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# Using Social Marketing Theory as a Framework for Understanding and Increasing HPV Vaccine Series Completion Among Hispanic Adolescents: A Qualitative Study

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## Abstract

HPV vaccine series completion rates among adolescent Hispanic females and males (~39 and 21 %, respectively) are far below the Healthy People 80 % coverage goal. Completion of the 3-dose vaccine series is critical to reducing the incidence of HPV-associated cancers. This formative study applies social marketing theory to assess the needs and preferences of Hispanic mothers in order to guide the development of interventions to increase HPV vaccine completion. We conducted 51 in-depth interviews with Hispanic mothers of adolescents to identify the key concepts of social marketing theory (i.e., the four P's: product, price, place and promotion). Results suggest that a desire complete the vaccine series, vaccine reminders and preventing illnesses and protecting their children against illnesses and HPV all influence vaccination (product). The majority of *Completed* mothers did not experience barriers that prevented vaccine series completion and *Initiated* mothers perceived a lack of health insurance and the cost of the vaccine as potential barriers. Informational barriers were prevalent across both market segments (price). Clinics are important locations for deciding to complete the vaccine series (place). They are the preferred sources to obtain information about the HPV vaccine thus making them ideal locations to deliver intervention messages, followed by television, the child's school and brochures (promotion). Increasing HPV vaccine coverage among Hispanic adolescents will reduce the rates of HPV-associated cancers and the cervical cancer health disparity among Hispanic women. This research can inform the development of an intervention to increase HPV vaccine series completion in this population.

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Compliance with Ethical Standards

**Conflict of Interest** The authors report no conflicts of interest.

**Keywords**

HPV; Social marketing theory; Hispanic women; Intervention development; Vaccine completion

## Introduction

The human papillomavirus (HPV) vaccine is recommended by the Advisory Committee on Immunization Practices for females and males who are between 9 and 26 years old [1]. It is a 3-dose series that should be administered over six-months [1] and provides protection against certain cancer-causing HPV types including 16, 18, 31, 33, 45, 52 and 58 [1]. These HPV types can cause cervical, vulvar, vaginal, anal and oropharyngeal cancer in females; and penile, anal and oropharyngeal cancer in males [1–3]. The incidence of HPV-associated oropharyngeal and anal cancer in the US is currently on the rise [4, 5]. Further, a cervical cancer disparity among Hispanic women in this country still exists [6].

Vaccinating against HPV will significantly reduce the incidence of HPV-associated cancers. As such, the *Healthy People 2020* goal for HPV vaccine series completion is 80 % among adolescents between the ages of 13 and 17 [7]. However, vaccine completion rates among Hispanic females and males between the ages of 13 and 17 in 2014 were an estimated 39.3 and 21.1 % [8]. These low vaccine series completion rates suggest the need to develop effective interventions that promote completion among Hispanic adolescents.

Social marketing is a conceptual framework that can be used to develop an intervention to increase HPV vaccine series completion. This framework applies concepts and techniques from commercial marketing to develop interventions [9, 10]. The fundamental principles of this framework are known as the marketing mix or more commonly referred to as the four Ps: product, price, place and promotion [9, 11]. The benefits of a given behavior are the *product*. The potential costs associated with the behavior are the *price*. The location where the behavior will occur and individuals or entities that provide information or other goods that facilitate the behavior are the *place*. The important features or components of designing and delivering messages about the behavior is the *promotion*. To date, social marketing has been applied to maintaining a healthy diet [12], increasing physical activity [13], and breastfeeding [14]. However, it has not yet been applied to understand and assess what factors influence Hispanic mothers' decision to have their adolescent child complete the HPV vaccine series. Therefore, the purpose of the current study is to identify the key elements of social marketing (i.e., the four Ps: product, price, place and promotion) that are necessary for planning and implementing an HPV intervention to increase vaccine series completion in Hispanic adolescents.

## Methods

We employed a qualitative research design of in-depth interviews because they allowed us to gain a deeper understanding of Hispanic mothers' culturally specific values, attitudes, and beliefs related to HPV vaccine series completion using a social marketing framework. In-depth interviews were chosen, since we were collecting information about personal history, perspectives and experiences [15]. Using Grier and Bryant's [9] definitions of the 4 P's, we

developed operational definitions for product, price, place, and promotion as related to Hispanic mothers having their adolescent children complete the HPV vaccine series.

## Participants

From May 2014 through January 2015, we conducted 51 in-depth interviews with Spanish-speaking Hispanic mothers of adolescent girls and boys aged 11 to 17. We recruited a convenience sample of participants from community sites including community centers and clinics in Houston, Texas. Eligibility criteria included identifying as Hispanic or Latino, speaking Spanish as a primary language and having a child between 11 and 17 years of age who had initiated the HPV vaccine series. We included mothers whose child had initiated, but not completed the HPV vaccine series along with mothers whose child had completed the vaccine series in order to identify the perspectives of both and increase our knowledge of the behavior [16]. Participants were classified according to two market segments, based on their HPV vaccination status: *Initiated*: daughter or son had received at least one dose of the HPV vaccine and *Completed*: daughter or son had completed the three-dose HPV vaccine series. Our sample consisted of 16 mothers of *Initiated* girls; 12 mothers of *Initiated* boys; 16 mothers of *Completed* girls; and 7 mothers of *Completed* boys.

## Procedure

All of the procedures we describe were approved by the Institutional Review Board at the University of Texas Health Science Center-Houston (protocol number: HSC-SPH-13-0594). Women were approached in Spanish and given a brief oral description of the study. We explained the purpose of the study, eligibility criteria, length of the interview and incentive amount. Those who met eligibility criteria and were interested in participating, were consented. Participants completed a brief demographic survey. Then, the interviews were conducted and audio-recorded by female research staff. Each interview took approximately 20 min to complete. Mothers were compensated $20 for their participation.

## Interview Instrument and Data Analysis

Based on a literature review, we created interview guides for mothers for each different market segment. The interview guides consisted of open-ended questions designed to elicit responses related to product, price, placement and promotion [9, 17]. Questions included: "*What made*/would make you decide to have your child complete the HPV vaccine series?" and "What are the positive effects of having your child complete the HPV vaccine series?" (Product); *"What made*/would make it difficult for you to have your child complete the HPV vaccine series?" and "*What information did*/would you need before deciding to have your child complete the HPV vaccine series?" (Price); "*Where did you first hear about the HPV vaccine?"* (Place); and "*If you needed it, where did*/would you look for information about the HPV vaccine?" (Promotion). The majority of the interview questions were similar across the market segments, with differences related to the child's HPV vaccine status (i.e., *Initiated* or *Completed*).

Interviews were transcribed verbatim by a transcriptionist. We followed Middlestadt and colleagues' recommendations for collecting and analyzing qualitative elicitation interview data [16]. We employed directed qualitative content analysis [18] to classify and rank the

responses for each question. The primary author read through all of the transcripts several times to obtain a sense of the data. Then, she read the transcripts line-by-line, highlighting the words and making notes of words that captured the relevant themes discussed for each key concept (i.e., the 4 P's). Themes were created by first, assigning concepts to key words or phrases. Then the concepts were sorted into categories and organized into themes. Similar concepts that were grouped together were named with a particular theme. Through this process, a list of codes for each theme emerged. The interview transcripts were then independently coded for themes by three coders, including the primary author. Transcripts were coded in groups by child's gender and HPV vaccination status (e.g., group 1: all mothers of girls who had received one dose of the HPV vaccine). Interrater reliability for theme coding was calculated using the kappa statistic, which exceed 0.79 for all pairs of coders. All discrepancies between the three coders' theme counts were examined, discussed and resolved. Then, we combined the group counts by market segment (i.e., *Initiated* and *Completed*) for each key concepts and calculated the frequencies and percentages for the theme counts were calculated to determine the number of responses mentioned by each market segment.

## Results

Sixty-one percent of participants were 40 year old or older (mean = 42.1; SD = 6.0). Most were married (68.6 %), had not completed high school (78.4 %) and were foreign born (98 %) with 60.8 % reporting being born in Mexico. Only 9.8 % of the children did not have health insurance coverage with 84.3 % being covered by government subsidized health insurance. Regarding age, 21.6 % were between 11 and 12 years old, 49 % between 13 and 15 years old and 29.4 % between 15 and 17 years old.

### Product

The desire to complete the vaccine series emerged as the most frequently cited reason mothers in the *Initiated* market segment would have their child complete the vaccine series. As a mother stated, "I want him to complete the series because it is good for him and since he's had two doses already, he needs to complete the series." Other reasons cited included: receiving vaccine reminders; to prevent illness; to protect their child from illness; speaking with the doctor about vaccinating; they had already decided to vaccinate; knowing that vaccinating is necessary; seeing a television story about a young woman with HPV (Table 1). Mothers in the *Completed* market segment listed fewer responses about what made them decide to have their child complete the vaccine series compared to the *Initiated* group. T*o prevent illness* was the most frequently mentioned reason. One mother stated, "I've heard about many viruses that are transmitted sexually and many things that can happen. So I said to myself that it is better to prevent than to lament." Other reasons mentioned included: to protect their child from illness; speaking with the doctor about vaccinating; a desire to stay current with new health developments for their child; and receiving more information about the vaccine (Table 1).

Mothers in the *Initiated* market segment mentioned ten positive effects/benefits of having their child complete the HPV vaccine series (Table 2). The most frequently cited was: *the*

*vaccine is good for their child's health*. As one mother explained, "The positive effects of completing the series are the same as when I gave him the other two doses. Completing the series will be good for his health." Other reasons mentioned included: the child will be up-to-date with needed vaccinations; to prevent illness; to protect their child from illness; to improve their child's behavior; the vaccine cures cervical cancer; the vaccine cures other illnesses; for better health for the child and for a better future for the child. The *Completed* market segment mentioned fewer benefits of vaccine series completion (Table 2). The most frequently mentioned benefit was: *to prevent illness*. One mother stated, "It is the security of knowing that I don't have to worry about another dose and being certain that she will be well…and that we have prevented HPV." Other benefits included: to protect their child from illness; the vaccine is good for their child's health; to protect child's future partner from HPV that causes cervical cancer; security in knowing that the vaccine will keep child healthy; everything about the vaccine is good; and the vaccine will work as it is meant to.

### Price

Regarding potential costs to completing the vaccine series, *no* was the first and second most mentioned response by *Completed* and *Initiated* mothers, respectively. As one *Completed* mother stated, "No, there were no complications of any kind to completing the vaccine series." Initiated mothers listed the following barriers: no health insurance; not having money to pay for the vaccine; high cost or price of the vaccine; no time to take child to be vaccinated; difficulty vaccinating during the school year; difficulty keeping the vaccination appointment; no transportation; uncertainty about the number of doses the child has received; child not agreeing to be vaccinated; lack of information about the vaccine; child being sick during the clinic visit; and mistrust or discomfort with clinic personnel (Table 3). *Completed* mothers cited the following barriers: no health insurance; no transportation; not having money to pay for the vaccine; high cost or price of the vaccine; difficulty keeping the vaccination appointment; child not agreeing to be vaccinated; child is not strong enough to receive the vaccine; the injection is painful; vaccine not being in stock at the clinic; lack of father's support for vaccination; lack of information about the vaccine; not knowing where the child can be vaccinated; and child is sick during the clinic visit (Table 3).

The *Initiated* market segment mentioned more informational barriers to HPV vaccine completion compared to the *Completed* market segment (13 versus 8). They included: a need for general information about the vaccine. "I would like to have all of the information available about the vaccine." Other informational barriers mentioned were: the number of vaccine doses their child has already received and how many more are needed; the purpose of the vaccine; vaccine safety and side effects; cost of the vaccine; benefits of vaccinating; vaccine dosing schedule; how to ensure that their child receives all doses; what the vaccine prevents; vaccine reminders; information about HPV; where the child can be vaccinated; having child's immunization card (Table 4). *Completed* mothers mentioned the *benefits of vaccinating* most frequently. As one mother explained, "A pamphlet that they gave me at the clinic, where I read all the pros and cons about the vaccine, provided the information I needed." Other informational needs included: vaccine dosing schedule; vaccine safety and side effects; purpose of the vaccine; information about HPV; vaccine reminders; general vaccine information; and seeing that the child does not have a reaction to the vaccine (Table

4). *No informational barriers* was a response given by only 2 *Initiated* mothers and 4 *Completed* mothers.

### Place

The clinic was the place where most mothers in both market segments heard about the HPV vaccine for the first time (Table 5). For *Initiated* mothers this was followed by: the child's school; the television; a friend or a relative. After the clinic, *Completed* mothers reported hearing about the vaccine series: at the child's school; on television; and in the newspaper. There were two *Completed* mothers who had not heard of the vaccine before the interview.

### Promotion

Both market segments prefer to seek information about the HPV vaccine from the clinic (Table 6). The remaining preferred information sources for *Initiated* mothers were: the Internet; the telephone; a community center; and mailed information. The remaining preferred information sources for *Completed* mothers were: the television; the child's school; and a brochure.

## Discussion

### Product

We identified several factors, common to both market segments, which influence the decision to have their child complete HPV vaccine series. The desire to protect their child from illness or prevent illness were two major factors. Speaking with the doctor about vaccination was another and reinforces the importance of doctors in the health decisions that parents make for their children [19, 20]. For *Initiated* mothers, we found that the desire to complete the vaccine series was important. This along with the *Completed* segment's mention of the desire to stay current with new health developments for their children can be incorporated into a single intervention message. We found that vaccine reminders would also help mothers decide to have their child complete the vaccine series. Given the well-established effectiveness of vaccine reminders on vaccination [21–23] they should be included in HPV vaccine completion interventions.

Regarding the perceived positive effects or benefits of having their child complete the HPV vaccine series, both market segments mentioned that the vaccine would protect their child from illnesses, prevent illnesses and that the HPV vaccine is good for their child's health. According to the *Initiated* mothers, completing the vaccine provides an opportunity to educate their child about maintaining good health practices. This novel finding represents a potential motivating factor of vaccine series completion that is not health related. In sum, the findings regarding *product* provide guidance regarding the types of benefits, health-related and non-health related, that should be emphasized by interventions. Future studies might further explore the implicit non-health related reasons for vaccine completion.

### Price

Consistent with existing literature we found that not having health insurance [24], the cost of the vaccine [3, 26], and transportation [27] were perceived barriers (costs) to vaccine series

completion. As such, it is recommended that intervention messages reinforce that fact that there are existing programs (e.g., Vaccines for Children) to cover the cost. Interventions should provide strategies to overcome transportation difficulties, such as informing mothers of mobile clinics that vaccinate outside of elementary schools and other locations around the community. Several potential barriers to vaccine series completion were related to keeping the vaccination appointments. This is a particularly important barrier to address given that the vaccine series completion involves three separate trips to the clinic. According to *Initiated* mothers, uncertainty about the number of HPV vaccine doses their child has received is a potential barrier to series completion. This suggests the need to equip mothers with the efficacy to obtain this information from their child's immunization record or the clinic. Mothers in the *Initiated* market segment also mentioned that their child not agreeing to be vaccinated was a barrier. It is important to provide mothers with the skills to communicate the benefits and importance of vaccination along with how to address their child's concerns.

Comparatively, *Initiated* mothers noted more potential barriers to having their child complete the HPV vaccine series compared to *Completed* mothers. Despite the higher number of potential barriers cited by *Initiated* mothers, "no barriers to vaccine series completion" was the second most frequent response for this group and the most frequent response for *Completed* mothers. This suggests two things: (1) most *Initiated* mothers do not expect to encounter barriers to vaccine series completion and (2) in practice, most mothers do not encounter barriers that prevent completion. Future research might further investigate the perceived vs. experiential (actual) barriers.

Compared to general perceived barriers, we found that informational barriers to vaccine series completion were more prevalent. Some informational barriers that emerged overlapped with previously discussed barriers (e.g., cost, vaccine reminders and number of doses of the vaccine child has already received). The prevalence of informational barriers is supported in the existing literature [27] and suggests a need to disseminate intervention messages that address these barriers. It is recommended that promotional messages discuss or outline common answers to the informational barriers.

## Place

There are five different types of communication methods: intrapersonal, interpersonal, organizational, community and public/mass [28]. Overall, we found that community communication methods are preferred by both market segments. The clinic (community communication method) was, by far, where most mothers in both market segments heard about the HPV vaccine for the first time and made the initial decision to vaccinate. This is supported by previous research [29] and suggests that clinics are likely the best place to convince Hispanic mothers to have their children complete the HPV vaccine series. In addition to confirming clinics as a primary location where mothers decide to have their child complete the HPV vaccine series, we also identified other potential locations. The child's school, another community communication method, emerged as the second best place to encourage these mothers to have their children complete the series. We also identified television (public/mass communication method), friends and relatives (both interpersonal

communication methods) and the newspaper (community communication method). These findings provide guidance regarding potential locations, aside from clinics, which can be used to encourage mothers to think about having their child complete the HPV vaccine series.

### Promotion

Our findings provide needed guidance for interventions regarding which sources Hispanic mothers prefer and trust. While *Initiated* mothers mentioned more preferred information sources compared to *Completed* mothers, by far, both market segments will seek information about the HPV vaccine from the clinic (community communication method); followed by child's school and community center. The Internet, by mail, television and brochures were the preferred public/mass communication methods of promotion. The telephone was the only interpersonal communication method mentioned. While research supports the Internet as a promising information delivery method for the HPV vaccine [30], future research should explore the relative effectiveness of these methods. Some *Initiated* mothers did not know where to seek information unlike *Completed* mothers who appear certain of where to seek information. As such, it is important provide mothers with details and options about where they can go to receive trusted information about the HPV vaccine before or during the dose administrations. Clinic personnel should also be prepared to provide accurate and understandable HPV vaccine information for this population. The use of multiple communication methods to disseminate messages will potentially increase the salience of and reinforce the importance of HPV vaccine completion. In turn, this may lead to higher completion rates in this population.

Limitations of the study should be mentioned. First, our sample consisted of Spanish-speaking Hispanic mothers. Therefore, our finding may not generalize to non-Spanish speaking or non-Hispanic mothers. Secondly, since we employed convenience sampling, there is the potential for selection bias. Additionally, as with all self-report data, there is the possibility that our participants' responses were influenced by social desirability. Finally, there is the possibility of interviewer bias. To minimize the potential effect of interviewer bias, our interviewers received extensive training and we also employed a structured interview guide.

Our findings highlight the importance of removing informational barriers along with the central role of the clinic and clinic personnel in ensuring that adolescent Hispanics complete the HPV vaccine series. We also identified other sources that can be employed to disseminate messages promoting the behavior. This formative research represents the first step in the development of a social marketing theory-based intervention to increase HPV vaccine series completion among Hispanic adolescents.

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## Table 1

Product: What mothers stated made/would make them decide to have their child complete the HPV vaccine series (N = 51)

| | Initiated (n = 28) | Completed (n = 23) | Examples of participant responses |
|---|---|---|---|
| | Frequency (%) | Frequency (%) | |
| Desire to complete the vaccine series | 14 (30.4) | – | He needs all three doses. He is not completely covered yet so I need him to give him the last dose so that he will be covered |
| Prevention | 6 (13.0) | 11 (42.3) | More than anything else I would have her complete the series to prevent that illness |
| Protection for child | 6 (13.0) | 7 (26.9) | More than anything, for a better future for her. We don't know what can happen in the future and I want her to be protected |
| Vaccine reminder | 12 (26.1) | – | A call from the clinic. Because I imagine that since they recommended [the HPV vaccine], then they should keep track and know when the next dose is due. It is my responsibility too, but it is also theirs because they offered and gave the vaccine to my child |
| Speaking with the doctor | 4 (8.7) | 5 (19.2) | [I decided because] the doctor told me that [the vaccine] was necessary for her, my daughter |
| Decision already made to vaccinate | 2 (4.3) | – | Knowing that the first and second doses did not [negatively] affect [my child] and I know that [my child] will be fine with the third dose and will not experience an allergic reaction since it did not happen before, I have already decided to complete the series |
| Desire to stay current with new health developments for child | – | 2 (7.7) | I like to be aware of and take advantage of new advances that come out, when they are of benefit to my children |
| Knowing that vaccinating is necessary | 1 (2.2) | – | I am a responsible person and if I know that [my child] needs three doses [of the vaccine], she has to get [three doses]. If not, the vaccine will not work, and there is not point to vaccinating |
| More information about the vaccine | – | 1 (3.9) | At the clinic, they explained everything to me [about the vaccine] |
| Television story about young woman with HPV | 1 (2.2) | – | I saw a program on television about a young lady who married and because she had not been vaccinated [against HPV], she contracted the virus. I was left thinking that it was better for my daughter to get [the vaccine] |

Responses may not add up to N due to some participants providing multiple responses

## Table 2

Product: What mothers stated are the positive effects of having their child complete the HPV vaccine series (N = 51)

| | ***Initiated*** **(n = 28)** | ***Completed*** **(n = 23)** | **Examples of participant responses** |
|---|---|---|---|
| | **Frequency (%)** | **Frequency (%)** | |
| Vaccine is good for the child's health | 7 (26.9) | 4 (13.3) | By completing the vaccine series, she will be good. She will have good health |
| Being up-to-date with vaccinations | 5 (19.2) | – | Now the series is complete |
| Opportunity to teach child about good health practices | 2 (7.7) | – | I feel that I am giving her a healthier life. She can now take control of her own body and she will know that she should learn about the illnesses that can be prevented |
| Prevention | 3 (11.5) | 11 (36.7) | The vaccine will prevent HPV. I know that she will not be 100 % protected, but it will help her a lot |
| Protection for child | 3 (11.5) | 11 (36.7) | I feel that she is protected from illnesses that may come. She is protected by the vaccines and from illness |
| Improvement in child's behavior | 2 (7.7) | – | His behavior. I believe that [vaccinating] will change his way of thinking and acting. When I gave him the first dose he changed for the good |
| Cures cervical cancer | 1 (3.9) | – | [The HPV vaccine] is good because it will cure cervical cancer and any other illness that she can get. The positive effect is that she is now cured from any illness she can get when, in the future, she has relations with her partner |
| Cures other illnesses | 1 (3.9) | – | [The HPV vaccine] is good because it will cure cervical cancer and any other illness that she can get. The positive effect is that she is now cured from any illness she can get when, in the future, she has relations with her partner |
| Healthy future for child | 1 (3.9) | – | I believe that he will be better in the future |
| Better health in the future | 1 (3.9) | – | I think that he will have a healthier future |
| Protect child's future partner from HPV that causes cervical cancer | – | 1 (3.3) | Firstly, [the HPV vaccine] will prevent him from giving various types of the human papillomavirus to his partner or other people. From what I understand women get cervical cancer from those [HPV] viruses. This is very sad and will be avoided now that more people are being vaccinated |
| Security knowing that the vaccine will keep child healthy | – | 1 (3.3) | My child can now feel secure because he completed the third dose and will avoid an illness in the future |
| Everything | – | 1 (3.3) | I saw that everything was fine, everything was normal |
| Vaccine works as it is said to | – | 1 (3.3) | I said that if [the HPV vaccine] was going to work on him, then okay let's give it to him |

Responses may not add up to N due to some participants providing multiple responses

**Table 3**

Price: What mothers stated would/did make it difficult to have their child complete the HPV vaccine series (N = 51)

| | *Initiated (n=2%)* Frequency (%) | *Completed* (n = 23) Frequency (%) | Examples of participant responses |
|---|---|---|---|
| Nothing | 6(15.0) | 13 (46.4) | No, nothing made it difficult for me |
| Health insurance | 8 (20.0) | 3(10.7) | [My child] not having health insurance. Or waiting until [my child] has health insurance will delay [completing the vaccine series], I think |
| No money to vaccinate | 3 (7.5) | 1 (3.6) | Well, I say that it is the money, the lack of money. Because one would have to pay [for the vaccine] |
| Cost of the vaccine | 2(5.0) | 1 (3.6) | The easiest thing would be if it [the vaccine] were free. Or more accessible [in terms of cost] since [my child] does not have health insurance |
| Having time to vaccinate | 2(5.0) | – | It is difficult for me to take her, but I know that I just need to make the time to take her [complete the series] |
| Difficult to vaccinate during school year | 2(5.0) | – | [My daughter] does not want to miss school. Since the clinic is only open until 4 in the afternoon and she gets out of school at 4, we cannot get to the clinic before it closes |
| No available clinic appointments | 1 (2.5) | – | The difficult thing is that the doctor may not be able to see her, but if the doctor can see her, well it is easy [to vaccinate her] |
| Difficulty keeping vaccination appointment | 2(5.0) | 1 (3.6) | On one occasion we did not have anyone to take us to the clinic and we missed the appointment. But later I made another appointment and that was for the last dose |
| No transportation | 2(5.0) | 2(7.1) | In Virginia they would send me a taxi [to get to the clinic], but not here. If my husband takes me, he cannot go to work |
| Uncertainty about number of doses received | 2(5.0) | – | I did not know that [my child] needed another dose of the vaccine |
| Child not agreeing to be vaccinated | 2(5.0) | 1 (3.6) | I was always cancelling appointments to vaccinate her because she did not want me to take her |
| Child is not strong enough to receive the vaccine | – | 1 (3.6) | She is very thin because she eats very little and I was afraid [to vaccinate] because she is weak. That is the only reason |
| Injection is painful | – | 1 (3.6) | The most difficult thing is that I did not want [my child] to be poked, that is the only thing |
| Vaccine is not in stock | – | 1 (3.6) | One difficult thing was that the clinic where I took [my child] did not have the vaccine |
| Lack of father's support | – | 1 (3.6) | Perhaps not having the support [of my child's father]. But, I do have his support. But that would be the only reason [it would be difficult to complete the series]. But thank God that I did or do have it |
| Lack of information about the vaccine | 1 (2.5) | 1 (3.6) | There isn't much information available. If the nurses give the information to us, we know. But if they don't give it to us, we don't know |
| Not knowing where child can be vaccinated | – | 1 (3.6) | I didn't know where I could get [the vaccine]. Yes, I didn't know where to go [to get it] |
| Child is sick during clinic visit | 1 (2.5) | 1 (10.0) | Oh, [the most difficult thing is] that my daughter is sick because she can't [get the vaccine] if she has a cold and during this allergy season she is likely to [get sick]. This is the only [difficult] thing |
| Mistrust/discomfort with clinic personnel | 1 (2.5) | | The doctor has to say [that my child needs the vaccine]. Well, first I have to go [to the clinic]. When I go to the clinic I have to pay some 20 dollars. Then to have them tell me, They tell you 'No, no [your child] doesn't need [the vaccine]' and I know [my child] does need the vaccine. Why do they offer [the vaccine] if they're not going to keep up with when the three doses are due? And [the staff] should be more polite, because often they |

| | *Initiated (n=2%)* Frequency (%) | *Completed* (n = 23) Frequency (%) | Examples of participant responses |
|---|---|---|---|
| | | | are not. Even if they speak Spanish, they don't want to speak it in front of you |

Responses may not add up to N due to some participants providing multiple responses

**Table 4**

Price: Information mothers needed/would need before deciding to have their child complete the HPV vaccine series (N = 51)

| | Initiated (n = 28) | Completed (n = 23) | Examples of participant responses |
|---|---|---|---|
| | Frequency (%) | Frequency (%) | |
| General vaccine information | 7 (19.4) | 1 (3.0) | Any information available about the vaccine would be good to have |
| Purpose of the vaccine | 4 (11.1) | 4 (12.1) | The doctor and nurse explained [everything about the vaccine to me] very well. Because I didn't want to [vaccinate my child]. Because I didn't understand what it was I asked, 'What is this [vaccine] for?'Then [the doctor] told me about it. Once he explained everything I said, 'Okay, now that I understand, I will give him [the vaccine]' |
| Vaccine safety & side effects/risks of vaccinating | 3 (8.3) | 5 (15.2) | I needed to know what the vaccine was for and what reaction she might have to the vaccine |
| Benefits of the vaccinating | 2 (5.6) | 6 (18.2) | A pamphlet that they gave me at the clinic, where I read all the pros and cons about the vaccine, provided the information I needed |
| Number of doses child has been administered/doses still needed | 5 (13.9) | – | No well because I knew when I we needed to return [to the clinic for the next dose] and every time we went to the clinic I would ask then when she needed the next [dose] |
| Vaccine cost | 3 (8.3) | – | Well the price of the vaccine. Each time I go to the clinic I have to pay 20 dollars because she has CHIP. But they should tell me how much the vaccines cost because otherwise I might not have the money to pay for them |
| Number of doses in the vaccine series & dosing schedule | 2 (5.6) | 6 (18.2) | I did ask the pediatrician if it was the same as the other vaccines and how often my daughter needed it and the pediatrician was the one who told me that my daughter only needed three doses |
| How to ensure child receives all doses | 2 (5.6) | – | By asking for the [vaccine doses], right? I will have to ask [the doctor] to give [the vaccines to my child]. If [my child] is missing two doses, then he has to get [those two doses] |
| None- has information needed | 2 (5.6) | 4 (12.1) | Simply. Every time I go [to the clinic] they give me the same information and that is what I need. It serves as a reminder more than anything that I need [complete the vaccine series] |
| What the vaccine prevents | 2 (5.6) | – | Well I want to know what is good about [the vaccine] and what it prevents. That is what I need to know, because health is something that you can't buy |
| Vaccine reminder | 1 (2.8) | 2 (6.1) | The nurses would always check my daughter's vaccination card each time I brought her to the clinics. Then, they would tell me the date I needed to come back for the next dose. Yes, they reminded me |
| HPV information | 1 (2.8) | 4 (12.1) | The information that I would like to know more about is human papillomavirus |
| Where child can be vaccinated | 1 (2.8) | – | I need to know where they are have the vaccine so that [my child] can complete [the vaccine series] |
| Immunization card | 1 (2.8) | – | All I need is for the doctor to read the vaccines from the immunization card and tell me when my daughter needs a dose of the vaccine |
| Seeing that child does not experience vaccine side effects | – | 1 (3.0) | I wanted to see that there were a more benefits than risks [to vaccinating]. Since not everybody is the same and there are some bodies that don't accept it well and suffer side effects. I saw that my son reacted well to the first dose and so the second dose was easier for me to give him. I said to myself, 'It is much easier for me to give him the next dose now that I know that his body accepted [the one].' That was what helped me the most |

Responses may not add up to N due to some participants providing multiple responses

**Table 5**

Place: Where mother first heard about the HPV vaccine series (N = 51)

| | **Initiated (n = 28)** | **Completed (n = 23)** |
|---|---|---|
| | **Frequency (%)** | **Frequency (%)** |
| Interpersonal communication methods | | |
| Friend | 1 (3.2) | – |
| Relative | 1 (3.2) | – |
| Community communication methods | | |
| Clinic | 25 (80.7) | 19 (79.2) |
| Newspaper | – | 1 (4.2) |
| Child's school | 2 (6.5) | – |
| Public/mass communication methods | | |
| Television | 2 (6.5) | 2 (8.3) |
| No communication method | | |
| Never heard about the vaccine | – | 2 (8.3) |

Responses may not add up to N due to some participants providing multiple responses

**Table 6**

Promotion: Information sources mothers turned/would turn to for information about having their child complete the HPV vaccine series (N=51)

| | **Initiated (n = 28)** | **Completed (n = 23)** |
|---|---|---|
| | **Frequency (%)** | **Frequency (%)** |
| Interpersonal communication methods | | |
| Telephone | 1 (2.9) | – |
| Community communication methods | | |
| Clinic | 21 (61.8) | 22 (73.3) |
| Child's school | 1 (2.9) | 2 (6.7) |
| Community center | 1 (2.9) | – |
| Public/mass communication methods | | |
| Internet | 6 (17.7) | 1 (3.3) |
| Television | – | 3 (10.0) |
| Brochure | – | 2 (6.7) |
| Mail | 1 (2.9) | – |
| No communication method | | |
| Not sure where | 3 (8.8) | – |

Responses may not add up to N due to some participants providing multiple responses