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Final DNP Project Report

Identifying Rates, Barriers and Facilitators for HPV Vaccines in Children Ages 11-14 in a
Kentucky Primary Care Clinic

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College of Nursing

Summer 2018

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Dedication

I am dedicating the work of my DNP project to my fiancé, family and friends who have supported me through this journey. Without their encouragement and pep talks I would not have accomplished such a wonderful achievement. Thank you for your patience and understanding throughout graduate school.

Acknowledgements

I would like to thank my advisor, Dr. Mollie Aleshire, for your mentorship, support, and drive over the past four years. Thank you for guiding me through this journey and spending many hours with me because without you this would not be possible. Thank you to my committee members Dr. Leslie Scott and Dr. Kathy Wheeler for your expertise and help with this project. I would also like to thank Amanda Wiggins for all of her help with the statistical part of my project. And finally, thank you to all my colleagues throughout the last four years of working and studying together. I would not be here today without the help and support of you all.

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Abstract

Background: Among all of the pediatric vaccinations recommended by the CDC, the HPV vaccination has consistently had lower adherence rates than the goal set by Healthy People 2020. The CDC recommends that adolescents start receiving the human papillomavirus (HPV) vaccine at the ages 9-11 to provide protection against certain strains of HPV that can cause cancer. The goal is to administer the HPV vaccine before the adolescent would be exposed to the virus. However, there has been much resistance and non-adherence to the HPV vaccination. **Purpose:** The purpose of this study was to identify the current rates of HPV vaccination in children ages 11 to 14 in the selected pediatric primary care clinic and examine provider-identified facilitators and barriers to HPV vaccination. **Methods:** This study incorporated a retrospective chart review and the use of an online survey sent to pediatric primary care providers that included qualitative and quantitative questions that pertained to HPV vaccination barriers and facilitators. **Results:** There were 100 randomly selected charts included in the retrospective chart review and 9 pediatric primary care providers voluntarily participated in the survey. **Discussion:** HPV vaccine rates have risen within the last decade, but there are still some improvements needed to achieve the goal rates of Healthy People 2020.

Background

Human papillomavirus virus (HPV) is one of the most common sexually transmitted infections in the United States (U.S.) and a known cause in cancers of oropharyngeal, cervical, vulvar, cervical, penile and anal sites (Vollrath, Thul, & Holcombe, 2017). According to the Centers for Disease Control and Prevention (2017), about 79 million Americans are currently diagnosed with HPV and 14 million become newly diagnosed each year. There are approximately 19,400 women and 12,100 men that are affected by cancers that relate to HPV (Centers for Disease Control and Prevention, 2017). Fortunately, there is a capable vaccine that will aid in protection from certain strains of HPV, specifically those strains that are most commonly associated with cancer. The most effective time to administer and recommend this vaccine is to children around the age of 11 or 12 (Centers for Disease Control and Prevention, 2016). The HPV vaccine first made its debut about a decade ago and still presents as a challenge today for vaccine uptake in the recommended population (Vollrath, Thul, & Holcombe, 2017). This challenge has been addressed by the Centers for Disease Control and Prevention and Healthy People 2020 with initiatives to help increase HPV vaccination rates.

There is evidence that supports a decrease in HPV prevalence since the HPV vaccine was licensed and recommended by the CDC eight years ago (Oliver, Unger, Lewis, McDaniel, Gargano, Steinau, & Markowitz, 2017). In the age group of 14-19 year olds, these HPV types decreased from 11.5% in 2003-2006 to 3.3% in 2011-2014 (Oliver, Unger, Lewis, McDaniel, Gargano, Steinau, & Markowitz, 2017). There is a constant battle with vaccination rates for children in the U.S., as none of the recommended vaccinations determined by the CDC have ideal coverage among children. However, the human

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papillomavirus (HPV) vaccination, has one of the lowest vaccination adherence rates in the pre-adolescent and adolescent population. According to the CDC, 63% of teen girls and 50% of teen boys in the U.S. have started the HPV vaccine series by having received one dose of the two required doses for completing the series (Centers for Disease Control and Prevention, 2017). Kentucky rates for the first HPV vaccination in 2015 for females were 57.4% and males were 34.8% (Reagan-Steiner, Yankey, Jeyarjah, Elam-Evans, Curtis, MacNeil, Markowitz & Singleton, 2016). Healthy People 2020, lists a goal of HPV vaccination rates in both females and males to a target of 80% (Healthy People 2020, 2017). Compared to the uptake of other vaccinations recommended at the same age, the percentage of those receiving the HPV vaccination is comparatively low. Eighty-six percent of teens received Tetanus, diphtheria and pertussis (Tdap) and eighty one percent received the meningococcal vaccine (Centers for Disease Control and Prevention, 2017). If an 80% rate of adolescent HPV vaccination is accomplished that could potentially prevent 53,000 or more cases of cervical cancer and other cancers related to HPV (Gable, Eder, Noonan, & Feemster, 2016). It is apparent that there is room to improve the HPV percentages as Tdap and meningococcal vaccines are recommended around the same time the HPV vaccine series should begin.

There are many reasons that contribute to low vaccination rates including parental hesitancy, provider practices, and vaccine accessibility (Gable, Eder, Noonan, & Feemster, 2016). The CDC released new guidelines in 2016 that recommend children as young as 9 years old and up to their 15th birthday can receive two doses of the HPV vaccine at least six months apart rather than the three doses that were previously recommended (CDC, 2016). It was determined by available immunogenicity evidence that two doses given 6-12 months apart will provide equivalent efficacy to three doses if initiated and completed before the

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child turns 15 years old (Meites, Kempe, & Markowitz, 2016). The change to the recommendation provides effective and lasting protection for adolescents while having the potential to increase coverage rates.

Lack of primary care healthcare providers fully supporting and encouraging the HPV vaccine is a barrier in developing better uptake of the HPV vaccination (Gable, Eder, Noonan, & Feemster, 2016). Strong provider recommendations to the HPV vaccine can reflect up to a 5-fold increase of decisions made by parents to have their child vaccinated (American Academy of American Physicians, 2017). There is some resistance from parents, but most depend on advice given from the provider (Gable, Eder, Noonan, & Feemster, 2016). Evaluation of vaccination rates in primary care practices is needed to better determine status of HPV vaccination in a select patient population and purpose methods of intervention to increase HPV vaccination rates.

Purpose

The purpose of this study was to identify current HPV vaccination rates at a pediatric primary care clinic in Kentucky and to evaluate pediatric primary care provider perspectives of the barriers and facilitators for the HPV vaccine for children ages 11-14. Learning more about the facilitators and barriers of HPV vaccinations can help guide recommendations to the participating clinic with a goal to increase completion rates. This study will examine pediatric primary care providers' opinions, facilitators and barriers to the HPV vaccination in children ages 11 to 14. Determining current rates and receiving feedback of providers perceptions will be a factor in determining what can help increase HPV vaccination adherence in their healthcare setting.

Initial objectives for this project included the following:

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- Identify self-reported barriers and facilitators among pediatric primary care providers for administering and completing HPV vaccination series in children 11-14 years old.
- Identify and compare HPV rates of a Kentucky pediatric primary care office to national rates, Kentucky rates and Healthy People 2020 goals

Methods

Procedure and Sample

This project included sending out a survey to providers in a pediatric primary clinic in the Southeastern United States that included qualitative and quantitative questions with additional options for opinions and comments. This project also included a retrospective chart review at the same pediatric primary care clinic. This charts that met inclusion criteria were reviewed for reviewed for: age, gender, ethnicity, insurance type, provider type responsible for the visit, number of HPV vaccine doses, HPV vaccination dates, dates of other vaccinations common for the age range, and if there was a refusal for the HPV vaccination.

The retrospective chart review was completed by randomly selecting 100 patient charts. The retrospective medical record review sample was obtained by using ICD-10 codes and CPT codes which identified well child visits through Allscripts AEHR. The review took place in a Southeastern United States pediatric primary care clinic. Inclusion criteria included: ages 11 to 14 at the time of the well-child visit, and must have documentation of the well child visit in the electronic medical record between the dates of October 1, 2016 and October 31, 2017. The medical records were reviewed for: age, gender, ethnicity, insurance type, provider type responsible for the visit, number of HPV vaccine doses, HPV vaccination dates, dates of other

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vaccinations common for the age range such as Tdap and meningococcal, and if there was a refusal for the HPV vaccination.

The instrument used to carry out the survey portion of the study was modified from its original version with permission from the project director for the study Human Papillomavirus (HPV) Vaccination in Kentucky: An Environmental (Appendix A) and was administered using Qualtrics. The survey included 24 questions and took about 15 minutes to complete. The participants of the survey consented to take the survey and reserved the right to not answer questions they did not wish. Answers to the survey were anonymous and names did not appear or were used on research documents or in presentations or publications. The survey was open for 4 weeks and sent out by a designated employee of the clinic via email through the clinic listserv and a reminder email was sent two weeks later before the survey ended.

All providers at the clinic (including physicians and nurse practitioners) were invited to participate in an online survey. The survey was disseminated via a link that was emailed to providers and generated by Qualtrics. Inclusion criteria included the ability to read and write English and a pediatric primary care provider in the setting where the study was conducted.

The total sample from the retrospective chart review included 100 adolescents between the ages 11-14 who were eligible for the HPV vaccine and visiting for a well child exam. Random sampling was used to determine the 100 charts that would be used for the review.

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Data collection

Approval was obtained from the Medical Institutional Review Board (IRB) of the University of Kentucky. The retrospective chart review data from well child medical records were from visit dates between October 1 2016 and October 31, 2017.

The survey for this project was administered by Qualtrics and an anonymous link was included on the email invitation that was sent out to providers. The email that included the anonymous link was sent to providers by a designated clinic employee to ensure the PI would not have contact with the participants. To protect against breaches in confidentiality and invasion of privacy for the providers there was no questions asked that could identify individuals.

Data Analysis

Data analysis was conducted using IBM Statistical Software Analysis Package (SPSS) and the Statistical Analysis Software (SAS) System. Descriptive statistics were used to summarize the demographic characteristics of the study sample for the chart review and the survey sample. Variations in vaccines rates based on demographic characteristics were examined. Major themes were summarized for the responses to the open-ended questions regarding barriers and facilitators of initiation and completion of HPV vaccinations.

Results

Retrospective Chart Review

In the total sample (Table 1) the average age of patients was 12.8 years (SD 1.3). Slightly more than half were male (53%) and the rest were female (47%). Majority of the patients were white (48.5%) followed by African American (35.4%), Asian (15.2%), Hispanic (15.2%) and unreported (1%). Patients were mostly insured by the government

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(67%) then followed by private insurance (29%) and uninsured (4%). At the pediatric primary care clinic 56% of patients received their Tdap and did not receive the first dose of the HPV series. However, for those patients that received the Tdap and not the first dose of the HPV series 45% had documentation of the refusal. Total compliance for patients who were due for their second HPV vaccine was 18.6% with 11 of 59 patients completing their series and 6 of them were not yet due for the vaccine but received it anyway.

Provider Survey

In the total sample (Table 2) of the survey participants (n=9) and an estimated 53% response rate, the average age of providers was 52.22 years (SD=13.31) and the average time of the current role for providers was 15 years (SD=15.29). Majority of the participants were female (66.7%) followed by males (33.3%). All of the participants classified themselves as white (100%) and non-Hispanic (100%). Over three quarters of the respondents were physicians (77.8%). When asked, “What are following issues most responsible for low rates of HPV vaccination among females 11-14 in your healthcare setting?” all participants answered, “Parent perception that there is no need to vaccinate girls who are no sexually active.” However, when asked the same question about males the participants answered, “that boys are at low risk for HPV-related cancers” (88.89%) and “parent belief that girls and women should be the ones to take preventative steps against HPV-related diseases such as cervical cancer” (11.11%). The majority of the providers said that they start recommending patients initiate the HPV vaccine series at age 11-12 years (77.8%). When asked about their estimation of “what percentage of HPV vaccination eligible patients ages 11-14 in your clinic have completed the 2-dose series?” majority of providers responded with 25%-50% (55.6%), followed by between 51%-75% (22.2%), between 76%-100% (11.1%) and one respondent was undetermined.

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There were a number of questions that were select all that apply and are described in the next paragraph. When asked “how do you present the HPV vaccine when it is offered” (Table 3) 8 responders (30.8%) chose “as a vaccine that prevents HPV cancer,” 6 responders (23.1%) chose “As a vaccine that is part of the adolescent platform of vaccinations,” 4 responders (15.4%) chose “as a vaccine that is due,” 3 responders (11.5%) chose “as an optional vaccine,” 2 responders (7.7%) chose as a vaccine that prevents STIs/STDs,” and 3 responders (11.5%) chose “other, please specify,” and provided a response. Providers were asked about facilitators and barriers to promoting the vaccine and their answers and percentages are described below in Table 4 and 5. When asked, “what are the most common reasons for HPV vaccine refusal in your healthcare setting?” 26.7% of providers chose “unwillingness to add a vaccine that isn’t required to immunization schedule,” 20% chose “concerns about the vaccine’s safety,” 20% chose “belief that the child is too young,” 20% chose lack of knowledge about HPV related diseases and 13% chose “fear of riskier sexual behaviors/early initiation of sexual activity.” Fifty percent of providers responded that they provide educational materials for patients and parents to review when they have vaccine refusals for HPV and 38.9% stated that they document and make vaccine recommendation at the next visit. And finally, when asked if “your practice or clinic uses any particular methods of recall or reminders to improve HPV vaccination series completion,” 33.3% answered that they use phone call reminders, 33.3% answered no, 8.3% answered mailing of reminder cards, and 25% responded with other and supplied a response.

The themes of the open response questions were summarized and the following themes were most common: optional vaccine, time restraints, parental knowledge, staff education, and misconceptions. Providers provided some insight into the barriers by responding to open ended questions within the survey. Some of the comments they made about barriers for HPV vaccines

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included one provider saying “we are a teaching clinic so nurses, medical students, and residents are often the front line in contact with the patients before the attendings see the patients. If misinformation or a weak recommendation is given before we go in, it makes it a little harder to get patients to agree” and multiple providers mentioning time constraints.

Providers also made some strong comments about the facilitators for HPV vaccines in their clinic including one provider mentioning “We have nurses and providers that feel strongly about giving the vaccine. We have good educational information/handouts/resources provided by our vaccine reps and online that help our recommendation.”

Provider recommendations for HPV vaccines within the clinic included some great insight including “we are working on educating the nurses, med students, residents, and attendings on the importance of the vaccine, what it prevents, how it is more effective when given at a younger age, and how to present it in the middle of the other required vaccines at that visit so that it’s importance is stressed,” as well as “make sure that nursing staff across the board is telling parents about the vaccine when they work the patient up.”

Discussion

HPV vaccine rates have risen within the last decade, but there is still some improvement needed to meet the goal rates of Healthy People 2020. Also, the gap of rates between males and females are narrowing demonstrated by a six-percentage increase in males between 2015 and 2016 (Centers for Disease Control and Prevention, 2018). This study aimed to identify barriers and facilitators of the HPV vaccine and to evaluate HPV vaccination rates at a single clinic. There is evidence that discusses how provider recommendations play a big role for parental decisions about HPV vaccines. Overall, this project demonstrated similar results to what is reported by the CDC, which states that 43.3% of adolescents are up to date with their HPV vaccination series

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(Walker et al, 2017). Providers gave insight into important perspectives about barriers and facilitators associated with initiating and completing the HPV series. The coverage of the initiation (at least one dose) of the HPV series remains 22-28% lower than the other immunizations that are given at the ages of 11-12 and identifies that there is opportunity for improving practices (Walker et al, 2017). Data from the survey provided more insight into the underestimation providers have of the affects of their recommendations on parental decisions about the HPV vaccine. Putting the focus on providers could be beneficial because they do play a huge role in vaccinations. The results from this study were similar to findings in other studies that discovered a high number of missed opportunities for HPV vaccinations. By following the new guidelines there will hopefully be an increase in the number of completion rates for the HPV vaccine. After the addition of the new guideline, there was a 6.3% higher national rate than the 3 dose series when the new guidelines were applied retrospectively. Findings from this study also suggest that there are some opportunities that could be changed and potentially increase the initiation and completion rates for the HPV vaccine.

Limitations

This project has several limitations. This study was performed at a single pediatric primary care clinic therefore the findings cannot be generalized to larger populations. The time constraints of the study limited data collection. The sample from the provider survey was small so results should be interpreted with this in mind. Also, the study sample of the chart review was performed retrospectively and there is no way to ensure patient information was entered into the medical record correctly or there were not data omissions.

Implications for Practice

When collecting data some things that were noticed is providers were recommending the HPV vaccine in different ways, at different times and from different people. While this is not wrong, there are more than one way but it should be consistent. These vaccinations should be recommended the same way at every visit for children that are eligible. We cannot control what patients or parents choose, but increasing the expectations of presenting the HPV vaccination could help increase rates. High HPV vaccination coverage is possible in the United States. My recommendation for this clinic is to incorporate a policy practice change within the clinic to make a tailored intervention and to establish an appropriate time to re-evaluate this intervention. Some ideas would be to create a universal presentation of vaccines that present HPV vaccines as a cancer prevention vaccine recommended by the CDC (Centers for Disease Control and Prevention, 2018).

According to the literature there are many different interventions that have been successful for HPV vaccination challenges. Some ways this could be achieved is by taking advantage of every health-care encounter, including acute-care visits, to assess every adolescent's vaccination status can help minimize missed opportunities (Centers for Disease Control and Prevention, 2018). Potential strategies include using vaccination prompts available through electronic health records or checking local and state immunization information systems to assess vaccination needs at every encounter (Centers for Disease Control and Prevention, 2018). Series completion also can be promoted through scheduling appointments for their next doses before patients leave providers' offices after receipt of their first HPV vaccine doses and with automated reminder-recall or

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text messaging systems (Centers for Disease Control and Prevention, 2018). My study findings identified that providers used different methods to remind patients of their next visit or vaccine and this should be done the same way consistently with all providers.

One of the recommendations made by the American Academy of Pediatrics is to distinguish a HPV champion within the office. The responsibility of the HPV champion is to be a resource for healthcare provider education and provide changes that can be made in practice to help improve vaccination rates. One of recommended changes is to incorporate a daily huddle at the beginning of the day to incorporate immunization planning. Having a designated staff member to serve as a vaccine coordinator will have dedicated time to review the next day's patients to identify any missing immunizations. During the huddle a list of patients and immunizations needed should be listed for the day.

It is important to make sure that all clinic staff, including those answering the phone and making appointments, are communicating the same way about HPV vaccine. Put the focus on cancer prevention and provide talking points for the staff. The CDC offers tip sheets for conversations and addressing the HPV vaccine that could be shared with everyone in the clinic and those entering the clinic to ensure universal conversations and recommendations. As evidenced from the study, providers and nursing feel strongly about the HPV vaccine and providers talk about nursing doing great with how they talk with patients, but should be done universally. Further research is needed to assess if an intervention would be beneficial to the clinic at a later date. This study demonstrated provider opinions of barriers and facilitators to the HPV vaccine and HPV rates at the clinic, however, it does not measure a change of use into practice. Future studies should consider doing something similar to what I did and implementing a tailored intervention within the same

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clinic to measure HPV rates before and after the implementation by doing a retrospective chart review. This would be a great opportunity for future DNP students as a QI project.

Conclusion

Providers provided important perspectives about barriers and facilitators associated with initiating and completing the HPV series. As evidenced from their survey, majority of providers recommend HPV vaccination starting at ages 11-12 and find parental resistance and the fact that they do not “have” to get the HPV vaccine a main barrier to initiation and completion of the HPV series. The CDC, mentions that “parents trust providers opinions more than anyone else’s when it comes to immunizations” and this is important for providers to remember so they don’t underestimate their role in vaccination rates. Also, as evidenced from the survey providers felt that they have good resources and educations materials and can still receive refusals. It is great that providers feel they have support for obtaining resources and to support their recommendations of HPV vaccine to families. A Future QI project should consider implementing an intervention within the same clinic with a goal of improving vaccination rates based upon the needs of the clinic.

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Table 1. Demographic and clinical characteristics of the study sample (*N* = 100)

| Demographic and clinical characteristic | Mean (SD) or n (%) |
|---|--------------------|
| Age (years) | 12.8 (1.3) |
| Gender | |
| Female | 47 (47%) |
| Male | 53 (53%) |
| Race | |
| White | 48 (48.5%) |
| Black | 35 (35.4%) |
| Asian | 15 (15.2%) |
| Unreported | 1 (1.0%) |
| Hispanic | |
| Yes | 15 (15.2%) |
| No | 84 (84.8%) |
| Insurance | |
| Medicare | 0 (0%) |
| Medicaid | 67 (67.0%) |
| Private | 29 (29.0%) |
| Uninsured | 4 (4.0%) |
| HPV Number of Doses | |
| 0 | 41 (41.0%) |
| 1 | 31 (31.0%) |
| 2 | 19 (19.0%) |
| 3 | 9 (9.0%) |
| Provider type seeing patient | |
| Nurse Practitioner | 58 (58%) |
| Physician Assistant | 6 (6.0%) |
| Physician | 20 (20%) |
| Resident Physician | 16 (16%) |

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Table 2. Survey demographics and characteristics (N= 9)

| Demographic and clinical characteristic | Mean (SD) or n (%) |
|---|--------------------|
| Age (years) | 52.22 (13.31) |
| Years in current provider role | 15 (15.29) |
| Gender | |
| Female | 6 (66.7%) |
| Male | 3 (33.3%) |
| Race | |
| White | 9 (100%) |
| Hispanic | |
| Yes | 0 (0%) |
| No* | 8 (100%) |
| Provider type seeing patient | |
| Nurse Practitioner | 2 (22.2%) |
| Physician Assistant | 7 (77.8%) |
| Physician | 0 (0%) |
| Resident Physician | 0 (0%) |

*Note, one person decided not to answer this question

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Table 3. Frequency of how providers present HPV vaccine

| How do you present the HPV vaccine when it is offered? (Select all that apply)* | | |
|--|---------------|-------------|
| | Frequency (n) | Percent (%) |
| As an 'optional' vaccine | 3 | 11.54 |
| As a vaccine that is due | 4 | 15.38 |
| As a vaccine that prevents STIs/STDs | 2 | 7.69 |
| As a vaccine that is part of the adolescent platform of vaccinations (tetanus, diphtheria, and pertussis (Tdap), meningococcal, annual influenza, etc) | 6 | 23.08 |
| As a vaccine that prevents HPV cancer | 8 | 30.77 |
| Other, please specify* | 3 | 11.54 |

*Note, open response questions were coded and themes were analyzed

*Note, the participants were allowed to pick more than one answer

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Table 4. Frequency of barriers to the HPV vaccine

| Which of the following are barriers in your healthcare setting to providing the HPV vaccine? (Select all that apply)* | | |
|--|---------------|-------------|
| | Frequency (n) | Percent (%) |
| The cost of the vaccine in your healthcare setting | 0 | 0 |
| The time it takes to discuss the HPV vaccination during an office visit | 1 | 12.5 |
| Healthcare provider concern about the vaccine's safety | 0 | 0 |
| Keeping the vaccine in stock in the healthcare setting | 1 | 12.5 |
| Storing the vaccine (e.g. refrigeration, space) | 1 | 12.5 |
| Other, please specify* | 5 | 62.5 |

*Note, open response questions were coded and themes were analyzed

*Note, the participants were allowed to pick more than one answer

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Table 5. Frequency of facilitators to the HPV vaccine

| Which of the following are facilitators in your healthcare setting to providing the HPV vaccine? (Select all that apply)* | | |
|---|---------------|-------------|
| | Frequency (n) | Percent (%) |
| Support and training from professional organization(s) | 4 | 23.53 |
| Vaccine for Children (VFC) program participation | 8 | 47.06 |
| Community support of HPV vaccine | 3 | 17.65 |
| Other, please specify* | 2 | 11.76 |

*Note, open response questions were coded and themes were analyzed

*Note, the participants were allowed to pick more than one answer

Appendix A

Provider Survey

1. Are you a Pediatric Primary Care Provider?
 Yes
 No

2. What is your role in your practice setting?
 Nurse Practitioner
 Physician
 Physician Assistant
 Resident Physician

3. How many years have you been in your current role?

4. What is your gender?
 Female
 Male
 Other

5. What is your age in years?

6. Please specify your race.
 White or Caucasian
 Black or African American
 Asian
 American Indian/Alaska Native
 Native Hawaiian or Other Pacific Islander
 Other, please specify _____

7. Please specify your ethnicity.
 Hispanic
 Non-Hispanic
 Other, please specify _____

8. In 2016, the HPV vaccine completion rate for adolescent females in Kentucky was 39.7% compared to the US rate of 49.5%. In your opinion, which of the following issues are most responsible for the low rates of HPV vaccination among **females** 11 to 14 in your healthcare setting?
 Perceived low risk for cervical and other HPV-related cancers

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- Parent perception that girls are at low risk for genital warts
 - Parent perception that there is no need to vaccinate girls who are not sexually active
9. What are other reasons for the low rates of HPV vaccination among **females** 11 to 14?
10. In 2016, the HPV vaccine completion rate for adolescent **males** in Kentucky was 28.5% compared to the US rate of 37.5%. In your opinion, which of the following issues are most responsible for the low rates of HPV vaccination among **males** 11 to 14 in your healthcare setting?
- That boys are at low risk for HPV-related cancers
 - Parent perception that boys are at low risk for genital warts
 - Parent belief that girls and women should be the ones to take preventative steps against HPV-related diseases such as cervical cancer
11. What are other reasons for the low rates of HPV vaccination among **males** 11 to 14?
12. At what age do you start recommending patients initiate the HPV vaccine series?
- 9-10 years old
 - 11-12 years old
 - 13-14 years old
 - 14+ years old
13. How do you present the HPV vaccine when it is offered? (Select all that apply)
- As an 'optional' vaccine
 - As a vaccine that is due
 - As a vaccine that prevents STIs/STDs
 - As a vaccine that is part of the adolescent platform of vaccinations (tetanus, diphtheria, and pertussis [Tdap], meningococcal, annual influenza, etc.)
 - As a vaccine that prevents HPV cancer
 - Other please specify _____
14. Which of the following are barriers in your healthcare setting to providing the HPV vaccine? (Select all that apply)
- The cost of the vaccine in your healthcare setting
 - The time it takes to discuss the HPV vaccination during an office visit
 - Healthcare provider concern about the vaccine's safety
 - Keeping the vaccine in stock in the healthcare setting
 - Storing the vaccine (e.g. refrigeration, space)
 - Other, please specify _____
15. Which of the following are facilitators in your healthcare setting to providing the HPV vaccine? (Select all that apply)

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- Support and training from professional organization(s)
 - Vaccines for Children (VFC) program participation
 - Community support of HPV vaccine
 - Other, please specify _____
16. Which of the following are barriers to you promoting the vaccine? (Select all that apply)
- Difficulty discussing sexual health with patients/parents
 - Concern that patients will not complete the HPV vaccine series
 - I'm not prepared to discuss the vaccine or HPV-related diseases
 - My staff and I are not adequately trained on the vaccine or HPV-related diseases
 - Other, please specify _____
 - None, I have no barriers
17. What are the most common reasons for HPV vaccine refusal in your healthcare setting? (Select all that apply)
- Inadequate insurance coverage/Inability to pay
 - Lack of knowledge about HPV-related diseases
 - Concerns about the vaccine's safety
 - Unwillingness to add a vaccine that isn't required to immunization schedule
 - Fear of riskier sexual behaviors/early initiation of sexual activity
 - Belief that child is too young to be vaccinated
 - Other, please specify _____
18. How do you respond to HPV vaccine refusal? (Select all that apply)
- Document and do not recommend
 - Document and make vaccine recommendation at next visit
 - Provide educational materials for patient/parents to review
 - Other, please specify _____
19. Does your practice or clinic use any particular methods of recall or reminders to improve HPV vaccination series completion (i.e., 2 doses)? (Select all that apply)
- Yes, mailed reminder cards
 - Yes, text reminders
 - Yes, phone call reminders
 - Yes, other method
 - No
 - Other, please specify _____
20. In your estimation, what percentage of HPV vaccination-eligible patients ages 11 to 14 in your clinic have completed the 2-dose series?
- Less than 25%
 - Between 25%-50%

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- Between 51%-75%
- Between 76%-100%
- Unable to determine

21. Describe the barriers in your health care setting that impact HPV vaccination:
22. Describe the facilitators in your health care setting that impact HPV vaccination:
23. What changes would you recommend in your health care setting to help eliminate barriers to HPV vaccination and increase HPV vaccination rates:

*This survey was modified from the original version in which permission was provided from the original authors and study: Wilburn, A., Vanderpool, R., Knight, J., & Ever, M. Human Papillomavirus (HPV) Vaccination in Kentucky: An Environmental Scan. Markey Cancer Center and College of Public Health.