the three objectives needed in order to make changes. The behavior objective was for students between the ages of 17 and 20 years on the Hattiesburg Campus of USM to accept the HPV vaccine. The knowledge objective was to increase students' awareness of HPV and the HPV vaccine. The belief objective was that students would understand that HPV causes cancer in males and females and the HPV vaccine will diminish chances of getting HPV-related cancer. The goals of this social marketing evidence-based project were to (a) provide education about the HPV vaccine and (b) increase the HPV vaccination rates by 20% on the Hattiesburg Campus of USM.

Step 5. Identifying barriers, benefits, competition, and influential others were crucial for the success of the capstone project. The needs assessment revealed that the providers offer the HPV vaccine about 10% of the time. Information about evidence-based practice was provided to the healthcare providers in an effort to change providers' attitude regarding offering the HPV vaccine to patients. A change in providers' recommendations could ultimately impact healthcare outcomes.

Step 6. A position statement was important to the success of the social marketing project. The position statement included the audience's desired behavior, barriers, and benefits of the behavioral change. The position of this capstone project was that the students would see that taking the HPV vaccine is safe and effective and will diminish their chances of developing HPV-related cancer and genital warts. Subsequently, there will be an increase in the number of students obtaining the HPV vaccine which, in turn, will decrease the number of HPV-related cancers, decrease the number of genital warts, and result in a decrease in healthcare costs.

Step 7. According to Lee and Kotler (2011), the 4 Ps (product, price, place, and promotional strategies) are important for developing a successful marketing project (see Appendix A). The product should identify the main benefit of the target audience, the Gardasil® vaccine, which is documented to cause a decrease in HPV-related cancers and genital warts. Strategies to sponsor the capstone project were educational sessions and a social marketing campaign. The cost benefit was useful in building a social marketing plan. The HPV vaccine decreases HPV healthcare costs due to the need for less cancer intervention, fewer colposcopies, and fewer genital wart treatments. Most private insurance companies pay for the HPV vaccine in full. The uninsured or underinsured patient was offered access to the patient assistance program through Merck™. The

setting for implementation of the social marketing project was the Hattiesburg Campus of USM. The educational sessions were held in student housing units (e.g., dormitories and sorority houses), and HPV vaccines were offered at the USM Health Clinic. The promotional strategy was the end product of the social marketing project. A campaign theme was used to help promote the message to the target audience (students). The theme for this social marketing project was *H.P.V. (Help Prevent the Virus)* to promote a strong positive message regarding HPV. The slogan was included on the brochures and emails.

Step 8. The evaluation of the social marketing project allows for the opportunity to measure the success of the project. This project's aim was to increase HPV vaccination rates, thus improving healthcare outcomes by decreasing HPV-related cancers, decreasing the number of genital warts, and reducing healthcare costs. Additionally, the evaluation of this project provided information to determine if education and researcher recommendations play a role in increasing HPV vaccination rates.

Step 9. The established budget to support this social marketing project included the product (project), price, place, and promotional strategies. The budget for the project included printing the brochures.

Step 10. The last step of the social marketing project was the implementation plan, which was “the process that turns marketing strategies and plans into marketing actions in order to accomplish strategic marketing objectives” (Lee & Kotler, 2011, p. 437). With a detailed account of the social marketing project, the implementation plan specified the what, when, and how much.

Pender's Health Promotion Model

Although social marketing strategies were utilized to promote a change in behavior with this capstone project, Pender's Health Promotion Model (HPM) also strongly supports the initiative of changing behavior to encourage health promotion and disease prevention. Pender developed the HPM, which is an holistic predictive model of health-promoting behavior for use in research and practice (Pender, Murdaugh, & Parsons, 2006). Pender's HPM supports the efforts of this capstone project of taking a proactive stance toward health promotion and disease prevention with the conviction that it is much better to experience healthy living and prevent disease than to let disease happen when it is avoidable and then try to cope with it (Pender et al., 2006). According to Pender et al. (2006), health promotion and disease prevention should be the primary focus in health care. When health promotion and prevention fail to prevent problems, then care of illness becomes the next priority.

The HPM is grounded in concepts found in Bandura's social learning theory and Fishbein's theory of reasoned action (Pender et al., 2006). The same assumptions of the HPM were used with the capstone project which reflect nursing and behavioral science perspectives:

1. Persons will seek to create conditions of living through which they can express their distinctive human potential.
2. Persons will be presented with opportunity to self reflect, including assessment of their own proficiencies.
3. Persons will value growth in ways seen as positive and achieve a particular balance between change and stability.
4. Persons will seek to vigorously govern their own behavior.

5. Persons will understand that their thoughts and cultural complexity interacts with the environment, both gradually transforming the environment and being transformed over time.
6. Healthcare professionals will ascertain a part of the relational environment, which influences persons throughout their lifespan.
7. Persons will appreciate how critical it is for the person and environmental characteristics to match their behavioral change (Pender, Murdaugh, & Parsons, 2002).

Pender's HPM is grounded on three categories that can be applied to this project. The first category is based on individual characteristics and experiences suggesting that past behavior has a direct effect on current health-promoting behavior. The second category focuses on being informed and changing behaviors accordingly. The variable for behavioral-specific knowledge and effect are significant to motivate change. Nursing actions can be used to modify or cause change in behavior. Understanding benefits and barriers of action are the behavior-specific cognitions and effect identified in Pender's HPM (Pender et al., 2006). Third, there must be a plan of action in order to change a behavior. There must be a commitment to a plan of action, even if obstacles occur, in order for a behavior to change (Pender et al., 2006). The end result of health-promoting behaviors should improve health.

The metaparadigm used by Pender et al. in the HPM is person, environment, health, and nursing. The *person* is the center of this model. The HPM considers that each person has characteristics and experiences that affect their behavior. The model insinuates that behaviors are learned. Family and community influence their learned behaviors. A person's *environment*, whether it is physical, interpersonal, or economical,

will have a direct influence on his or her behavior. Pender et al. stated *health* is important and is determined by how the person defines it. The *nursing* function is to raise awareness related to health-promoting behaviors, promote self-efficacy, enhance the benefits of change, control the environment to allow for behavior change, and manage the barriers to change (Pender et al., 2006).

Pender's (Pender et al., 2006) model was used to assess the students' knowledge of the HPV and identify barriers to health promotion. Interventions in the HPM focus on raising consciousness related to health-promoting behaviors, promoting self-efficacy, enhancing the benefits of change, controlling the environment to support change, and managing the barriers to change (Pender et al., 2006).

Doctor of Nursing Practice Essentials

The American Association of Colleges of Nursing's (AACN, 2006) Doctor of Nursing Practice (DNP) Essentials was used to support the framework of this capstone project. Implementation of this capstone project met the DNP Essentials of Doctoral Education for Advanced Nursing Practice through small group educational sessions, evaluation of the sessions, and offering a venue to change the behavior (see Appendix B). The capstone project was based on evidence-based research using organizational and system leadership to cause behavioral change to improve healthcare, analytical methods for evidence-based practice, information/systems technology for improvement of healthcare, healthcare policy as an advocacy, collaboration for improved population outcomes, clinical prevention using a specific population to improve health, and advanced nursing practice (AACN, 2006).

This capstone project served as a vehicle for the capstone manager to educate and change behaviors in students between the ages of 18 and 20 years on the Hattiesburg

Campus of USM. Small group educational sessions increased knowledge and behavioral outcomes of the students who participated in the program. The capstone manager served as the leader to engage and educate stakeholders to promote a positive outcome.

Objectives

This capstone project consisted of three objectives (behavior, knowledge, and belief) used to promote change (see Table 1). The goal of this capstone project using social marketing strategies was to increase knowledge regarding HPV and HPV-related cancers and incorporating provider recommendations to increase the number of students between the ages of 18 and 20 years who received the HPV vaccine on the Hattiesburg Campus of USM.

Table 1

Objectives Relating to Target Audience Using Social Marketing Strategies

Objective	Target audience
Behavior	Students ages 18 to 20 will attend the education session on HPV and receive the HPV vaccine.
Knowledge	Increase awareness of HPV and HPV-related cancers using social marketing strategies by providing education sessions and using pretests and posttests to evaluate.
Belief	Students will accept that the HPV vaccine can improve healthcare outcomes.
Goals	Increase HPV vaccination rates by increasing awareness of HPV and HPV-related cancers.
Objective	Increase the HPV vaccination rates among students between the ages of 18 and 20 years on the Hattiesburg Campus of USM.

CHAPTER II

METHODOLOGY

The purpose of this capstone project was to promote behavioral changes in students on the Hattiesburg Campus of USM by using social marketing strategies. Education and provider recommendations for the human papillomavirus (HPV) vaccine for students are critical if the vaccine rates are to increase. The capstone manager implemented small group education sessions in two different student housing units for students between the ages of 18 and 20 years, including males and females, and provided a venue for students to receive the HPV vaccine. The purpose of the small group educational sessions was to increase knowledge and promote health by informing the group about HPV, HPV-related cancers, and the HPV vaccine. Social marketing and Pender Health Promotion Model (HPM) guided the project. Following the educational sessions, the capstone manager offered H.P.V. (Help Prevent the Virus) month in order to achieve positive behavioral changes. At the completion of the project, data were used to help determine if the education sessions and the use of social marketing strategies had a positive impact in the number of vaccinations given at the USM Health Clinic. Data collected were reviewed and coded for entry into SPSS.

Setting

The setting for this capstone project was USM Hattiesburg Campus student housing units and the USM Health Clinic. The capstone project intervention consisted of three educational sessions and the H.P.V. month. Two educational sessions were held in the common area at Hillcrest Dormitory, which houses males and females, and one session was held in the chapter room at the Kappa Delta sorority house. The HPV vaccines were available at the USM Health Clinic.

Population

The population for the capstone project was a random sample of students, males and females, between the ages of 18 and 20 years on the USM Hattiesburg Campus. The HPV vaccine is recommended for both males and females regardless of their sexual orientation (CDC, 2012a). Although the HPV vaccine is recommended for both males and females at 11 and 12 years of age, catch-up vaccination is recommended between the ages of 13 and 26 years for those that did not get the vaccines or did not get all of the doses at the earlier age.

Data Collection Procedure

Participants were recruited for the capstone project after obtaining approval from the Institutional Review Board (IRB) at USM, the USM Health Clinic, and Residential Housing (see Appendices C, D, E, and F, respectively). Participants were recruited through the residential assistant (RA). The project manager contacted the RA and requested permission and dates to present the educational session on HPV to students between the ages of 18 and 20 years. The RA sent a mass email inviting students to attend the education session. Participation was on a voluntary basis.

Before each education session, the project manager gave an introductory oral presentation (see Appendix G) explaining the purpose of the session, that participation was voluntary, and how confidentiality would be maintained for research purposes. After the introductory oral presentation, informed consent (see Appendix H) was obtained from each participant. Once informed consent was obtained, each participant completed a demographic survey (see Appendix I) and completed a pretest (see Appendix J) for the purpose of obtaining baseline knowledge regarding HPV. The demographic survey collected information regarding age, race, gender, insurance, and if the participant ever

had sex. The pretest assessed participants' knowledge of HPV. The completion of the pretest took approximately 10 minutes and was collected from each participant by the project manager, placed in a labeled folder, and placed in a sealed manila envelope to maintain confidentiality.

The educational session lasting approximately 20 minutes was facilitated by the project manager. Focus group education is a helpful tool to collect data for understanding the opinions of individuals, implementing change, and gaining valuable information of a target group (McLafferty, 2004). According to Rodriguez (2013), educating patients, parents, and providers about HPV and the HPV vaccine is essential in order to successfully increase vaccination rates. After the educational session, the posttest (see Appendix J) was given to assess knowledge. The completion of the posttest took approximately 10 minutes and was collected from each participant by the project manager and placed in a labeled folder, which was placed in a sealed manila envelope to maintain confidentiality. The project manager allowed approximately 10 minutes for the question-and-answer period among the participants. The first education session was held on June 26, 2014, at a campus dormitory with 12 students in attendance. Seven students attended the second education session held on June 30, 2014, at a sorority house. The third education session was held on June 30, 2014, at the same dormitory as the first session, and there were 10 students in attendance.

The pretest and posttest were exactly alike and composed of 15 *yes* or *no* questions. An expert panel reviewed and answered the questions on the pretest/posttest for clarity and readability. The expert panel consisted of the clinical director, a nurse, and a professor. Virginia Crawford, MD, is the medical director at the USM Health Clinic with more than 20 years of experience in student health. Cindy Heldt is a

registered nurse at the USM Health Clinic with > 15 years of experience in student health. Melanie Gilmore, FNP and assistant professor with the USM College of Nursing, practices in public health.

The month of July was dedicated as H.P.V. month for the students to come to the USM Health Clinic to receive the HPV vaccine. At the beginning of July, the RA sent a mass email to all student residents reminding them that the HPV vaccine was available in the USM Health Clinic. Once at the clinic, the participants had to sign a consent form (see Appendix K) giving the project manager permission to use information obtained from HPV form. The HPV form was completely anonymous, and there were no identifying data on the form. The HPV form collected information regarding the participants' age, which dose of the HPV vaccine was to be given on the day of service, and where the participant heard about the HPV/vaccine (see Appendix L). After completion of the form, the form was placed in a folder labeled as "HPV Forms" which was kept in the medication supply cabinet in the injection room. Confidentiality was maintained due to no one except the nurse giving the injection had access to the injection room. On July 31, 2014, the capstone manager collected the HPV form folder.

Design

The evaluation of the educational session component of the capstone project on HPV for students between the ages of 18 and 20 years on the Hattiesburg Campus of USM used a pretest and posttest design. A pretest and posttest design was used to evaluate knowledge attainment following the evidence-based HPV educational program. Formative process measures included an oral presentation to inform participants of the program, inform consent to participate, and completion of a demographic survey.

Demographic Data

The demographic survey asked participants to give their age, gender, and race. Further, the survey asked the participant to choose a category regarding insurance status and sex.

Pretest/Posttest

The educational session was evaluated by assessing students' knowledge of HPV through a pretest/posttest design that measured knowledge of HPV, epidemiology, and prevention of the disease. The pretest and posttest consisted of 15 *yes* or *no* questions.

Program Evaluation

H.P.V. (Help Prevent the Virus) month was designed to evaluate the evidence-based education intervention. The month following the intervention was set aside for the HPV participants to come to the USM Health Clinic to receive the HPV vaccine. The participants gave the date, their age, and chose from categories regarding dose of vaccine, and how they heard about HPV/vaccine on the HPV form.

Ethical and Human Subject Issues

The University of Southern Mississippi's Institutional Review Board (IRB) approved the capstone project that informs students about HPV, the risks of HPV-related cancers, and the prevention of HPV by the use of social marketing strategies (see Appendix C). The risk to participants was minimal in this capstone project. The participants were volunteers and could withdraw at any time without penalty. Placing the education session data collection forms in sealed envelopes protected the participants' confidentiality and anonymity. Access to this collected data was available to the project leader only. The HPV vaccine data collection forms kept in a labeled folder in the medication supply cabinet protected the participants' confidentiality and anonymity.

Access to this collected data was available to the nurse that gave the vaccine and project leader.

Data Analysis

The data from this capstone project included demographic data as well as the pretest/posttest that were analyzed using a paired *t* test to assess the effectiveness of the intervention on HPV knowledge. The evaluation of the H.P.V. month was analyzed using descriptive statistics designed to measure the number of vaccines given.

CHAPTER III

RESULTS

The aim for the project was to determine if educating students about the human papillomavirus (HPV) and HPV-related cancers would help change behavior with regard to obtaining the HPV vaccine. The educational sessions were held in student housing units. Two were sessions held at one of the campus dormitories, and one session was held at one of the sorority houses. The group email was critical to the success of the social marketing educational event, and the educational sessions were well received as evidenced by the number of participants. H.P.V. (Help Prevent the Virus) brochures were given out after the educational session to help reiterate the facts about HPV and the vaccine (see Appendix M). Data were collected from June 2014 through July 2014. A demographic survey was used to determine age, sex, gender, and if the participant had ever had sex. A pretest was administered prior to the educational session to record participants' knowledge about HPV, and a posttest was administered to evaluate knowledge following the session. Participants ($N = 25$) in the study were students between the ages of 18 and 20 years attending classes on the Hattiesburg Campus of USM. A total of 29 students signed up to participate in the study, but only 25 participants met the age requirements. Graphs and tables are included to present the results of this project.

Demoographics of the Sample

Analysis of the demographic information from the participants indicated 60% of the participants were African American and 36% were Caucasian. The smallest portion was Asian, representing 4%. There were 14 female and 11 male participants between the ages

of 18 and 20 years. Most participants (76%) reported having private insurance, and 84% reported they had had sexual encounters (see Table 2).

Table 2

Frequencies and Percentages of Demographic Variables

Variable	<i>f</i>	%
Age (years)		
18	3	12.0
19	12	48.0
20	10	40.0
Total	25	100.0
Gender		
Male	11	44.0
Female	14	56.0
Total	25	100.0
Race		
African American	15	60.0
Caucasian	9	36.0
Asian	1	4.0
Total	25	100.0
Insurance		
Private	19	76.0
No	3	12.0
Not Sure	3	12.0
Total	25	100.0
Ever had sex		
Yes	21	84.0
No	4	16.0
Total	25	100.0

The pretest data were used to assess participants' knowledge of HPV (see Table 3). Prior to the educational sessions, the majority of the participants reported they had never heard of HPV or did not know what it was. Most participants understood that men

and women could get HPV and not be aware of the infection. Eighty-four percent of the participants knew that condoms did not always protect against HPV. Participants ($n = 15$) knew that HPV could not only be contracted by sexual intercourse but by oral sex ($n = 22$) as well and may not be cured with antibiotics ($n = 18$). The majority (56%) of the participants reported never being offered the HPV vaccine but would take the HPV vaccine if their provider recommended it. The data regarding previous immunization with HPV vaccine were analyzed using descriptive statistics. Four of the participants had previously taken one dose of the vaccine, and 3 participants had received all 3 doses of the vaccine.

Table 3

Frequencies and Percentages of Pretest Variables

Variable	<i>f</i>	%
Pr1 I have heard of HPV.		
Yes	10	40.0
No	15	60.0
Total	25	100.0
Pr2 I have heard of HPV but do not really know what it means.		
Yes	14	56.0
No	11	44.0
Total	25	100.0
Pr3 Only women can get HPV.		
Yes	1	4.0
*No	23	92.0
Left blank	1	4.0
Total	25	100.0

Table 3 (continued).

Variable	<i>f</i>	%
Pr4 Men can get HPV.		
*Yes	21	84.0
No	4	16.0
Total	25	100.0
Pr5 Condoms always protect you from HPV.		
Yes	3	12.0
*No	21	84.0
Left Blank	1	4.0
Total	25	100.0
Pr6 Females may be infected with HPV and not know it.		
*Yes	23	92.0
No	2	8.0
Total	25	100.0
Pr7 Males may be infected with HPV and not know it.		
*Yes	23	92.0
No	2	8.0
Total	25	100.0
Pr8 A person can only get HPV by having sexual intercourse.		
Yes	10	40.0
*No	15	60.0
Total	25	100.0
Pr9 HPV infection is rare among men.		
Yes	6	24.0
*No	19	76.0
Total	25	100.0
Pr10 If you get HPV, you will have it for life.		
*Yes	13	52.0
No	12	48.0
Total	25	100.0

Table 3 (continued).

Variable	<i>f</i>	%
Pr11 HPV may be spread from person to person through oral sex.		
*Yes	22	88.0
No	3	12.0
Total	25	100.0
Pr12 HPV can be cured with antibiotics.		
Yes	6	24.0
*No	18	72.0
Left Blank	1	4.0
Total	25	100.0
Pr13 HPV vaccine has never been offered to me.		
Yes	10	40.0
No	14.0	56.0
Left Blank	1	4.0
Total	25	100.0
Pr15 If your healthcare provider recommends the HPV vaccine, will you take it?		
Yes	21	84.0
No	2	8.0
Left Blank	2	8.0
Total	25	100.0

Note. Asterisk indicates correct answers to knowledge questions.

The posttest data in Table 4 was used to evaluate any improvement in participants' knowledge of HPV. After the educational session, the number of participants knowing that men and women could get HPV and not be aware of the infection increased by 8%. Only one person still thought that condoms would always protect from HPV. The data revealed a 12% increase in participants' knowledge that HPV can be contracted by oral sex. More than one half of the participants said the HPV

vaccine had never been offered, but 100% reported they would take the HPV vaccine if their provider recommended it.

Table 4

Frequencies and Percentages of Posttest Variables

Variable	<i>f</i>	%
Po1 I have heard of HPV.		
Yes	7	28.0
No	18	72.0
Total	25	100.0
Po2 I have heard of HPV but do not really know what it means.		
Yes	1	4.0
No	24	96.0
Total	25	100.0
Po3 Only women can get HPV.		
Yes	1	4.0
*No	24	96.0
Total	25	100.0
Po4 Men can get HPV.		
*Yes	25	100.0
No	0	0.0
Total	25	100.0
Po5 Condoms always protect you from HPV.		
Yes	1	4.0
*No	24	96.0
Left Blank	1	4.0
Total	25	100.0
Po6 Females may be infected with HPV and not know it.		
*Yes	24	96.0
No	1	4.0
Total	25	100.0

Table 4 (continued).

Variable	<i>f</i>	%
Po7 Males may be infected with HPV and not know it.		
*Yes	25	100.0
No	0	0.0
Total	25	100.0
Po8 A person can only get HPV by having sexual intercourse.		
Yes	9	36.0
*No	16	64.0
Total	25	100.0
Po9 HPV infection is rare among men.		
Yes	2	8.0
*No	23	92.0
Total	25	100.0
Po10 If you get HPV, you will have it for life.		
*Yes	20	80.0
No	5	20.0
Total	25	100.0
Po11 HPV may be spread from person to person through oral sex.		
*Yes	25	100.0
No	0	0.0
Total	25	100.0
Po12 HPV can be cured with antibiotics.		
Yes	1	4.0
*No	23	92.0
Left blank	1	4.0
Total	25	100.0
Po13 HPV vaccine has never been offered to me.		
Yes	7	28.0
No	18	72.0
Total	25	100.0

Table 4 (continued).

Variable	<i>f</i>	%
Po15 If your healthcare provider recommends the HPV vaccine, will you take it?		
Yes	25	100.0
No	0	0.0
Total	25	100.0

Note. Asterisk indicates correct answers to knowledge questions.

Evaluation Plan

The goal of the intervention was to educate participants about HPV and HPV-related cancer using a social marketing framework. The pretest instrument was administered to identify demographics, behaviors, and understanding before the educational session. The posttest was used to evaluate changes in knowledge level following the educational session. The H.P.V. month was scheduled to allow participants to voluntarily come to the USM Health Clinic to request the HPV vaccine. The total number of HPV vaccines given in the month of July at the USM Health Clinic was compared to the total number of HPV vaccines administered the previous 6 months (January-June) at the clinic. An increase in the number of HPV vaccines administered was the desired outcome.

CHAPTER IV

DISCUSSION

According to researchers, healthcare professionals' failure to recommend the HPV vaccine is among the leading barriers concerning low HPV vaccination rates (Ylitalo et al., 2013). The purpose of this study was to increase knowledge of the human papillomavirus (HPV) and HPV-related cancers and, in turn, increasing the number of HPV vaccines given on the Hattiesburg Campus of USM. The educational session was an informal and nonthreatening way to inform the group about HPV. A total of three educational sessions were offered. The H.P.V. (Help Prevent the Virus) brochures were provided to reiterate facts about HPV and HPV-related cancers. Most participants participated in the question-and-answer period at the end of the session. The participants had one month to request the vaccine.

Interpretation of Results

The findings of the capstone project indicated that the participants benefited from participating in the educational sessions. The evaluation of data showed positive knowledge changes in each area of the posttest. The posttest was higher than the pretest (see Table 5). This increase was seen in the analysis of the data generated by using a paired *t* test, $t(24) = 3.00, p = .006$. The difference was statistically significant.

Table 5

Means and Standard Deviations on the Pretest/Posttest

Test	<i>M</i>	<i>SD</i>
Pretest	7.92	1.85
Posttest	9.20	1.00

Data analysis after the intervention revealed increasing knowledge about HPV, and recommending the HPV vaccine has the potential to change behavior regarding HPV. At the end of the H.P.V. month, there was an increase in the number of students who received the vaccine at the USM Health Clinic. Data collected for H.P.V. month were analyzed using descriptive statistics. A total of 9 students came to the clinic and requested the HPV vaccine, but only 8 participants met the requirements (see Figure 1).

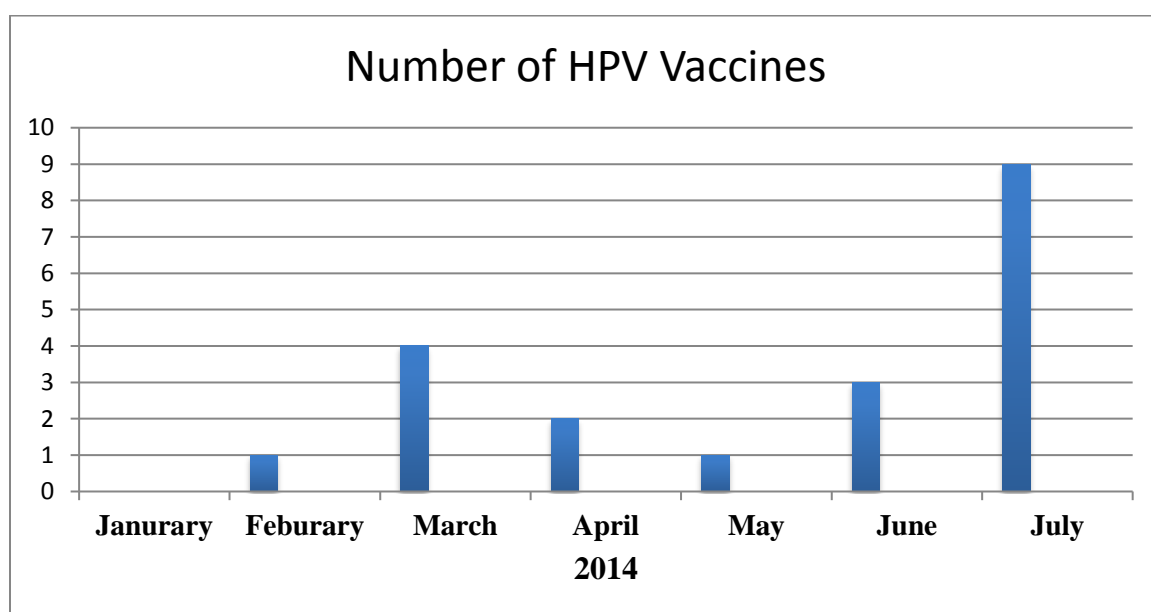


Figure 1. Total number of vaccines from January-June 2014 compared to July 2014 (H.P.V. Month) at the USM Health Clinic.

Participants ($n = 8$) receiving the HPV vaccine were students from the USM Hattiesburg Campus between the ages of 18 and 20 years. The 8 participants who participated in the study reported hearing about HPV in an educational session. The one who was omitted reported hearing about HPV from a group email. Seven participants initiated the vaccine, and one participant took the second dose. One 18-year-old, four 19-year-olds, and three 20-year-olds participated in H.P.V. month.

Limitations

Limitations identified during the evaluation of this project were time constraints and a small sample size that used self-reported data. The project manager had a narrow window of time to set up educational sessions in order to have an H.P.V. month. The educational sessions were held in the middle of the summer when most students were not on campus which limited access to the population sample and, therefore, may not be representative of the University's population.

Implications for Practice, Research, and Education

HPV is the most common STD in the United States. According to Fontenot et al. (2014), 50% of new HPV infections are individuals between the ages of 15 and 24 years. Research states that the primary age for the HPV vaccine is between the ages of 9 and 11 years and prior to the first sexual encounter. However, there is a secondary focus to catch up vaccines through the age of 26 years. Research supports vaccinating against HPV even if already sexually active to prevent new infections. Many researchers suggest that vaccination rates are low due to lack of provider recommendations. This project manager postulated that when the vaccine is understood and recommended, it is more likely to be accepted. Findings from this project revealed 100% of the participants would take the HPV vaccine if recommended by their healthcare provider. Implications for future

practice should include providers capitalizing on each patient encounter to educate students about HPV and recommend the HPV vaccine. Additionally, the project manager would continue to offer educational sessions on HPV and HPV-related cancers.

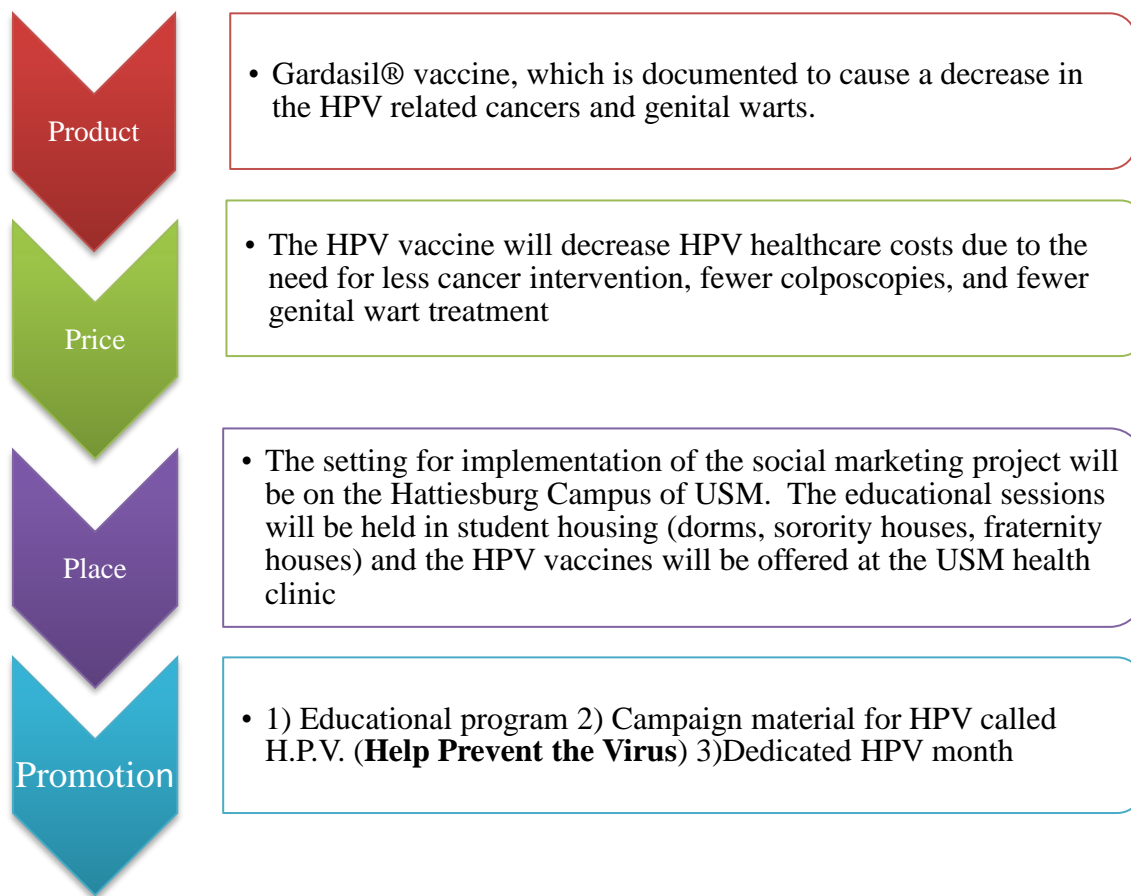
Conclusions

Social marketing and Pender's HPM are valid frameworks for use in health care to help change behaviors of individuals. The social marketing strategies used to increase HPV vaccination rates on the Hattiesburg Campus of USM were effective and could be replicated for other college campuses. Increasing HPV vaccination rates will improve healthcare outcomes; therefore, it is incumbent upon healthcare providers to educate and recommend the HPV vaccine. Strategies to increase HPV vaccination rates include (a) educating healthcare professionals and the general public about the importance of vaccinating adolescent males and females and (b) ensuring that underserved populations are informed about and given access to the vaccine (Moon, 2013). DNP graduates are in a unique position to be influential in implementing programs that educate about HPV and HPV-related cancer to increase vaccination rates.

APPENDIX A

FRAMEWORK FOR SOCIAL MARKETING: THE FOUR Ps

PRODUCT > PRICE > PLACE > PROMOTION



APPENDIX B

DNP ESSENTIALS AND CLINICAL IMPLICATIONS FOR THIS PROJECT

DNP Essentials

Essential I:
Scientific Underpinning for
Practice

Essential II:
Organizational and Systems
Leadership for Quality
Improvement and Systems
Thinking

Essential III:
Clinical Scholarship and Analytical
Methods for Evidence-Based
Practice

Essential IV:
Information Systems/Technology
and Patient care Technology

Essential V:
Healthcare Policy
for Advocacy in Health Care

DNP Capstone Clinical Implications

With the integration of social marketing strategies and Pender's HPM, this project will be used to increase knowledge about HPV and HPV-related cancers. Using these two frameworks will promote positive changes and an understanding of how Gardasil® is used to prevent HPV. The evidence-based research will allow the nurse practitioner to improve the overall health of the target population.

The project will offer new approaches for meeting healthcare needs of the target population by using social marketing strategies offering HPV education, thus raising awareness to improve the health of the target population. Increasing the number of HPV vaccines given on USM Hattiesburg Campus will improve overall health of the campus.

This project will disseminate findings from evidence-based research to improve HPV outcomes of students between the ages of 18 and 20 years on the USM Hattiesburg Campus.

The capstone project manager utilized information systems and technology to review literature through data searches and designed and implemented a program using social marketing strategies to improve HPV outcomes.

The Capstone project manager demonstrated leadership skills in developing and implementing an intervention to facilitate change for a target population and incorporating key stakeholders.

Essential VI:
Interprofessional Collaboration for
Improving Patient and Population
Health Outcomes

For the project manager to function as a change agent, key stakeholders were identified and collaborated with within the organization to help increase the number of HPV vaccines received on the USM Hattiesburg Campus.

Essential VII:
Clinical Prevention and Population
Health for Improving the Nation's
Health

The project allowed the project manager to promote health and improve outcomes by offering education sessions about HPV and HPV-related cancers and a venue to receive the vaccine to prevent HPV.

Essential VIII:
Advanced Nursing Practice

Utilized advanced nursing practice to implement education and prevention strategies for HPV and HPV-related cancers for students between the ages of 18 and 20 years on the USM Hattiesburg Campus.

Source: American Association of Colleges of Nursing, 2006

APPENDIX C

IRB APPROVAL LETTER



INSTITUTIONAL REVIEW BOARD

118 College Drive #5147 | Hattiesburg, MS 39406-0001 Phone: 601.266.5997 |
Fax: 601.266.4377 | www.usm.edu/research/institutional-review-board

NOTICE OF COMMITTEE ACTION

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

The risks to subjects are minimized.

The risks to subjects are reasonable in relation to the anticipated benefits.

The selection of subjects is equitable.

Informed consent is adequate and appropriately documented.

Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.

Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.

Appropriate additional safeguards have been included to protect vulnerable subjects.

Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the “Adverse Effect Report Form”.

If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: 14050601
PROJECT TITLE: Increasing HPV Vaccination Rates
Using Social Marketing Strategies
PROJECT TYPE: New Project
RESEARCHER(S): Sharon Catledge
COLLEGE/DIVISION: College of Nursing
DEPARTMENT: Systems Leadership
FUNDING AGENCY/SPONSOR: N/A
IRB COMMITTEE ACTION: Expedited Review Approval
PERIOD OF APPROVAL: 05/06/2014 to 05/05/2015

Lawrence A. Hosman, Ph.D.
Institutional Review Board

APPENDIX D

THE UNIVERSITY OF SOUTHERN MISSISSIPPI CLINIC PERMISSION LETTER




THE UNIVERSITY OF SOUTHERN MISSISSIPPI
HEALTH SERVICES CENTER

May 5, 2014

To whom it may concern:

This letter is to confirm approval for Sharon Catledge, FNP to conduct her graduate research at the Southern Miss student health center. The research topic concerning HPV vaccine will benefit our patient population. Thank you for your attention to this matter.

Sincerely,



Virginia M. Crawford, M.D.

Box 5066 • Hattiesburg, Mississippi • 39406 5066

APPENDIX E
INFORMATIONAL LETTER

TO: Justin Long, Associate Director of Residence Living
FROM: Sharon Catledge, MSN, FNP-C
RE: Educational Program/Health & Wellness

Mr. Long, I have developed an educational program on Human papillomavirus (HPV), and I would like to present this program to students between the ages of 18 and 20 years living on the Hattiesburg Campus of The University of Southern Mississippi. The program will highlight HPV, HPV-related cancers, and HPV prevention.

Please share this information with your RAs. They can contact me at 601-266-5390 or sharon.catledge@usm.edu to set up a time for the program.

Respectfully submitted,

APPENDIX F

RESIDENCE LIFE PERMISSION LETTER



THE UNIVERSITY OF
SOUTHERN MISSISSIPPI.

DEPARTMENT OF RESIDENCE LIFE 118 College Drive #5064 | Hattiesburg, MS 39406-0001 Phone: 601.266.4783 | Fax: 601.266.4891 | reslife@usm.edu | www.usm.edu/residence-life

April 24, 2014 To Whom It May Concern:

I have met with Sharon Catledge regarding her capstone project and a way to integrate it within our residence halls. We have a passion for educational programming in our department and are happy to agree to allow her to present to our residential students. If you have any questions, please contact me at 601.266.4792 or via email at Justin.Long@usm.edu.

Sincerely,

Justin Long Associate Director

APPENDIX G

ORAL PRESENTATION

Good evening. I am Sharon Catledge, a certified family nurse practitioner and Doctor of Nursing Practice student at The University of Southern Mississippi. According to the Centers for Disease Control and Prevention, human papillomavirus is the most common sexually-transmitted infection. Approximately 20 million Americans between the ages of 15 and 49 years currently have the human papillomavirus (HPV) with more than 6.2 million new HPV infections estimated to occur each year; yet, HPV vaccination rates remain relatively low.

The goal of this project is to increase the number of students between the ages of 18 and 20 years receiving the HPV vaccination. The program will raise awareness of HPV and increase knowledge about HPV and HPV-related cancers.

You will be administered a pretest to assess your knowledge of HPV and HPV-related cancers. After taking the pretest, the test will be returned to the project director and placed in a sealed envelope where only the presenter will have access. The educational session will then be presented and will consist of an oral presentation designed to enhance knowledge of HPV and HPV-related cancers followed by a question-and-answer session. At the end of the program, you will be administered a posttest to assess your knowledge gained from the program. The posttest will be returned to the project director and placed in a sealed envelope where only the presenter will have access. The pretest/posttest will be used to collect data, kept with the project director up to 6 months, and then discarded.

The project has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Participation

in this project is completely voluntary, and participants may withdraw from the study at any time without penalty or prejudice. Any questions or concerns about rights as a research participant should be directed to the chair of the Institutional Review Board at The University of Southern Mississippi 601-266-5997. Any questions regarding the research should be directed to the following faculty:

Sharon Catledge, MSN, FNP-C
The University Of Southern Mississippi
118 College Drive #5066
Hattiesburg, MS 39402
601-266-5390
sharon.catledge@usm.edu

or Melanie Gilmore, PhD, FNP-C, Project Chair
Assistant Professor, School of Nursing
118 College Drive #5095
Hattiesburg, MS 39402
601-266-6846
melanie.gilmore@usm.edu

APPENDIX H

INSTITUTIONAL REVIEW BOARD SHORT FORM CONSENT

Today's date:		
Project Information		
Project Title:		
Principal Investigator:	Phone:	Email:
College:	Department:	
CONSENT TO PARTICIPATE IN RESEARCH		
Participant's Name: _____		
<p>Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.</p> <p>The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.</p> <p>Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator using the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.</p>		
_____	_____	
Research Participant	Person Explaining the Study	
_____	_____	
Date	Date	

APPENDIX I

DEMOGRAPHIC INFORMATION

Age (years): ____ Gender: Male ____ Female ____ Race: _____

Do you have insurance? (Check one)

____ Private ____ Other ____ Not sure ____ No

Have you had sexual intercourse?

____ Yes ____ No

APPENDIX J
PRETEST/POSTTEST

HPV Knowledge:

- | | |
|---|------------------|
| 1. I have heard of HPV. | YES or NO |
| 2. I have heard of HPV but do not really know what it means. | YES or NO |
| 3. Females can get HPV. | YES or NO |
| 4. Males can get HPV. | YES or NO |
| 5. Condoms always protect you from HPV. | YES or NO |
| 6. Females may be infected with HPV and not know it. | YES or NO |
| 7. Males may be infected with HPV and not know it. | YES or NO |
| 8. A person can only get HPV by having sexual intercourse. | YES or NO |
| 9. HPV infection is rare among men. | YES or NO |
| 10. If you get HPV, you will you have it for life. | YES or NO |
| 11. HPV may be spread from person-to-person through oral sex. | YES or NO |
| 12. HPV can be cured with antibiotics. | YES or NO |
| 13. HPV vaccine has never been offered to me. | YES or NO |
| 14. Have you taken the HPV vaccine? | |
| Only 1 dose | YES or NO |
| 2 doses | YES or NO |
| Received all three doses | YES or NO |
| 15. If your healthcare provider recommends the HPV vaccine, will you take it? | YES or NO |

APPENDIX K

INSTITUTIONAL REVIEW BOARD LONG FORM CONSENT

Today's date:		
Project Information		
Project Title:		
Principal Investigator:	Phone:	Email:
College:	Department:	
RESEARCH DESCRIPTION		
<p>1. Purpose: [Describe purpose of the investigation, why it is being performed and what use may be made of the results.]</p> <p>2. Description of Study: [Describe the experimental procedure(s), including duration, amount of time required of the participants, number of participants, restrictions on normal activities, invasive techniques etc.]</p> <p>3. Benefits: [Describe any benefits that may occur to the participant or to others as a result of participation in the study, including all benefits or payments.] If the potential for medical injury exists, identify treatment procedures or the absence thereof</p> <p>4. Risks: [Describe any known physical, psychological, social, or financial research-related risks, inconveniences, or side effects (expected and potential) and indicate what measures will be taken to minimize them.]</p> <p>5. Confidentiality: [Describe confidentiality procedures. Detail the extent, if any, to which confidentiality of records identifying the participant will be protected.]</p> <p>6. Alternative Procedures: [Describe alternatives to participation that will be presented to participation in the study (generally another accepted course of therapy or diagnostic procedure etc.).]</p> <p>7. Participant's Assurance: This project has been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Manager of the IRB at 601-266-5997. Participation in this project is completely voluntary, and participants may withdraw from this study at any time without penalty, prejudice, or loss of benefits. Any questions about the research should be directed to the Principal Investigator using the contact information provided in Project Information Section above.</p>		

CONSENT TO PARTICIPATE IN RESEARCH

Participant's Name:

Consent is hereby given to participate in this research project. All procedures and/or investigations to be followed and their purpose, including any experimental procedures, were explained. Information was given about all benefits, risks, inconveniences, or discomforts that might be expected.

The opportunity to ask questions regarding the research and procedures was given. Participation in the project is completely voluntary, and participants may withdraw at any time without penalty, prejudice, or loss of benefits. All personal information is strictly confidential, and no names will be disclosed. Any new information that develops during the project will be provided if that information may affect the willingness to continue participation in the project.

Questions concerning the research, at any time during or after the project, should be directed to the Principal Investigator with the contact information provided above. This project and this consent form have been reviewed by the Institutional Review Board, which ensures that research projects involving human subjects follow federal regulations. Any questions or concerns about rights as a research participant should be directed to the Chair of the Institutional Review Board, The University of Southern Mississippi, 118 College Drive #5147, Hattiesburg, MS 39406-0001, (601) 266-5997.

Include the following information only if applicable otherwise delete this entire paragraph before submitting for IRB approval: The University of Southern Mississippi has no mechanism to provide compensation for participants who may incur injuries as a result of participation in research projects. However, efforts will be made to make available the facilities and professional skills at the University. Participants may incur charges as a result of treatment related to research injuries. Information regarding treatment or the absence of treatment has been given.

Research Participant

Person Explaining the Study

Date

Date

APPENDIX L

HUMAN PAPILLOMAVIRUS VACCINATION FORM

Date: _____

Age: _____

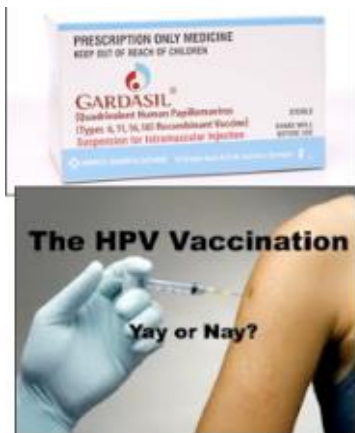
Which dose of the HPV are you receiving today (circle one): 1 2 3

Where did you hear about the HPV vaccine? (Check all that apply):

 Attended an educational session on HPV. Saw an HPV (Help Prevent the Virus) poster. Saw an HPV (Help Prevent the Virus) flier. Other (please specify): _____

APPENDIX M

HUMAN PAPILLOMAVIRUS BROCHURE



About the Gardasil Vaccine
 Gardasil is the only HPV vaccine that helps protect against 4 types of HPV.

Who should get the Gardasil Vaccine
 CDC recommends vaccination for young women ages 13 through 26 and young men ages 13 through 21 who have not already been vaccinated. The CDC states that GARDASIL can be given to young men ages 22 through 26, if they and their doctor decide it's right for them.



USM STUDENT HEALTH CENTER

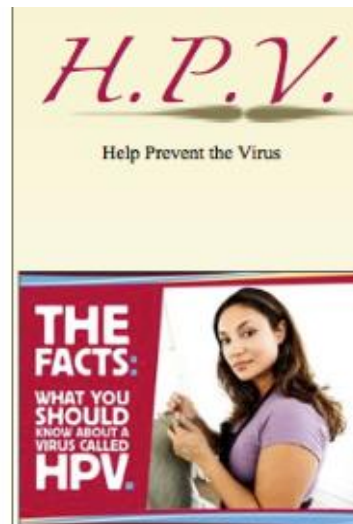
USM staff is ready to assist you with any of your healthcare needs including your HPV vaccinations.

USM health clinic is made up of 2 physicians and 1 FNP-C

Office hours M-F 8-5

Walk-ins are welcome

118 COLLEGE DR. #5066
 HATTIESBURG, MS
 601-266-5390



↑ HPV ↓

Genital human papillomavirus (also called HPV) is the most common sexually transmitted infection (STI).



Getting the first dose of GARDASIL is the first step to helping to protect against certain diseases caused by human papillomavirus (HPV).

GARDASIL is given as 3 injections over 6 months, the second dose comes 2 months after the first dose, and the third dose comes 6 months after the first dose.

Help Prevent the Virus

How do you get HPV?

HPV is passed from person to person by skin to skin contact. It is important to understand it does not have to be penetrative sex to pass on the virus.

Treatment and Cures for HPV

There is presently no cure for HPV. GARDASIL vaccine help to prevent HPV.

Ways HPV is passed on:

- Vaginal Intercourse
- Oral Sex
- Anal Sex



HPV Types can lead to:

- Cervical Cancer
- Vulvar Cancer
- Oral Cancer
- Penile Cancer
- Genital Warts

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