

12-2017

# Increasing the Vaccination Rates of Adolescent Males 11 to 18 Years of Age in an Urban Pediatric Clinic: A Quality Improvement Project

Victoria Fadare

*University of the Incarnate Word, vicky2fad@yahoo.com*

Follow this and additional works at: [https://athenaeum.uiw.edu/uiw\\_dnp](https://athenaeum.uiw.edu/uiw_dnp)



Part of the [Nursing Commons](#)

---

## Recommended Citation

Fadare, Victoria, "Increasing the Vaccination Rates of Adolescent Males 11 to 18 Years of Age in an Urban Pediatric Clinic: A Quality Improvement Project" (2017). *Doctor of Nursing Practice*. 23.  
[https://athenaeum.uiw.edu/uiw\\_dnp/23](https://athenaeum.uiw.edu/uiw_dnp/23)

This Doctoral Project is brought to you for free and open access by The Athenaeum. It has been accepted for inclusion in Doctor of Nursing Practice by an authorized administrator of The Athenaeum. For more information, please contact [athenaeum@uiwtx.edu](mailto:athenaeum@uiwtx.edu).

INCREASING THE VACCINATION RATES OF ADOLESCENT MALES 11 TO 18 YEARS  
OF AGE IN AN URBAN PEDIATRIC CLINIC. A QUALITY IMPROVEMENT PROJECT

by

VICTORIA FADARE

APPROVED BY DNP PROJECT ADVISOR / CLINICAL MENTOR:

---

Holly DiLeo PhD, RN, FNP-BC

---

Patricia Hughes-Juarez MD

---



### Acknowledgments

First and foremost, I give thanks and praise to my God almighty for sustaining me and seeing me through my doctoral studies. I would also like to thank my amazing husband Eniola Delano for his constant support and encouragement throughout this journey. In addition, I would like to thank my son Nathan and my mother who have shown me constant love and support. I would like to thank all of the faculty members at the University of the Incarnate Word, who have made my dream a reality. Dr. DiLeo, thank you for your dedication and invaluable feedback provided throughout this project. Dr. Patricia Juarez, thank you for serving as my project mentor and your positive feedback on my scholarly project.

## Table of Contents

LIST OF TABLES .....	6
LIST OF FIGURES .....	7
LIST OF APPENDICES .....	8
ABSTRACT .....	9
STATEMENT OF THE PROBLEM .....	11
Background and Significance .....	12
PRACTICE ASSESSMENT .....	13
PROBLEM IDENTIFICATION .....	14
Readiness for Change and Stakeholder Engagement .....	14
PROJECT IDENTIFICATION .....	14
Purpose .....	14
Interventions .....	15
Objectives .....	15
Rationale .....	16
SUMMARY AND STRENGTH OF THE EVIDENCE .....	16
METHODS .....	19
Instruments .....	19
Project Design .....	19
Setting and Population .....	20
Project Intervention .....	21

## Table of Contents—Continued

EVALUATION.....	23
Variables .....	23
Barriers and Facilitators .....	23
Ethical Considerations .....	25
RESULTS .....	25
Patient Demographics .....	25
Healthcare Provider Knowledge .....	27
Provider Willingness to Recommend .....	27
Documentation of HPV Vaccine Recommendation .....	28
Initiation of HPV Vaccine .....	28
Pre- and Post-Intervention Results.....	29
DISCUSSION .....	30
Limitations .....	30
Recommendations.....	31
Implications for Practice .....	32
REFERENCES .....	33

## List of Tables

Table	Page
1. Interventions and Actions .....	15
2. Barriers and Facilitator .....	24
3. Post Intervention Chart Review .....	29

## List of Figures

Figure	Page
1. Characteristics of participants in the education component .....	26
2. Patient demographics .....	26
3. Patient Insurance .....	27
4. HPV Knowledge .....	28
5. Pre- and post-intervention results summary .....	30



## List of Appendices

Appendix	Page
A. Change Readiness Survey .....	39
B. Informed Consent .....	40
C. IRB Approval .....	42
D. Authorization Letter from CDC .....	43
E. Pre-test and Post-test Questionnaire .....	44

### Abstract

**Purpose:** The purpose of this quality improvement project was to determine if an evidence-based educational toolkit and an electronic reminder system would increase the rate of HPV vaccination among male adolescents, age 11-18 years old in an urban pediatric clinic.

**Background & Significance:** HPV is one of the most commonly reported sexually transmitted infections in the United States. The safety and efficacy of the HPV vaccine have been established and approved for both males and females. Despite recommendations, vaccination rates among adolescent males remain lower compared to females.

**Methods:** An evidenced-based educational toolkit from the CDC along with an electronic reminder that flags patients due for vaccines, prompting staff to make vaccine recommendations, was implemented. This QI project utilized a retrospective review of 100 male patient charts pre- and post-intervention.

**Results:** A significant increase in provider's knowledge and recommendations for HPV vaccination from 53% to 74.4%, and 66.7% to 100%, respectively, contributed to a 49% increase in HPV vaccination rates post-intervention.

**Conclusion:** The study showed that an evidence-based educational brochure and reminder system was effective in increasing HPV vaccination rates among adolescent males at an urban pediatric practice.

*Keywords:* HPV vaccine, reminder systems, patient education, health promotion, educational toolkit

Human papillomavirus (HPV) is one of the most commonly reported sexually transmitted infections (STI), occurring in both men and women in the United States (Centers for Disease Control and Prevention [CDC], 2015a ; Dunne, Markowitz, Saraiya, Stokley, Middleman, Unger, & Iskander, 2014). Currently, 79 million people are living with the human papillomavirus (HPV) in the United States (U.S.). There are about 14 million new HPV infections, and 26,800 new cases of HPV-related cancers occurring annually (CDC, 2015a; Dunne et al; Markowitz, Dunne, Saraiya, Chesson, Curtis, Gee, & Unger, 2014). Approximately 80% of sexually active individuals will come in contact with the virus at some point in their lives. HPV can cause diseases such as cervical cancer, genital warts, as well as oral and anogenital cancers in both males and females (Markowitz et al., 2014). While HPV is categorized as a sexually transmitted infection and the consistent use of condoms can decrease the spread of HPV, the virus can also be transmitted through direct skin to skin contact and transferred without intercourse (National Institutes of Health, 2013). Therefore, the most promising approach to protect against HPV infection is through vaccination. HPV vaccines have been found to be very effective with the potential to reduce HPV-related diseases when given before the first sexual encounter in both males and females (Crowe, Pandeya, Brotherton, Dobson, Kisley, Lambert, & Whiteman, 2014).

The incidence of STI infection is highest among men and women ages 15 to 24 years (Fernandez, Allen, Mistry, & Kahn, 2010; CDC, 2013a), and half of the reported new infections in the United States occur among this age group (CDC, 2013a). While the occurrence of HPV-related diseases is less common in males than females, the incidence of HPV transmission among males is on the rise (Chaturvedi et al., 2011). It has been estimated that annually, more than 1,168 males are diagnosed with penile cancer, 1,750 with anal cancer, and 12,638 are

diagnosed with oropharyngeal cancer, with the highest incidence occurring among Hispanic males (CDC, 2016b).

The rate of vaccine administration among adolescent males is much less than among females. According to the CDC (2015b), 50% of U.S. male adolescents aged 13 to 17 years had received at least one dose of the vaccine, but only 28% of them completed the series. These rates are a stark contrast to vaccination rates for female adolescents aged 13 to 17 years where 63% of U.S. females received at least one dose of the HPV vaccine, and 42% of them completed the three-dose series (CDC, 2015b). The rate of HPV vaccination in Texas is well below the national average with 50.7% of females having received one dose, while 33.9% completed the series. For males, only 36.6% initiated the vaccine in 2014, and 17.7% completed the series (French & Zumbrun, 2016). In Bexar County, the rate is even lower in comparison to other counties in Texas; only 30.8% of females and 15% of males received at least one dose (French & Zumbrun, 2016).

### **Statement of the Problem**

HPV is one of the most commonly acquired sexually transmitted infections and is one of the most expensive to treat, due to the volume of new infections that are diagnosed each year (CDC, 2013b). Many adolescents will be exposed to HPV within the first year of becoming sexually active (Daley, 2011). As a result, the need to improve HPV vaccination rates among adolescent males is a public health issue that healthcare providers must address during clinic appointments.

**Background and Significance**

The review of literature related to HPV revealed that there are currently 100 different types of HPV, 30 of which are known to be transmitted sexually and at least 40 are known to infect the genital area (CDC, 2017a; McCutcheon, 2009). Once exposed, an individual may be infected with more than one type of HPV at the same time. When compared with other STIs, HPV cannot be cultured, and often individuals are asymptomatic at the time of diagnosis. There is no known cure; treatment is geared towards controlling the number of visible lesions, regardless of the anatomical site (McCutcheon, 2009).

Protection against the types of HPV responsible for the majority HPV-related cancers is the most preferred approach to reduce the incidence of HPV among males and females, an action that addresses a vital issue in preventative medicine. Vaccinating males against HPV can be effective not only for the male but each sexual partner. Furthermore, the effectiveness of the HPV vaccine can be better achieved if the vaccination series is initiated and completed before the initiation of sexual activity (Dobson, McNeil, Dionne, Dawar, Ogilvie, Krajden, & Young, 2013; Spleen, Kluhsman, Clark, Dignan, & Lengerich, 2012).

The Advisory Committee on Immunization Practices recommends that the Human Papillomavirus (HPV) vaccine series be routinely given to all males and females between the ages of 11 to 21 years. Nevertheless, the rate of HPV vaccine initiation and series completion rates among the adolescent population in Texas and nationally remains below the *Healthy People 2020* goal of 80% (Department of Health and Human Services [DHHS], 2015).

When compared with females, the rate of HPV initiation among males is lower statewide and nationally. Despite the ACIP's public health recommendations and the positive effect of the HPV vaccine, disparities in the uptake of the HPV vaccine among males persist (DHHS, 2015).

Both state and national vaccination programs continue to struggle and have yet to reach the *Healthy People 2020* goals of 80% vaccination coverage (French & Zumbrun, 2016). For this project, the focus was on male adolescents between the ages of 11 and 18 years.

### **Practice Assessment**

Nationally, there are no federal or state regulations in the United States that mandate the HPV vaccine for all adolescents. Many healthcare providers continue to present the HPV vaccine as an optional vaccination as compared to those vaccinations that are mandated (Price, 2017). As a result, there are numerous instances of missed opportunities for HPV vaccination. Additionally, healthcare providers are reluctant to engage in discussions regarding HPV and the vaccine, and parents become hesitant and reluctant to accept the vaccine (Price, 2017; Stokley, 2013).

The need for this project was identified through a microsystems assessment of an urban clinic in South Central Texas, performed to identify the current and potential health issues within the practice. The clinic currently provides care for 2845 patients from birth till the age of 18 years, of which 766 are males, age 11 to 18 years (target population). Of these patients, it was determined that roughly 13% or 104 males had been vaccinated (receiving at least one or two HPV vaccinations). Two hundred thirty-eight (31%) were identified as eligible but missed an opportunity to receive the HPV vaccination. Three hundred and sixty (47%) were identified as eligible but missed an opportunity to receive the HPV vaccination. The remaining 39% or 302 patients are either unvaccinated and still needing HPV or has no vaccination records. Additionally, the need for this project was supported by a press release from the CDC (2013a) which urged all healthcare providers to work with state and local health providers to increase the utilization of the HPV vaccine.

**Readiness for Change and Stakeholder Engagement**

Assessing an organization's readiness for change is crucial for quality improvement projects (Weiner, 2009). The use of Lewin's Change Theory (Lewin, 1951) has been especially beneficial in not only creating awareness but in providing education as to why a change is needed. A readiness for change survey was conducted among the clinical (Medical Assistant, Licensed Vocational Nurse, Physicians) and non-clinical staff (clinic manager and immunization coordinator) at the site, using the Change Readiness Survey (Worklife Design, 2008) (see Appendix A). A total score of 80 was obtained, indicating that the clinic is ready for a change. In addition to the survey, the staff members were receptive to the project, and no behavioral resistance was identified. Lastly, the clinic manager and providers were committed and supportive of any change effort. To be successful with implementing an organizational change, the support of managers at all levels of the organization is critical (Tanner, 2017). The healthcare providers at the clinical facility, as well as the CEO of the organization were supportive of this evidence-based project and the plan to implement the educational toolkit at other clinics within the practice (C. Moreno, personal communication, March 21, 2017).

**Project Identification****Purpose**

The purpose of this quality improvement project is to increase the HPV vaccination rates among males age 11-18 years in a small urban private pediatric clinic in South Central Texas through the implementation of an evidenced-based HPV Immunization Toolkit. The overall goal is to increase the HPV vaccination rates in order to reduce the incidence of HPV-associated diseases. Improving the HPV vaccination rate is a public health priority, more importantly,

improving vaccination coverage is critical for reducing the incidence of HPV-associated diseases (Allison, Dunne, Markowitz, O'Leary, Crane, Hurley, & ... Kempe, 2013).

### Interventions

The interventions (see Table 1) of this quality improvement project were as follows:

Table 1

#### *Interventions and Actions*

Intervention	Provider Actions
HPV immunization educational toolkit	<p>100 % of Healthcare Provider (HCP) participants will complete a pre-test and post-test about HPV, HPV vaccine benefits, risks, immunogenicity and vaccine timing</p> <p>100 % of HCP participants will verbalize awareness of resources available to enhance the uptake of the HPV vaccine.</p> <p>100% of the HCP participants will be more comfortable with engaging in conversations with patients about HPV and provide facts about vaccination.</p>
Electronic health record flagging/reminder system	HCP recommendation of HPV vaccine to eligible patients will increase.

*Note.* HCP = Health Care Providers. HPV= Human Papillomavirus.

### Objectives



The above interventions will facilitate meeting the following project objectives:

- 1) Increase the uptake of HPV immunization among male patients between ages 11-18 years from 13% to 50% by August 11, 2017.
- 2) Increase Healthcare Providers' recommendations to parents/patients for on-time HPV vaccination in adolescent males by 30% from baseline post-intervention.
- 3) Improve Healthcare Providers' knowledge of HPV / HPV vaccine post toolkit intervention.

**Rationale.** ACIP recommends that the HPV vaccine is routinely given during the adolescent years, as HPV antibody titers are significantly increased in 12 to 16-year-olds if they receive the vaccine before initiating sexual activity (Dunne et al., 2014). Current HPV compliance rate for 11 to 18-year-olds at the clinic averages about 13%, which is well below the *Healthy People 2020* goal of 80% (DHHS, 2015).

### **Summary and Strength of the Evidence**

The review of available resources indicates that the human papillomavirus affects both males and females and is responsible for an astounding percentage of cervical cancers, anogenital cancers, oropharyngeal cancer, and genital warts (Dunne et al., 2014; Spleen et al., 2012). There are various types of HPV which are responsible for various types of diseases. According to Dunne and colleagues (2104), mucosal HPV can be classified as high-risk or low-risk. HPV types 16 and 18 are both high risk and are responsible for most cases of cervical cancer (90%), vaginal cancer (55%), vulva, penile, and anal cancer (79%) (Dunne et al., 2014). HPV types 6 and 11 are low-risk and are responsible for anogenital warts (Dunne et al., 2014). There are serious short-term as well as long-term consequences of not vaccinating adolescent males against the HPV virus prior to exposure. The short-term consequences are most commonly

associated with genital wart outbreaks (Giuliano, Palefsky, & Goldstone, 2011). The long-term consequences of HPV infection are different forms of cancer which include oral cancer, pharyngeal cancer, anal cancer, and penile cancer (CDC, 2016c)

The HPV vaccination is safe and highly effective, especially when administered prior to HPV exposure (Dobson, McNeil, Dionne, Dawar, Ogilvie, Krajden, & Young, 2013; Spleen et al., 2012). There have been three vaccines licensed by the FDA which can protect against the types of HPV responsible for the majority of HPV-related cancers. These are the bi-valent vaccine (Cervarix), quadrivalent vaccine (Gardasil), and nine-valent vaccine (Gardasil 9) (CDC, 2016a; Spleen, Kluhsman, Clark, Dignan, & Lengerich, 2012). However, in 2014, the bi-valent and quadrivalent vaccines were discontinued and replaced with the nine-valent vaccine (9vHPV) due to the provision of additional coverage capacity. (Campos-Outcalt, 2016; Petrosky, Bocchini, Hariri, Chesson, Curtis, Saraiya, & Markowitz, 2015).

The nine-valent vaccine is recommended for females between the age of 9 to 26 years and age 9 through 15 years for males (Campos-Outcalt, 2016; Petrosky et al., 2015). The nine-valent HPV vaccine (9vHPV) has been proven and tested to provide effective protection and coverage against HPV types 6, 11, 16, and 18, the types targeted by the quadrivalent HPV vaccine (4vHPV), as well as five additional types of HPV, types 31, 33, 45, 52, and 58 (Petrosky et al., 2015); the most common types of oncogenic HPV found to cause cervical cancer, anogenital cancers, oropharyngeal cancer, and penile cancer (Denny, 2012; Yang & Bracken, 2016). Despite the availability of this effective vaccine, some barriers to successful vaccination of adolescents still exist. These include decreased knowledge about the HPV vaccine, concerns about the vaccine's safety, lack of provider recommendation for the vaccine, cost of vaccination, lack of follow-up appointments to complete the series, and lack of access to the vaccine (Conroy,

Rosenthal, Zimet, Jin, Bernstein, Glynn, & Kahn, 2009; Rahman, Laz, McGrath, & Berenson, 2015). Rahman et al., (2015) in a study of 23,564 patients with provider-verified HPV vaccination records, noted that parental HPV vaccine awareness, parental acceptability, and provider recommendation are key factors for higher HPV vaccine uptake among adolescents (Rahman et al., 2015). However, results from this study revealed that provider recommendation has the strongest influence on increasing both initiation and series completion of the vaccine (Rahman et al., 2015).

Recent evidence has shown that the implementation of a multi-component intervention to include strong provider recommendation, HPV-specific educational brochures, along with a reminder systems for healthcare professionals, can increase both the uptake and completion of the HPV vaccine series (Tiro, Sanders, Pruitt, Stevens, Sugg, Skinner, Bishop, Fuller, & Persaud, 2015). Tiro and colleagues (2015) in a study of 875 parent/guardians of unvaccinated girls aged 11 to 18 years demonstrated that a multifaceted approach was an effective method to improving both uptake and completion of the HPV vaccine (Tiro et al., 2015).

Lastly, there has been increased awareness of the need to improve HPV immunization rates nationally and statewide, because HPV is one of the most commonly acquired STIs and one of the most expensive to diagnose and treat, partly because of the volume of new infections that are diagnosed annually (Daley, 2011). Many adolescents will be exposed to HPV within the first year of becoming sexually active (Daley, 2011). As a result, the need to improve HPV vaccination rates among adolescent males in effort to prevent HPV-related disease is more important than ever especially because it has become a public health issue that needs to be addressed promptly (Daley, 2011). Therefore, an HPV vaccination intervention, which incorporates healthcare provider (HCP) recommendations and parent education, explicitly

highlighting the importance and benefits of the HPV vaccine in males, should be considered and implemented in an effort to increase the rate of HPV immunization among the adolescent male population (Rahman et al., 2015)

### **Methods**

The outcome of this evidenced-based quality improvement project is its influence on the rate of compliance with HPV vaccination, which was determined by measuring pre-and post-vaccine rates, provider HPV knowledge, and missed opportunities for vaccination. The education component of this QI project was proposed to last for 8 weeks at 30 minutes per session, administered in a classroom setting on a biweekly basis. However, due to time constraints and a shortage of staff at the clinic, the project implementation was adjusted to one 45 minute session in the classroom and one-on-one sessions with the medical assistants and LVNs as needed.

Each session was comprised of information which focused on addressing issues related to HPV. These sessions utilized open discussion, PowerPoint® presentations and online resources, facts about HPV-associated diseases, and HPV vaccine recommendations and schedule.

### **Instruments**

The CDC “You Are the Key to HPV Prevention” PowerPoint and pre-test/post-test questionnaire, were used for this study. The CDC tool is considered a reliable tool used in various HPV prevention intervention and projects (CDC, 2017b). Demographic information on race, gender, age, insurance, and type of visit were collected.

### **Project Design**

The project was a multi-phase project that included retrospective chart reviews in order to determine the HPV vaccine uptake rate for the target population within the practice. The first retrospective review period was January 1, 2017, through May 31, 2017, to establish the

practice's current HPV vaccine rate among adolescents. After the collection of baseline data, an HPV immunization educational toolkit was implemented using elements of the CDC's "You are the Key to HPV Prevention" resources and promotional materials provided by Merck, the manufacturer of the HPV vaccine. Additionally, an electronic alerts system was integrated into the clinic's current electronic health record to notify providers when a patient was due for the HPV vaccine. The last phase of the project was the evaluation of the effectiveness of the toolkit using a pre-test and post-test questionnaires as well as a second retrospective chart review of adolescent males seen in the clinic from June 1, 2017, through August 11, 2017, to measure the impact of the intervention on HPV immunization rates.

### **Setting and Population**

The setting for this quality improvement project was a small private pediatric practice in an urban location with three healthcare providers, three LVNs, and five MAs. The target population for this project consisted of male patients, 11 to 18 years of age. Patient age was restricted to 11 to 18 years based on the clinic's policy and guidelines on when the HPV vaccine is to be offered to patients. A retrospective chart review of 100 male patients, age 11-18 years old, was conducted from a database of active male patients in the practice who met eligibility criteria during the review periods to determine the clinic's current rate of HPV vaccination. The electronic health record was also used to identify, verify, and track HPV vaccine status of subjects who met eligibility criteria and to obtain patient demographics including age, gender, and race. Inclusion criteria included

1. Patients with an ICD-10 code for a well-child exam (Z00.129).
2. Patients with an ICD-10 code for HPV vaccination (Z23).
3. Active patients seen at the clinic within the last two years.

Exclusion criteria included:

1. Patients with no contact information
2. Patients who had not been seen in the clinic for more than two years.
3. Patients who had an HPV vaccine contraindication.

### **Project Intervention**

The University of the Incarnate Word's Institutional Review Board (IRB) granted approval for this project (IRB Record Number 17-05-007) (see Appendix C). Informed consent (see Appendix B) was obtained from HCPs who agreed to participate in the education component of the toolkit.

**Toolkit.** Based on a literature review of HPV vaccine uptake, predictors of vaccination, and barriers to vaccination in young males, an immunization educational toolkit that consisted of two separate parts was developed. The components of the toolkit were:

- An evidence-based resource manual for healthcare providers that provides facts regarding HPV, HPV-related diseases, and the HPV vaccine.
- Promotional materials including posters and a brochure entitled “4 Things Parents Need to Know About HPV” by Merck.

After finalization of the educational PowerPoint® presentation, obtaining the facts brochure and before implementation of the intervention, items were reviewed to assure a reading level of sixth grade or lower as determined by Microsoft Word® proofing measures.

Additionally, the project mentor and the CEO of the clinic reviewed the toolkit for ease of reading and the overall impact of the presented information. A 45-minute training that included general information about HPV and the HPV vaccine, using the CDC's “You are the Key to HPV Cancer Prevention” PowerPoint® presentation, as well as the protocol for the use of the

HPV facts brochure “4 Things Parents Need to Know about HPV” was given to participants. Participants who participated in the training and completed a pre-test and post-test evaluation received free breakfast for time spent contributing to the project. Access to the resource manuals and promotional materials presented during the training was made available to staff for future references.

Parents of boys who presented for an office visit received the initial recommendation for HPV vaccine from the MA and were given the HPV facts brochure after vitalization and rooming for the visit. Providers were prompted by a note written by the MA on the communication board posted at the entrance of each exam room, providing a cue to action to complete a brief one-on-one intervention with the parent/guardian, if the recommendation for the vaccine by the MA was declined. If consent was obtained, the HPV vaccine was given, and the parent/guardian was given a reminder card and encouraged to schedule an appointment for the following dose before leaving the office.

**Reminder System.** An electronic alerts system was integrated into the clinic’s current electronic health record which triggers a pop-up reminder message whenever patient charts are activated by any of the clinic’s HCPs or staff. The alert signals the personnel that the patient is due for a 1st, 2nd, or 3rd dose of the HPV vaccine. At that time, the staff acknowledge the alert by clicking “OK” in order to continue in the chart. The first step after the acknowledgment is the initiation of the vaccine recommendation by the MAs. The second step was documentation of the recommendation in the electronic health record. The MAs document whether the recommendation was given and if it was accepted or declined by parent/guardian. The reasons for declining the vaccine were documented as well. The final step was the provider’s documentation of the recommendation. Each provider documented under the immunization

section the following whether the HPV recommendation was given, the parent/guardian's acceptance or declination and the reason for declination, if applicable.

### **Evaluation**

The evaluation of the intervention for this quality improvement project included:

- Pre-test and post-test evaluation of the education component;
- Two retrospective chart reviews completed pre-intervention (January 1, 2017 May 31, 2017) and post-intervention (June 1, 2017 – August 11, 2017).

The pre-test and post-test evaluations (see Appendix E) contained seven multiple-choice questions that assessed multiple dimensions of the participants' knowledge on HPV and one question on a Likert scale to assess providers' willingness to recommend the vaccine. Possible scores range from 1 to 7, with higher scores indicating a higher level of knowledge on HPV.

### **Variables**

This project had two interventions that were evaluated with four separate outcome variables. The interventions were 1) the education module that was part of an HPV immunization toolkit and, 2) the electronic alert system. The outcome variables were HCPs knowledge about the HPV vaccine, the willingness of HCPs to recommend the HPV vaccine to their patients, missed opportunities, defined as instances when the HPV vaccines should have been administered but were not, and HPV vaccine rates of adolescent males, age 11 to 18 years, pre and post-intervention.

### **Barriers and Facilitators**

There were a number of barriers and facilitators identified that proved to be either a hindrance or aid in the intervention process (see Table 2). Some barriers were organizational



issues (i.e., allotted time for visits and rules regarding posters within the facility) that are outside of the realm of this quality improvement project.

Table 2

*Barriers and Facilitators*

Barriers	Facilitators
<ul style="list-style-type: none"> <li>• Providers have limited time to discuss HPV vaccine due to competing priorities (10 minutes slot per visit).</li> <li>• There are no flyers or posters to highlight HPV and the HPV vaccine in the waiting room, the exam rooms, or other areas of the clinic premises.</li> <li>• Newer staff have limited knowledge of the HPV schedule and recommendation guidelines.</li> <li>• The clinic has a high staff turnover rate, leading to a lack of continuity of care and a huge knowledge gap which results in decreased recommendations.</li> <li>• Low stock of HPV vaccine results in decreased recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• The low rates of HPV vaccination are a concern, not only for this clinic but other clinics within the organization</li> <li>• The clinic uses public/private assistance programs (TVFC) to help pay for the cost of the vaccine.</li> <li>• There is no administration fee for a vaccine for uninsured patients.</li> <li>• The clinic has an assigned immunization LVN that keep track of all immunization stock, audits vaccination rate and order vaccines and supplies needed.</li> </ul>

*Note.* TVFC = Texas Vaccines for Children Program

### **Ethical Considerations**

Human papillomavirus is a disease that affects men and women worldwide. Socio-cultural disparities related to HPV persist, with the most disadvantaged men experiencing twice the incidence of HPV-related cancers, especially since there are no screening programs available for men (CDC, 2017a). However, research indicates that males are an essential factor in the transmission of the HPV virus between people. Therefore, it is ethical to encourage vaccination in this population (Navarro-Illana, Aznar & Díez-Domingo, 2014). According to a study by Zimet, Rosberger, Fusher, Perez, and Stupiansky (2013), one concern expressed by parents of young adolescents, when encouraging or advocating for the HPV vaccine, is that the HPV vaccine will lead to engagement in sexual activity at a younger age without using safe sex behaviors. However, targeting this vulnerable age group can potentially improve the vaccine rates of boys before sexual debut.

### **Results**

Descriptive statistics were used to describe the participants and results for the various components of the project. Figure 1 describes the healthcare providers (HCPs) who participated in the education component of the intervention.

### **Patient Demographics**

Of the 100 male patient charts reviewed, the majority of the patients (58%) were Hispanic, 13% White, 12% African American, 3% Middle Eastern, 2% Asian, and 2% undocumented (see Figure 2). The vast majority of the patients were covered by government programs (85%), 5% were uninsured, and 10% had private insurance (see Figure 3).

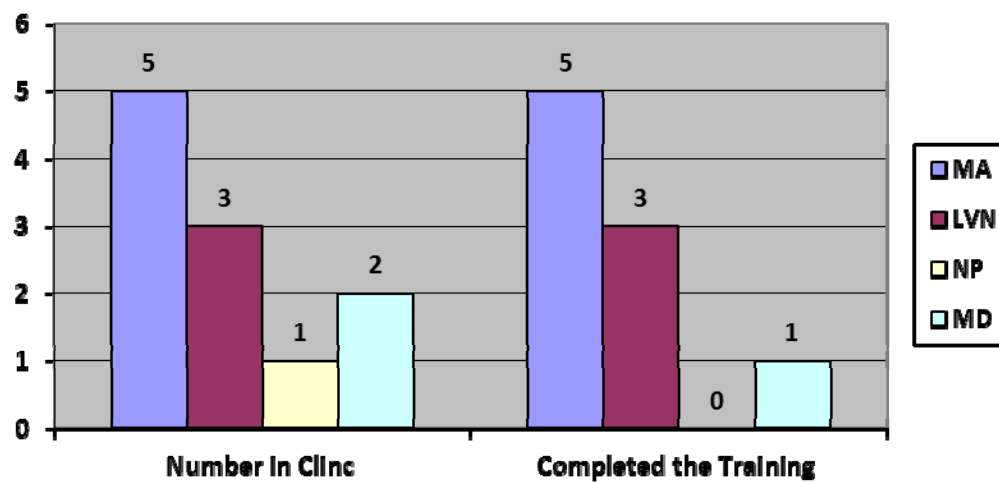


Figure 1. Characteristics of participants in the education component.

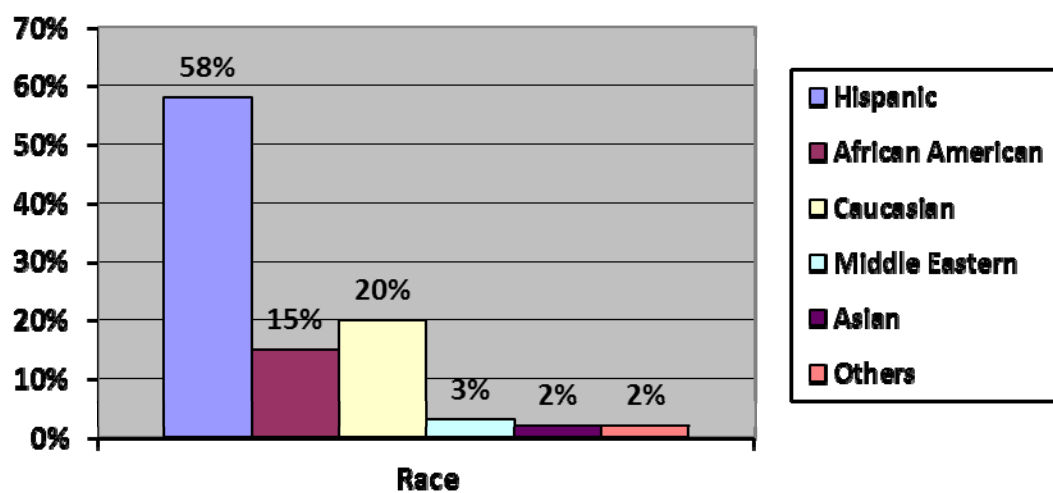


Figure 2. Patient demographics

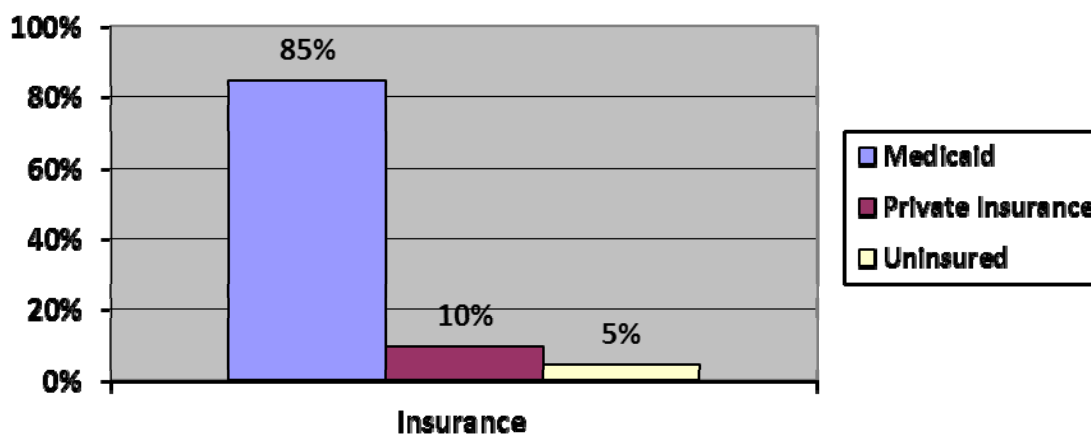


Figure 3. Patient insurance.

### Healthcare Provider Knowledge

Healthcare Provider knowledge was measured before and after participating in the education component of the HPV immunization educational toolkit. Out of the five MAs who completed the pre-test survey before the education component, two MAs (40%) had a score greater than 6 indicating good knowledge of HPV and the HPV vaccine, two out of three LVNs (67%) had a score greater than 6 on the pre-test. On the post-test, four out of five MAs (80%) had a score greater than 6, and two out of three LVNs (67%) score greater than 6. The largest improvement in HCP knowledge was seen among the MAs. There was no change among the LVNs.

### Provider Willingness to Recommend

When answering the question *“How likely are you as a healthcare provider to routinely recommend the HPV vaccine to patients with the other required vaccinations?”* 66.7% of HCPs responded with an answer of *“strongly agree”* or *“agree”* on the pre-tests, and 100% responded positively on the post-tests. A net change of 33.3% was seen between pre-education and post-education responses.

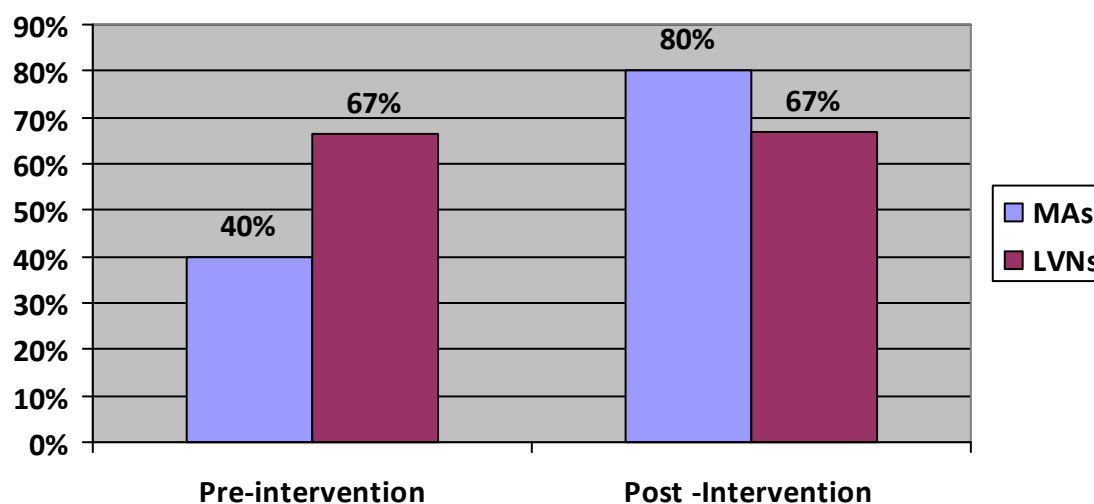


Figure 4. HCP's knowledge.

### Documentation of HPV Vaccine Recommendation

Currently, there is not a specific location in the clinic's EHR to document any counseling or recommendations given. However, a few providers wrote in their notes when HPV counseling or recommendations were given, especially when the patient or parent declined or deferred vaccination. Of the 100 patient charts reviewed, 18 (18%) had documentation of counseling on the HPV vaccine during the visit.

### Initiation of HPV Vaccine

The primary outcome of HPV vaccine uptake, which was recorded as a dichotomous response of yes or no, was measured through retrospective chart reviews. At this primary care clinic from June 1, 2017, to August 11, 2017, most visits were for well-child exams and routine physicals. This visit profile was expected because the review period occurred in the summer leading up to the start of new school year.

As shown in Table 3, 100 charts were reviewed with 26 boys falling into the recommended age group for HPV vaccination (11 to 12 years old) and 74 falling into the catch-

up age group for HPV vaccination (13 to 18 years old). A total of 62 adolescent males of the sample received their first dose of the HPV vaccine during the measurement period.

Table 3

*Post Intervention Chart Review*

<u>Age (n = 100)</u>		<u>Vaccine Rate (n = 100)</u>	
Target		Vaccine Given	62
11-12 Years	26	Vaccine Not Offered	31
Catch up		Vaccine Refused	7
13-18 Years	74		

**Pre- and Post-Intervention Results**

Figure 5 shows that there was a significant increase in the HPV vaccination rates of adolescent males (48.4%) from the collection of preliminary data (January 2017) to the end of the project (August 2017). It also reveals a decrease of 42 % in missed opportunities during this same time frame. Lastly, there was an increase in Healthcare Provider knowledge of 20.5%.

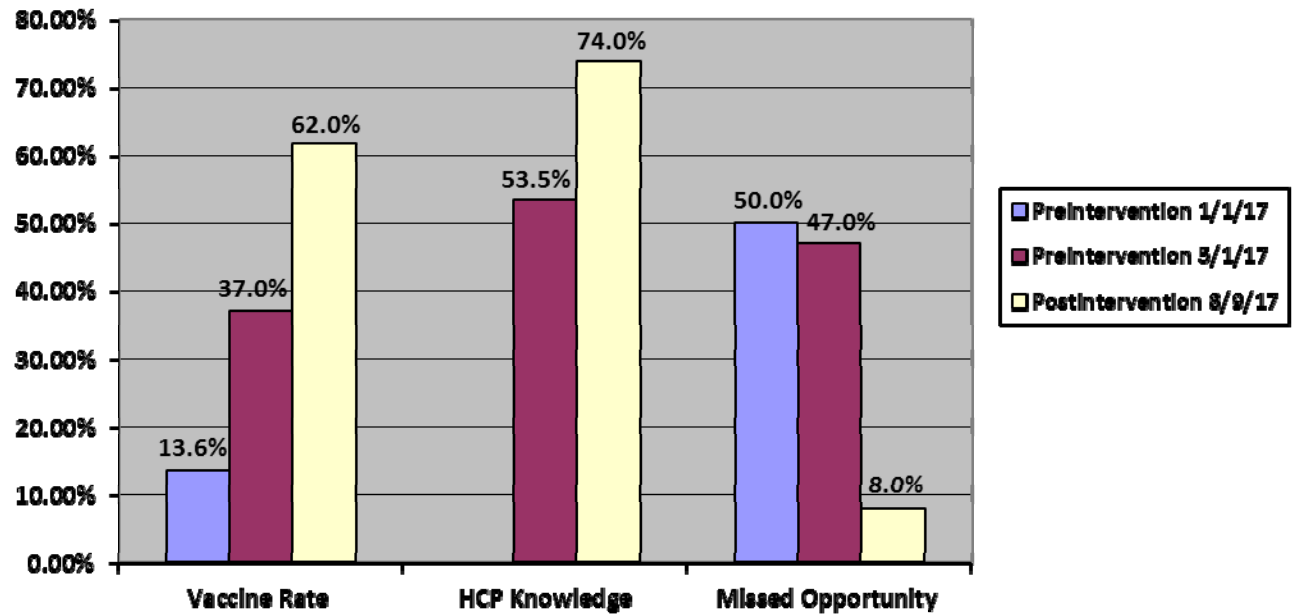


Figure 5. Pre and post intervention results summary.

## Discussion

### Limitations

The major limitation of this DNP project was the limited time frame for implementing the study and gathering data. The chart reviews were completed during summer break (June and July). However, the months of August and early September are the most popular for adolescents to see their HCP and receive other mandated adolescent vaccines before starting school. An additional limitation is the clinic's history of high turnover rates of some personnel, which impacted the participation and education of these HCPs. The newly hired MAs, after the implementation of the education portion of the intervention, were not given the opportunity to participate in the HPV immunization educational toolkit, which may have impacted vaccine uptake.

**Recommendations**

The fact that the immunization rate improved significantly after implementation of the toolkit suggests that this multi-component intervention, which included education, HCP recommendation, and an electronic alert system, was enough to provide a significant improvement in the vaccination rate among the chosen population. Also, while evidence exists to indicate that provider recommendations are key to the acceptance of the HPV vaccine, most often providers forget to recommend the vaccine due to the rapidly evolving and heavily loaded patient schedule. This study proved that an electronic clinical alert is an effective way to remind providers to recommend the HPV vaccine. A study by Stockwell and Fiks (2013), also found that implementing a clinical decision support into a clinic's EHR, which flagged all patients meeting the eligibility criteria for the HPV vaccine, helped remind providers to make vaccine recommendations consistently at every visit and improved documentation of recommendations given, thereby increasing immunization uptake and reducing missed opportunities.

On a system level, manually tracking and documenting the number of patients who received vaccines and those who did not receive vaccines during an individual visit is overwhelming. Adapting or incorporating an immunization information software system into the clinic's existing electronic health record system that will track and flag patients behind the scene rather than through individual chart reviews will be much more effective, sustainable and will offer greater potential to transform the delivery of vaccine at the clinic. It has been shown that clinic practices that utilize an immunization information system to monitor vaccine compliance have significantly higher vaccine coverage rates than those practices that do not use an IIS (Groom, Hopkins, Pabst, Murphy Morgan, Patel, Calonge, & ... Zucker, 2015; Stockwell, & Fiks, 2013).



**Implications for Practice**

This project shows that there is still need for increased education and awareness targeting parents/guardians and adolescents about HPV and the HPV vaccine. Healthcare Providers should further research, educate and implement various interventions that can lead to a more informed U.S. population. The future implications of not vaccinating this target population are too enormous not to acknowledge and act now.

## References

- Allison, M. A., Dunne, E. F., Markowitz, L. E., O'Leary, S. T., Crane, L. A., Hurley, L. P., & ... Kempe, A. (2013). HPV Vaccination of Boys in Primary Care Practices. *Academic Pediatrics, 13*(5), 466-474.
- Campos-Outcalt, D. (2016). Immunization update: This year's changes. *Journal Of Family Practice, 65*(3), 198-200.
- Centers for Disease Control and Prevention (2013a). *CDC fact sheet: Incidence, prevalence, and cost of sexually transmitted infections in the United States*. Retrieved from: <http://www.cdc.gov/std/stats/STI-Estimates-Fact-Sheet-Feb-2013.pdf>
- Centers for Disease Control and Prevention (2013b). *Human papillomavirus (HPV) and oropharyngeal cancer-fact sheet*. Retrieved from: <http://www.cdc.gov/std/HPV/STDFact-HPVandoralcancer.htm>
- Centers for Disease Control and Prevention (2015a). *2015 Sexually Transmitted Diseases Surveillance*. Retrieved from <https://www.cdc.gov/std/stats15/other.htm#hpv>
- Centers for Disease Control and Prevention. (2015b). *Community Health Status Indicators*. Retrieved from <https://wwwn.cdc.gov/CommunityHealth/profile/countyprofile/TX/Bexar/>
- Centers for Disease Control and Prevention. (2015c). *HPV in depth*. Retrieved from <http://www.cdc.gov/vaccines/parents/diseases/teen/hpv-indepth-color.pdf>
- Centers for Disease Control and Prevention. (2016a). *HPV Vaccines: Vaccinating Your Preteen or Teen*. Retrieved from <http://www.cdc.gov/hpv/parents/vaccine.html>

Centers for Disease Control and Prevention. (2016b). *Sexual Risk Behaviors: HIV, STD, & Teen Pregnancy Prevention*. Retrieved from

<http://www.cdc.gov/healthyyouth/sexualbehaviors/>

Centers for Disease Control and Prevention. (2016c). *HPV and Men - Fact Sheet*. Retrieved from <https://www.cdc.gov/std/hpv/stdfact-hpv-and-men.htm>

Centers for Disease Control and Prevention (2017a). *Human Papillomavirus (HPV) Infection*. Retrieved from: <https://www.cdc.gov/std/tg2015/hpv.htm>

Centers for Disease Control and Prevention (2017b). *About CDC.Gov*. Retrieved from: [https://www.cdc.gov/other/about\\_cdcgov.html](https://www.cdc.gov/other/about_cdcgov.html)

Conroy, K., Rosenthal, S., Zimet, G., Jin, Y., Bernstein, D., Glynn, S., & Kahn, J. (2009).

Human papillomavirus vaccine uptake, predictors of vaccination, and self-reported barriers to vaccination. *Journal of Women's Health (15409996)*, 18(10), 1679-1686. <https://doi.org/10.1089/jwh.2008.1329>

Crowe, E., Pandeya, N., Brotherton, J. M., Dobson, A. J., Kisley, S., Lambert, S. B., &

Whiteman, D. C. (2014). Effectiveness of quadrivalent human papillomavirus vaccine for the prevention of cervical abnormalities: case-control study nested within a population based screening program in Australia. *British Medical Journal*, 348. <https://doi.org/10.1136/bmj.g1458>

Daley, A. M. (2011). Providing adolescent-friendly HPV education. *Nurse Practitioner*, 36(11), 35–40. <https://doi.org/10.1097/01.NPR.0000406486.97876.1d>

Denny, L. (2012). Cervical cancer prevention: New opportunities for primary and secondary prevention in the 21st century [Supplemental material]. *International Journal of*

*Gynecology and Obstetrics*, 119, S80-S84.

<http://dx.doi.org/doi:10.1016/j.ijgo.2012.03.023>

Department of Health and Human Services. (2015). *Immunization and infectious disease*.

Retrieved from <https://www.healthypeople.gov/2020/topics->

[objectives/topic/immunization-and-infectious-diseases/national-snapshot](https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/national-snapshot)

Dobson, S. M., McNeil, S., Dionne, M., Dawar, M., Ogilvie, G., Krajden, M., & ... Young, E.

(2013). Immunogenicity of 2 doses of HPV vaccine in younger adolescents vs 3 doses in young women: a randomized clinical trial. *JAMA: Journal Of The American Medical Association*, 309(17), 1793-1802. <https://doi.org/10.1001/jama.2013.1625>

Dunne, E. F., Markowitz, L. E., Saraiya, M., Stokley, S., Middleman, A., Unger, E. R. Iskander,

J. (2014). *CDC grand rounds: Reducing the burden of HPV-associated cancer and disease*. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6304a1.htm>

Fernandez, M.E., Allen, J.D., Mistry, R. & Kahn, J.A. (2010). Integrating clinical, community, and policy perspectives on HPV vaccination. *Annual Review of Public Health*, 31, 235-252.

French, L & Zumbrun, J, (2016). *HPV strategic plan*. Retrieved from

<https://www.dshs.texas.gov/immunize/docs/HPV-Strategic-Plan-Overview-2016.pdf>

Giuliano, A.R., Palefsky, J.M., Goldstone, S., Moreira, E.D., Penny, M.E., Aranda, C....Guris,

D. (2011). Efficacy of quadrivalent HPV vaccine against HPV infection and disease in males. *The New England Journal of Medicine*, 364(5), 401-411.

Groom, H., Hopkins, D. P., Pabst, L. J., Murphy Morgan, J., Patel, M., Calonge, N., & ... Zucker,

J. (2015). Immunization Information Systems to Increase Vaccination Rates: A

- Community Guide Systematic Review. *Journal Of Public Health Management & Practice*, 21(3), 227-248. <https://doi.org/10.1097/PHH.0000000000000069>
- Lewin, K. C. (1951). *Field theory in social science*. New York, NY: Harper & Row.
- Markowitz, L. E., Dunne, E. F., Saraiya, M., Chesson, H. W., Curtis, C. R., Gee, J., Unger, E. R. (2014). *Human papillomavirus vaccination: Recommendations of the Advisory Committee on Immunization Practices (ACIP)*. Retrieved from <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6305a1.htm>
- McCutcheon, T. (2009). Anal condyloma acuminatum. *Gastroenterology Nursing*, 32(5), 342–349. <https://doi.org/10.1097/56A.06013e3181b85d4e>
- National Institutes of Health (2013). *Cervical cancer: Human papillomaviruses (HPV)*. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072444/>
- Navarro-Illana, P., Aznar, J., & Díez-Domingo, J. (2014). Ethical considerations of universal vaccination against human papilloma virus. *BMC Medical Ethics*, 15, 29. <https://doi.org/10.1186/1472-6939-15-29>
- Petrosky, E., Bocchini Jr, J. A., Hariri, S., Chesson, H., Curtis, C. R., Saraiya, M., & ... Markowitz, L. E. (2015). Use of 9-Valent Human Papillomavirus (HPV) Vaccine: Updated HPV Vaccination Recommendations of the Advisory Committee on Immunization Practices. *MMWR: Morbidity & Mortality Weekly Report*, 64(11), 300-304.
- Price, S. (2017). Texas Physicians Reboot the Effort to Boost a Vaccine That Can Protect Against Cancer. *Texas Medicine*. 113(4), 29-34.
- Rahman, M., Laz, T. H., McGrath, C. J., & Berenson, A. B. (2015). Provider recommendation mediates the relationship between parental human papillomavirus (HPV) vaccine

- awareness and hpv vaccine initiation and completion among 13- to 17-year-old us adolescent children. *Clinical Pediatrics*, 54(4), 371-375.  
<https://doi.org/10.1177/0009922814551135>
- Spleen, A., Kluhsman, B., Clark, A., Dignan, M., & Lengerich, E. (2012). An Increase in HPV-Related Knowledge and Vaccination Intent Among Parental and Non-parental Caregivers of Adolescent Girls, Age 9-17 Years, in Appalachian Pennsylvania. *Journal Of Cancer Education*, 27(2), 312-319. <https://doi.org/10.1007/s13187-011-0294-z>
- Stokley, S. (2013). *Update on HPV vaccination coverage in the US*. Retrieved from [https://www.hhs.gov/sites/default/files/nvpo/nvac/meetings/pastmeetings/2013/hpv\\_vaccination\\_coverage\\_sept2013.pdf](https://www.hhs.gov/sites/default/files/nvpo/nvac/meetings/pastmeetings/2013/hpv_vaccination_coverage_sept2013.pdf)
- Stockwell, M. S., & Fiks, A. G. (2013). Utilizing health information technology to improve vaccine communication and coverage. *Human Vaccines & Immunotherapeutic*, 9(8), 1802–1811. <https://doi.org/10.4161/hv.25031>
- Tanner, R. (2017). *Is your organization ready for change?* Retrieved from <https://managementisajourney.com/three-questions-senior-leaders-must-ask-before-undertaking-organizational-change/>
- Tiro, J. A., Sanders, J. M., Pruitt, S. L., Stevens, C. F., Skinner, C. S., Bishop, W. P., Fuller, S., & Persaud, D. (2015). Promoting HPV vaccination in Safety-Net Clinics: A Randomized Trial. *Pediatrics*, 136(5), 850-859. <https://doi.org/10.1542/peds.2015-1563>
- Weiner, B. J. (2009). A theory of organizational readiness for change. *Implementation Science : IS*, 4, 67. <https://doi.org/10.1186/1748-5908-4-67>
- Worklife Design. (2008). *Change Readiness Survey*. Retrived from <http://www.lencd.org/learning/how-assess-change-readiness>

Yang, D. Y., & Bracken, K. (2016). Update on the new 9-valent vaccine for human papillomavirus prevention. *Canadian Family Physician*, 62(5), 399-402.

Zimet, G. D., Rosberger, Z., Fisher, W. A., Perez, S., & Stupiansky, N. W. (2013). Beliefs, behaviors and HPV vaccine: Correcting the myths and the misinformation. *Preventive Medicine*, 57(5), 414-418. <https://doi.org/10.1016/j.ypmed.2013.05.013>

## Appendix A

### Change Readiness Survey

*Take a few moments to think about how your organization typically plans for and implements workplace changes. With this “change history” in mind, use the following scale to respond to each statement below. Circle the number that most closely reflects your experience. Compare your responses with co-workers and discuss ways to address areas of concern. A perfect score is 100; a perfectly miserable score is 20.*

	1 Strongly disagree	2 Disagree	3 Not sure	4 Agree	5 Strongly Agree
1. Change typically occurs here with a clear picture or vision of the intended future.	1	2	3	4	5
2. Appropriate resources needed to make the change work are allocated.	1	2	3	4	5
3. The purpose or rationale for any change is clearly communicated to employees.	1	2	3	4	5
4. My manager/supervisor consistently demonstrates support for the change.	1	2	3	4	5
5. Standards and expectations for new behaviors are established and communicated during times of change.	1	2	3	4	5
6. Communication channels allow for ongoing feedback and/or information sharing between employees and designated leaders.	1	2	3	4	5
7. People impacted by the change are actively involved in shaping the desired future.	1	2	3	4	5
8. New expectations are a clear priority and desired actions are reinforced.	1	2	3	4	5
9. People most affected by the change are involved in identifying possible obstacles.	1	2	3	4	5
10. Processes are in place to document or report on our progress in making change work.	1	2	3	4	5
11. Communication channels with designated leaders are open for all employees.	1	2	3	4	5
12. People have a chance to “rehearse” new actions through practice, simulations, or visualizing the change.	1	2	3	4	5
13. Employees regularly know how well they are meeting the change expectations.	1	2	3	4	5
14. Key milestones are recognized with celebrations, rewards, or other acknowledgement.	1	2	3	4	5
15. Employees have a clear understanding of the standards and expectations that accompany any change.	1	2	3	4	5
16. Steps are taken to ensure that employees affected by a change have the knowledge, skills and abilities necessary to make the change work.	1	2	3	4	5
17. Managers and other leaders make themselves easily accessible for answering questions or information-sharing during times of change.	1	2	3	4	5
18. If the change involves significantly altering existing company-wide systems or processes, a trial period is conducted before the change is fully implemented.	1	2	3	4	5
19. Designated leaders actively seek input from employees concerning challenges, expectations, and innovations.					
20. Overall, my organization leads, manages, and supports change in an effective, energizing way.	1	2	3	4	5



## Appendix B

**Informed Consent Notice**

Before consenting to participate in this quality improvement project, it is important that you read and understand the following explanation of the purpose, benefits, and risks of the project and how it will be conducted.

**Title of Project:** Increasing the Vaccination Rates of Adolescent Males 11 to 18 Years of Age in an Urban Pediatric Clinic. A Quality Improvement Project

**Primary Investigator:** Victoria Fadare, MPH, BSN, University of the Incarnate World.

**Supervising Mentor:** Dr. Holly A DiLeo, PhD, University of the Incarnate World.

Your participation is solicited in a study that will evaluate the impact a multi-component intervention to include, strong provider recommendation, HPV specific educational brochure, along with reminder systems for healthcare providers, has on increasing the uptake of HPV vaccine among adolescent males. Effectiveness of this intervention will be determined by increased HPV knowledge among healthcare providers, strong provider's recommendation of HPV vaccine to eligible adolescent patients, and ultimately an increase in adolescents who receive the HPV vaccine.

Your participation in the study, which is optional, involves you as the healthcare provider participating in educational presentation and completion of a pre-test and post-test survey. Total time to complete the education section, pre-test and post-test evaluations should not exceed 2 hours.

There are no anticipated risks involved with participation in this study.

Benefits for study participants may include increased knowledge about the HPV vaccine and increased uptake of the HPV vaccine among adolescents. We hope to learn more about how the interventions in this study impact the number of adolescents willing to accept the HPV vaccine.

The confidentiality of your individual identifying information will be maintained in any write up or presentations made regarding this study. Identifying information will be limited to your position held in the clinic (MA, LVN, MD, or NP). All survey results will remain confidential.

Any questions about the study should be directed to Victoria Fadare at [fadare@student.uiwtx.edu](mailto:fadare@student.uiwtx.edu) , Dr. Holly DiLeo at [dileo@uiwtx.edu](mailto:dileo@uiwtx.edu).

Your participation in the study confirms that you have read the above information and agree to the following:

- You have a good description of the study and have been given the opportunity to ask questions about the study.
- You are aware of the fact that involvement in the study is voluntary and refusal to participate or the decision to leave the study at any time involves no penalty to you or loss of rights or benefits. You understand your rights and voluntarily agree to participate.
- You understand that you are free to keep a copy of this form for your records.

\_\_\_\_\_  
Name of study participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of study participant

## Appendix C

**IRB APPROVAL**

May 8 2017

**PI:** Mrs. Victoria Fadare

**Protocol title:** Increasing the Vaccination Rates of Adolescent Males 11 to 18 Years of Age in a Urban Pediatric Clinic

Victoria:

Your request to conduct the study titled "Increasing the Vaccination Rates of Adolescent Males 11 to 18 Years of Age in a Urban Pediatric Clinic" was approved by Exempt review on 05/08/2017. Your IRB approval number is 17-05-007. Any written communication with potential subjects or subjects must be approved and include the IRB approval number.

Please keep in mind these additional IRB requirements:

- This approval will expire **one year** from 05/08/2017.
- Request for continuing review must be completed for projects extending past one year. Use the **IRB Continuing Review Request form**.
- Changes in protocol procedures must be approved by the IRB prior to implementation except when necessary to eliminate apparent immediate hazards to the subjects. Use the **IRB Amendment Request form**.
- Any unanticipated problems involving risks to subjects or others must be reported immediately.

Approved protocols are filed by their number. Please refer to this number when communicating about this protocol.

Approval may be suspended or terminated if there is evidence of a) noncompliance with federal regulations or university policy or b) any aberration from the current, approved protocol.

Congratulations and best wishes for successful completion of your research. If you need any assistance, please contact the UIW IRB representative for your college/school or the Office of Research Development.

Sincerely,

Ana Wandless-Hagendorf, PhD, CPRA  
Research Officer, Office of Research Development  
University of the Incarnate Word  
(210) 805-3036  
[wandless@uiwtx.edu](mailto:wandless@uiwtx.edu)

## Appendix D

**Authorization letter to use CDC's "You Are the key to HPV Cancer Prevention"**

**From:** Preteen Vaccines (cdc) (CDC) <preteenvaccines@cdc.gov>  
**Sent:** Tuesday, April 25, 2017 2:11:33 PM  
**To:** Victoria Delano  
**Subject:** RE: Request for English HPV You Are the Key slides

Hello,

Attached you will find CDC's English "You Are the Key to HPV Cancer Prevention: Understanding the Burden of HPV-Related Cancers" slide set. Please feel free to use this presentation as is or customize it for your audience. As long no additional slides are added, you can keep the template with the logos on it. It's fine to remove slides or hide slides to reduce the time/size of the presentation. If the slides are used piecemeal—if they are removed to use with other slides—we just ask that you put them in your own template.

Also make sure to visit [www.cdc.gov/](http://www.cdc.gov/) HPV for ready-to-use tools and resources to successfully communicate with parents about HPV vaccination. If you have any questions, contact us, we are more than happy to help.

Thanks for your interest!  
CDC's Adolescent Vaccination Team

---

**From:** Victoria Delano [mailto:vdelano@galencollege.edu]  
**Sent:** Thursday, April 6, 2017 4:02 PM  
**To:** Preteen Vaccines (cdc) (CDC) <preteenvaccines@cdc.gov>  
**Subject:** Request for English HPV You Are the Key slides

Hello,

I would like to request for the English version of this PowerPoint® slides. I am a DNP student working on improving the uptake of HPV vaccine in my clinic. Thank you.

## Appendix E

**HPV – You are the Key to HPV Cancer Prevention Toolkit Pre &post-Test**

I am a (circle one): MD, PA, ARNP, RN, LVN, and MA

1. How many new cases of HPV are expected to occur each year?
  - a. 14,000
  - b. 14,000,000
  - c. 140,000
  - d. 1,400,000
2. Why is the quadrivalent HPV vaccine recommended for male patients?
  - a. To prevent infection with HPV types 6, 11, 16, and 18
  - b. To prevent genital warts caused by HPV types 6 and 11
  - c. To prevent anal cancer that is caused by HPV types 16 and 18
  - d. To prevent infections caused by HPV 6, 11, 16, and 18 and to prevent genital warts and anal cancer.
3. Which recommendation for 11 to 12-year-olds is likely to be most successful?
  - a. Ask about the sexual activity of the child prior to discussing the HPV vaccine
  - b. Inform the parent that their child is due to receive three scheduled vaccines: HPV, MCV4, and Tdap.
  - c. Inform parents those mandatory vaccines that are required for school attendance and ask if they also want to get the HPV vaccine.
  - d. Give the parents the option of vaccinating their child now with the HPV vaccine or waiting until the child is older.
4. The HPV vaccine is suggested for which patients?
  - a. Male and female adolescents at the 11 or 12-year-old visit
  - b. Females only at the 13-year-old well child visit
  - c. Males only at the 11 and 12-year-old visit
  - d. Females only at the 11 and 12-year-old visit
5. Which three goals are evidence-based and important to teach parents?
  - a. HPV vaccine prevents STD's, is most effective when started after sexual activity, and it is important to get all 3 shots on time
  - b. HPV vaccine is a cancer prevention vaccine, it is most effective when given to 11 and 12-year-olds, and it is important to get all 3 shots
  - c. It important to get at least 1 of the 3 shots, HPV vaccine is a cancer prevention vaccine, and it should be started after sexual activity
  - d. HPV vaccine prevents genital warts, it should be started at 11 and 12 years of age, and it is most important to get the first shot in the series

**HPV – You are the Key to HPV Cancer Prevention Toolkit Pre &post-Test –  
continued**

6. What is the single best predictor of a decision to vaccinate?
  - a. A strong recommendation by the healthcare provider
  - b. Strong recommendations from friends and family to get the vaccination
  - c. Hearing about the vaccine on the TV or radio
  - d. Reading about the vaccine in a brochure or on posters
7. Why is the HPV vaccination recommended to be given to 11 and 12-year-olds?
  - a. The HPV vaccine provides the strongest immune response when given at that age
  - b. It is convenient to give with other required vaccines for school
  - c. Older children are used to getting vaccines
  - d. Both A and B
8. What age range is considered “permissive” for catch-up immunizations for HPV vaccines?
  - a. It is permissive to vaccinate males and females only at the 11 and 12-year-old appointments
  - b. It is permissive for females only to be vaccinated between 9 and 26 years old
  - c. It is permissive for only males only to be vaccinated between 9 and 26 years old
  - d. It is permissive for both males and females to be vaccinated between 9 and 26 years old
9. All of the following are true about missed opportunities except:
  - a. Review immunization records at acute care visits
  - b. Provide the vaccine at pre-sports and camp physicals
  - c. Give the HPV vaccine with other routine adolescent vaccines
  - d. Rely on the parents to keep immunization records accurate and know when vaccines are due
10. How likely are you as a healthcare provider to routinely recommend the HPV vaccine to male and female patients with their other required vaccinations?
  - a. Strongly Agree
  - b. Agree
  - c. Somewhat Agree
  - d. Neutral
  - e. Somewhat Disagree
  - f. Disagree
  - g. Strongly Disagree